SOUNDER

Volume XI Number One

February 1983

At the turning point

Contents

Soundings

Sounder is written for and by the staff of the Department of Fisheries and Oceans, Pacific Region. Our unofficial motto is "all the news that's fish to print," but we accept photographs and written material about any subject that might interest staff. If any part of any issue deserves a response, don't hesitate to drop us a line. Address it to: Sounder, c/o. Maxine Glover, 6th floor, 1090 West Pender Street, Vancouver, B.C. V6E 2P1

omission

The November 1982 issue of Sounder in mentioning staff changes in the Offshore Division, neglected to include Fishery Officer John Inkpen, who has been promoted to the position of offshore surveillance team leader.

Cover photo: Fisheries patrol vessel headed into dense fog, symbolizing a clear course, a brave ship and an uncertain future.

Letters

To all staff,

The 1982 Lower Mainland United Way Campaign was a success. For the first time in several years, the overall United Way Campaign reached its objective, which this year was $8.6 million. The federal public service section contributed to this success by exceeding their objective by 11 percent. I am, however, most pleased with the response of our Departmental employees who exceeded the 1982 objective of $3,861 by $5,397, for a total contribution of $9,258.

Considering the difficult economic times, I think that this was a most gratifying illustration of the compassion and concern of employees in the Department for less fortunate members of our community.

On behalf of United Way, and the many people who will be helped, I would like to express my sincere thanks to our employees for their very generous response to this worthy cause, and to the branch canvassers who helped make it happen.

Wayne Shinners
Regional Director-General
Fisheries-Pacific

SOUNDER
Newsletter of the Department of Fisheries and Oceans, Pacific Region.

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Sounder is printed eight times a year for the staff of Fisheries and Oceans. Opinions expressed in the Sounder do not necessarily reflect policies of the Department of Fisheries and Oceans. No articles may be reprinted without the editors' permission.

Government of Canada / Gouvernement du Canada
Fisheries and Oceans / Pêches et Océans

At the turning point

"We've got to turn this resource around and start rebuilding it." — Director-General Wayne Shinners

Nineteen eighty-three must inevitably be the turning point for Canada's Pacific fisheries resources. As the Pearse Commission concluded, "If the government seizes the present opportunity to start the process of reform...it will be possible to reverse the current adverse trends and begin to realize the rich potential of our Pacific fisheries resources."

In this first part of a special two-part feature, beginning with a brief assessment by Director-General Wayne Shinners, regional branch directors summarize recent progress and provide an overview of the activities that lie ahead in 1983.

A time for planning and foresight

While the Pearse Commission and its findings may have been the most important event for the Department in 1982, the Canada/U.S. Salmon Treaty will have a far more immediate impact this year, says Director-General Wayne Shinners.

The Salmon Treaty may not be officially ratified for another year, but it will still affect the 1983 fishing season.

"There are Treaty provisions for Canada and the United States to respond, with their 1983 fishing management plans, in a way that is consistent with the thrust of the final treaty," he says.

The basic Treaty principle of equity between the two countries means that managers have a firm handle on the conservation and eventual restoration of certain endangered salmon stocks.

"For the first time, there will be a fixed ceiling on the number of chinook salmon that will be taken. We're talking about a general 25 percent decrease in the number of fish landed."

Regarding the Pearse recommendations, Wayne says that he is not yet certain which ones will be implemented. A long review and consultation process is underway. However, he states that many of the recommendations involving internal administrative changes will be introduced much sooner than those involving resource management.

Wayne expresses disappointment over the delay in the formation of a Habitat Management Branch. Habitat Management remains a division because the Region has been unable to obtain a senior executive position to head the proposed Branch. A new senior management team in Ottawa is reorganizing on a national level, and

Director-General Wayne Shinners.

this, coupled with budget restraint, has delayed the Habitat Management changeover.

In view of the many difficult decisions that lie ahead in 1983, Wayne emphasizes the need for foresight and long term planning.

"To do a good job of protecting and managing the resource, we have to work closely with user groups, but we cannot go on jeopardizing the resource in order to placate one group. Inevitably, the resource will suffer. In the long term, you've done absolutely nothing to protect the well-being of fishermen if you give into their shortsighted goals."

"We've got to turn this resource around and start rebuilding it; not just through SEP, but by better, and unfortunately, hard-nosed management."

Field Services Branch

I think we can all take some pride in the way in which the decentralization of the Field Services Branch is working. The area managers and their staffs are doing an excellent job. This change in structure will continue in 1983, with decentralization of the Habitat Management Division, and this should be complete by June. Under this arrangement, the area managers will have in their divisions qualified Habitat people who will deal with habitat issues at the local level. A small core group, including the Habitat laboratory, will be retained in Vancouver.

Last year we faced restraints in our budget because of the economy. This situation will undoubtedly continue into 1983 and will challenge our innovative talents to find ways of accomplishing more with fewer resources.

We certainly cannot let a review of 1982 go by without some reference to the accomplishments which have been made in our Licencing Division and the improvements to our radio communications system. We will continue to improve the radio system in 1983.

Field Services Director Don Wilson.

We also need to improve the tools with which we manage our salmon fisheries. Stock declines make it increasingly apparent that despite the efforts of our hardworking biologists and managers, improved fishery management strategies must be devised. I am, therefore, pleased that we will be combining our efforts with staff from Research, who will be headed by Frank Bernard. Together with our senior biologists and managers, they will study salmon population dynamics and other techniques.

The area management system employed for the roe herring fishery in 1982 worked very well. This was its second year, and it brought a good deal of order to what has otherwise been a very chaotic fishery. This year, Lloyd Webb has introduced a further innovation: a fixed-quota management system in place of the traditional management-escapement system. This new method should allow a much more stable approach to the marketing of roe and a better planned approach to the fishing activity itself.

There is no question that we are entering new avenues in fisheries management, and some very significant tasks lay ahead of us. We also have a new senior management team in Ottawa (Deputy Minister, Dr. Art May and Assistant Deputy Minister, Gary Vernon). I am sure they are more than ready to greet these new opportunities.

Don Wilson
Director
Field Services Branch

Fisheries Research Branch

In 1982, the name of the Branch was changed to the Fisheries Research Branch. A new Salmon Section was formed, which consolidated salmon biology and population research to address management requirements better. A stock assessment group, consisting of three people, was set up on the 10th floor of 1090 West Pender. The new salmon genetics program was established, and modifications were made to the Rosewall hatchery. We also established a program to study pink salmon in Masset Inlet and completed a successful northern tagging program in cooperation with Field Services.

A new fisheries ecology program was started in the Campbell River estuary, where for the first time the relationship between estuaries and returning adult salmon will be studied. A

workshop was held to discuss results of the long-term multidisciplinary Carnation Creek watershed study. It was shown that while growth and winter survival of juvenile coho were increased, a negative long-term effect on the population occurred.

Our programs in support of SEP continued. Adult sockeye salmon returns to Hobiton, Henderson and Long Lakes were considerably above historic levels, indicating that lake fertilization appears to be a cost-effective means of enhancing salmon. Preferred food for salmon in the lakes was increased by changing the nitrogen to phosphorus ratio from 15:1 to 27:1. In another study, it was shown that side channels can produce ten times the biomass of steelhead trout produced in the wild by using 2 percent of the river discharge. In addition, a technique was developed for successfully spawning chum salmon held in sea water. In controlled reproduction studies, sterile coho have remained in the fishery while an all-female group returned to spawn.

Work on transmission of bacterial diseases of salmon demonstrated, for the first time, that certain organisms responsible for high mortalities in cultured fish are transmitted from female parent to progeny within the egg. Studies initiated in 1982 to determine the feasibility for distinguishing between northern British Columbia and southeast Alaska sockeye stocks, and between Fraser River and other southern sockeye stocks by means of parasite tags have yielded promising results. Particularly noteworthy, and of importance to managers, is the strong possibility that Nimpkish sockeye can be distinguished from Fraser River sockeye in the Johnstone Strait fishery.

Non-salmonid research consumes about 30 percent of the Branch resources. The Atlantic sea scallop was successfully brought to the Pacific Biological Station and spawned. Japanese scallops were also successfully transported to PBS, and with the help of a Japanese technician who will arrive in February, it is anticipated they will be spawned in early 1983. High survival (93 percent), excellent condition of the roe, and generally low costs resulted in a favorable economic outlook for roe-herring impoundments. Gonosomatic indexes (GSI) have been shown to be valuable in providing an estimate of the timing of peak spawning of herring.

A new theory for analyzing sequential population data was used to reconstruct the history of Queen Charlotte Sound's Pacific Ocean perch stocks. In other groundfish studies, estimates of sustainable yields of Pacific hake in the Strait of Georgia were 9,000-14,000 tonnes (10-15,000 tons).

Dick Beamish
Director
Resource Services Branch

Communications Branch

Communications Director Mike Halleran

The following comments are excerpts from an interview between Sounder and new Director of Communications Mike Halleran.

I would say that the first level of communications that has to be improved is the level of communications with the user groups, particularly the sport anglers, because we haven't reached them at all and there are 300,000 of them out there. The next thing is that we've got to develop a communications process that takes information to and from the other resource users. The native Indian groups are certainly one of the priorities there.

The third priority involves the other resource agencies and industries that are working to manage other renewable resources. They're in the same business we're in, only the name of the resource is different; they're managing wood or wildlife or grazing land or something like that. They have an awful lot to say, and we haven't been paying attention to them. There's far too little information that comes into this building

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from outside resource agencies. When we start programs here, it's very difficult to carry those programs out and to have them effectively received because quite often you interfere with objectives or expectations that the other agencies have. We can avoid an awful lot of that. It works both ways. The Forest Service, they don't really know very much about the requirements of fish. There's not a lot of information instantly available. The Forest Service can go to its own computer system and look at any drainage in the province, and they can find out if there are any mountain goats in it or not, how many there are and what habitats are crucial to them. But they can't find that about salmon. And mountain goats are not a major resource as opposed to salmon.

I was here three years ago and the place was going nowhere, and so I left. But there's a different spirit now. It was the almost universal pessimism that you sometimes find in large government departments, and this one was no exception; that's fading and I see people buckling down on the various aspects of the job. There's a new spirit. People are saying, "If there's ever a time to make it work it has got to be right now." And I'm excited about that. That's a different circumstance than I've seen in this building during the ten or twelve years that I've known it.

Mike Halleran
Director
Communications Branch

Support Services Branch

The Support Services Branch provides a wide range of financial and administrative services, plus specialized support in ship operations, communications, electronics, libraries, computers, and construction and maintenance of facilities. The Branch also has responsibility for application of government financial and administrative regulations and controls. The two Branch functions of support and control are sometimes in conflict, but usually a way can be found to meet the needs of program people within the confines of the government system.

Some current Branch activities may be of interest to people in other branches.

The Branch is working on development of a new computerized system for purchasing, inventory and financial management. This system, known as AUTO, will provide a direct link between major field locations and regional headquarters and should improve the whole matériel and financial management process.

An inventory of over 50,000 equipment items is being completed through a job creation project and will be put into a computer system later this year. This will help managers with equipment planning.

The Computer Services Division is working on several systems for licencing, fish inspection, salmon escapement data, catch statistics and biological data analysis.

A new 17-metre inshore patrol vessel will be launched in 1983. This vessel, which is a new design, will be put through operational trials in several coastal areas and, if found acceptable, could become the standard replacement vessel for the inshore patrol fleet.

Support Services Director Rod Palmer.

A field housing replacement program is now underway, and three new houses are under construction, one in Bella Bella and two in Queen Charlotte City. Other progress includes modification of the former RCMP facility at Lillooet for use as an office-residence; installation of a new electric power plant at Dawson Landing; and the search for housing at Haines Junction in the Yukon. This housing program is likely to continue for several years.

The Technical Services Division is carrying out a five-year, $2.5 million radio replacement program to bring our field communications to an acceptable level of performance. To date, about $800,000 has been spent, and we expect sufficient funding to continue the program in 1983. Some installation delays were encountered when the new equipment required factory modifications, but this problem has now been overcome.

Rod Palmer
Acting Director
Support Services Branch

Small Craft Harbours Branch

The Small Craft Harbours Branch, like other areas of the Department, is struggling with an increasing workload and the effects of inflation on its budget. Fishing companies, responding to tough economic conditions, are eliminating many services traditionally provided to fishermen, such as free vessel moorage, gear storage and vessel repair at company facilities. This measure is creating gaps which the Branch must fill, since its mandate is to provide public facilities where required by fishermen. Combined with the uncertainties of future fleet composition resulting from the Pearse Report, this makes for interesting planning in the coming year.

In the past few years, a number of major fishing harbours, such as those at Prince Rupert and Port Alberni, have been taken over from other federal jurisdictions.

We have an option to purchase portions of the B.C. Packer's Steveston facilities at the Paramount Pond. Should this be concluded, considerable work will be undertaken to convert them so that they are useable by all commercial fishermen. We are also hoping to conclude the Prince Rupert area harbour studies this year, so that a safer wintering harbour with modern services is available for the Prince Rupert fishing fleet.

Warren Parkinson
Director
Small Craft Harbours

International symposiums planned

Salmon and trout

An international symposium on salmon and trout reproduction is scheduled for October 31 to November 2, 1983, in Seattle, says William R. Davis, acting director of the Washington Sea Grant Program.

The symposium, which will bring together basic and applied researchers on salmonid broodstock problems and will feature both oral and poster presentations, is to be sponsored by the Washington Sea Grant Program and the National Marine Fisheries Service. A call for papers addressing factors that influence salmonid reproduction--genetics, endocrinology, nutrition, environmental factors, and broodstock husbandry--currently is being issued by the symposium steering committee.

Researchers wishing to present papers at the symposium should contact the Washington Sea Grant Program, Communication Services, 3716 Brooklyn Avenue N.E., Seattle, WA 98105, telephone (206) 543-6600.

Herring

The "biological characteristics of herring and their implication for management" is the theme of an international symposium to be held at the Pacific Biological Station June 20-22, 1983.

The symposium is being held in part to commemorate the 75th anniversary of the Station, located in Departure Bay, Nanaimo. Herring was selected as the conference theme because of its importance in the fisheries economy of B.C. and because of the difficulties encountered worldwide in the management of its fisheries. Specialists from Great Britain, West Germany and the United States, in addition to Canadian speakers, will be making presentations. For more information, contact Carol Roy at the Station.

Habitat

Petrochemical proposals under study

The feasibility of establishing new petrochemical facilities on the West Coast has recently been the subject of considerable attention from advocates in both British Columbia and Alberta.

The primary concerns of the Department, regarding both existing and proposed petrochemical developments, are the potential impacts of spills. These concerns fall into three categories: watercourses and lakes adjacent to and downstream of inland rail transportation routes; areas adjacent to tidewater facilities; and coastal shipping routes.

In 1981, the Province of B.C. initiated a natural gas allocation review process to determine, among other related assessments, the volumes of natural gas which would be involved and to solicit preliminary siting proposals from industry for petrochemical production facilities. The Department's assessment of these preliminary proposals was coordinated through participation in the Federal Regional Screening and Coordinating Committee (RSCC) Petrochemical Task Force. In July 1982, however, the provincial government halted these initiatives pending more favorable economic conditions. It was coincident with this decision that the Province also announced its support of the western liquid natural gas project (Dome Petroleum) now proposed for Port Simpson Bay near Prince Rupert.

Presently, the Alberta government and several companies developing petrochemical production facilities in that province are investigating feasible West Coast sites for storage and shipment of their products. In response to this demand, a North Coast (South Kaien Island) and two Lower Mainland sites (Fraser River and Port Moody) are being seriously considered as potential sites, although the South Kaien proposal could be scaled down to reflect current economic conditions. With respect to the Fraser River proposal, the Department has upheld its strong opposition (established during our 1978 review of a proposal by Dow Chemical) to any initiatives to store and ship petrochemicals on the lower Fraser River and estuary. The remaining proposal, by Pacific Coast Terminals for a Port Moody site, is currently being reviewed, and Department involvement in these assessments is being coordinated through the established RSCC Petrochemical Task Force.

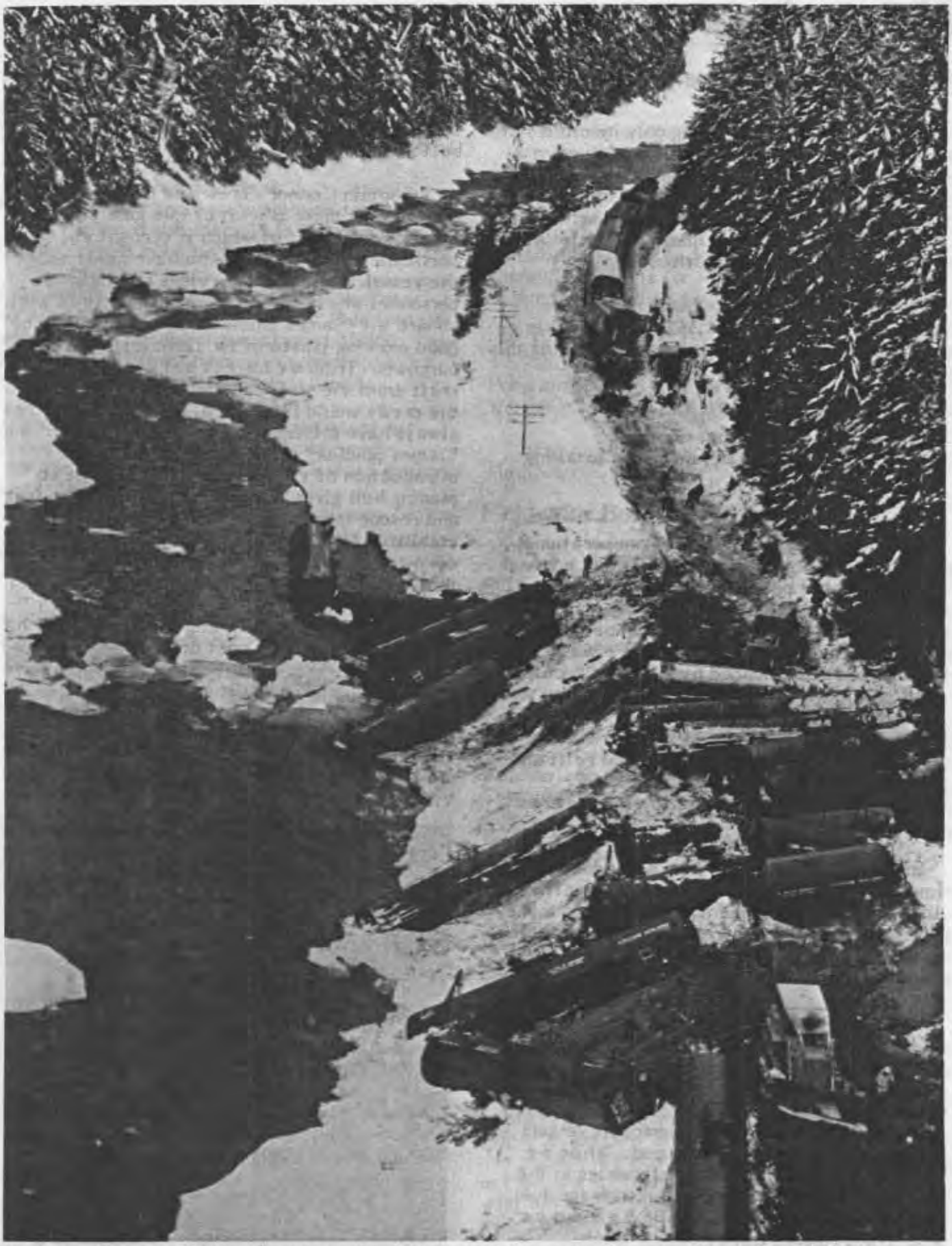
Storage and shipment of petrochemicals are not new to the West Coast. Currently, petrochemicals including methanol, ethylene dichloride (EDC) and ethylene glycol are transported by rail to several storage sites within the Lower Mainland. These products are transferred to vessels for delivery to overseas markets.

The Department's concern was clearly exemplified last March by a CNR derailment adjacent to the North Thompson River at Wolfenden. Approximately 627,000 litres of EDC and 233,000 litres of ethylene glycol spilled onto the shoreline and into the river. Subsequent sampling by DFO downstream of the spill did not reveal any evidence of mortality of salmonid eggs, juveniles, or adults. However, winter river conditions at the time of the spill prevented comprehensive monitoring for all areas affected by the spill. Nevertheless, experimental laboratory bioassays showed significant mortality of coho eggs and alevins at EDC concentrations much less than those monitored in the Thompson River after the spill.

Toxicity information currently available indicates that petrochemicals are toxic to fish and, therefore, can result in fish mortality if spilled into productive waters. However, this information has significant deficiencies regarding the potential sublethal and lethal effects of petrochemicals on specific species (for example; salmon, herring). As well, there is a lack of information on the physical, chemical and biological fate and effects of these products in estuarine and marine environments.

The Water Quality Unit will also be continuing its active participation in the RSCC Petrochemical Task Force and will be involved in reviewing an assessment of existing Lower Mainland petrochemical traffic, recently completed by the Department of Environment, and a Canadian Transport Commission document on the subject. These assessments will identify acceptable, consolidated options for coastal petrochemical traffic with the hope that the present piecemeal, proposal-by-proposal approach to reviews of such developments will be eliminated.

Michael B. Flynn
Water Quality Unit
Habitat Management Division



One year ago, a C N R derailment on the Thompson River caused a petrochemical spill that brought related environmental concerns to the forefront.

Ship shape

Captain Jack Gosse lays to rest "Sinclair" rumours

Nineteen eighty-two being only memories at this point in time, with some of us involved in annual reports or looking to wind things up for the 1982/83 fiscal year, I felt there might be a few staff interested in how the newest Departmental vessel on the Pacific Coast made out in its first complete 12 months of operation.

First, a few statistics. During 1982, the "James Sinclair" covered 21,567 nautical miles on the B.C. coast in 2,193.5 hours at sea. During this time we were involved in:

125 domestic vessel boardings
53 foreign vessel boardings
27 SAR (Search & Rescue) incidents totalling 110 hours
24 violations

Out of 365 days we had 109 nonoperational days (a nonoperational day is a day when a vessel is going through a period of refit, breakdown or crew leave). Only 31 days of the 109 were due to mechanical problems, not a high number for a vessel of any age. For example, there was maintenance recommended by the manufacturer, a small problem with the port reduction gear and a problem with the intercooler on the port main engine. The balance of the 78 nonoperational days was mainly shipyard work (annual refit and one year warranty work) with a few days complete shutdown in Victoria to give the crew some shore leave.

In July 1982, an extra crew was added to the "James Sinclair." This will allow a more efficient utilization of the equipment, depending on money for fuel and need for the vessel. No longer will the vessel have to be tied up to give the crew time off.

Fuel is becoming a big expense in all marine operations, and those of us who are boat pushers are well aware of it. From April 1, 1982 to December 31, 1982, the average fuel consumed by the "James Sinclair" was 57.7 gallons per hour; just a bit more than other Department vessels when operating at maximum speed. While we were working the chum salmon fisheries in the French Creek-Qualicum area, our average fuel consumption for one week was 38.9 gallons per hour. True, figures can be used to one's advantage, but those of us on the "Sinclair" feel that there are a lot of incorrect fuel cost figures being used in the Department and on the waterfront. The fact is that the "Sinclair" gets better mileage.

Captain Connor's crew and my own are finding that there is a lot of idle gossip within the Department, most of which is derogatory, particularly from people who have never sailed on the vessel. Most Field Services and Offshore personnel who have had the opportunity to work aboard the "James Sinclair" have found it to be a good working platform for fisheries/management purposes. True, we haven't got the ideal patrol craft from the standpoint of what those of us in the crews would like to see, but then ships' crews always have different ideas. (Editor's note: the "James Sinclair" was designed prior to the introduction of the 200-mile limit. While its planing hull gives it extra speed, useful for search and rescue missions, it does not have the superior stability of the displacement hulls on most deep-sea vessels.) We can be thankful, though, that Ship Division management was involved in the final design stage. The vessel is a much better working platform than we would have had if we accepted East Coast designs. Now, if you hear idle gossip about the "Sinclair," you'll have the facts to straighten it out.

Captain Jack Gosse
"FPV James Sinclair"
Victoria

The "FPV James Sinclair" moored in Victoria.

Communications notes

Children's Salmonid

Response has been overwhelming to the offer of extra copies of the special kids' issue of Salmonid, called "Discovering Salmonids."

Hundreds of teachers have taken up the offer, and we now have requests for 18,000 copies over and above our usual press run of 35,000. (Some fishery officers have also requested extra copies for schools in their communities.)

"Discovering Salmonids," aimed at grades 4-7, contains puzzles, games and notice of a poster contest. It was published in early February.

For more information, contact Maxine Glover at 687-1442.

Boatshow display

The Communications Branch rented booth space at the recently concluded 1983 Vancouver International Boat Show. Incorporated into this year's Boat Show was the annual Sportsman's Show. The DFO booth included a Head Recovery Display and demonstration, the "Save Our Chinook" graphic display and some live juvenile chinook salmon.

Habitat Monitor

The next issue of the quarterly newsletter, Fish Habitat Monitor, will be published in late March, 1983.

Training

Dr. Chuck Chestnut, an instructor with the Fish, Wildlife and Recreation Technology program at the B.C. Institute of Technology, has a short-term contract to assess the training program used by Special Projects Division (SPD) to transfer skills to public and community groups. Following his review of existing course material, relevant films and videotapes, SEP's slide file and the educators' package ("Salmonids in the Classroom"), he will develop specific recommendations for improving the quality and delivery of training to SPD contractors.

He is also slated to conduct a two-day workshop for Community Economic Development Program (CEDP) project advisors and a two-day workshop on the CEDP project management guide.

For more information, contact Don MacQuarrie, 666-6614.

Fieldwork Bulletin

A Fieldwork Bulletin will be published as a pilot project by the end of February. Its purpose is to inform DFO staff of the fieldwork plans of others in the Department so that field studies can be coordinated, where possible, and duplication of work can be avoided.

Certain Fish and Wildlife Branch and DFO staff will be contacted for information on their plans for field studies in 1983/84 and for brief summaries of field studies undertaken in 1982/83. This information will be quickly printed as the Fieldwork Bulletin and will be sent to a list of "subscribers" in DFO and the Fish and Wildlife Branch.

If you would like to receive the Fieldwork Bulletin, or would like more information about this pilot project, please contact: Terry VanderSar at Glover Business Communications, 687-1442.

Fish Culture training

During the evolution of the Community Economic Development Program, it was recognized that the people contracted to do Fisheries-related work, in all probability, would not possess the technical skills necessary to carry out the work. Therefore, we began discussions with the B.C. Ministry of Education, and later with Malaspina College, to provide this training. From this evolved the Salmonid Enhancement Training Program (SETP) conducted by Malaspina College.

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With the introduction of this program, it has become apparent to both Community Economic Development personnel, as well as Facilities Operations personnel, that participants who lacked basic math skills were at a severe disadvantage. The outcome was that a contract was developed by SETP to rewrite the Adult Basic Education Math Package.

This package was originally designed for adults who had not achieved grade 12 graduation. It was programmed for the student to study individually, with the help of a tutor once a week. In an attempt to make the course more interesting, we asked the contractor to use fish-related situations for the examples of calculation and theoretical principles. This led to the evolution of the Basic Skills Package for Math. Upon successful completion of this course, an individual will have achieved a grade 10 level.

This package is available from Malaspina College or through any local college at a cost of $50.00 for 16 soft cover books. The colleges can also make arrangements for a tutor. So, be you fishery officer or area manager, fish culturist or unit head, technician or biologist, this package is now available; it has been tested and judged to be satisfactory. For further information, please contact Tony Septav at Malaspina College (753-3245) or Dave Barrett (666-3909).

Habitat Management: a progress report

The Habitat Management Division had a full and challenging year in 1982. Staff were largely occupied with assessments of major water use, water pollution and land use proposals, cooperative research projects and planning.

The Division completed commitments to the development of the Fraser estuary and Squamish estuary management plans and was active in several co-operative strategic planning exercises with various provincial ministries.

In addition, the organization, framework and implementation of Habitat Management decentralization has been fully developed, and area staff assignments have been established.

Planning Coordination

Activities have included participation in strategic planning exercises with the provincial Ministries of Lands, Parks and Housing and Environment. Among these are the Nicola strategic plans and the Campbell River foreshore plans. Some of the elements are cooperative information and habitat inventory plans. A newsletter, the Fish Habitat Monitor, was established as part of the 82/83 program. Other activities involve the assessment of the habitat components of the Pearse report and input into a national policy paper. Expert witness coordination for 20 cases involving habitat litigation was also undertaken.

Land Use

Under the direction of the Land Use Unit, B.C. Forest Products created a group of intertidal islands on the old log booming ground in the Campbell River estuary.

The Unit also aided in the development of draft guidelines for the placer mining industry in the Yukon. Public hearings will be held in 1983 to obtain industry and public reaction. In cooperation with the provincial government, revisions were made to the placer guidelines for B.C.

The environmental impact assessment of the CNR project to construct a second mainline track from Edmonton to Vancouver is continuing. A public hearing process will begin in 1983 to obtain public input on the proposed construction.

A government/industry seminar was held to review the results of the past ten years of research on the fish/forest project at Carnation Creek. A follow-up workshop will be held to review operational guidelines using the research results.

The Environmental Assessment Review Process (EARP) for the construction of the Alaska Highway gas pipeline was concluded after six years of effort. The Unit presented the Department's recommendations to the EARP panel.

Water Use

The Water Use Unit, together with the International Pacific Salmon Commission, has been heavily involved with the analysis and review of the problems associated with Alcan's proposal to complete phase II of their development

affecting the Nechako and Nanika-Morice river systems. The Unit continues to review the study reports being produced by Envirocon, Alcan's consultant. Our report on fishery flow requirements for the Nicola River is now available. It is part of the first "Strategic Planning" report undertaken by the Planning Branch of the provincial Ministry of Environment. A compensatory hatchery, financed by the Northern Canada Power Commission and under our general coordination, is now being completed on the Yukon River at Whitehorse.

Unit staff toured the Stikine River system in October 1982 with B.C. Hydro representatives and their consultants and reviewed their field work programs and several of their reports. However, staff have been unable to do any detailed field studies on the Stikine, thereby weakening the strength of our assessments which depend on firsthand knowledge.

Our priorities for 1983 include preparation of habitat guidelines, for activities such as marina construction, to give developers more insight into fisheries concerns. The unit will also begin extensive habitat compensation following the completion of the Roberts Bank superport construction.

Water Quality

The Water Quality Unit was responsible for reviewing and developing positions on a number of major industrial proposals. These included: a review of the proposed Quinsam Coal mine near Campbell River; the expansion proposal for Westmin mine near Buttle Lake; continuing involvement with the Amax mine at Kitsault, the Carolin Gold mine on the Coquihalla River and the proposed Consolidated Cinola Gold Mine in the Queen Charlottes. Acid rain monitoring, offshore oil and gas exploration plus petrochemical facilities required additional attention. We were also involved in pollution control and pesticide referral systems, environmental emergencies and a variety of other water pollution issues such as domestic landfills, sewage, pulp mill effluent, and agricultural wastes.

We are developing plans for the decentralization of many of our operational activities.

Forbes Boyd, Chief
Habitat Management Division

Sea glare may be hazardous

Most people view with appreciation the beauty of a sunrise or a sunset over the ocean. But to those who make their living at sea, the sun and the sea can present serious health risks, namely eye damage. A recent survey of New Zealand fishery officers reveals the level of that risk.

The survey, as reported in the November 1982 issue of Catch '82 (produced by the New Zealand Ministry of Agriculture and Fisheries), presents some startling information. Forty-four percent of those who responded to the survey were "worried about their eyes." By the time half of those officers reached 26 years of age, they had to seek medical help. Two of the officers surveyed had already undergone surgical removal of pterigiums, fleshy growths on the eye. Pterigiums are caused by overexposure of the eyes to ultraviolet light and the drying effects of wind and dust. Another, more benign disease that is similarly caused, is pineculae. According to the study's authors, "pineculae and pterigiums are almost part of the uniform of New Zealand fishermen." The sun's infrared rays can also cause cataracts.

To avoid eye damage, fishery officers and fishermen should wear good sunglasses, the survey recommends. Good sunglasses have ground and polished lenses that allow no more than 30 percent of the sunlight to pass through them. Since saltwater spray is a constant problem, the survey also suggests that the seafarer carry a small bottle of fresh water and some lens paper to regularly clean the lenses.

Editor's Note: The degree of eye hazard may vary in Canadian waters, although many Pacific Region fishery officers do wear sunglasses. We welcome any responses to this article.

Spurious Emissions

Rosella Reimer, Accounts, is leaving the Department. Rosella has obtained a new position with the Department of Agriculture.

Mary-Jean Comfort has joined the Communications Branch as an information officer. At present she is editing the Fish Habitat Monitor.

David Procter is leaving the Communications Branch to complete a film project.

Vance McEachen was promoted to assistant supervisor, Inspection, for Northern Operations, Prince Rupert.

Born January 30 to Heather and Steve Samis (Water Quality Unit, Habitat Management) was a daughter, Devon, weighing 4 kg; a sister for Brooke and Kelly.

Mickie Kitson and Captain Coleman Casey retired in December from their Fisheries careers. Mickie spent 28 years with the federal public service, mostly as the "iron-fisted" district clerk at the Prince Rupert office. She also worked with the Ministry of Transport and the Department of National Defence. "Casey" brought many years of commercial fishing experience to the Department and served 15 years as a patrol vessel master and northern Ship Division superintendent. Mickie and Casey were presented with certificates, signed by Prime Minister Trudeau, and traditional silver mugs with Fisheries crests.

Captain Coleman Casey and Mickey Kitson, former district 8 clerk, receive special certificates from Northern Operations Manager Tom Perry (center).

Otto Langer has rejoined the Department as senior habitat biologist, Fraser River, Northern B.C. and Yukon Division; Otto leaves the Environmental Protection Service and will be working in the New Westminster office.

Sandy Argue is visiting the Region. Sandy's term as senior fisheries scientist with the South Pacific Commission has been extended until September of this year. Sandy is sporting a new toque, this one made from Samoan hair.

Married on November 5th in Nanaimo was Pat Phillips to Cliff Mason.

Howard Smith has been assigned immediate responsibilities for developing a "zero"-base review for fisheries management. This exercise is partly intended to free resources in order to respond to new initiatives which were outlined by Pearse and which may be implemented subject to acceptance by the Minister.

Seen in passing: a letter addressed to Fishery Officer Ron "Kelp", Victoria. Apologies to Ron Kehl.

Decentralization of headquarters' Habitat Management staff is commencing. The following individuals have been assigned to South Coast Division at Nanaimo: Jim Morrison, Brian Tutty, Barry Lawley and Richard Eliasen. Bruce Hillaby, Bruce Clarke, Ramona Helm, Kevin Conlin, Joe Arseneault, Brian Dane, Bob McIndoe, Kon Johansen, Allan Von Finster, and Bill Field have been assigned to Fraser River, Northern B.C. and Yukon Division. Other staff will be recruited to North Coast in Prince Rupert.

Fishery officers promoted in a recent competition were:

John Burdek and Dave Rekdal who move from Port Alberni to Port Hardy; Rob Melvin who moves from Campbell River to Terrace; Ian Brown (formerly a patrolman) who remains in Kitimat; Cliff Todd who moves from New Westminster to Victoria; Milan Kupr who moves from Prince Rupert to Port Hardy; Byron Koke who remains in Alert Bay; Jim Steward who moves from Terrace to Powell River; Brad Rushton who moves from Comox to Tofino; and Ian Mann who moves from Port Hardy to Prince Rupert.

Two long service employees recently retired from the Department's Administration-Materiel Management Division at regional headquarters. Helen Sanfillipo retired after ten years of service and Lee Williams retired after 25 years of service with the Department. A retirement party was held for both of them January 14 at the Keg Downtown. They both would like to express their gratitude and thanks for the well wishes that came in from the entire Department.

Twenty-five year service pins were recently presented to several longtime departmental employees at a small reception held in the Vancouver headquarters office. Don Wilson, director, Field Services Branch, made the presentations and remarked that while these awards were being presented late (seven to nine years, in some cases), the employees' service and dedication to the Department were nevertheless fully appreciated. Accepting their awards were: Pat Mason , Decentralization Services, Nanaimo; John Cairns, chief, Offshore Fisheries Surveillance Unit and; Jock Embleton, assistant regional manager, Fishing Vessel Insurance Plan, Vancouver. Ted Epps, fishery officer, Nanaimo, was unable to attend due to illness. Ted Epps and Jock Embleton both joined the Department in 1947, while John Cairns joined the Department in 1967, having come from the Ladner Wireless Station of the Department of National Defence. Pat Mason worked for the Pacific Biological Station, which at one time was separate from the Department, prior to joining Fisheries in 1951 at the Nanaimo office.

Belly-dance fever is catching. This dancer joins with former Steveston fishery officer John Lewis in celebrating his new job as a community advisor with SEP.

Prince Rupert staff on the ice.

The Prince Rupert district recently held a curling competition. Thirty-two curlers and seven watchers took part in the event. The four individuals with the most points were: Laurie Gordon (11 points); Dave Southgate (14 points); Gus Jaltema (12 points); and Captain Bill Wylie (12 points). A prize for the most colorful dress and actions went to Valerie Huber, and another prize for the most enthusiastic curler went to Verna McLeod.

Spurious curious

For well-nigh ten years now, this column has appeared under the curious heading "Spurious emissions," and for the same number of years, people have been asking, "What does that mean?"

Spurious means "not genuine, authentic or true; not from the claimed, proper or pretended source; counterfeit." There are certainly clearer, less subtle terms for describing this kind of information, most of which are offensive to some and none of which we will use here. Of course, "spurious emissions" is a tongue-in-cheek catch phrase for the information we bring to you in this column. The phrase was coined by Al Wood when the Sounder was a breezier newsletter.

We think the column deserves a name that befits the newsletter in its present form and that represents the column's content: personal and career news about regional staff. Help us find a new name or, if you like the present name, please indicate. Send suggestions to: Maxine Glover, 6th floor, Department of Fisheries and Oceans, 1090 West Pender Street, Vancouver, B.C. V6E 2P1. We'll select a winner.

Editors

The 1983 Sounder Photo Contest

Lyle Reid

Problem: We need good photographs to illustrate Fisheries publications.
But we cannot afford to hire photographers.
And we cannot afford to buy stock photos from an agency.

Solution? LET'S HAVE ANOTHER SOUNDER PHOTO CONTEST!

Brilliant idea.

Introducing, the late, great, third "annual" Sounder Photo Contest.

With prizes!
And glory!
And glorious prizes!

Contest rules

1) Contest opens January 1, 1983, and runs to July 1, 1983.

2) Open to all Fisheries staff.

3) Categories are all related to Fisheries activities.

They are as follows:

a) Commercial fishing (any fishery)
b) Sport fishing
c) Native food fishing
d) Fish processing
e) Fisheries staff at work
f) Fish or marine life in their habitat

4) Enter slides or prints (with negatives attached) of any size. They may be black and white or color prints.

5) Do not write any description on the photo. Enclose a separate note with the name of the photographer and the description.

6) Enter as often as you like.

Prizes

Prizes of $100 each for the top photo in each category.

- Judges' decisions are final. Prizes will not be awarded unless photo quality merits it.
- All entries become the property of the Department.
- Don't be discouraged from entering. Anyone can take a winning photograph!
- Send all entries to: Sounder c/o Maxine Glover, 6th floor, 1090 W. Pender St., Vancouver, B.C. V6E 2P1.
- Photographers will be credited if their work is used in any publication.

SOUNDER

Volume XI Number Two April 1983

SEP Engineering: behind the blueprints

SEP Engineering epitomizes the progress achieved in salmonid enhancement in the last 30 years, from simple spawning channels to a series of highly successful hatchery complexes. This issue of Sounder takes a close look at the Engineering Division in SEP's Phase One and the changes in store for Phase Two. Jim Wild, senior implementation engineer, begins with a look at the new Kitimat hatchery.

The largest, most complicated and costly facility built to date under the Salmonid Enhancement Program is almost complete. The Kitimat River hatchery is in its final year of construction; when our start-up is completed on July 31, 1983, we will have expended most of the $9.62 million allotted for this facility.

In days gone past, the Kitimat River area was renowned for its sport fishing, particularly the tyee chinook salmon. A pilot facility has been in operation for several years, mainly concentrating on increasing these valuable stocks. For each of the last two years, this small operation has accounted for a return of approximately 1,200 adult chinook back to the Kitimat River - about 25 percent of the total run! The pilot, managed by Dave McNeil, assisted by Sylvia Willis and Dieter Abraham, paved the way for a major enhancement effort on our northern coast.

The feasibility, design and construction work for the Kitimat hatchery has been managed by Al Lill, Jim Wild, Gregg Morris, Gordon Labinsky, Ian Ross, Ed Woo

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Three cheers for volunteers

The third week of this month, April 18 to 24, is volunteer week in Canada, a time to express appreciation for those who perform what can be thankless tasks. It is also an opportunity to encourage volunteerism.

Roughly half the adult population of British Columbia is involved in some form of volunteer work, and that's a lot of work. The benefits, of course, are impossible to calculate because they go beyond economics to include such intangibles as happiness, caring and a sense of accomplishment.

For an indication of the possibilities of volunteerism, you need look no farther than SEP's Public Involvement Program. An estimated 7,000 volunteers have given freely of their time and energy to help with salmonid enhancement. A recent evaluation of the program has revealed an impressive benefit-cost ratio of 2.2:1. Why? Because most of the labor and materials are volunteered.

Cover photo: helicopter airlifting pre-cast concrete baffle into place during construction of the Koksilah River fishway.

Canada Cheers Its Volunteers

April 18 to 24

Again, there are other benefits that simply don't fit into an economic equation. Most SEP volunteers, for example, don't work with total selflessness and devotion. They have their own interests as well, including improved fishing and recreational enjoyment. This is one of the most important lessons of volunteering, that it is rewarding. Generally, though, the greatest rewards are not seen, but felt.

We express our gratitude to the many Pacific Region staff who are active volunteers in their communities. We hope that others will join them.

Editor

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SOUNDER

Newsletter of the Department of Fisheries and Oceans, Pacific Region.

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Sounder is printed eight times a year for the staff of Fisheries and Oceans. Opinions expressed in the Sounder do not necessarily reflect policies of the Department of Fisheries and Oceans. No articles may be reprinted without the editors' permission.

Government of Canada / Gouvernement du Canada
Fisheries and Oceans / Pêches et Océans

Behind the blueprints

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and Ken Sun. Nine major contracts have been issued to complete the 3,310 m^2 (35,610 square feet) of covered space, 14 rearing ponds and five different water supply systems.

The facility is an excellent example of close cooperation between industry and our Department. Alcan Aluminum Company offered, for sale, a site near the only suitable groundwater we could identify in the Kitimat Valley. Eurocan Pulp has provided a site and water supply for the pilot hatchery for four years and has also allowed a connection to their mill's hot water system to provide hot water to accelerate fish growth.

The facility has the capacity to produce 157,000 chinook, 333,000 chum, 92,000 coho, 10,000 pink, 4,000 sockeye and 1,000 steelhead. A total of 17 major stocks will be raised in separate ponds and returned to their native rivers or streams. These stocks will be enhanced and not fished commercially for several years to allow an escapement, in excess of the facility's requirements, to spawn naturally in the rivers.

Kitimat hatchery raceways under construction.

We are confident that the opening of this facility will be a large step toward the recovery of the salmonid stocks in the Kitimat area.

Jim Wild
Senior Implementation Engineer
SEP Engineering

Fisheries engineering: part of the team

Division Chief Al Lill talks to Sounder about SEP Engineering

In SEP Engineering, we don't work in isolation. We work very closely with people both within and outside SEP, to come up with concepts for salmonid enhancement that are sound across the board. For example, a reconnaissance study typically involves one of our staff along with the local fishery officer and a biologist from SEP Enhancement Operations.

Before a project proposal gets off the ground, it must be reviewed by fisheries managers and evaluated by the biologists and economists in SEP Planning. We prepare a Treasury Board Submission for every project over $500,000 and for every contract over $200,000. For this, we need the assistance of our financial and administrative people both here and in Ottawa. So far, over 70 of these submissions have been approved.

In the design process, we work in partnership with the New Projects biologists, unit heads, and hatchery managers from Enhancement Operations. We like to get the people who are actually going to run projects after they're completed to make a lot of the key decisions about how they're put together. Procurement people, contractors and consultants are a part of the process, and how they perform is a big factor in how well the job goes. It's up to us to make sure the facility is designed and constructed properly and that the costs are kept down. That's important because we have very

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tight controls from the Treasury Board on capital project costs as well as budget limitations.

Biologists and engineers

Our engineers work very hard to get a project built and into operation in time for the egg take. That process often means a lot of unpleasant dealings with contractors and central agencies to keep the project on budget and on time. Four or five years later, when the fish come back, the builders are usually long forgotten in the process. But we haven't forgotten. We still get a great kick out of seeing those fish come back. That's why engineers like this kind of work. We're really enthusiastic about SEP. Salmon are a worthwhile resource to work with. I don't think we're any different from the fishery officers or the biologists or anybody else in the Department. If some of us wanted to build super highways or shopping centers or high rises, we would have done so. Most of us get more out of this kind of work because we find satisfaction in the same things our colleagues do.

Below: Larry Kahl, Chehalis hatchery manager, provides data for John McNally, senior implementation engineer.

Engineering Division Chief Al Lill is flanked by SEP Executive Director Ward Falkner (right) and Adrian Rowland, project engineer.

Growth of the division

The division grew from a nucleus of about 22 person-years, which were transfered from the various field divisions upon the formation of SEP, to about 40 person-years in 1981. Since then, it has shrunk to about 34 people through attrition and layoffs. The current authorized level is 30 person-years, plus approximately four additional person-years obtained through the Special Employment Initiatives Program.

Major projects: Phase I

By the end of Phase I the division will have completed 13 major projects (of over $500,000 capital each) at a total cost of $46 million.

Project	Original Estimate	Actual Cost	Percent Completed
1. Little Qualicum	$3,133,000	$2,778.000	100*
2. Puntledge	$4,430,000	$3,961,000	100*
3. Tlupana	$1,922,000	$2,254,000	100
4. Bella Coola	$ 880,000	$ 877,000	100
5. Pallant	$1,720,000	$1,711,000	100
6. Cheakamus	$1,630,000	-	(1)
7. Kakweiken	$ 515,000	$ 513,000	100
8. Mathers	$2,327,000	-	(2)
9. Chilliwack	$4,670,000	$4,670,000	100
10. Robertson Exp.	$2,435,000	$2,435,000	100
11. Nitinat	$2,600,000	$6,110,000(4)	100
12. Chehalis	$7,450,000	$6,980,000	95
13. Quesnel	$2,100,000	$2,500,000	100
14. Kitimat	$9,620,000	$9,620,000	50
15. Glendale	$8,245,000	-	(3)
16. Inch	$1,870,000	$1,870,000	90

Notes:

* project constructed with additional capacity over that originally proposed.
1 project not started because of land acquisition difficulties.
2 project built to pilot scale only because of technical difficulties.
3 project stopped because of diversion of funds.
4 major changes to project design compared with original concept.

continued from page four

From the outset, our division was designed as a project management group with a high emphasis on contracting-out because of government policy in this regard. During peak years of Phase I, for every SEP staff member working in engineering, we routinely had three people from consultant firms. The division is divided into three main operational groups: Group A, under Jim Wild, is responsible for South Coast and Central Coast projects; Group B, under John McNally, handles North Coast and Fraser River projects; and, Gordon Labinsky is our chief of the drafting group.

By the end of Phase I, the division will have completed 13 major projects (of over $500,000 capital each) at a total cost of $46 million (see box).

In addition, we have also designed and constructed many minor projects under $500,000, such as Tenderfoot and Eagle Hatcheries and Embley and Koksilah fishways, and have provided assistance to the Vancouver Sun mini-hatcheries and the Sliammon community development projects. We are currently designing three new fishery officer houses in Bella Bella and Queen Charlotte City and helping the West Van lab with their expansion.

A big part of our work is ongoing maintenance and renovation of the facilities that have been constructed. John Beyer in particular is kept very busy at this task, and almost all the engineers are involved part-time.

In the future

The SEP Engineering Division, from a budget perspective, is at the lowest level we've been at for several years. With Phase I ending in 83/84, we have a budget of somewhere in the order of $3 million for 83/84 including our salaries. In 82/83, our budget was $9 million, and the previous year it was $13 million. We awarded our last major construction contracts for Phase I before Christmas.

In this coming year, we have a lot of cleanup work on many projects, and the Kitimat project still remains to be completed.

The activities proposed in the next two years concentrate heavily in the preliminary studies area and only modestly in facilities and functions but with a solid renovation and maintenance program.

by Al Lill
Chief
SEP Engineering Division

Editor's note: at the time of writing the fate of the SEP transition proposal was still undecided, but the nature of work in the Division as well as the level of funding will be very different from that of 82/83 and earlier years.

From Hells Gate to here

Salmonid enhancement in perspective, as described by Al Lill.

Les Edgeworth and Charlie Clay are the first two fisheries engineers that most people remember. The Hells Gate fishway signalled the beginning of a new era in fisheries engineering after World War II. Hatcheries for sockeye salmon and some of the other pre-war projects really didn't pan out very well. There was kind of a hiatus in between. After the war, when activities started up again, engineers concentrated largely on fishways and then went into spawning channels in the fifties and more intensively in the sixties. By then, the Americans had started to make hatcheries work pretty well, for chinook and coho particularly. So, we started moving into hatchery construction in the early seventies with Capilano.

I suspect we're going to continue with different trends as we go along. If the fifties was the era of the fishway, the sixties the era of the spawning channel, and the seventies of the hatchery; we can look to the eighties as a mixture of technologies. We're looking more at complementary technologies to yield a total fisheries management and enhancement solution. It falls nicely into the computer era. A total approach.

I think perhaps our biggest new technical challenge is to extend enhancement technology from fresh water out into the estuary. We should try to make some inroads into the big losses that salmonids take at the transition from fresh to salt water. The Japanese have made exciting gains with short-term pen rearing of chums, a method we have tried at the Pallant facility. The rehabilitation of estuaries is a challenging new frontier where I believe that engineers and biologists can work together to improve productivity. We could design both permanent and temporary new structures and selectively remove old dykes and other intrusions on the foreshore.

The artesian answer

In the quest for fish culture sites in B.C., finding a source of clean, dependable, temperate water is the equivalent of striking a gusher in the oil fields. In B.C.'s colder interior regions especially, water from wells and free-flowing springs plays an increasingly important role in the operation of both large and small enhancement projects. On projects ranging from community incubation boxes to major hatcheries, biologists and engineers are quick to appreciate the advantages of groundwater.

Freedom from endemic fish diseases and detrimental variations in water flows are reason enough to use the earth's naturally filtered supply. Of even greater value, however, is the tremendous thermal resource stored in the aquifers. Not only is the hazard of freezing avoided, but fish development proceeds at a pace which assures larger, healthier fry with a proportionately greater chance of survival once released.

The value of this thermal source is best appreciated when one considers the cost of heating. For example, to heat mid-winter river water for just one 50,000-fry rearing trough to just 6°C would cost about $3,000 per month. For a full hatchery flow, the cost would be crippling. With luck, an aquifer may be found which will yield water in this temperature range even in the middle of winter. What's more, some wells in select areas may yield temperatures in the optimum 10°C area. Considering this thermal value, the cost of pumping the water out from the aquifer becomes relatively insignificant.

Culturing salmonids on groundwater does have some pitfalls, of course. Interior hatcheries operating on natural springs have found that while the outflows are relatively warm in the fall and winter, the temperatures may drop as low as 4°C by early spring, leading to poor feeding and negation of the advantage of an accelerated incubation period. In addition, well pump systems are subject to the usual maintenance and failure risks common to all mechanical systems.

The heat content of groundwater stems from three sources: air temperature, geothermal heat and the sun. The typical sidehill outflow receives its heat primarily from the climatic air temperature. These natural outflows are also typified by short residence periods which result in relatively large temperature shifts. A deep well, on the other hand, may tap a relatively inert aquifer which has absorbed geothermal heat during its long residence period. Unfortunately, such a well is also likely to have accumulated a variety of water quality changes, such as mineral dissolution, reduced oxygen, nitrogen supersaturation and pH shifts.

The optimum fish culture groundwater is surface water which has been heated by the sun and has then percolated into the earth--passive solar heat in its purest form. Such aquifers are hard to find; however, the high quality warmed water they yield makes the diligent search worthwhile.

The search for a promising groundwater source calls for equal amounts of research and luck. One must look for a likely source of heat, suitable geology to provide adequate well capacity, and good thermal storage to reduce seasonal temperature swings. Putting together the clues to a promising groundwater site can be an exciting detective process.

Even with the most thorough reconnaissance and research, however, the key element of luck plays a major hand. In drilling for groundwater there are always surprises. The earth does not yield its secrets easily.

Adrian Rowland
Project engineer
SEP Engineering

At the turning point: part II

Regional planning

The title of this series of articles is "At the Turning Point." The Department, like a supertanker, takes a long time to turn. We have been turning for quite a while, but it is only now, (with Pearse's recommendations serving as a sort of tug boat) that movement is really becoming apparent.

Think back. What were things like six years ago, in 1977? We had no organized staff training; no Apple computers; no new licencing system; no working catch statistics system; not even a thought of a computer escapement statistics system; no hope of a Canada-U.S. Salmon Agreement. SEP Phase I had just been approved; the mark recovery program had few returns and lots of problems; we were acquiring new patrol boats and had fewer fishery officers and no structured officer training program in the Region. We had recently acquired a research branch, but it had no integration with fisheries management needs.

The point of this flashback is to demonstrate that a lot has changed in six years, and this is just the beginning of the turn. The next six to ten years are going to show much more change, and the change is going to be more dramatic and more diverse: an in-season catch statistics system; an overall data base; changes in many systems--escapement, catch, sampling, for example; annual publication of stock status reports; a public advisory structure for policy, planning and allocation advice; a habitat inventory and related data base; stepped-up enforcement staff and resources; and significant turnaround in resource management and resource declines.

The Regional Planning Group will be involved in these changes and will be working with other branches to try to make the right changes happen in the right sequence. The first order will be to implement Pearse's recommendations relating to harvest management, fish production, habitat management, data collection, research, public consultation, protection, enforcement planning and administration.

Director of Regional Planning, Al Wood.

Next will come extensive work with advisory groups to develop and implement systems for fleet rationalization, catch allocation, licencing, and other services.

The needs for change that Pearse identified, if met, will clearly take us all beyond the turning point and hopefully into smoother water.

Al Wood
Director
Regional Planning

Economics and Statistics Branch

Commercial fisheries economics

Fisheries economists have traditionally directed their efforts at addressing the long-standing and fundamental fisheries management problem of excess fishing capacity in commercial fishing fleets. The Pearse Commission recommendations have focussed a great deal of energy towards finding long-term solutions. Our commercial economists expect to work closely with David Reid, of the Pearse Response Task Group, and with the Minister's Advisory Council, to find alternative, more acceptable approaches to solving this problem.

In the meantime, we expect to continue working closely with fisheries managers and to offer ideas for more economically efficient management in the short term. Also, we will be developing proposals for bringing greater consideration of world market conditions into management plans to maximize economic returns from the resource.

Recreational fisheries

The Economics Branch welcomes the Minister's acceptance of the Pearse recommendation that a greater emphasis on the problems of recreational fisheries management is required. During 1983, we will be developing discussion papers on management objectives in sport fisheries and on stock allocation between recreational and commercial fisheries. We will continue to work closely with the recreational coordinator and the Sportfishing Advisory Board on these issues.

We have been very pleased with our involvement with Habitat Management policy and program planning over this past year. This is a new initiative in Habitat Management. So far, the planning group has focussed on the need for an explicit operational policy interpretation of the no-net-loss objective and cooperative resource management. Also, we have focussed on the need for a comprehensive fish habitat inventory, assessment of habitat and of the effect that changes in habitat conditions have on fish productivity. We expect to continue meeting, as best we can, the many requests from the Habitat Management Division, fishery officers, commercial and sportfishing interests and the general public on the value of specific stocks threatened by industrial and urban development.

Acting Director of Economics and Statistics, Bill Masse.

Catch statistics

During 1983 we hope to make several improvements in our commercial catch statistics system. We want to produce the data on a more timely basis and at a lower cost by investing in modern computer equipment. We have plans to implement improved computer programs and coding during 1983. We also hope to improve the accuracy of commercial catch statistics by redesigning our catch record forms to more adequately reflect the complexity of today's fisheries and the mobility of the fleet. To improve the return of catch records, we want to develop an enforcement campaign in cooperation with the Field Services Branch.

For three years, the Branch has been developing a sport catch statistics unit based on the tidal sportfishing diary program. During 1982, we piloted a survey of nonresident licence holders. However, the timeliness of results has been inadequate. During 1983, we will try to improve this by giving the program greater emphasis and by making greater use of job creation programs.

Bill Masse
Acting Director
Economics and Statistics Branch

Escapement data at your fingertips

The Salmon Escapement Data (SED) system is hatching after a long incubation. The system, available to everyone in the Department, contains spawning data and programs to allow access to the data. All you need to use the system is a terminal that can send and receive data over the phone lines.

When creating a system, there is more than one player in the game. I will introduce the teams and describe what they do. Comshare is the company which wrote the programs and whose computer is being used. The Pacific Biological Station (PBS) is responsible for entering the data into the system. As well, PBS looks after the operation of the system. Field Services Branch collects the data while Computer Services deals with requests for program changes and problems with the service bureau at PBS. Frank Bernard, at PBS, is the system owner, and Louis Lapi coordinates the day-to-day running of the system. Louis is available to answer questions about the system.

How to use the system

The Salmon Escapement Data system is designed so that everyone, novice or expert, can use it. Menus guide you through the system, giving you a list of options at each stage. A "help" command has been implemented. Any time you are stuck, typing in "help" should give you a clarifying message. To start everyone off, there will be a series of training sessions during April and May. They will be both half-day and full-day sessions. A half day is enough to get you started and producing reports. A full day should make you very comfortable with what the system can do. The training sessions will take place in Vancouver, New Westminster, Nanaimo (PBS), and Prince Rupert. They will be announced as they are planned. For further details, contact Louis Lapi at PBS.

test data only

The SED system includes all the annual escapement counts made by fishery officers. These spawning data are now being transferred into a computer database. After the data are loaded, training will begin.

A set of programs have been written to make use of the data. The programs allow you to print escapement data in several formats and give you control over what data are selected. It is possible to select data by: subdistrict, district, statistical area, watershed, stream name and/or by some predefined group (the west coast of Vancouver Island, for example). The range of years is also variable. In addition to listing escapement data by year, the system can also provide average escapements over a number of years. The reports can be organized by stream or by species and can be rolled up by geographical areas. Cyclical data, such as for the Fraser River sockeye, can also be reported. Escapement in each cycle year is listed, and moving means can be calculated.

The cost of these reports? Well, I thought you would never ask. Certain reports will be printed annually and distributed "free." The rest of the reports which you initiate will be on a "user pay" basis. You pay for computer usage and for transmitting data over the phone lines. It is cheaper after 3 pm and cheapest to run a job overnight. You can sign onto the system after 3 pm, but the system owner or Computer Services would have to set up the request to run overnight.

Cooperation requested

The SED system is a central storage place for escapement data. Except for the maps, everything on the old spawning reports, including comments, went into the data base. The maps will be filed with Habitat Management, to become a part of the map inventory.

Stream ID: 03-5400-350-040
Gazetted Name: DUTEAU CREEK
Local Name: DUTEAU CREEK
Local Name:
Flows Into: 03-5400-350
Watershed Id:
District-Subdistrict: 01-82
Stat. Area-Mgmt Unit: 00-9999

Spawning Run Timing And Estimated Number

Species		Arrival In Strm Mon	Arrival In Strm Day	Spawning Duration Start Mon	Spawning Duration Start Day	Spawning Duration Peak Mon	Spawning Duration Peak Day	Spawning Duration End Mon	Spawning Duration End Day	Est.Tot. # On Grounds	No. Obser vatio
COHO	*1									350	0
COHO	1	Oct	15	Oct	20	Nov	05	Nov	20	350	0

In addition to the spawning reports, the system can store secondary sets of data. These are spawning counts produced by someone other than the fishery officer. If these secondary data are stored centrally, everyone will have ready access to all of the Fisheries data. It also means that short-term studies will not get lost in the mists of time. Therefore, I am making an open request to anyone who has good escapement data that are not on a spawning report. I am asking for two distinct kinds of data:

1) Annual counts - that give a total escapement for a species per stream per year. These could be Habitat or SEP studies, or IPSFC data, for example.

2) In-season daily/weekly counts - that give a specific count for a species on that date. It is not a total over the whole season, just a daily total. Fence counts are a prime example.

If you have data of these sorts, call Louis Lapi (PBS) 756-7140 or Linda Aaloe (Computer Services) 666-2830. We would like to put your data on the system.

Linda Aaloe
Program Analyst
Computer Services

Communications notes

1981 SEP annual report

The large (224 pages) SEP Annual Report for 1981 has been printed--finally. This report documents briefly each of the approximately 300 projects funded by the Salmonid Enhancement Program in 1981. Of these, approximately 150 are small projects operated by volunteers.

The report is used by DFO and Fish and Wildlife Branch staff as a reference document. Other government agencies (for example, Treasury Board), volunteer groups, native Indian bands, and commercial and sportfishing organizations also receive copies.

Limited numbers of copies of this report are available from Communications Branch, 9th floor, 1090 West Pender Street, Vancouver, B.C. V6E 2P1. Telephone: 666-1384.

How to use the report

The SEP annual report has a subject index. There is a good reason for this, apart from the obvious one of its size.

The report is organized according to geographic area. This was done so that all projects on a particular river system would be together in the report. So, if you are interested in a particular river system or geographic area, the report is organized for you.

If, however, you want to refer to all the hatcheries, or want to see where fish diseases have been noted, or need a complete listing of all community economic development projects, the subject index is your first source of information.

Fieldwork bulletin

The pilot issue of the Fieldwork Bulletin has been mailed to about 100 "subscribers" in DFO and the provincial Fish and Wildlife Branch. Its purpose is to circulate information on upcoming field programs in order to avoid duplication of work and to facilitate cost-sharing of programs.

The first issue was timed to coincide with the planning and budgeting exercises of most staff.

The usefulness of the Bulletin will be evaluated before a decision is made to print future issues.

For more information on the Bulletin, please contact Maxine Glover, 687-1442 in Vancouver.

1982 SEP annual report

SEP staff have submitted (they really have, haven't they?) brief reports on projects they worked on in 1982, and the annual report is now being edited and compiled.

The aim is to have this report printed by September 1, 1983.

Contact: Maxine Glover, editor, 687-1442.

Course prepares for the unthinkable

Nuclear war. The very thought strikes fear into all of us. Despite the horrifying prospects of a nuclear conflict, from the initial destructive blast to the long-term effects of radioactive fallout, the situation is not hopeless and people will survive.

Emergency Planning Canada, through the facilities of the Federal Study Centre in Arnprior, Ontario, offers the hope and knowledge which will be required to put Canada back on its feet after a nuclear attack or similar catastrophe. The Department of Fisheries and Oceans will, as will other government organizations, play a part in the rebuilding of our country. To this end, a Fisheries Emergency Control Organization (FECO) course is offered at Arnprior to help train DFO personnel for a civil defence role.

During times of national emergency, it will be the responsibility of the Minister of Fisheries and Oceans to develop and maintain plans for the control and regulation of the fishing industry. To aid the Minister in this task, FECO was set up with headquarters near Ottawa and with field representation at numerous places across the country, including our Pacific Region headquarters. The concept of FECO is based on existing peacetime field units, such as fishery districts, and any emergency planning will therefore only be an extension of normal responsibilities. In the event of a war or similar catastrophe, panic and confusion will probably run rampant, and it will be important that emergency plans be simple, yet effective.

The role of the Department will be to control and direct the movement and effort of the fishing fleet (with direction from the Department of National Defence), to regulate the catching, landing, processing and inspecting of fish and to control the delivery of fish products as specified by the National Emergency Agency for Food. Our contribution to emergency planning will be to provide food in the form of fish and fish products to Canada and her allies.

As individuals, we cannot control the events which may lead to a nuclear conflict but, should

that day ever come, our efforts in Emergency Planning Canada and FECO, in particular, will be instrumental in helping the survivors to cope.

Gary Buechler
Fishery Officer
Offshore Division

Some tips on money management

Benjamin Franklin, author of Poor Richard's Almanac, founder of the first newspaper and the first post office in the United States and discoverer of electricity, once wrote that "in this world, nothing can be said to be certain except death and taxes."

Franklin's sardonic wit could easily be applied to the current attitude toward economic recession; that recovery is just around the corner. Don't count on it. Begin wise money management practices now and you will be better off regardless of the world economy.

The following are some good ideas on money management, provided by Derek Parker, a certified general accountant; Patricia Mugridge, an accountant and personal financial consultant and; Martin Draper, a manager with the Royal Bank. The tips are excerpted from a brochure entitled "Foiling Inflation."

- Set your financial goals, both long-term and short-term, to correspond with what you want from life. Those goals could be vacations, a new car, a home, a bigger family or just getting out of debt; but determine your goals and start working towards meeting them. Make them a target.
- Take inventory of everything you own, what you owe and the skills you possess (specialized skills and degrees will enhance your net worth).
- Develop a realistic budget, taking the above into consideration. Make provisions for your lifestyle and particular weaknesses. Reduce unnecessary expenses.
- Consolidate debt if it is unmanageable and consider cashing in some savings to reduce debt load. (Remember, however, that tax-free savings such as registered retirement plans become taxable once they are cashed in.)
- Pay cash for purchases or repay credit companies as soon as possible, preferably within the 30-day billing period.
- Consider ways to expand or stretch your present income (second job, car pool).
- Once you have decided to change your money management style, stick to your guns and don't give up.

Look for helpful financial advisers. Start by finding a financial institution that caters to your needs. Shop around until you find banking personnel with whom you feel comfortable.

Realize it isn't easy to change your financial lifestyle, the way you now manage your money, but if you can become more businesslike, you will see positive results and get more for your money.

Aquaculture data

The U.S. National Aquaculture Information System contains almost 10,000 articles and is available to Canadian users.

Carol Rideout, chief of the data base's User Services Branch, informs us that the system, located at the Virginia Institute of Marine Science in Gloucester Point, Virginia, is both large and comprehensive. Articles in the aquaculture data base come from books and from regularly published journals from around the world. Most entries have been published after 1970, but some older, fundamental materials are available.

To request a search for any aquaculture topic, contact: Carol Rideout, Virginia Institute of Marine Science, Gloucester Point, Virginia 23062 (phone: 804-642-2111, local 196).

Letters

"Spurious" alternatives

Dear Editors,

As you mentioned in the last issue of the Sounder, subtle changes have taken place and this staff vehicle has taken on more sophistication than it had when it was first published by the Northern Operations Branch. Where it was once burped up by a Gestetner, it now does a jet d'eau from a marvel of electronic wizardry, and changes naturally follow.

I won't say that change has been entirely for the better. The old Sounder gave the staff a chance to, once in a while, raise a boot smartly toward the seat of authority (we called it a kick in the ass in those days and sometimes we got a smart one in return). The Sounder now, as you pointed out, presents more technical information and there is less accent on levity.

So now you need a new title for "Spurious Emissions." How about "Time & Tide?" That suggests both change and things nautical.

I greatly appreciate receiving the Sounder and I pass it along to ex-fishery officer Jack Beadnell. Jack gives it to ex-fishery officer Joe Fielden. What Joe does with it, I know not. Anyway, keep up the good work and, if for any reason you have to shorten your mailing list, start at the top and work down. I'll be waiting here at the bottom.

John E. Robinson
Comox

Dear Editors,

I think a new name for your column should be "I declare." It kind of sounds nice. I hope you find my suggestion acceptable.

Dorien Christie

You were close, John, but no cigar (this is a non-smoking office, anyway). The new name of the Sounder's staff column, previously known as "Spurious emissions," is "Tidings." "Tidings" means news and information, has a friendly sound to it and bears a root word that is homonymic to "things nautical."--Editor

---

"Laurier" prints available

Dear Editors,

I have had a number of inquiries for a pen and ink drawing of the "Laurier," similar to the one I did of the "Howay." I have just received the lithographs back from the printers, so if any Fisheries staff are interested, they can purchase one from me by writing (better to write than phone): RR3, Hadow Road, Salmon Arm, B.C. V0E 2T0.

This is a limited edition print of 200. The plate is destroyed after printing. It is lithographed from an original, hand drawn in pen and ink, and each print is numbered and signed by myself. The price is $24 (cheques or money orders are fine). The image size and background match the "Howay" so as to make a set.

Should anyone want the same print number as their "Howay" print, please indicate and give the number to confirm my record. I still have a few "Howay" prints ($22) left, if anyone is interested.

Hugh McNairnay
Salmon Arm

Born March 20 to Pauline and Lyle Enderud, Massett fishery officer, was a son, Colin, weighing 3.2 kg.

Born March 18 to Janice and Randy Brahniuk, fishery officer, Queen Charlotte City, was a daughter, Deena'Marie, weighing 3.7 kg.

Al Gibson, chief, administrative services, returns to Field Services Branch April 18 after a secondment with the Pearse Response Team.

Born to Flora and Dan de Montreuil, SEP Engineering, a daughter, Lynette Marie. Lynette was born on February 10 weighing 4.4 kg.

Born to Cheryl and Dave Mullen, Finance, Support Services Branch, a son Paul Dolan, on March 6, weighing 3.6 kg.

Born to Linda and Rob Morley, a girl, Shannon Nicole, weighing 3 kg, on March 16. The pre-season forecast by Dick Beamish was for a boy. Another FRB prediction has gone awry!

Fishery officer Les Dane transfers from Kitimat to Prince Rupert, effective May 1.

The successful person in a recent competition held for acting unit head, North Coast Facilities, SEP, was Cam West.

Leaving the Department is Waita Klapwijk, draftsperson, SEP Engineering.

Deadline for the next issue of the Sounder is May 2. Do you have anything to contribute?

Tug-of-war of the sexes at recent SEP Special Projects Division meeting produced no clear winners.

Where are they now?

John Robinson, former fishery officer, moved from Vancouver to Comox upon his retirement.

John and his wife Cathie are freshwater fishing "nuts." They both enjoy sportfishing and spend considerable time at it. John acts as the guide. John and Cathie have their own garden and help with a larger one in exchange for a share of the crop. Both of them are involved with the Canadian Diabetes Association (John is the secretary of the local branch) and visit service clubs to speak about the disease. They also play bridge, visit their children and grandchildren, and take an interest in local politics.

John enjoys the Sounder and passes his copy along to Jack Beadnell, another retired fishery officer.

Pat Mason
Decentralization Services
Nanaimo

Lyle Reid

Problem: We need good photographs to illustrate Fisheries publications.
But we cannot afford to hire photographers.
And we cannot afford to buy stock photos from an agency.

Solution? LET'S HAVE ANOTHER SOUNDER PHOTO CONTEST!

Brilliant idea.

Introducing, the late, great, third "annual" Sounder Photo Contest.

With prizes!
And glory!
And glorious prizes!

Contest rules

1) Contest opens January 1, 1983, and runs to July 1, 1983.

2) Open to all Fisheries staff.

3) Categories are all related to Fisheries activities.

They are as follows:

a) Commercial fishing (any fishery)
b) Sport fishing
c) Native food fishing
d) Fish processing
e) Fisheries staff at work
f) Fish or marine life in their habitat

4) Enter slides or prints (with negatives attached) of any size. They may be black and white or color prints.

5) Do not write any description on the photo. Enclose a separate note with the name of the photographer and the description.

6) Enter as often as you like.

Prizes

Prizes of $100 each for the top photo in each category.

- Judges' decisions are final. Prizes will not be awarded unless photo quality merits it.
- All entries become the property of the
- Department.
- Don't be discouraged from entering. Anyone can take a winning photograph!
- Send all entries to: Sounder c/o Maxine Glover, 6th floor, 1090 W. Pender St., Vancouver, B.C. V6E 2P1.
- Photographers will be credited if their work is used in any publication.

SOUNDER

Volume XI Number Three

May 1983

Roe herring fishery

New quota system relieves pressure

"This was the first time in quite a few years that I've been able to stand downtown and smell herring," says Lloyd Webb, herring coordinator, "and that smells good to me."

All things considered, the 1983 roe herring season was a good one, due in part to the adoption of a new fixed quota management system for the hectic fishery. (Some problems, such as the disputed opening at Nanoose Bay, occurred on the grounds, but these had nothing to do with the quota system.)

Under the new management system, size of the stocks and fishery catch quotas are decided well in advance of the fishery, taking some of the strain off the fishery officers on the grounds. In past years, management decisions have been based upon acoustical soundings made as the herring arrived to spawn. The new system was first considered prior to the 1982 fishery, but there was not enough time to institute it.

"In 1982, when I joined herring fishery management, I began by investigating size of stocks," Lloyd explains. "When I asked how many tonnes of fish there were, I got about 15 different answers."

As expected, there were considerable variations in the stock estimates put forward by each of the groups involved. Most fishery officers said the stocks were weak, relative to the other groups. Management biologists generally claimed the stocks were slightly larger than what the fishery officers said. A higher estimate came from Fisheries Research Branch (FRB) scientists, while scientists at UBC insisted that the stocks were even stronger.

"The farther away you got from the actual field management of the fishery, the more herring there were believed to be."

To overcome these discrepancies, an interbranch roe herring committee was formed last spring. The committee is made up of managers, biologists and technicans from the

continued on page eight

Techno-talk produces wet feet

Once upon a time, when the western world was saving Korea from itself, the American government began calling certain military attacks "police action." A few years later, there arose a conflict in southeast Asia that "escalated" into the Vietnam War, during which U.S. forces made "incursions" into communist territory.

Military jargon was no longer confined to the military; it had become the fodder of politicians attempting to soften unpopular policy announcements. As the late Marshall McLuhan said, "the medium is the massage," and the public was being massaged so that it would more readily accept a war that should never have been accepted in the first place.

About the same time, the U.S. National Association of English Teachers began its own war, waged with the peaceful but effective doublespeak award. The doublespeak awards are annually awarded to persons, generally of political notoriety, who most infamously use deceiving or confusing language. Recipients do not accept doublespeak awards, they admit to them.

The name "doublespeak" was inspired by George Orwell, who in his well-known novel, Nineteen Eighty-Four, has the voice of authority, Big Brother, constantly misinforming the people in the language of newspeak. As the people's only source of information, newspeak is calculated to deceive. Doublespeak also may be commonly referred to as euphemism, bafflegab, gobbledygook, poppycock, or several other words I won't use here.

But doublespeak is not strictly the language of politicians, and it is not always deliberately coined to confuse or deceive. It just happens, regardless of whether the speaker is "targeting" his words or "interfacing" with the public. Nonetheless, once the jargon is "offloaded" from the speaker's brain, a "mass wasting" of usage results. In effect, a verbal crime has been "decommitted." No amount of "shot-rocking" or "rip-rapping" is going to protect the language from "spillover effect." Not even if the speaker is "lateralled" to the deep blue Pacific. (That would be one "outmigration" he'd never forget.)

I am not trying to suggest that Fisheries staff ever intentionally pursue such "regimes." There's no harm in "requisitioning" one's vocabulary for a good word, especially when you're in your own "refugia." However, think of the "impacting." If we continue the "dischargement" of such language, we'll end up in a sea of bafflegab, awash in a "flood event" unseen since the time of Noah. Neither "revitalizations", "air liberations" nor "dewatering" could save our flagging tongues.

In the future, if anyone uses this kind of language, don't "terminate" them, just tell them to go "walk a creek" (for if the bible said it, it must be true).

This is the "bottom line."

Mike Youds

Cover photo: roe herring test fishery.

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Newsletter of the Department of Fisheries and Oceans, Pacific Region.
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Sounder is printed eight times a year for the staff of Fisheries and Oceans. Opinions expressed in the Sounder do not necessarily reflect policies of the Department of Fisheries and Oceans. No articles may be reprinted without the editors' permission.

Government of Canada
Fisheries and Oceans

Scott Cove logging camp on Gilford Island.

Mystery philanthropist funds project

SEP's volunteers have often shown ingenuity in obtaining resources for enhancement, but Bill MacLeod must surely have hit the jackpot.

Bill, a DFO patrolman, has received $50,000 from a wealthy American benefactor to build a small hatchery for coho in the Broughton-Gilford Islands area.

The American, a sport fisherman, met Bill last year. Their discussion touched upon a mutual concern: the decline of coho stocks in the area. Bill mentioned the efforts of the Salmonid Enhancement Program and the American became very interested.

The American set up a trust fund, subject to these conditions:

- Bill MacLeod be responsible for the project
- DFO make every effort to control overexploitation of the hatchery production
- he remain anonymous.

Bill is the project's prime mover, but several others are involved, too. Bob Hurst, SEP's community advisor for the Nanaimo area, developed the plans for the hatchery, helped with the selection of a site, and saw the project through the usual "red tape."

George Bates, the newly-established CA in Port Hardy, took over where Bob left off; he helped select the donor streams and will provide expertise to the project.

The volunteers on the project are numerous and varied. Bill Proctor, a commercial troller, has spent most of the off-season working on the project.

Many of the people of Scott Cove, a tiny logging community on Gilford Island, have donated their time, and Whonnock Industries, the logging company, has donated equipment, vehicles and part of their special use permit (for the hatchery site) to the project.

The project is a satellite hatchery of a sort. (A central facility will be used, but all stocks will be incubated and reared together.) The plan is to obtain brood stock from six donor streams and incubate the eggs at the hatchery. Resulting fry would be fed and released as smolts from Lower Loose (Scott Cove) Creek. In three to five years, when this stock is rebuilt, some of the progeny fry would be transplanted back to the six donor streams. In this way, the stocks of seven streams would be rebuilt.

Bill has also made use of some job creation funds to hire eight people to clear the donor streams of old logging debris. This job won't be completed when the job-creation funds run out in July, but a dent will have been made.

Apart from the time spent on the project by the CAs, SEP has spent $2,500. Gifts of $50,000 are rare, admittedly, but volunteer projects have a knack for bringing to SEP more than SEP invests in them.

Maxine Glover
Editor

Defining 'no net loss'

The following article is a summary of a presentation given by Jim Walker, chief of habitat management, B.C. Fish and Wildlife Branch, at a recent Habitat Management Branch workshop on the concept of "no net loss."

There is really no such thing as "no net loss" of habitat. They're not making any more habitat and if some is destroyed, it is lost, possibly irreversibly so. In the face of this, there is only one realistic course of action for an environmental agency. First, define those areas that are of so high a value that no development or deterioration of them will be condoned, and make that a loud and clear policy statement. On other sites, where some development can proceed, there should be an attempt to mitigate, and where that is not possible, compensation should be demanded for foregone benefits from the fishery resource.

From the provincial perspectives, the first compensation settlement was made in 1967 for the losses to fish and wildlife caused by the Duncan Dam. The Fish and Wildlife Branch received $750,000 with which to construct the Meadow Creek spawning channel for kokanee and $330,000 for the establishment of the Creston Valley Wildlife Management Unit. Then in 1974, in discussions about the Seven Mile Dam, the Comptroller of Water Rights ruled that Hydro could build a contentious access road for the dam, but they would have to pay the Fish and Wildlife Branch $1.8 million to replace lost whitetail deer winter habitat. Because of the debate over the cost effectiveness of such an award, the then ELUC Secretariat set up a committee which developed the "Environmental and Social Impact Compensation/Mitigation Guidelines," July 1980.

In 1975, the provincial Fish and Wildlife Branch appeared as an objector at the Revelstoke hearings. Six years later, an agreement was signed for $5.98 million as compensation for fish and wildlife damages caused by the Revelstoke Dam. In 1979, an agreement with Hydro was concluded for construction of a pilot rainbow trout hatchery at the Peace Canyon, as compensation for fishery losses at the Site One dam. Last year, the Ministry of Environment presented a proposal for approximately $5 million to the Site C hearings to compensate for anticipated losses from the proposed dam on the Peace River. Another recent milestone is an agreement concluded in April 1983 between the Ministry of Environment and Valley Copper (Cominco) for

$250,000 as compensation for losses in draining two lakes in the Highland Valley area. This agreement is significant in that it is the first such agreement with the mining industry.

In spite of the fairly extensive experience with compensation settlements over the last decade, there are still many outstanding and unresolved problems relating to the whole issue of compensation for environmental losses.

Estimating the value of lost resources is a problem. There are intangible environmental attributes that are difficult to price in today's economic terms, or that cannot be compensated for, such as free-flowing rivers, aesthetic or wilderness values. Policy statements should reflect the fact that everything cannot be priced, bought or replaced.

Having received compensation once, it is easier to do so the next time, and to accept artificial measures as a panacea for every habitat loss. Policy guidance is very critical to counter the arguments of those who want to take every dollar available and replace natural production with the latest type of fisheries "technofix."

Everyone speaks about "compensation in kind," but species such as grizzly bear, mountain caribou or even some fish species simply cannot be enhanced. Compensation does not mean actual replacement in every case, and the public should not be misled into believing that it does.

Another problem is the basis on which fish and wildlife losses are evaluated. Estimates of loss should be based on the capability of the habitat, not simply the standing crop at the time of development, if our intent is really to protect the capacity of the system to produce fish and wildlife, not simply fish or animals per se.

It may not always be absolutely necessary to accurately estimate the numbers of fish lost due to a development. If the environmental agency and the developer can reach agreement on a figure for estimated losses, which is high enough to be on the "safe" side, exact quantification of lost resources may not be necessary, and may be an inefficient expenditure of funds.

The thorniest problem with the entire issue of compensation is how to administer and utilize the funds. In the past, there was no mechanism by which money could be paid directly to Fish and Wildlife and earmarked for a specific purpose.

Recently, to avoid this dilemma, a third account has been established in the provincial Habitat Conservation Fund to receive compensation donations earmarked for expenditure in specific locations.

What about the question of "reverse compensation"? If a watershed were, for the protection of fish, declared a forest preserve, should the Ministry of Forests or the logging companies be compensated for benefits foregone from logging? Or do we only support the concept when someone pays us?

There are many unresolved questions. Compensation isn't an end in itself, but simply one of a whole bag of tricks that we have to develop to be successful in dealing with the very complex task of protecting fish or wildlife in B.C.

Jim Walker
Chief, Habitat Management
B.C. Ministry of Environment

To smoke or not to smoke

Thirty-four percent of the general public smokes cigarettes, a complete reversal of the situation 15 years ago.

Should the Department of Fisheries and Oceans adopt a policy of nonsmoking in its offices?

More and more businesses and agencies are adopting such a policy, depending on the prevailing attitudes of both management and staff. B.C. Tel recently implemented a clean air policy for its large Burnaby offices. Most nonsmokers see the current trend as a positive social development, with positive long-term benefits to personal and public health. (Sidestream or second-hand smoke is equally if not more harmful than that which is inhaled by the smoker.) On the other hand, smokers see the current trend towards nonsmoking offices as a threat to their individual rights.

Tell us in 50 words or less why you think the Department should or should not adopt a nonsmoking policy in its offices. We'll print the best arguments in the June issue of Sounder. Send all "arguments" to: Sounder, c/o Maxine Glover, 6th floor, Department of Fisheries and Oceans, 1090 West Pender Street, Vancouver, B.C. V6E 2P1.

The officer and the training plan

Many of the fishery officers of this Region have wondered about the proposed national program. Well, I can tell you it is alive, well and living in every region of Canada!

The plan is still in the preparatory stage, but is due to begin June 13 in Ottawa. For this Region, what that means is that, as of June 13, we will have recruits in Ottawa for six weeks to take the national orientation training program. Three members of our existing staff will be in Ottawa periodically throughout the six weeks to act as trainers to provide expertise for all of Canada.

Once the six weeks are completed, the trainees for the Western and Pacific Regions will return to their home regions for their first field assignments. There, they will be placed under the supervision of a senior fishery officer who has been designated as a field trainer. The designated field trainers are receiving training presently (there were two courses in February and another one is scheduled for May).

Then, in the time period between November and February, there will be a five-week regional orientation which will include recruits from the Pacific Region and Western Region. During this orientation, they will receive some indepth training on how to perform their duties and will be taught how to use the most modern techniques available to do the job. Once this classroom activity is completed, they will then go back to field assignments until the completion of the first year. Next it's on to Regina for a five-week enforcement training program and then on to an interzonal assignment for a short time (up to three months). During this latter stage, they will work in a region other than the one where they were hired. Then, back to a field assignment in their "mother" region until they complete their second year, when they will get their first permanent location in that region.

Enough of the recruit training, let's move on to the existing staff.

The fishery officer career plan is presently addressing the fishery officer's needs in three ways:

- developing training packages for upgrading of present knowledge;
- training officers to be field trainers;
- training staff to give formal classroom presentations using training modules or packages which are presently being developed by field staff.

This Region is also developing course modules on resource management, characteristics of fish licencing, shellfish, salmon, herring, habitat protection, administration, harvesting, statistical gathering and groundfish. The modules are being developed by fishery officers and technical advisors who are experts in their fields.

To conclude, I would like to thank all who have participated in this program. Without their help, we would not be as far advanced as we are. If there are any questions, please do not hesitate to call me at 666-1128.

Brian Richman
Training and Career Development Officer
Field Services Branch

Management training expanded

Mandatory management training within Pacific and Freshwater Fisheries (PFF) was first implemented in 1981-82 following a decision by the assistant deputy minister, PFF, and his committee of director-generals.

The plan was expanded in 1982-83, and over 300 managers in Pacific Region attended management seminars. Late in 1982, Treasury Board announced a policy of mandatory training for each managerial level within the public service: supervisory, middle management and senior management. The Treasury Board policy complemented the PFF program to such a degree that PFF managers are exempt from the program, providing they meet the requirements of the PFF plan.

This year, the training plan has undergone another expansion. The plan requires that level I (supervisory) and level II (middle) managers undertake training as follows.

Level I - (supervisory) managers

Module I
- basic information seminar (previously known as "first line supervisors' familiarization course")
- presented by Pacific Region personnel - 4 days

Module II
- supervisory functions (previously known as "level I management seminar")
- presented in-house by consultants - 4 days

Module III
- performance coaching and review/stress management (new module)
- presented in-house by consultants - 5 days

Level II - middle managers (previously known as level II & III managers)

Module I
- departmental and government processes (new module)
- presented in-house by departmental officers - 5 days

Module II
- middle managers in the organization (previously known as level II and III management seminars)
- presented in-house using consultants - 4 days

Module III
- performance, coaching and review/stress management
- presented in-house using consultants - 5 days

Module IV
- leadership, influence, negotiating (new module)
- presented in-house using consultants - 5 days

Middle managers are described by the Treasury Board's management training board as "all those who occupy positions classified below the management category, who are responsible for administering a budget and have signing authority for expenditure of that budget, and who have supervisory responsibility directly or indirectly for a minimum of four people."

Supervisors are described as "all those who occupy positions classified at a minimum at the CR-4 level or equivalent, and who have supervisory responsibility directly or indirectly for a minimum of four people."

Mandatory management training for members of the senior management category will be implemented under another plan.

With the exception of module I at both levels, the modules were designed to provide a continuum of training (for example, one week per year, over a three or four-year period, according to the management level). Attendance at the module I seminar may be scheduled in the same year as modules II, III and IV because it is not part of the continuum.

To assist branch managers in planning training for 1983-84, an inventory has been developed of employees at each management level, together with the modules they have attended over the past two years. These branch inventories list only individuals who occupy level I or II management level positions and who should receive first priority for training. All other nominations are considered as training for development purposes will require expenditures of additional funds.

The tuition cost for each seminar will be $240. More than 500 managers within PFF (365 in Pacific Region) will be scheduled to attend the various modules in 1983-84. Other costs such as travel, accommodations and meals may be involved.

Current planning calls for all management training to take place between November 1983 and March 1984. Experience indicates this period to be most suitable for Pacific and Freshwater Fisheries employees to attend training seminars.

Fred Iviney, Personnel Manager, Pacific Region, is the innovator of the PFF mandatory training program and is the project manager of the PFF human resources management working group. This group develops the plans on a yearly basis; I administer the program for Pacific Region.

The serious commitment Pacific and Freshwater Fisheries senior management made three years ago to upgrade the qualifications of its management cadre demonstrates considerable foresight, especially in view of the new Treasury Board policy which prescribes that managers be provided with training appropriate to their level in the organization. We're ahead of the game!

Hilary Schwenk
Human Resources Planning
& Training Officer,
Personnel Services

Converting waste to working ad

Each year the herring of British Columbia migrate into inlets and bays to spawn on vegetation in and below the intertidal zone. After the eggs have been deposited, mortalities are high--smothering will occur if spawn deposition is too heavy. Seabirds may consume two thirds or more of the eggs on shallow beaches which are exposed at low tide. Wave action during storms will often tear loose the eggs and substrate and wash them up on the beach above the high waterline. Almost every year, hundreds of tonnes of herring eggs are destroyed in this manner.

Over the years, spawning patterns have changed somewhat. Perhaps due to fishing pressures or environmental conditions, areas which previously supported the rearing of larvae and juveniles no longer receive spawning stocks. Many of the areas not used are known to be suitable for herring rearing. On the other hand, it is known that some of the spawning areas used by the herring are not ideal.

With a view to the possibility of restoring herring stocks in suitable areas, a proposal to carry out a pilot herring-egg salvage and transplant project was submitted, to the Department of Supply and Services (DSS) unsolicited proposal program, by Tidal Rush Marine Farms Ltd. in association with Dr. Jeffrey Marliave of the Vancouver Public Aquarium. The project was approved and received funding from DSS and the Fisheries Development Program. Dr. Doug Hay of the Pacific Biological Station was appointed as scientific authority, and work began in time for the 1982 roe herring fishery.

During a storm at the end of March 1982, a substantial quantity of herring eggs was driven onto the beaches at French Creek near Parksville. A crew was recruited from Malaspina College and it began to collect the eggs using shovels and sacks. The eggs were then transported to Hidden Basin on Nelson Island by pickup truck and landing barge. This first transplant was unsuccessful for several reasons; the eggs were compacted in the burlap bags, spraying of seawater was not utilized to prevent temperature rise or maintain a flow of water over the eggs, there were time delays in the transport, and when the eggs were transplanted at Hidden Basin they were placed in water too deep and over too small an area, so they tended to pile into drifts and sink into the mud. No larvae survival was recorded for this first shipment.

For the remaining transplants, the spawn was shovelled directly into the box of the truck and then onto the deck of the landing barge. Experiments conducted to

New quota system relieves pressure

continued from page one

Field Services Branch and scientists from the FRB. Paul Sprout, senior biologist, North Coast Division, was selected as the committee's chairman for the first year. The committee met in Parksville and pored over stock models and available population data.

"They didn't want to get into the same situation as in past years, where the criteria for opening a fishery were decided entirely by acoustics," Lloyd explains.

Sometimes the fish trickle into the spawning grounds and do not show up too well on acoustical soundings, or they all arrive in one great crowd and it's very difficult to tell between, say ten and 12,000 tonnes.

"The system for managing the fishery was a very inaccurate one, and in situations where you're not sure, then, of course, you stay on the safe side." As a result of these inaccuracies, the fixed system was recommended to the herring working group.

When the roe herring committee reached a consensus, they passed on their assessments to the herring working group. The working group comprises area managers and the district supervisors in charge of the actual on-the-grounds management. At this level, a variety of factors were weighed against the stock assessments. The stocks may well be considered undersized, or may be located in unfishable or politically sensitive areas. The fish themselves may well be considered too small for good roe products, or may be located in unfishable or politically sensitive areas. The herring working group ultimately decides how much will be harvested and when the fisheries will take place.

"In the Gulf [of Georgia], we've been working on a fixed quota system for a number

determine the best way to maintain the eggs out of water, indicated a requirement to keep the eggs cool and damp; that mortality can be avoided during transport for at least 48 hours and possibly right up to hatching. Spraying the eggs with seawater, coupled with manual turning of the eggs to improve drainage, appears to be one of the most practical and effective methods.

Herring eggs were transplanted at several sites in Hidden Basin and a monitoring program was set up. After the hatching period, plankton sampling was initiated and continued over a period of one month to indicate larvae dispersal and survival. Within days of hatching, the distribution of larvae shifted from the head of Hidden Basin toward the mouth. Larvae were documented to exit the inlet on outgoing tides, but their distribution outside Hidden Basin was not sampled until later on in the project.

Several weeks after larvae could no longer be captured in nets, a survey was performed which revealed the center of abundance to be just outside Hidden Basin, in Billings Bay. Although a precise estimate of the surviving herring has not been made, observations have indicated that overall survival has been quite high.

It was intended to expand this pilot

Volunteers collecting herring eggs.

project during the 1983 roe herring fishery; however, the right timing of spawning and stormy weather did not occur to produce sufficient quantities of viable herring eggs for transplant.

Although success of the project cannot be fully determined at this point, one-year-old herring are currently being found in and around Hidden Basin and will be monitored on a continuing basis.

Bob McIlwaine
Chief, Fisheries Development Division

---

of years, so it didn't make that much difference this year," says Jack Broome, assistant district supervisor in Nanaimo.

"But yes, it does take a lot of the strain off the managers."

Efficiency of the roe herring fishery is increased in several ways. There is a better guarantee of conservation because the quotas are based on the size of the entire stock, rather than on the number of herring returning to a particular area. In the past, overfishing sometimes occurred when a large surplus returned to a local area despite the weakness of the common genetic stock. Division of the catch between seiners and gillnetters is more equitable under the new system because allotments can be made in advance, rather than on the spur of the moment. Furthermore, herring are unlike some salmonid species in that they do not always return to a particular spawning area; they tend to wander, another reason why local acoustical soundings will not truly reflect the size of a stock.

Overall, B.C. herring stocks remain in good health. Stocks have been declining on the west coast of Vancouver Island for the past five years (the roe herring fishery began in 1972), and this fishery may have to be closed next season. However, herring stocks have stabilized at high levels in the Strait of Georgia and in the Queen Charlotte area, with some added strength in the north coast areas.

"We've maintained our spawning escapements right up until last year," Lloyd says.

"We're not in a spring salmon situation where we're not getting our spawners. We're getting our spawners."

Mike Youds

Safety on the job

Mammalian reflex saves lives

Cold water and a primitive reflex show significant potential to drastically reduce deaths due to drowning--good news for high risk people who work or play in, on, or around water.

Every year, about 70 to 80 people die by drowning in the chilly waters of British Columbia's rivers, lakes and oceans, but recent medical research indicates that many drowning victims can be saved. Studies suggest that the death toll could be lowered by as much as 80 percent if more people knew the facts about cold-water drowning and the proper rescue techniques.

Miraculously, scores of drowned victims who have no visible signs of life are being revived. Equally startling is the fact that many such victims show no signs of brain damage: in 25 cases, 20 people were revived without brain damage. In a Canadian study of 30 children, 20 were revived with no aftereffects. In each study, only one person died. Obviously, not all drowning victims can be saved (and without brain damage), but the average recovery rates in these cases are good news for future victims of cold-water drowning.

Mammalian Diving Reflex

Responsible for these recoveries is an as yet little understood mechanism in humans--the mammalian diving reflex. This automatic response, perhaps similar to that of diving sea mammals that are able to survive for long periods of time under water, is triggered by sudden contact with cool water (21°C or lower) and prolongs survival. When this reflex occurs, breathing ceases. The blood (hence the oxygen supply in it) stops flowing to the outer extremities of the body and is instead rerouted to the core areas--lungs, heart, and brain, where it is vital to sustain life. The entire body cools, requiring far less oxygen (for instance, at 18°C, oxygen requirements are reduced to 22 percent), so although the oxygen supply is very limited, only small amounts are needed to prevent brain damage.

These drowning victims appear to be dead. They exhibit no external signs of life; there is no breathing and no heartbeat, the pupils are dilated and the skin is bluish, indicating a lack of oxygen. In addition, extremely cold water may cause the victim's muscles to become rigid. A rescuer may mistakenly identify this condition as rigor mortis, a progressive muscle stiffening which occurs when the muscle protein thickens a few hours after death. Believing the victim to be dead, the rescuer may fail to initiate lifesaving techniques, and the victim--who might have lived--dies.

Survival Factors

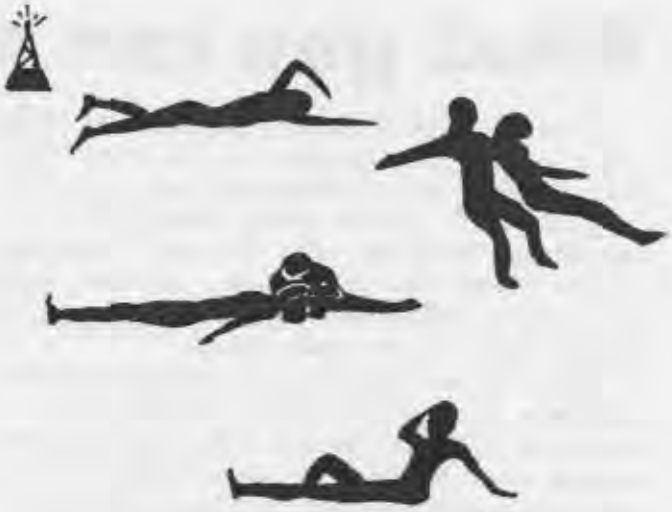
Other than temperature, vital factors for survival are the victim's age, the length of time he or she has been immersed under water, and the rescuer's attempt at resuscitation, as well as expert follow-up medical care.

Young people, particularly children, stand the best chance for survival: in one study of cold-water drowning, 66 percent of the people who were successfully revived were children under four years of age. One of the reasons why children have the favored odds is that their diving reflex is more pronounced. (The diving reflex may gradually diminish as an individual grows older, similar to the way that a newborn human baby loses its automatic swimming response in early development, only slower.) This diving reflex may be more evident in the young because children are decidedly more vulnerable to the lower temperatures that are known to trigger the reflex.

Upper time limits for successfully reviving such victims are not yet known; however, safe submersion times of up to 40 minutes have been recorded. Because this is similar to the time in which the body is cooled and the heart--thus blood circulation--is routinely stopped during cardiovascular surgery, it may be essential to retrieve drowning victims within the same time frame--40 to 60 minutes or just slightly longer.

Most crucial to survival, however, is the rescuer's actions. (See box for lifesaving tips.) The mammalian diving reflex is a potential lifesaving response, but there must be prompt, sustained rescue efforts by trained people in order to turn it into a lifegiving reality. Further medical research, as well as public education about the existing facts of cold water drowning, will help to decrease both the incidence of brain damage and the number of deaths.

Linda Jamieson
Regional Planning



Lifesavers

Leading cold-water researchers advise the following lifesaving steps when a drowning has occurred:

- Apply artificial respiration (AR) and external heart massage techniques (CPR) right away. (NOTE: This is in direct contradiction to the rule of AR first--then CPR, which is meant to prevent needless heart massage. These experts, however, are referring to victims who have had a prolonged submersion, not to the immediately rescued.)

- Help the victim to retain his body heat so that his temperature doesn't drop further. (Remember he will probably have moderate-to-severe hypothermia, whereby his core body temperature will already be several degrees below normal; a further temperature drop could kill him.) A jacket, coat, rags, or even newspaper placed across the arms and the lower part of the body will help prevent heat loss.

- However, don't reheat the victim by artifical methods, such as a hot bath, sauna, electric blanket, heating pad, or hot water bottle. Instead of helping, artificial rewarming could actually harm the victim. Heat increases the body temperature and raises the oxygen requirements by 13 percent per $1^{o}C$. If there is a high increase in oxygen demand in a drowning victim before he receives proper medical care, brain damage may result where none might have occurred. Existing brain tissue damage that might have been reversible may instead become permanent or it may even increase.

- Keep trying--for hours if necessary--until the victim is revived or until medical help arrives. (But not, of course, at risk to your own health. If possible, enlist the aid of a trained onlooker.) Although it may seem hopeless, don't give up; many such drowning victims cannot be revived during early rescue attempts but will regain consciousness many hours or a day or two later, in hospital. Until medical help is available, the victim must be given continuous AR and CPR

- Medical help is essential: obtain it as quickly as possible. Even if you are able to revive a victim before an ambulance arrives, insist on examination by qualified medical personnel.

What you can expect

The 1983-84 fiscal year will be bringing a number of changes in the paperwork mill. Those who previously just did it and, even if it was wrong, sent it in believing "someone will fix it," perhaps should adopt new attitudes. We all have to learn to live with paperwork, so it's better done right than wrong.

The recent posting of administrative officers in the Field Services Branch division offices is one step intended to ensure that the job is done right. This is not just another step in the paper flow. Instead of mail being sent to the budget and establishment control of the Branch at 1090, it is now sent to the administrative officers and then directly to the department concerned (for example, Finance, Purchasing or Personnel). We are endeavoring to find and eliminate the delays which occur with invoices.

You are all aware of the new Government procedures on payment of interest on overdue invoices. Firms will be allowed to charge interest on overdue accounts--you should have received a schedule which must be attached to each field purchase authority (FPA) form you issue. This means the white copy of the FPA form is to be given to the merchant you deal with. To be sure you get your invoice at your address, ensure your proper mailing address is on the FPA form, where it indicates "Forward Invoice to:" (an addressed rubber stamp is a good idea, giving your departmental address and postal code).

The pink copy of the FPA form is now to be attached to the invoice, together with the blue copy. Don't forget to put the reason for purchase on your FPA form.

Are you using Quik Tickets for air travel? It is most important that these are properly coded with your financial coding (collator and cost code numbers). This isn't always done. If we get a ticket with an indecipherable signature, it can cause the finance clerk no end of problems.

Department of Supply and Services (DSS) has advised us that they will not process travel claims or invoices that do not have postal codes on them. We have been advised that lack of postal codes will result in processing delays. I have been "harping" about postal codes since their inception, but we're going to have to live with them regardless of how we feel personally. And, DSS is reminding us of the need for a full Christian name on travel advance and travel claim forms.

There is now a restriction on the purchase of briefcases, dispatch cases and travel luggage. Section 2 of the Treasury Board circular advises that, "effective immediately," departments are to cease the issue of document-carrying luggage unless the items are essential for job reasons.

Are you completing a monthly vehicle operating report (MV2) for the departmental vehicle you are operating? Please ensure that all costs of repairs are included, and remember, if you do have an accident, those repairs have to be recorded. Circular No. 112 of the Support Services circulars covers this report. Insufficient information could leave you without a vehicle.

Pat Mason
Administration Officer
South Coast Division
Nanaimo

Where are they now?

Captain Bob Walker retired in April 1978 after being with Fisheries for 21 years.

He and his wife, Rhoda, live in Nanaimo and Bob has taken up woodwork with great enthusiam. He started out working on their home, putting in new cupboards, a sunporch and shutters on the house. His workshop is something to behold. He lacks nothing in the tool line to help him out with his hobby, at which he is very skilled.

He is so interested in his hobby that he has made two clocks, a grandfather clock and a wall clock for their home. A rolltop desk is another achievement.

When the new Commonwealth Building was erected in Nanaimo, Bob handmade all the furniture for the constituency office of MLA Dave Stupich. The furniture is highly praised by all who have seen it.

Bob is still interested in the commercial fisheries, but appears not to have ever looked back since retirement.

Communications notes

Children's poster contest

The SEP poster contest for children drew a very good response; more than 400 children from all over the province entered.

Where possible, the winners will be awarded their prizes at small ceremonies in their schools. SEP's community advisors will make the presentations.

All children who entered the contest will receive an attractive certificate to thank them for their participation in the contest.

The June issue of "Salmonid" will feature some of the winning entries and a list of the winners.

SEP Information Program

The 1983/84 budget is only 35 percent of the 1982/83 budget, and the program will be affected accordingly.

The "Salmonid," SEP's flagship magazine, will be reduced to four issues this year (from seven last year). Funds have been allotted to respond to requests for the SEP display, which has become popular for community events and in shopping malls throughout the province.

No fact sheets, brochures, slide shows, displays or special publications will be produced this year.

Salmonids in the Classroom

In 1983/84, the primary (kindergarten to grade three) package of "Salmonids in the Classroom" will be refined and taken up to the stage of production. There are no funds to have it produced in this fiscal year.

The "Fishery Officer's" package, a package of materials and lesson aids such as overhead transparencies, will not be produced.

Some funds have been allocated to continue to support and liaise with schools using "Salmonids in the Classroom."

"It costs money to change, and that cost can be computed. But it costs money not to change and that cost cannot be computed."--Dr. Herb True, as quoted in Indiana Bell's Priority.

PNE display

Planning is underway for this year's DFO display at the Pacific National Exhibition, August 20 to September 5. The general theme of the display is research, to tie in with the Pacific Biological Station's 75th Anniversary in Nanaimo. Approximately five ongoing biological and/or technological projects will be highlighted in specific display "modules." Unlike past years, where attempts have been made to relay resource information to the public by means of static narrative graphics, the approach this year is to try to include some participatory/entertaining items to attract a wider, larger crowd of visitors to the DFO booth. The modules will consist of one or more of: lab demonstrations, live fish, commercial gear models, videos and narrative graphic panels.

Following the PNE, at least a portion of the display will be transported to the Pacific Biological Station for use in their open house this fall.

"Putting a little back"

In this new slide show, SEP volunteers tell, in their own words, about their projects and why they became involved.

The slide show was produced for SEP's community advisors, who are often asked to speak to groups about how they can become involved in volunteer projects.

Copies (in slide tape or 3/4" videotape format) are available on request from Communications Branch, 666-1384.

Ideas catalogue

Earl McIvor and Michael McMahon of the Job Creation Unit, Special Projects Division of SEP, have produced a "Preliminary Ideas Catalogue" of small streamside projects.

The catalogue discusses several incubation methods and adult fish fence designs which have been developed within the Division. Advantages and disadvantages of each technique are listed. Photographs, sketches and conceptual drawings are used to show design characteristics.

The purpose of the catalogue is to share information and to stimulate the development of small stream technology.

For more information, contact Colin Masson (666-2570).

Pacific Tidings

Ian Mann, fishery officer in Port Hardy, has been promoted to waterfront officer in Prince Rupert. Al Cowan, formerly seasonal warden in Port Alberni, has been promoted to fishery officer in Queen Charlotte City.

Louise McFall, administrative assistant, SEP Facilities, is currently acting Field Services Branch administrative officer, while Gillian Trushel is absent on extended sick leave. Louise Battell is now acting administrative assistant, SEP facilities.

Fred Ivíney has resumed responsibility as regional personnel manager. An operations supervisor position is being established in Pacific Region Personnel Division and until it is classified and staffed, Gary Norberg will act as operations supervisor.

Lonnie Hindle has returned to Pacific Region. He will be acting as director, native affairs and will be responsible for planning, overseeing and coordinating departmental policies and initiatives pertaining to native issues.

Also returning to Pacific Region is Ron MacLeod, formerly director of Field Services Branch. Ron will be working in the area of long-term strategic planning with both the director-general and Al Wood's Planning Branch. Pam McNally will be assisting Ron in his new duties.

Born to Mr. and Mrs. Rick Nickerson, engineer, "Arrow Post," a son, David, on April 8. David weighed 3.6 kg at birth.

After completing a two-year secondment as associate director, Fisheries Research Branch, John Stockner has decided to return to full-time research in West Vancouver, where he will resume duties as section head of enrichment studies and program head of lake enrichment.

A special celebration was held for Marj Miller, secretary, SEP Facilities, in honor of her "29th" birthday last week. We understand this will be an annual event.

Carol Cross is acting as assessment biologist in bioprogram unit, replacing Cam West who is acting head, north coast unit, SEP.

Ron MacLeod has returned from Ottawa.

Diana Haase has joined the Operations Center, Offshore Division, as clerk.

Vilma Miller has been promoted from clerk to supervisor, Operations Center, Offshore Division. She replaces Suzanne Benoit who has been promoted to management operations officer, replacing Keni Lorette, who is now head of the Offshore Operations Unit. Keni fills the position vacated by Bob Wowchuk, who moved to the newly-created position of recreational fisheries coordinator.

Captain Gordon Irving of the Ship Division informs us that a contract for the new prototype fisheries patrol vessel will be let June 17. The 17-metre vessel was designed with input from Field Services staff.

Sherina Hasham has moved from secretary, herring coodinator to clerk, Operations Unit, Offshore Division.

Sheila Laflamme has moved from secretary, director-general's office, to secretary, herring coordinator.

Promoted to habitat management technician, Prince Rupert, is Uriah Orr.

Abe Crimini, formerly a seasonal warden, has been promoted to fishery officer, Chilliwack, effective April 1.

Habitat Management staff, John Morrison, Bruce Hillaby and Barry Lawley have left headquarters for Nanaimo. Bruce Hillaby is currently acting senior habitat biologist in Nanaimo.

Gordon Kosakoski has assumed duties as habitat biologist in New Westminster. He will be relocating to Kamloops in June.

Alex Rose has joined the Communications Branch as an information officer. Alex was formerly with the New Westminster Columbian.

Terri Feliks, formerly a clerk with the Job Creation Program, has transferred to SEP Facilities.

Charles Lam has joined north coast unit, SEP Facilities, as an enhancement support biologist.

Cindy Green, secretary/receptionist with Economics Branch, has been laid off because of budget cutbacks.

Ruth Arnott, secretary, SEP Engineering, and Lloyd Burr, assistant engineering clerk, have both been laid off because of budget cutbacks.

Barb Snyder has transferred to SEP Facilities, bioprogram unit, as assessment biologist.

Two hours after the last edition of the Sounder went to press, Hilary Schwenk, training officer with Personnel Division, suggested a name for the old "Spurious Emissions" column. "Please consider 'Pacific Tidings'," she suggested. 'Pacific Tidings' it is.

Cookbook available

To help commemorate the Pacific Biological Station's 75th anniversary, the PBS Staff Association is preparing a seafood cookbook and holding an artwork contest for the book's cover.

"Most of the recipes have come from people at the Station or people closely associated with PBS," says Cathy Manson, PBS mariculture biologist who, along with Kathy Best, a groundfish biologist, is coordinating the production.

The book will be of "gift quality," Cathy says, and will contain about 150 recipes. It will also contain a chapter on food preparation methods.

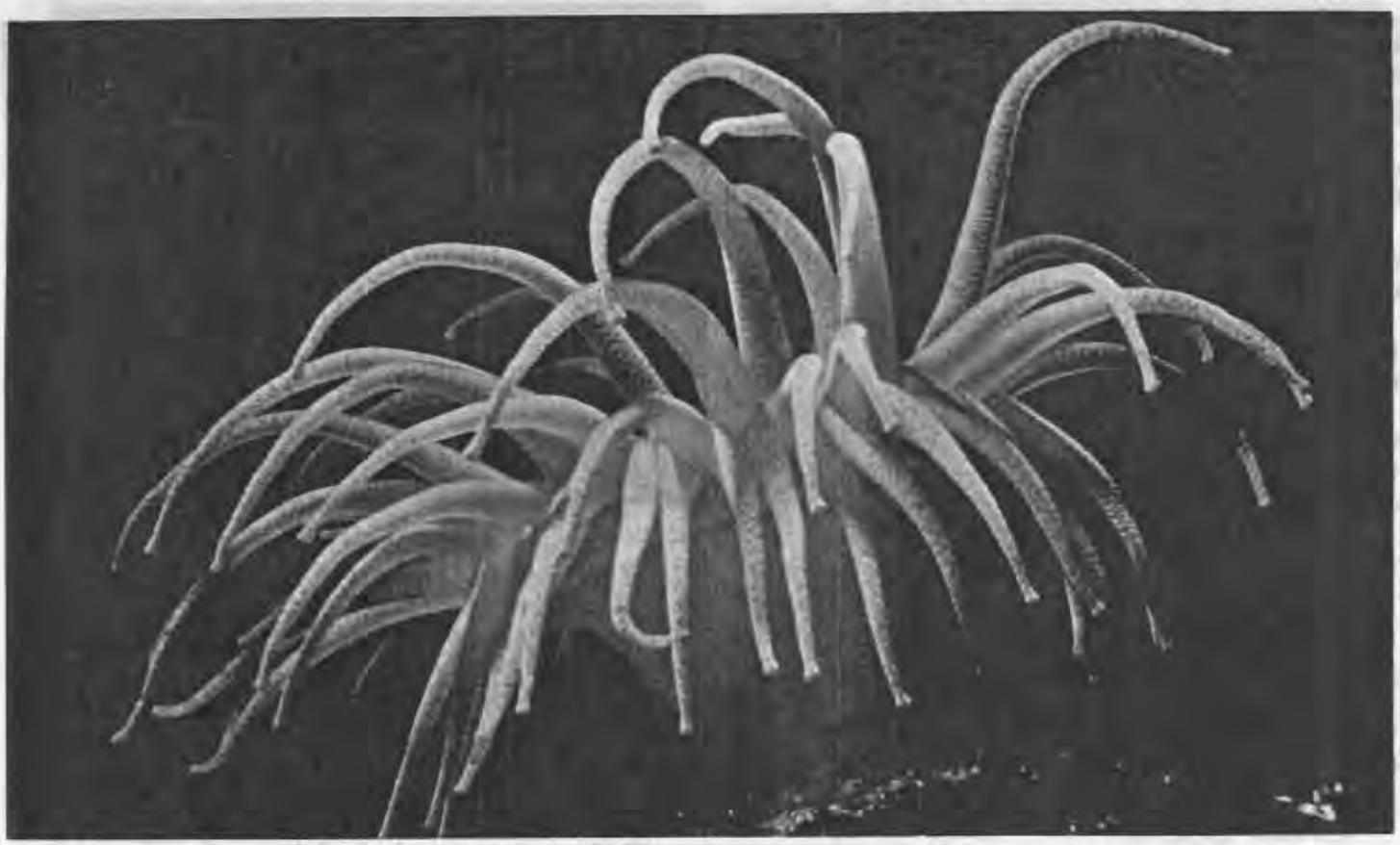
The Staff Association would like to know in advance how many copies might be sold (the cost will be approximately $5 per copy). Anyone interested in ordering copies should obtain an order form from Cathy or Kathy by calling 756-7073 or 541-7073 (centrex). Anyone wishing to enter the cover contest will have to hurry; it closes June 1. For more information, contact the organizers at the phone numbers given above. Order forms are available on each floor at 1090 West Pender Street, Vancouver, B.C. V6E 2P1.

Winning the award for best slide presentation at the 1983 Special Projects Division annual meeting are Matt Foy, Barb Snyder and Greg Bonnell of the Small Projects Unit. Presenting the award is SPD Chief Dennis Deans. Awards also went to Rheal Finnigan, for creativity; and to Cy Walsh, for the worst blunder. While we're on the subject, we should note that the Field Services Branch also has an awards program at annual meetings. In 1982, Mike Brownlee, Habitat Management, won the outstanding initiative award; Inspection Branch won the team work award; Norm Lemmen, district supervisor, Campbell River, won the best supervisor award; and the Habitat Management Branch won the award for best slide presentation.

Correction

It was incorrectly reported in the February issue of Sounder ("Ship shape," Vol. XI, No. 1) that the planing hull design of the "FPV James Sinclair" gives it less stability than the displacement hulls of most deepsea vessels. In fact, the "Sinclair's" planing hull gives it superior stability. (Stability is defined as the ability of a body to return to its original position.) However, the higher center of balance of the "Sinclair" means it is not as "sea kindly," which is to say that it does not favor those with weak stomachs.

Editor



The 1983 Sounder Photo Contest

Problem: We need good photographs to illustrate Fisheries publications. But we cannot afford to hire photographers. And we cannot afford to buy stock photos from an agency.
Solution? LET'S HAVE ANOTHER SOUNDER PHOTO CONTEST!

Brilliant idea.

Introducing, the late, great, third "annual" Sounder Photo Contest.

With prizes!
And glory!
And glorious prizes!

1) Contests opens January 1, 1983, and runs to July 1, 1983.

2) Open to all Fisheries staff.

3) Categories are all related to Fisheries activities.

They are as follows:

a) Commercial fishing (any fishery)
b) Sport fishing
c) Native food fishing
d) Fish processing
e) Fisheries staff at work
f) Fish or marine life in their habitat

4) Enter slides or prints (with negatives attached) of any size. They may be black and white or color prints.

5) Do not write any description on the photo. Enclose a separate note with the name of the photographer and the description.

6) Enter as often as you like.

Prizes of $100 each for the top photo in each categroy.

Judges' decisions are final. Prizes will not be awarded unless photo quality merits it. All entries become the property of the Department.

Don't be discouraged from entering. Anyone can take a winning photograph!
Send all entries to: Sounder c/o Maxine Glover, 6th floor, 1090 W. Pender St., Vancouver, B.C. V6E 2P1.
Photographers will be credited if their work is used in any publication.

SOUNDER

Volume XI Number Four

June-July 1983

The people division

Public participation, community economic development and small-scale technology combine to make the Special Projects Division (SPD) a very special part of the Department of Fisheries and Oceans. This issue of Sounder takes a closer look at SPD, overseer of some of the most exciting government programs ever conceived.

Someone once asked me, "What's so special about Special Projects?"

I guess in the beginning they were special because they comprised some new ideas on which the Executive Director wanted specific attention focused. Ideas like "resource awareness," "citizen participation," and "resource based socio-economic development." Today, these ideas still make things special, but what really makes them special now are the many successes we can look at. Successes of the 7,000 adult volunteers, the 50,000 school students, and the 80 community contractors now reached by DFO through the Special Projects activities.

The Special Projects Division was created just over five years ago. On a Saturday morning, in late 1977, Les Edgeworth, the Executive Director, called me and said, "How about it?" By the end of the conversation, SPD was born. In addition to the above-mentioned initiatives, we were also to look after stream and fishway maintenance, and stream and small project enhancement. The staff, who were going to have to make this all work, came from all parts of the DFO organization: fishery officers, biologists, engineers, technicians, administrators and clerks. The challenge was great. The acceptance of the challenge unanimous.

None of us knew exactly what the outcome would be. We did have some guidelines based on the Cabinet directives, and we all visualized success. The guidelines related directly to the goals established for SEP, which stated:

1. generate new wealth with some efficiency;
2. create new employment opportunities;
3. distribute the new wealth and improve regional economies;
4. improve the socio-economic status of Natives;
5. preserve the production baseline;
6. involve the public in policy and implementation;
7. improve resource awareness.

continued on page four

Politics of smoking reveal silent majority

Expert texpert choking smoker
Don't you know the joker laughs at you

-Lennon/McCartney

The joker laughs at us all. For while smokers do the most harm to themselves, they also bring discomfort and potential harm to anyone in their vicinity.

It is only common sense that has brought about a new movement towards the designation of nonsmoking areas in many buildings. To "test the water" within the Department of Fisheries and Oceans, Sounder invited, in its May issue, responses to the question of whether nonsmoking rules should be introduced for Department offices. We received several responses, but not one respondent put a signature to his or her opinion. One letter-writer suggested I check my facts about the potential harm of secondhand or sidestream cigarette smoke. Here are the facts, produced by Dr. Samuel Epstein, Professor of Occupational and Environmental Medicine at the School of Public Health, University of Illinois at the Medical Center, Chicago.

"Passive or involuntary smoking is the inhalation by nonsmokers of the secondhand products of cigarette smoking, usually in situations not of their own choosing. This type of exposure is potentially serious, because the toxic and carcinogenic (cancer-causing) chemicals released from the burning tip of a cigarette enter the atmosphere totally unfiltered. This so-called sidestream smoke contains high concentrations of tar, carbon monoxide, nicotine and nitrosamines. In poorly ventilated enclosed areas, such as bars, automobiles and conference rooms, allowing one pack of cigarettes to burn has produced levels of nitrosamine carcinogens ten times higher than in inhaled smoke itself..."

It's pointless to ramble on about the familiar hazards of smoking. Let it suffice to say that there is a tragic irony involved with the cigarette habit. The government discourages it with high sales taxes but encourages it with incentives to the tobacco industry and inaction in the field of public health care. I will never forget attending a Terry Fox benefit concert at which the air was thick with tobacco smoke. Billions of dollars are being spent in the pursuit of a cure for cancer, yet cancer is primarily an environmental disease, caused by chemical or physical agents in the environment. The primary cancer-causing agent in the indoor environment is cigarette smoke. One in four people will contract some form of cancer in their lifetime.

Put that in your pipe and smoke it.

Mike Youds

Cover illustration: Project workers from the Sliammon Band, feeding fry contained in net pen near Powell River.

Contents

SOUNDER

Newsletter of the Department of Fisheries and Oceans, Pacific Region.

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Sounder is printed eight times a year for the staff of Fisheries and Oceans. Opinions expressed in the Sounder do not necessarily reflect policies of the Department of Fisheries and Oceans. No articles may be reprinted without the editors' permission.

Government of Canada
Fisheries and Oceans

To smoke or not to smoke

Thoughts and letters about a 300-year-old debate

I charge Sir Walter Raleigh for my plight,
When I wake up late at night,
And fingers grope throughout the dark,
I grab a cig and light the spark.
I try not to impose my shame,
On those who are without blame,
I say, omitting tact,
Get off my back.

Anonymous

P.S. Please check your facts on sidestream or secondhand smoke. In order for that statement to be true, a person would have to receive mouth-to-mouth with every drag.

Happy hackers

Dear Editor,

Although smoking is linked to cancer and other health problems, such as increased risk of heart disease and hemorrhoids, there is one physiological effect of smoking which parallels exercise: the heart beats faster.

This is great, you say. The heart gets a workout while you sit there. Add in the benefits of coughing, which clears the lungs, and the occasional expectoration, which enhances oral scent, and you've got a Jane Fonda exercise program underway. While you work!

The fingers are more active, too, flicking ash left and right. Whew, that's tiring, but it's worth it. Look at that golden tan on the fingertips--a picture of health. Friends and co-workers will appreciate the workout they receive as they attempt to dodge the path of your plume.

Seriously though, the simple fact remains that if smoking is prohibited at 1090, then a healthier atmosphere, physically and emotionally, will appear.

A reformed smoker, 13th floor.

Appropriate solution

Dear Editor,

The Department would be wise to adopt a nonsmoking policy in the working place, where the majority of workers are nonsmokers.

Medical studies show that secondhand cigarette smoke is as much or even more of a health hazard to nonsmokers as it is to smokers. Recent findings of the Ontario Medical Association support this theory.

A special smoking area on each floor would be quite appropriate.

Anonymous

Smokers' rights secondary

Dear Editor,

It is the right of every individual to choose their own destiny. It is not the right of an individual to choose the destiny of another. This is very utopic and, of course, very far from being attained.

Just the other day, two elderly couples were killed when an oncoming vehicle crossed into their lane and collided head on. How does this relate to smoking? Why, it is obvious. The smoker is the "driver" who crossed the meridian and killed the old folks. Of course, like the driver, the

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Special Projects Division

What's so special?

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We organized our units in a way that would deal with the objectives and maximize the skills of the people assigned to SPD. Those units still exist today:

- Community Economic Development Program (CEDP);
- Public Involvement Program (PIP);
- Small Projects Unit (SPU);
- Administration Unit, and in 1982;
- Job Creation Unit (JCU).

There were some operational guidelines. The essence of these guidelines has been that participants, whether volunteers or paid staff, must accept all of the responsibilities of their participation. We would assist them wherever expertise was needed, but we would not do the job. This came as a shock, not just to the volunteers and CEDP workers, but to DFO staff, too. It meant that, for the first time, if people wanted to build and operate an incubation box, it was they, not Fisheries, who built it, installed it, trapped the fish, stripped the eggs, fertilized and planted, and watched over the brood.

The most abject fear expressed by everyone hearing about SPD was that the projects would be uncontrolled and the technical quality of the projects would not be sufficient to meet expectations. Although everyone ensures that this doesn't happen, SPU has the responsibility to advise on the more complex problems. In addition to supporting the other elements of the Division, SPU has been developing innovative technologies which can be applied to the projects and which address the basic problems such as unmanned facilities.

The newest group to join SPD was the Job Creation Unit, headed by Colin Masson. This group used the same philosophical approach to project development and capitalized on the large infrastructure of community-based contractors to implement a province-wide makework program over a very short period of time.

All these activities have been encouraged and supported by as many as 90 people working within the organizational framework of SPD. Their job is to ensure that all participants meet their objectives.

Dennis Deans, Chief
Special Projects Division

Below: SPD staff assemble for a group shot during 1983 annual meeting.

Greg Bonnell

Special Projects Division

PIP: mission accomplished

A newly completed independent evaluation of SEP's Public Involvement Program is encouraging and gratifying, not only for PIP staff, but for all those who share a concern for the salmonid resource.

Public surveys contained in the report reveal a considerable increase in public awareness of SEP, from 44 percent in 1979 to 70 percent in 1983. One of the prime objectives of PIP has been to promote public awareness and concern for the resource. The evaluation also found that about 80 percent of Salmonid readers have changed their attitudes or behavior toward the resource during the past five years. They value salmonids more, support stronger protective laws, practice more conservation, pollute less and obey the Fisheries Act more.

"PIP should be a model for all DFO and SEP," says Christine Lattey, who produced the evaluation in cooperation with Dennis Rank and DPA Consultants.

"The Program is extremely successful from any way you look at it," she says, adding that this type of evaluation usually bears bad news.

The evaluation examines each of the four main components of PIP: education, participation, information and advisory.

It states that "PIP has been tremendously successful in the great majority of its activities. Responding accurately to public needs, it has provided excellent education, information and participation mechanisms. In fact, PIP probably does five times what its budget would indicate, since so much effort is put in by volunteers and by working teachers, at no cost to PIP."

The education component of PIP consists mainly of the SEP educator's package, "Salmonids in the Classroom," which has so far reached more than 50,000 B.C. schoolchildren.

"There are many instances of improvements in both attitude and behavior of students towards salmon. These are often so marked that teachers believe the students are unlikely to harm salmon in later years," the report states.

The participation component, with its nine community advisors and volunteers numbering in the thousands, also scored highly.

"The CAs are uniformly regarded as doing a terrific job!"

A survey conducted to determine the effectiveness of the information component shows that 64 percent of the general public feel they know more about SEP than they did five years ago. The information component consists of the Salmonid newsletter, slide shows, displays and brochures.

The evaluation is more critical of the program's advisory component, which consists of the Salmonid Enhancement Task Group (SETG). The SETG is made up of user group representatives and members of the general public. It makes policy recommendations to the Salmonid Enhancement Board (SEB), which in turn advises the Minister of Fisheries and Oceans.

Some of the criticisms are:

- lines of communication and authority between the SETG and Salmonid Enhancement Board are uncertain;
- the overall role of the Board is unclear to the SETG;
- there are no formal mechanisms for SEP to report back to the SETG.

However, the evaluation recognizes that the SETG has realized some successes; several of their key recommendations (more community advisors, more small stream and community work) have been adopted by SEP.

Reflecting on the evaluation as a whole, Christine reflected on the overall success of PIP, as measured by her evaluation, and advised "If something's successful, don't tamper with it."

PIP faces a budget reduction this year, but long-term funding should continue to bring success to this program of programs.

Special Projects Division

Job Creation Program winding down

In the short nine-month life of the SEP Job Creation Unit, approximately $3 million in funds from the Unemployment Insurance Account (CEIC) and $1.5 million of funds allocated to Fisheries have been utilized to develop over 80 contracts for salmonid enhancement activities, creating jobs for almost 800 individuals.

The program was a part of the national Employment Bridging Assistance Program, designed to provide opportunities for those receiving unemployment insurance to increase their weekly benefit to $240 in return for working on projects. In addition, Fisheries provided wage supplements of $107 and $165 for project foremen and managers, and also provided funds for project support costs up to an average total of $85 dollars per week of work generated.

The activities completed on the developed contracts can be considered under four broad categories; information collecting, direct fish production, habitat improvement and facility augmentation. Many information gathering activities were appropriate for this program and included spawner enumerations, obstruction assessment, fish quality studies, bioreconnaissance, including identification of habitat features, sites for fry planting and subsequent mapping, and life history studies. The construction and operation of streamside incubation systems, brood stock collection, direct fish production, habitat plants and fry planting, all provided direct benefits in fish production. Habitat improvement activities included boulder placement, gravel placement, replanting, erosion control and stream bank stabilization, construction of flow control weirs, fishway construction (best exemplified by the Millstone Creek fishway at Nanaimo) and removal of obstructing debris. Nearly all of the SEP major facilities and many of the CEDP facilities utilized a job creation crew to augment their existing staff by completing tasks which otherwise would have remained undone.

Job creation funds helped finance construction of the Millstone Creek fishway in Nanaimo.

Many sectors of the public were involved as contractors with a complete range of fisheries and contracting experience. Some of the larger contracts were with regional district councils and involved 50 participants or more. The average contract employed eight individuals at an average project cost of approximately $25,000. Contractors also included community salmonid enhancement societies, fish and game clubs, tribal councils and more than 25 native bands, commercial fishermen's organizations and many independent individuals.

The Unit had a staff of up to fifteen; this group was organized to provide an immediate response to job creation, to provide almost all of its own technical support and to be incremental to existing Fisheries staff and their workload. The five project developers played a central role as they were responsible for the development and administration of contracts and ensuring the coordination of those projects with existing SEP activities and plans and regional policies. Two support biologists provided the program with biological advice and specific project direction in addition to the development of new techniques. Technical assistance for the program came from several engineers and biotechnicians and a draftperson.

The SEP Job Creation Program has been able to signigicantly surpass, by approximately fifteen percent, its official mandate to create work. Perhaps more importantly, it can be considered a success from the resulting benefits to the salmonid resource through direct and indirect fish production and from the awareness and knowledge gained by the many individuals who worked on projects. The dedication shown by so many project participants is yet another example of the earnest desire of individuals and their communities to show responsibility for the salmonid resource.

Colin Masson
Head
Job Creation Unit

Job creation aids shellfish research

Shellfish research projects at the Pacific Biological Station, Nanaimo, have benefited greatly from the Job Creation Program. Unemployed people--from marine biologists to advertising designers to bank tellers to recent school graduates--have received on-the-job training to aid shellfish research. Many people, for the first time in their lives, have found themselves working on a day-to-day basis with geoducks, other clams, crab, shrimp, prawns, sea urchins and squid. Geoduck reproduction and recruitment, clam and oyster polyculture, crab feeding and squid surveys are just some of the projects involved. Tasks such as diving, dive tending, shipboard fishery monitoring, intertidal species collection, species sorting in the laboratory and data research contribute to these projects. For example, our geoduck recruitment study on the east and west coasts of Vancouver Island has involved extensive diver sampling for the recently-recruited clams and detailed sorting of the sediment samples in the laboratory, to be followed by taxonomy of the tiny clams.

After four months, the novelty has not worn off, and everyone continues to be deeply involved with the research projects they are contributing to. Many participants see their work as a fascinating interlude between jobs. The participants generally agree that the experience of working within a scientific discipline, by gathering and analysing data in order to answer clearly defined questions, is a valuable experience.

I feel that the Fisheries job creation project has enjoyed a "can't lose" situation. Valuable Fisheries work gets done and the participants learn new skills and broaden their work backgrounds before they move on to jobs in their own fields.

Norm Sloan
Contract Manager
Pacific Biological Station

Special Projects Division

CEDP rooted in community ideals

Margaret Birch, SEP Planning, leads the way to Nimpkish Band Project, followed by Gary Logan, Small Projects Unit and a project worker.

The Community Economic Development Program (CEDP) is intended to address government objectives of employment, well-being of native peoples, and regional development. It accomplishes this by capitalizing on the potential of enhancing the renewable salmonid resources in coastal, remote or economically depressed areas of B.C.

The CEDP grew out of a joint Fisheries-Canada Employment and Immigration Commission experimental program initiated in the 77/78 fiscal year. That program, called the Native Project Pilot Program, demonstrated the potential of contracting out SEP work to Indian bands in order to provide social, economic and enhancement benefits. It was also recognized that some non-native communities could gain from this program. Such communities would be those which had high unemployment rates and strong local interest in SEP. Thus, the program developed a "community" component, even though it remains strongly native-oriented. In the first year of the Native Project Pilot Program, there were five projects managed by native Indian bands and one project managed by a community group.

The specific objectives of the CEDP are related to the broad goals of providing benefits from fish production, long-term job creation, and training in enhancement and management tasks. The objectives are:

1. to contribute significantly to salmonid enhancement;
2. to provide satisfying employment for people who would otherwise be unemployed or employed only part-time;
3. to train community people in enhancement and management tasks with the eventual aim of self-sufficiency in enhancement work;
4. to contribute to the development of community leaders and to reduce the need for capable individuals to look elsewhere for work;
5. to improve the relationship between native Indians and the Department.

In addition to the five formal objectives, the CEDP has another, more informal goal: to test whether relatively

small-scale, people-oriented enhancement facilities can approach the economic efficiency of large-scale, technologically complex ones, while simultaneously providing more employment and social benefits. The early years of the CEDP therefore stressed the concept of using appropriate technology in building hatchery systems. The usual approach to construction was one of "plywood and two-by-fours."

With a current operating budget of $3.6 million (plus $363,000 from the Special Initiatives Program), we manage 13 operational projects and seven developmental projects. Nine of the operational projects are operated by Indian bands; four by non-native community groups. Under a joint funding agreement with the Local Employment Assistance Program (LEAP), the developmental projects have been set up to train project managers for Phase Two of CEDP. Biologists and engineers from the Small Projects Unit are investigating enhancement potentials at Klemtu, Oweekeno, Kitsumkalum, Skidegate, Hartley Bay, Fort Babine and in the Nuu-Chah-Nulth Tribal Council areas on the west coast of Vancouver Island.

The Special Initiatives Program provided funds to build small hatcheries and to do stream enhancement work in Port Hardy, Powell River and Terrace. These projects are all operated by societies employing local people to build and operate the facilities. The 18-month program is expected to put $700,000 into local economies.

The CEDP has demonstrated that training local people in fish culture skills not only contributes to local economies, but also provides a strong incentive to ensure success of enhancement projects. Most of the people involved are committed to their work because they depend on the resources of the sea for their economic, social and cultural base.

A working relationship that works

A combination of common goals and forthright management has resulted in a generally successful relationship between B.C. native Indian bands and SEP's Community Economic Development Program (CEDP).

For six years, CEDP has been working closely with native groups to rebuild salmonid stocks and accomplish the goals of SEP. In all those years and through all that has been accomplished, there have been no major rifts in the relationship. Those CEDP-native Indian projects that have experienced fish culture failures have done so primarly because of conditions that were unsuitable for culturing salmonids. CEDP's overall success is due, in large part, to a good working relationship between our SPD staff and the native groups involved.

"Nothing is done in isolation," explains Don MacQuarrie, who heads the Program. "Everybody is kept aware of the budget situation." Last year, Don chartered a plane to fly the project managers to most of the CEDP facilities. This made it easier for him to explain the extent of the Program and the constraints on the budget, he says. Problems sometimes arise when limited CEDP resources fall short of community expectations. However, CEDP management and the project contractors are continually refining the budget planning process, and this encourages smoother working relations.

Chris de Wirth, project coordinator for the Chehalis and North Thompson Bands and for the Central Interior Tribal Council, points out that a Band's internal organization often varies with each native community. The project coordinators rely on the native advisors to set up the initial meetings with the appropriate individuals in the community.

"When you first go into a native community, you don't automatically establish a relationship," Chris says.

"While you develop that trust relationship--which can only develop over time--you rely upon the native advisor. He is there strictly as a catalyst to make it work."

"I think if CEDP has enjoyed some measure of success," Chris says, "it has been because we've had a continuing presence. The fact that we're still around four to five years down the road works in our favor."

Special Projects Division

Improvised solutions of Small Projects

No matter how far high technology carries us into the future, there will always be something impressive about the improvised solution--the groundwater-fed side channel, the upwelling incubation box, the collapsible counting fence--some of the adaptations that represent the work of Special Project Division's Small Projects Unit.

Small Projects Unit (SPU) is a natural extension of salmonid enhancement in B.C., where a countless number of small streams comprise a considerable amount of the habitat. In most cases, large-scale hatcheries, the traditional means of building salmonid stocks, are simply out of the question. Small Projects has provided many of the answers.

The Unit was established in 1978 to provide technical support for the then newly-created Community Development and Public Involvement Programs of SEP. Small stream enhancement, coupled with the involvement of untrained people, had created a whole new set of circumstances for salmonid culture.

Gary Logan, who heads the unit, summarized its purpose and approach for the Sounder.

"The Small Projects Unit believes in shared responsibility for the preservation of the resource. For that reason we have pioneered joint enhancement projects with companies such as B.C. Forest Products and MacMillan Bloedel. We believe in cost-saving projects. That means either stress utilization of the existing habitat or alteration of the habitat at minimal cost through the development of innovative technologies and simple construction."

The distinction between small and major projects has always been difficult to define. However, a recent evaluation of SPU (prepared by D.B. Lister and Associates Ltd.) points out that small projects, even those involving hatchery facilities, do not have the potential to affect stock manageability problems whereas major facilities do. A small project generally involves an expenditure of not more than $40,000 and includes habitat assessment, stream clearance, bank stabilization and gravel placement. Other activities may include incubation boxes, side channel development, flow control and small pilot hatchery operations. Small projects can be highly cost-effective.

Engineering Technician George Dearle makes last-minute check while blasting boulders in Seymour Canyon. Coho and chinook can now spawn above the Canyon during low flows.

The groundwater-fed side channel, for example, is showing great promise as a relatively inexpensive but productive method of building chum and coho stocks. In their natural state, stream side channels usually present poor habitat, since they often fluctuate in depth and flow. By tapping nearby groundwater, SPU can ensure a steady, dependable flow.

"We're just trying to duplicate optimum natural conditions," says Rheal Finnegan, senior engineer with the unit.

"The opportunities are, I suppose, almost limitless," adds Dave Marshall, senior biologist. "It's just a question of how much you can drain the water table and how much the project is going to cost."

The advantage of side channels is that they provide good spawning habitat for chum and good overwintering habitat for juvenile coho. They also offer low maintenance costs. The U.S. Forest Service has adopted the idea for salmonid enhancement efforts in Alaska.

Project design is but one component of SPU. Bioengineering reconnaissance, the detailed examination of enhancement potential, is the key to successful enhancement. Dave Marshall, together with Matt Foy and Kim West, performs this role for CEDP and Departmental pilot facilities, such as the chinook program on the Zymoetz River near Terrace. In turn, a team of technicians ensures that the projects get off the ground as planned. Construction expertise, explosives know-how and data collection are a few of the individual skills among SPU technicians. As with the engineering component, flexible skills and appropriate solutions are necessary to successfully complete small projects.

"We hope that, through the use of low-cost technologies, we can concentrate on more projects while maintaining the aesthetic value of our environment and the genetic integrity of the many stocks found in small streams," says Gary Logan.

Branching out

An interview with Native Affairs Director Lonnie Hindle

"It's good to be home again," says Lonnie Hindle about his redeployment, with Fisheries, as director of the new Native Affairs Branch. Lonnie has spent the past two years in Ottawa as director, Indigenous Participation Programs, Public Service Commission. He joined the Department in 1977 to help lay the groundwork for SEP's Community Economic Development Program (CEDP), then went on to work as senior native advisor to the Field Services Branch.

Native Affairs Director Lonnie Hindle

What is the role of the new Native Affairs Branch?

The central purpose of the Branch is to facilitate open dialogue between the native community and the Department of Fisheries and Oceans; to establish consultative processes that will be acceptable to both parties so that we can get on with dealing with some of the outstanding issues of resource management and usage of the resource; to work towards implementing or modifying policies; to create awareness within the native community of the nature, or more specifically, the state, of the resource.

Likewise, within the Department, to bring about a greater awareness of the needs and aspirations of the native community--in terms of utilization of the resource--and marrying those two together. To work towards eventual introduction of some form of commercialization of native fisheries. To encourage greater involvement of native communities in the enhancement/management processes. To examine economic development, not simply

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the concept of working with enhancement opportunities, but looking to foster native participation in new fisheries.

By example, perhaps greater involvement in herring ponding. In addition, to examine what has become the traditional economic development profile in the Department--the CEDP--and the continuation of that concept.

The question always arises of native participation and concerns regarding the land claims. Land claims is in another arena; however, the issue cannot be put aside entirely.

What needs to be done to improve the relationship between native Indians and the Department?

The very first step is getting both parties to talk to one another openly, fairly and without prejudice towards any initiative. They have to be heard. The native community has to be aware of the constraints on fisheries management. We must achieve greater understanding, in the Department, of the native community's needs and aspirations, and their traditional values. The Indians have bartered salmon for hundreds of years. We're not simply talking of economic values; there are social and cultural values as well. Bridging the differences. From there, other things will spill out.

"We must achieve greater understanding in the Department of the native community's needs and aspirations, and their traditional values."

Do you have any concrete ways of going about that?

Yes, I'm going to initiate some of the recommendations of the Pearse Report. I'm going to set up consultative mechanisms by working with native leaders in the province; the Union of B.C. Indian Chiefs and the Native Brotherhood of B.C., all the way down to the district councils and Bands, where initiatives will actually be taken. We'll bridge those gaps that have been obstructing the processes.

There are two overriding historical concerns. There's native involvement in commercial fishing and then there are the inland bands who have their traditional food fisheries. The Indians themselves have to reach some kind of agreement on how they're going to approach the management system. We're working on it and they've started. The question can be resolved, it's just a matter of communications, perceptions and attitudes. Something must be done on the part of both sides.

What do you plan to do within the Department?

Greater orientation to the needs and aspirations of the native community--economically, socially and culturally. The development of communications packages that can be used internally. Orientation of managers to what the native community is. We're often regarded only as Indians, but we're more than that. We've got languages that are no more similar than German to Chinese. There is a great deal of economic and cultural variety within the native Indian population.

What is the general opinion among native Indians of the CEDP?

The general opinion is that the Program can be very positive, but because of budget constraints, there has been very little growth of the program. Native people of the province have seen a history of socioeconomic development failures. Some of those failures are directly attributed to zero-growth. As soon as you stop growing, other sociological factors come into play.

The CEDP shows tremendous promise to do a lot of things. It's been proven to a certain stage. Now the next stage is to expand. We're talking about some pilot projects--commercial operations; the new concept of the native commercial fishery. And following through so that native people are totally involved in management. CEDP has been an excellent training ground. Hopefully, some of those people can be integrated into the Department.

Do you see it going in that direction or more towards so-called privatization?

No, there is no such policy now so I won't speculate on it. But that's certainly one of the questions that has to be dealt with. It's a difficult question. One very difficult question that you have involves the management of the resource. The aboriginal rights viewpoint is simply that

the province hasn't been ceded or surrendered by a treaty. There are band bylaws and pending court cases that reflect that attitude. There's the Department, which in terms of its responsibility, has a sole mandate for management of the resource. That's a legal claim that has to be answered and, I guess, will be answered in the land claims process. Native people are becoming hesitant to enter into cooperative ventures with the Department of Fisheries because of the question; that they may be relinquishing or foregoing rights.

"Native people are hesitant to enter into cooperative ventures with the Department because of that question; that they may be relinquishing or foregoing rights."

Are native hiring practices within the Department adequate and is the Department doing its share?

As a former director of the Public Service Commission, responsible for all native hiring across Canada, I can say that the Department has made some effort, but there's much more that can be done. I might add that is true not just for Natives, but women and the disabled also.

We have to create awareness in native communities that there are positions within the Department, so native people can make that choice. Overall, I don't look at sheer numbers, as if to say, "We're going to have more native fishery officers and that's going to be the answer to the problem." Native participation policy was not designed simply to address the question of high-contact areas; it's an all-encompassing policy of native employment in the whole of the public sector.

Can the conflict between band bylaws and the Fisheries Act be resolved?

Of course, the Acts conflict; however I do not feel that this means all things come to a halt. In fact, Bands with fishing by laws are talking to the Department on how cooperative management might take place.

So you think those bylaws can be accommodated within present fisheries management strategies?

Yes. There are aspects of those bylaws that are going to be barriers, but there isn't anything there that is a total obstruction to the processes. The bylaws and the Fisheries Act are directed at the same thing and that's the management of the resource. One is asserting that and claiming it as an aboriginal right which was there long before the Department of Fisheries ever came along. They just have to be brought together. The exact process for that isn't certain. It might be through the community development concept. It might be through contracting with a community to manage the system or developing a commercial fishery approach in terms of fishing the traditional levels of stocks. It might work on all these levels. They simply haven't been explored as yet.

Communications notes

Those who responded to the Fieldwork Bulletin questionnaire (41 of 89 "subscribers") thought the Bulletin was an aid in planning and provided useful information on field studies to be undertaken or proposed. Eighty-five percent of respondents thought the Bulletin should be continued. Most of those who did not said the Bulletin was not relevant to their areas. Most people thought there should be two issues per year, one in February/March and one in September/October.

Opinion about the Bulletin before it was published ranged from very positive to "more bloody paperwork." Opinion after publication ranged from "of limited use" to "impressed."

Before publication, 45% of respondents had a positive opinion of the Bulletin (17% negative opinion; 38% neutral). After publication, 83% of respondents had a positive opinion, 17% had a negative opinion.

Bruce Shepherd would like to see a second issue of the Bulletin produced this fall with the cooperation of other user groups. Please contact him at 666-1115 if you can help.

Turning pro: professionalism in Fisheries

This is the first of a two-part series on professional organizations.

Definitions of what constitutes a profession are as numerous and varied as the vocations that are claimed to be professions. They range from "Say's Law" (originated by J.B. Say, 19th century economist, this tenet states, "if I says I am a profession, I am a profession"), to the strictest dictionary definition: "a vocation requiring knowledge of some department of science or learning."

The issue is further confused when the terms "professional" and "professionalism" are considered, for they are often more generally applied. In fact, the most satisfactory, all-encompassing definition for all three may simply be that professionalism is not the domain of a few select occupations, but rather, the attitude and quality which an individual applies to his or her work.

A few of the occupations within Fisheries that can be considered professions are biology, engineering, management, secretarial or clerical work, marine navigation, law enforcement, technical work, writing, inspection and economics.

Why be concerned with professionalism? The advantages of professionalism go far beyond the mere social status of the term itself. Professionalism implies a high level of competence, raising the credibility of the individual and his or her profession. Professionals inspire confidence in themselves and their organizations because professionalism means that profit and expediency, at the very most, are secondary to service.

In short, a professional can be counted on to do a good job. Take a look at the following professional organizations and see whether they warrant your membership.

Professional Biologists

The Association of Professional Biologists of British Columbia (APB) was formed in 1980 to meet the need for a strong voice in decisions that affect British Columbia's living natural resources. The APB was also founded to pursue legislated recognition of biologists as professionals in British Columbia.

Objectives of the APB

1. to ensure that biology is recognized as a professional discipline in British Columbia as distinct from other legally established professional disciplines in the province;
2. to ensure that persons registered as professional biologists develop and maintain high professional standards in management, research, and education related to the biological resources of the province of British Columbia. And, to ensure that unqualified individuals do not practise as professional biologists;
3. to ensure and stimulate the development and application of sound biological principles for managing and conserving natural renewable resources;
4. to inform and advise the public, the government, and members of the Association on the implications of policies and developments which may have biological significance with regard to the use of resources and to the management of the environment;
5. to provide information on available sources of professional biological expertise in analytical and other ancillary services involving the utilization, management, and/or conservation of biological populations;
6. to provide liaison with similarly constituted associations of Professional Biologists in Canada for mutual professional development;
7. to provide members of the Society with notice of employment opportunities and to provide employers with a list of professional biologists.

What's in it for you?

The objectives of the APB are intended to protect the public interest and to advance the profession in a wide variety of ways. Some of the direct benefits to professional biologists will include:

1. a strong voice in issues relating to biological concerns in the province;
2. better communication within the profession in British Columbia, through

regular conferences, seminars, meetings, and a newsletter;
3. regulation of your profession to ensure that those who are not qualified do not practise in the profession;
4. expanded employment opportunities;
5. equivalency in salary levels with other professionals.

For more information, contact Bud Graham at 666-6645.

SCWIST

The Society for Canadian Women in Science and Technology (SCWIST) is for women who are interested in or involved with scientific, technical or engineering careers. It was formed in 1981 by six women concerned with the shortage of women in science and technology. Female enrolment in secondary math and physics programs has been declining, despite the increasing number of careers related to science and technology. The Society's goals reflect a realistic aproach. The goals are:

- to motivate women to enter the fields of science, technology and engineering;
- to encourage research on problems common to women in scientific careers and to solve some of these problems;
- to provide a forum for the exchange of ideas and information on women in science in Canada;
- to build and maintain supportive groups for women in science.

Anyone interested in the goals of the Society may become a member upon payment of annual dues of $10. For more information and/or registration forms, contact Susan Steele (666-2975).

To smoke or not to smoke

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smoker really doesn't mean to do it. It just happened.

We should remove the smoker from the workplace just like we should remove the driver from the highway. I am not saying we should take away the rights of the smoker or the poor driver, I just think they should be made to limit their killing ways to themselves. Let the smokers have the penthouse or the basement and leave the rest to us nonsmokers. Come and visit.

Anonymous

It won't work

I have many conflicting views on smoking and nonsmoking areas in the workplace. As a failed nonsmoker, I have sympathy for both sides of the issue. Each person has the right of individual choice, but I am aware of the fact that smoking pollutes the air for others. I would be happy with segregated smoking areas if:

1. gum, peanuts, small packages of mints and discreet nail clipping containers are provided on each floor;
2. air-ecologizers are requisitioned with desk sets and file cabinets;
3. cigarettes go to $25 a pack and become the new status symbol of the winter-tan set;
4. scientists discover that smoking is beneficial, prolongs youth, heightens sexual enjoyment and allows three desserts with no weight gain;
5. I finally give up the weed, sending the tobacco industry reeling in shock, the Dow Jones drops 50 points, creating a general recession and cutbacks throughout the federal government.

To save our jobs, let's nip this segregationist movement in the bud. Bussing cartons of Player's Light to Bella Bella will never work.

Anonymous

Workaday blues

There is no question that the Department has all the makings--frequent transfers, bad press, cutbacks, crisis management, isolated posts, high turnover--of a staff morale problem. Yet, many staff insist that morale has never been a problem in Fisheries because of a common sense of purpose.

Tell us, in 100 words or less, what your opinion is of this. We'll print your response in the August issue of the Sounder. Send your response to: Sounder, c/o Maxine Glover, 6th floor, 1090 West Pender Street, Vancouver, B.C. V6E 2P1.

Joining the Department as fishery officer trainees are Bob Harding, Ritchie Rath, Raymond Sjolund, Kenneth Tatoosh and Dave Looy.

Other fishery officer moves include Brian Grindrod, who has transferred on an acting basis to Mission from Vancouver subdistrict, and Elliot Teskey who has been promoted and moved to Mission subdistrict as the subdistrict officer.

David Bevan, currently area inspection chief, Yarmouth, Nova Scotia, was successful in the recent competition held for chief, Inspection and Special Services Division. He assumes his new duties August 1 in Vancouver.

Gary Kirkpatrick has recently joined the Department as section head, investigations and court actions.

Former SEP Executive Assistant Lois Hooge, who has been on secondment to the Minister's Correspondence Unit, has been successful in a recent competition for a writer-editor position in that Unit. She will be relocating to Ottawa this summer.

Robin Dickson was the successful candidate for the position of manager, Quesnel hatchery.

Dick Harvey has completed his assignment for Special Projects Division, SEP, and will be commencing new duties as manager of Eagle hatchery at Sicamous.

Marjorie Peace, clerk-receptionist, Communications Branch, left the Department at the end of May to be married.

Howard Smith has been appointed associate director of the Fisheries Research Branch. Working out of 1090 West Pender, he will have an active role in habitat research and will be the Branch representative on the new regional planning committee.

Brenda Austin, of the Communications Branch, is on study leave from July 4 to September 2. She will be working on the last project for her MA in journalism.

Myriam Desharnais, formerly with SEP's Special Projects Division, has joined the Communications Branch as clerk/receptionist.

Born May 19 to Bruce and Elaine Carrie, SEP Finance, a son, James Barclay Carrie, weighing 4.3 kg.

Born May 10 to Claudine and Mike Nassichuk, Habitat Management Branch, a son, Ryan Alexandre, weighing 3.3 kg.

George Nielson, engineer, SEP, recently celebrated his 25 years with the Department. A luncheon was held to mark the occasion.

Department offices in Prince Rupert occupy two floors: the upstairs and the downstairs, a division which they recently rallied behind on the baseball field. Upstairs, comprising management biologists, habitat biologists and Inspection Branch staff, won the game 11-9, due in part to the powerhitting of Les Jantz and the good pitching of Al Cowody. The downstairs refuses to be walked upon so easily; a rematch is planned.

Dave Wilson

Bad news

The deadline for the 1983 Sounder Photo Contest has been extended to July 29 from July 1 because of a shortage of entries. The deadline is being extended because we badly need photographs to illustrate publications, including the Sounder.

Are our categories, restricted to fisheries subject matter, too specialized? Please let us know. Better still, cull your photo records and enter the contest. See the May Sounder for details.

SOUNDER

Volume XI Number Five

August 1983

WORKING WITH THE PROCESSED WORD

Contents

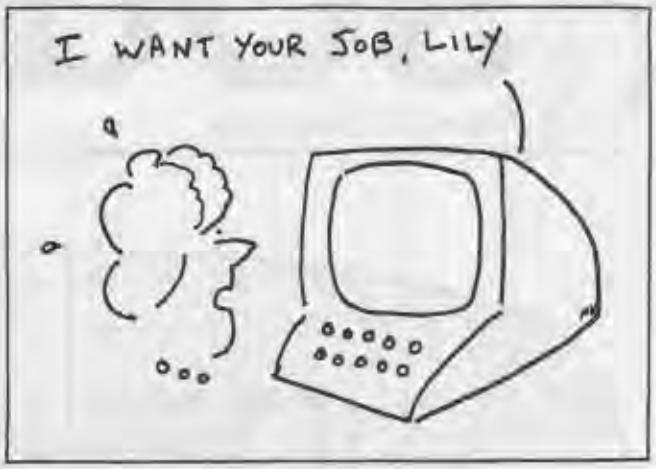
From bones to microelectronics

"In view of the vast lack of understanding that exists about microelectronics, governments, employers, employees, educators, scientists and futurists must now form a coalition helping to raise the consciousness of everyone within the social spectrum to the challenge of creating a new age for humanity where machines serve people."- Report of the Labor Canada Task Force on Microelectronics and Employment.

Those are lofty words, even for a government task force, but they emphasize the heart of the matter: the importance of the microelectronics revolution that is only beginning to affect us all.

This issue's feature article, Working with the processed word, is a cursory look at word processing. Operating at regional headquarters since 1978, word processors are merely one product of a microelectronics industry that is growing by leaps and bounds. Yet, their impact gives us an example of what the future holds in store. This hybrid of typewriter, computer and television, seemingly innocent in itself, has already changed working procedures. Together with its mechanical family, it is changing the working environment and will eventually change the very nature of work as we know it. Some of these changes have a positive appeal--it may no longer be necessary for a worker to leave his or her home (less commuting, fewer traffic jams, reduced overhead, less urban sprawl, happier workers)--while other changes may have a negative effect (loss of employment, lower productivity, more women working at home again). As women struggle to gain equal footing in the labor market, microelectronics has arrived to pose a threat to occupations dominated by women: clerical workers, typists, secretaries, telephone operators and bank tellers all stand to lose jobs. On the other hand, some of these displaced workers could find new opportunities in a burgeoning microelectronics industry.

The issue brings to mind a scene from an old science fiction film. A popular scene in 2001: A Space Odyssey depicts an ape-like human discovering the first tool: a femur of a wild pig. The orchestrated theme song reaches a crescendo as the animal gleefully smashes the skeletal remains around him. Wonderful stuff. In one magic moment, humans rise above all other creatures. The tool is also useful for smashing the heads of a rival tribe. Later in the movie, we see humanity at the mercy of its tools as a computer violently takes control of a space mission.



When we invent machines such as the word processor, and their use changes our behavior in some fashion, who or what is in control, humans or machines? In an abstract sense, when we permit machines to negatively influence our lives, we are the submissive ones.

Thus, with the microelectronics revolution, it is essential that we control the application of technology, something that has been vastly overlooked during the course of our history. This was the central message of the above-quoted task force. In the broadest sense, it is a lesson that could, if learned, guarantee a brighter future for everyone.

Mike Youds

SOUNDER

Newsletter of the Department of Fisheries and Oceans, Pacific Region.

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Sounder is printed eight times a year for the Department of Fisheries and Oceans. Opinions expressed in the Sounder do not necessarily reflect policies of the Department of Fisheries and Oceans. No articles may be reprinted without the editors' permission.

Government of Canada
Fisheries and Oceans

Food for thought

Salmon in the world marketplace

"Much will have to change in Canada if the country is to stay the same." Abraham Rotstein, The Precarious Homestead

As I was brooding in the shower the other day (I seem to have been doing a lot of that lately--brooding, not showering), a number of pieces suddenly fell into place. The conclusions from this train of thought were somewhat disturbing, so I am giving them wider circulation in the hope that somebody will tell me it isn't so.

To my knowledge, there are very few coastal countries not embarked on the implementation of aquacultural schemes of national significance. In the arena of Pacific Rim salmon, every country and state that has natural stocks also has a major enhancement program underway. And that's not to mention countries like Chile that are trying to establish salmon stocks and fisheries in areas outside of the natural geographic range of the Pacific salmon.

Countries like Japan and Norway that have highly successful salmon culture programs also have been able to pour their harvest into domestic and neighboring markets that traditionally have made heavy use of seafood, unlike Canada. In addition--and again, unlike the multiple-account system of our enhancement program--these countries have been single-minded in purpose, allowing rapid implementation of their programs.

The establishment of extended jurisdiction in 1977 had a major impact on Japanese high seas fisheries and exports, and opened market opportunities for Canadian salmon. McEachern (1981) projected possible major increases by 1985 in the United Kingdom, Belgium/Luxembourg, the Netherlands, Australia, and New Zealand for canned salmon, and in France, Sweden, Denmark, the Netherlands and Finland for frozen salmon. However, these projections assume that Japan will not regain her status as a major exporter and that Canadian salmon will remain competitive with Norwegian farmed salmon.

The recent performance of those two countries' programs seems to make these assumptions questionable.

Only in Canada, you say?

Japan and Norway seem to have assembled enhancement juggernauts that are steaming into range. What strengths can Canada draw upon in a salmon marketing war? The popularity of the various products in the current market should give us a clue. On the homefront, canned pink salmon is the leader and canned sockeye is second overall. In terms of exports, frozen chum and coho are the top sellers, with canned salmon running third. Recent market trends in both Canada and

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Japan has embarked on a program of hatchery production surpassing those of other salmon-producing nations. However, all production is geared to domestic consumption since the Japanese consume more fish per capita than any other nation.

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Europe show an increasing demand for frozen chum, coho and chinook for smoking; Japan has seen a consumer shift towards sockeye, even as chum prices have dropped. The trends, towards the luxury product type, depend upon the standard of living, which is determined by independent economic factors.

The relative economic performance of the salmon species in Canada is no accident; undoubtedly, a major driving force has been the availability of each species for capture. It is fairly obvious that there are geographic optima associated with each species. Within North America, B.C. may have an inherent biological advantage in the production of chum, coho, and possibly chinook. In comparison with North America, Asian waters have been two or three times more productive of pink and chum salmon, but two to three times less productive of sockeye and coho, and fifteen times less productive of chinook.

Phase I of SEP is now drawing to an end. The Program has been complimented by Pearse (1982) as to its thoroughness of project planning. It serves as a model for other countries, particularly in the areas of resource conservation and appreciation. Although the Program has cut back to some degree in the planned production of chum salmon, its performance by species still matches poorly to the priorities suggested by either geographic optima or market projections.

Follow the yellow brick road

Hindsight is, of course, nearly always perfect; where should SEP go from here? I would suggest the following for each species:

Sockeye. This species is a major contributor to Phase I production, primarily because of the projections made for lake fertilization projects. Although these projections are perhaps less certain than others, there is little doubt in my mind that development of sockeye enhancement opportunities should be vigorously pursued. Granted, the Canadian catch of four to five million fish is outshone by the Alaskan catch; Bristol Bay alone accounts for an average run of over 18 million fish. (The run in 1979 exceeded 40 million fish.) Nevertheless, B.C. can compete. The firm, red flesh of the sockeye is highly valued internationally; the sockeye populations in Asia are showing severe declines; and, given successful negotiation of a U.S.-Canada agreement, B.C. has some immense physical opportunities in the form of transplants, the fertilization of lakes, and spawning channel sites.

World hatchery production of Pacific salmon (1980)

(Modified from McNeil, 1982)

Country	Number of Juvenile ($\times 10^9$)	Percent
Japan	1.95[a]	49.9
USSR	1.14	29.1
USA	0.49	12.5
Canada	0.32[b]	8.2
Other	0.01	0.3
TOTAL:	3.91	100.0

[a] Adjusted upwards from McNeil's estimate of 1.143×10^9, on basis of Anonymous (1982).

[b] Adjusted upwards from McNeil's estimate of 0.267×10^9, on basis of Glover (1981).

Pink. Like sockeye, this species has not done well under hatchery rearing conditions. In addition, the pink's immediate seaward migration upon emergence makes enhancement of the natural rearing environment difficult; estuary fertilization trials have shown little promise (Stockner and Levings, 1982), and returns from marine netpen rearing have also been disappointing to date. At present, this species is dominant in Canada's markets, and we should not ignore this fact. However, we are in for heavy competition from both Alaska and the USSR. Alaskan hatchery production of pink salmon is expanding exponentially, and returns from unfed fry releases at private non-profit facilities, such as the San Juan hatchery, have averaged an impressive five to six percent (Allee, pers. comm.). Efforts in the USSR are similarly expanding rapidly; production of juvenile pink salmon is projected to nearly triple between 1980 and 1985—to more than three billion fry (Konovalov, 1980). Further enhancement of Canadian pink salmon is perhaps best restricted to the development of outstanding physical low-cost opportunities (e.g., fishways, some spawning channels), or compensating for the effects of enhancement of other priority target species.

Chum. With the high degree of success experienced by Japan, and with USSR and Alaska returns showing more promise than those of B.C.'s facilities, it is highly unlikely that Canadian chum will retain their present position in the international markets. A "hold the line" approach, even more conservative than that suggested for pink salmon, may be in order for Canadian chum.

Chinook. North America excels in the production of chinook, and overall, perhaps B.C. is the richest in terms of wild stock production. This species has somewhat limited, but highly valuable, potential--it is in demand as a luxury food product and it appeals strongly to the tourist/sport fisherman. Moreover, the predatory coast-hugging habits of the chinook may allow it to take advantage of Alaska's pink and chum fry releases. Depending on the outcome of the U.S.-Canada agreement, more emphasis could be placed on Canadian enhancement of this species in future, although care should be taken to prevent lower prices by not swamping the luxury trade demand.

Coho. This species is deserving of far more emphasis in enhancement and aggressive marketing than it now receives. B.C. can achieve adult return rates two orders of magnitude higher even than its next-door neighbor, Washington. Coho has been gaining favor in the international frozen market, due to both flesh quality and price. It is also popular in the increasingly important recreational fisheries. Like the chinook, the predatory nature of the coho may allow it to crop others' pink and chum fry (although the migratory pathway overlaps those of the other B.C species more strongly, and care must be taken in selection of stocks and balancing enhancement on other species).

There are, of course, unknown factors which could dramatically affect the above scheme. One item is the concept of the "Tragedy of the Commons"; as McNeil (1982) notes: allocation of grazing rights could require international negotiation in the near future.

Forks and washouts in road

Another set of indeterminates over which we have little control, but which will heavily affect markets, are items such as currency exchange rates and per capita incomes.

Consumer traditions are hard to change--I cannot bring myself even to try eel, and many Europeans find the skin and bones in canned salmon objectionable--but much can be done through innovative processing and aggressive marketing.

One danger that we face in terms of the viability of SEP is its heavy reliance on benefit/cost calculations to sell and assess the program. Increased salmon landings may result in lower prices (see Lent et al., 1982, for a more thorough discussion of this possibility). Thus, the enhancement program could increase social benefits by making salmon more affordable to Aunt Martha. But would Ottawa see beyond the fact that, for example, twice the fish were being sold at half the price--i.e., no increase in monetary benefits?

Or we could make a conscious decision not to enhance further, but rather to concentrate on rehabilitation and preservation of the natural gene pool. In time, Canada could be hailed as the saviour of the resources if the other countries' enhancement programs failed. Then again, we could become an ignored backwater if the others' programs were successful.

Bruce Shepherd
New Project Coordinator
Enhancement Operations
SEP

Market study should provide answers

Are we approaching a salmon glut similar to the oil glut that hurt world oil producers? Will Canada's salmon export markets be usurped by larger, more efficient salmon exporting nations? These are important issues to SEP because the answers to these questions will affect the level of benefits that we can expect to be generated by the Program. Although Bruce Shepherd expresses some pertinent concerns in his article, says Fisheries Economist Peter Leitz, it is still felt that enhancement can provide substantial benefits to Canada.

A computerized market demand model has already been designed to project future market conditions for salmon products in Canada and the United States. This study was conducted by Dr. Don DeVoretz of SFU and the results indicate that, despite increases in world-wide salmon production, a modest increase in the real price of salmon can be anticipated in North American markets over the 50-year expected lifespan of major enhancement facilities.° Even if real prices remain constant or decline slightly, SEP research shows that the net benefits from enhancement are positive.

Further work concerning salmon markets is in progress. SEP and Economics Branch economists are conducting a comprehensive market study on the Japanese and European markets. The aim of these studies is to help determine salmonid enhancement production goals as they relate to the world salmon markets.

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"It's really a marketing question," Peter explains. "Do you go out and produce fish and then try to sell them or do you find the market and try to tailor the harvest to it?"

By taking the latter approach, enhancement can bring a greater degree of stability to the B.C. fishing industry.

"Enhancement has certain advantages that fishing by itself doesn't have. You can bring the product on line when it's wanted--tailor-made--when you can sell it," he says.

The results of these marketing studies will have implications for the species and product type of salmon that should be produced. However, biological considerations related to species balance and stock manageability are also being incorporated into SEP's planning process.

A computer model

During the next six months, Peter and SEP Economist Heather Fletcher, along with Dr. DeVoretz, will be gathering data from industry, management, market analysts and fisheries economists around the world. Their objective is to set up a reliable computer model with which future market conditions can be hypothesized.

The model will characterize both market supply and demand factors. On the supply side, the world production of enhanced and natural stocks by species, product type and quality will be considered. Increased production from enhancement in Japan and Norway will affect future markets for Canadian salmon products, but so will decreases to natural production. Japanese enhancement, which concentrates on chum production, is not thought to be a threat on the world market. Norwegian production, which concentrates on Atlantic salmon and trout, is a greater concern. It is hoped that the current study will help to resolve questions concerning the extent to which Canadian salmon products will be in competition with products from Norwegian enhancement projects. In some instances, there are distinct markets for these different product types, therefore, Canadian and Norwegian fish products will not always be in direct competition with each other.

In his article, Bruce Shepherd has pointed out Canada has a distinct advantage in the production of some species types. Also, Canadian salmon exports maintain high quality standards for both canned and fresh/frozen products. Quality is a particularly important factor for fresh and frozen salmon products, and it has also become more of a concern for canned salmon worldwide. To address some of these concerns, SEP has recently conducted a study of terminally caught salmon.

Peter Leitz: aligning supply with demand.

A changing marketplace

Demand factors are equally important in determining future market conditions for Canadian salmon products. Product preferences for salmon vary from market to market. For example, the Japanese market consumes mainly frozen salmon, whereas Britain is a large consumer of canned salmon. Recent experience has shown that demand for specific product types can fluctuate substantially on a short-term basis, but it is the long-term trends that are important for the calculation of projected benefits from salmon enhancement. Because of the expected lifespan of the program, increased population and income levels in market areas will affect the

Canadian fish product standards are among the highest in the world.

demand for Canadian salmon products. Finally, increased consumer awareness about fish products, consumers' concern for high protein, low-fat diets and increased preference for fish products as opposed to other meats, give the fresh salmon market good potential.

Throughout the decade of the 1970s, the structure of world salmon markets changed dramatically. Along with most other coastal states, Canada and the United States extended their respective fisheries jurisdictions to 200 miles from the coast. This had the effect of restricting foreign fishing fleets from operating in coastal areas. The Canadian fishing fleet was barred from fishing in areas off the coast of the United States, but Canada gained greater control over its coastal salmon resources. Furthermore, high-seas fisheries had reduced access to the resource, and consequently, coastal states such as Canada and the United States have had the opportunity to exploit foreign markets which were previously serviced by high-seas fisheries. It is hoped that the current market study will be able to identify and model these developments. This should lead to improvements to SEP's planning process as part of the overall review of SEP's evaluation systems. The results will be incorporated into SEP's comprehensive evaluation model, which was designed to analyze both economic and social aspects of the program.

While marketing aspects are important, they should not be the sole determinant of future SEP production because marketing aspects are only relevant to the commercial fishery; they do not address the specific concerns of the sport fishery or the native food fishery. Furthermore, there are biological considerations regarding the carrying capacities of fresh water and marine habitats, and technological constraints which limit some aspects of our salmonid production capabilities. Because SEP's basic mandate is to fulfill both economic and social objectives, the planning process must consider both biological and economic factors as well as the social impacts of the program.

Heather Fletcher
Economics

Smoked salmon market takes off

After starting out six years ago as an operator of airport retail outlets for smoked salmon and other fish products, Jet Set Sam started up its own processing and packaging business in 1980. Since that time, the Vancouver company has seen sustained growth, despite the recession, by developing wholesale and international markets in addition to a highly successful retail operation.

A new sales contract to supply up to $300,000 worth of smoked salmon a year to Australia has meant preparing for a significant increase in production, and so company president Brian Fisher recently purchased a new top-of-the-line piece of equipment from West Germany. A highly specialized salmon slicer, this $100,000 machine is one of only 27 in the world and was financed by two low-interest loans from the provincial government.

"This slicer can help us increase productivity by more than 300 percent, and it will give us a tremendous edge," says Fisher. "And it's not putting anyone out of work. We'll be able to add several new people to our staff of 32 this year."

Reprinted from Update, published by the B.C. Development Corporation.

Working with the processed word

When word processors were first introduced, more than ten years ago, they seemed to be little more than innocent, though useful, accessories to the typewriter. In those few short years (that was only 1973) word processing has modified office procedures to the point where the machines are practically indispensable. As with the office copier, we now have to ask ourselves, "How did we ever do without them?" Yet, the impact of the word processor is so great that office folks are still trying to figure how to best use them. Some are still scratching their heads and wondering what was wrong with the IBM Selectric.

The point is that word processing offers a prime example of society coping with rapid change. The impact so far, though great, represents only the tip of the iceberg. Futurists predict that our present electronics revolution should continue for another forty years and bring improvements that are 100,000 to one million times greater than what we now have.

Can office procedures ever catch up to technology? Will the coffee machine still work in 2020? (Will science please save us from Styrofoam cups?)

Pacific Region headquarters now has five word processing centers, Personnel Division having recently joined the club. Obviously, there are a lot more systems in store, with all the retraining and adaptation to accompany them. Before people can adapt, systems are expanded or upgraded so that the attempt to improve efficiency achieves the opposite effect. When the human factor is not properly considered, the machine becomes inefficient; something like distributing chainsaws to New Guinea tribesmen.

Take, for example, the Micom system now in place at the SEP word processing center. Most users, in adjusting to the system, simply bypass the typist and hand their written material to the word processor operator. In this case, the user still perceives the word processor as a kind of typewriter, producing only the finished product from the draft copy he or she has worked on. It would be far more efficient to supply the operator with a dictaphone tape, put the document on file in the system and then begin the editing process. This saves the user the time it takes to put words to paper and makes the operator's job easier by eliminating the need to decipher handwritten copy.

Susan Hambley at SEP center.

Another temptation is to take advantage of the system to such an extent that it becomes inefficient. The user is tempted to make piecemeal changes and say, "Oh well, I'll have another crack at it on the next draft."

"There used to be a lot of people who would say that, 'You can do anything, so here we go!' "says Anne Jung, who manages the SEP center. The introduction of a work order form and user training helped to overcome the problem.

"Users as well as operators must be trained. They have to know what is available to them and how to prepare documents," Anne says.

She adds that, while most users now understand the system, the use of dictaphones or the introduction of the Micom 1001 would make the system more efficient. The 1001 is an input terminal that would enable the users to enter and edit documents so as to eliminate the need for retyping by the word processing operator. This would save labor and materials.

Though it experienced some initial problems, the SEP system is now operating smoothly (it processed more than ten million words last year). This may not be the case for newer systems, so Anne has prepared a list of considerations that management should make before introducing a word processing system.

A glossary of Micom capabilities

Keystroke
- allows memorization of commands;
- maximum of ten commands (1200 characters);
- may be used on screen or filed;
- can be recalled from file to be used at any time.

Math Pak II
- performs addition, subtraction, multiplication, division, constants and percentages;
- automates math operations and keystroke sequences;
- automates calculation and verification of totals.

RP and Sort
- selectively searches and locates;
- searches pages in a given file;
- compares with search string and qualifiers;
- records on new pages;
- can join two documents (mapped merge);
- sorts columns or lines (alphabetically and numerically).

Graphics
- horizontal and vertical.

File glossary
- used to compile a glossary page that indicates page number or line number;
- can be used for indexing.

Communications
- with Ottawa, PBS and the West Van Lab, through Miconet.

1. Have all operators involved in the choice of a machine.

2. Have users involved in determining what the office's requirements are.

3. Consider who you will be dealing with. Is your machine compatible with theirs? Will it handle all the functions required by users? Is it upgradable and expandable? Is it acceptable in terms of ergonomics (human needs)?

4. What are its storage and memory capacities?

5. What is the servicing like? What is the training like?

6. What kind of working environment should there be?

7. Give someone the responsibility of training the operators and the users.

If you've considered everything and your word processing system is in a functioning "mode" with operators wearing happy faces, users grinning contentedly--look out. Here comes Infotex. This system, which should be available within a year, enables word processors throughout the country to "interface" or communicate with each other. The potential savings for the federal government will be considerable, once we figure out how to use the damned thing.

Mike Youds

Terminal fishing piloted on Skeena

In the November 1982 issue of Sounder, Linda Jamieson of Regional Planning reported on a study, compiled by Wayne Holmes of Inspection, of the feasibility of terminal fisheries. A pilot study, based on Wayne's work, is summarized here.

In 1982, SEP's Program Development Branch initiated a study to determine commercial quality values of salmon caught in terminal fishery locations. SEP's planning and evaluation model currently uses values for fish caught in mixed stock fishery areas only. It assumes fresh, frozen, and grade A canned market prices will be obtained for projected fish returns. In light of recent movements by Fisheries management to terminal fisheries (for example, at Robertson and Qualicum hatcheries) to offset manageability concerns, some investigation of whether SEP benefits are being altered is warranted.

A pilot data collection study was completed by Aquatic Resources Ltd. late last year. Under this contract, sockeye were sampled at four terminal locations on the Skeena River from mid-July until late September 1982. (Site selection was based upon previous quality investigations by McEachern [1982], Holmes [1982], and Zyblut [1973]. Fresh and frozen samples from the fish were canned and smoked so that the commercial value of fish and their products could be assessed. The results were tabulated into a data report which describes the methodology for the fish collected and the details of the product evaluation. The fish samples were collected by Fisheries field staff for the contractor. The handling, processing and product evaluation were completed in accordance with Fish Inspection guidelines. Photographs were also taken of the sockeye samples to associate the results of the evaluation with the original appearance of the fish.

In the spring of 1983, the contract was amended to allow for some preliminary analyses of the quality data. The primary objectives of this work were: to examine the replicability of the 1982 data; to examine the possibility of identifying the stocks represented in the samples collected at different points and times along the river; to present, graphically, the canned product scores; and to discuss any obvious quality trends with reference to both the earlier work on the Skeena and the literature.

Here is a brief summary of the findings:

- conditions within the Skeena appear to have been relatively normal during the 1982 run and it does not appear that the fish quality was affected by any unusual delays or stress.
- the escapement was composed of an unusually large number of 5_2 fish. This, and a sampling bias toward large fish, may have resulted in a slight over-representation of fish quality. (During migration, older, larger 5-year old fish tend to have a greater energy reserve than 4-year olds do; as a result, the 5-year olds are probably of higher quality.)
- fish samples at Tyee, near the mouth of the river, were mainly #1 Grade throughout season, although a few fish were downgraded due to net and seal scars. These fish produced mainly export grade canned products when processed either fresh or after frozen storage.
- at Terrace, approximately 100 km up the river, and at Hazelton, a further 140 km, the sockeye were largely downgraded due to watermarking. This may have been due to long gillnet soak times.
- the first fish sampled at the Babine fence were the end of the run to the Babine "early streams." These fish were sexually quite mature, generally #2 Grade when fresh, and produced a Grade B product when canned. Through July and August, most of the fish collected were probably returning to the enhancement facilities at Fulton River and Pinkut Creek. These fish were generally #2 Grade fresh and produced an acceptable canned product when processed without the skin. Samples with skin were mainly of acceptable quality during August; however, there was a large proportion of Grade B. During September, the fish became increasingly mature and the quality of both fresh and canned products declined accordingly.
- all of the samples collected resulted in smoked products of acceptable quality. However, there are no detailed standards for grading these products, and the lower quality of samples from late run fish was obvious.
- roe quality varied inversely with the fish quality. The skeins collected at Tyee were uniformly small and immature. At the Babine fence, high quality roe was obtained from the end of the run to the Babine 'early streams' in July and from the end of the runs to the enhancement facilities and the Babine River in September.

Test fishery crew sampling sockeye adults on the Skeena River.

With reference to SEP's objective to determine commercial prices for terminally caught salmon, this pilot study indicates that commercial terminal values for Skeena sockeye are comparable to commercial values from mixed stock fisheries at all four sampling sites at certain periods in the season. The Babine fence samples, in particular, indicate three specific fisheries which target on enhanced sockeye and provide acceptable quality products are possible. These fisheries are: an early jack sockeye fishery; a late July - early August sockeye fishery; and a September roe fishery. Available timing, tag-recapture and fish quality data have been used to separate enhanced stocks from natural stocks in the Babine system. These proposed fisheries suggest opportunities for SEP to economically harvest known enhanced stocks, securing projected benefits as well as providing an alternative for protecting weak unenhanced stocks. Considerable economic analyses are now required to examine the costs and benefits that processing requirements and quality control will have for industry and Fish Inspection, respectively.

There are some areas of investigation which may warrant further work:

- the effects of soak times and water temperature on the quality of salmon collected in freshwater gillnets
- grading standards for smoked products
- the effects of fish size on product quality in terminal areas
- investigation of the effects of instream sockeye harvest on the other species present
- further electrophoretic work on Skeena River tributary stocks to facilitate stock separation particularly at the end of the run.

Similar studies could be applied to other watersheds for pink and chum salmon. Proposed areas include mixed Fraser and local Johnstone Strait stocks, presently fished in the Johnstone Strait, and the Adams and Horsefly sockeye runs in the Fraser River. Where stock separation is not possible, fish quality studies may be used to narrow the extent of stock mixing in a terminal location through sampling of fish to examine for changes in quality.

Margaret Birch
Assessment Biologist
Program Development Branch, SEP

Turning pro

This is the second article in a two-part series on professional organizations available to Fisheries and Oceans employees.

Secretaries

Professional Secretaries International (PSI)

The objectives of the PSI are to:

- elevate secretarial standards;
- promote professional and personal development;
- speak officially for the secretarial profession;
- forecast changing trends and directions which affect the profession.

PSI defines a secretary as an executive assistant who possesses a mastery of office skills, demonstrates the ability to assume responsibility without direct supervision, exercises initiative and judgment and makes decisions within the scope of assigned authority.

Secretaries eligible for membership in PSI must have had secretarial training and be actively engaged as full-time secretaries or part-time secretaries not engaged in any other gainful employment at the time of admission. Members may acquire accreditation as Certified Professional Secretaries (CPS) by passing a two-day examination.

For more information on PSI, contact Barbara McNicholls of the Employers' Council of B.C., 684-3384.

Economists

Association of Professional Economists of B.C.

The Association of Professional Economists of B.C. (APE's) was formed in 1976 and today has over 200 members. Members of APE automatically become members of the Canadian Association of Business Economists (CABE).

The purposes of APE are:

1. to encourage and promote a high standard of professionalism and ethics in its members and economists at large;
2. to foster further education in the field of economics for its members;
3. to provide a common ground for economists of all disciplines to meet and exchange views on topics of mutual interest.

The Association holds an annual general meeting each December, at which a new executive is elected. An annual Economic Outlook Conference is held each November to present views and forecasts on the Canadian and world economies. Monthly luncheon meetings are held at the Hotel Georgia in Vancouver throughout the year, with the exception of the summer months, to inform members and nonmembers of important economic issues. Special seminars are also held periodically to educate members on new techniques, theories and applications of economic analysis. The public policy committee expresses views on various public issues. The Committee recently sent an open letter to the Hon. Pierre De Bané, Minister of Fisheries and Oceans, voicing support for the recommendations contained in the Pearse report and calling for an early implementation of the recommendations.

Perhaps, most important of all, though, is the opportunity to meet other economists during any of these functions and to be able to discuss and learn from each other specific methodological and analytical problems along with approaches to and effectiveness in resolving them.

For more information, contact Pat Loftus at 666-6187.

Communications

International Association of Business Communications

The International Association of Business Communicators is a worldwide professional society of 10,000 members active in the many facets of business and organizational communication, ranging from employee communication and public relations to community relations, public affairs and issues management.

IABC offers its members many useful services, including a publication critique service, seminars, books, an international award program, a resource bank ("idea files") and conferences.

If you'd like more information, call Maxine Glover, 687-1442.

Canadians eat about 7.4 kg of fish per person annually as compared to 32 kg per person in Japan and 18 kg per person in Scandinavia.

Everything you didn't want to know

Almost everyone has heard of Murphy's Law; that if anything can go wrong, it will. Well, here is a collection of all those other laws that will no doubt bring even more confusion to the supposed order of the universe.

O'Toole's commentary on Murphy's Law:
Murphy was an optimist.

The unspeakable law:
As soon as you mention something, if it's good, it goes away; if it's bad, it happens.

Nonreciprocal law of expectations:
Negative expectations yield negative results. Positive expectations yield negative results.

Howe's law:
Every man has a scheme that will not work.

Zymurgy's first law of evolving systems dynamics:
Once you open a can of worms, the only way to recan them is to use a larger can.

Skinner's constant (Flannagan's factor):
That quantity which, when multiplied by, divided by, added or subtracted from the answer you get, gives you the answer you should have gotten.

Etorre's observation:
The other line moves faster.

Law of selective gravity:
An object will fall so as to do the most damage.

Jenning's corollary:
The chance of the bread falling with the buttered side down is directly proportional to the cost of the butter.

Gordon's first law:
If a research project is not worth doing, it is not worth doing well.

Maier's law:
If the facts do not conform to the theory, they must be disposed of.

Hoare's law of larger problems:
Inside every large problem is a small problem struggling to get out.

Boren's first law:
When in doubt, mumble.

The golden rule of arts and sciences:
Whoever has the gold makes the rule.

Segal's law:
A man with one watch knows what time it is. A man with two watches is never sure.

90-90 rule of project schedules:
The first 90 percent of the project takes 90 percent of the time and the last 10 percent takes the other 90 percent.

from Grassroots, staff newsletter of the Cariboo Forest Region, B.C. Ministry of Forests.

Amid the flurry of acronyms that surround us today (SEP, PIP, BCRIC, RRSP and MIRV, to name a few) there has finally appeared one that makes sense in its abbreviated form: LULU. What's a LULU? A locally unwanted land use--a nuclear power plant or military testing range in your backyard, for example. Admittedly, the list of LULU's can grow very long, as there really aren't too many developments that people will tolerate in their backyards.

Communications notes

The Communications Branch has sent all its 16 mm films to a film specialist, under contract, for assessment of their physical quality, cleaning and repairs. If anyone in the Department has outstanding film loans, please return them as soon as possible so that they, too, may be cleaned and repaired. Films will again be available for loan by approximately mid-August. Communications Branch staff wish to apologize for any inconvenience this may cause.

Diane Paxton
Communications

What you can expect

Time passes so quickly. I miss one deadline and before I know it, another one is here. My thanks to the Sounder staff for being patient. There are a few new items to take note of in our paper world.

Clothing issue: If you are a Department employee who is issued any clothing, you will now be required to complete "a contract for payment." This is attached to the bottom of the copy of the authorized requisition (procurement document). When items are received, the contract must be acknowledged by signature of the employee, and dated and witnessed by another signatory. This form is to be returned to Susan Baird, 2nd Floor, regional headquarters.

Support Services Branch Circulars: A number of new circulars, and updated versions of others, have been issued. Again, I cannot overemphasize to employees, particularly to key personnel who do the paperwork, the importance of being aware of the contents of these circulars. Please ensure that your staff understands these circulars. It makes everyone's job easier if the paperwork is done right (there's the old broken record again).

The Argus-Journal of June 1983 has some very interesting articles on health and safety that point out many occupational hazards related to Fisheries work. Occupational hazards are the third leading cause, after heart disease and cancer, of deaths in Canada. The record of accidents in the public service is overwhelming and the list of hazards is endless, they tell us. To quote one interesting paragraph, "Most Alliance members have no legal protection of their health and safety on the job. Treasury Board policies are inadequate, for the most part, and arbitrary. Almost every province and territory in Canada offers its workers superior health and safety protection. But even that has not solved the crisis."

In other words, "look before you leap."

Pat Mason
South Coast Division
Nanaimo

Good ideas reap rewards

The world may not beat a path to your door, but there could come a sizeable cheque in the mail if you can think of a way to improve government efficiency.

The suggestion award system, introduced to the public service in 1952, is open to most government employees.

Suggestions eligible for awards are those that save work, materials or supplies, conserve resources or energy, eliminate waste and duplication, or reduce the number of forms utilized in the conduct of business. Alternately, suggestions are welcomed which would eliminate safety hazards, or improve working conditions or employee morale. Cash awards of up to $10,000 are possible for a single suggestion and are paid from savings realized during the first two years of the idea's implementation.

This system is open to all government employees, including those with term or summer student status. As well, suggestions are encouraged from members of the general public or employees receiving superannuation. It should also be mentioned that financial awards are restricted to government employees below the level of those included in the Senior Personnel Authority Restraint Program (most senior levels). All other accepted suggestions are awarded suggestion award certificates or certificates of appreciation.

To submit an application, obtain a special form (not mandatory) from the program coordinator. These should be completed and mailed to:

The Coordinator
Incentive Award Plan
DFO, 8th Floor
171 Slater Street
Ottawa, Ontario
K1A 0E6

You may submit as many suggestions as you wish. However, in order to receive a cash award, they must not be considered to be part of your everyday job requirements, nor must they be such that they would alter any government policy requiring central agency or legislative change. Certificates of appreciation or recognition may be awarded in these instances.

So, get the most from your suggestion award program, and remember, the odds of winning are a lot better than those offered by most lotteries!

Ron Piché
Regional Staff Manager
Personnel

The Chowder Bowl Challenge

There are few dishes that spark as much culinary rivalry as do clam chowders, Boston or Manhattan. Thick, hot, spicy and creamy, subtle or feisty, rich and nutritious--the mere thought excites the palate. Here is the chance to prove once and for all that your favorite clam chowder recipe is superior: the Sounder Chowder Challenge. Register your entry with the Sounder by September 29, cook up a stormy stew, and join us on October 7 for a noon hour of trial by tasting.

Contest rules

1. Any Fisheries and Oceans employee may enter.

2. There will be only one category for all entries. Boston and Manhattan chowders will be judged together.

3. A litre of prepared chowder is to be brought to the testing kitchen at Howe Street Inspection Headquarters, 4th floor on October 7 at high noon.

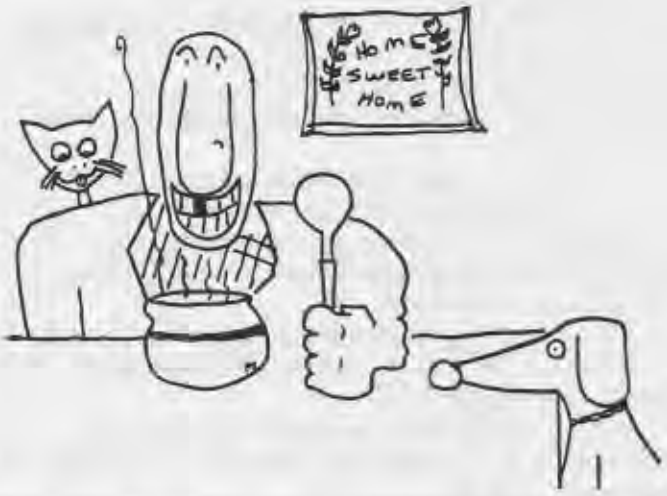
4. All contestants must register their challenge with the Sounder by sending their name and recipe to: Sounder, c/o Maxine Glover, 6th Floor, 1090 West Pender Street, Vancouver, B.C. V6E 2P1.

5. The judging is public and people are invited to attend to hear the judges' comments.

6. Sounder will print the recipes of the winning entries.

7. Trophies will be awarded to the winners.

May the best bowl win.



Where are they now?

Each time I start this column, I have to stop and reminisce of how "they" have affected my life, too. Most of my old friends and co-workers started with Fisheries around the same time. I started in the Fisheries with Jack Ellis, and he taught me all he knew about the Nanaimo office. Jack had been taught by the late Harold E. Palmer, a perfect gentleman who only the oldtimers will remember.

Jack started with the Fisheries in 1947, on a salary of $112 per month. As our first radio operator in Nanaimo, he was well known as "XLI30" because of his booming voice over the airwaves. We were located in the old federal building which overlooked the old CPR wharf. He worked in the Nanaimo office until 1953, when he became a fishery officer. The following year, he returned to office duties at 1155 Robson, but went back into the field in 1965. In 1968, he returned to the regional office and set up the Operations and Licencing Department, where he also did the radio "sked" every morning and became known as "Mr XLI77" (the headquarters call numbers).

Jack took an early retirement, and he and his wife, Margaret, travelled to Britain and Hawaii. Also, they set up residence for a year in their son's house, north of Youbou, and turned back the clock: no electric lights, no phones and no running water except for a stream running past the back door. They baby-sat their grandson and kept warm by the wood stove and fireplace which heated the big new home.

Jack's wife passed away, but he continued to travel to Hawaii and Britain. He did return to work, at the Bank of Commerce and National Trust, and tells me he is again going to do part-time work for the latter.

Jack says he maintains contact with R.B. "Bob" McIndoe, Captain M.B. (Mitch) Gay, J.D.C. "John" Holland, Fred Melton, Les Thatcher and another oldtimer, A.J. Whitmore, who was chief supervisor of Fisheries so many years ago.

Pat Mason

Pacific Tidings

Carole Laurie, district clerk in Whitehorse, left the Department July 19 to begin her new job as office manager to a consulting firm in Whitehorse.

Christine Steneker, Micom operator, Habitat Management, headquarters, commenced permanent full-time employment July 1.

Nina Ichiiwa, district clerk, New Westminster, has left the Department to spend her time raising her new son.

Chris Curtis, fishery officer, Qualicum, resigned from the Department, effective June 30.

Fishery officer moves include:

Scott Coultish, who has moved from Whitehorse to Coquitlam subdistrict; John Arnold, who has moved from Salmon Arm to Coquitlam subdistrict.

Kevin Loftus was successful in the recent competition for North Coast enhancement support biologist, SEP.

Dave Innell, SEP financial advisor, has accepted a six-month secondment to Ottawa, effective July 25.

Rob Elvidge, technician, Habitat Management, has transferred from headquarters to Fraser River Division.

Born to Gordon and Ann Edwards, Inspection, a son, Ryan Gordon weighing 3.59 kg (7 lb 15 oz), on July 2.

Pacific Region fishery officer recruits meets the Hon. Pierre DeBané, Minister of Fisheries and Oceans. From left to right: Ritchie Rath, David Looy, Ray Sjolund, Bob Harding, Ken Tatoosh and the Minister.

Irene Kapos, SEP Engineering, left for Greece on June 30 for three months. A nice luncheon was held for her at Orestes Restaurant, where the Engineering Division and some close friends at Fisheries and Oceans wished her bon voyage. They presented her with 14k gold maple leaf earrings and, just so she would remember where she lived, a Canadian flag pin.

Lenore and Robert Martinolich, fishery officer, Coquitlam subdistrict, are pleased to announce the birth of a sister, Robin Martinolich, for Jayda and Katie. Robin was born June 29, 1983, weighing 3.12 kg. (6 lbs. 14 oz.)

Alderman Ralph Drew, Inspection, won the annual spike driving contest at Port Moody Golden Spike Days.

Roger Kearns, formerly Babine project biologist, dropped by Vancouver office. Roger is a marine maintenance consultant with National Chemsearch in Victoria.

Twelve-year-old Marie Zanatta was crowned New Westminster's 1983 May Queen. Her dad is Al Zanatta, supervisor, New Westminster Repair Depot.

Congratulations to Diane Paxton, Communications Branch, who is engaged to be married in October.

Susan Steele, SEP program development biologist, is going on secondment to Ottawa until mid-November to assume offshore and international responsibilities in the Operations Branch. She will also be assisting in the preparation of Cabinet documents related to maritime boundary disputes.

Future issues

The September issue of Sounder will be entirely devoted to commemorating the 75th anniversary of the Pacific Biological Station in Nanaimo. If anyone would like to contribute to this feature issue, (deadline: September 16) please let us know by calling 687-1442. The October-November issue of the Sounder will feature the Ship Division and, similarly, we invite the participation of anyone who would like to contribute. Sounder is intended to encourage greater communications within the Department. We can't do it without your input.

INS 1

SOUNDER

Volume XI Number Six September 1983

A station in history

Commemorating the 75th anniversary of the Pacific Biological Station, Nanaimo, B.C.

Slowly, slowly, through the century

It's easy to forget, in this age of future shock, accelerated change and exponential growth, that science, from the scientist's point of view, moves with an imperceptibility rivalling that of the hour hand on a clock. Out of necessity, research is painstakingly slow, meticulously detailed and precise. In fisheries research, where the field of study occupies two thirds of the earth and is only slightly more hospitable than outer space, 75 years of studies have merely unfurled the sails on a transoceanic voyage.

"Science moves but slowly, slowly, creeping from point to point," Lord Tennyson wrote over a century ago, yet his words are still true.

When I first met Dr. Bill Ricker, whom many consider to be among the foremost fisheries scientists in the world, he was pouring over a stream of figures, calculator in hand, in his cramped basement office at the Pacific Biological Station. Dr. Ricker retired from active government service over ten years ago, but he still works at the Station two or three times a week to continue his research specialty, population dynamics. It seemed the perfect setting in which to find someone such as Dr. Ricker. While he has devoted a lifetime to moving us closer to an understanding of humanity's least understood resource, he continues the tedious task of his research with the enthusiasm of a much younger mind.

SOUNDER

Newsletter of the Department of Fisheries and Oceans, Pacific Region.

Editors: Maxine Glover
Mike Youds

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Sounder is printed eight times a year for the Department of Fisheries and Oceans. Opinions expressed in the Sounder do not necessarily reflect policies of the Department of Fisheries and Oceans. No articles may be reprinted without the editors' permission.

Government of Canada
Fisheries and Oceans

Needless to say, I obliged him with two minutes of silence to complete his calculations.

"I've sometimes said," he later hypothesized in an interview, "that if it hadn't been for the Station's work, there would be next to no fishery anymore. But that's in the extreme case."

History tells us that extremes are not uncommon to fisheries. The North Sea herring, the California pilchard and the Atlantic salmon are just a few of the species which once supported thriving fisheries, but they've faded as quickly as they flourished. Fortunately, examples on this coast are not so severe, but we've had our ups and downs with salmon and herring fisheries. Fisheries management is crisis management, the managers say, because the seasons don't wait for decisions to be made.

In sharp contrast to the hectic pace of fisheries management headquarters in Vancouver, where an aura of impermanence prevails, the Pacific Biological Station is testimony to the passage of time, the three main buildings each representing a distinct era in fisheries research. The structure of 1949 is built, figuratively, and almost literally, upon the foundations of the original 1908 facility. The basic observations of 1958 may become the building blocks for the broadest conclusions of 1998. There is only one season here, always bearing fruit. With the results mounting, crisis will gradually give way to control.

Mike Youds
Editor

Contents

Editors' note: publication of the regular Sounder will resume in November. This special issue was produced for the public open house at PBS, as well as for the staff of the Department of Fisheries and Oceans, Pacific Region.

A station in history

A short history of the Pacific Biological Station, 1908-1983

In 1907, after several years of impassioned pleas from industry, from members of Parliament, from academic circles and learned societies, the Government of Canada approved the spending of $15,000 for the establishment and maintenance of marine biological stations and investigations. As has become the rule throughout the succeeding years, the Pacific Coast received somewhat less than half. Yet, it was a start and enough to commence construction, on the shores of Departure Bay, of a building that could house and accommodate eight researchers. The Reverend George Taylor, who had been so instrumental in starting the project, oversaw the construction and became the Station's first curator. With few other resources, the Reverend Taylor placed his own personal library at the disposal of the Station, thus laying the cornerstone for what was to become one of the finest scientific libraries devoted to fisheries research on the whole Pacific Coast.

In those early days, there was no staff. Researchers appeared drawn to the location from all over the Dominion and from as far afield as England and the eastern United States. They came from schools and universities, other laboratories and museums. The area was fertile, unknown and ready for the attentions of the naturalist, the taxonomic specialist and the descriptive biologist. Yet, while much of the work of those early years was calm and unhurried, more of the academic than of the fishery, it is instructive to remember that one of the major reasons for choosing Nanaimo as the site was to place the new institution in the heart of an established herring fishery.

The Pacific Biological Station, 1934.

The register of work maintained from 1908 to 1916 reads like a Who's Who of early North American fishery science. David Starr Jordan, whose name is used in science for identifying, among others, the local shrimp and petrale sole, worked there, as did W.F. Thomson and Harry Dunlop, stalwarts of the Halibut Commission in later years. A.G. Huntsman, whose name adorns the Huntsman Laboratory, was there, as was A.T. Cameron, later chairman of the Fisheries Research Board. There was also recorded the name of McLean Fraser, soon to become curator of the Station, Willey of McGill, Collip of the insulin discovery team and many, many more.

Work continued throughout the years of the Great War. When accommodations could not be stretched any further, investigators and their families lived in tents surrounding the Station, and it remained a volunteer community. This voluntary concept has been of immense importance to the Pacific Biological Station throughout its whole history, even to the present day. If their research is of importance to the region, and their demands for space and facilities are modest, volunteers may be assured of a warm and enthusiastic welcome. The ghost of Taylor lives on.

No history of the Pacific Biological Station could be considered complete without an account of the most remarkable of all these volunteers, Edith and Cyril Berkley. The Berkleys appeared in 1917, and two years later

continued on page four

Cover Illustration

Illustrated in this historical collage, are: the founding director of the Pacific Biological Station, Reverend George Taylor; Mrs. Edith Berkley, who with her husband, Cyril Berkley, was an active volunteer researcher at the Station for over 40 years; a Ross Grant Improved Microscope (from the private collection of Gary Hoskins, Diagnostic Services), used on scientific expeditions to the Yukon at the turn of the century; the original main building, built in 1908 and removed in the 1940s; the commemorative pin, prepared by Al Denbigh, for the Station's diamond anniversary.

The Hells Gate slide as it appeared in 1914, a year after the fateful incident occurred.

continued from page three

purchased a residence close by the Station. Cyril, between developing a world-class garden, and producing hybrid rhododendrons, served as assistant curator of the Station in 1920 and 1921 and then became a volunteer investigator along with Edith.

Between 1923 and 1962, they produced over forty primary publications, discovered many new species and charmed all by their dedication, wit and hospitality. Predeceased by his wife in 1963, and after receiving an honorary doctorate from the University of Victoria in 1968, Cyril Berkley died at the age of 94 in 1973. The tradition remains, for their granddaughter and her husband both spend many summers at PBS as volunteer investigators themselves.

One of the earliest contributions that science made to an understanding of a fishery problem was the discovery by McLean Fraser, the second curator of the Station, of the four-year cycle in Fraser River sockeye stocks. This had enormous impact when the Hells Gate slide effectively blocked the dominant run of 1913. Even though the passage was cleared by 1915, the 1917 catch was predictably a disaster. This collapse triggered efforts to restore the damaged runs and to aid this endeavor, one of the first U.S. - Canada cooperative tagging projects was initiated.

(It is too much a temptation not to reflect on present concerns. We are once again tagging salmon in cooperation with the Americans, and the CNR is considering blasting in the Fraser Canyon again.)

After the war, activity increased, and the emphasis was on the practical side. R.E. Foerster, working at Cultus and Harrison Lakes, investigated the food and enemies of young salmon. As interest grew, the need for a full-time director became more and more obvious, and in 1923, W.A. Clemens was hired by the Board to assume that role. Among his duties, he was to examine the efficiency of

J.W. Dalzell and P.W. Stratton, with local help, collect sockeye eggs on the Adams River in October 1929. Note the dugout canoe.

salmon hatcheries in British Columbia and to develop a general program of fisheries research, starting with the accumulation of basic data on the fishes and the fisheries. It was these early data bases that yielded, in subsequent analysis, evidence that by the 1950s and the 1960s the average age and size of chinook had decreased dramatically and that sustained trends in fish size must come from modifications by the selective action of a fishery to the gene pools of various stocks. More directly, research showed that selective closure could and did help the decimated 1913 brood year cycle and that more mitigation and clearing of obstructions were necessary at Hells Gate.

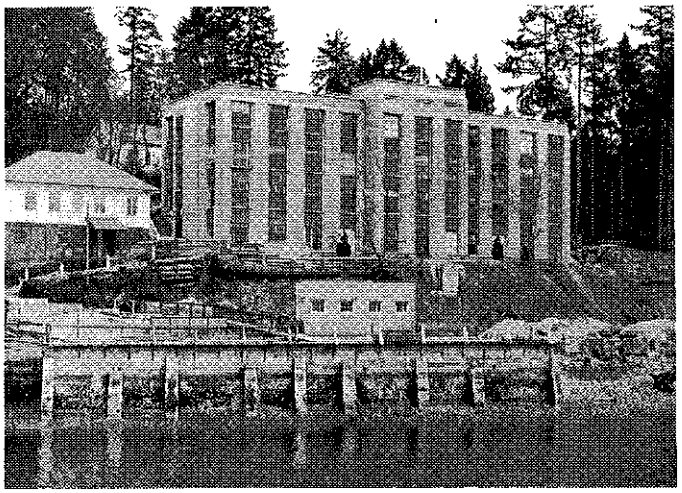
By 1930, J.L. Hart had joined the staff to work on pilchards and herring and through an analysis of age and size of samples taken from the commercial fishery, predicted its collapse, which occurred in the late forties.

The thirties and forties were trying times for not only PBS, but all Board Research Stations. Volunteers were discouraged, those on staff suffered cuts or frozen salaries, and considerable pressures were applied to show work that was relevant to the solution of problems that an ever-increasing fishery posed. Yet good research continued. The phenomenon of odd-and even-year pink runs was investigated by A.L. Pritchard, who also led the Skeena River survey in 1940. Several transplant experiments were tried in Masset Inlet in a vain attempt to establish off-year runs in some streams. More successful was the experiment to increase the return of sockeye to Cultus Lake by decreasing the number of predators, especially squawfish, on the young. But as often happens, in spite of success and a high benefit-to-cost ratio, the experiment was abandoned as priorities and jurisdictions changed.

The thirties and forties were, in spite of depression and impending war, remarkable research years. These were the years when names like Ricker, Tester, Neave, and Tully served to add lustre and sparkle to Nanaimo's crown.

The next period of expansion followed in the late forties and early fifties, as graduates returned from war and picked up their education and expertise to attack new problems with fresh enthusiasm. Again, the value of continuing data bases was illustrated, for it was

Station volunteers tagging herring in 1946.



The Pacific Biological Station, 1949.

"Our vista expanded rapidly in the 1950s and 1960s. In a period of five to ten years, we had gone from a localized situation all the way to studying a broad span of the north Pacific; all the way over to the Russian coast. There remained an international flavor to it until Canada declared its 200-mile-limit in 1977." - *Dr. Keith Ketchen*

abnormally low fence counts at Babine, coupled with higher than normal incidence of damaged fish that sent fishery officers and researchers scampering down the Babine River to find, quantify and rapidly alleviate the Babine River slide of 1951.

With the International Pacific Salmon Fisheries Commission claiming the Fraser as its territory, the Board and Nanaimo turned to the Skeena. Many at the Pacific Biological Station owe their start on the road to recognition to early days at Lakelse and Babine. Alderdice and Aro, Bilton, Godfrey, Hunter, Fisher, Foskett, McDonald, Milne, Outram, Shepard, and Withler all started there.

Although the Pacific Biological Station had, over the years, a series of launches, boats, and vessels, none were primarily designed for fisheries research. This changed in 1946, when the "Investigator No. 1" was acquired and equipped for trawling. Added later were the "A.P. Knight" and in the early sixties the "G.B. Reed." Expansion of fisheries research into open waters was assured, and purely marine studies came into their own. Herring, groundfish and crustaceans became important as these fisheries developed, and staff were recruited to study the biology, the population dynamics and potential of these increasingly important resources. By 1958, when the Station celebrated its fiftieth anniversary, the special volume for the Nanaimo Station had papers on the response of chum salmon eggs to free carbon dioxide, polychaetes (from the Berkleys), resistance of young chum and sockeye to freezing, responses to salmon retina, yield of lingcod, progress of drift bottles, Rivers Inlet sockeye, index of return of salmon stocks, population studies of juvenile herring, distribution and density of sockeye in Babine Lake, parasites of Pacific salmon, maximum sustained yields, spawning stock size and production of Skeena sockeye, a measuring device for use in salmon spawning gravel, and environmental factors affecting production of pink and chum.

Since 1958, events have moved at a furious pace. New buildings have been added and older ones removed.

The herring fishery collapsed and then phoenix-like, arose anew to dizzying economic heights. Responsibility out to the 200-mile limit was assigned to all sections of the Department, and new resources were briefly added to cover the increased responsibility.

The Biological Station entered, timidly and only toe deep, into the computer age in 1967, and the "G.B. Reed" plowed the waters from California to the Bering Sea and westward to Japan.

New land and a new research establishment sprang up on the northern side of Burrard Inlet to serve new problems in competition for habitat and the search for new techniques in fish culture. Lake fertilization to increase sockeye production became, almost overnight, an operational technique.

There were losses, too, during these past 25 years. The oceanographers moved out of PBS to their facility at Pat Bay, and with them went much of the expertise on biological oceanography and primary productivity research. Support staff were split from research and for some, that wound heals but slowly. Cycles of restraint are still with us and problems have a new immediacy. These require new techniques, new insights, new research, some of which is already here, while some is yet to come. That they will come is a certainty. Based upon a foundation of past research so broad, so firm and on a spirit of excellence, "the Station" cannot fail to do other than build to meet whatever demands are placed upon it.

John Thomson
Science Coordinator

Pacific Biological Station, 1983.

Past, present and future

An interview with PBS Director Dick Beamish

Dr. Richard Beamish, director of the Fisheries Research Branch, has been a research scientist at the Station for nine years and has published over 80 scientific articles related to fisheries. He has also worked at the Freshwater Fisheries Institute in Winnipeg, where, in the early 1970s, his research resulted in the first warnings of the effects of acid rain. In addition to his duties as director, he still conducts research on groundfish, ageing techniques and lampreys.

You recently changed the name of the Branch from Resource Services Branch to Fisheries Research Branch. Does that change reflect any change in your approach to research? Back to basics?

When I took over as director in 1980, the Branch was called the Resource Services Branch, but when you think about it, "resource services" really doesn't mean that much.

There was a period in the 1950s, after the War, and in the 1960s, when there was general support for scientific research--all kinds of research--and certainly biological research was well-funded and popular. In the late 1960s and early 1970s, research in general was not looked upon as having as much potential for the advancement of the country as was seen in the 1950s. Fisheries research was the same way. In fact, the term "research" became unpopular and people thought that if they avoided using the term then they might somehow survive whatever budget cuts took place.

Apparently, we used to be called "Research and Resource Services" and the "Research" was dropped. I personally feel that the term "research" is a legitimate term and there isn't any connotation that we're running around doing esoteric things that are of little use to anyone. Research can be very applied or very basic. An organization like this should have some balance between those two extremes. So, I thought the term "research" was important, and apparently someone agreed that all research branches should be called Fisheries Research Branch.

Is there a management philosophy to running the Station?

In the early years, the approach was that which was emphasized by the Fisheries Research Board of Canada: that the biological stations should earn for Canada an international reputation in Fisheries research.

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Later, in the 1960s, there was almost a deemphasis on the relevance of research for management. There were individual scientists, like Bill Ricker, who, I think, argued very strongly that the science had to be relevant management. Also, the fishery was not nearly so dynamic as it is now. In the seventies, there was a period of flux. That's the background.

"Research can be very applied or very basic. An organization like this should have some balance between those two extremes."

My own philosophy is that all research has had some kind of patronship. Whether you're in defence research or in the universities, I think you have a reason for being there. Very seldom can you justify the reason as being just basic research. Now, a university professor does basic research, but he also teaches. Well, we don't teach over here, but we're involved with research because we have a fishery and the public expects it to be managed.

It's naive to believe that a fishery can be managed with the technology developed in the 1950s and 1960s. Also, there's no organization or country involved in any type of development that doesn't have a strong research component to it. Our first responsibility is to provide scientific support to management; to provide scientific management. When you do that, it's a lot easier for the public, for industry and for government to accept that there is now a component for long-term and more basic research. If you're fulfilling the immediate need for managing the resource, then you can agree to take a look at some longer-term, more basic research, some of which will not be successful but most basic research is ultimately applied.

The pendulum has swung too far one way to where we are now doing mostly applied work and it's time we took a look at partitioning off our time to do more long-term, basic research.

It seems to me that there is a thin line there. How do you draw the line between basic and applied research?

Well, first of all, it's hard to identify. There are a number of examples of very basic research that has turned out to be applied research. I think the best example is Dr. Bill Ricker's work in the 1950s and 1960s. He worked on the theory of salmon populations. He said there was a maximum sustainable yield; that populations behaved and responded in predictable ways and that you could harvest

PSB Director Dick Beamish (standing) and Dr. Alfred Needler, a former director of PBS as well as of the St. Andrews Biological Station.

them in a way that would optimize the biomass. Well, he is certainly one of the foremost fisheries scientists in the world, and I believe, he is among the top few. But when he did that in the 1950s and 1960s, he was doing very basic research, and now it's applied right across the country, right around the world.

"The pendulum has swung too far one way to where we are now doing mostly applied work and it's time we took a look at partitioning off our time to do more long-term, basic research."

What are the major directions for fisheries research over the next ten years?

I think that one of the major directions will be toward mariculture. Let's call it aquaculture. That would include genetic engineering, genetic manipulation, understanding of salmon genetics, selective breeding, diets, nutrition—and it won't just be salmon. We believe there are opportunities for scallops, sablefish, and other species.

If genetic engineering is successful, then we may see a change in the fishery. Let's say, 20 years from now, the fishery may look different from what exists today. For example, we may not have the traditional wild fish fishery in some areas. If you can rear a fish in a pen for forty percent of the cost, why go out and catch them?

Another very important area will be to understand how habitat alterations affect salmon population dynamics. We're going to get into the area of relating habitat changes to stock dynamics. We will be improving standardization and our data bases for all species; the standardization of stock assessments and the subsequent reevaluation of management strategies.

The fourth major strategy could be ocean research; early life history and ocean survival. That will mainly involve salmon, but the study of the oceans will also include recruitment processes and species interaction. So we'll be looking at systems. Those are the four major areas. A fifth one would be the evaluation of the Salmonid Enhancement Program (SEP).

You mentioned applying research to management. Since there is a time lag between development and application, do problems develop faster than we can provide scientific solutions?

Yes, that's exactly what happens, but it's not very much different in most fields of science. The discovery of one thing simply leads to a number of other unanswered questions.

We really understand very little about fisheries. Regionally, while we communicate with our Oceans and Sciences people, we have only a few joint programs. Ced Mann [Director General of Oceans Sciences and Surveys at Pat Bay] and I are trying to get more joint programs, but they [Oceans and Sciences] are at the fringes of what we do. So, with respect to fisheries, there's not a thoroughly integrated oceans program.

A study of ocean mortality of salmon is an example of what could be done. There is 90 to 98 percent ocean mortality during the marine stage of the salmon life cycle. We say it the other way around; we say two to five percent ocean survival, but when you're looking at that much mortality there should be some attempt to identify the causes.

The point is that we understand very little about the oceans. Look at the individual species of salmon. While we understand some very basic things about their biology—maybe we can age them; say something about their growth; or have some idea about their ocean migration patterns—the interrelationships between these fish and others are very poorly understood. We're still scratching the surface. We have some basic facts and we're trying to manage the population. Well, we are going to have to have a better understanding if we're to manage successfully for the future.

Your original question—it's a common concern—was: can research keep up with the needs of management? The answer is probably "no." But the needs of management change very quickly, too. One of the problems we have is that a management problem one month isn't a management problem the next month.

"We see, over the next 25 years, a development, right around the world, of opportunities for aquaculture. We're hoping to have an aquaculture center on site starting this fall."

Another function, and a very important function of the Research Branch, is to look into the future; to anticipate future roblems and to do some development. What we're most concerned about here is the development of aquaculture. We see, over the next 25 years, a development, right around the world, of opportunities for mariculture. We're hoping to have an aquaculture center on site, starting this fall. And we feel that it's important to begin to do this research right now. For example, we see a strong possibility for genetic engineering as a part of mariculture and will be initiating programs for genetic engineering of fish this year and maybe next. There is only one other place in Canada looking at that.

Most people are familiar with genetic engineering. Conceivably, you could end up with a salmon that you can spawn any time of the year, more or less; a salmon that you could grow to a desired size within six to eight months and for which the markets are predetermined. Safeway may say, "All right, we'll take ten tonnes of your salmon at the first of each month. We want them weighing three kg, a red orange color and tasting like canned sockeye." I think all of us who are around in 25 years will look back on the 1970s as a period when our level of biological knowledge and technical sophistication made the management of fisheries and the protection of habitat a very difficult task.

Future prospects for fisheries manage

For speculation on the future of management related research, we contacted Dr. John Schnute, who works on statistical analysis of fishery data, particularly for salmon. He agreed to give a personal view of the future in his own field.

Conjectures about the future of one's field can come partly from looking at related activities in the world outside. In this regard, I thought immediately of two somewhat disparate examples. The first is weather forecasting. Every night we can watch satellite pictures of the atmosphere on TV and hear the weatherman's predictions for the next few days. Sometimes these come with probabilities like "a 75 percent chance of rain." We often hear comparisons of today's weather with that in the past; it may be "five degrees warmer than the average for this date" or even "the warmest September day since 1933." This is a pretty sophisticated (if sometimes unreliable) business based on collecting and analysing a lot of data very quickly. I presume it involves data from numerous land, air, and sea locations, as well as from the satellites themselves. The historical records must be in reasonable shape too. Even if the forecast turns out wrong, we viewers can often understand why: some weather front which we saw on yesterday's satellite photo didn't move in the direction expected.

The second example that occurred to me was pilot training. Prospective pilots of a new machine, like the space shuttle, can now do test runs on simulators which mimic the effect of every control knob on the plane. Emergency situations, as well as routine operation, can be rehearsed. I presume such simulators often exist before the plane itself, together with manuals on how to fly the plane. By the time a pilot is actually airborne, he or she feels in control because the required response to most situations has already been practiced.

In fisheries, we need to be weathermen and pilots combined. We need to make forecasts, but we also must control events and be responsible for the outcome. In that sense, we face the worst of both worlds. Like the weatherman, we're dealing with events that are hard to predict. But the weatherman, at least, isn't responsible for managing the weather to society's satisfaction. Like the pilot, we must exercise control. But, under normal circumstances at least, the plane responds on cue. We can, metaphorically speaking, turn the wheel right and watch in frustration as the plane goes left.

What's all this got to do with the future? The way I see it, right now we're like weathermen who have to wait until next year for yesterday's satellite photo and like pilots who have to write the manual while they fly the plane. That's the state of the art! I think some of our most interesting future prospects will come in remedying this situation, and I predict that the changes will mimic somewhat the processes of weather forecasting and pilot training.

For example, in ten years, or perhaps much less, I think we will have a central facility where daily hailed catches are available, along with escapement counts, results from test fisheries, and recovered marks. In the longer term, there are many other possibilities:

1. satellite photos which (on clear days, at least) indicate ocean temperature, primary production, and ocean currents;

2. automatic land and sea-based radio monitors (which work even on cloudy days when the satellite cameras can't penetrate the atmosphere) of further environmental variables, such as rainfall and stream flows;

3. fishing fleet monitors on satellites and in surface radar installations; and

4. inexpensive automatic devices which count (or at least index) stream escapement.

It's easy to conjure images of exotic inventions. For instance, imagine a box, about the size of a portable typewriter, which uses X-rays (or something) to read a coded-wire tag still inside a salmon head and then radios the code automatically to a central computer. Or could there be a similar device which determines and transmits the stock identity of a salmon based on pattern recognition of a scale? Are you prepared to say such things won't exist in 100 years? Probably, these are conservative speculations. Readers will doubtless have much more creative ideas.

Imagine yourself, a century from now, sitting in the central facility where all these data arrive. Powerful computer graphics capabilities are at your disposal. You can trivially look at the distributions of catch, the fleet, and dozens of environmental variables. (Your facility is directly linked to the weather service data base.) Not only do you know the geographic distribution of today's catch, but you can break it down by stock from data sent

ment

in via those exotic portable boxes. Big computer models analyze all the information and give you a composite picture. You can easily compare today's picture with that of last year's or the average for the last decade. You can say things like "there is a 75 percent chance that such-and-such will happen tomorrow" because 75 percent of the time that's what did happen under similar conditions in the past. In other words, you can do with the fishery what the weather service does today in 1983 with the atmosphere.

In this imagined setting, you also have to make some decisions. For any given stock, you have a computer projection of the stock's status. You can look, for example, at hailed catches last year or the last decade or, in the year 3000, the last 1,000 years--if we dare believe in such cultural longevity. (As the various time series become longer, relationships between salmon stocks and environmental variables will surely become clearer, and the entire fishery will seem less erratic than it does now.) The decision you make, from all the information at your disposal, is a practiced one. Your previous training includes hundreds of simulated rehearsals based on scenarios that actually happened in the past. In other words, you are trained as a pilot was trained in 1983.

Incidentally, you wouldn't have to be at the main facility for all this. You could be in Prince Rupert or Port Alberni, running a computer terminal. You might well have local information that influences your decisions, but your decisions would be integrated with those of everyone else on the coast.

Readers of this article may well find the images here disquieting. I do; there is something too mechanistic and big Brotherish about it all. Would we, for example, really want to monitor the fleet by satellite? How would fishermen respond to such an idea? What about the sheer joy and romance of fishing? I wonder if all the grand technology described here can coexist with the mood of the Stan Rogers' lyric:

We set out this day in the bright sunrise,
the same as any other.
My son and I and Old John Price
in the boat named for my mother.
Now it's well you know what the fishing has been:
it's been scarce and hard and cruel.
But this day, by God, we sure caught cod,
and we sang and laughed like fools.

Dr. John Schnute: new tools envisioned.

I'm very grateful to Skip McKinnell, Head of the Biological Station Computer Centre, for the above quote. It's hard to live close to this technology and not feel both edges of the sword.

For better or worse, I think the use of tools like those described here is inevitable. Properly used, I also think they're potentially very valuable. In fact, if we don't move in these directions quickly, the industry probably will. How could we defend our decisions to clients with superior information and analysis? If we rationalize our data collection and decision making, then at least our clients in the industry and the general public might be able to understand why our predictions sometimes miss the mark. Speaking metaphorically, we could at least show them the "weather front" that reasonably should have moved north to give sunshine, but instead moved east to give rain. The weatherman gets away with it often on TV.

Dr. John Schnute
Research Scientist

The editor welcomes your imaginative speculations on future devices for acquiring information related to fishery management. Do you, as Dr. Schnute suggests, "have much more creative ideas"?

Research: basic or applied?

Probably no other single issue has generated so much discussion, produced so much heat, engendered so much accusation and defence, wasted so much time and effort as the issue raised in this article's title. The issue spreads far beyond the Pacific Region, beyond the Department and beyond the boundaries of biology. It infects every sphere of research, though it really isn't an issue at all. It's a word game where proponents on either side use their own definitions of what have become loaded words. Nothing more: let me give some examples.

It was some 30 years ago when a member of the House of Commons rose in righteous wrath to demand to know why the government of the day was sponsoring research in a variety of topics. One, in particular, quoted sneeringly was research on the swimming speed of goldfish! We are perhaps fortunate that he failed to read the whole proposal which involved studying the swimming speed of goldfish without fins! Hansard recorded the government's reply, but I have forgotten it, and it was bound to be incomplete anyway.

How basic, how fundamental a question? Let's look deeper. How fast or how far a fish can swim has enormous implications in the design of fishways and ladders. When the major marking method of the time was fin clipping, surely an estimate of the reduced capacity of a fish to move had implications of the most profound nature. (Why goldfish? They were cheap and easy to handle.)

This basic, fundamental, academic research, if you like, became the cornerstone of further studies. Other species (including salmon), other factors (temperature, oxygen, condition), in fact the whole energetics of a fish, in still or rapid water, fresh or salt, come under study. Still basic you say? I claim otherwise, for it was this research, in hand, documented and published, that played an important role in the Departmental position on the Kemano Completion court case and will be equally important in public hearings concerned with the twin tracking of the Canadian National Railway.

Other examples are easy to find. A study of the parasites of fish, especially those that do not damage the quality of the product or endanger the consumer, must be considered basic research by those who persist in this absurd separation. Yet such a study, using parasites as indicators of origin or "natural tags," was instrumental in the placement of the line eastward of which the Japanese fleet could not go under the terms of the International North Pacific Fisheries Treaty. Recently, the same technique has been used to separate stocks of sockeye salmon in Barkley Sound, leading to enhanced management. Programs have started to examine northern stocks in the Nass-Skeena area.

It is not necessary to belabor the point. One simply cannot separate research into "basic" and "applied." There is only research and application. Providing the research is good, the results documented and freely available, someone, somewhere, sometime, will apply those results to the solution of a problem that the original investigator may never have envisioned.

John Thomson
Science coordinator

Scientific Coordinator John Thompson with Sounder Coeditor Maxine Glover.

Five times honored

Since 1951, PBS scientists have five times won the prestigious American Wildlife Society award for the best paper in fishery science. Dr. Bill Ricker has won the award twice (1955 and 1960); Drs. Wally Johnson and Case Groot won in 1964; Dr. R.E. Foerster won in 1970, and; Dr. D.F. Alderdice won in 1974.

"The Child" that changes an ocean

Though humans have harvested fish from the oceans for thousands of years, it has only been in the last 30 years that we have begun to understand the awesome natural forces that govern the sea and its inhabitants. Oceanography is the study of the ocean's geography, and it affects marine creatures just as climate and terrain affect human behavior. Dr. Al Dodimead is oceanographer at the Pacific Biological Station. Here, he explains a scientific phenomenon that has made this year one of the most fascinating on record.

Nineteen eighty-three has been particularly interesting in oceanography because of the El Nino, a warm ocean current considered to be one of the most extreme of the century. It has received considerable attention and publicity because of widespread effects on weather, and on physical and biological features of the eastern North Pacific Ocean.

El Nino is a phenomenon that occurs in the South Pacific Ocean off the coast of Peru and Ecuador. This is one of the major regions of upwelling in the world. As a result, the coast is bathed by a cool, nutrient-rich upper surface layer high in plankton production. It supports a large anchovy commercial fishery, normally the world's largest single fishery. The anchovy are also the staple diet of an enormous seabird community consisting of millions of guanays (Peruvian cormorants) and other species.

From time to time, the upwelling weakens; warm oceanic nutrient-poor water, and a warm surface current displace the denser, colder water. This phenomenon tends to occur annually, at the middle of summer in the southern hemisphere, and so has been associated with the celebration of Christmas through its name, El Nino (meaning "The Child"). In most years, the perturbation is small, but occasionally it is very pronounced. The result is unusual warming of the upper ocean over large areas of the eastern tropical Pacific Ocean. The 1982-83 El Nino produced sea surface temperatures of about 6°C above the mean average off the coast of Peru. These large-scale temperature changes are considered to be manifestations of changes in the ocean-atmospheric system over the entire Pacific Ocean and possibly over the entire planet.

The unusual warming of the surface waters has dramatic consequences, both on the coastal and offshore regions of Ecuador and Peru. The

Dr. Allan Dodimead, PBS oceanographer.

warm waters induce rains that cause frequent coastal flooding and, offshore, disperse Peruvian anchovy. In turn, this causes catastrophic mortality among the guanay birds. In all, El Nino is a natural catastrophe for Peru. A catastrophic El Nino tends to occur every seven years or so, although not with regularity. Many scientists now believe it may be a two-year phenomenon.

Off the B.C. coast, El Nino effects were first noted in sea level and surface temperature data. Sea levels rose sharply in January and remained high through March. At Tofino, monthly mean sea levels were 25-28 cm above the 40-year mean for these months. In 1941, monthly mean sea levels were 15-21 cm above average and 8-26 cm above average in 1958, both considered major El Nino event years.

Monthly mean sea surface temperatures along the B.C. coast were between 2° and 2.5°C higher than the 45-year means from January through May, and about 1.5°C above the average in June and July. The drop in the temperature in June is attributed to below average local sea surface heating, related to the extremely poor weather conditions during June.

Bottom temperatures over the continental shelf, off the west coast of Vancouver Island, were also relatively high, at least until the latter part of May. Temperatures were 0.5° to 1.5°C higher during May 1983, than during May 1977-1982.

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Major effects on the fisheries along the west coast of North America in 1983 have already been documented. Off California, the squid harvest, for one, was disrupted, and fishermen were catching Pacific barracuda off San Francisco in early summer, something that normally does not occur until late summer. Similarly, off the B.C. coast, sightings of ocean sunfish in May and June in Hecate Strait, and of tuna in mid-July off the west coast of Vancouver Island were reported. Normally these species do not appear until late summer. Tropical mackerel were also observed in Barkley Sound in mid-June. Flying squid, usually found off the southwest coast of Vancouver Island in the summer, extended to the Queen Charlotte Islands. One swordfish was caught about 400 km off the northern coast of Washington. A significant event for B.C. fisheries was the large number of adult sockeye salmon, estimated at between 80 and 90 percent of the returning Fraser stock (the highest on record), that migrated to the Fraser River via Johnstone Strait. Scientists of the groundfish and herring sections at PBS expect poor year-class strengths for a large number of the groundfish species and for herring as a consequence of the warmer water.

Dr. Allan Dodimead
Salmon Section
Fisheries Research Branch

This photo, taken in 1971, shows two generations of research vessels at PBS. The "A.P. Knight," top right, is the namesake of the original Station vessel. The "Investigator No. 1," lower left, was a dragger bought by the Station in 1946. The largest vessel is the "G.B. Reed," acquired in 1962.

Lake enrichment: the hidden benefits

Lake fertilization began in 1970 as an experiment of the Fisheries Research Branch. On the basis of large returns of adult sockeye to Great Central Lake, it was expanded to a pilot-production program in 1976-77 under the auspices of the Salmonid Enhancement Program (SEP). In 1983, the Lake Enrichment Program (LEP) budget was $1.8 million, reflecting the cost of working directly with more than a dozen wild stocks of sockeye scattered from southern Vancouver Island to remote locations in the Queen Charlotte Islands.

Primary goals

The primary goals of our research are to determine when, where, how often, how well and why lake enrichment works as a technique to enhance the production of natural stocks of sockeye salmon. To satisfy these goals, our research has ranged from studies examining the mechanisms controlling primary, secondary and tertiary production within more than a dozen sockeye lakes, to basic research on the population dynamics of sockeye stocks returning to various locations on the B.C. coast. Ten to fifteen years of sockeye stock assessment will be necessary in order to finally resolve to what extent lake enrichment will generally promote a harvestable surplus in the fishery. Because of its obvious economic potential, it is understandable that it is just this aspect of our research that generates the greatest impatience for quick results; however, there are no shortcuts. Most of the stock assessment work is basic to achieving an understanding of stock-recruitment relationships for coastal sockeye. Without such understanding, we are unlikely either to assess critically the success of lake enrichment or the improvement in stock management needs which were most recently identified by the Pearse Commission.

Hidden benefits

Over the past few years, Lake Enrichment Program research has delivered numerous hidden benefits for management.

Some of these benefits include:

- preseason forecasts: The smolt output from between three to sixteen stocks of coastal sockeye are monitored and when combined with data on typical marine survival ranges for sockeye, these data allow us to provide preseason forecasts of the strength of adult returns. These data allow us not only to anticipate good years (as occurred for Barkley Sound stocks in 1983), but also to avoid inflated expectations when fry recruitment failure has occurred. Our research has shown even if managers ensure a large escapement, fry recruitment failure can be the limiting factor on sockeye production for coastal stocks. Smith Inlet (Long Lake), Henderson Lake and Kitlope Lake are good examples of this. Late fall and winter scouring of spawning grounds appears to produce high variability in egg incubation success.

- in-season information on timing and stock composition: Our involvement with the Barkley Sound sockeye fishery is the most notable example where our research aids in-season management. Because we annually monitor the daily timing and magnitude of spawners returning to Sproat and Great Central Lakes, we are able to advise area managers about the proportion of escapement target that has been achieved at any point through the season, as well as about how well stock returns appear to be adhering to the preseason forecast. Beyond this, an analysis of stock-specific parasite-tags can determine the composition of this mixed stock fishery. In the case of the Hobiton Lake sockeye stock, LEP research plays an even greater role. Our research is the only source of information on catch taken by the fishery (a native food fishery) as well as cumulative escapement through the season. It is likely that this stock would have been badly overfished during the 1983

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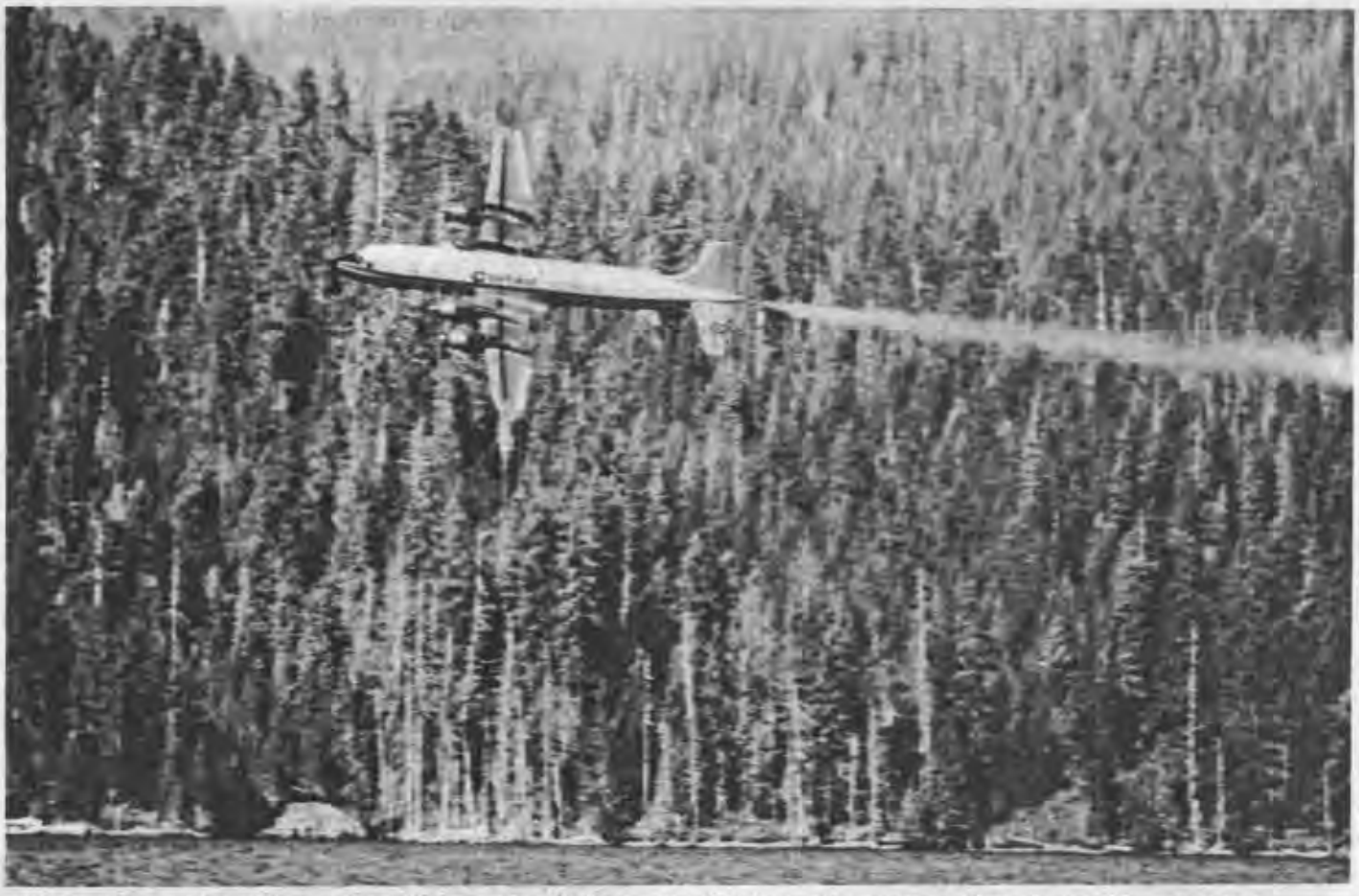
Lake fertilization involves extensive tests before and after the lake has been fertilized. Here, a crew of technicians prepares to load testing equipment.



Aircraft are used to fertilize the lakes, enriching the water for juvenile sockeye.

season had we not been able to provide a preseason forecast as well as in-season advice to the native band on the strength of the stock.

- stock-specific estimates: Research on factors influencing growth and survival has allowed us to refine our understanding of the carrying capacity of coastal lakes for juvenile sockeye. Consequently, we are steadily improving the precision with which coastal sockeye stocks may be managed for maximum productivity. For example, as recently as the late 1970s, escapements greater than 50,000 adults were considered to be surplus at Great Central Lake. Now we know that there is no obvious decline in productivity even at escapements as high as 250,000 adults. This situation is not unique as our research on several stocks over the past few years suggests that many coastal sockeye stocks have been managed unknowingly for suboptimal escapements.

- escapement validation: The necessity of relying on historical catch and escapement data to assess stock productivity prior to activities of LEP has stimulated us to both use new analytical procedures and independent field studies to examine the likely accuracy of both past and present procedures of estimating escapements of several "target" sockeye stocks. Not surprising, these studies have yielded mixed results, suggesting that the data record is remarkably good for some stocks while for others, recent as well as historical estimates may be in error by 100 to 1,000 percent or more in a given year. Results such as this will ultimately lead to recommendations for improvement of escapement estimation procedures where the stock in question is potentially important enough to warrant the added attention.

In conclusion, it should be clear that although the principal focus for lake enrichment research is to assess the utility of nutrient additions to lakes as a sockeye salmon enhancement technique, stock-research activities, which are an integral part of this assessment, represent a significant contribution to DFO efforts to improve research and management of coastal sockeye stocks in general.

Dr. Kim Hyatt
Biologist
Lake Enrichment Program

At the river's mouth

The Fisheries Research Branch conducts research at its West Vancouver Laboratory, in addition to the work done at PBS. On a site previously occupied by the Great Northern Cannery, biologists and technicians study salmon habitat, genetics and fish nutrition. Dr. Colin Levings specializes in the study of coastal habitat ecology. Here, he relates some of the findings of recent studies performed in the Campbell River estuary.

Recent research at the West Vancouver Lab and PBS has involved detailed evaluation studies of juvenile chinook coastal habitats at the Campbell River estuary and Discovery Passage. The estuary has been changed by recent and past log storage and sorting, marina construction and dredging, and the freshwater supply is regulated by a hydro dam. The long-term effects of habitat disruption on an estuary and the subsequent effects on fish stocks due to modifications in the food supply are not well understood. We believe this comprehensive project is one of the first to tackle this difficult problem directly.

In 1982, we provided advice to the Field Services Branch and B.C. Forest Products for an estuary restoration project in the Campbell River estuary. Four small islands were constructed and planted with vegetation salvaged from dredging for a new dry-land log sorting operation. We also obtained baseline data on fish use of the newly dredged log pond. Chum and chinook fry used the new islands in 1982, but because of reduced fry abundance, fewer were found in the new islands in 1983. Coho and chinook smolts from the Quinsam hatchery used the new log pond for a very short period in 1982, but not in 1983. The study is documenting the year-to-year variability in habitat use, an important exercise to learn how extensively the habitats are used at times of peak stock abundance.

In order to determine the importance of contrasting habitats in the survival of chinook to adults, coded-wire tagged smolts from Quinsam hatchery were transported by helicopter and released in April 1983 into four habitat types (35,000 fish per type). The habitats were river, estuary, transition, and marine. The marine site was Deepwater Bay, about 12 minutes flying time from the hatchery, but air time was equalized for the other sites to balance the experiment. The experimental fish were tracked by beach seine for about two weeks, when other hatchery releases began to influence their distribution and abundance. We hope to repeat these experiments in 1984 using chinook fry, since these simulate the wild fish which use the estuary much more extensively than smolts.

The outer estuary and Discovery Passage appear to be extremely productive areas, as judged by the abundance of juvenile salmon, plankton, and nearshore invertebrates. The number of juvenile chum caught by beach seines and trawl in late June was dramatic, as were pink catches in 1982. It is possible that most of the chum and pink are from the Fraser. Most of the juvenile salmon appear to be within a hundred metres or so of the beach. Hatchery chinook from the Chilliwack, Chehalis, Puntledge, Big Qualicum hatcheries and, of course, the Quinsam hatchery have been recorded. There is little doubt that the area is a heavily used migratory route.

Since there is evidence from other estuaries that juvenile salmonids can overgraze their food supplies, an essential part of the evaluation work involves assessment of feeding habits, grazing rates, and development of food supplies on the new islands. A graduate student from SFU is determining juvenile chinook growth rates from otoliths of fish taken in the program and those will, in turn, be related to the food studies. The base of the complex food web in the estuary includes marsh plants, eelgrass, algae, and riparian material. In 1983, the significance of these components was studied by three visiting Japanese scientists.

For further information contact Colin Levings (926-6747) or Carey McAllister (756-7064).

Colin Levings
Biologist
West Van Lab

Napoleonic rockfish

What may be one of the oldest fish ever recorded was a rockfish, Sebastes Aleutianus, caught off the Queen Charlotte Islands in 1980 and aged by PBS. The fish was 140 years old, a male, and 60 cm in length. Fish are aged through lines that appear on burnt crosssections of their otoliths, calcareous concretions in the internal ear.

Service supports blossoming industry

Biologist Gary Hoskins and his three assistants at the PBS Diagnostics Lab are busier and busier these days, providing fish health expertise to a blossoming mariculture industry.

The Diagnostics Lab was formed in 1974 to respond to the needs of government salmon hatcheries and private growers. At that time, there were a handful of government salmonid enhancement facilities and only two private growers in the province. Today, there are over 40 government enhancement facilities and 12 growers. Jointly funded by the Fisheries Research Branch and the Salmonid Enhancement Program, the Lab now spends about 40 percent of its time providing a consultative service to fresh and saltwater growers. The Lab, with its mobile service, known as the fish ambulance, also gives assistance to the Vancouver Public Aquarium and to the province's three universities.

"We assist with fish health problems--rearing problems--when there's one that they can't handle on their own," Gary says.

"They get total cooperation from us. The service is supplied when required and there is no charge for it."

He says the B.C. mariculture industry is growing, and will continue to grow at a rapid rate, because of the recent availability of mariculture technology. The planned establishment of a mariculture development center at PBS is intended to assist the industry with intensive research.

Gary Hoskins of Disease Diagnostics, with Assistant Dorothy Keesor in lab.

In addition to their diagnostics service, Lab staff are responsible for administering the Canadian Fish Health Protection Act, which guards against the spread of infectious diseases.

PBS facilities

Research facilities at the Pacific Biological Station include modern wet and dry laboratories supplied with temperature-regulated fresh and salt water, along with other essential services. In addition, there are are chemistry, microbiology and histology laboratories, a computer center with terminal access, and one of the most comprehensive fisheries libraries in Canada.

Other facilities include a pool-size holding tank in the basement, docking facilities, a display area for the public and a staff cafeteria. A mariculture research center may soon be added to the established facilities.

PBS: an outsider's viewpoint

At our request, Mike Nassichuk penned the following article to add a touch of humor to this commemorative issue of the Sounder.

As young students at UBC in the late 1960s and early '70s, I and my fellow biologists-to-be frequently encountered papers authored by those esteemed scientists who unraveled scientific mysteries at the Pacific Biological Station on the misty isle. Names such as Le Brasseur, Butler, McAllister, Brett, and Waldichuk (at PEI, daughter of PBS) were whispered with reverence, for these were the men who were leading the way in fisheries research and oceanography in Canada. What we wouldn't give for an opportunity to scrub their aquaria, wash their BOD bottles, lose our breakfast over the side of the "Laymore" in Hecate Strait or, more importantly, have their names associated with our resumés.

What kind of a place was PBS, we wondered, and what kind of mental aphrodisiacs were consumed by these "hommes de science" to account for such literary production? We were frequently puzzled by one conundrum: if the PBS scientists were the best in the nation, why weren't they working and teaching at UBC, U of T, or other institutes of higher learning where, supposedly, the "best" research was being done? Alas, it was not my fate to follow in their footsteps, for I had a role to play, in the "real" world of fisheries, at 1090 W. Pender.

To this day, mention of PBS (often confused with PSP) can trigger a range of responses which are related to such variables as the temperament of the listener in question, his or her love of scientists in general or the amount of time one has spent sober in the presence of one or more scientists in an isolated hotel room. To those who have never walked the hallowed halls of PBS, it conjures up visions of a dynamic research institute where giant gonadal chinook spawn continuously in huge laboratory rearing pens; where lamprey, once thought to be a Great Lakes aberration only, are rumored to be threatening coastal chinook and coho stocks; and where scientists must eat and sleep in their laboratories because one sure as hell can't contact them via their office telephones. Those of us who have been there only too rarely recall silent corridors; spacious, soundproof offices; and glimpses of clusters of men holding coffee-stained mugs and staring at blackboards (we wondered where all the women were). Occasionally, we stumbled across some workers (also known as technicians and biologists) diligently peering through microscopes in laboratories, observing fish behavior, processing piles of data and carrying out a myriad of other chores (we no longer wondered where the women were).

We tourists and foreigners from the Mainland, with our preconceived notions about PBS, will probably continue to wonder about what really goes on there. Clearly, what is needed is another Regional reorganization (or a tunnel under Georgia Strait between PBS and the West Van Laboratory, stepsister of PEI) whereby each scientist would report to a manager at 1090. Alternatively, we, and they, should simply traverse the Strait more often (once every five years won't do). For although new names are now interspersed with the old at PBS, the Station's research role continues to be integral to the Department's business.

From all of us jealous outsiders, Happy 75th, PBS!

Mike Nassichuk
Habitat Management
Vancouver

Compiling the past for the future

Work on the PBS scientific archives actually began in 1978, with a first attempt to identify and categorize over 50 years of research data and related information. In 1983, the Salmon Section sponsored an expanded project to make available this legacy of data and records of PBS investigations.

Under the direction of Gordon Miller, PBS librarian, and Kent Simpson, fisheries biologist and scientific authority, a crew of technicians began to identify, describe and label the almost 600 linear feet of previously unsorted and often unpublished material. This wealth of data was first sorted into "Record Groups", consisting of data from individual investigators and investigations or topics of study within each "Record Group." Files were compiled, identified and labeled and a register of the files was prepared. In addition, each "Record Group"

continued on page 20

was indexed according to the following criteria: species, lifestage, year, geographical area and aspect, or topic, of study. This identification technique allows cross-referencing for easier access.

At the time of writing, an archivist is editing and proofreading over 600 manuscript pages of register entries. As each "Record Group" is indexed, the text is entered into a computer database for future access. A publication describing the archives is planned. Upon completion of this phase of the PBS scientific archives project, the majority of the "Record Groups" in the archives will be transferred to the public archives of Canada Regional facilities in Richmond.

As a result of this effort to make accessible the original data from previous research, a mechanism is now in place to preserve original research documents and to make them accessible for future reference. For further information about the PBS scientific archives or for access to the archives, please contact the library at PBS.

Gordon Miller
Librarian

Fishers of Fish

And man gazed out upon the sea,
Its comings and its goings,
And saw the things contained therein
Were good for all for knowing.

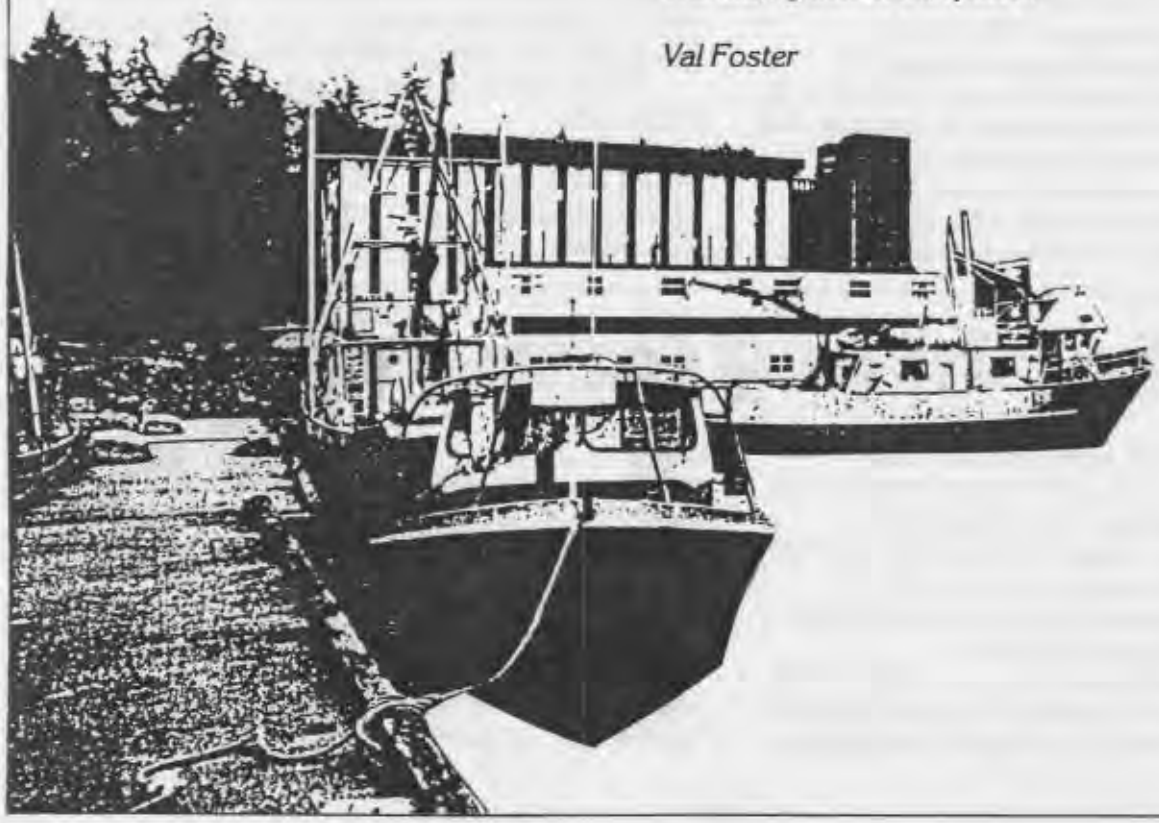
Created in the image of
An act of parliament,
A domineering FRB
Onto the scene was sent.

United with experience
At motivation's gate
The swollen birth of PBS
was nineteen hundred, eight.

Its function then, as is today,
Goes far beyond research;
And further still than programs based
To organize the search.

Important as the structure stands
With all its data base,
From start to finish life is what
The staff gives to this place.

Val Foster



SOUNDER

Volume XI Number Seven November 1983

Challenge winner Bruce Wright accepts the Sounder Chowder Cup.

Chowder Challenge

Geoducks taste better

There were light chowders, thick chowders, cream chowders, red chowders and all of them steaming hot chowders. There were spicy chowders, unique blends of cayenne, tobasco, garlic and Worcestershire sauce, and there was a spiked chowder, rendered potent by two ounces of Glenlivet Scotch. There was Harrison Chowder, Bowser Chowder, Anne's Chowder, Pam's Chowder, Very Easy Clam Chowder, and an adaptation of Channel Street Chowder, dubbed Stream Catalogue Chowder. But the best of them all, the winner of the Sounder Chowder Cup Challenge, judiciously eyed, smelled, tasted and thoroughly enjoyed (along with all the other entries) by an expert panel of chowder tasters, was made from geoduck.

Geoduck, you say? Only at Produce City for $1.49 a pound, said Bruce Wright, the SEP project coordinator who walked away with the Sounder Chowder Cup, a cheap but tasteful trophy.

The saddened but undaunted runners-up were Tom Bird, Habitat Management Division, and Bev Bowler of SEP. Their entries trailed Bruce's by a mere half-point. The other challengers were Muriel Hancock, Linda Thorson, and Pam MacKenzie of SEP, and Anne Gillespie of Habitat Management. All of the contestants were presented with T-shirts.

Recipes and photos on page eight

Sounder: policy and purpose

This is the first in a series of articles on Departmental communications. The obvious starting point is in our own backyard.

People love to answer multiple choice questions. Here's an easy one. The Sounder is:

a) a device for determining submarine objects;
b) a public magazine about fisheries;
c) the Pacific Region staff newsletter;
d) a communications vehicle controlled by senior management.

Chances are that you correctly answered (c), but you may have paused between (c) and (b). If you answered (d), your suspicions should be allayed by this article, and if you answered (a), somehow you got this far without reading the front cover.

As a readership survey and readership feedback have indicated, there is a range of perceptions regarding what this newsletter is or should be. Some of these perceptions are based on what the Sounder used to be, some are generalized perceptions and still others are simply confused. However, they are all equally important, for it is staff, with their contributions, who must ultimately decide where this publication goes. That might be a little easier if its editorial policy and objectives were better understood.

Sounder is intended to stimulate and elevate staff communications in the Pacific Region. It attempts to do this on an individual level, by raising among staff interest in and awareness of regional affairs. Yet Sounder is something of a rare bird among employee newsletters because a great deal of its content is written by staff for staff. This is not a public newsletter, and though there is nothing secret or sensitive about it, it should not be displayed in public areas because it is intended for staff. The Sounder caters to a specialized audience. In the Sounder, any employee can ponder, expound, opine, debate, question or extoll without fearing that his or her ideas will be etched in stone.

Being specialized, the Sounder's readership bears certain known qualities reflected in content. The newsletter is sometimes criticized as being too technical, but the fact is that 60 to 70 percent of Fisheries staff are employed in science-related positions. In recent issues, we've been attempting to match this percentage with an appropriate balance of material.

Some readers suggest Sounder is strictly a vehicle of management, no longer the breezy, sassy newsletter it was in the 1970s. The Sounder has changed, but this change is part of a general trend among staff newsletters which has seen them adopt a more direct approach to communications. Most readership surveys have indicated that people want to see more "hard news" (issues and answers) and less "soft news" (recipes, poems and bowling scores).

There are no management strings attached to Sounder, although management is consulted for input on certain occasions. On such occasions, the author is consulted about the editors' concern and the proposed revisions. This is more democratic than the editorial treatment of most publications, but it is done to satisfy contributors, the lifeblood of this publication.

Some readers lament the loss of the old Sounder. There's no question that the old Sounder was more fun, but I'm not so sure the old formula would work given the changes--increased sophistication, heightened public profile and pressing controversy--that the regional organization has undergone. (For examples: are newspaper readers still satisfied with sensationalism and scandal? Are television viewers not offended by outdated advertising techniques?) Progress both allows and demands refinement. The Sounder has changed because the information needs of staff have changed. Are we fulfilling those needs? Please let us know.

Mike Youds

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Pacific Region update

Fisheries vessels under construction

Contracts were recently let to three West Coast shipyards for the construction of Department vessels.

Shore Boat Builders won a $1.4 million contract to build the first vessel of what may become a prototype for West Coast fisheries patrol vessels: the "PAC 56." The 17 m fibreglass vessel was designed by Ship Division with input from Field Services Branch. The objective was to come up with a vessel that would be suited for use anywhere along the B.C. coast. "PAC 56" (not the name of the vessel) is scheduled for completion in the fall of 1984.

Bel-Aire Shipyard won a $2.8 million contract to build a replacement for the "William J. Stewart," the research vessel of the Institute of Ocean Sciences and Surveys at Pat Bay. In addition, RivTow Straits won a $22.5 million contract to build a replacement for the "Cape Freole," an East Coast fisheries patrol vessel.

SEP evaluation underway

Cliff Levelton, Fern Doucet and Mike Shepard have embarked upon a full-scale evaluation of the Salmonid Enhancement Program. The first stage of the evaluation will be completed by January 15, 1984.

SOUNDER

Newsletter of the Department of Fisheries and Oceans, Pacific Region.

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Sounder is printed eight times a year for the Department of Fisheries and Oceans. Opinions expressed in the Sounder do not necessarily reflect policies of the Department of Fisheries and Oceans. No articles may be reprinted without the editors' permission.

Government of Canada
Fisheries and Oceans

"What it consists of is the evaluation of SEP, for the transition phase, as well as a look at other Department programs that impact on SEP, or vice versa," Cliff says.

Cliff last worked in this Region in 1966 as chief of Conservation and Protection. Prior to his retirement, he was director-general for Fishing Services, Ottawa. Fern Doucet was a senior economist and special advisor to the Minister prior to his retirement. He also worked with Dr. Peter Pearse on a fisheries study in 1980. Mike Shepard is a former fisheries research scientist and the principal negotiator for the Canada-U.S. salmon agreement.

When fully completed, the report will be used to seek funding for the second phase of SEP, scheduled to begin in 1986.

International talks resume

Negotiators for the Canada-U.S. salmon agreement will meet again in late November in an attempt to reach agreement on fishing regimes for 1984 and beyond.

Talks between the two sides broke down earlier this year when newly-elected Alaska Governor Bill Sheffield announced that he would not endorse the salmon treaty because he felt the terms were unacceptable. Negotiators had already signed an interim agreement when Sheffield was elected to office. He objected to six areas in the treaty draft, though negotiators later met and hammered out solutions to four of the six. The two remaining trouble spots were the limitations recommended for the Alaskan chinook catch in order to conserve stocks and the approval given to a Canadian fishing effort on the Alsek, Taku and Stikine Rivers, which pass through the Alaska Panhandle.

Canada had agreed to reduce substantially its chinook catch from that specified in the treaty, but this was not enough for Alaska. It was demanding to increase its catch level despite the recognized objective of improved conservation.

The Alaskans were also demanding that Canada refrain from developing commercial fisheries in the transboundary rivers. This was unacceptable to Canada. It would mean that Alaska would have the primary interest for salmon spawned in Canadian rivers, contrary to provisions of the Law of the Sea Convention regarding anadromous stocks.

Neither country instituted the agreement's chinook conservation measures during the 1983

continued on page four

fishery season, although they had earlier agreed to work in the spirit of the agreement until a treaty could be signed. This resulted in Alaska overfishing their chinook quota while catches were down considerably in B.C., Washington and Oregon. Part of this odd distribution of catch can be attributed to the warm water conditions off the coast this year--the mysterious El Nino effect. However, in other areas the El Nino was a Canadian blessing, since sockeye and pink stocks seemed to have been strongly affected by it, taking a northern diversion through Johnstone Strait to the Fraser River and avoiding the U.S. fishing fleet.

Canada is leading fish exporter

For the fifth year running, Canada was the leading fish exporter in the world in terms of value in 1982, according to the Organization for Economic Cooperation and Development (OECD).

According to recent OECD statistics, Canada led the United States, Denmark, Norway, Japan and Iceland among exporting OECD member countries. The value of Canadian exports of fishery products exceeded $1.6 billion (CDN) in 1982, up 6 percent from the previous year. In volume terms, our exports increased by 3 percent.

Among the important export species were cod, accounting for some $400 million, salmon, $245 million, and herring, $158 million. Shellfish were also heavy contributors, with crab accounting for $106 million, lobster, $88 million, and scallop, $68 million.

Improved fishery resources, a steady demand for fish and seafood, and DFO's ongoing effort, both at home and abroad, to promote fishery products have sustained the growth of Canada's fishery sector despite the economic hardship of recent years.

SEP move consolidates Planning and Finance

SEP has moved toward a partial integration with the rest of the Department's Pacific Region organization, in accordance with the recommendations of the Commission on Pacific Fisheries Policy.

The first step toward integration became effective September 12 with the appointment of SEP Executive Director Dr. Ward Falkner to the new position of associate director-general of the Region. In his new post, Ward will assume responsibility for Personnel, Communications, Small Craft Harbors, Licence Appeals, Vessel Insurance, Statistics and Support Services, including finance and administration.

The objective of program integration is to achieve a higher degree of coordination between enhancement efforts and habitat and fisheries management.

"It means that all employees of Fisheries in the Pacific Region will be reporting to one senior manager in the Region and steps will be taken to integrate SEP into the management of the Region," explains Director-General Wayne Shinners.

Since SEP was established in 1977, the SEP executive director has reported directly to the assistant deputy minister of Pacific and Freshwater Fisheries. He now reports to the director-general.

"We will no longer have a group having to report directly to Ottawa with outside control of affairs in the Region. I think most people will agree that integration makes eminent good sense; to have control here rather than 3,000 miles away."

Wayne adds that the creation of an associate director-general in the Region reflects another recommendation of the Pearse Commission.

"Pearse concluded that my sphere of control was much too large, far in excess of what can be handled by one individual."

"Twelve hundred people and a budget of $80 million require full-time attention."

The most significant change involving staff is the merging of SEP Planning and Finance with their counterparts in the Regional organization. The senior SEP economists and SEP biologists now report to the Director of Regional Planning, Al Wood. In addition, the Economics Branch has been integrated with regional planning.

"The two economics branches have always been fairly closely integrated, but now they can mix and match," Al Wood explains. Integration will provide a more cost-effective service to the Region, he added.

The other divisions of SEP--Engineering, Special Projects and Facilities Operations--will remain as distinct organizations. The Public Involvement Program, Community Development Program and Small Projects Unit of Special Projects will be maintained as well, although SEP's public information program will come under the direction of the Pacific Region's Communications Branch.

"I would guess that it [integration] will be a beneficial move in that it should provide a closer working relationship for those staff working in fisheries management and in salmonid enhancement," Ward Falkner says.

Habitat policy awaits input

A concrete declaration of a national policy for fisheries habitat is off the drawing board and before the public and should be in effect by next spring.

A policy discussion paper entitled "Toward a Fish Habitat Management Policy," was released for public comment in mid-September by Fisheries and Oceans Minister Pierre De Bané. The paper was sent for consideration to government agencies, industry and other concerned groups, as well as to Fisheries and Oceans staff.

"If the habitats go, so do the fish," Mr. De Bané said as he released the paper.

"Accordingly, I am proposing to clarify the Department's policy in this area and to strengthen its application."

Governments and public alike have been asked to comment on the policy by contacting the regional Habitat Management staff or by writing directly to the Minister. Deadline for the receipt of comments is December 31, 1983.

While the document has only been available to the public for two months, it represents a fusion of existing and proposed habitat policies. Initiative for establishing the composite statement began in 1977, when the Fisheries Act was amended. The Amendments enabled the federal government to take legal action to ensure that work done in or near fish habitats is deferred until there has been a thorough examination by fisheries experts.

"When the Act was amended, the public--special interest groups, agencies and industrial interests--began to question what the actual intent of the Act was, or to ask questions of that nature," explains Tom Bird, assistant chief of Habitat Management. "The resource industries in particular wanted something more substantial. It was agreed at that time to formulate policies which indicated where the Department wanted to go with respect to habitat."

The Habitat Branch revitalization effort in 1981 and the results of the Pearse Commission the following year further supported the move to establish a firm habitat policy. In 1980, a national habitat committee was formed, headed by Les Dominy, of the Fish Habitat Management Branch in Ottawa, and consisting of Habitat representatives from across Canada. Forbes Boyd and Tom Bird represented the Pacific Region.

"The policy will go beyond the Fisheries Act," Tom says. "It will hopefully identify the Department's direction with regard to habitat and be supplementary to the Act in terms of providing a format for policy operation."

The basic objective of the policy is "to conserve, restore and develop fish habitats and to maintain and improve the production of Canada's fisheries resources for the benefit of present and future generations."

The objective is supported by three proposed goals:

i) prevent damage to fish habitats supporting Canada's fisheries resources
ii) restore fish habitats in selected areas where economic or social benefits can be achieved through the fisheries resources
iii) develop fish habitats in selected areas where the production of fisheries resources can be improved for the social and economic benefit of all Canadians.

These goals are to be achieved in a manner that: recognizes the legitimate interests of other levels of government and the private sector; provides opportunities for public views and concerns to be heard; makes full use of the results of scientific research in reaching habitat protection decisions; and enforces the habitat protection provisions of the Fisheries Act. The latter two goals are intended to: increase socioeconomic benefits from certain fish resources; encourage community involvement and the creation of local employment opportunities, and apply new knowledge flowing from scientific and technical studies.

The fundamental principle of habitat protection will be "no net loss" of the productive capacity of fish habitats that support the nation's commercial, recreational and native fisheries. In the policy paper, this principle is broken down into six steps: notification (about the project with potential harm to habitat); examination of the project; public consultation; decision; audit; compliance and enforcement.

Copies of the policy discussion paper are available from the Pacific Region Communications Branch.

Dumping solution contended

Two provincial crown corporations, British Columbia Place and Expo 86, are proceeding with the redevelopment of the industrialized north and east shores of False Creek. The project will provide housing and commercial areas, public facilities, and a site for the 1986 World's Fair. In addition, the City of Vancouver is installing several buried pipelines in False Creek to service the project.

The development requires that considerable volumes of subtidal and shoreline sediments be removed. As a result of decades of industrial activity and continued sewerage discharges into False Creek, much of the surface sediments are highly contaminated with heavy metals, including cadmium and mercury, and chlorinated organic compounds. This contamination makes it very difficult to find environmentally acceptable disposal options for the large volume of sediments.

B.C. Place applied in December 1982, under the Ocean Dumping Control Act (ODCA), to dump these contaminated sediments at the Point Grey designated dumpsite in the Strait of Georgia. This application was rejected following a review by the Department of Fisheries and Oceans (DFO) and Department of Environment (DOE) technical and scientific staff. The decision was based on the knowledge that concentrations of some heavy metals in sediment samples exceeded regulated levels under the ODCA. The interdepartmental review committee also recognized that the environmental effects of dumping heavy metal contaminated sediments at Point Grey could not be reliably predicted or quantified.

In response to this rejection, DOE, DFO, Ministry of Environment, and B.C. Place officials prepared a brief which identified the following alternative disposal options: landfill (Lower Mainland), ocean disposal within the Strait of Georgia, ocean disposal in deep offshore waters or redeposition within False Creek. Potential fisheries resource conflicts, as well as other impediments, were identified for each option.

In consideration of the available technical and scientific information on the various disposal options, DOE issued several ODCA permits authorizing the redeposition of a

False Creek redevelopment will involve extensive dredging and controversial dumping.

portion of the contaminated sediments in a deeper, degraded area of False Creek exhibiting similar bottom sediment contamination. The remaining, larger volume of contaminated sediments was authorized for disposal at a deep ocean site approximately 70 km offshore of southern Vancouver Island at a depth of 1,000 m. Dumping at this site was judged to constitute a minimal risk to the fisheries resource. The less contaminated (subsurface) sediments, which do not contain contaminants in excess of those regulated under the ODCA, are being dumped at the Point Grey designated site.

Pursuant to the ODCA, B.C. Place has filed a "notice of objection" with DOE regarding their Point Grey and deep ocean dumping permits. It is anticipated that a board of review will be established by DOE and hearings will be held on the matter. The Fraser River Coalition has also filed notice with DOE and will probably be represented in this hearing process.

In the meantime, Expo 86 and B.C. Place are proceeding with the shoreline dredging and reconfiguration stages of the project. In cooperation with DOE and the proponents, the Habitat Management Division is directing fish monitoring programs, water quality measurements and bioaccumulation studies to assess possible impacts on water quality and fisheries resources in False Creek from dredging and dumping operations. In addition, underlying dredged material being transported to the Point Grey dump site is continually analyzed for heavy metals content to ensure compliance with ODCA regulations.

In further cooperation with B.C. Place, DFO is assessing the feasibility of incorporating habitat restoration and development into the design plans for certain areas of the False Creek shoreline. Salmonid enhancement opportunities are also being considered.

Mike Flynn
Senior Project Manager
Water Quality Unit
Habitat Management Division

New scientific review process developed

A new Pacific Region biological review process will take effect this winter.

The need for such a process was identified during the regional zero base review conducted last winter. In making its recommendations, the zero base review committee noted that while branches generally held internal reviews, no comprehensive review of all Regional biological work was being done. This could lead to poor use of human and other resources. Furthermore, branches might undertake overlapping work, and without a review it was difficult to tell whether the range of investigative work was well balanced with respect to stock management and other priorities. The committee also thought that all such work should result in full and timely reporting of results.

The new process will assemble, in a single list, all regional projects aimed at improving the biological and scientific bases for fish stock management. A committee of five will consider and recommend, to the director-general and his senior managers, the priorities and an appropriate level of funding.

The review committee's terms of reference also call for representation from each of Field Services, Salmonid Enhancement, Fisheries Research and Regional Planning, plus a chairman to be named by the director-general. In January, the committee will convene sessions in Prince Rupert, New Westminster, Nanaimo and Vancouver. Presentations will be made by section heads, division heads and others responsible for proposed work. A written report will be prepared by the committee when the reviews are complete.

The committee will be looking for proposals which are relevant to regional objectives, which address regional priorities and which will be conducted in a professional manner with high likelihood of success.

A simple form will facilitate collection of proposals. Committee members expect that these forms, when completed and endorsed, will serve as a sort of "work contract." They will be bound as a permanent record of proposals and progress.

The present committee includes Bob Kabata (Research), Keith Sandercock (SEP), Dave Schutz (Field Services), Al Wood (Planning) and Howard Smith (Research). All of us feel that this new process can make an important contribution to Pacific fisheries management.

Howard Smith
Associate Director
Pacific Biological Station

Seven brave challengers in battle of the

Photos, clockwise from left to right. Contestants were permitted to "bribe" the judges with explanations of their recipes. Here, Tom Bird does his best to sway the panel's decision. Above, Linda Thorson tastes her creation as Yvonne Yole, who helped supervise the contest, looks on. Right, our expert panel of tasters consisted of Don Wilson, director, Field Services Branch; Anne Kling, biosystems program coordinator, Enhancement Operations; and Dom Di Palma, supervisor of the canned fish laboratory at the Howe Street Inspection lab where the contest was held. Middle right, there were lots of leftovers for the audience to sample. Pam McNally (right) and Susan Loutet enjoy a taste. Lower right, Bruce Wright, the winner of the Sounder Chowder Cup, is congratulated by Don Wilson.

Geoduck Clam Chowder

2 medium geoducks (2 pounds each)
4 potatoes diced
2 large onions diced
3/4 litre water
3/4 litre milk
1/4 pound butter
2 tomatoes diced
1 large stalk celery
or
1 cup shredded cabbage
5 slices bacon cut up
salt, pepper, garlic and oregano to taste

Pour a kettleful of boiling water over geoducks. Cut along shell to remove, then pull off the skin. Remove all dark materials from viscera. Grind up in an old-fashioned meat grinder. (A Cuisinart is second best.)

Fry bacon in pot, add potatoes and half of the butter. Sauté 5 minutes then add onions and celery or cabbage. Sauté 5 more minutes then stir in geoduck. Add water and bring to boil. Add milk and heat and season to taste but do not boil. Throw in tomatoes at the last minute for color.

Makes about 2 litres.

Bruce Wright

Bowser Clam Chowder

4 oz. bacon
3 onions
3/4 cup water
1 cup milk
5 potatoes
2 dozen fresh clams
1/2 teaspoon salt
1/2 teaspoon pepper
1/2 teaspoon paprika
1 cup cream
1 teaspoon butter
1/4 cup V-8
5 dashes Tabasco
5 dashes Worcestershire sauce
8 sweet william tomatoes
1 apple
1/4 green pepper
2 oz. Glenlivet Scotch
1 small carrot
dash of dried Pacific seaweed
basil
thyme
oregano
garlic

Tom Bird

chowders

Harrison Clam Chowder

10 oz. baby clams
1/2 litre half and half cream
2 oz. clam nectar
6 strips of bacon
1 small onion
1 large potato
1/4 cup butter
salt, pepper, parsley, oregano to taste
cornstarch to thicken

Cube potato and boil in salted water. Just cook until slightly done. Pour off most of the water and retain the rest with potatoes. Cut bacon into small pieces and fry. Drain. Add cubed onion to bacon fat and cook till just golden. Drain. Add bacon, onion, clams and clam nectar to potatoes and water in the pot.

Add spices to taste. Slowly add half and half cream. Add butter (more, if you like).

Don't boil, but slowly heat, really you are just letting the flavors mingle.

Add cornstarch to thicken, but I prefer the chowder fairly fluid.

Bev Bowler

SEP in perspective

An interview with Ron MacLeod, special advisor to the Director-General

Ron MacLeod has been with the Department since 1956, when he started as a fishery officer in Alert Bay. After almost ten years in the field, he served successively as training and development officer, assistant chief of the old conservation and protection branch, director of the Northern Operations Branch, SEP's first executive director and director of the Field Services Branch. Last spring he returned from Ottawa, where he spent three years as director-general of operations, Pacific and Freshwater Fisheries. He is currently special advisor to the director-general.

In the mid-1970s, Ron spent four years laying the groundwork for the Salmonid Enhancement Program. So instrumental were his efforts that some have referred to him as "the father of SEP," and "Mr. Salmon." He comes from the fishing village of Tofino where his father was a fishery officer. The salmon has always been the focal point of his interests.

Ron MacLeod: SEP as agent of change.

Was SEP your idea?

SEP was the fruit of a lot of thinking in different parts of Fisheries and the industry. The impetus for the Program arose at an industry-government seminar in January 1974, at which the development of the Pacific fishery was a major theme. Out of that came a recommendation for a program to enhance salmon as being the first priority for Pacific fisheries. There was some work at that time on a departmental submission for an enhancement program, but it ran afoul of concerns that provincial people had. It dealt only with salmon without regard for provincial responsibilities for other species, water systems and land use. As a result of that, the initial proposal was scrapped and I was appointed to bring together federal and provincial staff, who would report to a federal-provincial steering group. I was asked to design a program that would take into account the provincial interests and concerns and to design the elements of such a program.

The concept that emerged turned out to be an eminently practical concept because we had to take into account not just the biological considerations, but also the social and economic consequences of proceeding with the technical goals. We developed a program founded on a five account system which, very generally, said the program must be self-sustaining, economically viable and must provide net benefits in terms of cost, net benefits to those who harvest the resource and net benefits to Canada as a whole. It was concerned with employment aspects, the welfare of native people and the preservation of both the fish resource and the habitat.

Wasn't there some hesitation in getting into all that when before you were primarily involved with managing fish?

There was a great deal of backing and filling. The concept took some time to emerge. There were a lot of very different perspectives within the Region itself. Melding together those perceptions was pretty exciting and challenging. I'm not sure that all the participants were aware of what we were doing in the sense that we were creating an agent of change. I always saw SEP as a major agent of change.

For the resource?

Both in terms of the resource and the value of that resource, but also in social terms and in our appreciation of the contribution that fisheries might make to the cultural and economic well-being of Canadians. To me, it seemed to be an opportunity to foster the conservation ethic. The conservation ethic is a value system of importance in British Columbia and this is why the emphasis was on openness: public involvement, dissemination of information; reaching out for the aspirations of people who might be affected by the program and the building in of those aspirations in any way we could. We also had very fortunate circumstances. We had a Minister who was

much inclined to give weight to the use of fisheries to help disadvantaged people, to achieve social as well as economic goals. He very much supported two elements of the program: public involvement and community development.

"The conservation ethic is a value system of importance in British Columbia and this is why the emphasis was on openness."

I think SEP has changed the thinking within the Department itself. It has changed the perception of our function and why we exist in the fishery system. I think, to a certain degree, it was successful in getting people to focus on the human consequences, the industrial consequences, the practical consequences of technical decisions and actions.

I think that what is beginning to unfold in the school system today--the educator's package--will be very significant in terms of how British Columbians see the resource and how they respect it and how they use it. I put it very simply: the salmon spirit will prevail. That, to me, is the essence of the whole thing.

Former Minister of Fisheries and Oceans, Romeo LeBlanc, and former Minister of the Environment, Rafe Mair, exchange pens during the signing of the federal-provincial SEP agreement in 1977.

I see the attainment, through the schools and the communities and the hands-on experience, of what for me and a lot of other people in the Department has been a long-time aspiration: the preservation of the resource. It will be be preserved only because people see it as useful to them, either through economic benefits or through spiritual benefits; the need to know that all is well in your universe, that water quality is good; that your society is behaving according to some standards that will assure its survival. The salmon, I think, more than any other animal, symbolizes this for British Columbians. The more they get involved with salmon, the better the chance that governments at every level will be committed to the preservation of salmon and to the promotion of a richer quality of life.

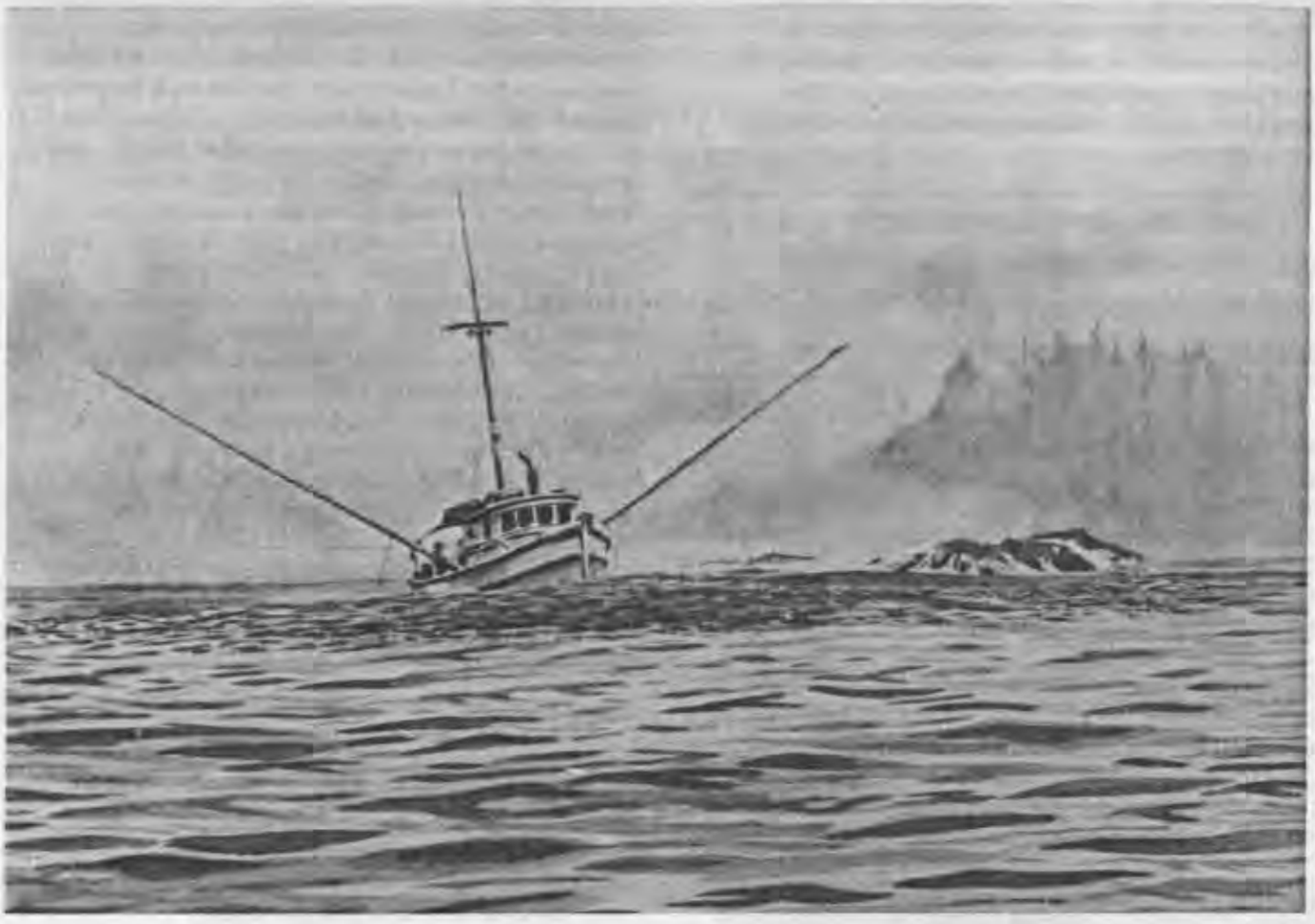
"SEP has changed the thinking within the Department itself."

You don't think economics will come first?

Economic reality is a must that we have to take into account. I'm not opposed to trade-offs per se, only to trade-offs that have irreversible consequences. Why give up something that nature has given you? Is it necessary? Is the short-term gain the only gain that we should take into account?

It puts a tremendous challenge before the fish manager to assure that if the salmon is going to be recognized as a legitimate user of the freshwater system, that we use it to its fullest potential; that it generates the economic benefits it is capable of generating, which are far, far beyond what we are realizing today. In other words, if we have to hold a river back from other development, we have to use that river fully, for fish, we can't sit like dogs in a manger.

I think that one of the great benefits of the enhancement program will be that more and more British Columbians are getting hooked on salmon. When an angler catches a salmon, it's a matter of who hooks who. That salmon spirit overtakes you. That's the kind of attitude I'd like to encourage. By looking after our salmon, we look after ourselves. If we can't be good husbanders, then God help us, because we need all the help we can get.



Al Denbigh: the science of art

On the same day as the 75th birthday party for the Pacific Biological Station, one of Canada's foremost scientific illustrators retired from the payroll.

"Right after 4:00 pm, September 29, I am a civilian," says Al Denbigh, seated in his studio at the Station in early September. His drawing board, with a crab illustration underway, faces the window and the sun. Round the walls lie stacks of drawers, papers and paintings. Denbigh doesn't want to give it all up, but the government says you can't work once you're 65.

He's an excellent illustrator and artist, scientists who work with him say, but Denbigh is modest about his achievements. In his youth he never did "cross the Arctic on a camel." He had no formal art education but taught himself to draw and paint and got his initial chance in the commercial art field in Toronto. Later he studied anatomy in Alberta.

Denbigh's love of the coast and the hours of research behind every illustration more than qualify him for his field. He was also a commercial fisherman for a while as a young man in Victoria. His father was in the fishing business there and in Kamchatka (USSR) and Sakhalin Island under the Russian Imperial government. A flamboyant grandfather was responsible for the initial move from Scotland. When Denbigh was a young child, the family returned to England for a few years, then left again for Canada.

Denbigh, born in Japan of a father who was then a Russian subject, claims a sedentary life in comparison with his forbears. At Pacific Biological Station, he took over in 1964 from the display work his brother, David, was doing and concentrated on scientific illustration. It's been a pleasant passage for him, he says, with no ups and downs, his job unaffected by the changes in Fisheries.

"His main work is the shrimp bulletin, which is a very important project," says scientist Frank Bernard. "Also, he's doing the illustrations of Canada's marine mammals for a book due to be written this winter by Michael

Above: "Ground swell," a watercolor painting by Alistair Denbigh.

Biggs (the Station's expert on the subject). This is almost complete and is a very fine set."

Each major work takes a few years to complete because of other illustrations needed by the Station and because of the intense craftsmanship that goes into these projects. The shrimp bulletin took about 15 years and the marine mammal illustrations have taken several years so far, each one reconstructed from photos and research gathered from around the world.

Denbigh recently completed a delicately drawn shellfish poster as a commemoration of the 75th anniversary of the Station. He says his work is not purely a job, but a deep-seated interest. The illustrator is a person who looks at a species in a sustained manner, perhaps more than anybody else. He may see an appendage or some damage and signs of regeneration not seen by another. The illustration is not just a beautiful decoration; the object is the dominant factor of the composition. In a painting, everything is subordinated to the whole.

Denbigh hasn't tired of his subject matter during the years at the Station. He paints other subjects at home: landscapes, animals, people. "I paint whatever moves me," he says, "and I use watercolors. I tried other things, but they turned me off. I guess I found my medium."

He started painting very early in life and became a freelance artist before he joined the Station. Denbigh builds up his imagery for two to three years and researches his work for a very long time before he begins a painting. Then, he may finish it in six weeks. If something goes wrong, he may reject it altogether. He's a realist painter of the outdoors more than anything and especially captures the various moods of the ocean in his work.

A painting is not finished until it is framed, says Denbigh, and he hangs his paintings all round his house until he's decided on any changes in composition on the matt or in the frame. It's very important for the artist to have another opinion at this stage and for this Denbigh relies on his wife, Betty. She also photographs his paintings once complete, before they go to an art gallery for exhibit. For his commercial work, Denbigh has a sense of possessiveness and takes an interest in where it goes because it represents "a helluva lot of work." He now has paintings in private collections in Canada, U.S., England, Australia and Japan. His illustrations are harder to trace. His wife keeps a photographic portfolio of the major works, but all the originals are the property of the Crown and once used by the

Al Denbigh

Station they're reproduced many times, including by people in other parts of the world.

After almost 19 years on the job, does Denbigh think illustration as an art form has changed? Do techniques go in and out of fashion? Not really, he says, although a certain way of doing line drawings, for instance, may give a better illustration. Work is almost individual, like handwriting, and he sees no lessening of demand for illustrations despite computers capable of reproducing images. Someone will still be responsible for the creative input.

The Denbighs may move to Victoria once he's settled into retirement, where their sculptor son is a model maker at the provincial museum. Their other son is an electronics technologist. Meanwhile, Denbigh intends to work out of his studio at home in Nanaimo. Instead of going to the Station, he'll just go upstairs.

"I'm not quitting my work," he says, "I'm going right on. I'd go nuts if I sat around. I have an exhibition coming up in November in Nanaimo."

This will be the first private exhibition Denbigh has held. Although he expects to do illustrations when requested, for the moment he's "going commercial" and he finds a challenge in the change.

Brenda Austin
Communications Branch

How to meet the interview board

Success at the interview board, through appropriate preparation, can be the key to reaching your career goal. Too often most of us experience failure at this stage.

You should have already established your career goals and identified your skills. "Where do I want to go in my career plans and what do I have to offer," are the first questions you ought to ask yourself before going any further.

Preparation

1) Obtain information about the position. What are the duties and qualifications required:

   - read the poster carefully, particularly the qualifications section;
   - ask to see the statement of qualifications;
   - talk to the supervisor or the incumbent of the position;
   - go and see the work environment;
   - ask to review any pertinent manuals.

2) Ask yourself why you are interested in the position. Be frank.

3) Honestly assess yourself:

   - relate your experience to the duties of the position;
   - do you possess the skills necessary to perform this work effectively?

4) Gather information from appropriate acts, manuals and annual reports by visiting the library or the departmental communications services.

5) Try to imagine the type of questions that could be asked. Project yourself in the job. What type of situations would likely happen if you were in this position? How would you handle this?

   Don't forget the basics:

   - make sure you know where the interviews are being held;
   - be rested, be on time, be neat;
   - try to relax, take deep breaths;
   - have a positive attitude toward board members and toward yourself. Remember, you made it to the interview, now it is up to you to "sell yourself" and prove that you are the best candidate.

Interview format	Response
1) Introduction: exchange of pleasantries, small talk, information on the position.	Be an attentive listener. Pay attention to nonverbal clues. Let the board members shape the interview. Establish eye contact.
2) Discussion of your background: a) interests b) educational qualifications c) work experience.	Don't let board members make assumptions. Stress your relevant experience, emphasize your strengths. Do not overdo it. Be honest. Avoid unrelated anecdotes and slighting references to former employers. Don't be a name dropper.
3) Questions related to statement of qualifications: a) knowledge: acts, regulations, department's organization; b) abilities: situational questions. What would you do; c) personal suitability: looking for tact, initiative, dependability .	Take your time to answer. Ask for clarification if uncertain. Rephrase if necessary. Do not just answer yes or no; be complete, clear and concise.
4) Closing	Time to ask questions. Time to underline positive factors in your favor. Remember the board is under time constraints. As you should have a good knowledge of the duties involved, limit yourself to only one or two pertinent questions.

The interview

The selection board usually consists of three people. Its mandate is to identify the best qualified candidate. To do so, a set of questions has been prepared in accordance with the statement of qualifications. The statement of qualifications describes the knowledge, abilities and personal suitability required to perform the duties of the position. Notes are taken during the interview in order to develop a normal board report on each applicant.

After the interview

If you are not successful, analyse what happened. You could contact the chairman of the rating board or the staffing officer. Use the information provided to help you prepare for further boards. Honestly ask yourself if the evaluation is correct. Remember, though, no one likes to admit that they have faults.

If you are successful, congratulations!

Pat Mason
with notes from a public service course.

I've got it already!*?#!

Only in the early hours of the morning does the Purchasing Group see the brown laminated plateaus of their desktops, waiting to be clouded over with a storm of documents. What follows is systematic chaos: the incessant ringing of telephones demanding response; the mental and physical anguish induced by the telephone syndrome; the permanent ring around the index finger; the paths worn in the carpet from the constant human traffic; facing a frustrated and burdened victim with yet another request to fill in yet another form; and the paperwork, oh the paperwork! It's not a very pleasant scene.

To a purchasing agent, expertise doesn't come overnight, but flourishes with the years of experience. Once that certain level has been attained there comes a feeling of accomplishment. There is fervent pride in being able to say, "I've handled this contract, applied pertinent clauses, found a supplier, calculated the cost and negotiated its terms and conditions." Simply being able to procure a supply or service and, on occasion, at a lower expenditure, is a grand feat.

Contrary to popular belief, the Purchasing Group is not militarily ruled. We don't wear epaulets; in fact, we're very approachable. We just have to ensure that contract regulations are adhered to, or at least followed as closely as possible. What really scorches our butts is when a requisition arrives with "I've got it already" marked under "Date requested." Now, that's a bit much.

We do understand the circumstances that require contracting out for emergency situations, but they are few and far between. Let me ask you, do we put in a foundation for a hatchery before you know it is required? Do we rent a car for you a week before you need it? Do we hire consultants and say, "You'll need this guy next week, he's only $600 an hour"?

A storm of documents descends upon desk of purchasing agent with only a trace of everlasting smile.

Before we lose our prized sense of accomplishment, expertise and everlasting smiles, please let us do our job properly. The Purchasing Group is not a stumbling block. Get to know us, give us (and yourself) the lead time and we'll show you the loopholes.

Andy Charette
Purchasing Group
Administrative Services

Communications Branch has moved to the 2nd floor at 1090 West Pender. Please come in to see our new offices which are adjacent to our audio-visual room.
By the way, when ordering a/v equipment or films, please give us at least 24 hours notice of your requirements and order through our receptionist at 666-1384.

Pacific Tidings

We understand that Support Services Branch has been revamping and improving the entire inventory system; a commendable thing to do, but really where do you affix an inventory sticker to the new guard dog at Inch Creek hatchery! Suggestions anyone?

(Try labelling the canine's canines--Editor.)

New appointments include: Greg Caw, biologist, who joins Prince Rupert Habitat unit; Shirley Frost, the new district clerk in Whitehorse; Stephen Brownlee, inventory clerk, Support Services Branch responsible for stationery, stores and clothing; Sue Farlinger, herring/shellfish biologist in Prince Rupert; Sue Carruthers, technician with the Mark Recovery Program, replacing Glenyth Carragata who has flown east.

Recent births include: Born to Deena and Gordie McEachen, fishery officer, Rivers Inlet, a son, on July 24; born to Bonnie and Brian Lunn, also of Rivers Inlet, a son, on August 22 (Dawsons Landing could not be reached for more details); born to Sheila and Vic Palermo, Salmon Services Division, a daughter, Joanna Marie, weighing 6 lb. 15 oz. (2.8 kg) on July 1; born to Ann and Greg Savard, fishery officer, Bella Coola, on October 4, a 7 lb. (3.2 kg) daughter; born to Margo and Ron Baler, a daughter, Erin, on August 30, weighing 7 lb. 12 oz. (3.5 kg).

Secondments include: Mike Nassichuk, Chief, Water Quality Unit, who has been seconded to Ottawa until March 1. Replacing Mike is Steve Samis who is acting chief until December 15. Mike Farbatuk, administrative clerk, Field Services Branch has been seconded to Finance, Support Services Branch, Vancouver. Gerry Bridden, Inspection, Victoria has been seconded to Ottawa until December 30. Don Martens, External Affairs, has joined the Department on secondment. He will be working with Rob Morley in Intergovernmental Affairs.

Fern Doucet and Cliff Levelton are in the Region doing an assessment of SEP.

Blake Campbell passed away on September 11. For many years, Blake was the senior economist with Economics and Statistics at Vancouver headquarters. Donations may be made to Tsawwassen United Church Memorial Funds.

Promotions to assistant stock enhancement officers include Doug Brouwer at Conuma hatchery and Doug Turvey at Pallant hatchery. Louise McFall was the successful candidate in recent competition for administration officer, Fraser River, Northern B.C. and Yukon Division at New Westminster. Pam MacKenzie was the successful incumbent in competition held for administrative assistant, to Dr. Ward Falkner, associate director-general and executive director of SEP.

Fishery officer lateral transfers include Rick Grindrod, who has moved from Vancouver subdistrict to Mission. Art Chambers, head, general services section, Support Services Branch is on extended sick leave. We wish him well.

A slice in time is made at the 75th anniversary celebration of the Pacific Biological Station in Nanaimo, September 29. From left to right, Dr. Bruce Fraser, president, Malaspina College; Henry Dane, head of Malaspina's chef training program (who, with his students, created the cake and the irresistable array of foods); and Dick Beamish, Station director. The Station's cafeteria was overflowing with staff and guests.

SOUNDER

Volume XI Number Eight December 1983

The Fisheries fleet

Season's Greetings

Two shifts before the mast

Of the 31 vessels in the Pacific Region's Ship Division, three are multi-tasked ships, components of the West Coast's search and rescue organization. To fulfill this role, crews work a six-hour shift, go off watch for six hours, then return to duty for another six hours. This routine provides a functional crew 24 hours a day, with each crew working regular hours. They do this steadily for three consecutive weeks, during which time the ship never sleeps and after which the crew, exhausted, takes three weeks shore leave.

To obtain photographs for this issue's feature on the Ship Division, I join the Red Crew of "Tanu," largest ship in the fleet, on an overnight passage from Vancouver to Victoria, her home port. This is Red Crew's last night of a three-week trip, and the telltale effects plainly show that it's been no Caribbean cruise.

As the ship slips away from Ballantyne Pier, James Tuohy, quartermaster, lights up a cigar. ""Tanu" is a good, versatile working platform for gaining experience," he says, noting that, among mariners, Fisheries vessels have a better reputation than Coast Guard vessels. But this is James' last voyage. As of tomorrow morning, his job terminates, and after two years aboard "Tanu," he doesn't want to leave. Like several other crew members, he began his marine career as a fisherman. He next joined the Coast Guard and worked in vessels and lighthouses. Fisheries offered the opportunity to broaden his experience. He can now take the wheel, as can several other deckhands on board. In fact, not one crew member has worked aboard "Tanu" for less than two years. These days, job opportunities are rare and job frustration is common with the tiring schedule, but job turnover is almost nil.

Cover illustration: "FPV Tanu" on the high seas, from a photograph taken by Fishery Officer Gary Buechler.

"Our crew is the most qualified of any on the coast," says Captain Ed Storzer, who is filling in while Captain Tony Preston is on holidays. Ed has worked aboard "Tanu" for five years. He likes the ship, the life and the schedule. "There is always something different."

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SOUNDER

Staff newsletter of the Department of Fisheries and Oceans, Pacific Region.

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Sounder is printed eight times a year for the staff of the Department of Fisheries and Oceans. Opinions expressed in the Sounder do not necessarily reflect policies of the Department of Fisheries and Oceans. No articles may be reprinted without the editor's permission.

Government of Canada
Fisheries and Oceans

The Fisheries fleet

"Tanu" takes its name from the abandoned Haida village of Tanoo on the Queen Charlotte Islands. She is fifty-five metres of steel, wood and glass—one of a kind on the West Coast--and every bit the patrol vessel she was intended to be. She can weather some of the roughest seas in the world, but like many federal vessels, her presence stands as much for symbol--territorial affirmation--as for seaworthiness. She can do only 14 knots "downhill," as the nightwatch explains, and must soon undergo a mid-life refit after 15 years of service.

Yet speed is not necessary for a search and rescue (SAR) vessel; versatility is, and at this "Tanu" excels. Last year, there were 37 SAR missions, a figure which says little about the lives saved. Patrols are expensive. Fuel alone for one three-week trip is $20,000. But no cost is too dear to the victims of a marine mishap awaiting rescue. Nor can fisheries be managed and enforced solely from an office building. These are the raisons d'être of the Ship Division.

As the brass hand sweeps past six, shifts change. Eyes are half-open, hair tangled, faces unshaven and pale. In the small, smoke-filled messroom, it's coffee and cigarettes, cigarettes and coffee all the time.

The shifts never end; a bite to eat (chicken à la king on toast), a movie on the video (Bette Midler in "The Rose," for the third time this trip) and a game of cards. Try for three hours of rest. Sleep doesn't come easily, but fatigue will eventually put you there. Then you head back to the messroom for a pre-shift meal, and so on, for three weeks.

For the last shift, day begins at midnight. "Tanu" noses her way into the naval dockyards at Esquimalt. The throbbing of her engines fades, replaced by the roar of her generators. The crew carries on.

At 4:30 am, you awake to the sound of Cheech and Chong on the video and laughter in the messroom. At 5 am, there is singing in the quarters. "You are so beautiful." It's still dark out, but the first shift is headed home. They say this life works wonders for marriage; a honeymoon every three weeks.

"It takes two or three days to wind down from a three-week trip," the Captain says. "Most of the crew will tell you that."

They don't have to.

Mike Youds

The long, rich heritage of the vessel manager

The Roman dramatist, Plautus (254-184 B.C.) once observed, "Who wishes to give himself an abundance of trouble, let him equip these two things--a ship and a woman. No two things involve more bother, for neither are ever sufficiently adorned."

I'll probably give myself an abundance of trouble for that quotation, but my point is that, even prior to the birth of Christ, the high cost of maintaining vessels was a fact of life.

It would appear that nothing has really changed over the centuries. Ships are expensive to build, operate and maintain; however, until an alternative method of waterborne transportation is developed, ships will continue to be essential and expensive.

It is to this end that the inquisitive mind might ask, "Why must we bear these expenses at all?" It could be rationalized that a ship is just a simple buoyant object that floats back and forth. Why can it not operate like a perfectly designed tool where the only cost is the capital cost? This is technologically possible. The vessel would be constructed of a permanently noncorrosive material. The crew would be replaced by completely automated controls. Electronic computers would receive routing instructions, report the vessel's position and provide weather data. A nuclear fuel charge would be fitted to last for the full life of the ship. With the elimination of the crew, human error would be eliminated. The computers would, of course, anticipate and avoid the remaining perils of sea, such as storms, collisions, groundings and fires. There you have it; in one short paragraph of preliminary design, virtually all operating costs have been eliminated.

Needless to say, this is purely science fiction but who knows what the future holds?

In the meantime, while awaiting the development of this wonder ship, the prudent vessel manager must continue to grapple with planned and unplanned expenditures associated with the operation of a fleet of vessels. For example, fuel prices have increased dramatically over the past several years, shipyard and repair costs continue to spiral upwards at an alarming rate, also items such as victuals, cleaning gear, paint, cordage and all the other sundry items required to maintain the fleet have increased considerably in cost

While the foregoing price increases may be predictable to a certain degree, the cost of maintaining an aging fleet must also be considered. These costs, by and large, are unpredictable. For instance, older vessels require complete upgrading of hulls, machinery and electrical systems to meet a multitude of mandatory requirements made under the Canada Shipping Act and various other statutory acts and regulations pertaining to the safe and legal operation of ships. Add in the odd grounding, a couple of blown engines, log damage resulting in bent propellers and shafts and a host of other miscellaneous, unforeseen expenditures, and you have some idea of a vessel manager's concerns when attempting to balance his budget.

Some readers may recall J.P. Morgan's classic reply when asked about the cost of maintaining a vessel: "Young man, if you have to count what it costs, you cannot afford to own a yacht."

Captain Gordon Irving
Chief
Ship Division

Versatile fleet for a diverse coast

When I sit back and view the coast and our requirements, I think that Fisheries should have at least 50 patrol vessels, all of different sizes and design requirements. This is impractical, so we must develop a design which will meet requirements for years to come. To do this, we'll need fishing expectations and plans, a budget (dollars and person-years) and most important of all, a crystal ball.

Certain areas do not require a large vessel. Of course, the larger the vessel, the more costly it is to operate. Fishing effort and geographical location are prime considerations. An example of this is the Fraser River, with its shallow waters, where you would require a smaller, shallow-draft vessel, maneuverable amongst the fishing fleet. At times, we do require a larger vessel for peak fishing periods. As this is not a frequent requirement, it is not cost-efficient to have a larger vessel assigned on a continuing full-time basis. We are finding now that large and small vessels are being utilized more efficiently when dispatched to other areas to assist during peak fishing periods. The vessels then return to their respective areas to carry out their regular duties.

I question certain types of our vessels, however. When these vessels were constructed, their design was determined (as now) by fishing trends, Department of Transport regulations, health standards, political input and budgets (dollars and person-years). But, as all of you

Typifying the diversity of the Pacific Region patrol fleet are from top to bottom: "James Sinclair," "Sooke Post" and "Temple Rock."

know, these factors, especially the fishing trends, have changed drastically over the last few years. How much more change will we see in the future with the implementation of the Pearse Report?

The design of patrol vessels has gone full circle: from the "Rock" class (Falcon and Beaver, for example) which are wood, displacement-hulled, medium-speed vessels; to the faster, fiberglass "Post" class (Atlin and Babine, for example); to the smaller two-person fiberglass vessels. The latest design represents an attempt to do the task a little faster and to try to keep up with industry as well as with poaching. Remember, fuel was not a problem ten years ago as it is now. Industry is more fuel-conscious and is using more fuel-efficient engines. We are currently having built a fiberglass, 17-metre, medium-speed, displacement-hulled vessel. This was originally to be a two or three-person vessel. However, with design advice from the users--fishery officers and masters--what was planned as a 14-metre (48-foot) vessel grew to 49 to 52 to 56 and finally to PAC 57. As a result, this vessel is a compromise in design and will be best suited as a replacement vessel for the majority of our fleet. I don't think we have designed a three-humped camel, but when this vessel is completed, it will be tested for one year, at various locations along the coast, to determine: whether it is an acceptable replacement platform; design problems; how to correct any defects.

If the new prototype vessel is successful, we can start replacing some of our vessels which are showing their age or are not suited for their area of operation.

Most of our vessels are suited to their present locations. For example, the "Arrow Post," located in the Queen Charlotte Islands, is not only suited to our requirements--management, enforcement and transportation of supplies and fuel--but to search and rescue duties as well. Hence, she is as a mult-task vessel.

Have I addressed the topic? No. To do this fully, I would have to criticize my predecessors. At the time, they did what they felt was best for the Department. Given the same information, I would likely have had the same type of vessels. Remember, what we design now will not necessarily be acceptable in ten years. We all have twenty/twenty hindsight.

Captain Gordon Nelson
Superintendent
Marine Operations
Ship Division Headquarters

First Mate Don Hardy charts "Tanu's" course out of Burrard Inlet.

The Fisheries fleet

At the officer's service

Together, fishery officers and the Ship Division play a vital and complementary role in the execution of the Department's mandate to manage the marine resources of British Columbia. Both project the image of the Department to the central core of the fishing industry, namely to those on the fishing grounds and in fishing communities on the coast. Both reflect the policies and decisions made at the national, regional, district and subdistrict levels of management.

The success of our cooperation depends upon each of us having trust, confidence, and respect for the other, and upon the development of a team spirit which must not be compromised by allowing personalities or conflicting service or district policies to divide us. Our common denominator is the protection and management of the resource for the benefit of the country as a whole.

Vessel masters and crews must appreciate the pressures under which fishery officers work. Fishery officers must understand that the vessel master's first responsibility is the safe operation of the platform he is charged with operating. There are numerous regulations in the Canada Shipping Act which must be complied with before a vessel can legally put to sea.

I always place my vessel, her crew and equipment at the disposal of any fishery officer assigned to my vessel. I work with the officer in the development of a program which satisfies our requirements. I believe this is a common and correct practice. In return, I expect the fishery officer to keep in mind my requirements with respect to the employment of the vessel in an economical, safe, and efficient manner. The fishery officer should always consider such important items as unnecessary fuel consumption, crew overtime and safety.

As vessel masters, we are in almost continuous contact with fishery officers from different districts and subdistricts. This is particularly true for those of us employed in headquarters vessels. If there is one particular aspect of our work which I find disturbing, it is the varying degree of discretion and consistency demonstrated from time-to-time with respect to enforcement and the interpretation of regulations and notices. We all have to use discretion at some time or other in the course of our duties, but we must guard against the tendency to set ourselves up as judge and jury.

Fishery officers prepare to board "Tanu."

From another perspective, many of our Ship Division employees joined the Department because of their interest in fisheries. A large proportion have aspirations for advancement within the Department, thus they welcome opportunities to become involved in the day-to-day activities which take place within the Region. These activities play an important role in the generation of job satisfaction and good morale. Those responsible for vessel dispatching should keep this important point in mind when considering vessel employment.

The effectiveness of modern communications equipment keeps today's commercial fishing vessel extremely well informed of openings, closures and Departmental policy decisions. Yet this effectiveness can cause problems. For example, a pronouncement or ruling made by a fishery officer aboard "James Sinclair" is regarded as having come from the vessel, not from the fishery officer. Anything of importance transmitted by radio is quickly disseminated amongst the fishing fleet; thus, it is extremely important that our thinking and actions accurately reflect regional and district intentions and are legally correct. This cannot be accomplished unless a dialogue based upon cooperation and trust exists between the Field Services fishery officer and the ship's officer.

Captain Tony Preston
"FPV Tanu"

What kind of life is that, anyway?

A patrol vessel, like any ship, is a small mobile marine community. We travel the coast of British Columbia from fishery to fishery. What are the pleasures and problems we encounter in our daily lives?

Picture, if you will, living at your desk. Sometimes you have to hold on tight to stop yourself and the contents from falling all over the place. When quitting time comes, you can't go home but merely to another part of the building. When you go to bed, you can't always sleep because you might have to wedge yourself in—and hang on tight as well! You'll be out of touch with the rest of the world for periods of time, since there is no newspaper and radio reception is hit and miss. All is not lost, however, for with the advent of videotapes, you will be able to watch the same movies over and over and over again! Provided you find yourself on one of the few vessels so equipped. Other off-duty occupations are limited to various games, reading, or the old sailors' standby (guaranteed to make the trip pass quicker)--sleeping. Sportfishing and beachcombing are also popular pastimes when time and weather permit. You may now have some concept of life in the Ship Division.

The headquarters and the multi-tasked vessels are operational 24 hours a day. Radio watches are maintained in the wheelhouse whether the vessel is underway, at anchor or tied up for the night. This means that the vessels are, in effect, subdistrict offices open 24 hours a day to answer questions and criticism, relay information about openings, closures, and test fishing results. It's surprising how late at night it can be before things quiet down, whether a fishery is in progress, or not.

The crew of any vessel can be divided into three departments: deck, engine room and catering. (The masters of two-man vessels may not agree with this. In their situation the left hand must always know what the right hand is doing!) The deck department—captain, mates and seamen—is responsible for the navigation and handling of the vessel, the maintenance of the hull and deck equipment, the operation of the workboats and the fisheries management aspects of the job. The engine room department, engineers and oilers, are responsible for the operation and maintenance of all the machinery, plumbing and electrical systems. The cook (and stewards on headquarters vessels) is responsible for preparing and serving the meals and for the cleanliness of the vessel's interior. It must be said that if the grub's good, the crew is happy.

The captains, mates and engineers are all certified officers who, after having served the qualifying sea time, have written and passed the Department of Transport examinations. At the present time, it takes about eight years to advance from deckhand to ON1 (home trade master) and a similar period for engineers. For this reason, another common off-duty activity is studying.

I suspect that, to many of us, it is the very pleasure of being at sea that makes us go there in the first place. It's often remarked that we are fortunate to be paid to see what others have to pay thousands for! This "privilege," plus the variety of the tasks assigned to the patrol vessels (anything from clam sampling, erecting boundary signs, stream and river inspections, herring sounding, search and rescue work, offshore and inshore fisheries) make for one of the most interesting and varied jobs for a mariner on the B.C. coast.

It's not all a garden of roses however. Those that pay to see our coast usually reserve their visits for the summer and take their family and friends with them, thus avoiding our two biggest problems: weather, which can make life uncomfortable, and separation from family life and friends, which makes it difficult to respond satisfactorily to all those domestic emergencies that arise in our lives. In this regard, full marks must be given to Captain Nelson and his crew at headquarters, who never fail to pull out all the stops to get one of the crew out in an emergency. The same must be said for all the subdistrict fishery officers who, when the need arises, always meet us at the dock with a car for a quick trip to the airport or bus depot.

On all the vessels (though to a lesser extent on "Tanu" and "James Sinclair") space is at a premium. This, combined with the level of boredom that can creep into a trip after a few weeks away, make it essential that we all learn to live with our fellow man at close quarters for days and weeks at a time.

As one wag puts it, "ninety percent boredom, ten percent terror, three square meals a day and no commuting--who could ask for more!"

Roger Myerscough
Relief Master
"FPV James Sinclair"

The Fisheries fleet

Favorites from the galley

In the aftermath of the 1983 Field Services general meeting, there are probably many Sounder readers who cannot bear the thought of eating at sea. However, the most important crew member aboard any ship is the cook, for without good food, crew morale is jeopardized. We asked the cooks of the Ship Division to supply us with some of their favorite recipes. Just reading them may improve your morale.

Seafood dinner

Clam Sauce with Linguine

Cook clams in shell till they open.
Separate clams and juice.
Cut clams into small pieces (at least 2 cups full).
Make sauce with 2 cups milk and thicken, with Instant flour
Add clam juice, melted butter, garlic, and 1/2 cup fresh parsley cut in small pieces with scissors.
Add salt and pepper to taste.
Add clams and serve over linguine cooked as directed.

Hash Browns to go with fish

Boil potatoes until half cooked. Leave overnight and grate to use for hash browns.
Add butter to pan and lightly brown.
Add barbecue seasoning to taste. Brown a little more, making sure not to overcook to make potatoes hard. Last 2 minutes add chopped green onions and bacon bits (preferably homemade). Serve hot with corn on the cob and fish.

Adaho (separate dish)

Add oil to large frying pan or wok. Add 2 lbs. pork or chicken cut into small pieces. Add garlic, pepper, soya sauce and mix till meat is light brown. Add bay leaf, 2 tablespoons sugar, 2 tablespoons vinegar. Cook a little more until meat is browned. Add 1/2 tin frozen coconut milk and bring to boil. Serve over hot rice.

Gordon Peterson
Cook/deckhand
FPV "Chilco Post"

Sharon's Easy Cheesecake

There are many cooks who are leery of giving out their secrets, but I would be glad to share a few of my favourite recipes. Here is a sure winner, for the cheesecake fans! This particular recipe is low in calories and has no egg yolk for those who must watch their cholesterol intake. Also, as an advantage at sea, the batter is thick so that the pie has a chance to cook while the ship continues to rock 'n' roll.

I hope you will enjoy this guiltless dessert. Bon appetit!

Graham cracker crust

(9" pie shell)

1 1/2 cups graham crumbs
2/3 cup soft butter
2 tbsp. white sugar

Mix crumbs and sugar and cut in butter.
Press well into pie shell.
Bake at 350°F for 10 minutes
Let cool for 45 minutes before pouring in pie filling.

Cheesecake filling

1 lb. Danish or Philadelphia cream cheese
5 egg whites
1/4 cup white sugar
1/2 tsp. real Canadian maple syrup

Cream cheese must be soft at room temperature.
Mix and beat all ingredients at high speed until very smooth and fluffy.
Turn into cooled graham crust and bake for an hour at 300°F. If top should go brown too quickly, then cover loosely with foil and continue baking.

Serve cold, topped with your favorite fresh fruit.
I like this cheesecake with fresh strawberries, blueberries or cherries.

Sharon Micks
Cook
FPV "James Sinclair"

Grandma Betz's Ribs

2 lbs. spareribs (1" pieces)
dash of salt and pepper
1 small jar chopped sweet mixed pickles, including 3/4 cup of pickle juice
3 heaping tbsp. brown sugar
1/3 cup of vinegar
1 tsp. of dry mustard
2 tbsp. flour

Heat frying pan, add fat. Flour the ribs and place in pan.
Sprinkle with salt and pepper. Fry until brown, remove meat.
Add the pickles and pickle juice.
Cook about 5 minutes then add the mustard, brown sugar and flour mixed with water to form a runny consistency.
Add vinegar then cook 5 mins.
Place all ingredients in covered casserole and bake in 350° F oven for about one hour.
Add more water as it evaporates, keep meat nearly covered with juices.

(Shortribs can be used in this recipe. Cut and trim most of the fat, brown meat in pan, then trim off remaining fat.)

I use this recipe every trip, only I make 30 or more pounds at one time.

Bud Marty
Chief Cook (Black Crew)
FPV "Tanu"

Ted O'Claire, chief cook aboard "Tanu" (Red Crew), prepares an early morning breakfast.

Veal Paprika

2 oz. diced bacon
1/2 cup minced onion
1 peeled clove garlic, minced
2 lbs. boned veal shoulder, cut in 1" cubes
1 tsp. salt
1/4 tsp. pepper
1 tbsp. paprika
1 1/2 cups boiling water
3/4 cup sour cream
2 tbsp. flour
1/4 cup cold water

Saute first four ingredients in skillet until meat is brown on all sides.

Add seasonings and water.
Cook, covered, over low heat for one hour, or until veal is very tender. Remove veal to hot platter, and keep hot.
Add sour cream to pan drippings; then stir in flour and water, which have been blended to smooth paste.
Cook over low heat until thickened.
Pour over meat.

Serves four.

Ted O'Claire
Chief Cook (Red Crew)
FPV "Tanu"

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Curried chicken soup

4 tbsp. butter or margarine
4 tbsp. flour
3 cups chicken broth
1 cup unhomogenized milk or light cream
1/2 cup shredded cooked chicken
salt
pepper
chopped chives

Melt butter in top of double boiler over direct heat, then stir in flour.
Add chicken broth and milk, and cook over boiling water while stirring, until smooth and thickened. Add chicken, and stir until blended. Add salt and pepper to taste. Top soup with a garnish of chopped chives.

(This will make cream of chicken soup. To give it curried flavor, add 1 tsp. curry powder with the shredded chicken.)

Ted O'Claire

Cheesey Burger Pie

2 lbs. ground beef
2 tsp. salt
3/4 tsp. oregano
1/4 tsp. pepper
3/4 cup dry bread crumbs
8 oz. can tomato sauce
1 garlic clove, minced
2 tbsp. instant minced onion
1 cup minced celery
1 medium green pepper, minced
1 cup chili sauce
2 unbaked single pie crusts

In heavy skillet, brown meat; drain off fat. Add next ten ingredients, mix well and pour into pie shells. Spread cheese topping (see below) over meat mixture. Bake 40 minutes in 400°F oven.

Cheese Topping

2 eggs
1/3 cup milk
3/4 tsp. garlic salt
3/4 tsp. dry mustard
1 tsp. Worcestershire sauce
3/4 lb. cheddar cheese, shredded

Beat eggs; add milk, seasonings and cheese. Makes 2 pies. Enjoy it with tossed salad, hot garlic bread, buttered corn.

Bud Marty

"Tanu" crew member relax before dinner in the ship's messroom, large by patrol vessel standards. Video systems have enhanced leisure life aboard the headquarters vessels, though living at sea still has its drawbacks. For the most part, the life of a modern mariner is a combination of marine tradition and contemporary social values.

Eric Nevatie: traditional tonic

To survive the agonies and anxieties of months at sea, sailors of two centuries ago skillfully carved wood and constructed scrimshaw models that now grace maritime museums around the world. In a similar fashion, when Eric Nevatie was a machine gunner with the U.S. Marines in Vietnam, he began doing magazine illustrations to keep his mind off things.

Sixteen years later, Eric, a native of Finland, has found more peaceful waters along the B.C. coast. Yet, when his chores aboard "Chilco Post" are done, he will probably be found over an artboard in "Chilco's" mess. What was once purely a form of escape has become a profitable hobby. He now works mainly with acrylic paints, which dry faster than other mediums. Several of his works hang in art galleries in Alert Bay, Port McNeill, Echo Bay and Maple Ridge. Several of his paintings have been commissioned.

An untitled watercolor painting, by Eric Nevatie.

Eric started with the Department in 1978 aboard the now decommissioned "Laurier" under Captain Gordon Nelson. His first fisheries patrol was the roe herring fishery in what turned out to be one of its most accident-plagued years. It was seven weeks before Eric and any of his fellow crew members were able to return home--"not very good for family life," he recalls.

"Chilco" is a multi-tasked SAR vessel, one which combines fisheries patrol activities with search and rescue responsibilities. This means the radio must be monitored 24 hours a day, seven days a week. For the crew, it means six hours on duty, six hours off, around the clock for three weeks at a time. When the three weeks are up, a relief crew takes over as the first crew takes shore leave for three weeks. The crews of regular fisheries patrol vessels work eight-hour days, five days a week.

Despite the unusual schedule and uncertainties of shipboard life, Eric finds fisheries work the most interesting among his various duties. He assists with checking fishermen's licences and nets and with stream enumeration. His duties as a seaman include steering "Chilco," keeping radio and anchor watch and doing general maintenance. On a typical morning watch, he'll be "housecleaning"--oiling wood, polishing brass fittings, cleaning windows and toilets. A midnight watch would include cleaning the galley. The regular schedule leaves Eric some time for his hobby.

"Chilco" patrols Area 12, northern Johnstone Strait, an area notorious for its

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mixed stock and interception fisheries. As a result, Eric has become intrigued with the migration patterns of salmon and in the "art" of salmonid enhancement. These are life and death struggles on a far distant plane from that which he once witnessed.

Maxine Glover/Mike Youds

Eric Nevatie

Tips for media relations

This is the second article in a series on departmental communications.

No one really knows how relations between Canada's media and public servants deteriorated to their current spiteful state, but it may have been that they simply got off on the wrong foot. In the mid-19th century, an Upper Canadian artist sketched the colony's first political cartoon. It depicted a typical Canadian government employee hard at work--asleep at his desk. The cartoonist was arrested.

Since that time, cartoonists have preferred to lampoon political proboscises, leaving the popular (or unpopular) image of the government worker in the hands of journalists who have generally handled it with the kind of reverence a child applies to Silly Putty. Government workers overpaid, underworked, useless and incompetent self-propagators; as empire builders without a cause, save the wholesale waste of taxpayers' dollars. Public reaction to Premier Bennett's public sector restraint legislation revealed how commonly this portrayal has been accepted. Over time, the general public might just as well conclude that government workers are actually distinct alien beings who have built up government for the sole purpose of watching it collapse under its own weight.

Obviously, there is a communications problem: journalists should communicate properly; civil servants often won't or can't. It was not all that long ago when civil servants were strictly forbidden, by regulation, from discussing internal government matters with reporters. There could be no more powerful stimulant to a reporter's curiosity than to state that a particular subject cannot be discussed. If you want to throw someone off, tell them you don't want to discuss what they just asked you. If you want to earn a permanent entry in their bad books, do the same thing over and over again. The current state of affairs may be the lasting result of that old closed information policy. Many journalists still regard public servants with some distrust, and some public servants regard journalists as the holy terrorists of the civilized world.

The new Freedom of Information Act may have a warming effect on this icy relationship. If reporters can gain access to internal information by filling out the proper forms, why not provide them with the information when they ask for it directly? (Allegorically, if we all have to die sometime, why not go with the next edition?)

However naive this theory is, rest assured that journalists would appreciate a more open and forthright response when they approach government bureaucracies. To that end, here are a few tips that may help you get the kind of media coverage you've always dreamed of.

Responding to inquiries

1. Treat reporters with respect. Remember, reporters are media representatives and the media usually work with the public's best interests at heart. If reporters are brushed aside, ignored or forgotten, they may wonder about your respect for the public's interests.
2. Be honest. Once you have lost a reporter's trust, you can never regain it. Always tell the truth, even if it hurts. If you know the answer, but can't reveal it, say "I'm sorry, but I am not in a position to give you that information."

3. Never say "off the record." Somewhere in the classical hell, the person who first uttered the words "off the record" is repenting for his sin by eternally repeating the statement to a brick wall. In effect, "off the record" suggests that a reporter discard the principles of his craft for the sake of chitchat. There is a saying: "a journalist never takes a holiday."

4. Never say "no comment." Standing next to the repenter repeating "off the record" is the person who first said "no comment," also repeating his statement eternally, only in a less flattering position. "No comment," may be used for honorable reasons, but it suggests secrecy and defensiveness and could be incriminating. If you have a valid reason for not answering a question, explain it pleasantly and volunteer other information so that the reporter doesn't go away empty-handed.

5. Keep cool. Reporters are necessarily aggressive. They've got a difficult job to do in a short period of time. Some reporters maintain an adverse attitude towards government. Ignore it. It's not personal. Continue to talk to the reporter with patience and helpfulness. The readers he or she writes for are the people you work for.

6. Never carry a grudge. Personal reactions or opinions have no place in media relations. The second you open your mouth in conversation with a reporter, you are a diplomat for your organization. There are several ways of responding to unfair coverage, but bad-mouthing a reporter is not one of them.

7. Stand your ground. Don't be intimidated by intense questioning, loaded questions, innuendo or faulty precepts. Dismiss innuendo first so that a question is tailored to the terms which you can answer. Don't repeat an offensive term in your response. This only lends credibility to the reporter's offensive words, and they could end up being attributed to you. If a reporter asks several questions at once, try not to be overwhelmed. Answer the most important question and let the reporter re-ask the others.

8. Know your bounds. Don't hazard an answer if the question is beyond your field of expertise. Explain that you are not qualified to answer and recommend the name and phone number of someone who is.

4. Never say "no comment." Standing next to the repenter repeating "off the record" is the person who first said "no comment" also repeating his statement eternally, only in a less flattering position. "No comment," may be used for honorable reasons, but it suggests secrecy and defensiveness and could be incriminating. If you have a valid reason for not answering a question, explain it pleasantly and volunteer other information so that the reporter doesn't go away empty-handed.

Beating the deadline

Deadlines are the nitty-gritty of the news business. Put simply, a deadline is the last possible moment at which reporters may file a story. A basic understanding of deadlines in a reporter's day may be instructive to DFO staff, especially those who deal regularly with the media.

A reporter's shift begins when an editor assigns a story. From start to deadline, one story may take a full 7 1/2 hour shift. This includes research, interviews (in person, or by phone) and writing. The bottom line is that the story must be complete and plugged into the system by the deadline. Here are the basic news deadlines for the two Vancouver dailies:

The Province

Early Edition - 8:30 pm
Final/Home - 10:30 pm

The Sun

Early Edition - 7:30 am
Home Edition - 10:15 am
Final - 12:15 pm

To finish the subject of daily deadlines, a quote from a Province reporter, who preferred to remain anonymous: "My big gripe is that people always say they will call back--but often don't. If they are afraid to comment, why don't they tell me...I would simply call someone else. I realize there are some contentious issues out there. But sometimes I think they don't realize my story can't wait. A call after lunch is useless--old news is dead news. And what some bureaucrats don't realize is that by my asking them for a comment, I am giving them a chance to tell their side. I would likely write the story anyway."

Alex Rose
Communications Branch

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9. Think positively. Whenever appropriate, emphasize the positive side of a story. If there is anything lacking in media coverage--and media people are the first to admit it--it is good news.

10. Cultivate friendships. Don't forget that the media play a fundamental role in a democratic society. If your position or policies are just, then the media should be a help, not a hindrance. Treat reporters with courtesy and sincerity and they will respond in a similar fashion on future occasions.

Responding to coverage

1. Distorted coverage. Any distorted coverage should be dealt with immediately in one of three ways. If you believe a report is unfair because you failed to communicate properly with a reporter, call the reporter and explain the oversight. Ask that he correct it in a follow-up report. If you believe the reporter has made an oversight, and it is not serious, call him or write a letter to the editor. The best letters are brief, carefully worded and to the point. If a report is seriously biased and needlessly damages someone or something, write a letter to the editor outlining the situation and requesting an apology. Do not "demand" an apology; it's too highhanded.

2. Incomplete coverage. Incomplete coverage is unfair. Call the editor (the news editor or news director in a larger operation), explain the situation and ask that a reporter contact you as soon as possible to obtain the rest of the story. If the reporter fails to do so, write a letter to the editor.

3. Good coverage. Reporting news, like working for the government, is often a thankless task. If you think a reporter has provided thorough and responsible coverage of a difficult issue, write a letter to the editor commending the reporter and the paper. A gesture such as this will demonstrate your good intentions to the media and the public and stand you in good stead when crisis calls.

Mike Youds

Pacific Tidings

A royal entry is made by Field Services Director Don Wilson at the recent annual general meeting of the Branch. The litter and W.C. Fields get-up were part of a talent show held during the four-day meeting. "But personally, I'd rather be in Philadelphia..."

Beginning January 3, Rick Higgins is the new senior habitat biologist in Nanaimo.

Marian Gavin won and accepted the position of junior program planning officer in Licensing.

Greg Klimes has transferred from Madeira Park to Qualicum Beach.

Debbie Halyk has been appointed subdistrict clerk in New Westminster.

Found: a stickpin at the Island Hall Hotel. The owner may claim the pin, upon identification, from Ann Gillespie (666-3284).

There have been many births since the last issue.

Born to Patti and Colin Masson, a boy, Ryan William, weighing 7 3/4 lbs. on November 27. Ryan is their first child.

Born to John Lewis, community advisor and his wife, of Pender Harbor, a daughter, Gwendolyn, weighing 8 lb. 8 oz. (3.8 kg) on November 2, their first child.

Among the award presentations made at the recent Field Services annual meeting were 25-year service awards presented to (top, from left): Ken Conrad, Nick Neufeld, Bill Field, Forbes Boyd, Rob Elvidge, Ray Scheck, Mel Hart, Rod Palmer, Peter Ryan, Marg Cruickshank, Gerry Buxton, Tinker Young, Joe Arsenault, John Rosedale, Henry Tsuyuki, Wilf Gushue and George Graham.

Les Powell, Habitat Management Division, and his wife, France, had a baby boy, Julien Leslie, weighing 7 lb. 3 oz. (3.1 kg) on November 20.

Born to Sue and Tom Shardlow, management biologist, Nanaimo, a daughter on November 15.

Born October 31 to Shirley and Brian Murray, Ship Division, Vancouver, a son, John Dean Clifford, weighing 9 lb. 10 oz. (4.2 kg).

Born October 30 to Barbara and Bud Graham, biologist, Regional Planning, a son, Cameron Alexander, weighing 9 lb. 1 oz. (4 kg).

Lois and Mike Brownlee, Habitat Management, had a baby girl, Kathleen Lois weighing 6 lb. 12 oz. (3.0 kg) on November 7.

A late notice: born August 19 to Jim and Mary Wong, Inspection, a son, Arthur, weighing 8 lb . 13 oz. (3.8 kg)

Top: Port Alberni District Supervisor Don McCulloch accepts the outstanding initiative award from Field Services Director Don Wilson at the Field Services annual meeting. Don won the award for his successful approaches to fisheries management problems. Other awards went to: Don Aurel, New Westminster district supervisor, for supervisor of the year; the South Coast Division's enforcement team, for teamwork; the Management Biology Unit, for best slide show; Fishery Officer Carl Kennedy, for the most improved shot, and; to Fishery Officer Voysey, for marksmanship.

Tidings

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Bonnie Richardson has been appointed as the new mail and file supervisor with the Records Management Section. She was previously with the Coast Guard.

Also joining the Department is Jerri Hohn who is now secretary to chief, Financial Management Division. This is Jerri's first permanent job and she replaces Shelly Gardiner who joined a law firm.

Best wishes are extended to Fred Basson, senior staffing officer, Personnel, who retires from the Department after 20 years of service with the government, (13 years with DFO). A reception was held at the Keg Boathouse on November 23.

Also retiring after more than 25 years of service with the government is Maria Schultz, accounts payable clerk, Financial Management Division. A reception was held for Maria on December 1.

Also retiring after 18 years of service with the government is Anneliese Scholz, accounts supervisor, Small Craft Harbors. Anneliese joined Fisheries in 1971.

Joining Support Services Branch as inventory clerk is Patti Balfour who comes from private industry. Also, a correction to last issue's column: Stephen Brownlee is the new supply clerk, not the inventory clerk.

Gerard Peters, who formerly worked with Communications Branch, has transferred to Native Affairs Branch as information officer.

Glenwood R. Lario has been appointed (from a term position) to patrolman/guardian in Mission.

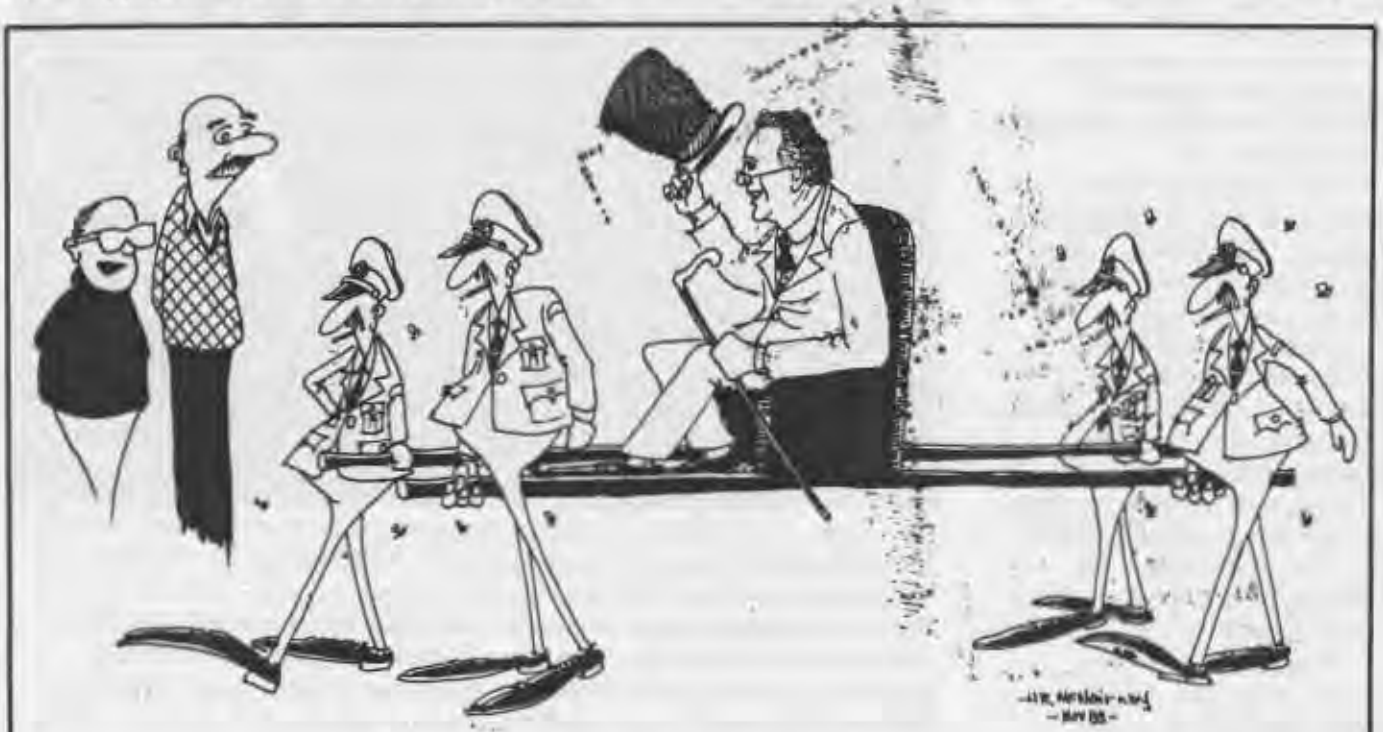
Louie Boersma has been appointed (from a term position) to patrolman/guardian in Chilliwack.

Arnie Lowe has been appointed to the position of product certification clerk at the Inspection Lab on Howe Street.

At Cypress Creek Lab, Kristina Recalma has been appointed to the position of laboratory administrative assistant, a position she previously held as a term employee.

Congratulations to Bill Madrell, assistant manager at Pinkut Creek spawning channel, who won five gold medals at the B.C. Summer Games this year. Bill, a marksman, won the medals for highest scores in the standard pistol, center-fire pistol, free pistol, and air pistol categories, as well as for the highest aggegate score.

The hazards of ~~seal~~ trips are on the increase--at least for Gord Berezay, biologist, SEP facilities, who in his rush to get to an early morning wake up call, after a late evening of hard work fell out of bed, stumbled over his shoes and fractured his ankle.



"NOW HE'S GOING TO WANT TO GO EVERWHERE IN STYLE!"