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# FEEDBACK FROM SALMON FISHERMEN ON THE 1973 GEORGIA STRAIT SALMON HEAD RECOVERY PROGRAM

Tony Gould and A.W. Argue

**MISSING ADIPOSE  
FIN IDENTIFIES  
TAGGED SALMON**

**\$3.00**

**REWARD**

**DEPOT LIST**

**LOWER MAINLAND**

- Frontier Sporting Goods
- Riverside Resort
- Crescent Marina
- Wes-Del Marina (Canoe Pass)
- Captain's Cove (South Arm)
- New Westminster Fisheries

**CODING WIRE TAG 1/25**

**GEORGIA STRAIT HEAD RECOVERY  
A Salmon Hatchery Evaluation Program**

**MIN \$100.00**

**Environment Canada  
Pêches et sciences de la mer**

Please return this questionnaire in the envelope.

CG Rpt 9 c.1

CANADA. FISHERIES AND MARINE SERVICE.

PACIFIC REGION.

INFORMATION REPORT SERIES; No. PAC/N-74-3

Information Report Series No. PAC/N-74-3  
Southern Operations Branch  
Pacific Region

FEEDBACK FROM SALMON FISHERMEN  
ON THE 1973 GEORGIA STRAIT SALMON HEAD  
RECOVERY PROGRAM

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Information Report Series No. PAC/N - 74 - 3

by

Tony Gould and A.W. Argue

Department of the Environment  
Fisheries Service  
Southern Operations Branch  
Georgia Strait Division

December, 1974

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## INTRODUCTION

On April 1st, 1973, the Fisheries and Marine Service initiated the Georgia Strait Head Recovery Program in which sport and commercial salmon fishermen were asked to participate. In brief, this is a tagging program designed to evaluate fishery contributions and movement patterns of coho and chinook salmon released from a number of hatcheries in Georgia Strait and Puget Sound.<sup>1</sup> Georgia Strait fishermen participate by returning the heads (plus recapture information) from salmon missing the adipose fin. The missing adipose fin signals the presence of a minute coded wire tag implanted in the nose of the fish at the time it was released to salt water.

The basic success of the Georgia Strait Head Recovery Program depends to a very large extent on how effectively the program is publicized. Fishermen must know of its existence, understand its function and appreciate its importance before we can expect to recruit and retain their interest and support. It was with this in mind that we undertook to evaluate the general effectiveness of our efforts to "reach the public". In December of 1973, a questionnaire (Appendix 1) was formulated for this purpose and mailed to all those fishermen who had contributed heads to the program since it commenced operation in April, 1973.

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1. In addition, a few wild stocks have been marked. The purpose of the head program and how individuals can participate in the program are detailed in the second part of Appendix 1.

The primary purpose of the questionnaire was to obtain some feedback on the program from those fishermen who had been involved in it -- namely, those who had turned in the heads of adipose-clipped salmon.

Specifically, we were interested in learning:

1. Which of the various forms of program advertising they had been in contact with.
2. What they thought about each of these in terms of clarity, completeness and general effectiveness.
3. What ideas they had for better publicizing the program in the future.
4. What comments or insights they had about the program in general.

This report first deals with general feedback by respondents on the worth of the program. The following sections present results of the questionnaire in terms of practical measures we might take to more effectively present the program to the public. A summary and recommendations end the report. Above all we hope that this report will be of value to others planning similar biological programs requiring public participation.

#### INDICATIONS OF PROGRAM SUPPORT

One of the primary purposes of the questionnaire was to find out how the program was being received and reacted to by the public. Although we did not specifically ask fishermen how they felt about the value or worth of the program, several indications serve to gauge their general mood of acceptance.

To begin with, the questionnaire itself was very well received. Of the 675 questionnaires mailed, 297 were returned, thus yielding the relatively high percentage recovery of 44%. This occurred without reminders.

The majority of people who responded to the questionnaire appeared to be overwhelmingly in favour of the program. In fact, the large number of supportive comments received were rendered conspicuous by the almost total absence of negative comments. Even the man who seemed to be against Fisheries programs in general, begrudgingly admitted that we at least offer the fishermen "a chance to eat a fish and get three bucks to buy a 12 pack of beer in the process".

Often, respondents openly volunteered comments reflecting their interest, enthusiasm and support (see Appendix 2). Such comments ranged from expressions of genuine appreciation, "What is being done to preserve this fantastic recreation sport is very, very welcome -- not just for us alone, but for

generations to come" to well-intentioned best wishes, "I sincerely hope fishermen will co-operate, as your program is an excellent one." Most frequently, respondents expressed their appreciation of the direct action and public involvement orientation of the program.

Quite simply, they were pleased that Fisheries was doing something practical and they appreciated hearing about it -- "People like to know how their tax dollars are spent and the benefits of this program are worth bragging about". In addition, a gratifying number of respondents expressed their support by promising to "spread the word" -- both verbally, "This is a really interesting program you have undertaken -- we will try to get more people interested", as well by action -- approximately 20% of the respondents volunteered to help us advertise the program by putting up posters, distributing information bulletins, etc.

#### ADVERTISING OUTPUT AND IMPACT

In this section the relative values of various forms of program advertising are weighed in terms of both initial output (what we put into them) as well as resultant impact (what we got out of them).



A. Output

Between the time the program commenced operation in April, 1973 until the actual mailing of the questionnaires in December, 1973 the following steps were taken to publicize the program:

- 1) Posters - Put up at all our depots (approx. 100 in number set up throughout the Strait of Georgia) and at surrounding locations (eg., post offices, government wharfs, boat launch ramps etc., see Appendix 1)
- 2) Information Bulletins - Published at the end of each of 8 collection periods and mailed or distributed to:
  - a) Head contributors
  - b) Collection depots
  - c) Fisheries offices
  - d) Fish Companies
  - e) Newspapers
  - f) Radio and T.V. Stations
  - g) Fishermens' Industry Associations (including Union Locals)
  - h) Fish and Wildlife Clubs and Associations
  - i) Misc. interested parties
- 3) Press releases were sent out along with information bulletins to newspapers as well as radio and T.V. Stations. Extra resource materials (photographs etc.) were supplied to Lee Straight, Alec Merriman, Ted Peck and a number of local newspapers at the beginning of the program. Lee Straight, Vancouver Sun., Alec Merriman, Victoria Daily Colonist and several other outdoors columnists from smaller newspapers voluntarily gave fairly regular reminders to look for marked fish, and summaries of results reported in the bulletins.
- 4) Special Radio Advertising - One minute paid spot announcements were played on the following:
  - a) CKWX (Vancouver) - 3 played on Ted Pecks' show Aug. 5/73 plus 1 during the morning rush hour Aug. 13/73.
  - b) CKNW (Vancouver) - played on the afternoon of Aug. 10/73 and the morning of Aug. 11/73.
  - c) CJOR (Vancouver) - played on the afternoon of Aug. 10/73 and the morning of Aug. 11/74.

- d) CJVB (Vancouver)- Played between 6:30 and 8:30 a.m. weekdays between Aug. 6 and Aug. 17/73.
- e) CKDA (Victoria) - played Aug. 12/73 adjacent to sport fishing broadcasts.
- f) CHQB (Campbell River) - played 2 times per day before the morning and noon hour sport fishing broadcasts between Aug. 6 - 17/73 - (weekdays).

Free radio exposure via interview:

- a) CKWX - A.W. Argue was interviewed on the weekly Ted Peck show on three different occasions between May and November, 1973. Ted Peck often voluntarily mentioned the program and results.
- 5) Television - A.W. Argue was interviewed on C.B.C. Hourglass news in June, 1973. Film by Dick Harvey was used by C.B.C.
- 6) Talks - A.W. Argue and/or S. Heizer gave talks on the program to the following groups:
  - a) Vancouver Island Wildlife Association - Dec. 9/73 and Feb./73
  - b) Parksville Fish and Game Club - Feb./73
  - c) Lower Mainland Regional Wildlife Association - Feb./73
  - d) Sports Fish Advisory Committee - March 16/73 and Oct. 19/73
- 7) Other - Depot operators, Fishery Officers and program personnel all contributed to the advertising of the program by way of personal contacts with fishermen during their normal jobs. Program personnel spent considerable extra time with depot operators and sports fishermen to encourage this kind of advertising.

Approximate goods and services and labour costs of the information outputs totalled \$7,400 (Table 1). This represented approximately 20% of the total 1973/74 budget.

TABLE 1. Publicizing costs for the Georgia Strait Head Recovery Program

	Goods & Services	Labour	Total
1) Posters	\$400	\$1,000	\$1,400
2) Information Bulletins	900	2,250	3,150
3) Press releases & extra material	100	250	350
4) Radio Ads	500	150	650
5) Television	300	50	350
6) Talks	50	250	300
7) Other (Personal Contacts)	-	1,200	1,200
TOTAL	2,250	5,150	7,400

B. Impact

On the questionnaire, respondents were first asked to specify the initial information source they had been exposed to. Their responses are tabulated in Table 2 below.

TABLE 2. Percent initial exposure for each information source\*

Information Source	% Exposure as an original source
Poster (1) <sup>o</sup>	25
Newspaper (3)	17
Marina Operator (7)	15
Word Mouth (7)	12
Undecided	8
Bulletin (2)	7
Radio (4)	7
Fishery Officer (7)	5
Other	3
T.V. (5)	2

\* % Exposure =  $\frac{\text{The total number of Respondents who cited "x" as their original source of information}}{\text{Total Number of Respondents}} \times 100$

<sup>o</sup> Numbers in brackets refer to the appropriate publicizing action described on pages 4 and 5 and costed in Table 1.

The second question on the questionnaire asked respondents to list additional information sources that they had been exposed to. Table 3 lists responses. For an area breakdown of exposure by media source see Appendix 3. Specific media sources are detailed in Appendix 4.

TABLE 3. Percent general exposure for each information source\*

Information Source	% Exposure as a General Source
Poster (1) <sup>o</sup>	59
Word of Mouth (7)	38
Newspapers (3)	36
Marina Operator (7)	30
Radio (4)	18
Fishery Officer (7)	16
Bulletin (2)	10
Other**	8
T.V. (5)	6

\*% Exposure =  $\frac{\text{The total number Respondents who stated they had been exposed to "x" information source}}{\text{Total number of Respondents}} \times 100$

\*\* Other = Hatchery visits (4%), Magazines (2%) and Exposure through Fish and Wildlife Clubs (2%)

<sup>o</sup> Numbers in brackets refer to the appropriate publicizing action described on pages 4 and 5.

As can be seen from the above tables, posters, word of mouth, newspapers and Depot Operators proved to be our four most effective modes of program advertising -- both as general information sources as well as sources through which people originally heard about the program.

The relative order of impact for each of these sources is essentially the same in both tables except for word of mouth, which moved to second from the number four position as an original source. This stands to reason if one considers that word of mouth requires time to gain momentum and would probably not have been a prevalent information source when people were first learning about the program. In all likelihood, this form of advertising will quickly supersede posters in importance as the program progresses and peoples' awareness of it increases.

Although we have no direct control over word of mouth advertising as such, there are individuals in an ideal position to personally relay the program to the public -- namely, Marina (Depot) Operators and Fishery Officers. As has already been pointed out, Depot Operators proved to be one of our four most effective sources of program exposure. However, as is the case with Fishery Officers, we would hope that their general impact on the public will increase over time. With regard to this, it is strongly recommended that every effort be made to both sustain, as well as increase,

the interest and support of these individuals through increased personal contact.

The large amount of newspaper coverage received by the program is exceptionally gratifying considering how little actual energy was expended in recruiting newspaper support. Of the 24 newspapers who received our bulletins and press releases, 12 were specifically cited by the 36% of respondents who had been exposed to this form of advertising (see Appendix 4). Lee Straight and Alec Merriman contributed to relatively large amounts of exposure (33% and 19% respectively). Otherwise readership was more or less equally spread amongst the various newspapers. Fortunately, the locations of the 12 newspapers cited cover all major areas within the boundaries of the program.

In future it is recommended that we continue to mail bulletins and press releases to each of the 24 newspapers on our mailing list (we have nothing to lose and lots to gain) as well as attempt to maintain close communication with newspaper columnists such as Straight, Crammond, Merriman, etc. In addition, we might look into the feasibility of buying advertising space in the more popular newspapers, e.g. putting a small ad beside the tide tables.

With regard to radio advertising, it is important to note that of the respondents who cited radio as an information source, 67% specified the Ted Peck show as their exact source (see Appendix 4). Only 11% cited other radio stations (CFCP - 7%, CHUB - 2% and CKLG - 2%) and the remaining 22% were unspecified.

Apparently the major impact of radio advertising was derived from the free exposure we received on the Ted Peck show rather than the paid radio announcements we purchased on various stations during early August.

If the paid radio ads had been particularly effective in alerting sports fishermen to watch for adipose clipped salmon, we would expect August to have fewer unmarked fish per head turned in from the sport catch compared to July, taking into account changes in the true marked fish incidence in the catch. In fact, as shown by Table 4 below, the opposite seems to have happened. For sport-caught chinook during August there were actually more unmarked fish caught per head turned in compared to July (196 in July, compared to 205 in August), yet the actual incidence of marked chinook in the catch, as measured by the number of unmarked chinook per adipose clip in the troll fishery, increased dramatically during August. For sport-caught coho during August (1970 brood only), there were 20% fewer unmarked coho caught per head turned in, compared to July, however, the same data for the troll catch showed a 14% reduction in unmarked coho per



marked coho. Obviously, little difference is indicated between gear types for coho. In brief, these data confirm that our paid radio ads were ineffective in stimulating greater public awareness of adipose-clipped salmon.

TABLE 4. Numbers of unmarked sport salmon caught per sport head turned in to depots, and estimated numbers of unmarked salmon caught per adipose-clipped salmon in the troll catch, for the Georgia Strait Head Recovery Program area, Statistical Areas 13 - 19, eastern area 20 - 28 and 29 ABC, (calculations in Appendix 5).

Month	Species	Sport	Troll
July	Chinook	196	232
	Coho +	1332	914
August	Chinook	205	91
	Coho +	1062	790

+ 1970 brood

In the future, it is recommended that we curtail the use of paid announcements and concentrate on obtaining free radio exposure from any announcers or stations willing to help us promote the program. For example, encourage interviews, suggest the inclusion of program information and results in fishing reports, or look into the area of radio station sponsorship of the program (e.g. special rewards).

Since all the respondents received information bulletins from us prior to the mailing of the questionnaire, the percentage figure for this primary source listed in Table 2 indicates the proportion of respondents who indicated that they obtained the bulletin from collection depots prior to their catching a marked salmon. As many respondents were unspecific in this regard when citing bulletins as a general source (Table 3) the general exposure percentage should be looked upon as the minimum indicator of exposure to the bulletin, accounting only for those who specified depots as their general source of the bulletin. In order to encourage more people to pick up the bulletins at depots, it is suggested that "TAKE ONE" notices be placed beside them on counter tops.

The primary purpose of the bulletin is to supply feedback on the program to people who already know about it (e.g., those that have turned in heads). The best way to judge the bulletin's impact is to see what people thought about them. Quite a large number of respondents volunteered comments reflecting their appreciation of the bulletin. A representative sampling of such comments is given below:

- "I like the present system of advertising, especially the information sent out with the reward."
- "I was very pleased to receive the information bulletin, it was of a great interest to me."
- "The return of printed information was most interesting and appreciated (more so than the \$3.00 reward)."

- "We really appreciated the bulletin, and passed it on to fishermen friends who will in turn pass it on to other interested individuals."
- "It really meant something to me to find out where my fish had come from."
- "I was pleased to find out the history of my particular catch."
- "I found it interesting, knowing where all the fish had been tagged and caught."
- "I am a dedicated fan. After turning in one head you have increased my interest by sending me information reflecting the objectivity and acceptance of the program."
- "My opinion is that the information bulletin is the most effective way of getting people to turn in heads ..... it gives the best possible explanation of how and why your Department wants information on where and when these fish are caught. Also, it gives the sender a keen sense of participation and interest in the outcome of your experiments."

In addition to such supportive comments as those listed above, many respondents requested that we put them on our regular mailing list and/or send them a number of bulletins which they could pass on to friends. In future, it would be a good idea, if financially feasible, to continue sending bulletins on a regular basis to those people who have turned in heads. Alternatively, we might mail out annual or bi-annual summary reports. As one respondent commented, "It would be good public relations to send further published or mimeographed material to those who have turned in heads ... it would be greatly appreciated."

With regard to other sources of program advertising such as T.V., hatchery visits, contact with Fish and Wildlife Clubs, etc., it is suggested that, as with all the other sources of program exposure mentioned, we attempt to do as much as possible to increase their relative impact on the public. For example, we should suggest to people in our publications that they might visit our hatcheries on their vacations, encourage more Fish and Wildlife Clubs and other associations to invite us to come and speak to them about the program, attempt to solicit more T.V. coverage in way of interviews on such shows as Klahanie and The Outdoorsman. However, in the case of talks we stand the risk of preaching to the converted.

In general, we got the most advertising value for our expenditures from posters, newspapers and extra time spent with marina operators, Fishery Officers and sports fishermen. The total cost for these, approximately \$3,000, seems a much better use of advertising money than the approximately \$1,300 that we put into radio ads, film for TV and talks.

ASPECTS OF THE PROGRAM IN NEED OF MORE EXPLANATION AND/OR CLARIFICATION

Of the people who responded to the questionnaire, approximately 30% mentioned various aspects of the program which could use further explanation and/or clarification in the future. Of this group, the majority mentioned two aspects in particular.

A. Where to Turn in Heads

A number of respondents mentioned that they either had trouble finding out where to turn in a head or had to travel a considerable distance to do so, usually because they were not aware that another depot was nearer to them. Although we marked nearby depots on the posters we put up, and had complete depot lists written up in the bulletins we distributed to depots, the problem derived from the fact that one would have to be at, or in the immediate vicinity of a depot to obtain information as to where the depots were located. This situation has been rectified via the inclusion of the depot list in small pocket-size brochures (see Appendix 1) which are distributed to participants, fishing tackle outlets, marinas, etc. In addition, it is suggested that the brochure be stapled onto the bottom of our posters to offer people a complete range of depots to choose from. As far as the setting up of more depots is concerned, it would be advisable to first find out how our present measures succeed before we create extra work for ourselves.

B. What the Purposes of the Program are

Many respondents felt that we should further explain and emphasize the background, purposes and importance of the program. This situation has also been rectified by the inclusion of this information in our pamphlets and bulletins , as well as on our posters. Other than perhaps offering more information on how exactly the fish are originally tagged, no more effort is deemed necessary in this regard.

Although there was a very small degree of confusion expressed about such things as boundaries, and what to do about undersized fish, the majority of respondents found our information to be quite satisfactory in terms of both clarity and completeness.

C. Suggestions from Respondents

The suggestions made by respondents as to how we might better publicize the program proved to be as varied as they were valuable. Certain suggestions, however, did appear more often than others. In order of frequency with which each was mentioned, the 10 most popular suggestions were:

	<u>No. of Respondents who suggested</u>
1. Advertise through fishing tackle outlets*	29
2. Make an effort to get Marina Operators and Fishery Officers to help us promote the program -- teach them what it's all about and gain their interest and support*	20
3. Print larger, more colourful posters*	19
4. Put out a small pamphlet or brochure on the program*	12
5. Put more emphasis on the rewards in our advertising (eg., give larger notation on poster and offer more publicity on bonus draw winners)*	12
6. Advertise program on radio fishing and marine reports	8
7. Better publicize the locations of our present depots and/or set up new depots*	8
8. Educate school children about the program (e.g. give talks to, mail information to Science Teachers and/or their newsletters etc.)	7
9. Keep people who have turned in heads up to date on the program ***	7
10. Give talks to Fish and Game clubs, etc.*	7

In addition to the above points, a large number of respondents commented that we should simply continue what we are presently doing and make an effort to get as much media coverage as possible.

\* Denotes that the particular suggestion listed has already been acted upon.

\*\*\* Denotes that measures should be taken.

Other suggestions which appeared to be relatively popular were:

1. Advertise program in Sports Fishing Regulations\*
2. Give larger rewards.
3. Do feature articles for magazines and films for T.V.\*
4. Print decals and/or bumper stickers.
5. Expedite rewards.
6. Promote program during Fishing Derbies (e.g. set booths up at marinas, etc.)\*
7. Send information to all registered boat owners.
8. Give out prizes such as rods, lures, etc.

Additional suggestions which occurred less frequently but which are nevertheless worthy of consideration:

1. Have incentive rewards for Marina Operators.\*\*\*
2. Put up reminder signs at depots in addition to our posters (i.e. Have You Checked The Adipose Fin?).
3. Have Depot Operators and Fishery Officers plug the program when giving their reports on radio.
4. Advertise through live bait outlets.
5. Post information on ferries.
6. Advertise next to phone-in marine and weather reports.
7. Advertise next to tide tables in newspapers.\*\*\*
8. Advertise in Canadian Tide and Current Tables.
9. Award a "grand prize" at the end of each season.



Unlikely Suggestions:

1. Have a regular Fisheries T.V. Program.
2. "Raise the money for more bonus prizes by making everybody buy a \$10.00 per year sport fishing licence and by levying a 1 cent per pound royalty on all salmon caught by commercial fishermen."
3. "Go back to Spaghetti tags, they're easier to spot ."

## SUMMARY AND RECOMMENDATIONS

The questionnaire itself was well received as indicated by a return of 297 (44%) of 675 questionnaires mailed. No reminders were sent.

Although the questionnaire only covered those individuals who turned in heads we feel that because their responses indicate such strong support for this program, that this is a valid conclusion applicable to individuals not covered by the questionnaire. For example, between December, 1973 and June, 1974 we gave over 20 talks on the program to various Fish & Wildlife Club meetings, Kinsmen's Clubs, etc., most at the request of the groups themselves. We were well received by each group. In brief, from the comments noted in the text, it is apparent that people appreciated seeing the "Head Program" in action, getting rapid feedback on purpose of the program and on interim results, and being able to participate in the program, even if only in a small way.

The key to success for this program -- getting heads and information from adipose-clipped salmon turned in -- is public awareness and acceptance of the program. To this end our first year in the "advertising field" seems to have been a success, particularly so since it cost only \$7,400, less than 20% of the program budget. Apparently our best dollar value for media advertising comes from newspapers, particularly sports columnists, and not from more costly or time-consuming sources such as radio ads and T.V. film spots.

An important point is that the time and money spent contacting the news media, plus keeping Depot Operators and Fishery Officers informed about the program likely accounted for these sources being responsible for close to 50% of the respondent's initial exposure to the program. In all likelihood, word-of-mouth advertising will supersede other sources in importance as the program progresses and people's awareness of it increases.

As noted in the text a number of recommendations suggested by respondents have been acted on. For instance we now have comprehensive brochures on the program, a capsule review of the program in the "British Columbia Tidal Waters Sport Fishery Guide", the 1974 Sun Derby gave three special rewards for adipose-clipped salmon and CHQB, a northern Gulf radio station, had a special summer promotion involving adipose-clipped salmon. Other recommendations that remain to be acted on are:

1. Mail an annual summary report to all people who turned in heads, plus those on the general mailing list,
2. In December, 1975 duplicate the questionnaire procedure as well as sending questionnaires to known sports fishermen who did not turn in heads. This data will enable us to spot and cure advertising deficiencies in specific areas,
3. Purchase newspaper advertising space, preferably next to outdoors sections, in newspapers that will cover areas where returns appear to be less than expected,
4. Have incentive rewards for Marina Operators.

APPENDICES

Name: \_\_\_\_\_

To: GEORGIA STRAIT FISHERMEN WHO HAVE TURNED IN THE HEADS  
OF ADIPOSE CLIPPED CHINOOK AND COHO

The basic success of the Georgia Strait Head Recovery Program depends to a very large extent on how effectively the program is publicized. Quite simply, if people know about it - it works. If they don't - it doesn't. With this in mind, we are very interested in hearing about how you initially learned about the program; how effectively you feel the program has been advertised this far; and how you think we might better publicize the program in the future. Please take a few minutes to fill out this questionnaire. Your feedback would be very much appreciated.

1. How did you first learn about the program? (Check one only. If you can remember, please specify the exact source within the category you select. For example if you chose "a" you might specify "The Sun, Lee Straight's column" or if you chose "b", you might specify "CKWX, Ted Peck's Show" etc.)
  - a) Newspaper \_\_\_\_\_
  - b) Radio \_\_\_\_\_
  - c) T.V. \_\_\_\_\_
  - d) Poster \_\_\_\_\_
  - e) Information Bulletin \_\_\_\_\_
  - f) Marina Operator \_\_\_\_\_
  - g) Fishery Officer \_\_\_\_\_
  - h) Other (please specify) \_\_\_\_\_
2. In addition to the source from which you originally learned about the program, have you been exposed to any other information sources listed in question #1? If so, please specify.

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3. Of the various forms of program advertising that you have been in contact with, which would you say is the most effective in terms of actually getting people to turn in heads? (Please explain) \_\_\_\_\_

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4. Do you feel that there are any aspects of the program (i.e. what it's all about, how and where to turn in a head, boundaries, species, rewards, etc.) which could use more explanation and/or clarification in the future?

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5. Please use the space provided for any comments or insights you may have about the program in general. Specifically, we would like to know how effectively you feel the program has been advertised thus far and also how you think we might better publicize it in the future \_\_\_\_\_

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Note: We would greatly appreciate your help in advertising the Head Recovery Program. We have posters and information bulletins available if you have a place to display them. Please phone Steve Heizer or Tony Gould at 666-6383 (call collect if you live outside of Vancouver) and we will mail you the material.

Please return this questionnaire as soon as possible using the enclosed postage-paid envelope.

Thank you.

DESCRIPTION OF GEORGIA STRAIT  
HEAD RECOVERY PROGRAM

WHAT IT'S ALL ABOUT

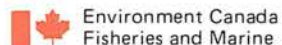
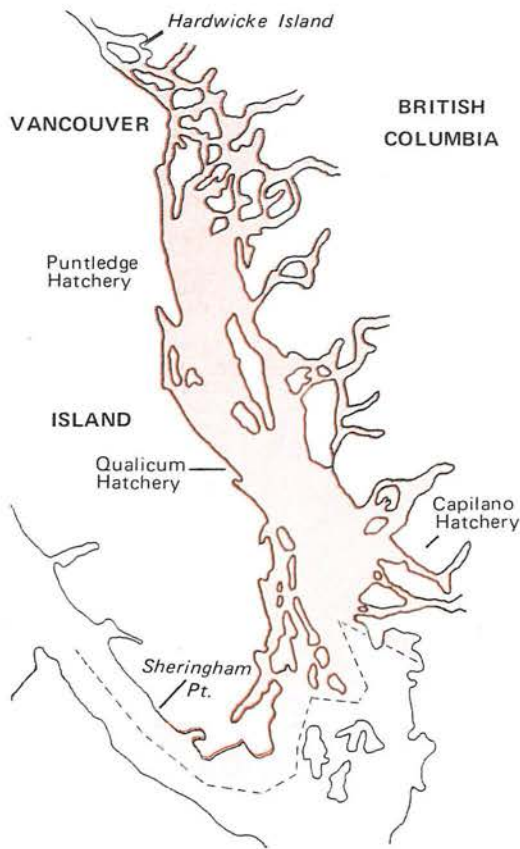
As part of an ongoing hatchery evaluation program, several million chinook and coho salmon have been released from Georgia Strait and Puget Sound hatcheries carrying coded wire tags implanted in their snouts. **As an identifying external mark, each salmon has had its adipose fin removed prior to release.** When you turn in the head of an adipose clipped salmon, Fisheries extracts the tag from the nose cartilage and reads it under a microscope.

The coded data on the tag reveals such information as where and when the salmon was released, its size at release, what feed it received in the hatchery and the agency responsible for its release. Combined with the information you supply us as to where, when and how the salmon was caught, we will eventually be able to establish:

- 1) Which hatcheries' stocks contribute to which Georgia Strait fisheries.
- 2) The total contribution of each hatchery to Georgia Strait fisheries.
- 3) General migratory habits of Georgia Strait and Puget Sound hatchery salmon.
- 4) The relative success of various hatchery diets, release times and sizes of fish at times of release.

In practical terms, this information will supply us with the "How To's" for producing more and healthier salmon for Georgia Strait fishermen. For example, the identification of hatchery stocks that produce resident chinook and coho, along with a knowledge of where and when these fish are caught, will enable us to focus hatchery production on those groups of fish which will likely provide maximum benefits to specific inside fisheries, or to Georgia Strait fisheries in general. Information on the relative success of hatchery diets, release times and sizes of juveniles at time of release is important to the extent that these factors contribute to ultimate residency in Georgia Strait as well as survival to a catchable size. By evaluating these practices at each hatchery site we should be able to optimize residency and survival and hence produce more chinook and coho salmon for Georgia Strait fisheries.

HEAD RECOVERY AREA



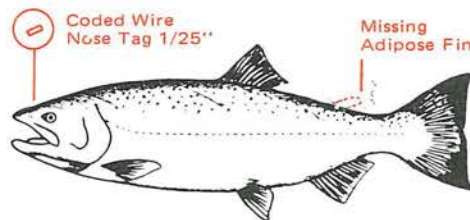
GEORGIA STRAIT HEAD RECOVERY  
A Salmon Hatchery Evaluation Program

WANTED

The head of any coho or chinook salmon caught in Georgia Strait (waters east of Sheringham Pt. and south of Hardwicke Island) which is missing its adipose fin.

REASON

The missing adipose fin signals the presence of a coded wire tag implanted in the nose of the fish.



PROCEDURE

If your salmon is missing this fin, cut off the head and turn it in to the nearest "Head Depot" (see list). Do not attempt to find or remove the tag yourself!

REWARD

If the head is found to contain a tag, Fisheries will send you \$3.00 (plus information on your fish) and enter your name in a \$100.00 bonus draw (2 awarded per collection period).



APPENDIX 2. SOME QUOTES OF SUPPORTIVE COMMENTS  
VOLUNTEERED BY QUESTIONNAIRE RESPONDENTS

- I think you people are doing a very important and worthwhile job.
- I think you are doing a great job, it is something that should have been done a long time ago.
- I am heartily in favour of the program. Congratulations and success are my thoughts and hopes.
- I think the program is very good and hope more is done for the fish in the future.
- I am pleased with the program and the Fisheries real success.
- I think this program is very good and effective.
- I am happy that the B.C. Fisheries has such a program.
- This program is good -- I like it very much.
- I think the program is excellent. Keep up the good work and I will co-operate.
- I believe it is a tremendous program. Keep up the good work.
- The program in general is good, and I hope it continues throughout the next few years.
- I think the program is a good one, and should be continued.
- I think the program has merit. Please continue the work started and I wish you every success.
- The public is pleased to note direct action by the Department.
- I think your program is well worth the while... it is nice to see that someone in this great country of ours is doing something constructive for a change.
- We know a great many fishermen who are very interested in what you are doing, and anything else that is any advantage to sport fishermen.
- I think the program is a good one and the fact that it should increase the catch of salmon makes it very popular with sports fishermen.
- The real sportsman will always pay attention to all avenues which may help to improve stocks of salmon.
- I think this program is very good and effective ... the results are going to be very important to fishermen and marina operations in the future.

- You should emphasize how important this program is for our future pleasure.
- Fishermen who care about the great natural resource we all enjoy so much will be more apt to get involved once they realize what is trying to be done. Keep up the good work.
- Hopefully this program will give you the research information you need to restock the great fish resources.
- The program is now strictly dependent on the sense of responsibility which each individual possesses.
- I cannot see why a reward is necessary. People who really fish for pleasure are only too glad to co-operate in any way with a program designed to improve their fishery.
- There is no doubt in the minds of sports fishermen as to the value of the program. It should however, be more financially self-supporting through a salt water yearly anglers fee.
- Make more information available to the fisherman who is really concerned about his sport and the future of it -- emphasize the real value and importance of the program and fishermen would take a greater interest in it as well as in sports fishery itself.
- By bringing fishermen's attention to the fact that the fish they are catching come great distances from their hatchery streams, you make us aware of the basic inter-dependence of one area on another's resources.
- I think it is a very good program. It is important to know where the fish are coming from and how well the hatcheries are doing.
- Personally I think the program is an excellent idea and the information you return to persons turning in the heads is also a good point. I found it very interesting to find out where the fish had been released and also the information regarding the number and type of fish caught in different areas.
- I think the program is a wonderful thing and appreciate the follow-up information once a head is turned in.
- I found information about the program very enlightening and suggest that anyone able to get to Fisheries with a tagged head do so. It would give people a better understanding of what you people are trying to do.

APPENDIX 3. GENERAL BREAKDOWN OF SPECIFIC MEDIA SOURCES CITED BY RESPONDENTS

NEWSPAPERS (Of the 36% who were exposed to this form of Advertising \_\_\_\_\_% had \_\_\_\_\_ as their exact source)

Van. Sun: Lee Straight .....	33%
Vict. Colonist: Merriman .....	19
Misc. ....	17
Ladysmith - Chemainus Chronicle .....	7
Nanaimo Free Press .....	7
Campbell River Courier .....	5
Coast News (Sechelt) .....	4
Upper Islander .....	4
Powell River News .....	2
Comox Valley Free Press: Gord Palmer .....	2
Penninsula Times .....	1
Van. Province: Crammond .....	1

RADIO (Of the 18% who were exposed to this form of Advertising \_\_\_\_\_% had \_\_\_\_\_ as their exact source)

CKWX: Ted Peck .....	67%
MISC.....	22
CFCP (Fish Reports) .....	7
CHUB (Nanaimo) .....	2
CKLG (Van.) .....	2

TELEVISION (Of the 6% who were exposed to this form of advertising \_\_\_\_\_% had \_\_\_\_\_ as their exact source)

Misc. ....	61%
Hourglass .....	11
U.S. ....	11
Chan 12 (Powell River 6:30 P.M. Summer Fish Reports) ....	6
Klahanie .....	6
Outdoorsman .....	5

MAGAZINES (Of the 2% who were exposed to this form of Advertising \_\_\_\_\_% had \_\_\_\_\_ as their exact source)

B.C. Outdoors .....	12%
Western Fish & Wildlife .....	50
Western Fisheries .....	37

APPENDIX 4. BREAKDOWN OF SPECIFIC MEDIA COVERAGE BY GENERAL AREA

AREA	NEWSPAPER	NO.	RADIO	NO.	T.V.	NO.	MAGAZINE	NO.
Lower Mainland	Sun (Lee Straight)	18	CKWX (Ted Peck)	20	Hourglass	1	Western Fish & Wildlife	3
	Province (Crammond)	1	Misc.	4	Klahanie	1		
	Coast News	1			Misc.	1		
	Misc.	3						
Gibsons Sechelt	Sun (Lee Straight)	4	CKWX (Ted Peck)	2				
	Coast News	3						
	Penninsula Times	1						
	Misc							
Powell R.	Sun (Lee Straight)	2	CKWX (Ted Peck)	1	Chan, 12 (Summer Fish Reports)	1		
	Powell R. News	2	CFCP	1	Misc.	1		
	Misc.	3	Misc.	1				
Victoria	Colonist (Merriman)	14	Misc.	2	Hourglass	1	West. Fisheries	1
	Misc.	5			U.S. Station	1	B.C. Outdoors	1
					Misc.	1	West. Fish & Wildlife	1
Duncan Crofton	Colonist (Merriman)	3						

APPENDIX 4. BREAKDOWN OF SPECIFIC MEDIA COVERAGE BY GENERAL AREA (Cont'd)

AREA	NEWSPAPER	NO.	RADIO	NO.	T.V.	NO.	MAGAZINE	NO
Ladysmith Chemainus	Sun (Lee Straight)	2	CKWX (Ted Peck)	3				
	Colonist (Merriman)	2	Misc.	2				
	Lady-Chem. Chronicle	6						
	Nan.-Free Press	1						
Nanaimo	Sun (Lee Straight)	1	CKWX (Ted Peck)	2				
	Colonist (Merriman)	1	CHUB	1				
	Nan.-Free Press	6	Misc.	1				
	Misc.	2						
Qualicum Parksville	Colonist (Merriman)	1	CKWX (Ted Peck)	1	Misc	1		
Courtney Comox	Sun (Lee Straight)	3	CKWX (Ted Peck)	2	Misc.	1	West, Fisheries	
	Comox Valley Free Press	2	CFCP (Fishing Report)	3				
	Misc.	1	Misc.	1				
Campbell River	Sun (Lee Straight)	4	CKWX (Ted Peck)	2	Outdoors- man	1		
	C. River Courier	5	CKLG	1	Misc.	3		
	Upper Islander Misc.	4 1						

APPENDIX 4. BREAKDOWN OF SPECIFIC MEDIA COVERAGE BY GENERAL AREA (CONT'D)

AREA	NEWSPAPER	NO.	RADIO	NO.	T.V.	NO.	MAGAZINE	NO.
Gulf Islands	Sun (Lee Straight)	1						
	Lady-Chem. Chronicle	1						
	Misc.	1						
Outside B.C.	Sun (Lee Straight)	1	CKWX (Ted Peck)	1	Misc. U.S. Station	1		
Unspec- ified	Misc.	1	CKWX (Ted Peck) Misc.	2	Misc.	2	West, Fisheries	1

APPENDIX 5. DATA AND METHODS USED TO CALCULATE UNMARKED:  
MARKED RATIOS.

Appendix Tables 1 to 3 below give the basic data necessary to calculate:

- 1) numbers of unmarked sport caught salmon per sport caught head turned in to Sport Depots, and,
- 2) estimated numbers of unmarked salmon per adipose clipped salmon in the troll catch.

Table 1. Numbers caught during July & August of 1973.

Month	Species	Sport	Troll
July	Chinook	21229	15788
	Coho	42644	54114
	Total	63873	69902
August	Chinook	30866	11234
	Coho	28716	27909
	Total	59582	39143

\* Areas 13 to Eastern Area 20, 28, 29ABC; source: Fisheries Service annual publications of sport and commercial catch statistics.

Table 2. Number of Voluntary Head Returns at Head Depots from Sport & Troll Fishermen

Month	Species	Sport Caught	Troll Caught
July	Chinook	108	0
	Coho	35 (3) <sup>+</sup>	1
	Total	143	1
August	Chinook	150	1
	Coho	49 (22)	1
	Total	199	2

+ Of 35 coho heads returned in July, 32 are 1970 brood and 3 are 1971 brood.

Table 3. Troll catch sampling at Norpac Fisheries Ltd. during July & August, 1973.

Sorting Table Recount by Fisheries Sampling Crew						
Month	Species	No. Counted (C)	No. Adipose Clips (M)	No. Counted (R)	No. Adipose Clips (Mr )	Count/Clips (R/Mr )
July	Chinook	7774 <sup>o</sup>	2 + 3*	1369+	5	273.8
	Coho <sup>++</sup>	26308	2 + 2	4256	4	1064.0
	Total	34082	4 + 5	5625	9	
Aug.	Chinook	5592	40 + 10	4237	8	529.6
	Coho <sup>++</sup>	11922	3 + 4	7386	5	1477.2
	Total	17510	43 + 14	11623	3	

\* Number of pre-tags turned in by troll fishermen and found by sorters at the sorting table.

<sup>o</sup> 7774 "unmarked" chinook examined by Norpac sorters, two adipose clips and three pre-tags found by Norpac sorters. Pre-tags are adipose-clipped salmon found initially by trollers who tie head tag labels to the fish then sell it to Norpac fish camps.

<sup>+</sup> 1369 of 7774 chinook re-examined by Fisheries sampling crew, 5 adipose clips found by Fisheries crew.

<sup>++</sup> All coho counted are from the 1970 brood

Table 4. Unmarked to marked sport ratios based on catch & return data from Tables 1 & 2, explanation of calculations below

Month	Species	Sport Ratio
July	Chinook	196
	Coho	1217 (1332)*
August	Chinook	205
	Coho	585 (1062)*

\*Unbracketed ratio includes 1970 + 1971 broods for coho, bracketed ratio for 1970 brood only.



Table 5. Unmarked to marked troll ratios, explanation of calculations below.

Month	Species	Troll Ratio
July	Chinook	232
	Coho <sup>+</sup>	914
August	Chinook	91
	Coho <sup>+</sup>	790

+ 1970 brood

- 1) Calculation of the sport catch of unmarked fish per head turned in by sport fishermen (Table 4) is determined by simply dividing the sport catches (Table 1), less heads turned in (Table 2) by the number of heads turned in.

eg. for 1970 brood coho in July  
 $(42644-32)/32 = 1331.6$

This is a maximum estimate of the true unmarked: marked ratio in the sport catch as it is highly unlikely that all adipose-clipped salmon caught by sport gear are turned in.

- 2) To determine the unmarked catch to adipose-clipped ratio for troll gear (Table 5) it is first necessary to estimate the total number of adipose clips in the troll catch. Sampling for this information was carried out at the Norpac Fisheries plant on Commissioner Avenue in Vancouver.

Let:

C = numbers Norpac sorters examined for marks (marks are excluded).

M = number of adipose clips found by sorters in C (adipose clips plus pre-tagged adipose clips).

R = numbers that were resampled by Fisheries personnel

Mr = number of adipose-clips found in the recount, R,

R/Mr = number of salmon in the recount per adipose-clip in the recount,

Then estimated numbers of adipose clips missed by sorters, Miss, equals,

$$\begin{aligned} \text{Miss} &= (C - R / (R/Mr)) + Mr \\ &= Mr C/R \dots\dots\dots (1) \end{aligned}$$

and estimated total number of adipose clips, Mt, in the count, C, equals,

$$Mt = M + Miss \dots\dots\dots (2)$$

Then estimated total numbers of adipose clips in the troll catch,  $M_c$ , equals,

$$M_c = \text{troll catch} (Mt)/C \dots\dots\dots (3)$$

We assume that head-off salmon from voluntary head returns by troll fishermen (Table 2) are passed through normal commercial channels and thus have an equal probability of being sampled by NORPAC sorters, or by Fisheries personnel in the re-counts, as have salmon with no-adipose clips or with adipose-clips and head-on. Thus M and Mr. include these head-off adipose-clipped salmon, but do not include heads voluntarily turned in by trollers at head depots.

Now from  $M_c$  and the troll catch, the estimated number of unmarked fish in the troll catch per adipose clip in the troll catch is simply,

$$\text{Estimated No. unmarked fish} = (\text{troll catch} - M_c/M_c) \dots (4)$$

Estimated numbers of unmarked salmon per adipose clip, for the troll catch, appear in Table 5. Below are sample calculations for chinook caught during July.

$$\begin{aligned} R/Mr &= 1369/5 \\ &= 273.8 \\ \text{Miss} &= 7774/273.8 \\ &= 28.3 \\ Mt &= 5 + 28.3 \\ &= 33.3 \\ M_c &= 15788 (33.3) / 7774 \\ &= 67.8 \end{aligned}$$

Estimated No.  
 unmarked chinook = 15788 - 67.8 / 67.8  
 in July per adipose  
 clip = 231.8