

# Sounder

Volume VII Number 1

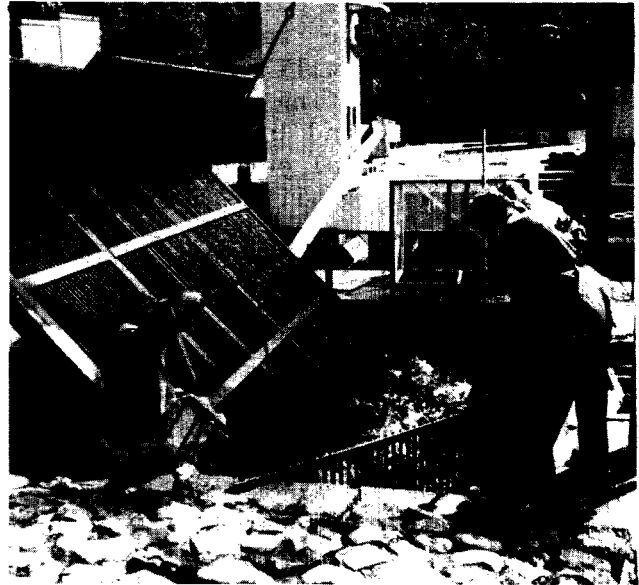
September-October, 1979

## Surplus Salmon-Why, and How Much?

Surplus salmon at federal hatcheries are big business. In 1978, 462,000 lbs of chinook and coho were sold; this year sales are expected to be at least 364,000 lbs. These large excess escapements are a dramatic demonstration that hatcheries are indeed producing fish. And watching thousands of salmon splashing in river pools, or in artificial holding ponds is exciting for people of all walks of life, whether they be local anglers, tourists or Fisheries employees. But there is that nagging question - why are these fish here?

Certainly salmon captured in salt water are of a higher quality and generate greater social and economic benefits than salmon recovered in the hatchery. However, there are several factors limiting salt-water harvest. Most important is Fisheries' commitment to protect wild runs. This demands that as long as different stocks are intermingled, commercial exploitation of enhanced stocks must be tightly controlled. In addition to the major objective of conservation, managers must consider native food fish requirements and recreational demands in the terminal area and in the homestream. Imprecise management techniques applied to meet these objectives often result in over-escapement, not only of enhanced stocks, but also of wild stocks (although the latter is less common now than in the past). When the resource managers have more finely tuned distribution and timing information for each stock they will be able to more effectively regulate fishing pressure. The coded-wire tagging and recovery program is designed to provide the data needed.

Hatchery biologists base predictions for returns of enhanced stocks on the number of brood smolts released and their performance in previous years. When fish surplus to egg and food fish requirements are anticipated, they are



Fish being loaded into the "fish elevator" at Capilano hatchery.

offered to the public on a bid system. Up to 1977, Fisheries administered the sales; revenues went to the Receiver General for Canada. In 1978 and 1979, Crown Assets Disposal Corporation, with regional headquarters in Coquitlam, has been responsible for the tendering process and for execution of the conditions of the contract. Hopefully, net revenues received by Crown Assets will be returned to SEP. Advantages to

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## Late Bulletin

Wayne Shinnars, director, FSB Maritime Region (Halifax), has been appointed director, FSB Pacific Region. He replaces Ron MacLeod who has gone to Ottawa as director-general, Fisheries Operations, Pacific and Freshwater Fisheries. Mr. Shinnars is expected to take up his new duties some time after mid-September.

## Surplus Salmon - Why, and How Much?

Fisheries by involving Crown Assets include fewer administrative headaches, more professional marketing and contractual arrangements, and the right to charge equipment and services directly related to handling of surplus fish against gross revenues.

Surplus hatchery fish are graded as "silverbright" or "dark" at the time of sale, with the bright fish worth up to twice as much as the dark fish. Brights are most likely to be retailed frozen or steaked. Most darks will be canned. During processing and marketing the hatchery salmon are handled and inspected in the same way as commercial ocean-caught fish.

Gross value of live salmon sold in 1978 was \$620,000. In total 212,000 lbs of coho and 250,000 lbs of chinook were taken from Capilano, Quinsam and Robertson Creek hatcheries.

There is a third grade of fish sold from the hatcheries. Holding mortalities, and carcasses of spawned fish are classed as not fit for human consumption, although any roe content may be salvaged for processing. Competition among processors for carcasses is less than that for the live fish; the price paid last year for 101,000 lbs of carcasses from four hatcheries was \$0.02 per lb.

Each year hatchery managers have had to disappoint telephone callers who interpret the request for tenders as an invitation to buy one or two salmon at discount prices. In fact, there has been considerable public pressure for direct sales to the consumer on the premise that SEP should provide inexpensive salmon to the taxpayer if the opportunity exists.

Some groups, such as B.C. Wildlife Federation and the Northern Trollers' Association express particular interest in distribution of surplus salmon to handicapped, poor and elderly persons. SEP management is sympathetic to these suggestions. In July, SEP, Crown Assets and Fisheries Inspection staff, and representatives of various companies interested in the purchase and distribution of surplus fish met to investigate the possibility of direct sales.

It was concluded such sales were not feasible since processing and inspection of hatchery fish must follow the standards set for other fish to ensure consistent quality and to safeguard public health. However, the search for alternatives will continue and it is hoped that a mechanism for public sales will be found.

In 1979 live salmon will be sold from the Quinsam, Robertson Creek and Capilano enhancement facilities, and carcasses from these plus the Big Qualicum and Puntledge facilities. It is anticipated that sales of 364,000 lbs of consumable coho and chinook and of 336,000 lbs of chinook, coho and chum carcasses will value approximately \$400,000.

While excess escapements to these facilities might decline as stock management becomes more sophisticated, new SEP projects will add to the surplus pot until stock-specific management strategies can be developed. Thus, the annual sales are expected to continue, and perhaps expand, in future years.

Ted Perry, Biological Program Coordinator, SEP

## **G.W.G.s at Work Again**

The G.W.G.s (that's Geographic Working Group, not the bum, bum, bum, bum jeans), are now working on fishery management strategies for proposed SEP projects. After a rest of over a year the groups have made rapid advances on the job to be done. The Groups, comprised of federal and provincial chief biologists, federal supervisors, HP and SEP planning reps., are defining specific management units (by time and area) and preparing specific management strategies for enhancements on Cumshewa and Jervis Inlets, Skeena and Fraser Rivers, Barkley Sound, Tlupana Inlet and Johnstone Strait. Other key areas will follow.

From their first meeting it has been apparent that the members of the groups recognize the necessity to change the status quo if they are going to be able to manage SEP production. We can all look forward to recommendations for significant changes.

## Rennell Sound Update

In May of this year an unbiased expert in soil stability, Dr. Swanston, was contracted to review the logging of C.P.144 and report on the following:

- the effect of forest harvesting on slope stability.
- whether or not material from landslides on the site would reach Riley Creek.
- if slides would reach Riley Creek if the material would affect the spawning areas.

The report's conclusions were that slides may result from logging activity on unstable slopes and that slide material would reach Riley Creek and would damage spawning grounds.

This report represented the key evidence that the crown prosecutor would present to support our charges against Queen Charlotte Timber.

After the Swanston report had been reviewed by the Department of Justice, they felt that the evidence was not strong enough to support the charge under Section 31(1) which states that "No person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat." In this case the Crown would have to show that there was some degree of inevitability in a slide resulting from logging of C.P.144. Justice stated that without the necessary evidence we should stay charges against Queen Charlotte Timber and that we would be unethical and irresponsible to continue to incur costs in a case we could not win.

On August 10th charges against Queen Charlotte Timber and their supervisor were officially stayed.

You may well ask: what is the value of the strengthened Fisheries Act if we cannot use it before the damage has been done unless we can prove the "inevitability" of an occurrence? The facts are that while 31(1) is limited in its application, we can always use 33.1(1) which permits the Minister to require logging plans and

specifications, which can be controlled or stopped through a specific Order-in-Council. In the Riley Creek case, the cutting plans for C.P.144 had earlier been approved by our Departemnt.

Despite the fact that the Rennell Sound incident became a political issue and subsequent charges were dropped, there have been significant changes in the Forest Service's approach to logging "sensitive" areas. It is expected that the 25,000 acre Queen Charlotte Timber Harvesting Licence will now come under review with some cutting plans being changed to protect unstable areas. This has also led to a closer working relationship between the local level of Fisheries and Forestry on the Queen Charlotte Islands as well as at the highest levels in Vancouver and Victoria. Within C.P.144, post-logging protective measures have now been defined by the Forest Service and include road drainage stabilization techniques, planting with grasses and trees to re-establish a root system, and cross-slope obstructions which should be completed before this October.

Al Gibson, Acting Director, FSB

## MacLeod Honoured



Ron MacLeod, right, accepting a gift of the hardcover book "Pacific Salmon".

The book's dedication reads:

"To J. Ronald MacLeod, whose efforts and determination resulted in the Salmonid Enhancement Program."

## Catch 22: the Mixed Fishery

The Johnstone Strait Study Area is a classic example of a mixed-stock fishing area and exhibits all of the management problems associated with such a fishery. The Study Area consists of the Johnstone Strait region and that portion of the Strait of Georgia lying north of the Convention area (Figure 1).

Pink salmon stocks migrate to streams within the Study Area from the south via Juan de Fuca Strait and from the north via Johnstone Strait. The stocks destined for streams in the Johnstone Strait region use the northern approach exclusively. The remaining stocks, destined for streams in the Strait of Georgia utilize both routes.

In addition to Study Area pink stocks, a substantial segment of the Fraser River species stock migrates through Johnstone Strait. The strength of this stock is a major factor which must be taken into consideration in the overall management program of the Study Area. At the same time the abundance of other

species, particularly sockeye, must also be taken into consideration.

In 1959, a major pink salmon investigation was carried out along both migration entrances to the region to determine the migration routes, timing, abundance and exploitation of these fish. The timing of individual odd-year pink stocks showed a high degree of overlap between individual stocks and with sockeye stocks migrating through Johnstone Strait primarily destined for the Fraser River.

The management of fisheries is based on the average productive capacity of all of the stocks. As a result the low production stocks will be overfished, possibly to extinction. This is precisely what is happening to the pink salmon of the southern portion of the Johnstone Strait Study Area.

Historically, the Study Area pink salmon stocks produced catches in the order of 2 million pieces. During the late sixties, poor stock returns-to-

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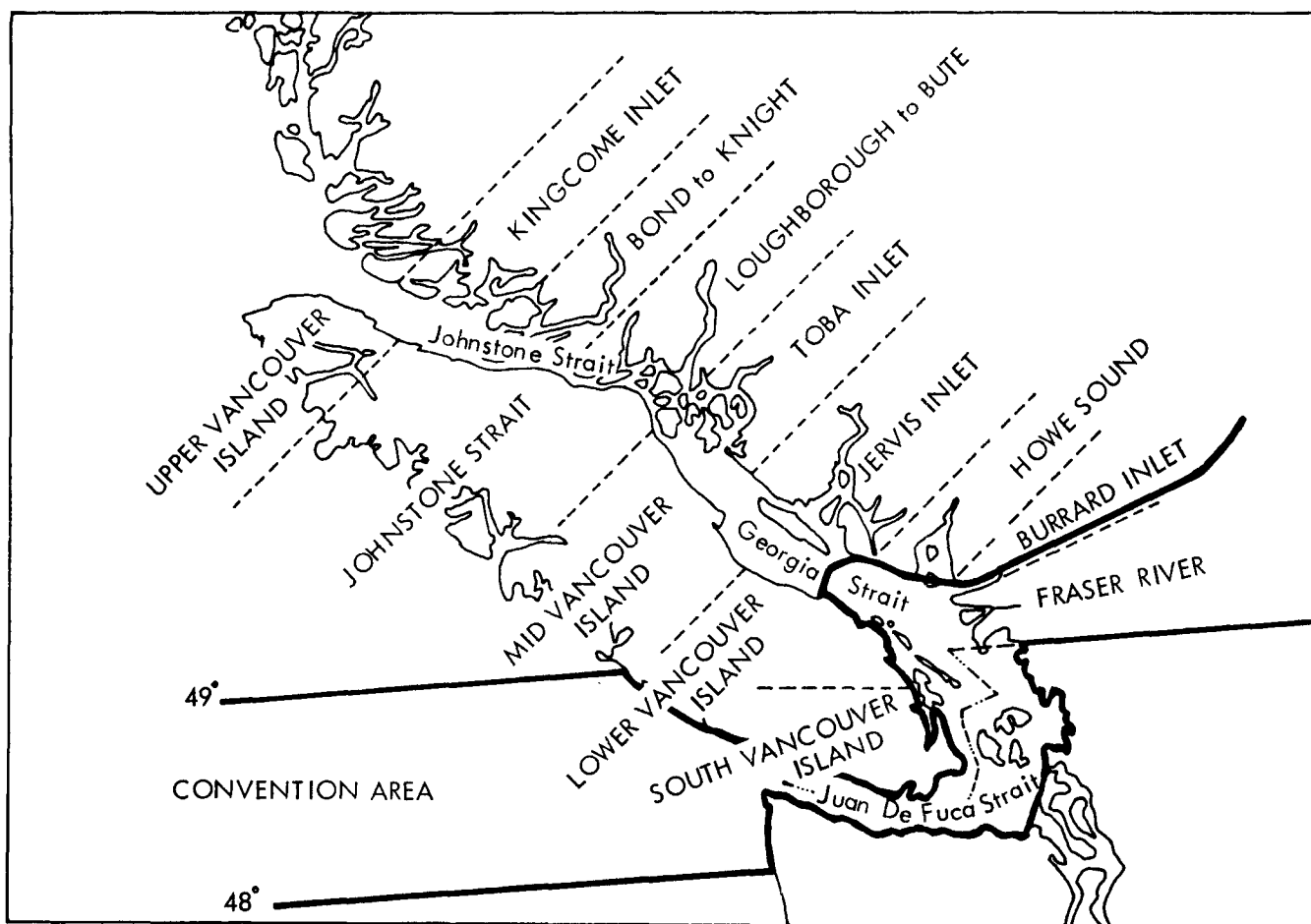


Figure 1. The Johnstone Strait pink salmon study area.

escapement ratios and intensive fisheries in Area 11, 12, and 13 to harvest Fraser-bound pink and sockeye salmon culminated in the lowest escapement on record (1979 - 12% of optimum). From 1971 to 1975, the Study Area stocks increased dramatically as a result of an extremely high stock return-to-escapement ratio in 1971 and an industry strike in 1975.

Although high escapement occurred in 1975, severe flooding resulted in reduced adult return. In addition, an intensive sockeye and pink fishery in 1977 primarily aimed at Fraser-bound stocks harvested them at 70% exploitation rate resulting in the second lowest escapement on record for Study Area stocks (14% of optimum).

Management biologists have recognized the problem for several years and have tried to provide adequate protection to the depressed Study Area pink salmon while exploiting the Fraser-bound pink and sockeye. Finally, in 1979, it was recognized that adequate protection of the other weak pink stocks which migrate through the major fisheries to streams south of Johnstone Strait could only be accomplished by a reduction of the fishery. In the past cycle years, as other stocks of fishable abundance were present at the same time, only partial protection was provided by a one-week closure. However it was felt that expected run sizes for 1979 did not allow this flexibility. Thus a closure was proposed for Areas 11, 12, and 13 for a three-week period from August 5 to August 26. With moderate fisheries on each side of this closure, it was expected that sufficient harvesting of the more abundant Fraser River sockeye and pink stocks could be provided (50% exploitation).

With a closure in effect the expectation was to forego a potential catch of 120,000 Fraser sockeye and 600,000 Fraser pink salmon while protecting 400,000 Study Area pink salmon. This catch of pink and sockeye would be partially recovered in the fishery at the mouth of the Fraser, but due to the international agreement, would be shared with the U.S.

As a result of a higher than expected return of Chilko sockeye and an approximate 50 percent diversion rate of Fraser sockeye, the closure was modified to capture Fraser sockeye. Instead of a total closure the first two weeks of the proposed three-week closure time (August 5 - August 26)

Area 13 and a small portion of Area 12 was opened to fishing for 4-day weeks, ending August 12, and a 1-day week ending August 19. Opening Area 13 and keeping Area 11 and 12 totally closed thereby still conserved the peak of the Study Area pinks which were then in Area 12. The proposal for the week ending August 26 was to open Area 11 and a small portion at the top of Area 12 to capture the later arriving Fraser River pink salmon. Leaving the lower part of Area 12 and 13 closed the next week allowed approximately twelve days of Study Area pink migration to escape the fishery.

Time will tell if this management manipulation was sufficient to protect the 1979 Study Area pink stocks. However, it seems that as long as the mixed stocks in the maingut of Johnstone Strait are fished, the problem of over-exploiting the Study Area stocks will remain. It would seem the only possible solution is to reduce or eliminate the maingut fishing and establish terminal fisheries closer to the natal stream and fish the Fraser stocks terminally at the mouth of the Fraser. If this isn't done, the cost of the maingut fishery on Fraser stocks may be the extinction of the Study Area pinks.

Bud Graham, Planning Biologist, SEP

## Licencing Administration Reviewed

The licencing system and the internal licence appeal process in Pacific Region is presently under review. D.P.A. Consulting Ltd. has been contracted to examine the present systems used to administer licencing regulations for the various west coast fisheries, and where appropriate, to make recommendations for improving these systems.

The Department's goal is to try to simplify licencing procedures as well as to improve efficiency and service to fishermen and our own staff.

Representatives from D.P.A Consulting Ltd. are presently interviewing licencing, regulations and appeals staff in order to gain an understanding of the current licencing administration and systems in use. Discussions are also

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## The Kakweikan Conquered

Until recently, two waterfalls with a total drop of more than six metres have obstructed the passage of salmon up the Kakweikan River. A steep-pass fishway had been installed at the upper waterfall in the late sixties, but it operated only within a narrow range of water levels.

In the summer of 1979, two vertical slot fishways were constructed to provide dependable access to more than 19 km of very good spawning area above the falls.

The design for the fishways incorporated the same techniques used at Embley River and Nibb Falls on the Puntledge River, where the existing rock was used as the outside walls of the fishway, and baffles installed along the excavation.

From the beginning, weather and nature conspired against the project. After two float plane charters to transport prospective contractors to the site had to be cancelled due to bad weather, the "Stuart Post" and a charter boat were called upon. The boats managed to get as far as the float in Thompson Sound, when heavy snow and ice prevented further passage. Helicopters were pressed into service for the remainder of the trip to the site.

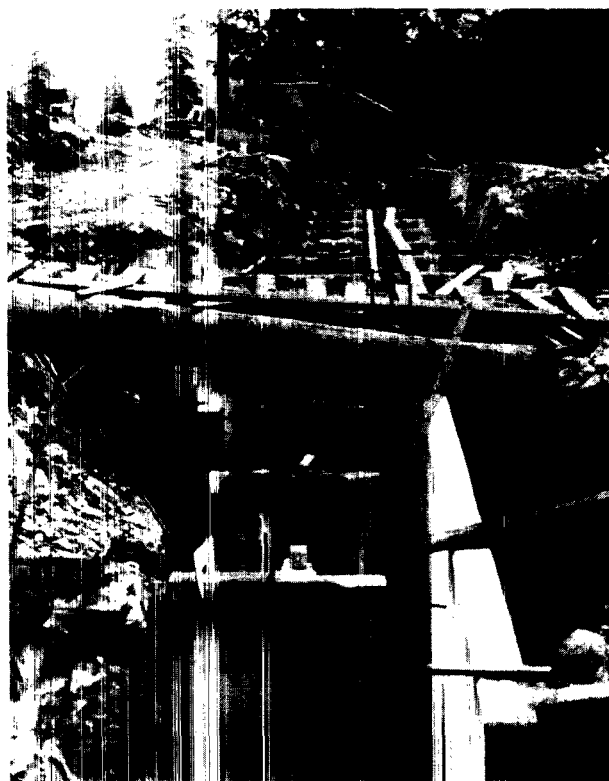
William Chatwin Construction Co. was awarded the blasting contract. This part of the work was very difficult due to the nature of the rock. In some places, it presheared very well to 5 m high walls, and very poorly in other areas.

Bastion Construction Co. Ltd. began pouring the concrete before the blasting and excavation were complete. Their work included the final assembly of all precast fishway baffles and wall panels, and the pouring of all other concrete.

The Kakweikan River lived up to its reputation as a "flashy" river by flooding the site at least four times. During one of these high water sessions, the river crested a four metre high earth and sand-bag cofferdam, doing considerable damage to equipment in the fishway excavation.

After this setback, Tom Stewart, our representative on site, directed that timber cofferdams be built which could be easily overtopped if another flood threatened.

To make up for lost time, the nine-man crew from Bastion Construction worked fourteen-hour days to complete the short



Both fishways, looking upstream. The long fishway is on the left, the short one on the right.

fishway to the pool below the highest waterfall. Fortunately, river flows this year have been favorable for migration, and most fish have been able to reach the short fishway. It was opened at 7 p.m. on August 19. The first pink salmon took just two minutes to pass through the intake structure into the river above the falls.

The numbers of salmon using the fishway are gratifying. From 40 to 63 fish per minute used the fishway during the migration period.

The long fishway, which is joined to the short one by a common wall, is nearing completion and should be open in early September.

Over the long-term, the new Kakweikan fishways are expected to contribute an additional 100,000 pink salmon per year to the commercial fisheries, not a bad return on a total "investment" of about \$450,000.

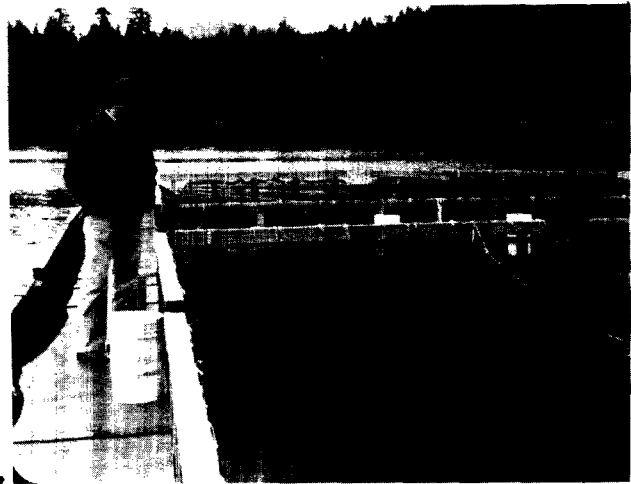
Jim Wild, Senior Implementation Engineer, SEP

## Pallant Pen Pilot Pioneers

Japanese chum hatcheries have been very successful in building chum salmon stocks, and with the recent implementation of a saltwater-rearing phase prior to fry release, adult returns appear to be on the increase. The Japanese have found that the mortality of released fry is low in the river and quite high in the coastal habitat. To lower the mortality which occurs in coastal waters, chum fry have been held in sea pens until natural food is abundant, and the migration of wild stocks out of the bays has begun.

In an attempt to determine whether or not this technique could be used in B.C., a pilot program was run at Pallant Creek in 1978. The Pallant Creek hatchery is located at the head of Cumsheewa Inlet on the Queen Charlotte Islands. The relative isolation and unpredictable weather at times posed considerable problems for on-site staff members, Pat Slobodzian (manager), Brian Eccles (caretaker), Steve Emmonds (assistant caretaker), and Gary Taccogna (fish culturist) but determination prevailed.

During the egg-take period, lasting from October 5 to November 4, just under 1.2 million eggs were fertilized and planted in Heath trays. One to two weeks prior to hatching, the eggs were transferred from the Heath trays to gravel keeper troughs, where they remained until yolk absorption was complete. As the fry moved out of the keeper troughs, they



Biologist Gary Logan and the sea pens.

were transferred to circular tubs, and were fed up to a week before being transported 5 km to sea pens located near the mouth of Pallant Creek.

Features from both Japanese and PBS pens were combined in the Pallant design. Three rectangular nets (9m by 9m and 5m deep) were weighted and suspended from box beam floats mounted on styrofoam-filled tires. The three pens were combined into a single unit and anchored at each of the four corners.

Stocking of the three sea pens began April 24 and was completed by May 14, with sea pen populations totalling 900,000 fry. A group of 100,000 fry was held at the

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### Licencing Administration Reviewed

taking place with computer advisors from Support Services Branch. The next step will be consultation with district staff, fishermen and industry groups.

In the interim, Aura Services Ltd. has been contracted to handle internal licence appeals. Its representative, Jim Connor, is hearing licence appeals from fishermen. Ian Perceval has relinquished this role and has returned to his full-time FVIP duties. Appeals which are denied by this committee are referred to the Minister's Appeal Committee to which W.R. Hourston acts as chairman/secretary and non-voting member. D.P.A Consulting Ltd. will be

presenting its final report by December 31, 1979. Their report will most likely consider factors such as possible decentralization of licencing to the field, contracting out of some licencing functions, changes in licencing plates or personal fishing licences, and methods to improve communication of licencing changes to industry. Their recommendations will hopefully be able to alleviate some of the problems and heavy workloads being experienced by Licencing Unit brought on as additional fishing licences and limited entry fisheries have been added in Pacific Region.

Frances Dickson, Program Planning,  
Development & Evaluation Officer,  
FSB

## Special Discount on Salmon Book

"Pacific Salmon"  
by R.J. Childerhose  
photographs by Marj Trim

The long-awaited book, "Pacific Salmon" is now at your bookstore. But wait! The publishers, Douglas and McIntyre of Vancouver have offered a 40% discount off the retail price of \$25.95 to fisheries staff. On one condition - that they receive a single order. To take advantage of this terrific offer, place your (prepaid) order with Linda Jamieson, 11th floor, 1090 West Pender Street, Vancouver, B.C. V6E 2P1 (Phone 1727). Further information:

- order as many copies as you wish. (They would make great Christmas presents!)
- total price: \$15.57 each. (For out of town orders, add \$1.00

- per book for postage and handling.)
- a cheque, money order or cash for the full amount is required at the time you place your order. Make payable to Douglas & McIntyre Ltd.
- last day to order: October 25.

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### Pallant Pen Pilot Pioneers

hatchery and reared in freshwater, so that the quality of the fry produced by the two rearing strategies could be compared. In addition, a portion of fry from each of the wild stock, freshwater-reared, and saltwater-reared groups was marked with a different fin-clip to enable an evaluation of comparative smolt-to-adult survivals when the fish return in 1981-83.

The fry were fed four times daily, and with estuary temperatures ranging from 9.5-13.0°C, growth rates averaged 4.2% body weight/day (which met the Japanese goal of 4%). A comparison of similar-aged saltwater and freshwater-reared groups revealed growth and condition to be substantially better in the saltwater-reared group. Approximately one million chum salmon juveniles were released May 24-25, when migration of wild stocks out of Cumsheewa Inlet was evident. Overall egg-to-release survival was 84%, exceeding the Japanese goal of 72%.

The spring program was highlighted in mid-May by a visit from a noted Japanese sea pen specialist, Chikara Iioka. Mr. Iioka toured the facility and was favorably impressed with the operation. His helpful suggestions will lead to modifications which are expected to improve the program in following years.

Initial production data for the Pallant Creek pilot hatchery operation are most encouraging; however, the success of the program cannot be fully determined until adult returns can be evaluated in 1981-83.

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### Dental Plan Available

PSAC Local 20147 (Fisheries) is sponsoring a dental plan which is available to all employees, regardless of employment status or association.

The cost is \$7.50/month for a single person, \$19.00/month if married. There is an additional \$0.50/month administration fee. If you are married, the \$19.00/month premium also covers your legal or common-law spouse, your unmarried children under 21 years of age and your unmarried children over 21 years of age if attending school.

Response to the plan has been good. To date, 100 people have joined the plan. By January 1, 1980, it is hoped that payroll deductions for the plan will be available.

For further information, write to: Alice Sunderland, 206 - 700 Chilco Street Vancouver, B.C. V6G 2R1.

Special Note: There is some misunderstanding that 75% of each district must register for the plan before it can come into effect. That information is incorrect. There is no such restriction. You may sign up for the dental plan at any time (for coverage beginning the following month, in most cases).

Gary Taccogna, Fish Culturist, SEP  
Bruce Shepherd, Biologist, SEP



## The Stories Behind the Tuna Story

Before the dust has settled it may be fitting to say a few words concerning aspects of the recent seizures of American tuna vessels on the tuna grounds off our West Coast.

First, a few statistics: (all figures for "Tanu")

Distance steamed: 2039 n.m.  
(about 3780 km)

Fuel oil consumed: 10,061 gallons  
(approx)

Overtime to crew directly related to the operation: 802½ hrs  
(extended time). Not counting Master & Chief Engineer.

Vessels seized by "Tanu": 12

Vessels escorted by "Tanu": 15

Total distance steamed on escort duty: 597 n.m. (about 1100 km)

Total time: 12 days 7 hours

A number of incidents stand out in my mind that perhaps may be of interest to readers of the "Sounder".

First is the predicament of one crew member who found himself in a vessel under the control of a skipper who managed to put away three 40 oz. crocks of rye in a period of about 24 hours and still appear on deck in a reasonable state to handle himself and his affairs on arrival in Victoria. I marvel at his constitution and, even more, I marvel at the diplomacy and tact of my crew member who handled this very difficult situation.

Two of "Howay's" crew members found themselves limited in speed by dire threats, but otherwise in complete control of a tuna vessel without food, water, or warmth for more than 24 hours in a violent southeaster off Triangle Island, where winds reached storm force proportions at their peak.

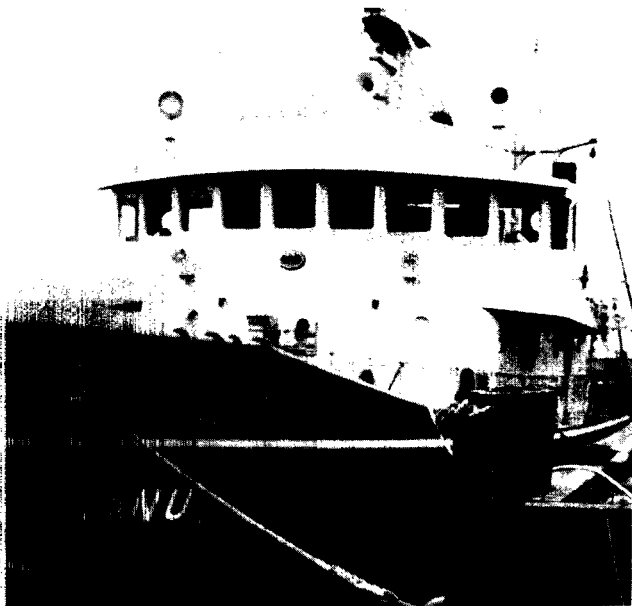
Then there was "Laurier's" experience with a stubborn skipper who threatened to run for it off Carmanah Point.

Finally, there was the alarming disappearance of one vessel complete with fishery officer for over 12 hours, due to a faulty compass and a skipper whose only knowledge of navigation appears to have been gained by "following the fish", and dressed only in his "long johns" at that! This incident involved "Tanu" and "HMCS

MacKenzie". The "HMCS Provider" and a Canadian Armed Forces Argus aircraft were on stand-by to support "MacKenzie". All military units were stood down when "Tanu" gained contact with the missing vessel on the VHF D/F set.

From my own point of view some aspects of the operation reminded me of my wartime experiences sailing in convoys. The problems of "rompers" (fast ships), and "stragglers" (slow ships) were constantly with us; we were faced with all the small problems caused by people and machines that had to be handled by the convoy commodores of wartime convoys. It was surprising how quickly all the vessel skippers quickly adopted a reasonable standard of disciplined voice procedure on the VHF radio. I would like to have been at the Vancouver Traffic Management Centre and watched our snappy "formation" anchorage in English Bay, during the early hours of Labour Day, on their radar.

Finally, I would like to thank our Director General, Dr. Wally Johnson, for keeping the news media at bay and for his personal thanks to my crew (both very much appreciated).



In closing it is timely to remind everyone that September 9 was "Tanu's" eleventh birthday - did someone offer to throw a party!?

Tony Preston, Master, F.P.V. "Tanu"

## Community Advisors, SEP/Public Interface



Top, from left:  
Bryan Allen,  
Bob Hurst,  
Trevor Morris.  
Left:  
Don Lawseth

The four new community advisors of SEP's Public Involvement Program have been established in the field for a little over a month now. The "fantastic four" involved in this pilot program are:

- Bryan Allen, a former project coordinator with SEP's Community Development Program, who, stationed in New Westminster, covers all of southern B.C. up to Prince George and westward to a little past Fort St. James.

- Trevor Morris, former fishery officer in Masset, who, from Victoria, covers the entire west coast of Vancouver Island and the east coast up to the Chemainus River.

- Bob Hurst, who came to SEP from the Fisheries Research Station at UBC. Based in Nanaimo, he keeps tab on the east coast of Vancouver Island and the southern mainland from Howe Sound to Cape Caution.

- Don Lawseth, formerly assistant manager at the Quinsam Hatchery, now works from Terrace, covering the northern mainland and interior in addition to the Queen Charlotte Islands.

The major responsibilities of the community advisor are to help volunteers choose enhancement projects and to guide the projects to success by providing technical advice and any other support the sponsoring group may need. The CAs also provide general information on SEP, specific information on participation activities and forward public concerns back to SEP management.

The CAs have dual reporting relationships through the district supervisor on a day-to-day basis, and through the head of the Public Involvement Program, SEP, for program direction and final approval.

Projects supervised by the community advisors range from small incubation box installations such as those of the Sechelt Rod & Gun Club on Flume Creek and the San Juan Enhancement Committee on Four Mile Creek, to stream and gravel restoration projects on Slesse Creek with the Upper Fraser Valley Chapter of the Steelhead Society and Toboggan Creek with the Bulkley Valley Steelhead Society.

All project applications are channelled to the local community advisor who is responsible for evaluating and examining the proposed projects to ensure technical feasibility and that the projects fall within funding guidelines. Does the group have the skill and workers to successfully complete the project? What are the proposed costs? Are there any alternate funds, equipment, etc. available to reduce the cost? Could the project be more successful by adding more funds? If the proposal is viable, the CA guides it through various levels of provincial and federal fisheries agencies for approval. If the project is denied at any point of the process, the

# Recent Staff Changes in SEP

## Engineering Division

- Adrian Rowland, project engineer, Chehalis and Upper Fraser projects, came from Hawaii, where he worked for an engineering consulting firm.

- Alain Ho, project engineer for Birkenhead and Chilliwack, is also from an engineering consulting firm in Hawaii.

- Alan Boreham, project engineer for Big Qualicum renovations is a recent UBC grad in civil engineering.

- Wai Leung, project engineer for Pallant, Mathers and Kalum was formerly with Swan Wooster, a local engineering firm.

- Brad Johnson, formerly engineering technician for Kakweikan fishway and Little Qualicum spawning channel, has left to work on the Duke Point Project in Nanaimo, as a carpenter-foreman.

- Rob Stephenson, formerly engineer involved in work at Pallant, Mathers, Fulton and Kitimat, has joined Chevron Oil in an engineering and marketing capacity.

## Enhancement Operations

- Ron Ginetz is new projects coordinator for Enhancement Operations. Working with him is Bruce Shepherd as design biologist. Bruce was formerly project biologist for Pallant and Mathers.

- Ted Perry is biologist program coordinator for Enhancement Operations, moving from biologist for Big Qualicum and Capilano. Cam West is assessment biologist, formerly project biologist for Babine, Fulton and Pinkut.

- David Meerburg has been appointed head of the North Coast Operations Unit. He comes from St. John's, Newfoundland, where he was involved in the Atlantic SEP. Other appointments in this unit: Russ Hilland, operations support biologist; Gary Logan, technical support biologist (formerly assistant manager, Capilano hatchery); Pat Slobodgian, stock enhancement officer, Pallant, where he had been head technician.

If you've ever wondered what 'infrastructure' means, you'll be glad to learn that members of the U.S. Food and Drug Administration have given the term some thought, and have come up with these meanings:

- (a) the structure within an infra;
- (b) the structure outside an infra;
- (c) a building with built-in infras.

- Dave Wilson is now head, Fraser River, Northern B.C. and Yukon Operations Unit. He had been in the hatcheries group. Other new appointments in this unit include: Dave Harding, operations support biologist (from enhancement services); Alice Fedorenko, technical support biologist (from field services); Bob Stanton, assistant stock enhancement officer for Capilano hatchery (formerly assistant SEO at Quinsam).

- Dave Barrett is now head of the South Coast Operations Unit. He had been head of Community Development in SEP's Special Projects Division. Recent appointments in his unit: Bill McLean, operations support biologist (formerly project biologist for Quinsam); Don MacQuarrie, technical support biologist (formerly project biologist with the Pacific Environment Institute); Iain MacLean, stock enhancement officer, Tlupana Inlet hatchery (formerly senior technician at Fulton River). Ed Carter formerly assistant SEO at Robertson Creek hatchery, has resigned to study theology.

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## CA/SEP Interface

community advisor may alter the project in conjunction with the volunteer group, to receive the required approval. When the approval process is completed, the CA works along with the volunteers, providing technical expertise to ensure the success of the project.

Fish and wildlife groups, schools, community service organizations and environmentally concerned individuals--a number of whom are already involved in rehabilitating the salmonid resource--have been clamouring for technically experienced resource people, assigned to their local communities to assist them in their activities. The four community advisors are SEP's response to these wishes and the public is now more enthusiastic and eager to become involved in salmonid restoration projects. Judging by the public response during the last few weeks, Bryan, Trevor, Bob and Don will soon be operating at maximum capacity in these tough but challenging positions.

Joe Kambeitz, Special Assistant,  
Public Involvement Program

## FO Training Program, 1979

The first fishery officer recruit training program since 1966 was held this summer.

Seventeen recruit officers participated in a program designed to give them the basic knowledge and skills required to function in the field officer role.

The program was divided into two sections. The first consisted of practical training exercises and field trips. The second section was a 7-day training cruise aboard the "Tanu".

The classroom theory portion of the program covered thirty-four subjects, ranging from administration to fisheries management and enforcement. Thirty-eight members of the department conducted the information-oriented lectures. Staff enthusiasm and their direct participation were largely responsible for the overall success of the program. However, Brian Richman (fishery officer, Port Hardy) deserves a special mention for his help

with coordinating the program and instructing.

The highlights of the entire program were the two training cruises aboard the "Tanu". The preparation, participation and genuine enthusiasm displayed by our Ship Division staff were truly impressive.

During the two 7-day cruises, classroom theory was integrated with practical training. These practical training cruises offer much more than knowledge and skills. The "Tanu" experience laid the foundation for teamwork, an essential ingredient, since most of field officer work requires a high degree of co-operation with others.

Judging by the course critiques of the recruits who took part, the time, money and effort put into developing and conducting the course was well spent. The dividends will come subtly, in the performance and attitudes of the new officers.

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From left to right: (back row) Fishery Officer (and Instructor) Brian Richman, Capt. Tony Preston, Fishery Officers Floyd McKee, John Lewis, Doug Swift, Clyde Moraes. (Front row) Pat Harrison, George Vardy, Chris Curtis. Absent: Mike Setter, Seigi Kriegle.



Sincere thanks and appreciation go to all those who participated, and to the recruits themselves, who demonstrated by their actions that the program was a success.

Lyle Freeman, Staff Training & Career Development Officer

From left to right: Capt. Ozzie Nilssen, Fishery Officers Mike Weston, Greg Klimes, Brian Lunn, Ken Penny, Jim Wallsmith, Dennis Burnip, Glen Kostiuik, Carl Brecker, Staff Training Officer Lyle Freeman.

## The Juvenile Salmonid Trapping Manual: Its Evolution

In the spring of 1977, the Habitat Protection Division sent several biological and engineering technicians and a biologist into the remote upper McGregor River to investigate the probable impacts to chinook salmon populations, should the proposed B.C. Hydro McGregor River Diversion scheme proceed.

In the planning and subsequent organization for these field investigations, it became clear to us that the principal knowledge in juvenile salmonid trapping techniques and strategies had been developed by a few senior technicians through years

of trial and error. Since the large size of the Pacific Region served to isolate technical groups and due to the limited number of individuals actively involved, very little information was exchanged between technicians who had developed innovative techniques and those who needed guidance with unfamiliar situations in remote trapping locations.

At this time, the Headwater Tagging Program required many thousands of wild and healthy juvenile salmonids to be

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## Spurious Emissions

Staff changes...since the last issue of the "Sounder", are too numerous to list. Recent changes include the departure of Ron MacLeod to Ottawa, where he replaces Dick Crouter as director general, Fisheries Operations, Pacific and Freshwater Fisheries. Dick has been promoted to director general, Maritime Region--we think he'll be hard pressed to match west coast sport fishing there!

\* \*

John Davis has moved to the Vancouver office as assistant director, Resource Services Branch. John comes from the West Vancouver lab.

\* \*

Welcome back Maxine. Maxine Glover will act as editor of the "Sounder" for the year while Kate Glover is working for the Information Branch in Ottawa. We're looking for a west coast perspective now, Kate.

\* \*

Keith Simpson has also rejoined Fisheries after working for 2 ½ years with the Canadian Wildlife Services. Keith assumes control of the Head Program from Steve Heizer, who has switched to management biology in the South Coast Division.

\* \*

Goodbye and best wishes to: Hugh McNairnay, who left the department at the end of the roe fishery and moved to Salmon Arm. We'll all miss Hugh's cartoons... Jim Hart of Queen Charlotte City, who left us to go fishing and to work in the family business. Hope to see you back, Jim... Peter Richards of Offshore Division, taking a year off from all work (at least all that is fisheries related). Smart guy!...Mike Epstein, southern inspection supervisor, who's joining J.S. McMillan Fisheries Ltd., where he'll probably end up in sales... Alf Wiebe, electronics technician, who's joining Pulsar Electronics Ltd. We may still see Alf on contract jobs!

\* \*

A new division chief for Fraser River, Northern B.C. and Yukon is Fred Fraser, who leaves his former position of senior biologist in the same division up for grabs. We understand Fred's had a hectic introduction to his new job.

\* \*

Talking about introductions to new jobs, we hear that Don Aurel had been assistant supervisor in New Westminster for only one week when he was sideswiped in a new vehicle, also a week old!

\* \*

Rumor has it that it's been so hot in New Caledonia that Sandy Argue has been forced to take his toque off.

\* \*

Pat Campbell, Offshore Division, has no axe to grind with Prince Rupert--she's transferring to that district office. Jenny Kameda, Ship Division clerk at Prince Rupert will be missed by all who worked with her. She's off to Ryerson Technical College where she's studying design.

\* \*

New arrivals: Brian and Sharon Richman have a new addition to their family, a baby girl, as do Robin and Terri Dickson and Barry and Valerie Huber.

\* \*

Speculation is rife that the department is investigating the feasibility of hiring a staff psychologist--either that or a marriage counsellor....

\* \*

We're glad to see Coleman Casey back at work in Prince Rupert after his recent illness. Take care, Casey.

\* \*

Relocations and official renovations at 1090 are slow--very slow. All is not lost though--our engineers might strike a weekend work party!

\* \*

You heard it and wondered if it was true--well, it's official! Wedding bells did ring for SEPer Judy MacDonald and Stu Barnettson. Lucky they don't have to meet the same production targets as SEP. Best wishes, Judy and Stu!

\* \*

# What You Can Expect by Pat Phillips

Editor's Note: This column is written by Pat Phillips, who has the unwieldy title of Budget and Establishment Control Officer for the Field Services Branch. She will discuss some of the more common errors or omissions of a financial or administrative nature that result in confusion, delay and perhaps underpayment of expenses. She invites your questions.

## Relocations

Approved relocation expenses are for actual and reasonable expenses. Only the Director can approve a relocation.

Once a relocation has been authorized, a letter of Notice of Transfer and Authorization for Relocation is completed by us and sent to you, with a copy to the Administration Branch. You should not start your move until you receive this letter and the Forecast of Removal Expenses has been approved.

Complete the Forecast of Removal Expenses form with care, as this governs

what you are paid when you submit your Relocation Travel Expense Claim. If you require an advance, fill out the Travel Authority and Advance form and submit it at the same time.

Pre-move expenses cover your house-hunting trip. (If you are an appointee, you are not eligible for this benefit). Real estate fees and legal costs are not advanced. You must first pay these and then submit them for payment on your travel expenses claim.

Travelling expenses cover your journey from your old location to your new location.

Post-move expenses cover the expenses incurred at your new location, such as interim accommodation while awaiting the arrival of your furniture. You must adhere to the time restrictions in order to be reimbursed for these costs.

Your relocation and how to submit your claims will be covered in the next issue.

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## Obituaries

### Robert Roy Mallory

Bob Mallory died suddenly in July, just months before his expected retirement. He was fifty-nine.

Bob joined the Fisheries Service in January 1946 as an engineer on the charter launch "Ila". He subsequently served as a guardian on the Queen Charlotte Islands, until his appointment as fisheries inspector for Masset in 1947. He transferred to Bella Bella in 1956 before moving to Prince Rupert as marine officer from 1959 until his death.

### Robert N. Gordon

Bob Gordon, 53, special advisor to SEP Executive Director Les Edgeworth, was killed in a car accident near Vanderhoof in August. He had been making arrangements for a Salmonid Enhancement Board meeting at Fulton River in September.

After graduating from UBC with a

degree in civil engineering, Bob joined the Fish Culture Development Branch in Vancouver in 1949.

He played a major role in construction of the Sproat and Stamp Falls fishways. From 1954 to 1969 he was responsible at various times for engineering programs in the Maritimes; fisheries problems stemming from industrial development and hydroelectric projects throughout British Columbia and the Yukon; and the Department's Central Region, headquartered in Winnipeg, as director.

From 1969 to 1973 he was director of the Maritimes Region of the Fisheries Service. In 1973 he served in a number of capacities in Ottawa, reporting to the director general, Fisheries Service.

Requesting a transfer to the Pacific Coast, in 1977 he moved to Vancouver as a special advisor in the development of the Salmonid Enhancement Program.

trapped for coded-wire tagging purposes. Due to the variable successes of trapping programs and their escalating costs, the different strategies employed for trapping such large numbers of fish both in the interior and on the coast became a topic of debate among technicians.

A trapping workshop initiated by Bob Armstrong (who had developed the "Y"-shaped fence trap with which most technicians are now familiar) was held in March, 1978. The purpose of the workshop was to exchange trapping information. A group of twelve technicians met, discussed their experiences, frustrations, and accomplishments. As a result of the success of this workshop we felt a "methods" trapping manual should be written: Al Wood (SEP) also believed trapping efficiency could be improved, with the added benefit of the reduction of trapping program costs. As a result, SEP provided travel funds in 1978 to enable us to meet with various technical groups at their field locations to discuss their trapping operations. The technicians we interviewed were interested in discussing with us their successful trapping innovations and contributing ideas to the manual.

The keen interest expressed at the first workshop and during our field interviews was the basis for holding a second more comprehensive trapping workshop in March 1979 (sponsored by SEP) for technicians from Fisheries and the provincial Fish and Wildlife Branch, and a representative from the Westwater Research Centre at UBC. The "Juvenile Salmonid Trapping Manual" (Manuscript Report #1530) is a product of these workshops combined with the personal exchange of technical ideas enthusiastically provided by many technicians working in the Pacific Region. The Manual reviews the kinds of trapping methods and discusses how to build and fish the different kinds of traps.

The report will be available in our Fisheries' Management Regional Library, 1090 West Pender Street, Vancouver, by November of this year.

Brian Tutty, Biologist, Water Use Section, HPD

Kevin Conlin, Biological Technician, Water Use Section, HPD

## What Do You Want?

A staff newsletter you haven't seen for a long time is like a fickle lover--since you can never be really sure they are going to stay around for good this time, you try not to get too involved.

Well, maybe that's a wise stance to take for fickle lovers (after all, you probably wish they'd stop showing up!), but not for the "Sounder".

As I see it, there are at least three ways to get involved with the "Sounder". First of all, what do you want to read about in the "Sounder"? Jot a quick note with your suggestions, or phone me.

The next way is harder. Write something for the "Sounder". Look at this issue. A wide variety of people contributed articles and items. Some don't consider themselves writers at all, and heck, even their stories came out not too bad, wouldn't you say?

Which brings me to the third way. Did you disagree with something? Like something? Was an important point missed? Got a major (or minor) beef? Write in and say so! Readers (and editors) just love letters which criticize, or praise or continue a controversy or feud.

If you get involved, the "Sounder" will not only be faithful (six times a year) but it will also be honest, fresh, intelligent, biased and unbiased, funny--and maybe even sexy.

Maxine Glover

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Maxine Glover, Editor

THE SOUNDER

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Vancouver, B.C.

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# Sounder

Volume VII No 2

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## New Management Technique: The Multi-panel Test Fishery

In 1977 the return to Robertson Creek Hatchery was 3,000 chinook jacks, 34,740 chinook adults, 27,000 coho jacks and 6,286 coho adults. With the 1978 return predicted to be even greater, the possibility of a commercial net opening on these stocks was investigated. In order to exploit only the stronger age class of returning hatchery chinook and not the "wild" stock of the Somass River system, a test fishery different from the usual "Standard Commercial Net" type was needed.

The test fishery had to provide certain specific information if a commercial fishery was to be successful:

- when hatchery fish showed up
- what size of gillnet would select for the predominant three-year old chinook and still allow the more desirable spawners (four and five-year olds) to pass through the fishing area to the hatchery
- timing of "wild" chinook in the fishing area.

The test fishery must also supply a good cross section of the hatchery run in order to correlate the number of tagged and untagged fish returning to the number of tagged and untagged fish that were released from the hatchery in the brood years.

A commercial gillnetter fished on a predetermined interval at predetermined sites in the upper Alberni Inlet using a gillnet composed of five panels of differing mesh size, i.e. 5-1/4", 5-7/8", 6-1/4", 7" and 8-1/8". All chinook and coho were

sampled for hypural length, sex and coded-wire nose tags. Scales were taken from each fish for age and stock identification. The test fishery began in early August 1978 and continued through the end of September.

Testing to August 30, 1978 showed an increasing number of hatchery fish

### TEST FISHERY:

1. What year was ~~marked~~ ?
2. Write a short essay on ~~mus umad net~~
3. Name three net sizes.
- 4 True or false:

☐ ~~marked~~

☐ ~~marked~~

migrating into the area with an unmarked to marked ratio of 19:1, the same overall ratio as was present in the release years. From this and the obvious abundance of chinook in the upper Alberni Inlet, a commercial gillnet opening with a maximum mesh restriction of 6 1/4" was set for September 4, 1978 at 2000 hours. Fishing continued on a day-to-day basis until September 7. The commercial catch and the test fish-

continued on page 4

**PHOTO CONTEST..... details inside.....**

## Shinners Expects Teamwork

Wayne Shinners is the new director, Field Services Branch, Pacific Region. Born in New Brunswick, raised in Nova Scotia and educated in Prince Edward Island, (B.Sc. University of P.E.I., 1960), he is a true "Maritime".

In 1960, he joined the Fisheries Research Board in Halifax as assistant scientist. From 1965 to 1971, he worked for the Public Service Commission and then for the assistant deputy minister, fisheries management, both in Ottawa. Returning to the Maritimes in 1972, he held a variety of positions until October 1978, when he was appointed director, Field Services Branch, Maritime Region. In October 1979, he accepted a lateral transfer to the Pacific Region.

Which brings us to the start of our interview.

Sounder: Why were you interested in coming to the West Coast?

Shinners: For the twenty years I have been involved with the fisheries, I have worked in either the Maritime/Atlantic region or in headquarters in Ottawa. I've had very little contact with the Pacific Region. This I saw as a definite drawback to anyone wishing a long-term career in fisheries management. For roughly the last five years, I have been making it known to my supervisors that I would like to correct that deficiency and at the same time hopefully contribute substantially to fisheries management here on the West Coast.

Sounder: Have you found any similarities in problems or issues between the Maritime and Pacific Regions?

Shinners: Yes, there are quite a few similarities. I was surprised to find--maybe I shouldn't have been--that the approach by fishermen is the same. There are the same types of individuals, points of view, characters. The industry is more organized here though. The Maritime Region<sup>1</sup>, lacks organized unions, co-operatives



Wayne Shinners and Frances Dickson

and associations, so there you are confronted with dealing with literally hundreds of individuals or unorganized groups. It's very difficult to get any consensus that way. The industry here seems to have a more professional approach, which should make my job a little easier.

The fishery is a very political animal, particularly on the East Coast, but increasingly so here as well. As the dollar value increases, there is more interest in the fishery and consequently a higher political profile.

Sounder: Although you've been here only a few weeks, can you tell us what your first objective is?

Shinners: I set my priorities long before I arrived. First, I'm going to get out in the field as much as possible in the month of October, meet as many of the field staff as possible, personally see their working conditions, hear about

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<sup>1</sup> The Maritime Region is composed of three Maritime Provinces--New Brunswick, Nova Scotia and Prince Edward Island. Newfoundland is a separate region.

### Shinners Expects Teamwork

their problems as they see them, see the fisheries they are managing. Second, I want to do the same with industry, and by that I mean the recreational and commercial fishermen as well as processors, and learn about their problems. I think it's very important to know your staff and their point of view as well as those engaged in the fishing industry.

Third, I'd like to move quickly--starting in November--to discuss with senior staff any organizational problems we may have here, and to co-operatively resolve those problems.

Sounder: Will there be an FSB annual meeting for all staff this year? Are you in favour of having one?

Shinners: I'd certainly like to have one. It's very important for field staff, especially, because they are so isolated from their colleagues, and is absolutely essential to the development of a team approach to fisheries management. Hopefully the dollars will be available for such a meeting.

Sounder: What are your long-term objectives for FSB, Pacific Region?

Shinners: I'm just starting to come to grips with the problems here, so it would be premature to say. There's a learning process to go through first.

Sounder: What kinds of things do you expect from your staff?

Shinners: A sense of commitment to the department and to fisheries management, with everyone considering himself or herself part of a team. I would expect that any decision taken by the team would be supported by its members. I'm looking for "team management"--we have to have this if we are going to come grips with the fishery. And it's my intention to do everything I can as director to allow field staff participation in the decision-making process. In order to make that happen, senior management has a responsibility to provide field staff with the tools necessary for them to do their jobs.

It is very important that the field staff are actively supported by

headquarters staff, or we might as well not bother trying to manage the fishery.

Sounder: How do you plan to solve the seine/gillnet allocation problem here?

Shinners: It must be resolved through discussion and compromise if possible. We will try to get three-party resolution, but the department has ultimate responsibility for managing the fishery.

Too often, we've made decisions and then appeared to back off. When that happens, our credibility has gone out the window.

We must make a concerted effort to get input from all concerned, including the province. But we must accept our responsibility and stick by our guns once a decision is taken.

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## **This Issue ---- Briefly**

Fisheries management. We're all involved in some way or another, and the articles in this issue deal with several aspects of it.

The multi-panel test fishery described in our first story seems to have come a step of the way toward solving the problem of fishing enhanced stocks without overexploiting unenhanced ones--in some cases, at least.

Preparing and collecting the data on which management decisions are based is the topic of a story written by another fishery officer.

And while field services staff are busy finding ways to manage the fish we have now, SEP staff are amusing themselves by thinking up new enhancement options. Bud Graham adds fuel to this fire in "Managing Mixed Stocks--Enhancement Options."

A special thanks must go to fishery officers Dennis Girodat and Barry Huber who wrote two feature articles in this issue, and to others who have sent in news of one kind or another recently. We expect to hear from more of you out there!

## HE'S BACK!



### Multi-panel Test Fishery

ery on the incoming stocks were sampled throughout the fishery and the weekend closure. The area reopened on September 10 at 2000 hours and fishing again continued on a day-to-day basis until September 14, when test fishing results and sampling indicated a decline in the number of hatchery chinook moving into the area and an increase in "wild" stocks. The area was closed until further notice, although test fishing continued to gather as large a data base on the hatchery fish and "wild" stocks as possible.

During the two openings in 1978, a gillnet fleet of 38 and 68 respectively took a total of 2,819 sockeye, 7,693 coho, 21 chum, 9,993 chinook and 529 jack chinook. The average weight of the chinook was 17.8 lbs. with the predominant age class being threes. The return to the hatchery was good, and the "wild" stocks in the Somass River system returned at one of the highest levels in years, possibly helped by some straying of hatchery fish.

In 1979, a commercial opening on chinook was again a possibility, but with a few new problems. In 1978 the chinook were taken in September because of the presence of sockeye in the Alberni Inlet in late August, and

as a result, some of the chinook were not in prime condition. Also, there were indications that ocean survival in some of the brood years would seriously alter the composition of the chinook age class composition. Then there was the anticipated problem of a heavy concentration of gear in the area for the opening, possibly altering the exploitation rate on the early part of the run. As it turned out, all these anticipated problems cropped up.

Following the same pattern as in 1978, by the third week in August, the test fishery indicated that hatchery stocks were in the upper Alberni Inlet, with a higher than anticipated percentage of three-year olds that were somewhat larger in size than in previous years. A 36 hour opening was set beginning August 27 at 2000 hours, with a maximum mesh restriction of 6½" for gillnets. A fleet of 161 vessels caught 953 sockeye, 624 coho and 12,762 chinook. Test fishing after the closure showed that there were insufficient stocks to warrant any further openings. Escape-ments to the hatchery and the rivers to date have been good.

There are many problems associated with harvesting an enhanced stock that

continued on page 5

## Gaffing in the Catch



Fisheries & Oceans Minister James McGrath took to the waters off Prince Rupert early in October to find out how commercial trollers catch salmon. Fishing with Dick McDonald, owner of the Ida III, and Mike Florion, president of the Prince Rupert Co-op, the early morning catch was one chinook and one coho (pictured here) which the Minister gaffed and brought on board. Supervising were Florion, left, and Doug Johnston, right, ADM, Pacific and Freshwater. While in Prince Rupert the Minister met with a number of commercial fishing groups and K.Rafe Mair, provincial Minister of Environment. Earlier he had visited Vancouver to witness the federal-provincial agreement signing for the second phase of the Fraser River Study as well as meeting with the presidents of all the organizations representing the Pacific Fisheries Management Advisory Council.

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### Multi-panel Test Fishery

differs little from "wild" stocks returning to the same system. Timing, age composition, brood year production and rate of return of the enhanced stock as well as the wild stock must be known before the enhanced stocks can be commercially harvested. The situation is further complicated by the need to selectively harvest a certain portion of the enhanced stocks and still maintain the desired level of escapement of the more desirable spawners.

The multi-panel gillnet test fishery works very well to gather information for a terminal fishery of this type. It yields valuable information on gear selectivity for size and sex, it enables a good cross section of the target population to be sampled for age determination, stock composition, tag recovery, sex ratio and overall stock identification. If the test fishery is properly operated, an enhanced stock such as Robertson Creek chinook can be identified and

separated from coincidentally migrating wild stocks.

The system can only work if there is a quick turnover in gathering the data and getting the results back. All information must be available to the management staff in the field quickly if it is to be of any value in the orderly operation of the fishery. If the information is either incorrect or not readily available, serious management errors can result in damage to the less abundant "wild stocks".

The terminal chinook fishery in Area 23 has been a success due to the co-operation between the hatchery staff, technical staff and field management staff. If terminal fisheries on enhanced stocks are to be continued and expanded, this level of co-operation will afford maximum protection of the less abundant "wild river" species.

Dennis Girodat, Fishery Officer,  
Port Alberni

## Fishery Officer Moves

<u>Promotions</u>	<u>From</u>	<u>To</u>
John Lamb	Habitat Protection	GT 3 Habitat Officer Queen Charlotte
Gordon Zealand	GT 3 Port Hardy	GT 4 Supervisor Whitehorse
Rob Wilson	GT 3 Tofino	GT 4 Ass't Supervisor Kitimat
Ben Covey	GT 2 Nanaimo	GT 3 Masset
Don Aurel	GT 3 Salmon Arm	GT 4 Ass't Supervisor New Westminster
<u>Transfers</u>		
Obert Sweitzer	GT 4 Supervisor Whitehorse	GT 4 Ass't Supervisor Kamloops
Larry Ottman	GT 3 Whitehorse	GT 3 Prince George
Bill Pastuch	GT 3 Whitehorse	GT 3 Chilliwack
Al Groat	GT 3 Smithers	GT 3 Special Duty Officer Smithers
Mel Farquhar	GT 3 Alert Bay	GT 3 Whitehorse
Dick Trischler	GT 3 New Westminster	GT 3 Port Hardy

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## Employee Training and Development Program Introduced

The Pacific Region Executive Committee recently approved the introduction of an Employee Training and Development Program. The cornerstone of the program will be the immediate implementation of a performance assessment and employee appraisal process for all employees. All Supervisors and managers who will appraise the performance of subordinate employees will receive ½ day training seminars on the principles and mechanics of appraisal.

Appraisals will be prepared during the months of January and February, 1980 to cover the performance of each employee from January 1, 1979 to December 31, 1979.

In addition to assessing performance, the appraisals will be used to identify training requirements in order to best utilize training funds to upgrade employee skills and to recommend development opportunities for employees.

Another segment of the program

will describe career paths for employees who aspire to high level positions in the organization.

The program will also attempt to define organized training and work assignment programs to develop in-depth and breadth of experience for employees in the larger employee groups such as fishery officers, ships crew and officers, biologists, research scientists, etc.

A Pacific Region Training and Development Committee will implement the program. It will also review all training and development recommendations to ensure they are in accordance with departmental and regional objectives. The Committee will also coordinate and recommend on the regional training forecast and develop evaluation criteria to ensure the training is meaningful and justifies the expenditures involved.

The Committee will identify high  
continued on page 9

## Good-bye B.C.16s?

For approximately forty years, the Department of Fisheries and Oceans has been estimating and recording the abundance of salmon spawners. In this time the "Annual Report of Salmon Stream and Spawning Grounds" has had almost no changes in format. It is simply outdated for today's fisheries management requirements.

Any new system for recording spawning estimates should use actual estimates of abundance by subareas of the stream, which would eliminate the statistical errors associated with the old classification system. Since each spawning unit is smaller, estimates may be more precise.

The new system should provide continuity and repeatability of estimates by establishing reference standards for key production areas. These reference standards should include photos (ground or aerial) of key spawning areas, test fish catches, etc.. They might also include size, sex and age compositions for each species. All these factors would be particularly important considering the high turnover rates of field staff.

The following steps could be taken to estimate spawner abundance in an average stream:

1. Review the predetermined stream zones (runs and reaches) and reference standard for each.

2. For each zone estimate the number spawners of each species, by comparing with reference standards. Record observations on age (jacks, etc.), sex and percent completion of spawning. Record observation conditions, percent of spawn possibly subject to floods, droughts, predators, etc. Take additional reference photos.

3. Submit data for computer entry and analysis. Review printout.

4. Repeat the process for each observation.

When the new system is completely operational, the information can be retrieved in a number of ways. The computer could generate a summary report by subarea of stream, by stream, floods, droughts etc. and generate es-

timates of spawners, eggs deposited, probable fry production, probable adult return, progenal age structure, etc. If floods or droughts occur, their impacts could be accounted for to adjust projections.

This past summer, a trial salmon escapement study was conducted on the Kwinamass River in Area 3. Efforts were directed at obtaining information up to step 4, although cards were not submitted for computer analysis.

The data cards for the proposed new system were very complex. Under the best of conditions, when all spawning areas of a stream were accessible, it still took a great deal of time to incorporate such a complex system. Unfortunately, since many of our streams are at least partially inaccessible, accurate spawn estimates using any method are difficult to obtain.

Despite its complexity, the new system offered some advantages:

1. Estimates of spawner abundance by subareas allowed a more detailed look at numbers, sex ratios and areas utilized for spawning

2. Photographs of specific spawning and problem areas were useful for reference purposes

3. A detailed map of the system showed bridges, gravel and sand bars, tributary creeks, log jams, pools, areas utilized for spawning and rearing, as well as the location of point samples.

The major disadvantages of the new method were:

1. Point sample cards were too detailed and time-consuming to be practical, and did not provide readily usable and practical information. (The reach card, when used with a subarea was much more practical and useful as a reference). The data cards used were the type used by the Environmental Land Use Committee, ELUC.

2. Seasonal support staff (patrolmen, guardians) collect this information, yet completing accurately the detailed point sample card required considerable experience and training.

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# Reactivated SFAC Must Recommend Sport Catch Restrictions

About the time this issue of the "Sounder" rolls off the presses, the Sport Fishing Advisory Committee (or Board) will be facing some of the most momentous decisions it's ever been asked to make.

One is choice of increased restrictions on chinook salmon sport fishing. The other is increasing its own membership from 12 to 20, and changing its name from "committee" to "board". The last seems almost automatic. Boards often contain committees, not vice versa.

The SFAC was created 15 years ago when the Department of Fisheries and Oceans perceived a need for "grassroots" scrutiny and advice on management of the mushrooming recreational fishing sector. The size of the SFAC has varied over the years but had 11 regional conservation and industry representatives, plus three from large conservation organizations and three from federal fishery agencies.

During periods when no noteworthy innovations in management were being considered, interest in the SFAC seemed to decline. At the last meeting in March, for instance, the established membership had shrunk to only 12, from recognized commercial or conservation organizations. At the March meeting, however, it was proposed to swell its size to include at least three members-at-large unconnected with fishing clubs, and representatives from the tourist industry, the charter business or the fishing tackle industry.

Since the SFAC's decisions are not binding upon the Department of Fisheries and Oceans, which is the designated manager of fisheries, the prospective members of the SFAC meetings actually are guests of the Department. At the November meeting the SFAC will, however, consider, and be asked to vote on, the enlargement of its membership. Potential new members, meanwhile, will be invited as observers in case the Committee is increased by its own vote.

Back to salmon management, the momentous decision is that of how to reduce the catch of chinook, particularly the wild or natural fish. In order to halt the decline of chinook stocks, and to gradually increase them to their former levels, the commercial, sport and native food fisheries must settle for smaller chinook catches. The decision on which the Department wishes a recommendation from the SFAC is just how the sportsmen should cut back -- either by increasing the minimum legal length limit to 20 inches (from the present 12 inches), or by cutting the daily creel limit to one chinook in the allowable limit of four salmon per day.

Those appear to be the two least upsetting choices likely to increase spawning escapement by 50 percent or so. In order to double the escapement, for example, (which would hasten restoration of the fishery base), it would be necessary to totally eliminate sport or commercial fishing for chinook salmon in the Strait of Georgia. Dropping the sport fishery completely undoubtedly would, however, bring a swift reaction from the people.

Lee Straight, Recreational Fishing Advisor

## B.C. Fish Landings Top \$300 Million

Based on current projections, the total value of landings for British Columbia fisheries is expected to exceed \$300 million in 1979. This is the highest value of fish landings for any province in Canada, and is more than double the 1976 total B.C. value of \$141 million.

Total projected landings are down from 1978 but are in keeping with the average annual landings over the last 10 years.



## Good-bye B.C. 16s?

3. The system was ineffective when inaccessible areas of a river had to be examined from the air, especially when more than one species were spawning in the area at the same time.

The field test of the proposed new method did point out some ways to improve the method further:

1. Numbers of spawners should be recorded as actual estimates, as proposed.

2. An estimate of the spawning capacity of a stream or river should be determined and the "size of run" section be amended to a percentage of spawning capacity or over-spawning.

3. Where possible, sex ratios should be recorded as well as the age composition.

4. A map should be prepared for each system outlining all useful details including man-made and natural hazards, log jams, sand bars and holding, spawning and rearing areas.

5. Any limiting factor such as silting, flood conditions or freezing should be noted and losses estimated.

6. Fixed wing aircraft or helicopters should be used when there is no alternative (e.g. - in cases of inaccessibility, staff shortage) if accurate escapement estimates are to be obtained.

7. Other methods of salmon enumeration such as counting fences, towers, test fishing, photography, electronics, tagging and hydraulic sampling should be used where possible.

8. Fishery officers and other field staff involved with salmon enumeration and management should be canvassed for their suggestions.

Fishery officers are still managing the fishery under the same conditions they did 40 years ago--with shortages of staff, equipment and time. By contrast, industry has wasted no time or expense to develop better and more efficient ways to harvest our salmon resources. The combination has resulted in soaring profits from a valuable food resource and declining salmon stocks.

Yes, we need better methods of enumerating our salmon stocks and as-

sessing environmental factors. But any new system, and especially one involving more details, will require adequate financial support. This will provide the tools necessary to make this important part of our work practical.

Barry A. Huber, Fishery Officer  
Lower Nass Subdistrict

### Editor's Note:

This is one of two pilots being carried out by FSB staff to develop and test improved methods of assessing and recording salmon escapements. This is in recognition of the inadequacies of the B.C. 16 form and approach. At the end of the season, it is planned to have a workshop with selected officers, supervisors, technicians and biologists to review the findings of these two pilots and to develop a program for next year.

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NOTHING SO NEEDS REFORMING AS

OTHER PEOPLE'S HABITS.

- Mark Twain

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### Employee Training and Development

potential employees and recommend them for career development opportunities. The Executive Committee will make the final recommendations to department headquarters.

Members of the Regional Training and Development Committee:

Chairperson:

Fred Iviney, Personnel

Members:

Lyle Freeman, Field Services

Bob Smith, Support Services

Gordon Irving, Support Services

Else Wilson, Salmon Enhancement

John Davis, Resource Services

Edward Bilinski, Vancouver Tech Lab.

Fred Basson, Personnel

- Secretary:

Alison Jamieson, Personnel

Fred Iviney, Area Personnel Manager,  
DFO, Pacific Region.

# What You Can Expect

by Pat Phillips

Before I continue my "Dear Pat" column I should point out that these are "helpful hints" only. I am not the final authority, nor do I have the exclusive privilege of deciding if you are actually entitled to what you are claiming. The Finance Division scrutinizes and OKs all submissions with the knowledge that the Department is often visited by the Auditors.

## Relocations

One of the most important policies of relocation is, "in any relocation the aim shall be to relocate the employee in the most efficient fashion, that is, at the most reasonable cost to the public yet having a minimum detrimental effect on the transferred employee and family."

Section 1.1.7 of the Treasury Board Relocation Directive states: "If an employee incurs expenses related to a relocation before having received written authorization to relocate, the employer shall not be responsible for such expenses, unless and until the relocation is subsequently authorized."

You submitted your forecast, received your cheque, had a house hunting trip. The Department of Supply and Services was contacted, a mover moved you --and you and your family are now moved in.

An employee claiming relocation expenses must submit a detailed and itemized account. The claim must be supported by receipted vouchers for each item in the claim, except: mileage allowance, expenses for meals, incidentals and amounts paid for accommodation other than in commercial establishments.

It is most important to put in all dates and times in chronological order to substantiate costs.

If you wish, a separate claim can be submitted for the house hunting trip (for those entitled to one), and I recommend this. You may claim for employee and/or spouse for 5 days (6 nights) duration at the new place of duty, exclusive of travel time (which

must not exceed 2 days). Again, the claim must be in chronological order, with all necessary receipts. Only the employee is entitled to the incidental expenses.

On the actual move, again I must emphasize the chronological order, with dates and times, so that your trip can be followed from start to finish. Show each day's costs, i.e. hotel, meals and incidentals.

The Travel Directive governs rates. Remember that mileage is paid at 9¢ per mile, and you are expected to average 300 miles per day.

Two full days of temporary accommodation may be used at the employee's discretion but before any interim accommodation is used.

Interim accommodation is based on necessity. It is not automatic, nor is it an entitlement, and all employees should make every effort to know when they can move into their new accommodation so as to judge their move accordingly.

Interim accommodation follows your temporary accommodation. This cost, plus meals, can be claimed but not incidentals.

Real estate fees cover principal residences and receipts must be submitted for payment. Some legal fees are also reimbursed.

As you are aware, there are some special considerations, again not to be thought an entitlement but to assist an employee over some "rough" spots--if necessary. Prior approval must be obtained before making any changes to your Forecast of Removal.



## Spurious Emissions

The dynamic hunting trio — Sandercock, Schutz and Palmer failed to bag their moose this year, excuse being that their trip was merely exploratory! However, we hear the Prince Rupert gang fared much better with Willie McKenzie getting one on Thanksgiving weekend. Barry Huber is also spending much of the fall hunting for anything on four legs and Tom Perry has just returned from a successful annual hunting trip to the Queen Charlottes. Warden Al Klopfenstein, Smithers also bagged a moose this fall.

Still waiting for details from the Habitat Protection boys on the Vancouver staff Christmas party — we understand Tom Bird and company have volunteered to organize it.

Patrolman Gerald Coukell was walking a creek in the Kispiox Valley recently when he spotted two bear cubs running toward him. Right behind them was their mother. The cubs scampered up a nearby tree, leaving her to circle ever more closely around Gerald. After about ten minutes, and seeing no other way out of the situation, he shot the bear. Peter Woloshyn, fishery officer at Hazelton, says that the incident illustrates a cardinal rule for field staff: Always take your gun when walking streams.

New Regulations Head is Mel Hart replacing Tinker Young. Mel was staff sergeant, Commercial Crime Section, RCMP, Regina. He is expected to arrive in January.

Ken Conrad was the successful candidate in the recent competition for the investigator position in the General Investigation Section. Ken is currently sergeant in charge, Gull Lake, RCMP Detachment in Saskatchewan.

Rumor has it that a contract has been awarded to produce and install in spawning channels and hatchery ponds thousands of plastic spawners, so we can have enhancement facilities opened at any time of the year.

Welcome back, Kent Karper, now a fishery officer in New Westminster. A few years ago, Kent left for the Prairies, and even managed to stay there for a couple of years before "returning to the fold".

Fishery Officer John Tuytens of Prince George will retire in December after 32 years with the Department. Best wishes, John!

How valuable is the "Sounder"? Although four copies were provided for the Tanu, only one got there. Pilferage of the Queen's mails?

SEP Biologist (his real title is too long) Ted Perry and wife Corinne are parents for a second time. Baby girl, Alisma weighed 8 lbs.14 oz. when she was born in September.

Raenelle March is the new secretary for Fraser River, N.B.C. & Yukon; Raenelle formerly worked for Bob Humphreys. She replaces Pam MacKenzie who transferred to North Coast Division. Dorothy Rogers is the new clerk - receptionist in Statistics Collecting and Processing Unit. Economist Bill Masse has transferred to Habitat Protection.

We hear that Florence Campbell, FVIP, struck it lucky at Keno in Reno.

Officially departed is Tony Domes who has left to do bigger and better things.

Rick Boyd, now regional fisheries management officer, Ministry of Agriculture and Fisheries, Auckland, New Zealand paid a visit to the Vancouver office recently — Rick promises to write a comparison of the two departments for the "Sounder". That should be interesting.

Mike Shepard is rumoured to be in Vancouver for a month (maybe) between Rome, Korea, Cook Island, New Zealand and other world points.

# Managing Mixed Stocks: Enhancement Options

Many of the salmon fisheries on the Pacific Coast are mixed stock fisheries. A mixed stock fishery takes place in a rearing area or on a migration route common to a number of different species and stocks. These stocks probably will have different rates of biological productivity, that is, the average return of progeny per pair of spawners will vary between stocks. The fishery, however, is managed to the total abundance of fish or the dominant stock in the fishing area at a given time. As a result, the low productivity stocks will be overfished, possibly to extinction, while the high productivity stocks will be under-exploited. If salmonid enhancement is applied to one stock of such a multi-stock system, it will raise the overall average production with the consequent increase in rate of exploitation and resultant over-harvesting of un-

enhanced stocks.

When enhancement takes place, management options in a mixed stock fishery are very complex but several possible approaches are available (Figure 1).

The Geographic Working Groups (GWGs) are examining the management strategies for all salmon fisheries in the Region. This could mean distinct changes in the location of fisheries, and the numbers, quality and species of fish allocated to each gear. Clearly, the basic question that must be addressed by the GWGs is "can any discrete harvesting of enhanced stocks take place without adversely affecting other non-enhanced stocks?"

If the enhanced stock can be fished discretely from other stocks it doesn't present a mixed stock problem. For example, Capilano coho can be fished—  
continued on page 13

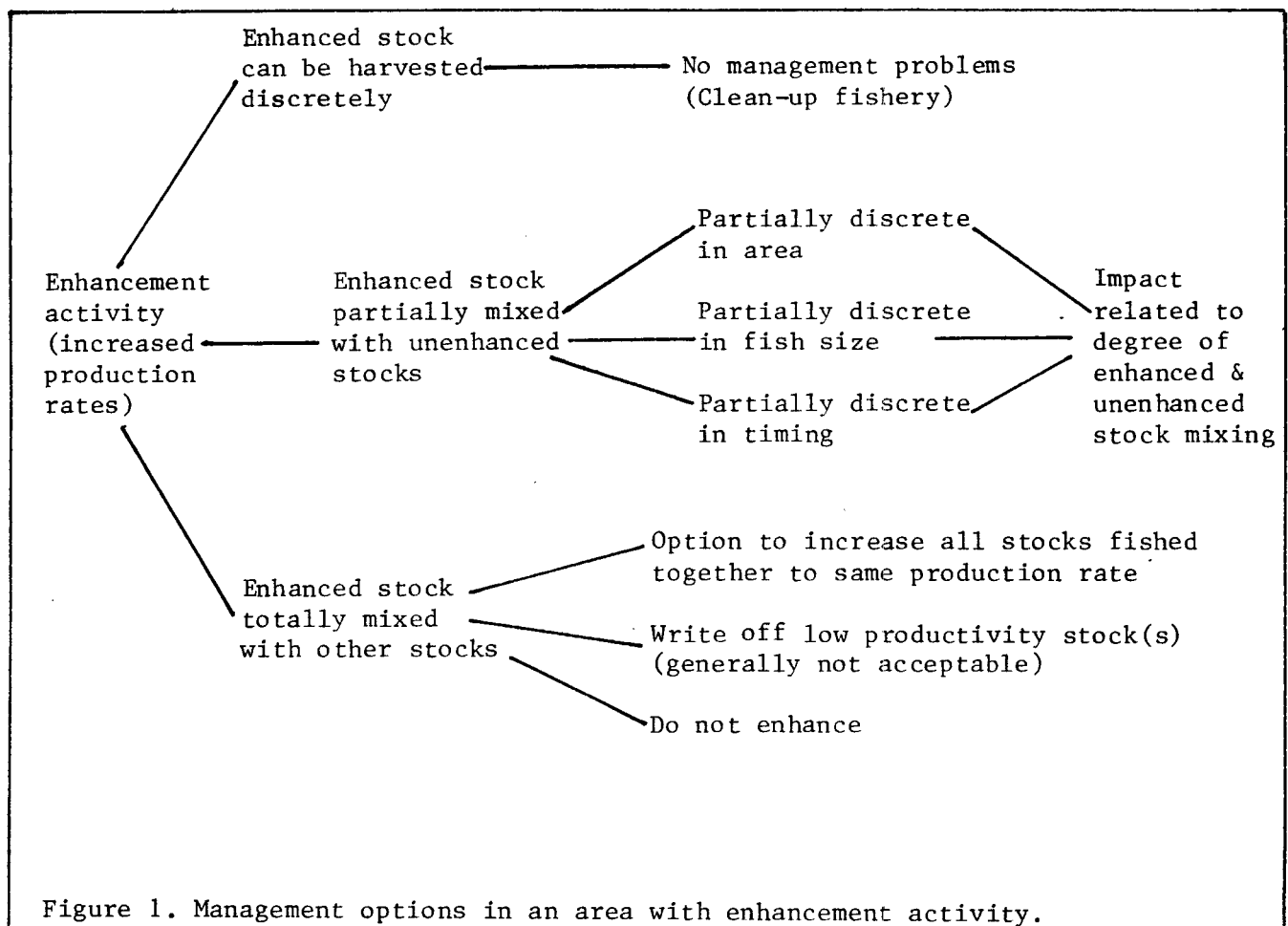


Figure 1. Management options in an area with enhancement activity.

Managing Mixed Stocks:  
Enhancement Options

ed at the mouth of the Capilano, quite discrete from other coho stocks. Adult chinook salmon can be fished selectively from other species by large mesh gillnets. If all enhanced coho were fin clipped and fishermen were only allowed to keep clipped fish it would be a selective fishery.

If the enhanced stock is "slightly" mixed with another stock or stocks there are other possibilities. For example, if a stock is partially area discrete because of migration routes, a selective fishery may be possible, depending on percent mixing of both stocks. Similarly, it may be possible to achieve partial size selection, but this may have important genetic implications, as might selection by timing.

If no discrete fishery is possible it may be possible to enhance all involved stocks to the same rate of production. The only other option, and it is generally not acceptable, is to write off the weak stocks.

Obviously, the most attractive option is to enhance all involved stocks to the same rate of production. Consider three rivers whose stocks are fished together in a mixed stock fishery. If River X appears to have the lowest rate of natural production, it will be enhanced the most, while River Y, the most productive, will be enhanced the least. Since River Z stock is very low at this point in time, the level of enhancement on all stocks will be held down proportionately until Z stock can be rebuilt.

Building enhancement facilities on each of these river systems would be prohibitively expensive, but a central facility on one river system with offsite rearing facilities at the other answers both SEP and fisheries management requirements. This is the "satellite hatchery" concept which is being used at such facilities as Tlupana Inlet, Pallant Creek and Snootli Creek and has been proposed for a number of other sites.

Bud Graham, SEP Planning Biologist.

## Letter to the Editor

Dear Maxine,

I would be pleased to contribute to the "Sounder". I always enjoyed sending in cartoons on the "issues", and would enjoy continuing if you think there is a place for them. My only source of information now, however, is CBC radio so you would have to send me bits of juicy tid-bits to work on.

I am printing a limited edition of a drawing of the "Howay" that I have done. I am picking it up from the printers on Wednesday. If the printing job is up to snuff it should be really nice. Black and white (India ink) and measuring about 12" x 20" with some particulars of the vessel. I am having 200 printed (and then the plate destroyed) --they will be numbered. I would like to let the ship's crews and officers have first crack at it but that's a lot of letter writing. Could "Sounder" make mention of this printing? The price will be \$22.00 per print, and I will send them by first class mail on receipt of cheque or money order.

If people are interested I would like to try some different prints (maybe sets) of other patrol boats, especially the old ones. I love the boats and I would like to "save" some of the older ones for everyone--the "Kitimat", "Persepa", "Clupea", the old "Post" boats, etc., but not forgetting the new ones. Whaddaya think?

Best regards

Hugh McNairnay

Editor's Note:

If you are interested in the limited edition print of the "Howay", write to Hugh at R.R.#3, Hadow Road, Salmon Arm, B.C. V0E 2T0

Hugh, we're sure glad to have you back back--in the "Sounder", at least!

## Spurious Emissions

New arrivals at 1090 include Jaroslaw Gwiazda who is assisting Yvonne Yole in the scale laboratory, Fiona Kempton who has joined Off-shore Division (an escapee from RCMP), and economist Cindy Brown a recent U. Vic. graduate, who's working for SEP with Rob Morley.

\* \*

With all the between-floor moves at 1090, tempers are short, allotted space is small and much furniture is surplus to allowable space, (as were some walls, which were removed courtesy of the engineers).

\* \*

Andy Skipper is enjoying his retirement. Word is that he has been doing some worldwide travelling -- southern California, Mexico, Alaska, Korea, Japan, and also B.C.. In his travels to Japan, he attended the wedding of No.2 Son Wayne.

\* \*

Also hear tell that Gerry Hooser, in retirement at Parksville, is doing some part-time night sitting at the local slammer.

\* \*

Computer Programmer, Sharon Henderson, is currently on leave of absence awaiting the imminent arrival of her first child.

\* \*

Apparently Bob Armstrong thought he had a sure way of getting rid of unwanted telephone calls -- his secretary advised callers that Bob had been transferred north! Too bad it didn't work, Bob.

\* \*

All concerned survived the annual industry inspection tour of Owikeno Lake, Rivers Inlet, and even located 320,000 sockeye on the spawning grounds.

\* \*

Gary Watts, a technician in the engineering group has left to go back to school.

\* \*

Response to the "Pacific Salmon" book deal was pretty good. Staff had ordered more than 300 books at press time.

Late flash: Jay Barclay was the successful candidate for the head commissar position of SEP evaluation, quite a while ago. He thought it was newsworthy enough to report.

\* \*

The abysmal showing of chums is going to leave a number of enhancement facilities, as well as natural streams, almost empty.

\* \*

Dick Harvey, stock enhancement officer at Big Qualicum is working on his third film, this one of the Fraser River. His earlier films have been bought by the National Film Board and schools. According to a recent feature story about him in a local newspaper, his first film "Living River" is now the most widely used nature film in many schools.

\* \*

Did Les Edgeworth get his "warm fuzzy" at the pre-retirement seminar?

\* \*

Consulting work must be lucrative for former fisheries technician Gerry Harris, who is holidaying in Crete.

\* \*

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## **Minister's Advisory Committee Formed**

The Pacific Region Fisheries Management Advisory Council will be reconstituted to form a Ministerial Pacific Fisheries Committee. The committee will include representatives from all components of the Pacific fishing sector and will advise the Minister of Fisheries and Oceans directly. The present council is advisory to the regional director-general.

The committee will meet at the Minister's request to discuss specific problems as well as to review Pacific fisheries issues in general.

The Minister is expected to become more directly involved in the management of the Pacific fisheries and sees the new committee as a major step toward developing an effective consultative process.

## Canada Moves Halibut Fishermen

Following the decision of the U.S. to renegotiate the terms of the International Pacific Halibut Convention, a number of Canadian fishing vessels, which had traditionally fished for halibut in Alaska will no longer have open access to these grounds.

Late in 1978 the Department of Fisheries & Oceans formulated the "Halibut Contingency Plan" and appointed a Halibut Steering Committee, composed of representatives from the Department and from fishermen's organizations, to consider the proposals. The basic premise of the plan was that, while the Canadian federal government had no legal responsibility to compensate the owners of the displaced vessels, it should, wherever possible, accommodate these vessels in other B.C. fisheries. Government financial assistance would be aimed at reducing the transition costs faced by vessel owners so that vessel and crew could continue to operate as an economic unit.

In January of this year, the Department identified vessels which fished halibut in Alaska in either or both 1977 and 1978, and invited the vessel owners, on an individual basis, to meet with departmental officers to discuss the effect of the loss of the Alaska halibut fishery on their future fishing plans, and to explain to them the various relocation options which had been suggested.

Once completed, the interviews were analyzed and a submission to Treasury Board prepared, requesting the necessary funds to implement the program. Treasury Board approval was announced on April 4th, 1979.

Meanwhile, in late March, the Canada/U.S. negotiations were concluded and a two year extension granted the International Pacific Halibut Commission. This extension saw a phase-out of halibut fishing by Canadian vessels in U.S. waters. The Canadian halibut quota was set at 2 million pounds in 1979, and 1 million pounds in 1980. This

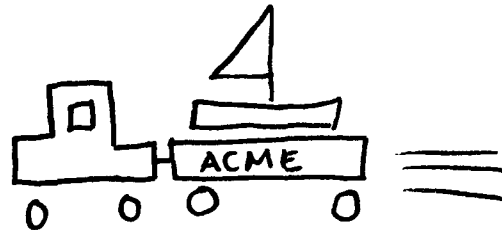
"phase-out" of halibut fishing by Canadians in Alaska gave the Department time to ensure that the

### ACME MOVERS

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Alaska fleet could be accommodated in other B.C. fisheries without undue disruption in any one fishery.

The basic objectives of the Halibut Relocation Plan are:

- to encourage some of the multi-licenced (salmon, groundfish trawl) boats in the "Alaska" fleet to surrender their "L" licence and phase out of halibut completely

- to encourage some of the largest "L" only licenced boats to surrender their "L" licence and enter the black-cod fishery

- to "free-up" (through restricted entry, exclusion of "non-dependent" vessels, gear buy-back, etc.) enough halibut in the B.C. fishery to accommodate some of the Alaska "L" only boats which have no other option but to fish halibut in B.C.

Implementation of the "Alaska fleet accommodation" and "gear buy-back" components of the plan began in July and, after a slow start, are now fully underway. It is expected that the plan will be fully implemented by August, 1980, at which time the success of the program will be analyzed.

Wendy Grider, Commerce & Liaison Clerk,  
Offshore Commercial Fisheries Division

# PHOTO CONTEST

Do you have a photo or slide that is just begging to be seen and admired by millions (well, thousands anyway)? Here's your chance to show your best photography.

Entries of past "Sounder" photo contests have had many and varied careers. They've been used in brochures, hardcover books, slide talks and newsletters. Some of the winners have been used over and over again. Their service has been long and honorable, but now it's time to find some fresh new photos and slides. Besides the uses mentioned above, winners of this photo contest may be put to a new use--as annual report covers for SEP or FSB.

Prizes will be offered for the best photo or slide in each of eight categories. Although the prizes are yet to be determined, they will be worthwhile. (Watch for details in the next "Sounder".) Judges will be objective and impartial.

Winners will be announced in the March-April "Sounder".

## Categories:

- A. People (Fisheries employees at work.)
- B. People ("general public". Remember, children are people too!)
- C. Fish (including, but not limited to salmon, herring, shellfish, etc.)
- D. Sport or Food Fishing, Commercial Fishing Industry (including canning, processing, etc.)
- E. Sequence, or Before and After (any subject)
- F. Facilities (fishways, hatcheries, counting fences, research station, labs, etc.)
- G. Humorous
- H. Special Category (this category is for those very fine pictures that just can't be categorized. Photos here might be scenics, or convey a special mood or atmosphere.)

## Rules

1. Entries can be colour prints, slides or black and white photos.
2. Attach each entry to a separate piece of paper using masking tape at the corners of the photo or slide.

Do not write on the photo or slide frame. On the sheet of paper, write:

- your name and address
- the category you are entering
- title or description of photo/slide, if appropriate.

3. You can enter as many times as you wish.
4. Those working on Fisheries projects or activities are eligible to enter.
5. Deadline for entries: February 29, 1980.
6. Send entries to:  
Maxine Glover, Editor  
"Sounder", Department of  
Fisheries & Oceans  
1090 W. Pender Street  
Vancouver, B.C. V6E 2P1
7. All entries will be returned.
8. It is assumed that by entering the contest, entrants have granted permission to publish or use their photos/slides as the Department sees fit. It is further assumed that, where applicable, the photographer has obtained the written permission of his subject to publish or use the photo as the Department sees fit.
9. Prizes will be offered for each category. However, if in the opinion of the judges no entry in a category is worthy of a prize, none will be awarded.

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Maxine Glover, Editor

THE SOUNDER

1090 West Pender Street

Vancouver, B.C.

V6E 2P1

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# Sounder

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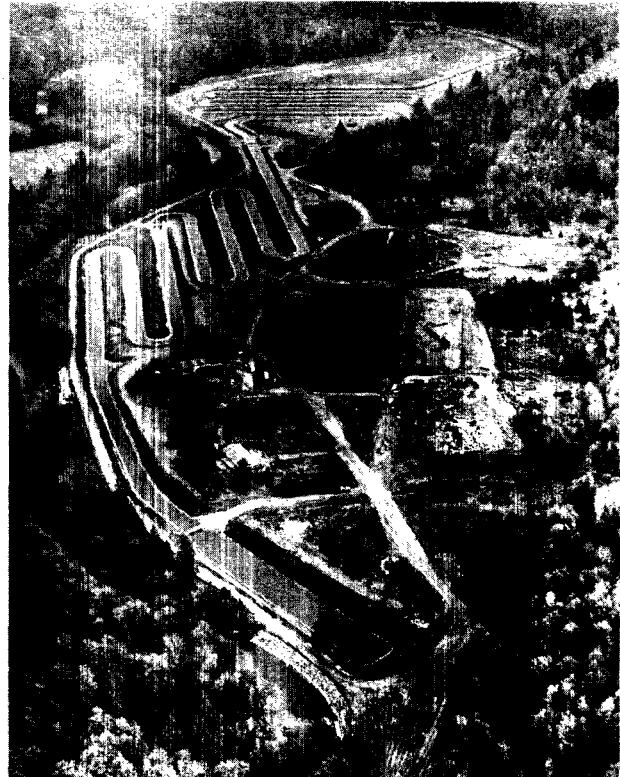
## Little Qualicum Opens

The Little Qualicum River Project was officially opened Monday, November 26, 1979 by Mr. Tom Siddon, M.P., Parliamentary Secretary to the Minister of Fisheries and Oceans, and the Honorable Steve Rogers, Minister of the Environment. In attendance at the opening were representatives of regional and local government, SEP Board members, fishing industry representatives, members of the press, interested public, and fish and game club affiliates. Everyone present at the opening was given a complete tour of the project by the Fisheries and Oceans engineering staff who designed the \$3,000,000 enhancement facility.

The Little Qualicum River Project is located adjacent to the right bank of the Little Qualicum River, approximately 2 miles upstream of the village of Qualicum Beach on Vancouver Island. The project consists of a 13,700' long x 25' wide spawning channel, a 400' long x 50' wide settling basin, a vertical screen surface water intake supplying 45 cubic feet per second flow, an intermediate fish entrance structure, 6 flow diffusers, a 110' long diversion fence structure, a 94' long fishway and viewing room, approximately 620' of rearing channel and related office, laboratory, warehouse and residence buildings.

Constructed primarily to enhance the chum population, the channel has a capacity of slightly more than 50,000 spawners and will produce an estimated 59,000,000 fry. Given average survival rates, this should introduce 300,000 adult chum salmon to the commercial fishery each year.

The Little Qualicum River Project was also undertaken to enhance the alarmingly low run of Little Qualicum River chinook. A rearing channel con-



structed in a natural drainage course has the capacity to rear approximately 500,000 chinook fry. About 9,000 adult chinook salmon should be available to the recreational and commercial fishermen each year as a result.

The benefits of the Little Qualicum River Project will be felt for many years to come. When it reaches full production, it will add \$3,900,000 (1979 market value) worth of fish to the fishery each year, and ensure that there will always be a run of chum and chinook salmon in the Little Qualicum River.

Tom Stewart, Engineer, SEP

# The Year-end Syndrome (a look back, a look ahead . . .)

From a Fisheries point of view, Christmas is not a corporate holiday but rather a private and personal season. As such, it is awkward (difficult) for a staff newspaper to deal with the varied dimensions of Christmas in a non-trite way. The best way is to wish all staff the best for the Christmas Season however they choose to celebrate.

Caboosed behind Christmas comes New Year. From a corporate point of view it doesn't have any financial considerations, and is probably of little importance. New Year's is, however, a time for viewing the past and resolving the future, a time for a new start. New Year's is a measure of progress and the march of time.

1979 was a hallmark year! It is the first time since 1970 or 1971 that positions have been properly staffed by competition. The year has been a turmoil of new positions and new incumbents trying to learn their jobs. Most of that seems to be complete now, so over the next one or two years, as people grow in to their positions, a new look, ideas and overviews can be hoped for.

On the international scene, early in the year good progress was made towards the Canada-U.S. Salmon Interception Agreement. The death of Don McKernan, the U.S. negotiator, deferred meetings from May until this December. In the meantime, the action moved towards other species. Canada arrested U.S. tuna vessels off our coast during the summer period. The result was lots of noise, posturing and retaliation rattling, but just rattling.

At long last some action was taken to curb the growth in the catching power of troll and seine. Seine depth restrictions were put in place and pink retention regulations were applied to troll. In this area, the pending law suits basically question Fisheries' right to allocate fish resources, and bode a dark future.

Progress was made on the SEP front, with a number of new projects coming on-line including Pallant Creek,

Tlupana, Little Qualicum, Snootli Creek and a number of others. Additionally, 1979 was the first year of returns (4 year) to Henderson Lake. Preliminary indications are that the predicted response may be achieved. Good returns were also achieved at Capilano, Quinsam, Big Qualicum, Babine and Robertson Creek.

An unexpectedly high return of Fraser sockeye combined with an unexpectedly high diversion rate through Johnstone Strait resulted in the very lucrative sockeye fishery in Johnstone Strait. However it was also a fishery which impacted very severely on already threatened pink stocks of the Gulf of Georgia and Johnstone Strait area. Other surprises include a number of bust fisheries on sockeye and chum and the geoduck fishery.

Much time was spent on developing a cost or rent recovery plan. The idea is to recover money from the industry to help finance SEP and the operation of Fisheries. At press time the results were not yet clear.

What of the future?

In 1980, decentralization of Field Services Branch with accompanying staff from Resource Services Branch, management biology and habitat protection may finally be realized. There may even be some transfer of groups from one Branch to another.

Herring stocks returning in low numbers combined with softer herring markets and low prices may result in more companies going bankrupt; fishermen who have overextended themselves by building bigger and newer vessels are also in difficulty.

Fishermen are looking for a new fishery in which to make big bucks as geoduck and blackcod earnings stabilize. Sand dollars, anyone?

With a down economy in B.C., and the forest industry facing a slump, the big question is: who will shut down first, "gypos" or big companies?

continued on page 4

# Humbug

A "Sounder" EXCLUSIVE! The famous astrologer, Phineas Nerka offers his predictions for the Department in 1980:

\* \*

Joining in the spirit of cost recovery, SEP facilities will direct their efforts towards producing salmonids complete with dollar signs indicating the cost to be paid by the first catcher. This should help somewhat to reduce the allocation problems presently being encountered.

\* \*

As a means of combatting and coping with the trauma of civil law suits, Field Services Branch directs its staff to attend a course entitled "What Not To Do If You Don't Want To End Up In Court and What To Do If You Get There." (resign??)

\* \*

The provincial government, claiming that enhanced fish production has placed great unplanned strain on the limited water resources of this province, assesses SEP royalties for water use.

\* \*

In keeping with the motto that confusion should prevail, Pacific Region enters into yet another reorganization in order to allay the increasing Branch isolation patterns now developing.

\* \*

In order to attract staff into isolated locations, the Department states that for every year served in these designated locations, the employee may retire with full benefits, two years earlier than normal.

\* \*

In an effort to reduce frictions arising from trying to consult with too many groups too often, a one year moratorium is placed on all discussions with outside groups.

\* \*

The Biological Station goes into a holding pattern and conducts seminars designed to flush out researchers not management-oriented as staff cuts continue in the resources services sector.



In order to comply with the Human Rights Act, the Department is implementing a new, non-sexist uniform to be worn by all uniformed personnel that will incorporate a kilt as the major design change. The gun holster is disguised as a sporran and side-stripes are easily added to the kilt design. This kilt, with its distinctive fisheries tartan will exemplify the new "get tough" image in enforcement.

\* \*

Personnel Branch takes yet another step forward by refusing all personal visits and telephone calls to the pay and benefits section. In order to improve efficiency even further, communication will be by letter only, en français, thus fulfilling Pacific Region's bilingualism requirement.

\* \*

continued on page 4

## 1979 United Appeal Campaign

The 1979 Fisheries and Oceans regional headquarters United Appeal Campaign has drawn to a successful close.

Despite the present economic climate and uncertainty, approximately \$4000 was donated during the campaign. This, once again, shows the commitment and dedication of federal employees to the more than 70 United Way Agencies which serve our communities.

A hearty thanks to all who helped reach this excellent total and a special thanks to the canvassers and organizers who gave of their time and effort.

Dave Innell

## **HELP MAKE IT HAPPEN. The United Way**

### Season's Greetings

Good wishes for the Christmas Season from all the fisheries staff of the Fish and Wildlife Branch. We appreciate and value the good and growing cooperation between our agencies. May you have many happy (person) years.

Fish and Wildlife Branch

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### The Year-End Syndrome (a look back, a look ahead...)

A major sweep will be made by the Department into contracting-out as Treasury Board continues with person-year cutbacks. On the other hand, agency use will not grow as fast and may even decline in 1980.

Will the trollers again be big winners on sockeye returning to the Fraser River? What will be the diversion rate of Fraser sockeye down Johnstone Strait? If it is high, watch out, Johnstone Strait pinks--or are there any left?

Construction will be completed of a new 20 spool troller in Prince Rupert, foreshadowing things to come in the ever-increasing efficiency of the commercial fleet. Additionally, seiners

## **Humbug**

Re-stating that famous government maxim "misuse is abuse" the Purchasing Unit has now withdrawn use of all LPOs by Pacific Region fisheries staff.

\* \*

Resulting from the new policy which has prohibited all contacts with the media and other groups because "the more you give them, the more they can use against you", the Information Branch will be gradually scaled down during the year.

\* \*

Meanwhile, Support Services Branch is forced to disband, as it has priced its services beyond the reach of the budgets it has allocated to the other Branches. The branches have decided it is, indeed, cheaper to contract out.

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To comply with prevailing policies, the economics advisor's unit will assess the performance of all employees with respect to their benefit-costs accruing to the Department. It is estimated that this process will identify significant person-year savings.

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begin to include portable computers as part of their standard fishing gear in order to better guide them in choosing the best areas to fish for salmon.

Barclay Sound means big dollars to fishermen in 1980--the only problem is how to catch the two million sockeye.

One of the big controversies in 1980 (excluding cost recovery) is ocean ranching as more and more individuals look towards implementing this technique in Pacific Region.

The "Sounder" gets bigger and better in 1980, with field staff writing more than 25 percent of the articles (fantasy?).

Better yet, in 1980, everyone will get their just desserts!

Happy New Year!

## West Coast Troll—A Doomed Fishery?

The troll fishery is dubbed the last stronghold of the free enterprise, independent fishermen. Can it stay this way?

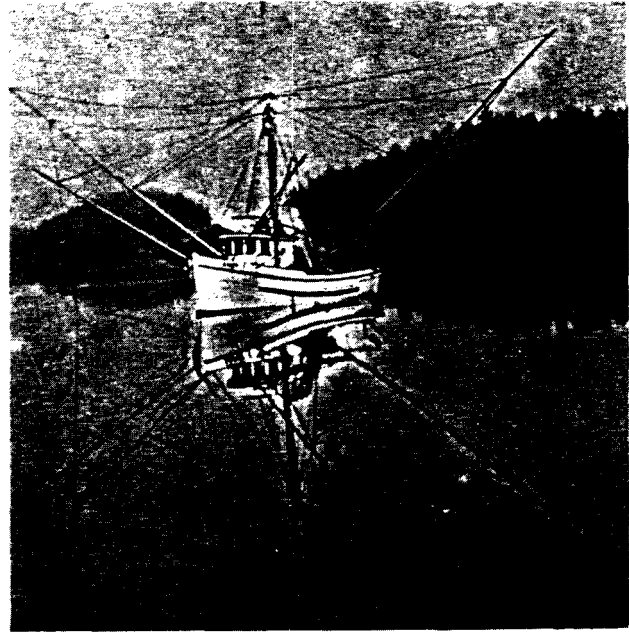
The troll fleet grew rapidly in the 60s and since that time the catching power of the individual boats has also increased, almost completely unimpeded by restrictive regulations.

The excessive and growing fleet catching power has resulted in the severe over-exploitation of Canadian chinook and coho stocks. There is a general consensus that if we are to retain threatened chinook and coho stocks, some control of the troll fishery and reduction of exploitation rates must be implemented.

Traditionally, trollers concentrated on chinook and coho. Recently, they have effectively fished pink and sockeye salmon, and they are now developing a capability to catch chum salmon.

There are other dimensions to the troll problem. The troll fishery is highly size selective for large individuals, which results in very few large old fish reaching the spawning grounds. The consequence is the decreased size of chinooks. In addition, the long and early fishery in offshore rearing areas results in the troll fishery having a heavy dependence on immature fish. The loss of their growth to maturity is a clear market loss. Too, the minimum catch size regulations result in trollers "shaking" small fish, many of which die. And, as time goes by, the impact of the troll fishery on weak stocks and the problem of allocation of salmon to gear types continues to escalate.

The capital value of fishing fleet and the dependence of the fishermen and their communities on the troll fishery are all increasing. The troll catch goes almost entirely to fresh/frozen fish sales, and many small processors in B.C. are heavily dependent on this market. Additionally many trollers live in and operate from small coastal communities whose local economies are heavily dependent on the troll fishery.



International factors affect the problem as well. Over 80% of the chinook and over 50% of the coho caught in the West Coast of Vancouver Island troll fishery are of U.S. origin. (Most of these chinook and coho come from hatcheries). This fishery provides Canada with a strong lever for an equitable Canada/U.S. salmon interception agreement.

If we had a Canada/U.S. salmon interception agreement, the troll question would be much easier to resolve because, in a national sense, the loss of U.S. origin chinook and coho off the West Coast of Vancouver Island would be compensated by other species in another location. If we had undeveloped fisheries to which a part or all of the troll fleet could be diverted, again the solution would be easier.

The longer a decision on the future of the West Coast troll fishery is delayed, the greater the consequences of the decision will be. In the interim, some further restrictions of the troll fleet by quotas, fishing time, or fishing area would at least help to buy the fishery managers some time.

Al Wood, Director, Staff Services, SEP

# Fraser River Enhancement/Management Plan

("Eye of newt and toe of frog  
Wool of bat and tongue of dog.")  
-Shakespeare

For almost as long as the white man has been fishing on the west coast, managing the Fraser River salmon runs has been a problem. SEP has recognized that although many of these problems cannot be solved immediately, it is certainly possible to alleviate some and avoid compounding others. The Fraser River Geographic Working Group is tackling a 7-species enhancement and management plan for the Fraser River and its fisheries. The task is enormous, given the complexities.

Start with a large dose of American interceptions: approximately 39% of the sockeye, 35% of the pink, 22% of the coho and 18% of the chum catches never reach Canadian fishing vessels or processors. Sprinkle this with 91 Indian bands, several of whom have openly defied the law, threatened violence against departmental authorities and who, if the media is to be believed, consider the director-general their "number one enemy". Add in water use confrontations in the Nicola, critical estuary damage in the Fraser River and large-scale power projects proposed for the McGregor and Nechako, and you get some idea of the enormity of the problem.

Politics aside, there are considerable interception problems in the main gauntlet fisheries in Johnstone Strait and Juan de Fuca, which are managed to selectively fish Fraser River runs (mostly sockeye and pinks). Enhancement of the dominant stocks would increase the pressure on incidental catches of many smaller stocks with similar timing, undoubtedly with detrimental effects. A run of trophy steelhead in the Thompson River is just one victim of these large, intensive sockeye fisheries.

By the way, the authority of the Department of Fisheries and Oceans ends with chinook, chum and coho--the International Pacific Salmon Fisheries Commission takes over (June to Septem-

ber) to manage sockeye and pink, and the provincial Fish and Wildlife Branch manages steelhead and cutthroat in fresh water.

By far the GWG's largest task is to distribute incremental fish production so that all the runs are kept in balance with their level of production and harvesting. Enhancing Fraser River chinook, for example, means considering at least 35 major stocks (this number does not include runs in the same river that have early and late timing components, or stocks with less than 50 spawners). Furthermore 35 chum, roughly 12 pink, more than 50 sockeye and 50 or so coho stocks pass through the Area 29 fishery in the summer and fall. Now, consider a strong cyclic dominance pattern for sockeye and pinks--that's always nice.

The Fraser River GWG has decided to approach these problems on a species-by-species basis. Robin Harrison (acting senior biologist for the N.B.C.-Fraser River-Yukon Div.) started with chums which have a later, somewhat isolated, timing. The timing of each run was plotted through the fisheries and each run was increased proportionally according to projected levels of exploitation which shift up and down as the season progresses. Brian Pearce (management biologist) is attacking chinook and coho in a similar way and John Cartwright of the Fish and Wildlife Branch is generating steelhead and cutthroat data. Pink and sockeye will be done last, as these are the least flexible. Mike Bailey (consultant) has developed a computer model which, among other things, simulates production curves of enhanced and natural runs and quickly identifies those stocks which will be overfished. The plans for each species will be overlaid on one another and critical decisions affecting species and stock trade-offs will be made at this point.

continued on page 7

## Who Are They?



This picture from Les Goodman's personal "archives" was taken sometime in the late 60s. The men and their positions at that time (as near as anyone can recall) are listed below.

Back row, left to right:

John Holland, Supervisor, Rivers Inlet  
 Jim Connor, Supervisor, Prince Rupert  
 John Summers, Supervisor, Whitehorse  
 Pat Harrison, Supervisor, Port Alberni  
 Bob Mallory, Marine Officer, Prince Rupert  
 Les Goodman, Supervisor, Kamloops  
 Joe Fielden, Supervisor, Campbell River

Front row, left to right:

Bern Hawley, Supervisor, Kitimat  
 Vic Giraud, Supervisor, Queen Charlotte  
 Bill Winsby, Supervisor, Nanaimo  
 Maurice Houghton, Chief, Conservation & Protection  
 Ron MacLeod, Asstant Chief, Conservation & Protection  
 Harry Burrow, Supervisor, New Westminster

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### Fraser River Enhancement-Management Plan

To have a long-term, multi-species manageable enhancement plan for the Fraser River would be extremely valuable. New SEP projects could be built using integrated plans that suggest when, where and what species and how big. Fisheries management decisions would become much

more defensible. Above all, our clients could be shown that the Department is not only concerned but that Fisheries management and SEP have solutions to specific problems which we are prepared to act upon.

Judy Barnetson, Planning Biologist, SEP.

## The International Implications of SEP

Canada and the U.S. are trying to reach agreement on an equitable split on intercepted salmon on the Pacific Coast. The basic intent is that each country should get an appropriate return on fish produced in that country. Intercepting fisheries of both countries would be limited or reduced and a close accounting system would be implemented to assure equity.

The prime motivation for such an agreement evolves around salmon enhancement in both countries. Before either country is willing to invest significantly in intercepted stocks, they want some certainty that an appropriate level of return will be achieved for their investment.

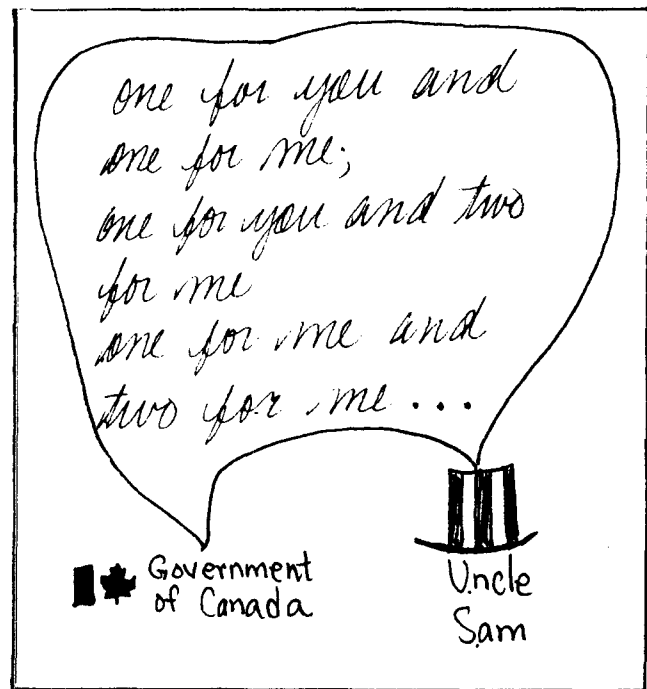
Both countries have significant enhancement plans. Alaska is talking upwards of \$500 million for salmonid enhancement investment. Canada is involved in the \$150 million phase I of an enhancement program. Washington, which already has extensive enhancement is about to undertake an additional \$100 million program. Most of the enhancement opportunities in Oregon and California have already been acted on but both states have major programs for improving and extending existing work.

The present level of interceptions are significant. For example, a Canadian troll catch of chinook salmon off the west coast of Vancouver Island is 80% of U.S. origin, mostly hatchery produced. The coho catch in that fishery is over 50% of U.S. origin, also mainly hatchery produced. In southeast Alaska 40-50% of chinook caught are of Canadian origin. By international agreement, half of the Fraser sockeye and pink salmon catch, within a prescribed area, is taken by U.S. fishermen. The total value of intercepted salmon is in the tens of millions of dollars.

Despite the potential interception of enhanced stocks, there is still a strong incentive to proceed with enhancement. There are economic and social gains to be made. There are recreational, commercial and subsistence

demands and needs to be met. There is rebuilding and mitigation of depressed and lost stocks. There is high public and political pressure for some action.

Canada is fortunate in that we have enough enhancement opportunities on no/low intercepted stocks to continue enhancing for at least another five years. Washington and Oregon have few if any such opportunities. From this it should not be interpreted that Canada won't make short and long-term benefits from the interception agreement. Major enhancement opportunities are constrained by interception. These opportunities include the Fraser pink and sockeye, most species in northern systems such as the Nass and Skeena, and all enhancement in the panhandle rivers such as the Stikine, Taku and the Yukon rivers.



In summary, salmon enhancement is a key factor in a U.S./Canada interception agreement. The agreement will have significant economic consequences in general and for enhancement. Our salmon enhancement in the north and on the Fraser River is being delayed pending an international agreement.

Al Wood, Director, Staff Services, SEP



## Straight from the RFA

It's hard to say just how much of a conscience I have been as the new recreational fisheries advisor (RFA) to the Field Services Branch of the Department of Fisheries and Oceans. But I've had plenty of chances to be an ombudsman and to study trends in sport fishing.

Those duties are among many suggested when I accepted the RFA position, created last winter. By way of a report to the "constituency", the sport fishermen themselves, following is a résumé of my RFA interim report to the Department:

The RFA has been welcomed and regularly consulted by almost everyone in the department connected with planning and regulation of sport fishing for salmon and trout. I

have received many invitations to address organizations and been able to accept most. Up to mid-October, I had made 22 public appearances or addresses, varying from club or service organizations to sport shows and radio and TV programs. People seem eager to express their views, and to outline concerns about sport fishing, and the Department seems willing to consider those public concerns.

I welcome questions or views from the general public or from Department of Fisheries staff members themselves. My local phone is 666-2768, at the northwest corner of the ninth floor.

Lee Straight, Recreational Fisheries Advisor (RFA)

### In-depth Study of B.C. Salmon Industry

The Marine Resources Branch of the British Columbia Ministry of Environment and the Department of Fisheries and Oceans Canada have released an in-depth report on the economic structure of the B.C. salmon industry.

Entitled "An economic study of the structure of the British Columbia salmon industry", the report examines the overall structure of the industry, and analyzes the implications for industry for behavior and performance.

Among the topics covered by the study are:

- the number and relative sizes of the buyers and sellers of salmon, from raw fish to final products
- entry and exit conditions of firms in the industry
- linkages and/or ties between buyers and/or sellers.

The study uses this information to discuss the implications for prices and investment in the industry. It also discusses the distribution of potential resource rents--potential profits over and above a normal or average return on necessary capital--and the dissipation of those rents

through excess costs and less than optimal product selection.

The report also investigates the impact of the Salmonid Enhancement Program on the structure of the industry, and discusses the possible policy measures which could improve the performance of the industry.

This report was prepared under contract to the Salmonid Enhancement Program by Marvin Shaffer, Ph.D., consulting economist, and was jointly financed by the Ministry of Environment and the Department of Fisheries and Oceans, at a cost of \$48,000.

Copies of the report are available on request from the Public Information Branch, 1090 W. Pender Street, Vancouver (666-1384).

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"'Y'know' is a conversational plea for understanding," writes Phil Martin in *The Typographer*. "Its direct and concise translation is: 'For God's sake, man, I can't express myself in words, but surely you feel what I am trying to say and you understand my deepest feelings, y'know without my having to figure out how to say it.'"

# Quality in Food Herring Fishery

For the past two years, markets for frozen and salted herring have failed to materialize, and processors were left with more than 680 metric tons of these products unsold. Poor product quality is blamed for the soft markets.

In an effort to improve the quality in 1979, the food herring fishery opened with new restrictions on handling methods and lower quotas. Industry response to these measures has been favourable.

## In The North

The first opening in the north was restricted to Area 5. From October 9 to November 1, 1979 when the fishery closed, 1452 metric tons were taken by 2 trawlers and 12 seiners.

By press time, only 13.6 metric tons of an additional 362 metric tons allotted had been taken in a second opening announced November 12. Poor weather hampered fishing for most of both openings.

Two vessels were charged with exceeding the maximum load limits which were imposed to control the catch and improve the quality delivered at dockside. All other landings were within the load limit, and were delivered and offloaded within the required time of 18 hours.

The fish were processed within 24 hours. Although this is an improvement over past years, it is still tempered by the fact that initially over 50% of the fish processed failed to meet the quality standards set by the Department through the Inspection Division.

During the fishery, industry increased its efforts to improve landed quality, to alter processing procedures to reduce damage to fish and to cull or grade out fish which were unacceptable. About 75% of the total catch met the strict standards set for food quality herring.

The remaining 25% which did not meet the standard was designated bait fish.



The ideal food herring at landing--cold fish still in rigor.

The major reason for downgrading fish this year was damage attributable to poor operation of pumps on vessels when transferring from net to hold; or accidental mixing dogfish in the pumps and consequential tearing of the herring. The high fat content of the fish at this time of the year causes them to be softer, and they break more easily under pump pressure.

In addition, machines used in plants to transfer, grade and freeze the fish also may cause some damage.

Some companies have reduced these problems. For example, one company countered the problem of tearing of fish skin by putting the fish into a plastic sleeve in the vertical plate freezers. In other cases it is simply a matter of operating equipment such as running pumps at controlled speeds.

Some fish were spoiled when they were taken from chilled storage on boats and left in the plant. Spoilage

### Quality Improvement In The Food Herring Fishery

was due partly to the fish being in "feedy" condition, (when digestive enzymes in the stomach cavity burn and weaken the belly area). The high fat content (average 16%) of the fish also causes rapid spoilage at room temperatures.

Contributing to quality problems in the north was improper handling on boats. In some cases, onboard operation of chilled sea water (CSW) or refrigerated sea water (RSW) systems was not done according to recommended practices. Fish should be transferred into seawater which has been prechilled to proper holding temperatures. Adding the water shortly before or even after the fish were brought on board did not permit immediate chilling, and in some cases resulted in warm fish delivered at dockside.

#### In The South

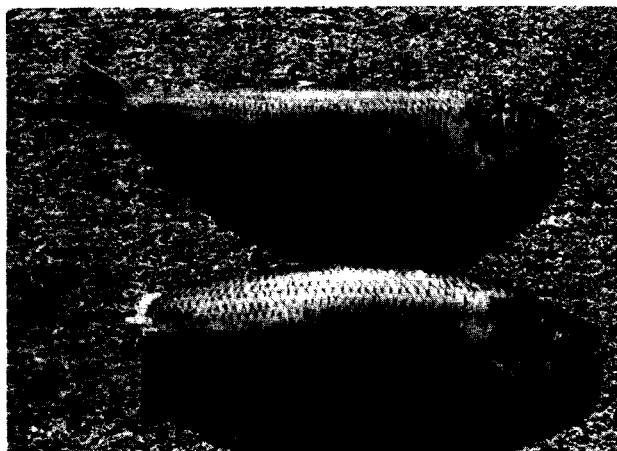
By November 23, 1475 metric tons of the 2722 metric ton quota had been taken.

Fewer quality problems were encountered in this fishery because both management and industry responded to the problems encountered in the earlier fishery in the north.

On the whole, quality of the fish was very good. Very little herring was downgraded to bait for quality reasons; most fish so graded were small. Quality problems related to pump damage, warm holding water temperature on boats or late processing were minimal in the southern fishery.

Arrangements with the Nanaimo district office regarding management of the fishery were excellent, and provided Inspection Branch staff with a knowledge of the fishery heretofore unavailable. The arrangements enabled us to predict where fish were likely to accumulate. Industry co-operation was also noteworthy; only one vessel did not hail as required when leaving the fishing grounds.

When the fishery closed on November 26, most plants were at or near capacity. Although some processors were not in favour of the closure, we



Example of damage in the 1979 food herring fishery (Prince Rupert): top, belly rupture; bottom, complete breakage.

feel now that it prevented wastage of fish.

The new restrictions imposed on the food herring fishery improved management of the fishery and resulted in an improved food herring product. Whereas last year only 20-25% of the catch was acceptable as food herring, this year that percentage climbed to 98% and the quality problems of earlier years are now considered solved.

Dick Carson, Southern Inspection  
District Supervisor

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When the devil decided that nothing should be done, he decided to create the first committee. --Henrik Ibsen

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Editors, royalty and individuals with tapeworm have the right to say "we". --Mark Twain

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Damon Runyon wrote a story containing this line: "Shut up," my father explained.

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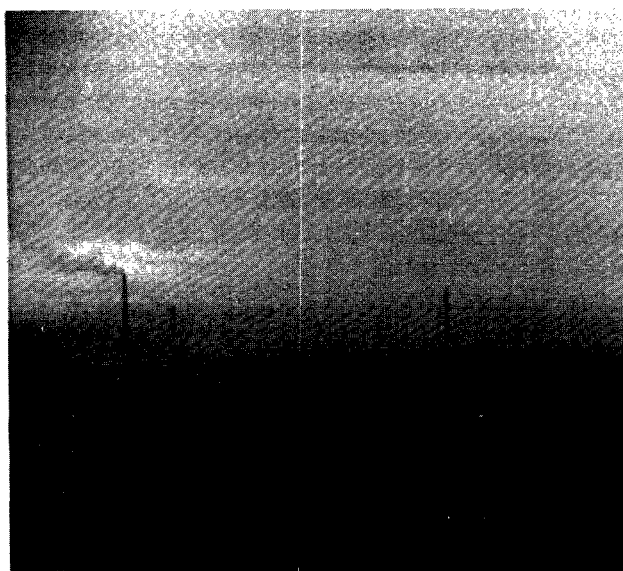
## Acid Rain — What is it?

Acid rain has become a major environmental problem in North America and in other parts of the world. It has caused serious environmental damage in Scandinavia, Northern Europe, North-eastern United States and Central Ontario. Its major effects appear to be on lakes and fish, but crops, forests and buildings may also suffer (although significant adverse effects on crops and forest have not yet been found).

Acid rain or more correctly, acid precipitation, is formed when rain or snow removes sulphur or nitrogen dioxide from the atmosphere and forms sulphuric and nitric acid. Sulphuric and nitric acids can also be formed on the ground as a consequence of "dry fallout" of sulphur and nitrogen oxides. There oxides are produced by the combustion of fossil fuels in smelters, power plants, automobiles and a variety of other sources. Precipitation in some areas has been found to be more than 1000 times more acidic than normal rain. However, in North America most acid precipitation is 10 to 100 times more acidic than normal precipitation.

In Canada, the effects of acid precipitation are most apparent in Central Ontario. The concentration of industry and the proximity to the large industrial areas in the United States have resulted in substantial amounts of acid fallout for at least two decades. The most obvious effects have been on lakes and fish populations. Lakes with relatively small watersheds that are composed of chemically unreactive igneous or metamorphic bedrock are more susceptible to acidification than lakes with larger watersheds and better buffering substrates such as limestones. Thus mountain lakes and some lakes in the Canadian Shield area have become acidified with the result that fish populations have been lost from several hundred lakes and many more lakes appear threatened.

Many of the lakes that are susceptible to acid precipitation are slightly acidic naturally. While there is a wide range in the susceptibility of



Sulphur dioxide emissions in the Sudbury area. Sudbury may have the distinction of being one of the largest single sources of sulphur dioxide in the world.

fish to acidic (or pH) concentrations, some of the more valuable freshwater and anadromous species are very sensitive to increases in acidity. Once the buffering capacity of a lake and its watershed has been reduced, some of these species would be affected in 5 to 10 years. In Scandinavia, fish, and particularly salmonids, are often killed outright when the extremely acidic snowmelt enters the rivers. Such fish kills have not been observed in Canada and the United States, rather the effects are more gradual. Reproduction and recruitment are impaired as there is reduced egg and fry survival and females experience difficulty releasing eggs to be fertilized. With no or reduced recruitment and probably reduced longevity, species slowly disappear from lakes.

Both Canada and the United States have now recognized the problem (which was first identified in 1971), and are actively and jointly working to solve it. Since the cause is known it might appear that a solution is at hand, but the solution requires international

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## No Acid Rain in B.C. — Yet

We do not have an acid rain problem in British Columbia yet. However, we should not become too complacent because we may have to face the prospect.

All future planning for energy generation in British Columbia indicates the need to develop the thermal power potential of the Hat Creek coal deposit. The only question to be answered is when, not if. The burning of Hat Creek coal will result in substantial sulphur dioxide emissions unless desulphurization technology is applied. Desulphurization facilities for the Hat Creek generating plant would cost about \$600 million over and above the \$1.4 billion capital investment in the basic generation and mining facilities.

B.C. Hydro has suggested that such an expenditure is not warranted and has suggested an ambient air management system to mitigate against the effects of these emissions. This system would reduce, but not stop power generation when winds are blowing in an unfavourable direction. The Department of Fisheries and Oceans has indicated that this approach is not acceptable until it has been demonstrated to our satisfaction that the salmon producing drainages of the Fraser which would potentially be affected (Chilko, Quesnel and Shuswap Lakes particularly) would not become acidic as a result of acid rain. Essential elements leading to such a decision would be an analysis of the acid buffering capacity of all watersheds within the affected airshed and a realis-

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### Acid Rain

agreements that involve controls on the use and emissions of fossil fuels, emissions from smelters and other types of industry. Since there are so many sources, it may be some time before regulations can be agreed upon and enforced.

Dr. Dick Beamish, Head, Groundfish Program, Pacific Biological Station, Nanaimo.

tic prediction of the acid rain fallout in each area. B.C. Hydro has not yet indicated a willingness to pursue this course and has placed the project on the back burner for the time being.

If acid rain problems are forecasted, British Columbians will face some very interesting choices. As it stands, desulphurization adds very substantially to the cost of thermal generation. The alternative to desulphurization may be the destruction of the Fraser River as a salmon producer. Since hydro generation in B.C. will be at capacity in the next 10 to 15 years, the alternatives are thermal generation or nuclear generation with its own special set of problems. We can only hope that some of the problems in the desulphurization or nuclear waste disposal areas are resolved before those decisions have to be made.

Bill Schouwenburg, Chief, Water Use Unit, Habitat Protection Division.

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### Severe Penalties for Salmon Poachers

Recently, two individuals were given severe penalties for poaching spawning salmon.

Ronald Allen Bell and Donald Bruce Maguire, both of Duncan, were fined \$750 and \$600 respectively. Each man was charged with three separate charges after being apprehended at 1:30 a.m. on the Cowichan River. Both, in addition to being fined, had their gear forfeited and are prohibited from fishing in Canadian waters for six months.

In a similar incident on the Little Qualicum River, Frank Buble Jr. and Michael Alan Robinson, both of Vancouver, were fined \$300 each, with gear forfeited, for jigging chum salmon when they were apprehended November 14, 1979.

Dennis Brock, District Supervisor, Nanaimo

## A Legend in His Own Time, Forgotten a Century Later

The father of the Fisheries Service in British Columbia, Alexander Caulfield Anderson, was known throughout the province and the Pacific Northwest. He died May 8, 1884.

His obituary states: "Mr. Anderson was no ordinary man. He was a deep and clear thinker, a great logician, a profound scholar and writer of some of the best descriptive pamphlets and essays on the province that have appeared." It goes on to say: "In the demise of Mr. Anderson the province has sustained a serious loss. The death of one so universally respected is little short of a public calamity."

Anderson, B.C.'s first fishery inspector, was a real pioneer, coming to the Oregon country in 1832 for the Hudson's Bay Company. He had received training as an apprentice clerk at Lachine, Lower Canada, then the headquarters of the company.

He quickly rose to be an assistant trader and later a chief trader.

In 1846, after the western boundary between Canada and United States had been established at the 49th parallel, he discovered three fur trade routes from the Interior (Fort Kamloops) to the coast (Fort Langley). The Hope-Princeton Highway follows one of these routes and the soon-to-be constructed Coquihalla highway will follow part of another of Anderson's fur brigade routes. The third, the Harrison route, is probably the most famous, as it was used by the first Cariboo miners enroute to the Barkerville gold fields. He retired from the Hudson's Bay Company in 1854, settling at Cathlamet on the Columbia River.

In 1858, he led miners over the Harrison route after he had been appointed the first custom officer and postmaster for B.C. by his old friend Governor James Douglas.

In May 1876, Anderson was appointed the first fisheries inspector for British Columbia, being named under the Fisheries Act, 1868. He had written to the Minister of Marine & Fisheries some years before, pointing out that the salmon fisheries were being

exploited and that artificial salmon propagation should be attempted on the South Thompson River.

He wrote his first annual report at Chemainus (he spelt it Chemainis) on January 10th, 1877. He reported that it had been necessary to prohibit the use of explosive compounds for the taking of fish in Burrard Inlet the previous summer.

A.C. Anderson was a Justice of the Peace and was the federal member of the Indian Reserve Commission (the settlement of the Indian Reserves in B.C.) and thus travelled without what he referred to "as incurring special expense" to the Fisheries. His expense account was \$30.00 for 1876, and his annual salary \$600.00 (July 1st to June 30th). George Pettendreigh, who Anderson employed as a fishery overseer for "the Lower Fraser and its neighbourhood" in 1878 received \$500.00 a year. Captain Pettendreigh worked out of New Westminster where the first Fisheries office was established. Inspector Anderson's base was Rosebank, his 654 acre farm just outside of Victoria.

Anderson travelled the length and breadth of the Coast. His inspection patrols were carried out in all sorts of weather as they are today by the vessels of the Fisheries Service. Aboard the naval vessel HMS "Rocket", Anderson sailed into sounds, inlets and bays checking on fishing operations (both commercial and Indian); inspecting canneries, salteries and fishing boats; and searching for foreign fishing vessels.

It is natural to think that the  
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The Department has occasionally been taken to task for its management practices, but no criticism has been so subtle as this! The New Westminster office recently received a certified mail parcel addressed to "The Department of Fisheries Notions".

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A Legend In His Own Time,  
Forgotten A Century Later

advent of vessels of other nations operating off our coast is of recent vintage. But in 1879, one hundred years ago, Inspector A.C. Anderson searched for a United States vessel which fished halibut off Nahwitti Bar at the north end of Vancouver Island. The vessel out of San Francisco obtained its ice from the Indians at the head of Knight Inlet, who had collected it from the glaciers in that area.

A hatchery site on a tributary of the Fraser River (Pitt Lake) contributed indirectly to his death. Returning from a trip to the site, the vessel on which he was travelling ran aground and was high and dry overnight. Without heat, bedding on blankets on board, Anderson contracted a chest cold from which he never fully recovered.

Harry Burrow, Crofton, B.C.

Editor's Note: Mr. Burrow, now retired, was New Westminster District Supervisor until December 1973.

Editor's Note: Mr. Burrow is writing a history of Pacific Coast fisheries, and is seeking the following information:

1. What was the name of the first vessel owned by the Fisheries Service to carry out fisheries patrols on the Pacific Coast? Where was she based, who was her master and what was the date?

2. When were the district supervisors' (inspectors') offices opened in New Westminster, Nanaimo and Prince Rupert (Port Essington), and who were the first men to hold these positions? When was the chief inspector's office established, and where?

3. What were the names of all the fishery officers who joined the Department (in B.C.) in the spring of 1947 and the fall of 1948?

4. Have any books, pamphlets or articles been written on the history of the Department in B.C.?

If you can help, Mr. Burrow can be reached by writing to him at General Delivery, Crofton, B.C., or by phoning 246-3303.

**Who is Driving the Company Truck?**

A recent court case in Colorado points out the need for senior company personnel to know who is driving company vehicles. The widow of an accountant killed when the motorcycle he was driving was in collision with a company truck has been awarded a settlement of \$500,000 against the owners of the vehicle, which was being driven for personal reasons unrelated to the driver's employment.

The driver of the truck was drunk at the time of the accident, evidence showed. He had been employed as a serviceman and the job involved driving the company truck to and from jobs. He was not licenced to drive--a fact the company did not determine--had no insurance, did not own a car, and had been involved in a serious collision while allegedly intoxicated a year earlier.

The company permitted him to drive the truck to and from work and the driver took this as permission to use the vehicle for private purposes.

The case serves to remind all business (and government) people of the need for care in the use of company or government-owned vehicles.

The Canada Safety Council recommends that all businesses or organizations owning vehicles should insist that all drivers, full or part time, should have taken either the Defensive Driving Course, or the Council's "Professional Driver Improvement Course". Information about both is available from safety agencies in most major centres.

Employers should insist on seeing a driver's licence of any employee who is to handle a company vehicle.

There is one further aspect, also related to money! Most company vehicles have the company name prominently displayed. A driver with especially bad driving habits, or who drenches people waiting at a bus stop near melted snow, draws attention to the name on the vehicle, and people do remember. That kind of driving is not good public relations!

- reprinted from Safety Canada

## We're Not Ready

In November, 14 people from the Department's Pacific Region attended the Emergency Measures Training session at Arnprior, Ontario. Attending were fishery officers, managers, supervisors, vessel masters and information personnel.

The course dealt with Fisheries and Oceans' role during times of natural or nuclear disaster. Oil and chemical spills were also included as situations wherein our staff would be involved.

The degree of involvement would vary greatly. When a local fishery officer is the first on the scene of an overturned chemical truck or rail cars polluting fishways or destroying property, knowing who to contact and being able to do so quickly are of the utmost importance.

In the case of floods, storms, earthquakes or tidal waves, Fisheries patrol vessels and the commercial fishing fleet may be the only means of immediate evacuation or assistance. Action coordination in such an instance is the key to success, and coordination requires reliable communications.

Where Canada is directly or indirectly involved in a nuclear accident or weapons exchange, the Department

will be required to supply aid to isolated or devastated areas, evacuate fallout areas, and manage emergency fishing operations to enable a supply of uncontaminated food to be caught and processed. The prime requirement for these roles is again reliable communications, this time with our own offices, fishing fleets, and Armed Forces aircraft and vessels.

Even without the added strain of a disaster, the Department's communication system is already stretched to the limit. Currently, there are many problems with internal and interdepartmental radio communications and severe limitations in herring and salmon fishery management are the result.

Knowing the extent to which Emergency Planning Canada requires and expects DFO communications capabilities in times of disaster, it is obvious that our current radio system status falls far short of that requirement. Should we be called upon by EPC to assist, we may not be able to help as needed. With more budget cuts occurring, is there any hope of improvement?

Charlie Warburton, Communications System Supervisor

## Reports Available

Four consultants' reports on the British Columbia fishing industry are now available to the public. The reports were commissioned by the Marine Resources Branch, Ministry of Environment, to provide a basis for development of new provincial commercial fisheries policy.

The four reports are:

- "Financing in the British Columbia Fishing Industry", Foodwest Resource Consultants Ltd. and Robin Smith & Associates

- "The British Columbia Herring Industry", Foodwest Resource Consultants Ltd. and Robin Smith & Associates

- "Foreign Investment in the British

Columbia Fish Processing Industry", Quadra Economic Consultants Ltd. and Gary Bowden and Partner

- "Economic Management in the British Columbia Fish Processing Industry", Marvin Shaffer & Associates Ltd., Marvin Shaffer

These reports are available from:  
Marine Resources Branch  
200 - 1019 Wharf St.  
Victoria, B.C.  
387-1537

or Information & Education Branch  
512 Fort Street  
Victoria, B.C.  
387-3791



# WHAT YOU CAN EXPECT

## by Pat Phillips

At some time or other, we all have problems completing Departmental forms. The paper work is heavy and sometimes mind-boggling, but a few minutes to complete the forms correctly saves time right on up the line. Then again, some omissions can mean that you do not get something that you were expecting, like a TRAVEL ADVANCE, because the form was not completed correctly.

The Travel Authority and Advance form is a good one to start with. It requires the social insurance number, name of traveller (Christian name in full), the Department, branch, address and telephone number.

The "Purpose of Travel" should be explicit. If you are attending a competition interview, state which one. If you are attending a meeting, what meeting.

The duration days should be completed and the estimated cost put in.

When completing the departure and arrival section, the departure information is always known; if the return is unknown, so state.

If a car is to be rented, mark this box with an "x". If your private car is to be used, then "x" this box,

and put in the mileage rate. This guarantees that your Travel Expense Claim will be paid without it being sent back because you did not have the necessary authorization to use your private vehicle on government business.

Ensure you sign it as the traveller, and the necessary "recommended by" and "approved by" sections are also signed. If you are in the field, then these should be flagged to the attention of the responsible person in your branch, so they will get the necessary signatures.

IF AN ADVANCE IS REQUIRED THEN THE SECTION "REQUEST FOR ADVANCE" MUST BE COMPLETED. In this section please ensure that the address of where the cheque is going is complete, with postal code included. The date required and the amount requested must also be completed.

The section Requisition for Cheque is completed by the Finance Division.

Only in emergencies should you telephone in your request for an advance, and then to the person responsible in your branch.

## Sea-run Cutthroat Enhancement a Success

The first major attempt to rear sea-run cutthroat trout in B.C. looks like a success. The cutthroat are from Elk Creek at Hope Camp Slough near Chilliwack and the program is under direction of Art Tautz. Eggs from these trout were hatched and reared for one year at the Abbotsford Hatchery and 15,000 marked smolts were released in May, 1978, at Hope Camp Slough.

Some of the residual (resident) sea-run cutthroat from this release provided a major fishery in this slough for local residents. Washington State has had problems in rearing sea-run cutthroat, so a major concern had

been how many, if any, would return as three year olds.

Some of these cutthroat were recovered this summer in the lower Fraser, raising hopes that the program would be a success. Those hopes were justified, as already 90 mature hatchery cutthroat have been recovered at the mouth of Elk Creek, more than enough for a further egg-take. The Fish and Wildlife Branch expects even more adult returns.

On the basis of this return, Fish and Wildlife is in the process of expanding their sea-run cutthroat enhancement program in the lower mainland and on Vancouver Island.

# Spurious Emissions

Ron Ginetz has transferred to Special Projects Division, SEP, where he will be Head of the Small Projects Unit. Ron formerly was new projects coordinator in the Enhancement Operations group.

Born..to Sharon and Les Henderson on November 5, 1979, a baby girl, Janine Anne weighing in at 8 lb. 7 oz.

Fishery officer Robert Martin-olich and wife Lenore are parents for the first time. Baby girl Jayda Marie weighted 5 lb. 14 oz. when she was born at 3:20 a.m. on November 25.

Mrs. M.A. (Marg) Cruickshank has been appointed Chief, Administration Division, Support Services Branch, and takes up her new duties in early December 1979. Marg comes from Winnipeg where she was Assistant Director, Administration of the Grain Research Laboratory, Canadian Grain Commission.

John Payne has rejoined Pacific Region, as Chief, Land Use Unit, Habitat Protection Division. He worked for the Environmental Protection Service in Ottawa prior to his move here. People will remember John when he worked on the Babine Development project.

Two new fishery officers have recently resigned. Clyde Moraes, GT 1 Prince Rupert has returned to Hazelton, and Karl Brecker, GT 1 Chilliwack has returned to Saskatchewan.

Two recent promotions in the Inspection Division are to Wilf Gushue, now product inspection supervisor and Dick Carson, now southern inspection supervisor. Wilf is in charge of the fresh and frozen fish and canned fish labs and Dick is responsible for the field inspection operations for the southern inspection district.

Staff changes continue in Information Branch. Alice Sunderland has transferred to Personnel Branch as receptionist.

Joe Arsenault's year secondment to Information ended at the end of November and he's returned to Habitat Protection. Mike Halleran has terminated his contract with the Department.

"44", Ed Zyblut has returned from his senior executive training in Ottawa a few pounds lighter and much trimmer.

Joyce Palmer, District Clerk, Queen Charlotte, leaves at the end of December to spend more time with her present (and future) family.

Maxine Glover, editor, "Sunder", has been presented with an award of excellence from the International Association of Business Communicators, B.C. Chapter, for publication of "CU Quarterly" (Credit Union), which won as the best newspaper with over 5,000 circulation. Congratulations, Maxine!! This is the third such award Maxine has won.

We hear Don Pepper has volunteered to relocate to his former stamping grounds, Alert Bay, after reading the news reports about the problems in staffing our Alert Bay office.

A newcomer to the stream clearance crew is economist Jay Barclay whose first job in this field consisted of removing an obstruction from the Wilson Creek fishway to allow passage for the chum salmon waiting below. Districts requiring assistance may contact Jay directly.

Several changes in Offshore Division include Bob Wowchuk who was the successful candidate for Chief, Management Operations Unit, Offshore Division and Keni Weir who was the successful candidate Management Operations Officer. She formerly worked for the groundfish program in Nanaimo.

Fishery officers are always on the move. The current crop of moves in-

continued on page 20

## Head Recovery Bulletin Format Changes

Over the past few years the number of tagged salmon heads turned in to the Head Recovery Program by sport fishermen has more than doubled. In 1977, 6,500 sport heads were turned in, while in 1978 this figure rose to 13,800. Total commercial and sport-caught heads processed for coded-wire tags have increased from 28,000 in 1977 to 45,000 in 1978, with an estimated 50,000+ in 1979. Due to this large increase in heads, but no corresponding increase in budget or staff, delays have occurred in tag decoding and subsequent data processing. This, in turn, has resulted in delays in holding prize draws and sending out Bulletins. In an effort to report the remaining 1978 results as quickly as possible, information on the voluntary sport returns for August to December 1978 is available in the "Georgia Strait Head Recovery Bulletin #43".

In order to speed up the reporting of results from the 1979 voluntary sport returns and reduce program costs, the Bulletin will be reduced from eight times a year to a yearly summary avail-

able on request to sport fishermen and Fisheries staff. This summary will also be available for viewing at the Head Depots where fishermen turn in heads. The new reporting format to the sport fishermen who turn in heads will consist of a SEP (Salmonid Enhancement Program) lapel button and a letter detailing the origin of the sport fisherman's marked salmon as well as a coupon to return if he wishes to receive the annual summary bulletin. Brochures from our Public Information Branch as well as the "Salmonid" newsletter will also be included periodically. The "Salmonid" features information on SEP's Public Involvement Program and will now also include summary information on the Head Recovery Program.

Prize draws will continue as in the past with eight yearly draws (monthly June to September, bi-monthly October to May) of one \$500 prize and six \$50 prizes to the sport fisherman as well as prizes to the Head Depots.

Don Bailey, Chief, Salmon Services,  
Resource Services Branch

## Special Price on B.C. Resources Atlas

We have obtained a special discount of 15% off the regular price of \$45 for the B.C. Resources Atlas, written by Dr. A.L. Farley and published by UBC Press.

That makes the special price \$38.25 per book. Still fairly costly, but look what you get for the price!

The Atlas has 113 full-colour maps, and it uses the metric system. It should serve as an excellent informational tool well into the 1980s.

The Atlas is divided into three major sections: People, Environment and Resource Use.

Resource Use, the biggest section in the Atlas contains dozens of maps covering different aspects of forestry, mining, agriculture, fishing, energy, water use, manufacturing, recreation and tourism, transportation and

communications.

Besides making a great gift for others, it should prove useful to field and office staff alike.

To take advantage of this offer, 100 or more copies must be ordered. So, again we'll pool our orders in the following fashion:

- total price: \$38.25 each. (For out of town orders, add \$1.50 per book for postage and handling.) Order as many as you wish.

- make payable to : B.C. Resources Atlas

- a cheque, money order or cash for the full amount is payable at the time you place your order.

- send your (prepaid) order to Linda Jamieson, 11th floor, 1090 West Pender Street, Vancouver, B.C. V6E 2P1.

- last day to order: January 18.

## Photo Contest Prizes Announced

Exotic and unusual prizes are being donated for the "Sounder" photo contest. Details on some are sketchy, but to date, we have:

- 2 one-day sailboat cruises, donated by Fred Fraser and Kip Slater. (Kip will throw in diving if the winner is a diver.)
- a one-day of fly fishing for cutthroat trout on the Harrison with Don Buxton
- a one-day of steelhead fishing on the Squamish with Joe Kambeitz
- a 16" x 20" enlargement of winning photo (or a favourite photo of the

winner's).

- native Indian prints
- a print of the "Howay" by Hugh McNairnay
- bottles of "spirits"

We are also "entering into negotiations" for a large Japanese glass ball/float, photo albums, gift certificates for film and developing, and many more.

Remember--the deadline for entries is February 29, 1980. Full contest details are in the November issue of the "Sounder", or write or phone the editor Maxine Glover for information.

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## SEASON'S GREETINGS

I would like to wish all of you and your families a very Merry Christmas and a Prosperous New Year. May I also thank you all for your support during what was again an extremely demanding year for all of us in the Department of Fisheries & Oceans.



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### Spurious Emissions

clude: Mike Setter from GT 1 in Port Alberni to GT 2 in Tahsis; Brian Lunn from GT 1 Steveston to GT 2 Nanaimo; Terry Turnbull from PM 2 Prince Rupert to GT 3 Smithers. Congratulations on your promotions!

\*

\*

Remember the old Fisheries crest? Well, Ray Kraft has had a few dozen gold-coloured tie tacks made of the old design. The cost is \$1.50 each. If you are interested in buying one or more, write or phone him at the Parksville office, Box 1120, Parksville, B.C. VOR 2S0, phone 248-6710.

Maxine Glover, Editor

THE SOUNDER

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