

Asst. Supervisor

District 7

# OPERATIONAL FRAMEWORK



AREA 2910

Rivers and Inlets

DEPT. OF FISHERIES AND OCEANS

OPERATIONAL FRAMEWORK

RIVERS AND SMITH INLET SUB-DISTRICT

AREA 9 & 10

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/28/89

## Introduction

There are a number of activities that must be performed before, during, and after a salmon fishing season. These include broadly:

1. Developing salmon expectations;
2. Developing a Sub-district fishing pattern based on these expectations;
3. Execution of the fishery, including management, reporting and recording;
4. Season evaluation.

In the past these tasks have come nowhere near being a comprehensive operational plan. The "Salmon Expectations" format has remained unchanged since its beginnings in the early 1960's, while the complexity of fishery management has grown immensely, particularly in the last fifteen years.

Without adequate planning in any operation, time, money, and efforts spent can be largely wasted. More importantly, no assessment is possible, and without assessment there is no basis for improvement.

Several recent developments in the Central Coast District have laid the groundwork for the implementation of a more detailed operational planning process. These are:

1. The development of a comprehensive Sub-district Salmon History and Record of Management Strategies (RMS);
2. Compilation of upgraded Sub-district escapement data into a useable field book, including target escapements, annual escapements, 10-year averages and timing data, 1950-1987 by species, by stream, by Sub-area, "Goruk, R., H. McNairnay, D. Peacock and J. Greenlee. 1988. Salmon escapement and timing data for Statistical Area 7 of the Central Coast of British Columbia. Can. Data Rep. Fish. Aquat. Sci. (#) v + 124 p."
3. Development of the use of Key Indicator streams, with an in-season field form for use in the RMS which includes average escapements, arrival and peak spawn timing, and target escapements;
4. Development of a weekly Operational Framework to identify indicators used in current week salmon management and to anticipate data requirements and operational needs in the coming week(s);
5. Development of a Minimum Fisheries Management Program to identify operational requirements (seasonal staff costs) based on in-season data required to manage the salmon fishery in a Sub-district;

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6. Injection of existing Central Coast tagging information into the RMS in a revised format allowing some guidance as to the destination of fish being fished at a particular location in a particular week;
7. Division of Sub-districts into smaller sub-areas based on Key streams and the management of stocks in distinct locales, as opposed to the "blanket area" approach (this item is especially important in the identification of available surpluses, and where, when, and how they can be harvested);
8. Development, in general, of the use of "Adaptive Management", and the use of seasonal assessments to improve the future cycle of events.

Using these items as a foundation, a comprehensive salmon management framework has been developed and has been designed to allow annual fishing plans and operational requirements to be easily detailed. The principal components of the framework, which is the library of past information and local knowledge, are a series of "rules", both general and on a week by week basis, regarding the various stocks and fisheries in Area 7. These "rules" are largely dictated by timing and migration of the various stocks within Area 7 and are immutable except by nature.

The Sub-district Operational Plan begins with these rules together with the annual Salmon Expectations which identify fishable surpluses (or best fisheries where no surplus has been identified) by stock based on good year escapements with respect to Key Streams and sub-areas. Together these form the weekly net fishing management plan.

When the weekly plans for the fishery have been laid out one important pre-season planning function remains, that being the formulation of an annual list of Operational Requirements based on the weekly management plan. This includes seasonal staffing requirements, patrol vessel requirements, and aircraft charter requirements.

Using this kind of planning approach would ensure:

1. Clearer objectives for the Sub-district Fishery Officer to embark on and execute his fishery;
2. Better use of resources, both money and manpower;
3. A better opportunity to assess the operation and adapt accordingly;
4. A better understanding by fishermen of the Department and its operation providing a better opportunity for them to plan their season;
5. Better fishery management.
6. Better understanding by senior Fisheries management of resource requirements and rationale.

**READ CAREFULLY**

- 1 Reporting of all catches to the Dept of Fisheries and Oceans is the responsibility of the fisherman and a condition of licence renewal
- 2 Accurate catch reports must include the map number or numbers showing the area in which your fish were caught.
- 3 The statistical areas shown on this map are to be used as a guide only. For more exact information refer to the Pacific Fishery Management Area Regulations.

- Dept. of Fisheries and Oceans Office
- Statistical areas are divided by red lines
- Surfline

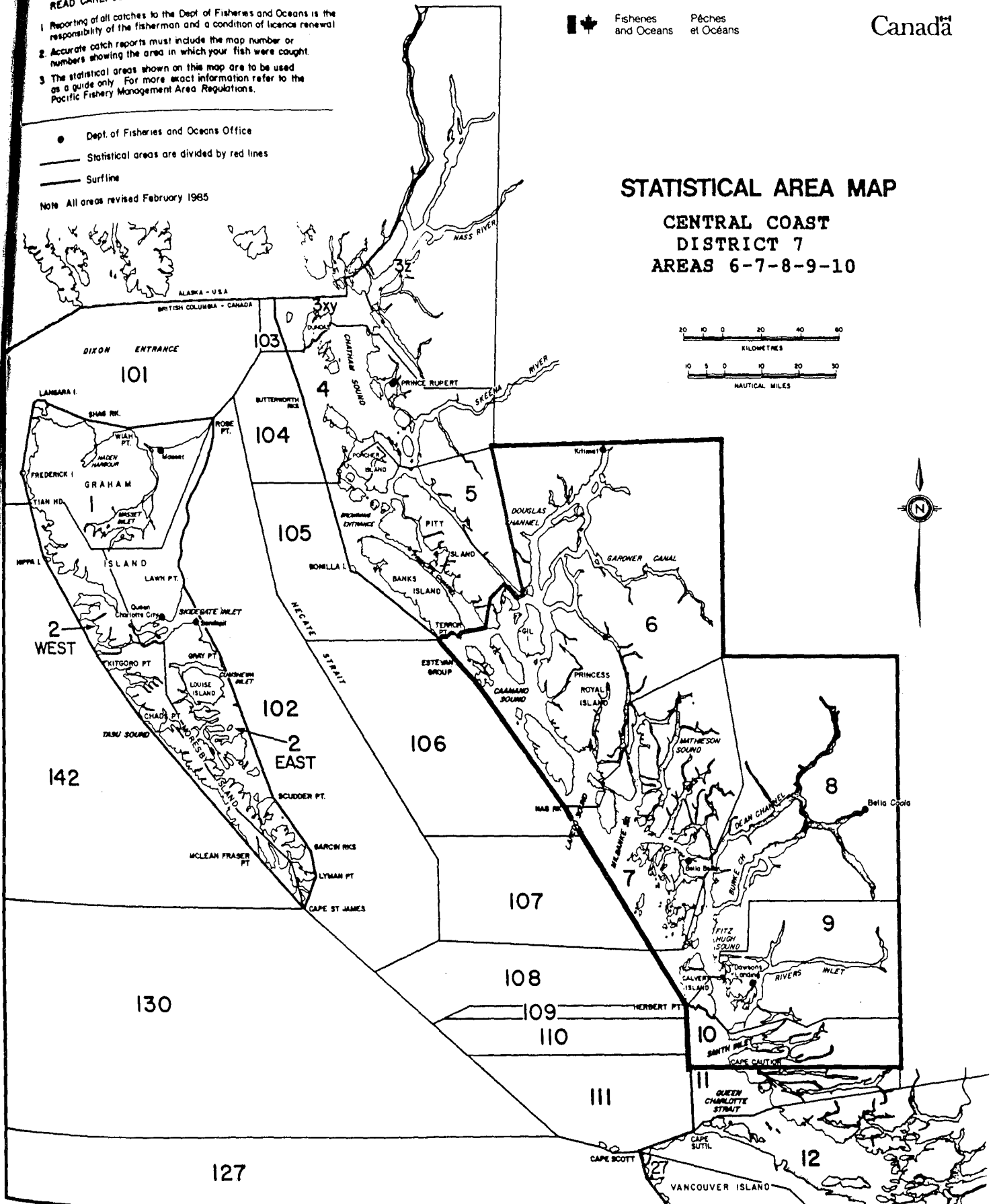
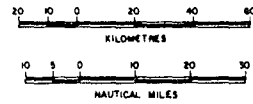
Note All areas revised February 1965



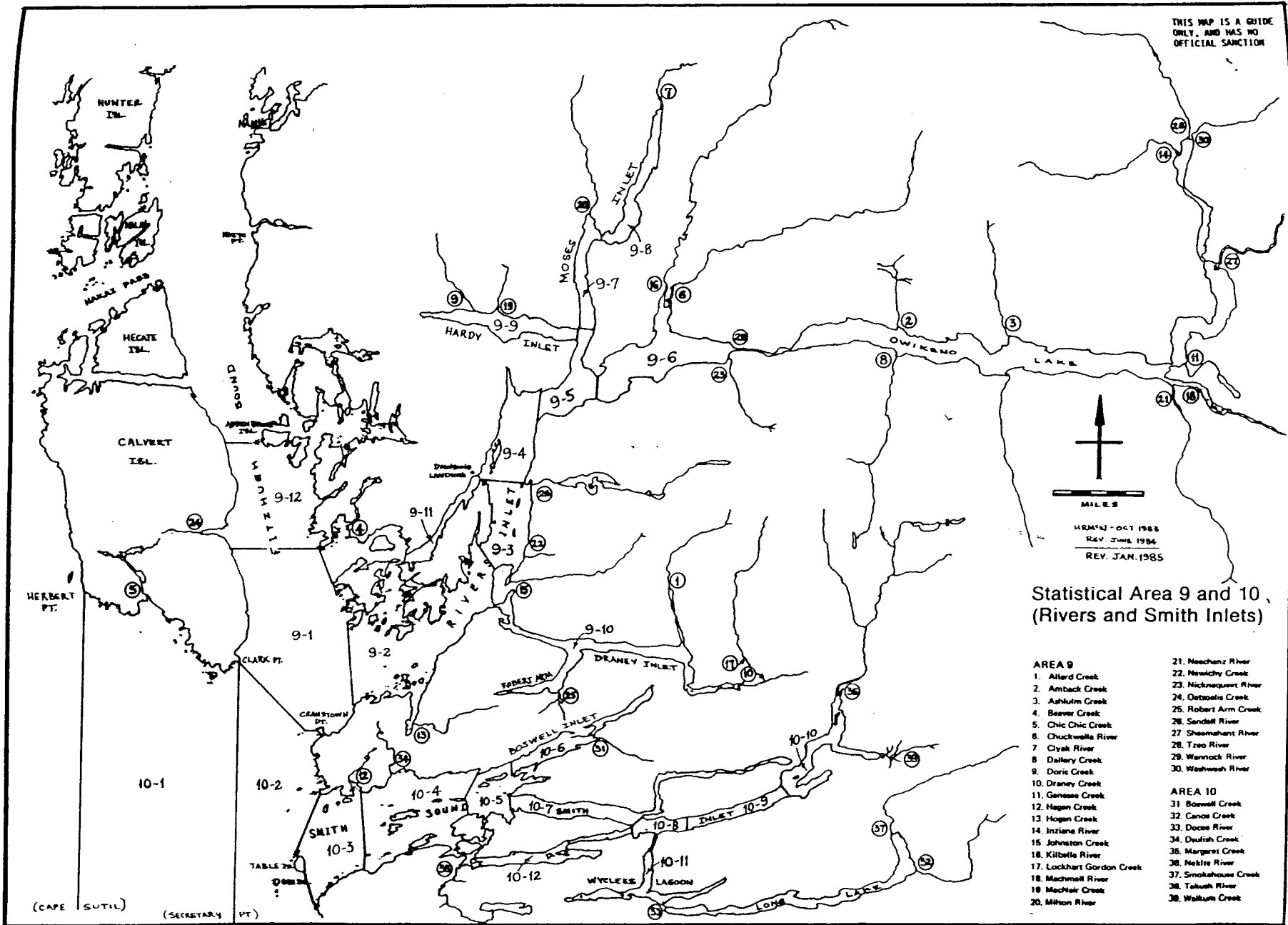
Fisheries and Oceans / Pêches et Océans

Canada

**STATISTICAL AREA MAP  
CENTRAL COAST  
DISTRICT 7  
AREAS 6-7-8-9-10**



THIS MAP IS A GUIDE ONLY, AND HAS NO OFFICIAL SANCTION



Statistical Area 9 and 10,  
(Rivers and Smith Inlets)

- |                           |                      |
|---------------------------|----------------------|
| <b>AREA 9</b>             | 21. Neechanz River   |
| 1. Allard Creek           | 22. Newichy Creek    |
| 2. Amback Creek           | 23. Nicknaguet River |
| 3. Auhlum Creek           | 24. Ootpatia Creek   |
| 4. Beaver Creek           | 25. Robert Arm Creek |
| 5. Chic Chic Creek        | 26. Sandell River    |
| 6. Chuckwelle River       | 27. Shooshaunt River |
| 7. Ciyak River            | 28. Tzo River        |
| 8. Dallery Creek          | 29. Wannock River    |
| 9. Doris Creek            | 30. Washweah River   |
| 10. Draney Creek          |                      |
| 11. Genesse Creek         | <b>AREA 10</b>       |
| 12. Hagan Creek           | 31. Boswell Creek    |
| 13. Hogan Creek           | 32. Canoe Creek      |
| 14. Inziane River         | 33. Doose River      |
| 15. Johnston Creek        | 34. Daulish Creek    |
| 16. Kibelle River         | 35. Margaret Creek   |
| 17. Lockhart Gordon Creek | 36. Nekite Creek     |
| 18. Machnell River        | 37. Smokehouse Creek |
| 19. Machnar Creek         | 38. Takush River     |
| 20. Milton River          | 39. Walkum Creek     |

Area 9 - Rivers Inlet

LOCAL NAMES

Gazetted Name.....Local Name

Washwash.....Waukwash, Walkwash

Tzeo.....Cheo

Inziana.....Indian

Sheemahant.....Sheemahalt, Shumahalt

Machmell.....Markwell

Neechantz.....Nookins

Amback.....Quap

Dallery.....Dallec

Ashlum.....Asklum

Medowse Creek.....Hatchery Creek

Wannock.....Whanock, Whannoc

.....Spring Pool - first big pool in the Wannock River above the village, immediately above the first non-tidal riffel

.....Smokehouse Pool - above Spring pool, just before entrance to Owikeno Lake, adjacent to an island that had a smokehouse on it years ago and still sports two apple trees

Nicknaquet River.Sawmill Creek

RIC.....Rivers Inlet Cannery - now a Government dock, head of the inlet, northern side

McPhee Bay.....Whiterock Bay

Stone Point.....Long Point

.....Browns Bay - first bay Northeasterly of McAllister Point and Summer site of Fisheries sport fish float

Scandinavia Bay...Saltery Bay

.....Rocky Bay - first big bay above Stone Point

Kilbella.....Kildala

McAllister Point..Round Mountain

Sandell Bay.....Brunswick Bay

.....Gas Station Point - first point above Wadhams

.....Shithouse drift - Wadhams to Good Hope

.....Strathcona - an old cannery site between Wadhams and Good Hope canneries

Johnston Creek....Hole-in-the-Wall

.....Wadhams Point (drift)- above Draney Narrows

.....Skookumchuck - tidal rapids at the entrance to Draney Inlet

.....the Wall - a small stretch of shoreline immediately North of Open Bight

.....Smiley Point - most Northeasterly point of the "wall"

Major Brown Rock..Zero Rock

.....Pirates' Cove - a small bay south of Bickle Pass on Walbran Island

Darby Channel.....Schooner Pass (the Pass)

.....Slaughter Alley, the Alley - entrance to  
Klaquaek Channel opposite  
Fleming Point in Darby  
Channel

Klaquaek Channel..the Lake

.....the Haystack - small island on the  
easterly shore of Walbran  
Island, slightly above the  
latitude of Florence Island

pierce Bay.....Beaver seining grounds - Sockeye from  
here were canned at Beaver  
Cannery as a special pack.  
Beaver Creek flows into  
Pierce Bay.

.....Clam Beach - local picnic site behind  
Rowse Reef

.....Nelson's - cannery site, mainland shore,  
Westerly of the Southern tip of  
Edna Mathews Island

.....McTavish - cannery site, head of Rivers  
Inlet, McTavish Creek

.....Sierra - abandoned logging camp, head of  
Rivers Inlet, south shore

.....Jap Drift - Lone Island to Rowse Reef,  
mouth of Darby Channel

.....Beaver - cannery site, Walbran Island, off  
Darby Channel, immediately south  
of Dawsons Landing

.....Provincial - cannery site, mainland, Darby  
Channel, about 2 miles south  
of Dawsons Landing

STOCK NOTES  
RIVERS AND SMITH INLET SUB-DISTRICT  
AREAS 9 & 10

CHINOOK

Area 9:

In Area 9 (Rivers Inlet) there are three major Chinook stocks (Kilbella, Chuckwalla, and Wannock Rivers), and seven minor ones (Ashlum, Clyak, Dallery, Washwash, Tzeo, Neechanz, and Sheemahant Rivers). Rivers Inlet has been well known over the years as a trophy Chinook sport fishing area, with fish averaging 40 lbs. (up to 70 lbs. not uncommon). Kilbella and Chuckwalla Chinook are predominantly white, with the occasional red or marbled flesh colour. Wannock River Chinook are of the red variety. The Wannock River Chinook can also be distinguished from other stocks by their unique body size and later timing.

Area 10:

There are two Chinook stocks in Area 10, the Nekite River and the Docee River. The Nekite River stock may be considered a remnant with no escapements greater than 100 recorded since 1950. Old Annual Narrative reports (Inspector Charles Lord, Rivers/Smith early 1930's to late 1940's) indicated that Chinook caught in Smith Inlet were "large coarse fish" and that trollers required stronger fishing gear to land them.

MIGRATION AND TIMING

Area 9:

Arrival at the mouth of the Kilbella and Chuckwalla Rivers is in late May, whereas the Wannock stock arrives at the mouth of the River from late July to early August.

Area 10:

The Nekite River Chinook arrive at the mouth of the river in mid-July. This implies that they are migrating through the net fishing area during July.

The Docee River stock migrates through the net fishing area from late July through the third week of August, arriving at the Docee River fence in early August. Upon arrival at the Docee River, the Chinook swim up and down the River. So their movement is not impeded, the Sockeye counting fence is normally removed by August 10th.

## INDIAN FOOD FISHERY

### Area 9:

At present there is no directed Indian Food Fishery (IFF) for Chinook in Area 9. There is an incidental catch of Chinook during food fishing for Sockeye by gillnet (GN) in the Wannock River.

During the IFF Sockeye GN fishery in the Wannock River only a few Chinook are taken as small mesh nets are used. This catch is usually less than 15 to 20 pieces annually and is not normally reported to the Sub-district Fishery Officer. The Owikeno Band encourages the release of these fish as the Band is presently involved in enhancing this stock. The Owikeno Band uses the Chinook brood stock carcasses from the OSEP (Owikeno Salmon Enhancement Project) program as food fish.

The Bella Bella Band uses commercial salmon seiners (SN) to take IFF Sockeye in Rivers Inlet. A condition of the License is that all Chinook must be released (including those killed, to discourage retention with the excuse "it was dead anyways"). Each SN vessel involved in this fishery should have a Fishery Officer (F/O) or Guardian on board at all times. Should the incidental catch of Chinook become a problem, the F/O will request that they fish in a different location.

### Area 10:

There is no IFF for Chinook in Area 10.

## COMMERCIAL NET FISHERY

### Area 9:

#### Historical Review

Up to and including 1980, fishing with large mesh (8 1/2 ft) gillnets was permitted by Public Notice from February 1st annually. There was a minor gillnet fishery in late May and June for Chinook in Rivers Inlet seaward of McAllister Point. Only a few as 1 or 2 boats would participate. This fishery was discontinued as part of a coast wide closure of targeted net fisheries for Chinook. The origin of these Chinook in this fishery may have been Kilbella/Chuckwalla or Owikeno Lake stocks. Since 1980, there have been no directed net fisheries for Chinook in Area 9.

Chinook are caught incidentally during the Sockeye, Pink and Chum commercial net fisheries in July and August. Most are "feeder springs" with an average weight of 7 lbs. In recent years this incidental net catch has become an

allocation issue between the commercial and sport fishermen.

Area 10:

There is not a directed commercial net fishery for Chinook in Area 10.

**SPORT FISHERY**

Area 9:

**Historical Review**

The Rivers Inlet Chinook sport fishery began in the late 1940's and developed slowly over two decades. Prior to 1954, fishing had been permitted to the mouth of the Wannock River with a daily limit of three Chinook.

A special Permit Area was established in 1954 to collect research information on Wannock and Kilbella River Chinook. Boundaries and catch limits (2 Chinook per day, bag limit of 6 between July 20th and September 15th annually - for the balance of the year regular sport fish regulations were in effect) came into effect in 1956. The original boundaries of the Permit Area were between Burnt Bluff to McTavish Cannery and McAllister Point to Scandinavia Bay.

The Department maintained a sport fish float in Kilbella Bay, which served as a headquarters for the sport fishery. Each angler was required to report length, weight, sex, colour of flesh, stomach contents, hours fished, type of lure used, and area of catch. Scale samples were also taken.

Permits were not required after the 1980 season as the significance of the Permit Area was in question. The fishery had spread to the mouth of the Inlet and to Hakai Pass. The Hakai Pass sport fishery (developing since the mid 1970's) was viewed as an interception of Rivers Inlet Chinook. After 1980, bag limits of two per day (four possession) remained in effect in the old "Permit Area" (by Regulation). Outside of the "Permit Area" the regular four per day and eight possession limit applied. In 1983 and 1984 the daily bag limit in all of Rivers Inlet was two per day (possession four) by Public Notice from July 15th to September 15th (other than that period, regular sport fish bag limits applied). In 1985 these restrictions became part of the coast wide sport fishing regulations. These Regulations also limited possession of Chinook (winter "feeders") to two between December 1 and March annually, and Public Notices extended this bag limit for Area 9 until July 15th (to protect the Kilbella/Chuckwalla Chinook).

**Salmon waters**

There are two distinct stocks of Chinook fished in Rivers

Inlet - the Kilbella/Chuckwalla River stocks and the Wannock River stock.

The Kilbella/Chuckwalla Chinook are fished from late May to early July. The peak of the fishery is from mid to late June throughout the Inlet. Presently (1986) nine sport fish lodges operate in Rivers Inlet, however, only five target on this early Chinook. This stock is presently depressed and attempts are being made to enhance them through a Public Involvement Program (P.I.P.) operated by the Rivers Inlet/Hakai Pass Sport Fishing Association made up of the nine lodge and charter boat operators. This Association initiated this project to replace Chinook taken by their guests with an equal or greater numbers of returning adults rather than face further restrictions that would be required to save this steadily declining stock.

Wannock River Chinook are fished by all the sport fish camps and a very large private fleet (100 to 500 boats). The private fleet varies from year to year depending mainly on weather conditions. The fishery peaks around August 10th.

Although it is difficult to quantify, it is known that the sport fishing effort in Rivers Inlet has increased dramatically. Methods of measuring effort are not comparable but each shows an increasing trend. In the 1950's and 1960's effort was measured in terms of number of permits issued to individual anglers. During the 1950's and 1960's effort averaged 350 permits per year. In the 1970's 1200 to 2400 permits were issued annually. Since the termination of the Permit Area, effort has been measured in boat days and/or angler days. In the 1980's effort has been in the order of 5000 boat-days (average 1982-87), or 11,000 angler-days (approximately 2.2 anglers per boat). An angler-day is one individual fishing any amount of time during a calendar day.

Other Chinook stocks in Rivers Inlet do not support directed sport fisheries but contribute incidentally to the Chuckwalla/Kilbella and Wannock River Chinook fisheries. The fishing of the other Chinook is similar to the Chuckwalla/Kilbella Chinook.

With the increased sport effort in recent years, conflict between sport and commercial gillnetters has developed. The Rivers Inlet/Hakai Pass Sport Fish Association has lobbied for exclusive fishing rights to several areas. In 1987, the area known as "The Wall" was closed to commercial net fishing by means of a ribbon boundary to separate sport and commercial fishing. Competition was for space, not fish.

#### Tidal

Kilbella/Chuckwalla Rivers:

Up to 1984 there was a non-tidal sport fishery for Chinook in the Kilbella and Chuckwalla Rivers. This fishery took

place from mid-May to August. Most of the effort was by loggers from the Kilbella Bay logging camp. Although there was a two fish per day bag limit, a conservation problem still existed. These fish are especially vulnerable to angling while holding in pools, several of which are accessible by road. Since 1984 angling for Chinook has been closed by Public Notice. Sport fishing was still permitted, however, for other species of fish. Poaching was still a problem and in 1988 both Rivers were closed to angling for any species between June 1st and September 1st (re-opened for trout and Coho after September 1st).

**Wannock River:**

Closed to angling for Chinook and Coho from July 15th to November 30th by Public Notice.

**Others:**

The seven other systems supporting Chinook are open to sport fishing, but because of low numbers of Chinook, these rivers receive little or no effort. Development of the Tzeo River logging road (1987) has resulted in exploitation of the Tzeo River stock on the spawning grounds.

**Area 10:**

This is a minor fishery usually involving only vessels that are weather bound while in transit mainly to or from Rivers Inlet. There is also some activity from the logging camp at Security Bay. Interest in sport fishing in Smith Inlet is increasing in the late 1980's. The best fishing sites are along the southern shore of the Inlet near Search Island and the Margaret Bay area.

Wyclees Lagoon has been closed to all salmon fishing by Public Notice since 1981 for conservation of Docee River Chinook. The Docee River is also for conservation of Chinook.

Some Chinook are caught incidentally in the Nekite River Coho sport fishery (August to October).

**ENHANCEMENT**

**Area 9:**

In the 1930's, 3000 Chinook were taken annually for brood stock from the Washwash River. The eggs reared at Hatchery Creek (Meadowse Creek) near the outlet of Owikeno Lake.

The Regional hatchery program was discontinued in 1936. There was no further enhancement of Chinook until 1983.

Three Chinook stocks in Area 9 (Kilbella, Chuckwalla, and Wannock Rivers) are currently being enhanced.

#### Kilbella and Chuckwalla Rivers:

The Kilbella/Chuckwalla program was started in 1985 by the Rivers Inlet/Hakai Pass Sports Fishing Association under a PIP (Public Involvement Program) to rehabilitate both the Chinook and Coho. This program was initiated in an attempt to avoid the possibility of tidal water sport fishing closures to conserve declining stocks. The Association operates a mini-hatchery (Heath trays for incubation and Capilano troughs for rearing) in Shotbolt Bay and funds the operation collectively (nine lodge and charter operators contributing \$3000 each for a total of \$27,000 in 1985) with only minor financial assistance from DFO. The incubation capacity in 1986 was 150,000 eggs, and by 1988 this number had doubled to 300,000.

In 1985 attempts to obtain Chinook brood stock were unsuccessful in both the Kilbella and Chuckwalla Rivers. In 1986, approximately 70,000 of the target 100,000 Chinook eggs were collected from these systems. In 1987 there were 243,000 eggs trayed; 300,000 in 1988.

#### Wannock River:

Wannock River Chinook are being enhanced jointly by the Owikeno Band under CEDP (Community Economic Development Program) and Snootli Hatchery at Bella Coola.

The Area Planning Committee (APC) has set a ceiling of the Chinook egg-take at 700,000. These eggs are divided between the Band and the Hatchery for incubation. The majority of the eggs have been handled by the Hatchery. (Refer to RMS for annual breakdown).

The Owikeno Band took 300,000 Sockeye eggs in 1982 to familiarize the Band with enhancement techniques to be applied to the Wannock River Chinook stock. From 1983 to 1985 the Band was involved with egg-takes and incubation of Wannock Chinook with the help of the Snootli Hatchery.

The Snootli Hatchery began taking eggs for satelliting to the Wannock River in 1983. The original plan was to enhance Wannock Chinook for 3 years in order to get some Coded Tag data to assist with the management of this stock. The program has been extended (1989) indefinitely because of technical difficulties (particularly water quality and supply problems at Owikeno).

Area 10:

There is no direct Chinook enhancement in Area 10 but it is expected that the controlled flow of the Nekite River spawning channel will contribute to Chinook production.

ESCAPEMENT

Area 9:

Kilbella and Chuckwalla Rivers:

Chinook enter both systems as early as mid-May. Spawning begins in the Chuckwalla in the first week of August and in the Kilbella in mid-August. Both peak in early September. Spawning ends in the Chuckwalla in mid-October and in the Kilbella in late September.

The Kilbella River is glacial and difficult to enumerate. When freezing occurs at higher elevations, the River may become clear enough for enumeration. This often occurs from late August to early September. The Chuckwalla River normally stays clear except during extreme freshets.

The Kilbella River is enumerated by jet boat up to the 7 1/2 mile log jam, and then by foot to approximately 8 mile. With access by vehicle on the logging road, the River can be floated by rubber boat from the 18 mile bridge. N.B. This should only be attempted during extreme low flows when the boat can be hand-lined through the cascades in the 10 mile area.

The Chuckwalla River is enumerated by jet boat to the 10 mile pool. When viewing conditions are good, counts by helicopter can be extremely effective on both the Kilbella and Chuckwalla Rivers.

Chinook River:

Chinook enter the River in early August. Spawning begins in early October, peaks by the end of October and ends in December. Chinook escapement has been estimated by means of a dead pitch tag recovery program since at least 1955. The program involves tagging Chinook in the second week of October during the fall Industry tour in Owikeno Lake. From the third week of October until the first week of December, a pitch program is carried out under either by Guardian or contract using International funds. Peak carcass recovery is in mid-November. The total number of spawners is estimated using the ratio of tagged to untagged carcasses compared to the number of tags applied.

**Other:**

The Owikeno Lake stocks are not enumerated during their spawning period in August. Carcass counts are made during the September Sockeye enumeration.

**Area 10:**

Chinook are not enumerated in Docee River mainly because of remoteness, timing and funding. At the best, occasional visits are made in order to get some indication of escapement.

**IN-SEASON STOCK STRENGTH INDICATORS:**

**Area 9:**

The Rivers Inlet tidal sport fishery catch success and the incidental catch of Chinook in the commercial net fishery cannot be used as in-season stock strength indicators as:

Weather influencing effort

Sport catch possession limits puts an artificial ceiling on catch levels

**EXPECTATIONS**

**Area 9:**

Expectations are not calculated for Chinook. Wannock River Chinook are primarily age 4 and 5 year old fish.

**Area 10:**

Expectations are not calculated for Chinook.

**MANAGEMENT CONSIDERATIONS FOR PASSING STOCKS:**

**Area 9:**

The area seaward of the mouth of Rivers Inlet, sub-area has been closed to commercial fishing in recent years (1980's) to protect both adult and juvenile Chinook. These are thought to be both local and passing stocks.

**Area 10:**

None.

## SOCKEYE

Area 9:

The only actively managed stock is the Rivers Inlet (Owikeno Lake) Sockeye. There are 10 streams plus the Wannock River and Lake spawners. Beaver Creek, in outer Rivers Inlet, is the only other Sockeye producing stream in Area 9. This small, passively managed stock has escapements of about 100 fish. The Beaver Creek stock are comparatively smaller and darker when in spawning colours than Owikeno Sockeye. During low water conditions (notably 1986, '87 & '88) Beaver Creek Sockeye have not been able to migrate up the stream.

Area 10:

The only actively managed Sockeye in Area 10 is the Long Lake stocks, (Canoe River and Smokehouse Creek).

In 1972, a counting fence was built on the Docee River for Sockeye enumeration. Since that time the fence count has become the most important in-season stock strength indicator for the management of the Smith Inlet Sockeye commercial net fishery.

Long Lake Was been fertilized under the Lake Enrichment Program in 1977, 78 and 79. The program was suspended two years because of a significant increase in the stickleback population. It was resumed and continues to date (1989). This has resulted in large returns, some in excess of 500,000, making this an important and fairly stable component of the coastal fishery.

## MIGRATION AND TIMING

Area 9:

Sockeye arrive at Rivers Inlet in late June, peak in the fishing area (9-2, 9-3, 9-4, & 9-11) during the third week of July, with most of the stock past the commercial net fishing area by the first week of August. The Sockeye catch can continue well into August during fisheries intended to target Pink. The fishermen, however, target on Sockeye under the guise of a Pink salmon fishery.

In years when Sockeye are weak, conservation measures should be taken during the peak period to salvage the maximum portion of the stock. "Test dips", if any, should be scheduled to impact on the early portion of the Sockeye run as the "pink" fishery will impact on the tail-end of the Sockeye

A sounding program for Sockeye at the head of Rivers Inlet was started in 1967 and continues. This program is important for in-season management by providing an estimate of escapement

past the commercial fishery. Important is the rate of buildup in the sounding area and the peak number of Sockeye holding in the grid areas at any one time. In 1988 there was a large showing of fish in the grid area, but these later proved to be not all Sockeye. There is anecdotal information suggesting that there are large bodies of grey cod that move into the inlet in mid to late summer. Ross Skog, skipper of the F.P.V. "Falcon Rock" has caught these fish and says they are in the 6 to 7 pound range (almost identical to Sockeye). These fish can be mistaken for the Sockeye if they move into the grid area, and care must be taken, especially if there is a very rapid build up of sounding targets. It has been suggested that grey cod behave differently than Sockeye during the day, so if attempts are made to use a seine to confirm the soundings, it must be done immediately behind the sounding vessel after the school has been sounded. The sounding area is comprised of two grid areas, the inner "Miss Robyn" grid (Wannock River mouth to about 1/2 mile west of Shotbolt Bay) and the outer "RD 102" grid (seaward to McAllister Point-"Scandinavia Bay Point" 1/2 mile north-easterly of Scandinavia Bay).

Sockeye usually build in the sanctuary area (sub-area 9-6) before migrating into Owikeno Lake through the Wannock River. The sounding program indicates Sockeye arrive in the sounding area in early July, peaking between July 20th to 26th. Normally the stock builds, then migrates up the Wannock River en masse between July 20th and 26th. This can occur over a 24 hour period and is usually associated with high tides. In some years the migration to Owikeno Lake can extend over a much longer period causing confusion over the stock size and timing. This migration is identified by a mass showing of humpers within the Wannock River and contact should be made with the Band to verify this.

#### Area 10:

Sockeye begin to arrive in Smith Sound in late June. The run peaks in the fishing area during the third week of July, and is past the fishing area by the first week of August. Although the Docee counting fence is in place by late June, migration past the counting fence normally starts by in the first week of July.

Although tides influence the migration of Sockeye into the Docee Lagoon and the Docee River, they do not override the natural run timing of Smith Inlet Sockeye. This means that some tides near the tail end of the run will not necessarily result in high daily escapements. A large migration through the counting fence can be expected about 24 hours after a high tide has occurred. The peak count through the Docee Fence will usually be in conjunction with the peak during the third week of July. Spawning starts in September, peaks in mid-October, and is finished by November.

WANNOCK RIVER FOOD FISHERY

Area 9:

Rivers Inlet Sockeye are harvested by both the Owikeno Band and the Bella Bella Band.

The Owikeno Band catch is mainly by short GN in the Wannock River. Information from this fishery can be used as an indicator of the beginning of Sockeye migration into Owikeno Lake.

The Bella Bella Band uses a commercial SN. A Fishery Officer or Guardian must be aboard to monitor the operation to get catch figures and ensure the release of Chinook. The catch on board is relayed to the Fishery Officer at Bella Bella as soon as the vessel leaves Rivers Inlet, who in turn monitors the distribution at Bella Bella.

Food fishing with a SN in the sounding area can compliment the sounding program. In doing this, it can be a valuable indicator of species composition as sounding can establish numbers but not species. Management Biology should be consulted to maximize the information that might gained.

This fishery developed in the mid-1970's because Area 7 Sockeye stocks were depressed and subject to heavy food fishing pressure. Since that time demand for Rivers Inlet Sockeye has increased each year and in 1985 over 7000 pieces were taken. At a District meeting in 1986 a catch limitation was set at 3500 pieces annually (1981-85 average catch). Starting in 1988, all Bands wishing to harvest food fish in Rivers Inlet must obtain permission in writing from the Owikeno Band.

Area 10:

In 1986 a minor Sockeye food fishery developed in Smith Inlet near the mouth of Wyclees Lagoon in early August. The "Gwasala-Nakwax-Da'xw" (Takush Band, relocated in Port Hardy) requests a permit in each year since.

COMMERCIAL NET FISHERY

Area 9:

The River Inlet Sockeye fishery has been one of the most important commercial net fisheries on the Pacific coast since the late 1800's.

Rivers Inlet has traditionally been a gillnet area with as high as 900 to 1000 boats. Between 1968 and 1978 were allowed to fish in Area 9 between Addenbroke Light and the Addenbroke Point-South Point line.

Historically, the seaward boundary for commercial GN

fishing in Area 9 was the Surf Line (Cape Sutil to Herbert Point on Calvert Island). From the late 1960's the seaward boundary has varied with Sockeye abundance, but generally kept the fleet inside the Clark Point-Cranstown Point line, or the Addenbroke Point-Cranstown Point line. It is currently (1980's) felt by DFO staff and local fishermen that the fleet can adequately harvest the available surplus of Sockeye within Rivers Inlet proper. Coupled with this, there is a trend to minimize mixed stock fisheries. For example, fishing in the approach waters to Rivers Inlet results in a high incidental catch of both large and "feeder" Chinook.

The net fishery is managed on a weekly basis through the month of July. Weekly meetings are held at Dawsons Landing with local advisors. Considerations for fishing times and areas include:

- Catch Per Unit Effort (CPUE)
- cumulative catch
- previous years' fisheries compared with the current fishery
- the sounding program results
- visual observations (jumpers)
- IFF catch data
- the offshore troll catch

Sockeye returns to Barkley Sound and the Skeena River may be used as a general indication of returning stock strength and timing. These other fisheries affect fleet size in Rivers Inlet.

In May 1989, a technical workshop was held in Owikeno Lake to develop a long-term management strategy and harvest plan for Sockeye. This included a variable rather than a fixed target escapement, a variable harvest rate depending upon the forecasted stock size and the use of a stock recruitment curve for forecasting stock size (in addition to age-specific return rate predictions).

Attendees were:

- Dave Peacock - Sr. North Coast Biologist (chairman)
- Ron Goruk - Central Coast Biologist
- Don Taylor - Commercial Gillnetter ("Taylor Maid")
- Art Monk - Aquiring Mgr.- BC Packers
- Professor Dr. Carl Walters - University of BC
- John Greenlee - District Supervisor - Central Coast
- Jim Cameron - Commercial Gillnetter ("Miss Barbara")
- Don Radford - Biologist - Planning Branch
- Ivan Winther - Support Biologist - Central Coast
- Steve Bachen - Sr. Technician - Central Coast
- Hugh McNairnay - Planning Branch

The following management strategies were developed and will be applied to the 1989 Sockeye fishery. They will be reviewed by the Central Coast Advisory Board, and if approved, will be recommended to the Minister of Fisheries & Oceans for formal adoption.

MANAGEMENT STRATEGY 1: Harvest Rate: (see Table I)

Below 200,000 - zero Harvest Rate

200,000 to 400,000 - Harvest Rate to be determined by the Central Coast Advisory Board

At 400,000 - 10% Harvest Rate

At 1 million - 50% Harvest Rate

At 2 million - 60% Harvest Rate

At 2.5 million - 60% Harvest Rate

Above 2.5 million the Harvest Rate increases slowly and allows escapement to steadily increase.

MANAGEMENT STRATEGY 2: Week One: (see Table II)

First fishing week will be the first Sunday in July or June 30 if the Sunday falls on that day.

MANAGEMENT STRATEGY 3: Closure:

If the estimated allowable catch is not sufficient to allow a one day fishery for each week of the season, the first week to closed should be the third fishing week in July.

MANAGEMENT STRATEGY 4: Stock Assessment:

The pattern of fishing days for the first two weeks of the season will be fixed based on harvest rates required for an expected run size prior to the season (run size dictates harvest rate). Harvest rate is dependent upon the gear expected to operate, fishing area and the duration of the fishery. Only fishing time (duration) and fishing area can be altered to adjust the harvest rate. Adjustments for increased catch or for conservation will occur in the third and successive weeks.

MANAGEMENT STRATEGY 5: Low Returns

The management plan outlines proposed low harvest rates for predicted stock sizes between 200,000 and 400,000 to allow an assessment of the accuracy of the forecast run sizes. Predictions of run sizes in this range are very unlikely and these special circumstances will require a

TABLE 1

## REQUIRED HARVEST RATES BY ESTIMATED TOTAL STOCK

TOTAL STOCK	HARVEST RATE	EXPECTED CATCH	EXPECTED ESCAPEMENT
0	0.000	0	0
100000	0.000	0	100000
200000	0.000	0	200000
300000	0.067	20100	279900
400000	0.100	40000	360000
500000	0.233	116500	383500
600000	0.322	193200	406800
700000	0.386	270200	429800
800000	0.433	346400	453600
900000	0.470	423000	477000
1000000	0.500	500000	500000
1100000	0.515	566500	533500
1200000	0.520	624000	576000
1300000	0.538	699400	600600
1400000	0.548	767200	632800
1500000	0.556	834000	666000
1600000	0.563	900800	699200
1700000	0.569	967300	732700
1800000	0.574	1033200	766800
1900000	0.579	1100100	799900
2000000	0.583	1166000	834000
2100000	0.587	1232700	867300
2200000	0.591	1300200	899800
2300000	0.594	1366200	933800
2400000	0.597	1432800	967200
2500000	0.600	1500000	1000000
2600000	0.603	1567800	1032200
2700000	0.606	1636200	1063800
2800000	0.607	1699600	1100400
2900000	0.609	1766100	1133900
3000000	0.611	1833000	1167000
3100000	0.613	1900300	1199700
3200000	0.615	1968000	1232000
3300000	0.616	2032800	1267200
3400000	0.618	2101200	1298800
3500000	0.619	2166500	1333500
3600000	0.620	2232000	1368000
3700000	0.622	2301400	1398600
3800000	0.623	2367400	1432600
3900000	0.624	2433600	1466400
4000000	0.625	2500000	1500000

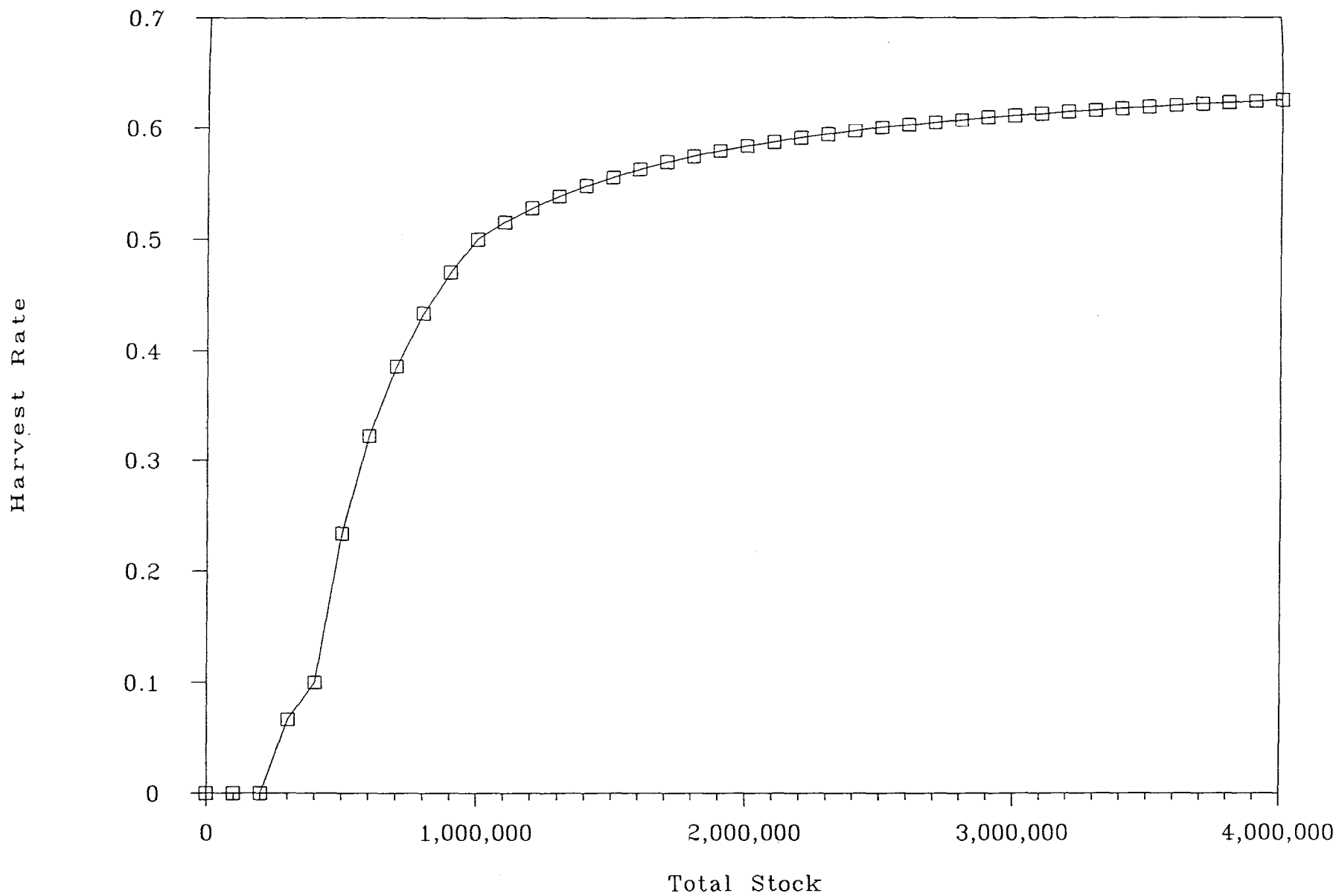
**TABLE II**

**Fishing Weeks**

	Week 1	Week 2	Week 3	Week 4
1989	Jul 2	Jul 9	Jul 16	Jul 23
1990	Jul 1	Jul 8	Jul 15	Jul 29
1991	Jun 30	Jul 7	Jul 14	Jul 21
1992	Jul 5	Jul 12	Jul 19	Jul 26
1993	Jul 4	Jul 11	Jul 18	Jul 25
1994	Jul 3	Jul 10	Jul 17	Jul 24
1995	Jul 2	Jul 9	Jul 16	Jul 23
1996	Jun 30	Jul 7	Jul 14	Jul 21
1997	Jul 6	Jul 13	Jul 20	Jul 27
1998	Jul 5	Jul 12	Jul 19	Jul 26
1999	Jul 4	Jul 11	Jul 18	Jul 25
2000	Jul 2	Jul 9	Jul 16	Jul 23

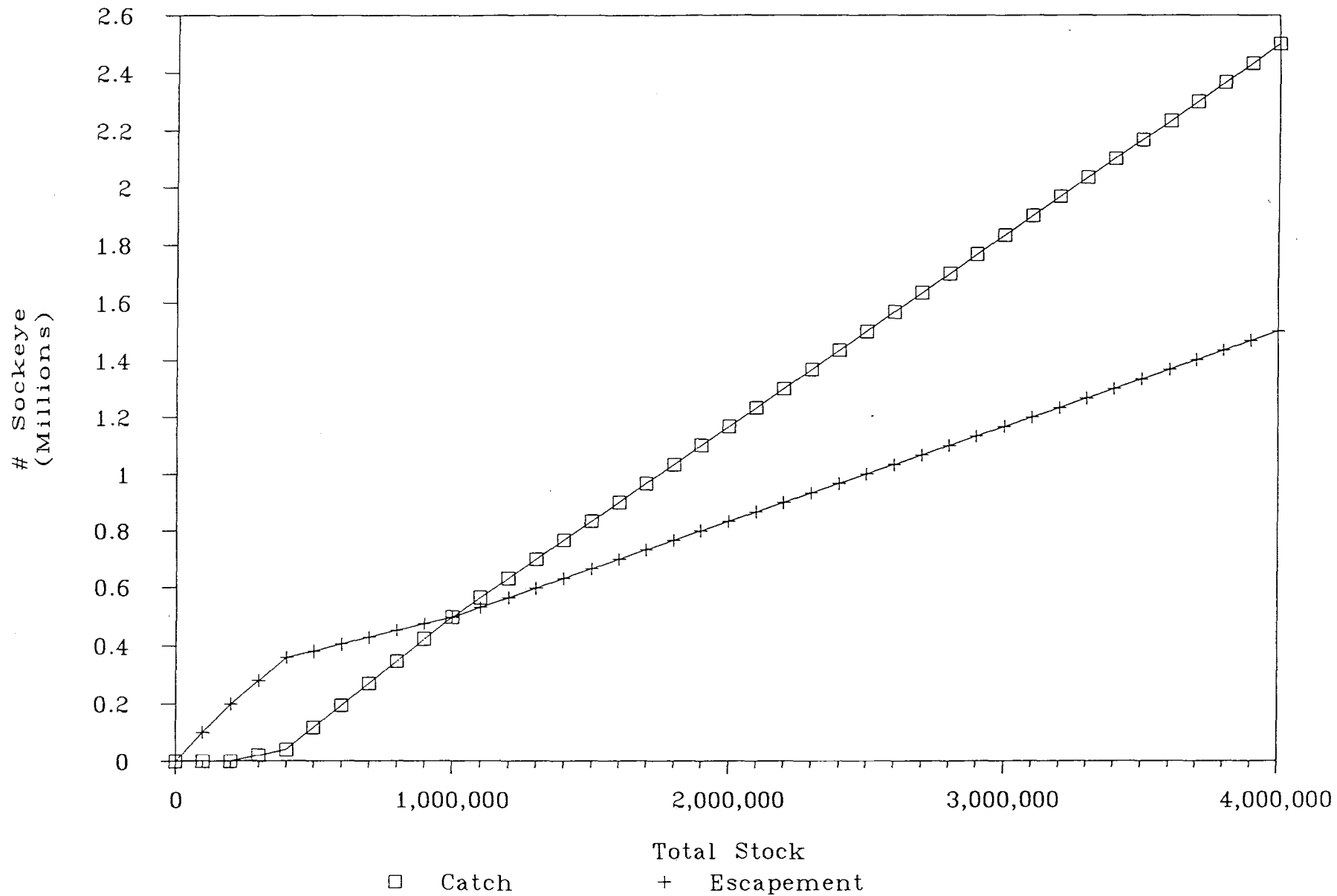
# RIVERS INLET SOCKEYE HARVEST RATE

- MAY 69 -



# RIVERS INLET SOCKEYE CATCH & ESCAPEMENT

-68 MW-



Pre-season Expectation (stock size expected) \_\_\_\_\_

planned (Total) Harvest Rate % \_\_\_\_\_

planned Total Catch \_\_\_\_\_

Weekly Catch:

	Expected TFW	Expected TTD	Actual TFW	Actual TTD
Week 1	_____	_____	_____	_____
Week 2	_____	_____	_____	_____
Week 3	_____	_____	_____	_____
Week 4	_____	_____	_____	_____
Week 5	_____	_____	_____	_____

INDICATORS: (Not to be used individually)

1. Catch Per Unit Effort (CPUE) \_\_\_\_\_

2. Fleet Size (Local) \_\_\_\_\_

3. Fisheries In Other Areas \_\_\_\_\_

4. Sounding Program \_\_\_\_\_

Seine Test Results (species composition) \_\_\_\_\_

5. Weather Conditions (relating to fishing success, such as clear, with light Westerlies being optimal fishing conditions) \_\_\_\_\_

6. Trolling Success (in Rivers Inlet during net times & off Calvert Is.) \_\_\_\_\_

7. Jumpers in the Inlet \_\_\_\_\_

8. Tides and Moon Phase \_\_\_\_\_

9. Milling Fish (especially Stone Point) \_\_\_\_\_

10. Outside and Inside Boundary Catch \_\_\_\_\_

11. "In-Plan" Projections \_\_\_\_\_

careful pre-season review of proposed fishing plans.

MANAGEMENT STRATEGY 6: In-season Adjustment of Total Stock Estimate:

The Rivers Inlet in-season advisory group will meet weekly on Wednesdays. This group consists of commercial fishermen, processors and sport fishing representatives. Recommendations are provided on the Rivers and Smith Inlets fishing patterns.

MANAGEMENT STRATEGY 7: In-season Adjustment of Total Stock Estimate:

In-season adjustments to the total stock estimate will be made, if possible, in consultation with the in-season advisors.

Area 10:

Smith Inlet is a traditional gillnet area. The net fishery is managed on a weekly basis through the month of July. Weekly meetings are held at Dawsons Landing with local advisors in conjunction with the Area 9 meeting.

The principal tool for Sockeye management in Smith Inlet is the Docee River counting fence which was built in 1972. The fence is used as an indicator of stock strength, timing, and escapement into Long Lake. The commercial fishery, however, cannot be delayed until the target escapement is met as this will result in over-escapement and lost fishing opportunities.

The early fence count information is not used in management of the fishery, as it does not reliably reflect abundance. In early July the management of the fishery must rely on expectations and CPUE data. The value of the fence count as an indicator of stock abundance improves as the season progresses, and by the second week of July becomes the principal in-season management tool.

If there is doubt as to the expected run strength, it is better to fish the beginning of the run rather than the peak. If further corrective action is necessary, the tail-end of the run could be exploited or saved based on fence counts.

It is not desirable to conduct clean-up fisheries in Wyclees Lagoon. Quashella Creek and the Lagoon are uncharted waters and a Lagoon fishery creates enforcement problems. Past experience have been painful and even Industry is not in favour of Lagoon fisheries. A fishery here, however, is a last option and should not be discounted.

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The normal fishing areas for the Sockeye fishery are 10-3 through 10-9 inclusive (roughly from Burnt Island out to a line from Milthrop Point north to Table Island and thence northerly to Extended Point).

Fleet size is largely dependant upon the fishing activity in Rivers Inlet and Barkley Sound, and may vary greatly. When the other major Sockeye fisheries on the coast are open (e.g. Skeena River, Johnstone Straits) the fleet size in Smith Inlet will decline.

Fishing in Smith Inlet during the Sockeye run is highly competitive, and violations on the seaward boundary are a constant problem. A full time enforcement team on a Watch Keeping vessel is required to deal with this problem.  
SPORT FISHERY

Area 9:

Sockeye are incidental in the Chinook sport fishery, however, a few boats do target on Sockeye. The catch (less than 200 per year - 1980's) is not significant. When catch success for Chinook is poor, there has been a growing tendency to gear up and target on Sockeye.

Area 10:

There is no directed sport fishery on Sockeye.

ENHANCEMENT

Area 9:

Owikeno Sockeye were part of a Regional hatchery program during the 1920's and 30's. These activities were well documented in annual reports of the Department of Fisheries. This program was discontinued in 1936. Since that time there have numerous other programs aimed at enhancing these stocks, such as dyking on the Washwash River, etc.

In 1987 and 1988 a pilot project to colonize the upper Sheemahant River was undertaken. Approximately 500 adult Sockeye were air lifted above the cascades. If and when a population is established above the cascades, some form of fish passage will be developed.

Re-channelling break-throughs and stabilizing natural channels is being planned for the Washwash and Inziana Rivers. It is expected this work will be carried out before 1994.

Area 10:

The fertilization of Long Lake by the Lake Enrichment Program of S.E.P. is the only Sockeye enhancement activity in Area 10. The lake was fertilized in 1977, 1978, and 1979.

The program was interrupted for two years in 1980 and 1981 because of an increase in stickleback populations that adversely affected Sockeye production through interspecific competition for food resources. The program was modified and continued in 1982 to date (1988), apparently without a similar increase in the stickleback population.

#### ESCAPEMENT

##### Area 9:

Owikenno Lake Sockeye escapements are enumerated by the Management Biology Unit (Prince Rupert) in conjunction with Sub-district Fishery Officers starting in early September and continuing until late October. A float camp at the mouth of the Genesee River serves as a base for this program, with transportation to the various spawning areas provided by boat. There is an annual fall inspection that usually lasts for 10 days (approximately from October 10th to 20th) and provides an opportunity for fishermen and industry representatives to observe the escapement. This tour is extremely important in maintaining Fisheries-industry relationships, and in improving the overall management of Rivers Inlet.

There are 10 Sockeye systems in Owikenno Lake: Washwash, Tzeo, Inziana, Sheemahant, Genesee, Machmell, Neechanz, Ashlum, Dallery, and Amback. In addition to these, Sockeye use the Wannock River and several beach spawning areas in the Lake. Visibility for enumeration varies with weather conditions. Normally all are clear with the exception of the Sheemahant, Tzeo, Machmell and Wannock Rivers.

Escapements are enumerated in the Sheemahant, Machmell and Wannock Rivers by beach SN as these systems are turbid and visibility is poor. The test set information is used as an index of abundance. Test sets are also made by beach SN in the Neechanz River to assist in its assessment. The remainder of the systems, including the Neechanz River, are enumerated by foot.

From 1985 to date (1988) helicopters have been used in the Owikenno Lake Sockeye survey. This method is superior to the traditional foot surveys as a larger area can be surveyed and visibility is greatly improved. Note that helicopters are of little value on the Washwash, Quap and Genesee Rivers due to a dense overstory. Caution must be exercised, as helicopter flights may reveal more fish than the traditional jet boat/foot methods. For the glacial systems, this method is best done when the rivers have started to clear after freezing occurs at higher elevations. The other systems are easily counted during normal flows. The glacial systems are difficult to enumerate and account for a large portion of the total spawners.

Spawning starts in late August, peaks in the first week of October, and is finished by end of November. Spawn timing varies considerably by stream. The early timing streams

include the Inziana, Washwash, Tzeo, and Neechanz Rivers. The others are later. The Sheemahant River timing appears to span over the entire spawning period.

In the 1970's the "required escapement" of Rivers Inlet Sockeye was 500,000, except in 1978. Because the total returning stock was expected to be 1.7 million in that year, it was planned to escape 700,000. By 1980 "expected escapement" was 500,000 with an "optimum escapement" set at 1 million. In 1981 the "required escapement" was set at 750,000 with an "optimum" still 1 million. In 1984 the "expected escapement" was 800,000 with an "optimum" of 1 million and "no directed fishery anticipated".

In 1985, the confusion that resulted from the continually changing numbers and terms was eliminated with the establishment of a target escapement, which was set at 1 million.

The rationale for the 1 million target (D. Peacock, Central Coast Biologist - 1981):

- 1) escapements in the order of 1 million are easily accommodated in spawning areas tributary to Owikeno Lake;
- 2) the relationship between spawners and the resultant returning stock has demonstrated that escapements in the order of 1 million will produce a much greater surplus and economic return than would lower escapements.

In May 1989, a technical workshop was held in Owikeno Lake to develop a long-term management strategy for Sockeye. Part of the management plan included addressing the escapement requirements. Fixed target was reviewed in contrast to a variable target depending upon the forecasted stock size. The variable target escapement concept was adopted for the 1989 Sockeye season.

#### Area 10:

Sockeye escapements are enumerated at the Docee River Counting Fence. In recent years the counting fence has started operating in the last week in June, and has continued until approximately August 10th. The fence must be removed at this time as Chinook are moving into the River and the fence interrupts their normal pre-spawning activities.

In the early 1970's (before 1976), the escapement target for Long Lake ranged from 80,000 to 100,000. The target was then raised to 120,000 in 1976, and remained at that level until 1981, when it was again raised to 200,000. The accuracy of the Docee River fence count has enabled the Department to establish this target escapement into Long Lake. This is felt to be a close approximation to the true optimum escapement.

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This information has permitted an accurate estimate of stock and recruitment relationships, which has resulted in a very stable and dependable fishery.

#### EXPECTATIONS

##### Area 9:

Projected returning stocks are calculated using brood year age composition and an age class specific return rate. Scale sampling is necessary during the commercial net fishery for future calculations of expectations.

##### Area 10:

Projected returning stocks are calculated using brood year age composition and an age class specific return rate. Scale sampling is necessary during the commercial net fishery for future calculations of expectations.

#### MANAGEMENT CONSIDERATIONS FOR PASSING STOCKS:

##### Area 9:

Rivers and Smith Inlets Sockeye are mixed in the outside areas of both Inlets during the first three weeks of July. They cannot, therefore, be properly managed because the stock strength indicators for each cannot be separated. "It appears that the present system of fishing inside the Inlets proper only is the best approach. Small and large surplus stocks can be harvested adequately within the Inlets in 2 to 4 day fishing weeks. The wasteful fishery on poor quality, immature Coho have also been reduced" (JR MacLeod, Mgr. North Coast Ops - 1974).

Note: "outside" refers to the approach waters to Rivers and Smith Inlets; boundaries first used in 1971 for Rivers Inlet: Addenbroke Point to Cranstown Point; and for Smith Inlet: Extended Point to Macnicol Point. In 1972 these boundaries were moved to Dugout Rocks to Clark Point for Rivers Inlet and Extended Point to Table Island to Milthorp Point for Smith Inlet. Prior to this fishing was conducted out to the Surf Line.

Since 1981 the outside areas of Rivers and Smith Inlets have been closed to conserve Chinook as well as mixed and weak Sockeye stocks.

During Sockeye fisheries, mesh size restrictions are used to conserve weak Pink and/or Chum stocks returning to Area 9.

Area 10:

The outermost fishing area (sub-area 10-3) is a known mixed stock area. During July both Rivers and Smith Inlet Sockeye may be caught in this area. This has been established using tagging and brain parasite incidence in the fishery. During those years when conservation of Rivers Inlet Sockeye is a concern, sub-area 10-3 should be closed.

In late July, near the end of the Area 10 Sockeye fishery, there can be significant incidental catch of Chinook in Margaret Bay.

PINK

Area 9:

Area 9 has three actively managed Pink stocks: Johnston Creek, Clyak River and the Chuckwalla/Kilbella Rivers. Only Johnston Creek has had sufficient Pink stocks to warrant a consistent fishery. The Clyak River has a strong even year cycle and a weak odd year cycle. Johnston Creek and Chuckwalla/ Kilbella Pink have no dominant cycle. There are 15 passively managed stocks, but none of any significance. Clyak Pink include those to the Neil and Young tributaries.

Area 10:

The Nekite River Pink stock is the only actively managed Pink run in Smith Inlet. The odd year is currently the dominant cycle. It is unlikely that this will develop into an important fishery. Interest by the fleet is directed towards Sockeye and Chum fisheries elsewhere on the coast.

MIGRATION AND TIMING

Area 9:

Pink salmon arrive at Rivers Inlet by mid-July, peak in early to mid-August in the fishing area (9-2, 9-3, 9-4, and 9-11 during normal fishing years) and are past the fishing area by late August-early September. Arrival and abundance in the Inlet is assessed by the incidental catch during the Sockeye fishery, the sport fishery, and the troll fishery off the mouth of the Rivers Inlet and Calvert Island. There does not appear to be any significant timing difference between even and odd years.

Pink seem strongly affected by the amount of fresh water in the Inlet (i.e. from freshets). Pink migration routes are through the main Inlet and Darby Channel. Fishermen feel Clyak River Pinks migrate predominantly through Darby Channel (this may also be true of Kilbella/Chuckwalla Pinks - see A9 RMS 1985). Johnston Creek Pinks use both routes, but in the

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main Inlet prefer the Goose Bay shoreline. The migration of Pink into Johnston Creek is highly dependent upon water levels. During low water conditions, Pink mill in and about Johnston Bay and may required protection with an extended creek boundary.

Area 10:

Pink arrive in Smith Inlet during the first week in August, peak in mid-August, and are through the fishing area by the end of August.

INDIAN FOOD FISHERY

Area 9:

There are no directed food fisheries on Pink salmon in Area 9. There is a small incidental harvest by the Bella Bella Band's SN fishery for Sockeye.

Area 10:

None.

SPORT FISHERY

Area 9:

Pink catches are normally incidental to the Chinook fishery. In recent years the commercial sport fishing camps have started to target on Pink salmon during times when the Chinook salmon fishing is slow.

Area 10:

None.

COMMERCIAL NET FISHERY

Area 9:

The commercial net fishery for Pink begins in late July and continues through August.

The usual fishing areas for Johnston Creek and Chuckwalla/Kilbella Rivers are 9-2, 3, 4, and 11. If conservation of Sockeye, Chum, or other Pink stocks is of concern, 9-11 and/or 9-4 may have to remain closed. Clyak River Pink are fished in 9-2, 3, 4, 5, 7 and 11.

There is a boundary across the mouth of Johnston Bay to protect milling Johnston Creek Pink. During low water conditions, this sanctuary area should be increased by a boundary starting at the boundary sign near Wadhams Pt., to the southern tip of Florence Island, to the northern tip of Florence Island, then west to the boundary sign 2 miles south of Good Hope.

Usually it is difficult to generate interest among gillnetters in a targeted Pink fishery. This problem manifests itself in a variety of ways:

If there is Sockeye conservation problem, there will be demands for a Pink fishery. Without mesh restrictions, this fishery will target on Sockeye.

If the proper mesh restriction (127 mm - 5 in., or less) is imposed to harvest Pink, then most of the gillnetters would leave the Inlet. The fishermen will try to convince the Department to waive the mesh restriction under the excuse they do not have the small mesh nets with them.

Harvesting surplus Pink with seines is an option. This would present problems such as harvesting the tail-end of the Sockeye and incidental catch of Wannock River Chinook salmon (esp. along the shoreline from Draney Narrows past Wadhams Point). Conflict with sport fishermen and the gillnet fleet would surely arise.

The in-season indicators of abundance include CPUE and visual signs (schools and jumpers, build up of stocks at the Rivers' mouths).

Area 10:

The commercial net fishery for Pink in Area 10 is not significant. If there are surpluses available, a fishery would occur during the first and second weeks of August. The Sub-area fished would be 10-3 to 10-9 inclusive.

ENHANCEMENT

Area 9:

There is no Pink enhancement in Area 9.

Area 10:

Pink are not actively enhanced in Area 10.

EXPECTATIONS

Area 9:

Expectations are calculated using area-specific return rates. Consideration is given to overwintering conditions, and indications from the Atnarko River (Area 8) hydraulic sampling/downstream fry trapping program.

Area 10:

Expectations are calculated using area-specific return rates. Consideration is given to overwintering conditions, and indications from the Atnarko River (Area 8) hydraulic sampling/downstream fry trapping program.

ESCAPEMENTS

Area 9:

Pink salmon are enumerated as follows:

using a river boat and by foot for Clyak,  
Chuckwalla and Kilbella

using a canoe and by foot for Johnston

The Kilbella is glacial and at times difficult to assess. The other minor stocks area assessed by foot.

Area 10:

Pink escapements are assessed on foot. Aircraft can be used if available.

The main area for Pink spawning in the Nekite is in the lower portion of the river from the high tide mark downstream for about one mile.

MANAGEMENT CONSIDERATIONS FOR PASSING STOCKS

Area 9:

As long as fishing operations are confined to Rivers Inlet, not including 9-1, there is no concern for passing stocks.

Area 10:

As long as fishing operations are confined to Smith Inlet, not including 10-1 and 10-2, there is no concern for passing stocks.

## CHUM

Area 9:

There are three actively managed Chum stocks: the Clyak River, Draney Inlet, and the Wannock River. There are 13 passively managed stocks.

The Clyak River stock is the most important though it only offers an opportunity for a fishery every 4 years (1982, 1986...). The Draney Inlet Chum stock is small and any surplus can be harvested in conjunction with the Clyak stock. The Wannock is a late timed stock (late September/October) and has not had a directed fishery for many years.

Note: Clyak Chum include those to the Neil and Young tributaries.

Area 10:

There are two actively managed Chum stocks in Area 10: the Nekite and Takush Rivers. Walkum Creek is passively managed.

Because the majority of the local fishing fleet leaves the area after the Sockeye fishery, there is generally little interest in any Chum fisheries.

## MIGRATION AND TIMING

Area 9:

The first sign of Chum in Rivers Inlet are usually jumpers Darby Channel.

Except for Wannock River, Chum normally start to show in the fishing area during the first week of August, and peak during the second week of August.

In cycle years, Clyak Chum may show in good numbers at Nelson Narrows (Moses Inlet) as early as the third week of July. The stock is past the fishing area (9-5, 9-7) by early September.

The Wannock River Chum begin to show in the fishing area (9-2, 9-3, 9-4, 9-5, and 9-11) in mid to late September, peak in early October, and are finished by end of October.

Area 10:

The migration pattern of the Nekite River Chum stock not well known as they have been rarely fished. They begin to show in the fishing area (10-3 to 10-9) as an incidental catch in the tail end of the Sockeye fishery. This is usually in early August.

The run peaks in the fishing area during the third week of August, and is past the fishing area by the first week of September. This is indicated by the presence of jumpers and large schools of Chum off Burnt Island.

The Takush River Chum begin to show in sub-area 10-3 during the first week of September. Arrival in Takush Harbour is in the second week of September. The run peaks in the fishing area in mid-September and ends in early October .

#### INDIAN FOOD FISHERY

##### Area 9:

There is a minor fishery using short GN and jigs in the Wannock River by the Owikeno Band. Approximately 200 pieces are taken annually. During the Chum enhancement brood egg take, the carcasses (approximately 100) are used for additional food fish.

##### Area 10:

There is no directed food fishery for Smith Inlet Chum.

#### SPORT FISHERY

##### Area 9:

A few Chum are taken incidentally in the Rivers Inlet sport fishery (in 1988 the catch was 300 pieces).

##### Area 10:

No known effort for Chum in Smith Inlet.

#### COMMERCIAL NET FISHERY

##### Area 9:

Early in-season indications of Chum stock strength is the incidental gillnet catch, and the troll catch off the bottom end of Calvert Island during the second and particularly the third week of July.

Clyak River Chums have been harvested by both GN and SN. In addition to the other Sub-areas that may already be open, gillnets are permitted in the Moses Inlet portion of 9-5 and 9-7. Seines, however, are only permitted when GN are incapable of harvesting the surplus and are restricted to fishing inside Moses Inlet.

Draney Inlet Chum are fished in 9-2. Wannock River Chum could be fished seaward of 9-6 including 9-11 (Darby Channel). Problems with quality (dark fish) could to be expected inside McAllister Point (9-6).

Area 10:

Nekite River Chum could be fished during August and early September in Sub-areas 10-3 through 10-9 inclusive. After the first two weeks of the fishery 10-9 should be closed to protect milling fish in the head of the Inlet one mile section below upper tidal influence water mark. A Chum fishery in Smith Inlet after the Sockeye fishery has to be monitored very carefully because the Nekite Coho stocks are moving through the inlet at this time.

The incidence of milling fish can be identified by dark coloured fish in the catches.

ENHANCEMENT

Area 9:

The Community Economic Development Program (CEDP) by Owikeno Band has been doing minor enhancement the Wannock Chums since 1982 (except 1985 and 1987) using floating incubation boxes.

Area 10:

Chum returns to the Nekite River from brood escapements of 60,000 (1980 to 1983) were extremely poor. For this reason an unmanned spawning channel was built (1986) in an attempt to rebuild and stabilize the run.

The channel has a capacity of 13,000 spawners. Escapement to the channel in 1986 was approximately 6,000 pieces; 1987 - 2000; 1988 - 2500.

EXPECTATIONS

Area 9:

Chum expectations are calculated using age class specific return rates. Scale sampling is necessary during the commercial net fishery for future calculations of expectations.

Area 10:

Chum expectations are calculated using age class specific return rates. Scale sampling is necessary during the commercial net fishery for future calculations of expectations.

## ESCAPEMENTS

### Area 9:

Enumeration of spawners is done by foot and river boat.

The Clyak River is normally glacial but can be clear on occasions. The Neil-Young tributaries are usually clear.

Wannock River Chum enumeration is done in conjunction with the Chinook dead pitch program in November.

Draney Inlet Chum stocks are easily enumerated by foot. This cannot be done by air due to overstory.

### Area 10:

Chum enumeration is done on foot.

## MANAGEMENT CONSIDERATIONS FOR PASSING STOCKS

### Area 9:

As long as fishing operations are confined to Rivers Inlet, not including 9-1, there is no concern for passing stocks.

### Area 10:

As long as fishing operations are confined to Smith Inlet, not including 10-1 and 10-2, there is no concern for passing stocks.

## COHO

### Area 9:

There have been no targeted net fisheries for Coho in Area 9 since 1973. There is an incidental catch of Coho during net fisheries for Sockeye, Pink, and Chum. Escapement enumerations have been poor and at best only a calculated guess. There is a major sport fishery on this species.

### Area 10:

Coho are not actively managed in Area 10. Spawning escapements are only assessed during enumeration of other species. The Nekite River supports the largest stock, with escapements ranging from 450 pieces in 1981 to 1,700 pieces in 1984. Coho are in the spawning streams from August to January each year.

MIGRATION AND TIMING

Area 9:

Coho arrive at some systems as early as August 1st (Chuckwalla River) and are present until January. The peak of the run, as indicated by the sport fishery, is between August 25th and September 10th.

Area 10:

INDIAN FOOD FISHERY

None

SPORT FISHERY

Tidal

Area 9:

Most of the sport camps operating will target on Coho. Effort is high between camp startup and foldup (mid-June and mid-September), with the peak catches in late August-early September. It is not uncommon to see several fish over 20 lbs. The most popular fishing areas are at the mouth of Draney Inlet and at the "Wall" (near the SW boundary of 9-2). Rouse Reef and the main Inlet between Kilbella and Shotbolt Bays are popular in the latter part of the season.

Non-tidal

Area 9:

In Owikeno Lake the Sheemahant, Machmell, and Neechanz Rivers are fished lightly. Other rivers that are fished in the main Inlet are Johnston Creek, Clyak, Chuckwalla, and Kilbella Rivers. Sport catch on these rivers is used to estimate stock strength. All other systems are of little significance.

COMMERCIAL NET FISHERIES

A Chum fishery in Smith Inlet after the Sockeye fishery has to be monitored very carefully because the Nekite Coho stocks are moving through the inlet at this time.

(06/08/89)

## ENHANCEMENT

### Area 9:

Kilbella and Chuckwalla Coho were enhanced by the Public Involvement Program at Shotbolt Bay in 1986. This was the only Coho enhancement in Area 9.

## EXPECTATIONS

No expectations are calculated for this species.

## ESCAPEMENTS

Escapement estimates for Coho are not reliable. Inaccessibility of most systems during the winter months and the nature of the Coho make them very difficult to observe in fresh water. Non-tidal Sport catch data is used to indicate stock strengths.

## MANAGEMENT CONSIDERATIONS FOR PASSING STOCKS

None

## WEEKLY NOTES AND FISHERY MANAGEMENT GUIDE

## RIVERS AND SMITH INLET SUB-DISTRICT

## AREA 9 &amp; 10

This Sub-district includes both Statistical Areas 9 and 10. When reference is made to "the Sub-district", both statistical areas are included.

## CONVENTION REGARDING USE OF DATES

Weeks are designated following a system that designates month and week. A week is a seven day period, starting Sunday, and is attached to the month that has the most days included. The format is MM-W (e.g. 05-1 is the first week of May). In 1989, this is Sunday, April 30 to Saturday, May 6.

## TROLLING

The 1964 Area Salmon History was the earliest indication that trollers were permitted to fish inside Rivers and Smith Inlets "except during net fishing times". They could otherwise fish seven days per week in "outside waters". This has been carried on to date (See Area Salmon Histories and Record of Management Strategies (RMS) for Areas 9 & 10).

Since the Canada/US Pacific Salmon Treaty (1985) the troll fishery has been managed on a Regional basis.

## SCALE SAMPLING PROGRAM

Area 9:

Before 1986 there was no consistent scale sampling program for species other than Sockeye. For Sockeye which scales and otoliths were taken from Owikeno Lake spawning grounds only. In 1986 a minor scale sampling was initiated for both Sockeye and Chum from the commercial net fishery.

Scales from at least 100 fish should be taken weekly during the following fisheries:

Sockeye - commercial gillnet fishery in Rivers Inlet, Sub-areas 9-2, 3, 4, and 9-11.

Chum - during the commercial gillnet fishery in Rivers Inlet, Sub-areas 9-2, 3, 4, and 11 for both Moses and Draney Inlet Chum. It is preferred, however, to take scale samples from Moses Chum as far into the terminal area as possible, i.e. 9-7.

Chinook - during the sport fishery from late July to mid-August and from carcasses and SEP brood stock in the Wannock River during the fall inspections.

Area 10:

The Management Biology Unit (MBU) has conducted scale sampling programs in freshwater since 1972. Sockeye samples are taken by the MBU at the Docee fence using the fish traps designed for that purpose. Chum scale samples are also taken by the MBU from the Nekite River spawning channel.

In addition to these two programs, there should be a consistent scale sampling program the Area 10 commercial fishery. In 1986 a minor scale sampling was initiated for Sockeye. There should be scale sampling during the commercial fishery, and from Sockeye and Chum spawners. When Indian Food Fisheries do occur in Area 10, scale samples should also be taken.

Scales from at least 100 fish should be taken weekly during the following fisheries:

Sockeye - commercial gillnet fishery in Smith Inlet, Sub-areas 10-4 to 10-9. Note: scale sampling should not occur in Sub-area 10-3 because of the mixed stock situation.

- commercial troll fisheries in 10-1 and 10-2 (Queen Charlotte Sound) should be sampled in order to assess incoming Sockeye. In 1987, fish sampled in this area were found to be "non-Fraser" Sockeye. Additional sampling may be able to distinguish Rivers and Smith Inlet Sockeye.

Chum - during the commercial gillnet fishery in Smith Inlet, Sub-areas 10-5 to 10-9 for Nekite and Takush Chum.

Chinook - scale samples could be taken during the commercial and sport fishery.

## WEEKLY NOTES

WEEK 05-2: May 7 - 13, 1989

## SPORT FISHERY

Area 9:

- start of Kilbella/Chuckwalla Rivers Chinook run in the Inlet; on years when the run is stronger there may be sport catches by locals only.
- the Chinook catch (over 10 lb.) are considered to be Kilbella/Chuckwalla River stocks. Those less than 10 lb. are referred to as "feeder Chinook".
- two commercial sport fishing camps target on Steelhead in the Kilbella/Chuckwalla Rivers (Buck's Camp mainly, and Rivers Lodge (George Ardley) in a minor way).
- Public Notices should posted at the Dawsons Landing Post Office between May 1st and 15th in order to:
  1. reduce the tidal sport Chinook daily catch limit from 4 to 2 in Area 9 until July 15th (from then Regulations do the same);
  2. close the Kilbella/Chuckwalla estuary to all tidal sport fishing inside the boundary signs;
  3. close the Kilbella/Chuckwalla Rivers to all Chinook fishing.
- These closures are for the protection of Kilbella/Chuckwalla Chinook stocks.

Area 10:

- minor effort in non-tidal waters (Nekite River and Takush Creek) targeting on sea-run cutthroat and Steelhead. Fishermen are mainly local loggers.

## OTHER

- Fishery Officer prepares for hiring seasonal staff (reviewing applications and confirm position numbers and PY allotments).
- In hiring seasonal staff, look for candidates who are handy with outboard motor and general camp maintenance; should also look for at least one candidate who is competent at general office duties.

- Note: during April and May Fishery Officers will be busy with Five Year Development Plans, and with on-site inspections for logging. The best time to do these habitat referrals is prior to salmon season.
- all radio equipment should be checked and operational to allow time for necessary repairs in anticipation of the salmon season.
- if pre-season expectations and fishing plans indicate additional patrol vessels are required, this need should have been identified the previous December. Confirm availability of requirements this week.
- there may be other non-salmon commercial fisheries underway this week but they are controlled by their own management plans. (see the annual Commercial Fishing Guide for Shellfish and Minor Finfish Species and International Pacific Halibut Commission Regulations).

WEEK 05-3: MAY 14 - 20, 1989

SPORT FISHERY

Area 9:

- tidal fishery continues for Kilbella/Chuckwalla River Chinook as well as feeder Chinook. Local effort only.

Area 10:

- minor effort continues in non-tidal waters (Nekite River and Takush Creek) targeting on sea-run cutthroat and steelhead. Fishermen are mainly local loggers.

OTHER:

- there may be other non-salmon commercial fisheries underway this week but they are controlled by their own management plans. (see the annual Commercial Fishing Guide for Shellfish and Minor Finfish Species and International Pacific Halibut Commission Regulations).

WEEK 05-4: MAY 21 - 27, 1989

SPORT FISHERY

Area 9:

- tidal Chinook fishery continues; local effort only.

Area 10:

- minor effort continues in non-tidal waters (Nekite River

and Takush Creek) targeting on sea-run cutthroat and steelhead. Fishermen are mainly local loggers.

#### OTHER

- the first Guardian should be taken on strength this week. His duties are to prepare Guardian speed boats and equipment for the salmon season.
- there may be other non-salmon commercial fisheries underway this week but they are controlled by their own management plans. (see the annual Commercial Fishing Guide for Shellfish and Minor Finfish Species and International Pacific Halibut Commission Regulations).

WEEK 05-5: MAY 28 - JUNE 3, 1989

#### SPORT FISHERY

##### Area 9:

- most sport fish camps open during the first week of June, with tidal water sport fishing effort concentrating on Kilbella/Chuckwalla Chinook.
- most common bait is cut-plug herring.
- there are four main areas of effort in the Inlet: the "Wall" (a small stretch of shore line immediately north of Open Bight), Rouse Reef area, Wadhams Pt. to Draney Inlet, and Kilbella Bay.
- Guardian monitors sports fishery with daily patrols and sets up voluntary sport fish data collection program this week. This program involves distribution of catch data sheets to sport lodges and camps in Rivers Inlet. Catch information is kept by them on a volunteer basis.
- This is an important program for the collection of sport fishery data. The fishery Officer should accompany the Guardian in making these initial annual contacts with the lodge operators. The Fishery Officer should advise the Lodge operators on expected returns, fishing plans and any regulatory changes that may affect them. A handout showing previous years sport fish statistics would be desirable.
- peak week of steelhead run in Kilbella/Chuckwalla Rivers.

##### Area 10:

- there are "feeder springs" in Smith Inlet at this time and a few residents of the local logging camp at Security Bay sport fish for these.

## ESCAPEMENT

Area 9:

- according to Sub-district records, Chinook should be starting to enter Kilbella/Chuckwalla Rivers. Local loggers, however, report Chinook in stream as early as mid-May. Presence and abundance should be confirmed by jet boat survey.

## OTHER

- there may be other non-salmon commercial fisheries underway this week but they are controlled by their own management plans. (see the annual Commercial Fishing Guide for Shellfish and Minor Finfish Species and International Pacific Halibut Commission Regulations).
- Sub-district patrol vessel duties will include the annual maintenance of boundary signs, inspection of creeks for salmon access, habitat patrols, and monitoring and recording of catch and effort information for the non-salmon/herring species (in some cases special Log Books will be provided by the MBU for this).

WEEK 06-1: JUNE 4 - 10, 1989

## SPORT FISHERY

Area 9:

- tidal water Chinook sport fishery continues.
- a major increase in effort can be expected during this week since most sport camps will be open by now.

Guardian continues patrols in Rivers Inlet.

poaching of Chinook in the Kilbella/Chuckwalla Rivers can be a problem at this time. This warrants a dedicated enforcement patrol by a Fishery Officer or Guardian. These patrols can be done by jet boat or by trail bike.

Area 10:

limited effort by residents of the logging camp at Security Bay. With the development of fishing lodges in the area (Roy Bay in 1988), this is expected to change.

There may be other non-salmon commercial fisheries underway this week but they are controlled by their own management plans. (see the annual Commercial Fishing Guide for

Shellfish and Minor Finfish Species and International Pacific Halibut Commission Regulations).

- Sub-district patrol vessel duties will include the annual maintenance of boundary signs, inspection of creeks for salmon access, habitat patrols, and monitoring and recording of catch and effort information for the non-salmon/herring species (in some cases special Log Books will be provided by the MBU for this).

WEEK 06-2: JUNE 11 - 17, 1989

SPORT FISHERY

Area 9:

- tidal sport fishery targeting on Kilbella/Chuckwalla Rivers Chinook stocks continuing
- Chinook sport catches should show an increase by the end of this week as the run builds (peak of the run is last week of June).
- sport catch provides a general indication of Chinook stock strength.

Area 10:

- tidal sport fishery will be targeting on passing fish in Smith Inlet (10-3), by vessels travelling up and down the coast. Some effort by residents of the local logging camp at Security Bay in Margaret Bay and Boswell Inlet.

COMMERCIAL NET FISHERY

Area 9:

- signs of Sockeye (jumpers) are not be expected anywhere in Rivers Inlet.

OTHER

- second Guardian should be hired approximately June 15.
- there may be other non-salmon commercial fisheries underway this week but they are controlled by their own management plans. (see the annual Commercial Fishing Guide for Shellfish and Minor Finfish Species and International Pacific Halibut Commission Regulations).
- Sub-district patrol vessel duties will include the annual maintenance of boundary signs, inspection of creeks for

salmon access, habitat patrols, and monitoring and recording of catch and effort information for the non-salmon/herring species (in some cases special Log Books will be provided by the MBU for this).

- most boundary sign maintenance should be completed by end of this week.
- all Sub-district boats and equipment should be serviced and operational by this date.

WEEK 06-3: JUNE 18 - 24, 1989

#### SPORT FISHERY

##### Area 9:

- peak week for sport catch of Kilbella/Chuckwalla Rivers Chinook.
- poaching for Chinook can continue to be a problem in Kilbella/Chuckwalla Rivers and warrants enforcement patrols.

##### Area 10:

- tidal sport fishery will be targeting on passing fish in Smith Inlet (10-3), by vessels travelling up and down the coast. Some effort by residents of the local logging camp at Security Bay in Margaret Bay and Boswell Inlet.

#### COMMERCIAL NET FISHERY

- if a commercial fishery is scheduled for next week, the first weekly management meeting with industry advisors should be held in Dawsons Landing on Wednesday. During the meeting, expectations and fishing plans should be reviewed and possibly revised for both Areas 9 and 10 (e.g. early closure in Barkley Sound could result in large fleet).
- attendees at the advisory meeting should include three or four regular Rivers/Smith fishermen and industry representatives from the fish processing companies. In the past the latter has included Art Monk - BC Packers (Area 9) and Dunc Cameron BC - Packers (Area 10). Fisheries representatives should include the Sub-district Fishery Officer, Management Biologist and/or technician. Since around 1986, one representative from the local sport fishing community has attended.
- success of commercial fishery in other areas (e.g. Barkley

Sound) might be worth consideration, especially if extreme.  
(early indicator of ocean survivals)

- commercial trollers may report a showing of Sockeye outside Hakai Passage and Calvert Island if the troll fishery is open.

Area 9:

- possible Sockeye jumpers in Darby Channel and along the Goose Bay shore line, indicating presence, but not abundance.

Area 10:

- normally jumpers are not expected in outer Smith Inlet.

OTHER

- when the Guardian float is located in Browns Bay, this is the week that the "Falcon Rock" tows the float to that location.
- Sub-district charter patrol vessels on strength at least 5 days before commercial net opening.
- there are usually large numbers of commercial fishermen in the Sub-district office to obtain Personal Commercial Fishing Licences (PCFL).
- there may be other non-salmon commercial fisheries underway this week but they are controlled by their own management plans. (see the annual Commercial Fishing Guide for Shellfish and Minor Finfish Species and International Pacific Halibut Commission Regulations).
- Sub-district patrol vessel duties will include the annual maintenance of boundary signs, inspection of creeks for salmon access, habitat patrols, and monitoring and recording of catch and effort information for the non-salmon/herring species (in some cases special Log Books will be provided by the MBU for this).
- these general activities continue throughout the salmon season.

WEEK 06-4: JUNE 25 - JULY 1, 1989

SPORT FISHERY

Area 9:

- tidal fishery continues for Kilbella/Chuckwalla Rivers Chinook, with catch and effort decreasing as week progresses.
- poaching of Chinook can continue to be a problem in the non-tidal waters of the Kilbella/Chuckwalla Rivers and warrants patrols.

Area 10:

- packer crews have provided the bulk of the sportfishing pressure during the commercial gillnet fishery. They normally target on groundfish. The presence of a fishing lodge at Leroy Bay may alter this situation.

COMMERCIAL NET FISHERY

1989 Fishing Strategy:

The management strategies developed at the May 1989 technical workshop state that the first fishing week will be the first Sunday in July unless June 30th is the Sunday. Therefore there will be no commercial fishery this week.

Pre-1989 Fishing Strategy: (The following section has been left here for information only)

General Sockeye fishing strategy for both Rivers and Smith Inlets unless specified:

- The run timing of Sockeye through the commercial fishing areas is fairly consistent: start late June, peak third week of July, end early to mid-August.
- In years when harvestable surpluses are expected to be small or expectations for a total return are less than escapement requirements, short "exploratory" fisheries in the weeks prior to the peak of the run will provide the most information on run strength with the least damage to escapement requirements. This conserves the peak of the run for escapement.
- A less favourable conservation strategy is to remain closed, and have an "exploratory" fishery at or near the peak of the run. The past has shown that catch information (CPUE) is misleading and may give a false indication of run strength. If the run is indeed poor and the peak is fished, salvaging sufficient escapement from the tail end

of the run is unlikely, even if the Area remained closed for the remainder of the season.

- if commercial fishing, gillnet CPUE, fleet size, sounding information (Area 9), Docee fence counts (Area 10), troll catch information and expectation should all be considered for extensions or closures.
- management meetings with commercial fishermen, sportfishing representatives, and fishing companies' representatives are held regularly on Wednesdays in Dawsons Landing. This week would normally be the second meeting of the season. Discussions centre around the current week's commercial net fishery (if occurring) and/or next week's fishing plan.
- if there was consideration for a fishery this week, the decision to open and the number of days fished is based primarily on pre-season expectations. Consideration may be given to current year returns of Sockeye to Barkley Sound, and the Nass and Skeena Rivers. Returns to these fisheries may reflect a coast wide trend. Poor returns to these areas may result in larger than expected fleet size.

#### Area 9:

- in years when strong returns are expected, this could be the first week of commercial gillnet fishing for Sockeye in Rivers Inlet. Note: in years of poor expectations, this is not a week to open for an "exploratory fishery".
- Sub-areas fished are 9-2, 3, 4, 11;
- the commercial net fleet would likely be small this week, probably 50 to 100 boats.
- there may be incidental catches of Chum and Coho in 9-11 and outside portion of 9-2 during this week. The origin of these stocks is not known.
- look for Sockeye jumpers in Darby Channel. Sockeye off Calvert Island/Hakai Passage (jumpers and troll catch) may give an indication of Sockeye stock strength, but these outside indications may be a mix of other stocks.

#### Area 10:

- in years when strong returns are expected, this could be the first week of commercial gillnet fishing for Sockeye in Smith Inlet. Note: in years of poor expectations, this is not a week to open for an "exploratory fishery".
- Sub-areas fished are 10-3 through 10-9 inclusive.
- normally the commercial net fleet will be small this week, probably 50 to 100 boats.

## COMMERCIAL TROLL FISHERY

- gillnet areas are normally open to trolling when . Tnet fishing is permitted. The Regional troll fishery management plan supercedes this. Troll effort has been increasing since 1987 due to the high price for troll Sockeye and increasing regulatory controls on offshore trolling.

Area 10:

- Sub-areas 10-1 and 10-2 remain closed to trolling as per the Regional troll fishery plan for conservation of passing Sockeye.

## ESCAPEMENT

Area 10:

- MBU should have the Docee River fence should be in and operating starting in this week. Fence counts are usually minimal at this time. Although counts are often low, the fence should be put in this week to ensure that it is in and working properly when required.
- once the Docee Fence is in place, radio conferences with the Fence crew must be added to the schedule (call sign VGC-286).
- presence of fish holding outside Wyclees Lagoon (in the "Seine Hole") may be indicated by jumpers.

## OTHER

- ensure that the scale sampling programs are underway. If possible, 100 fish per week should be sampled from the commercial gillnet fishery.

WEEK 07-1: JULY 2 - 8, 1989 ("1st week")

## INDIAN FOOD FISHERY

Area 9:

- a Band food fish licence is issued for gillnet and jig fishing to the Owikeno Band for all salmon species in the Wannock River only.

## SPORT FISHERY

Area 9:

- tail-end of Kilbella/Chuckwalla Rivers Chinook run through Rivers Inlet.

- A few Kilbella/Chuckwalla Chinook (over 10 lb.) are still being caught but the catch is mostly non-local feeders (less than 10 lb.).
- In the lull between Kilbella/Chuckwalla and Wannock Chinook, sport fish effort shifts to other species e.g. Coho, halibut, and cod.
- Public Notices for tidal and non-tidal sport fish closures prepared (posted at the Dawsons Landing Post Office and the sport fish camps) for Wannock River Estuary closure (July 15 to Sept 15), Wannock River closure to sport fishing for Chinook and Coho (July 15 to Nov. 30).

#### Area 10:

- tidal sport fishery will be targeting on passing fish in Smith Inlet (10-3), by vessels travelling up and down the coast. Some effort by residents of the local logging camp at Security Bay in Margaret Bay and Boswell Inlet.
- Public Notices for tidal and non-tidal sport fish closures prepared and posted for Wyclees Lagoon closure (July 15 to Sept 15), and Docee River (including Long Lake and tributaries) closure to sport fishing for Chinook and Coho (July 15 to Nov. 30).

### COMMERCIAL NET FISHERY

#### Area 9:

##### 1989 Fishing Strategy:

The management strategies developed at the May 1989 technical workshop state that the first fishing week will be the first Sunday in July unless June 30th is the Sunday. Therefore this will be the first fishing week.

The pattern of fishing days for the first two weeks of the season will be fixed prior to the season based on expectations, on the harvest rate required for the expected run size, and anticipated effort as influenced by fishing patterns in other areas of the coast.

Adjustments for increased catch or for conservation will occur in the third and successive weeks. (Management Strategy No.4)

The information on run size in the first two weeks is insufficient to warrant altering the fishing plans from the pre-season expectations.

With this strategy, catch figures can best be obtained by contacting commercial buyers and processing companies. The numbers obtained can be extrapolated to reflect total catch per day based on an accurate gear count. It is not necessary to dedicate time to collecting field hail figures from the commercial gillnet fleet.

Pre-1989 Fishing Strategy: (The following section has been left here for information only)

- The fleet size this week will be dependent upon fisheries in other areas (Skeena R., Barkley Sound). Updated information (fishing plans, catch, etc.) from other areas will provide insight to fleet movement.
- optimum fishing conditions for Rivers Inlet are clear, sunny skies, and light westerly winds. Tides affect fishing success in Darby Channel there is generally more success on moderate tides are best.
- Watch-keeping vessel is required to patrol outside boundary for both Rivers and Smith Inlets, as the fleet size will be increasing and there will be a tendency to crowd the line. Requests for these vessels should be made through the District Supervisor in the previous fall of the year.
- weekly advisory meeting with commercial fishermen, sportfishing representative, and fishing companies' representatives is held in Dawsons Landing for discussing the current week and next week's fishery in Rivers and Smith Inlets.
- sounding program may start this week and if so the first information will be available for the weekly management meeting.
- the following criteria are considered in establishing fishing plans for the coming week:
  1. Current week effort and catch.
  2. Pre-season expectations.
  3. visual observations (jumpers) throughout Inlet.
  4. troll catch of Sockeye outside Rivers Inlet if the troll fishery is open and Sockeye retention is permitted.
  5. Barkley Sound and Skeena/Nass run strength.

Area 10:

- relying on expectations if there is no fishery this week.

- Docee fence count continues and the index is more useful as the week continues.
- indicators of fish abundance include catch information and comparisons to previous years, Docee fence count, jumpers in Smith Inlet, and presence of fish in Wyclees Lagoon (as indicated by jumpers, 500 to 1000).
- Barkley Sound and Skeena/Nass run strength.

## OTHER

Area 9:

- conflicts between commercial and sport gear can occur, especially at the "Wall" area. This started during the 1985 season and the problem alleviated with the creation of a sport fishing corridor in 1987.
- Owikeno Band often reports Sockeye migrating up Wannock River. These are usually small "creek" Sockeye destined for Owikeno Lake tributaries. These observations are a common occurrence, and do not indicate the movement of the main body of Sockeye up the Wannock River.
- Many inquiries from fishermen, sales of PCFL's, and licensing enquiries.

WEEK 07-2: JULY 9 - 15, 1989 ("2nd week")

## INDIAN FOOD FISHERY

Area 9:

- requests for IFF licences for Sockeye using commercial length gillnet in the main Inlet may be made this week by the Owikeno Band. The catch should not be used as a indicator of abundance or species composition.
- the Bella Bella Band may request a licence to food fish for Sockeye using a commercial seine in Rivers Inlet on approval of the Owikeno Band.

A Fishery Officer or Guardian must be aboard to monitor the operation, direct fishing location(s), and record catch information. This is a condition of the licence.

All Chinook dead or alive must be released during this fishery. Areas to be avoided with high incidence of Chinook include: sanctuary area at the head of the Inlet, McAllister Point, Stone Point, Wadhams Point, or other areas where sport gear is concentrated.

- information from IFF seine operations could be a valuable

indicator of species mix, but not stock abundance.

- food fishery using short gillnets for Sockeye may begin late this week in the Wannock River. Catch information is an important indicator to verify the Sockeye migration into Owikeno Lake.

#### Area 10:

- there may be a request for IFF licences for Sockeye from the Gwasala-Nakwax-Da'xw (Takush) Band from Port Hardy (formerly from Takush Harbour) using commercial gillnet.

#### SPORT FISHERY

#### Area 9:

- most effort in this week will be in the following areas: the Wall, Rouse Reef, Wadhams Point to Draney Narrows, McAllister Point and at the head of Rivers Inlet.
- increase in private boats is often evident this week.
- Wannock River Chinook could begin to show in the sport fishery. (distinguishing features - see Stock Notes).
- the head of Rivers Inlet inside a boundary from McTavish Point to Rivers Inlet Resort is closed to all tidal sport fishing for salmon by Public Notice effective July 15th to September 15th annually.
- Wannock River non-tidal sport fishing for Chinook and Coho closed by Public Notice July 15th to November 30th annually.

#### Area 10:

- Nekite River should be closed July 15 to Chinook fishing to protect this depressed stock.
- Margaret Bay is a known "hot spot" for Chinook fishing in Smith Inlet. If the patrol boat or a patrolman has the opportunity, catch data should be collected in this area.

#### COMMERCIAL NET FISHERY

#### Area 9:

#### 1989 Fishing Strategy:

The management strategies developed at the May 1989 technical workshop state that the first fishing week will be the first Sunday in July unless June 30th is the Sunday. Therefore this will be the first fishing week.

The pattern of fishing days for the first two weeks of the season will be fixed prior to the season based on expectations, on the harvest rate required for the expected run size, and anticipated effort as influenced by fishing patterns in other areas of the coast.

Adjustments for increased catch or for conservation will occur in the third and successive weeks. (Management Strategy No.4).

This is the week that a decision will be made for adjustments for increased catch or for conservation in the following (third) fishing week.

Note: It is very important that final field catch figures (Gear Operating, Total for the Week, Total to Date) for the first two weeks of fishing be available immediately after the second week's fishery. This information is an integral part of the advisory meeting which will take place on the Wednesday of that week and for the confirmation or recalculation of the total returning stock. The latter will take place with the advisors, specifically with the input of Art Monk (BCP) and Don Taylor (commercial gillnetter) who were participants in the May 1989 Technical Workshop.

At this point in the fishery, total stock is confirmed or recalculated using a computer program developed by Dr. Carl Walters at the technical workshop. Recalculation of the total stock will dictate a change in the required harvest rate. Fishing area and fishing time and the expected effort will determine the fishing plan.

Other information that is required:

1. echo sounding data;
2. Area 9 troll effort and catch, both inside the Inlet and around Calvert Island;
3. Sockeye net catch in Area 8 in lower Fitzhugh Sound;
4. Coastwide Sockeye returns;

Pre-1989 Fishing Strategy: (The following section has been left here for information only)

- if there is no commercial fishery this week, indications of stock strength include: jumpers in the Inlet and results from the echo sounding program.
- results from the echo sounding are a valuable indicator of stock strength holding in the sanctuary area. Soundings made between Dawsons Landing and Stone Point may also give an indication of Sockeye strength outside the sanctuary

area.

- Sub-areas normally fished this week include: 9-2, 3, 4, and 11.
- watch for milling fish at Stone Point as indicated by fish being caught in both directions in the nets. This could indicate fish backing out of the sanctuary area and may result in overharvesting.
- weekly advisory meeting with commercial fishermen, sportfishing representative, and fishing companies' representatives is held in Dawsons Landing for discussing the current week and next week's fishery in Rivers and Smith Inlets.
- criteria for fisheries management:
  1. Sounding information to date as compared to previous years.
  2. gillnet catch data in the Inlet
  3. jumpers in Rivers Inlet
  4. IFF seine catch data for species composition.
  5. Sockeye troll catch off the bottom of Calvert Island.
  6. Area 8 Sockeye net catch in lower Fitz Hugh and Hakai Passage
  7. Gillnet catches in the Wannock River Food Fishery to indicate upstream migration. This is important in interpreting the sounding program data.
- fleet size can be expected to increase again over last week.

Area 10:

- weekly advisory meeting with commercial fishermen, sportfishing representative, and fishing companies' representatives is held in Dawsons Landing for discussing the current week and next week's fishery in Rivers and Smith Inlets.
- information relevant to fishery management this week includes comparisons of gear and catch averages to past years, Docee fence counts. Run size Prediction Table is critical. Must have estimates of catch by day to use Prediction Table with escapement.
- tides play a major role in the Docee fence count, as fish

move into the Wyclees Lagoon on high tides.

- This week is most important for predicting the run size and sets the stage for the peak (next week) in normal years.
- Incidental Chinook catch is most likely the Nekite River stock (based on timing).

#### ESCAPEMENT

##### Area 9:

- other than Chinook holding in the Kilbella/Chuckwalla Rivers there are no other systems that will have escapements this early.

##### Area 10:

- Daily Sockeye counts past the Docee fence should give an idea of total run size by this week. See historical reports of Docee River Counting Fence operations for comparisons.

#### OTHER

- Watch-keeping vessel is required to patrol outside boundary for both Rivers and Smith Inlets, particularly in this week. The fleet size can be expected to continue to increase and pressure on the outside boundaries can be expected with the peak of the Sockeye run approaching.
- for information comparisons for the Area 9 Sounding Program, refer to annual Rivers Inlet Echo Sounding Summary reports.

WEEK 07-3: JULY 16 - 22, 1989 ("3rd week")

#### INDIAN FOOD FISHERY

##### Area 9:

- requests for IFF licences for Sockeye using commercial length gillnet in the main Inlet may be made this week by the Owikeno Band. The catch should not be used as a indicator of abundance or species composition.

- the Bella Bella Band may request a licence to food fish for Sockeye using a commercial seine in Rivers Inlet on approval of the Owikeno Band.

A Fishery Officer or Guardian must be aboard to monitor the operation, direct fishing location(s), and record catch information. This is a condition of the licence.

All Chinook dead or alive must be released during this fishery. Areas to be avoided with high incidence of Chinook include: sanctuary area at the head of the Inlet, McAllister Point, Stone Point, Wadhams Point, or other areas where sport gear is concentrated.

- information from IFF seine operations could be a more valuable indicator of species mix this week than in previous weeks, but only if the fishery occurs in the sounding area. Species composition results can confirm the targets in the sounding area, and they should be encouraged to fish there. In this particular week the sounding program is a major consideration in the management of the commercial Sockeye net fishery.
- food fishery using short gillnets for Sockeye may continue this week in the Wannock River. Catch information is an important indicator to verify the Sockeye migration into Owikeno Lake.

#### Area 10:

- there may be a request for IFF licences for Sockeye from the Gwasala-Nakwax-Da'xw (Takush) Band from Port Hardy (formerly from Takush Harbour) using commercial gillnet.

#### SPORT FISHERY

##### Area 9:

- Chinook tidal sport catch should start to increase this week as the Wannock River run begins to build in the Inlet, and the Kilbella/Chuckwalla run passed through the sport fishery.
- charter and private effort increases dramatically toward the end of this week.
- main effort is concentrated on Chinook at the "Wall", Rouse Reef, Draney to Wadhams, McAllister Point, and at the head of the Inlet.

Area 10:

- Margaret Bay is a known "hot spot" for Chinook fishing in Smith Inlet. If the patrol boat or a patrolman has the opportunity, catch data should be collected in this area.

## COMMERCIAL NET FISHERY

Area 9:**1989 Fishing Strategy:**

Any required adjustments will be implemented this week based upon the decision made in week 2. If effort in week 3 was overestimated, the fishery may be extended to achieve the desired harvest rate. If effort in week 3 was underestimated, the fishery cannot be altered and any adjustments for conservation must be made in the following week.

If the estimated required harvest rate does not allow a one day fishery for each of the season, the first week to be closed will be the third week in July.

Pre-1989 Fishing Strategy: (The following section has been left here for information only)

- this week or next week could be the peak Sockeye in the commercial fishing area.
- If indications of Sockeye run strength are poor, this is a critical week for conservation. It is important to note that the latitude for success is extremely narrow at or near the peak of the migration. The escapement cannot be realized if there is a commercial fishery at the peak of a weak run. A closure at this time must be implemented in order to salvage the balance of the run.
- may be the critical week for management of the commercial net fishery on Sockeye - the size of the total returning stock would be evident this week, and the commercial fishery adjusted accordingly.
- weekly advisory meeting with commercial fishermen, sportfishing representative, and fishing companies' representatives is held in Dawsons Landing for discussing the current week and next week's fishery in Rivers and Smith Inlets.
- criteria for fisheries management:
  1. Sounding information compared to previous years.
  2. Gillnet catches in the Wannock River Food Fishery to indicate upstream migration. This is important in interpreting the sounding program.

3. gillnet catch data in the Inlet
  4. jumpers in Rivers Inlet
  5. IFF seine catch data for species composition.
  6. Sockeye TR off the bottom of Calvert Island.
  7. Area 8 Sockeye net catch in lower Fitz Hugh Sound and Hakai Passage.
- Sub-areas normally fished this week include: 9-2, 3, 4, and 11. If large returns are expected then Sub-areas 9-5 could be opened to increase the fishing area.
  - watch for milling fish at Stone Point as indicated by Sockeye being caught in both directions in the nets. This could indicate fish backing out of the sanctuary area and may result in overharvesting.
  - Pink schools should be starting to show along the Draney Inlet to Wadhams shore line. In years of strong returns some should be jumping in Johnston Bay.
  - Pink salmon should be starting to show in the sport fish catches at Rouse Reef and the "Wall". These are incidental to Chinook fishery and are not a target species. This indicates arrival of Pink in the inlet.
  - in 1986 large schools of both Pink and Chum were observed during the third week of July in Moses Inlet as far as Nelson Narrows. Note that even years are the dominant cycle for Clyak-Neil-Young Pink, and Chum have a strong cycle every four years (1982, 1986...) to that system.
  - Chum to other systems (Draney Inlet) are caught incidentally in the Sockeye fishery. It is too early to assess Chum strength by commercial catches.

Area 10:

- the Sockeye fishery may be peaking this week. Indicators of run strength include catch information (average Sockeye catch, gear counts, comparisons to past years), and the Docee Fence total escapement count to date.
- there could be a "bump" of fish going through the fence on highest tides this week.
- the Docee fence prediction table should be giving a reliable estimate of total run size by the end of this week.
- Incidental Chinook catch is most likely the Nekite River stock (based on timing).

## ESCAPEMENT

Area 9:

- Kilbella/Chuckwalla Chinook should be in the Rivers and holding in pools.
- A few Pinks may be showing at the mouth of Johnston Creek.
- Normally there should be no other escapements.

## OTHER

- Watch-keeping vessel is required to patrol outside boundary for both Rivers and Smith Inlets, particularly in this week. The fleet size should be at its maximum and pressure on the outside boundaries can be expected with the peak of the Sockeye run.
- echo soundings may peak this week and can give an indication of the final escapement of Sockeye to Owikeno Lake.

WEEK 07-4: JULY 23 - 29, 1989

## INDIAN FOOD FISHERY

Area 9:

- food fishery using short gillnets for Sockeye may continue this week in the Wannock River if Sockeye are migrating into Owikeno Lake. Catch information is an important indicator to verify the Sockeye migration into Owikeno Lake.
- requests for IFF licences for Sockeye using commercial length gillnet in the main Inlet may be made again this week by the Owikeno Band if migration up to the Wannock has not commenced. The catch should not be used as a indicator of abundance or species composition.
- the Bella Bella Band may request a licence to food fish for Sockeye using a commercial seine in Rivers Inlet on approval of the Owikeno Band.

A Fishery Officer or Guardian must be aboard to monitor the operation, direct fishing location(s), and record catch information. This is a condition of the licence.

All Chinook dead or alive must be released during this fishery. Areas to be avoided with high incidence of Chinook include: sanctuary area at the head of the Inlet, McAllister Point, Stone Point, Wadhams Point, or other areas where sport gear is concentrated.

- depending upon the migration of Sockeye from the sounding area up the Wannock River, information from IFF seine

operations could still be an indicator of species mix again only if the fishery occurs in the sounding area.

Area 10:

- there may be a request for IFF licences for Sockeye from the Gwasala-Nakwax-Da'xw (Takush) Band from Port Hardy (formerly from Takush Harbour) using commercial gillnet.

SPORT FISHERY

Area 9:

- sport fishery is concentrating on the Wannock Chinook at this time.

Area 10:

- little to no effort except by the commercial salmon packer crews and commercial fishermen fishing for bottom fish.

COMMERCIAL NET FISHERY

Area 9:

**1989 Fishing Strategy:**

Any further adjustments required will be made based upon the previous weeks. If effort in this week was overestimated, the fishery may be extended to achieve the desired harvest rate. If effort in this week was underestimated, the fishery cannot be altered and any adjustments for conservation must be made in the following week.

Pre-1989 Fishing Strategy: (The following section has been left here for information only)

- this could be the peak of the Sockeye migration through the commercial fishing area.
- the commercial fishery may be continuing to harvest surplus Sockeye in this week. If indications of run strength are poor, this is the critical week for conservation. It is important to note that the latitude for error is extremely narrow at or near the peak of the migration. The escapement cannot be realized if there is a commercial fishery at the peak of a weak run. A closure at this time must be implemented in order to salvage the balance of the run.
- Pink may be available in the commercial fishery at this time but the fishery will continue to target on Sockeye.

- weekly advisory meeting with commercial fishermen, sportfishing representative, and fishing companies' representatives is held in Dawsons Landing for discussing the current week and next week's fishery in Rivers and Smith Inlets.
- criteria for fisheries management:
  1. Sounding information to date as compared to previous years.
  2. Gillnet catches in the Wannock River Food Fishery to indicate upstream migration. This is important in interpreting the sounding program data.
  3. commercial gillnet catch data in the Inlet
  4. jumpers in Rivers Inlet
  5. IFF seine catch data for species composition.
  6. Sockeye troll catch off the bottom of Calvert Island.
- Sub-areas normally fished this week include: 9-2, 3, 4, and 11. If large returns are expected then Sub-areas 9-5 could be opened to increase the fishing area.
- watch for milling fish at Stone Point as indicated by Sockeye being caught in both directions in the nets. This could indicate fish backing out of the sanctuary area and may result in overharvesting.

#### Area 10:

- Sockeye catch information from previous week and total to date escapement counts will dictate this weeks fishing plan. If escapement is greater than 180,000, then there should be serious consideration given to fishing through the week.

Refer to predictor table from MBU.

- if there is an incidental Chum catch in the Sockeye fishery this week, it may provide an early indicator of next week's fishery, although it is still early.
- Nekite Chinook should be through the commercial fishing area by the end of this week (based on incidental catch in the commercial net fishery).

## COMMERCIAL TROLL FISHERY

- depending on Pacific Salmon Treaty and domestic allocation policies, the troll fishery in 10-1 may be operating or may be on a non-retention fishery.
- This situation can cause considerable confusion and should be checked to respond to requests for information. If necessary, contact the Supervisor, Q.C.I., or the Senior Management Biologist in Prince Rupert for more details.

## ESCAPEMENT

- Depending upon water levels, Pink may be in Johnston Creek but numbers will be insignificant and not an indication of run strength.
- Pinks to the Kilbella /Chuckwalla Rivers should not be in the Rivers this week.
- this week there should be Pink jumpers in Johnston Bay (known locally as the Hole-in-the-Wall).
- in strong years Pink and Chum escapements to Moses Inlet should be assessed this week. If warranted, it may be necessary to fish in 9-5 (inside Moses portion only) and 9-7 with GN. (If GN cannot adequately harvest the surplus it SN may required).
- Chum and Pink should start to build at the mouth of the Clyak at the end of this week.

Area 10:

- the majority of the Sockeye escapement should be through the fence by weeks end.
- there may be Chinook in the Docee River by the end of this week.
- Nekite River Chinook should begin to enter fresh water by the end of this week.

WEEK 08-1: JULY 30 - AUGUST 5, 1989

## INDIAN FOOD FISHERY

Area 9:

- GN fishery for Sockeye (using short nets) in the Wannock River can continue this week if the fish are still migrating up the Wannock River.

## Area 10

- probably the last week that a food fishery for Sockeye would be worth while.

## SPORT FISHERY

Area 9:

- effort and catch possibly peaking by week's end.
- effort will shift from the outside to the head of the Inlet depending upon the catch of large Chinook.
- four main areas of concentration of sport fishing effort are:
  1. Head of Rivers Inlet - totally directed at large Wannock River Chinook;
  2. Draney Narrows to Wadhams Cannery - effort mainly directed at Wannock Chinook, but some Coho and Pink are targeted;
  3. Rouse Reef - effort mainly for Chinook (Wannock, and smaller unknown passing stocks), but some Coho and Pink are targeted;
  4. the "Wall" area (Rivers Inlet shoreline just north of Open Bight) - effort mainly for Chinook, but some Coho and Pink will be caught as well.

Area 10:

- there may be some very good catches of Coho this week.

## COMMERCIAL NET FISHERY

Area 9:

- this is a transition week from Sockeye to Pink and Chum in Rivers Inlet. This is probably the most difficult week for management because of mixed-stocks, especially if there is a Sockeye conservation problem.
- Normally, fleet size will decrease significantly, possibly to 40 or 50 boats, particularly if Johnstone Straits is open for Sockeye fishing.
- a Pink fishery this week will still target on Sockeye. In the past, it has been difficult to control this using a mesh restriction, as many Rivers Inlet fishermen claim not

to have a smaller mesh Pink net. The alternative is to limit the fishing areas. In years of weak Sockeye returns, Pink fisheries in the main Inlet may have to be forfeited in this week to protect Sockeye.

- a fishery to harvest surplus Clyak-Neil-Young Pink in Moses Inlet can occur in the Moses Inlet portion of Sub-areas 9-5 and 9-7 when there is a Sockeye conservation concern in the main Inlet.

Management considerations for this week:

1. Owikeno Lake Sockeye stock strength
2. Johnston Creek Pink stock strength
3. Kilbella/Chuckwalla Pink stock strength.
4. Moses (Clyak-Neil-Young) Pink stock strength.
5. Moses (Clyak-Neil-Young) Chum stock strength

Variability in the above will affect the fishing strategy by:

1. If all stocks are strong and have harvestable surpluses, fishing can occur in 9-2, 9-3, 9-4, 9-5, 9-7, and 9-11. A special boundary in 9-7 might have to be considered for Milton River Chum because of milling and quality problems.
2. For off years for Moses Chum, a maximum mesh restriction (140 mm) would be imposed for protection of this stock. Same fishing areas.
3. For off (odd) years for Moses Pink, 9-5 and 9-7 would remain closed. Open areas would be 9-2, 9-3, 9-4, and 9-11 to harvest surplus Johnston and Kilbella/Chuckwalla Pink.
4. For conservation of Kilbella/Chuckwalla Pink when Johnston Creek Pink are strong, the fishing areas would be 9-2 and 9-3 only. It is believed from past observations that Kilbella/Chuckwalla Pink migrate through 9-11 (Darby Channel).
5. If Johnston Creek Pink are weak and Kilbella/Chuckwalla Pink are strong, 9-2 and 9-3 could be closed, with 9-4 and 9-11 open.

If Sockeye are weak, consideration might be given to:

1. Foregoing Pink catch this week and harvest Pink in subsequent weeks. This consideration is dependent on the size of the Pink return. If Pink returns are very strong, this may not be possible.

- Chinook, Coho and Pink should be moving past the Docee fence.

WEEK 08-2: AUGUST 6 - 12, 1989

INDIAN FOOD FISHERY

Area 9:

- Further food fishing in Rivers Inlet will not likely occur until the arrival of Wannock River Chum in early October.

SPORT FISHERY

Area 9:

- catch success should increase for all species, and the peak catch of Coho and of Wannock Chinook at the head of the Inlet should occur this week.
- effort will shift from the outside to the head of the Inlet depending upon the catch of large Chinook.
- Four main areas of concentration of sport fishing effort are:
  1. head of Rivers Inlet - totally directed at large Wannock River Chinook;
  2. Draney Narrows to Wadhams Cannery - while main effort is directed at Wannock Chinook, there is some for Coho and Pink;
  3. Rouse Reef - while main effort is for Chinook (Wannock Chinook and as well as passing stocks), there is some for Coho and Pink;
  4. the "Wall" area (Rivers Inlet shore line SW of Sharbau Island) - effort mainly for Chinook, with some effort directed on Coho and Pink.
- historical sport catch information indicates that this is peak week for sport fish catches of Wannock Chinook in Rivers Inlet.
- sport fishing Coho and Pink can be excellent in this week. The tidal sport catch of Coho in the Inlet may an indicator of run strength to the Inlet.

Area 10:

- closure patrols of the Seine Hole and Wyclees Lagoon should be made to protect Docee Chinook. This area is closed by Regulation.

## COMMERCIAL NET FISHERY

Area 9:

- Management considerations for this week:
  1. Johnston Creek Pink stock strength
  2. Kilbella/Chuckwalla Pink stock strength
  3. Moses (Clyak-Neil-Young) Pink stock strength
  4. Moses (Clyak-Neil-Young) Chum stock strength
  
- this week provides a good opportunity to fish Johnston Creek Pink for best quality fish. Consider CPUE and total catch from previous week, and the presence of Pinks in Johnston Bay and the Wadhams-Draney Narrows shore line as indicators of stock strength.
  
- There should be large schools Pink holding in Johnston Bay, and an overflight is the best method of assessment. Johnston Creek Pink have a history of backing in and out of the bay making them susceptible to over-exploitation. To address this problem, the regular creek mouth boundary (Wadhams Point to the old cannery fuel dock) can be extended from Wadhams Point to Florence Island, then true east to the mainland.
  
- Moses Inlet Pink and Chum should be past the peak of the run in the fishing area (9-5 and 9-7).
  
- in years of good returns of Draney Inlet Chum, good catches should show between Goose Bay and Wadhams Point.

Area 10:

- the Sockeye is over and the escapement should be through the counting fence by this week.
  
- if there was a net fishery this week, it would be directed at Nekite and Walkum Chum and Nekite Pink.
  
- if a surplus of Chum is anticipated, a mesh restriction (minimum 149 mm) will be necessary if Pink are weak. Fishing areas would likely be 10-3 to 10-9 inclusive.
  
- Because Walkum Chum have similar timing and migration to the Nekite stock, the former will be overfished and there is little that can be done to conserve them.

- a good run of Chum may be indicated by jumpers off Burnt Island Harbour.

## COMMERCIAL TROLL FISHERY

Area 10:

- troll catches of Chum in outer Area 10 and Area 11 (the Goose Bank area) may be significant to local stocks. It is interesting to note that, beginning in 1985, troll catches of Chum in this area increased. This was coincident with a very poor return to the Nekite River in a year when both brood years were at or near target.

## ESCAPEMENT

Area 9:

- it is important to check streams for Pink and Chum schools holding at or in the rivers. Aircraft flights provide the best visibility of schooling fish.
- refer to "Salmon Escapement and Timing Data ("Green Book") for Areas 9 & 10, Rivers & Smith Inlets" for species timing and target escapements.
- Streams to inspect: Clyak for Pink and Chum, McNair for Chum, Kilbella/Chuckwalla for Pink holding at the bottom of both rivers, Coho should be present in both rivers, and Johnston Creek for Pink holding in the bay and including the shore line as far down as Draney Narrows. These inspections should be made in the latter part of this week.
- Kilbella/Chuckwalla Rivers should have 5-10,000 Pink each, holding in the lower pools. There should also be Pink jumpers in 9-6.

Area 10:

- the Docee River counting fence is normally removed this week. The Sockeye migration is over and it interferes with the movement Chinook in the Docee River.
- Chinook and Coho continue to move into the Nekite River this week.

## OTHER

- Management Biology Unit will shift operations from the Docee fence to the Nekite spawning channel.

WEEK 08-3: AUGUST 13 - 19, 1989

SPORT FISHERY

Area 9:

- sport fish catches of Coho and Wannock Chinook should be past the peak but good fishing opportunities still exist.
- good catches of Coho can occur this week at Draney Narrows, the "Wall", and Rouse Reef.

Area 10:

- closure patrols of the Seine Hole and Wyclees Lagoon should continue to protect Docee Chinook. This area is closed by Regulation.

COMMERCIAL NET FISHERY

Area 9:

- Management considerations for this week:
  1. Johnston Creek Pink stock strength
  2. Kilbella/Chuckwalla Pink stock strength
  3. Moses (Clyak-Neil-Young) Pink stock strength
  4. Moses (Clyak-Neil-Young) Chum stock strength
  5. Draney Inlet Chum stock strength
- If there is a harvestable surplus of Johnston Creek Pink, the fishery would continue this week. Fishing areas could include 9-2, 9-3, and 9-11. Quality may be of concern with holding and milling fish. In the past, extended boundaries have been used (Wadhams Point - Florence Island - True East to the mainland) to improve the quality of the catch and/or to protect milling fish during low water conditions.
- if the incidental Chum catch in 9-11 is good this could indicate strong Moses Inlet Chum stocks.
- Commercial gillnet effort this week for Pink will concentrate between Wadhams Point and the Johnston Creek boundary.
- Still could be fishing Kilbella/Chuckwalla Pink this week in 9-2, 9-3, 9-4, and 9-11, but may be the tail-end of the run in the commercial fishery.
- Moses Inlet Pink and Chum should be through the outside commercial fishing areas (outside Moses Inlet). In years

of stock abundance, catches may continue to appear in these outer areas but Pink stocks should drop off by week's end. Chum may continue for another week in very strong years (eg. 1986).

- Draney Inlet Chum (Draney Creek, Lockhart-Gordon, and Allard) might provide a limited fishing opportunity for a small fleet. The run should peak in the commercial fishing area this week. A mesh restriction (minimum 149 mm) could be implemented to protect Johnston Creek Pink.

#### Area 10:

- there will likely be a Chum fishery during this week, depending upon pre-season expectations and CPUE in the previous week.
- The fishing area can be 10-3 to 10-9 inclusive. If there are quality problems in the upper portion of the Inlet (10-8 and 10-9), these areas will be closed.
- jumpers will be a good indicator as to run strength, especially by week's end. The best place to look for jumpers is from Burnt Island Harbour up the mouth of the Nekite River.
- in years where there is a small surplus of Chum, and a large Pink surplus, a minimum mesh restriction may have to be imposed on the second day of fishing to protect Chum.

#### ESCAPEMENT

##### Area 9:

- Stream inspections are a priority this week. By the end of this week, escapements should give an indication as to whether or not targets will be met, and will be important in determining further net fishing times.
- refer to "Salmon Escapement and Timing Data ("Green Book") for Areas 9 & 10, Rivers & Smith Inlets" for species timing and target escapements. Streams to inspect include:
  1. Clyak-Neil-Young for Pink and Chum
  2. McNair for Chum
  3. Kilbella/Chuckwalla for Pink holding at the lower end of both Rivers; Coho should be present in both Rivers
  4. Johnston Creek for Pink holding in the Bay and including the shore line as far down as Draney Narrows

## 5. Draney Inlet streams.

Area 10:

- there may be Coho, Pink and Chum in the Nekite River this week.
- Chinook continue to move into the Nekite River, with peak spawning in mid-September and the end of spawning in late October.
- Chinook continue to migrate into the Docee River, with peak spawning in early October, and end of spawning in early October.
- Stream inspections a priority this week, particularly an overflight of the Nekite river estuary, where you would hope to see 5000 Chum if the run was on time and on target.

## OTHER

- the Nekite Spawning Channel MBU crew will be in full operation doing biological sampling (scales, fecundity, length, sex), and loading the channel.

WEEK 08-4: AUGUST 20 - 26, 1989

## SPORT FISHERY

Area 9:

- Tidal sport fishery for Wannock Chinook diminishes with the tail end of Wannock Chinook the run.
- Effort this week is directed mainly at Coho fishing throughout Rivers Inlet.
- best catches of Coho can occur at Draney Narrows, Wadhams Point, the "Wall", and Rouse Reef.
- Since the mid-1980's, there has been increasing pressure on halibut, cod, and other groundfish. This developed in conjunction with the salmon sport fishery in Rivers Inlet.

Area 10:

- there will be an increased effort in the non-tidal sport fishery in the Nekite River for Coho. The fly-in helicopter fishery based at Nimmo Bay in Area 12 is a major user of this resource. Some thought to regulating this fishery must be given, as there has been a noticeable decline in Coho stocks in the Nekite. It is not known if there is a linkage between the fly-in fishery and the declining Coho, however care must be taken to maintain a viable population of spawners.

## COMMERCIAL NET FISHERY

Area 9:

- Normally this week would be the tail end of all Pink and Chum runs, and the last week of commercial net fishing in Rivers Inlet. Most years fishing would be poor this week.
- In years of strong Pink returns to Johnston Creek, good catches of Pink may occur this week. (example: 1985, 8 GN caught a total of over 12,000 in 3 days fishing).
- Commercial gillnet effort this week for Pink will concentrate between Wadhams Point and the Johnston Creek boundary.
- In years of strong Chum returns to Moses Inlet, net fishing might occur in this week and next week, in 9-4, 9-5 and 9-7. Quality would be a problem in upper 9-7.
- this will be the last week for Draney Chum in the commercial fishery.
- if Coho is a concern. The incidental catch might be minimized by fishing in daylight hours.

Area 10:

- a Chum fishery could occur during this week, depending upon total catch to date, CPUE in the previous weeks, escapement, and visual signs.
- The fishing area can be 10-3 to 10-7 inclusive, with concerns for quality, especially on the inner boundary of 10-7
- jumpers will be a good indicator as to run strength, especially by week's end. The best place to look for jumpers is from Burnt Island Harbour up the mouth of the Nekite River.
- in years where there is a small surplus of Chum, and a large Pink surplus, a minimum mesh restriction may have to be imposed on the second day of fishing to protect Chum.

- last possible week to fish Pinks.

## ESCAPEMENT

- Stream inspections are a priority this week. By the end of this week, escapements should give an indication as to whether or not targets will be met, and will be important in determining further net fishing times.
- refer to "Salmon Escapement and Timing Data for Areas 9 & 10, Rivers & Smith Inlets" ("Green Book") for species timing and target escapements.
- all systems in Rivers and Smith Inlets should be inspected this week.
- in Owikeno Lake early Sockeye systems (Neechantz, Machmell, Washwash) should be inspected if resources and time are available.
- 5-10,000 Chum in the Nekite River would look good this week if the run is on target and has a normal run timing.
- too early for Takush Chum.
- should look at Walkum Creek this week. There may be Chum in the creek by this time.

## OTHER

Area 10:

- the crew at the Nekite River spawning channel will be actively loading the channel.

WEEK 08-5: AUGUST 27 - SEPTEMBER 2, 1989

## SPORT FISHERY

Area 9:

- since the mid-1980's, some of the sport fishing camps have extended their fishing season past the end of August. With this increase in effort, a second peak in the catch of Coho has become evident in the first week of September.

Area 10:

- the Coho sport fishery will be concentrating on the Nekite River. The fly-in helicopter fishery from Nimmo Bay will continue this week.

## COMMERCIAL NET FISHERY

Area 9:

- It is unlikely that there would be any commercial fishery this week, and unless there was an anticipated surplus of Wannock Chum, Area 9 would likely close for the balance.
- A Wannock Chum would take place in the last week of September.

Area 10:

- It is unlikely that there would be any commercial fishery this week, and unless there was an anticipated surplus of Takush, Area 10 would likely close for the balance.
- A Takush Chum fishery would take place in the second week of September.

## ESCAPEMENT

- Stream inspections continue to be a priority this week in the Sub-district.
- refer to "Salmon Escapement and Timing Data for Areas 9 & 10, Rivers & Smith Inlets" ("Green Book") for species timing and target escapements.
- By the end of this week, spawner enumeration of Pink and Chum should pretty well indicate what the final escapements will be.
- because weather and water levels play a big role in spawner enumeration at this time of year It is important not to miss any opportunities for stream inspections.
- low water conditions will prevent Johnston Creek Pink from migrating up the Creek.
- enumeration of the Owikeno Lake Sockeye systems begins this week.
- Nekite should have good number of Chum in the River and some holding outside.
- still too early for the Takush.
- there should be some Chum in Walkum Creek, as well as a few hundred holding outside the Creek mouth.

## OTHER

Area 10:

- the crew at the Nekite River spawning channel will be actively loading the channel. This program is continued until late September.

WEEK 09-1: SEPTEMBER 3 -9, 1989

#### SPORT FISHERY

##### Area 9:

- all commercial sport fishing camps will likely be closed by the end of this week.

##### Area 10:

- the sport fishery will continue in the Nekite River, primarily for Coho.

#### COMMERCIAL NET FISHERY

##### Area 9:

- Normally closed for the balance of the season. The only fishing opportunity that could exist is Wannock River Chum in late September-early October.

##### Area 10:

- Normally closed for the balance of the season. The only fishing opportunity that could exist is Takush Chum in mid to late September.

#### ESCAPEMENT

##### Area 9:

- stream inspections continue to be a priority this week for Pink and Chum in Rivers Inlet.
- Enumeration will depend upon weather conditions and water levels.
- refer to "Salmon Escapement and Timing Data for Areas 9 & 10, Rivers & Smith Inlets" ("Green Book") for species timing and target escapements.

#### OTHER

##### Area 9:

- the sport fish Guardians should finalize the Area 9 Rivers Inlet Annual Sport Fishing Report this week in a format

specified by the Supervisor.

- one of the two Guardians can be struck off strength by the end of this week. The second is retained until later in the Fall (length varies from year to year) for stream enumeration and maintenance and storage of boats, motors, and other equipment.

WEEK 09-2: SEPTEMBER 10 - 16, 1989

SPORT FISHERY

Area 10:

- the sport fishery will continue in the Nekite River, primarily for Coho.

COMMERCIAL NET FISHERY

Area 10:

- depending upon expectations, this will be the first week to harvest any surplus of Takush Chum in 10-3 and 10-4.

ESCAPEMENT

Area 10:

- this could be the most important week for Chum enumeration. Most of the Chum escapement should be in the creeks by this week.
- probably no Chum in the Takush River but there should be jumpers visible in Takush Harbour.

WEEK 09-3: SEPTEMBER 18 - 24, 1988

COMMERCIAL NET FISHERY

Area 10:

- either fishing Takush Chums or closed for the balance of the season.

ESCAPEMENT

Area 10:

- escapement of Chum to the Walkum should give a good indication of the final escapement although the end of spawning is not until late October.
- first Chum move into the Takush River this week. Peak

spawning occurs in mid October and can continue until late November.

#### OTHER

Charter patrolmen normally struck off strength this week.

WEEK 09-4: SEPTEMBER 24 - 30, 1989

#### COMMERCIAL NET FISHERY

##### Area 9:

- Wannock River Chum: should begin showing in the commercial fishing areas in Rivers Inlet this week (9-2, 9-3, 9-4, 9-11 and possibly 9-5);
- on years of expected strong returns, an exploratory opening by commercial gillnet could be considered in the aforementioned fishing areas.
- there is a potential for a commercial fishery until the middle of October.

#### ESCAPEMENT

##### Area 10:

- should have the complete escapement in the Nekite by this week.

WEEK 10-1: OCTOBER 1 - 7, 1989

#### INDIAN FOOD FISHERY

- Chum fishery is likely to start in the Wannock River this week by members of the Owikeno Band.
- Fish are taken by jigging and with short gillnets under a single permit for the Band.
- Food fish requirements in recent years (since the mid-1980's) have been supplemented with Owikeno Salmon Enhancement Program brood stock carcasses, both Chinook and Chum.

WEEKS 10-2, 10-3: OCTOBER 8 - 21, 1989

#### ESCAPEMENT

- the Owikeno Lake Sockeye Industry inspection tour normally begins October 10 and ends October 20. This inspection includes the Sub-district Fishery Officers, MBU, and representatives from the fishing industry (e.g. processors, UFAWU and fishermen). In latter years, the camp operation has been coordinated by MBU.
- As part of the Fall inspection, Wannock River Chinook are beach seined and tagged to assist in the later enumeration through a "dead pitch-tag recovery".
- During this inspection, final escapement numbers for the Owikeno Lake systems (except Wannock Chinook and Chum) are established for the BC-16 Annual Report of Escapement and Salmon Spawning form.

WEEK 10-4: OCTOBER 23 - 29, 1988

#### OTHER

- Wannock River Guardian is hired on for approximately 30 days. His duty is the Wannock River Chinook dead pitch recovery and Chum enumeration. In recent years (1986...) this has been funded by the Canada/US Chinook funds rather than PY's
- This contract should include a vessel for accommodation as weather conditions preclude travel from Dawsons Landing to the head of Rivers Inlet.
- Owikeno Salmon Enhancement Project (OSEP) egg take from Wannock Chinook and Chum commences (see Stock Notes). Chinook are beach seined from mid to late October and held in pens in the Spring Pool until ripe. Chum eggs are taken from early to mid-November.

#### NOVEMBER/DECEMBER

- dedicated to completing year end reports, preparation of expectations and fishing plans, and the Central Coast Advisory board meeting.
- Some 5 year logging development plans and other habitat referrals are handled at this time.

OPERATIONAL REQUIREMENTS (GENERAL)

The Rivers and Smith Inlet Sub-district is a remote coastal area in the lower Central Coast of British Columbia approximately mid-way between Vancouver and Prince Rupert. The Sub-district is made up of two Statistical areas, 9 & 10.

The Sub-district can be accessed only by water or by air, and within it, there are no public roads. All travel with respect to commercial, sport, and Native food fisheries, habitat and enforcement activities, and salmon spawner enumeration must be done using boats and aircraft.

The overall area of the Sub-district, including drainages, is approximately 3400 square miles (Area 9 - 2500 square miles, Area 10 - 900 square miles). In total, the Sub-district has approximately 425 miles of coast line including the islands and 40 miles of outer coast.

Rivers Inlet is 30 miles in length from the entrance to the head, with Owikeno Lake continuing another 40 miles. There are an additional 52 miles of other navigable channels and inlets, and the outer portion of Rivers Inlet extends into Queen Charlotte Sound (open Pacific Ocean). Smith Inlet is 35 miles in length from the mouth to the head. There is approximately another 30 miles of navigable channels in the Inlet.

Each Fishery Sub-district has specific needs that relate to normal operations during the course of a salmon season in order to fulfill the Departmental mandate of maintaining the fishery resource for the greatest benefit for all Canadians. These requirements are based on the tasks and information requirements necessary to maintain the salmon resource and its associated benefits in a Fisheries Sub-district through the careful management of various fisheries.

With detailed, pre-season planning involving both Area-specific and season-specific needs, the resources required to operate the Sub-district for the salmon season can be easily identified (what, how long, how much). These Operational Requirements include the following:

1. Seasonally chartered Patrolmen with boats are necessary to collect data pertaining to catch and effort as well as to provide protection and a Departmental enforcement presence in isolated areas during the fishing season. They are also critical in the success of the spawning and escapement assessment program for their portion of the Sub-district.
2. Seasonally hired Guardians serve a similar purpose to Patrolmen, however, they use Sub-district speedboats and are concerned more with the sport fishery in the Sub-district operation, with the protection of brood stocks in sanctuary and spawning areas, and the protection of their habitat. Guardians are also heavily relied upon

for spawning and escapement estimating. They are responsible for the enforcement of tidal sport fishery regulations.

3. Clerical support during the peak load period would be an asset to the Fishery Officer so that he may concentrate on resource management. This peak period in the Sub-district is in July and August.
4. Marine Division patrol vessels are required for the major fisheries, spawn enumeration and other duties such as habitat and logging referrals. The FPV "Falcon Rock" is assigned to the Sub-district. There will be occasional need for larger watch-keeping vessels to patrol troublesome outside fishing boundaries, usually during the month of July. The "Falcon Rock" is normally layed up in Prince Rupert over the winter months.
5. Aircraft charters are required for gear counts on some fishery openings. The calculation of daily catch can be dependent upon an exact gear count when catch figures and deliveries are difficult to obtain. Other uses include the movement of personnel during the course of the season, attending in-season District fisheries management meetings, enforcement, protection, and in-season escapement estimates during critical periods and for inaccessible areas. In most cases, charters are utilized in such a way as to cover a variety of the above tasks in single flight where possible. Helicopters are desirable for some stream enumeration.
6. Capital replacement of equipment (and the associated planning process) is essential to minimize "down time" during peak periods. Worn out equipment such as outboard engines and boats, can hamper operations during critical periods. This could mean loss of essential data which ultimately affects future fishery management, or the reduction or loss of protection of the resource.

A seasonal staff consisting of Patrolmen and Guardians is required in addition to the full time compliment of Fishery Officers and Departmental patrol vessels. Data is required from a large area in concentrated time frames over the course of the season. In the Rivers and Smith Inlet Sub-district, this period is roughly from mid-May to late October each year. These resources have dwindled since 1978-79 along with much of the seasonal patrol staff in the Pacific Region. (NOTE: Seasonal Guardians and Patrolmen have been reduced from a Region strength of 150 to 40).

The concept of using full-time staff as a replacement for seasonal positions for a fishery that lasts six or seven weeks is not prudent. Where a Departmental patrol vessel must be used to replace lost Patrolmen, the effect is to replace a \$275 per day charter with a \$1000 per day three-man Government vessel.

In addition, the Fishery Officer's flexibility is limited by removing the vessel from his use.

The continuous and consistent stream of historical data (catch, escapement, migration patterns and timing, etc.) that these seasonal positions have provided over the years is important in the management of the local fishery and has proven invaluable in the development of both short term operational and long term strategic planning for the Sub-district. In recent years the loss of resources has created gaps in the data which can never be recovered.

#### **TASKS AND DATA REQUIREMENTS**

The tasks and collection of data as outlined below are a necessity for fisheries management and protection. This work is dictated by the migration timing of the various stocks and should not be considered optional.

#### **Indian Food Fishery (IFF)**

There are four major tasks in the management of the Indian Food Fishery. These are: issuance of licences for both fresh and salt water; the monitoring of fishing activity for enforcement of permit conditions (time, place, gear, boundaries); enforcement of sanctuary areas for protection of fisheries potentials (broodstock); and the collection of catch and effort information.

The protection of fisheries potentials is especially critical in salt water where licences are issued permitting seine or gillnet gear. This gear, particularly seines (length 220 fathoms or 1320 feet, depth 28 fathoms or 170 feet) have the capability of destroying an entire escapement when salmon are schooled at the mouth of a stream prior to freshwater migration.

In fresh water these tasks can be accomplished on foot, and by river boat. In salt water, however, it is necessary to use both Government patrol vessels and chartered seasonal patrolman.

Effort and catch information from both fresh and salt water fisheries is used in the management of the commercial Sockeye fishery as an indicator of species composition, migration-timing and run strength.

The continuity of effort and catch data will be important in future allocation issues.

#### Sport Fishery

Tasks related to the freshwater sport fishery include: catch and effort data collection, and enforcement of closed seasons, closed areas, and gear restrictions. In salt water the tasks are similar.

#### Commercial Fishery

The commercial net fishery generally requires a great deal of data collection over a large area within a short period of time (July & August). This data is crucial in fishery management in order to:

1. verify the expectations,
2. conduct the fishery as planned, or to adjust as necessary,
3. attain escapements to perpetuate the run,
4. harvest available surpluses.

(04/28/89)

them (running time), accessibility (road, air only, water only), the required method of inspection, the time required for inspection, species of salmon, and the timing of runs, are factors that influence the operational requirements to perform this extremely important task.

In the cut-backs that have occurred since the late 1970's, this aspect of overall fishery management has suffered the most, it being easier to cut the ends off charters, especially the tail-ends, which are probably the more important sector when so much weight is being placed on escapement numbers.

Operational Requirements

AREAS 9 & 10

RIVERS AND SMITH INLET SUB-DISTRICT

These operational requirements are based on what is required to operate Rivers and Smith Inlets in order to meet the Department's mandates. The inherent "rules" and conditions specific to the Sub-district change little, if any, annually.

In Rivers and Smith Inlet the operational requirements can be divided into four major overlapping areas:

1. Commercial Fishery - June 25 to August 25
2. Sport Fishery - June 1 to September 10
3. Salmon Spawner Enumeration - August 1 to October 30
4. Habitat Protection - year round

Patrolmen

Rivers Inlet:

Patrolmen are essential in supplying daily catch and effort information for the commercial net fishery. This has a direct influence on the management of the Rivers Inlet Sockeye, Pink and Chum fisheries. In addition, an extensive sanctuary area must be maintained at the head of Rivers Inlet. Patrolmen collect scale samples from the commercial fishery, monitor the sport fishery in his patrol area, and generally is the DFO representative in this portion of the Sub-district.

Prior to the commercial net fishery, patrolmen are required for assessing early stock strength indicators, orientation to the area, stream inspections for barriers or log jams, and boundary sign inspection and maintenance.

Rivers Inlet can be broken into four units, 3 of which would require charter patrol vessels. The fourth Sub-area, 9-1, requires a Fisheries vessels and this will be discussed later.

The first area is Sub-area 9-2 outer Rivers Inlet proper and Sub-area 9-10 Draney Inlet. This patrol area has two Key Indicator streams, Draney Creek and Lockhart-Gordon creek, plus three other streams.

The second area is middle Rivers Inlet, which would include Sub-areas 9-3, 9-4.

The third area is upper or inside Rivers Inlet, which would include Sub-areas 9-5, 9-6, 9-7, 9-8 and 9-9. This Patrolman could be used to assist in 9-11 (Darby Channel) when reuquired.

These patrolman should be taken on about 5 days prior to the first Sockeye opening which usually occurs on the first Sunday in July.

This area requires three Patrolmen and their boats as follows:

One 90-day charter from June 26 until September 23  
\*cost: 90 days @ \$275 per day.....\$24,750

Two 65-day charters from June 26 until August 29  
\*cost: 130 days @ \$275 per day.....\$35,750

(\*cost in 1988 dollars)

Notes:

This area is only accessible by boat.

All three Patrolmen require, in addition to their patrol vessel, a small speedboat or skiff which would allow coverage of a large area in a short period of time for the collection of daily commercial net fishery catch hail figures.

Smith Inlet:

Smith Inlet Patrolmen are required mainly for collecting data and information during the commercial fishery, for enforcement of regulations and patrol of closed areas, and for spawner enumeration.

~~Two~~ Patrolmen are required, one for 90 days, one for 65 days.

One 90-day charter from June 26 until September 23:  
\*cost: 90 days @ \$275 per day.....\$24,750

One 65-day charters from June 26 until August 29:  
\*cost: 65 days @ \$275 per day.....\$17,875

(\*cost in 1988 dollars)

TOTAL RIVERS AND SMITH INLETS PATROLMEN.....\$103,125.00  
Guardians

Rivers Inlet:

These positions are seasonally filled using man-days allotted to the District from a Divisional pool. Coverage is 5 days per week including statutory holidays. Currently there are no allowances for overtime, except perhaps some compensatory time off (CTO)

Two Guardians are required in Rivers Inlet to monitor and control a large sport fishery. In addition to these duties, they also assist where required in the commercial net fishery,

stream enumeration and monitoring of other fisheries where applicable. With the erosion of resources for patrolmen through the 1980's, Guardians' support for commercial fish management increased.

The first Guardian should be in place the first week of May. Sub-district equipment is made ready for the coming season. This position is required for a 115 days period and lasts until approximately October 20.

The second Guardian should be on strength by mid-June and continue for a 90 day period to the first week of October.

A third Guardian is required to monitor the Sport Fishing closures on the Kilbella and Chuckwalla Rivers and perform camp maintenance work. A further 90 day PY allotment would be required to cover this position.

A fourth Guardian is required to work on the Wannock River Dead pitch recovery program. This position starts in the last week of October and carries through until the end of November. This position requires 35 man/days. Presently there are no man days allotted to this position because of shortages. Since 1986 this position has been contracted. This was paid for through Canada/US treaty funds.

Smith Inlet:

No Guardians required.

#### Patrol Vessels

FPV Falcon Rock

Sub-district patrol vessel covers both Rivers and Smith Inlets. It is required from May 1 to late October annually. The fall release date will depend upon weather and water levels. If there is a Wannock River or Takush Chum fishery, the vessel would be required until October 31.

In May there are activities that require monitoring, such as commercial shellfish and halibut fisheries, habitat and logging referrals and site inspections and pre-season salmon stream inspections for log jams or other barriers. In past, the Sub-district patrol vessel has not arrived until the first week of June, and these activities have been delayed or neglected.

Occasional winter patrols are necessary for monitoring non-salmon fisheries such as shellfish and groundfish. This can be co-ordinated with other areas in the District with similar needs. (e.g. "Kitimat II")

### Watchkeeping Vessel

Rivers and Smith Inlets have outside fishing boundaries that must be patrolled during the commercial Sockeye fisheries. Both fisheries take place simultaneously. A vessel capable of 24 hour patrols is required here, particularly early in the season when fish are entering the fishing areas and the fishing pressure on the outside lines is the greatest.

The need for these vessels is usually about three weeks, beginning in the second week of July.

#### Requirement:

1. One watchkeeping vessel capable of 24 hour patrol.
2. Two Fisheries patrol vessels for two 2-man enforcement teams

Requests should be made to the District Supervisor after expectations and fishing plans have been formulated in December.

### North Coast Enforcement Support

During the month of July additional support for enforcement of outside boundaries is required. This support should be available through the North Coast Division Enforcement Unit.

Two teams of two Fishery Officers have been provided for the Rivers and Smith Inlet Sub-district in 1986 and 1987.

Outside boundary violations have been extremely contentious issue with fishermen, advisory groups, the Fisherman's union and DFO.

### Charter Aircraft

#### Fixed Wing Aircraft:

Because of the remote location, the minimum cost for a short duration charter flight in the Sub-district would be in the order of \$1000 dollars (DH Beaver on floats). Aircraft can be chartered from Bella Bella, Bella Coola or Port Hardy (The two latter are amphibious floats).

Both Rivers and Smith Inlets require one flight per week after the start of the commercial fishery to obtain an accurate gear count. Normally five flights would be required for this purpose for July and the first week of August. This is essential when the fleet size is large. These flights should be used in conjunction with Area 8 for cost/efficiency.

Additional aircraft charter:

1. Two flights during the month of August for stream enumeration (DeHavilland Beaver).
2. Four flights for habitat inspections into Owikeno Lake through various times of the year (Cessna 185).

Total estimated fixed-wing aircraft charter costs:

1. Five gear counts @ \$1000.(C 185).....\$5000
  2. Two flights for stream enumeration @ \$1200.(Beaver)....\$2400
  3. Four flights for habitat inspections @ \$1000.(C 185)...\$4000
- TOTAL Fixed Wing.....\$11,400

Communications

Because Rivers and Smith Inlet is the only Fisheries Sub-district in the Pacific Region that does not have regular land-line telephone service, communications are solely dependent upon radio/telephone.

It is important that radio systems be serviced annually, preferably in April. These include:

- (1) Single side band HF radio/telephone
- (2) Glen-ayre data terminal through HF radio/telephone
- (3) VHF radio/telephone
- (4) Auto-tel

Fuel Requirements

Two 90-day chartered patrol boats (1988) used a total of \$5500.00 in fuel and lube oil.

Total fuel requirements for 5 Patrolmen (estimated).\$15,000.00

Special Programs

Owikeno Lake Fall Inspection, Rivers Inlet Sockeye Echo Sounding Program and the Docee River Counting Fence are currently funded by the Management Biology Unit, Prince Rupert.