



# Selective Fishing Newsletter

Volume 1 Issue 1

May 2001

**T**his is the first issue in a forthcoming series of newsletters on selective fishing. Selective fishing is a cornerstone of the future of fisheries here in BC. It is the most positive solution for harvesters and the resource in the face of serious conservation concerns for a number of salmon stocks. In many cases, it will be the only way we are able to continue fishing. In the light of this change, it is important to share information and connect those people that are involved. The idea for the newsletter stems from stakeholder suggestions consolidated at the January 2001 coast-wide workshop held in Vancouver, BC.

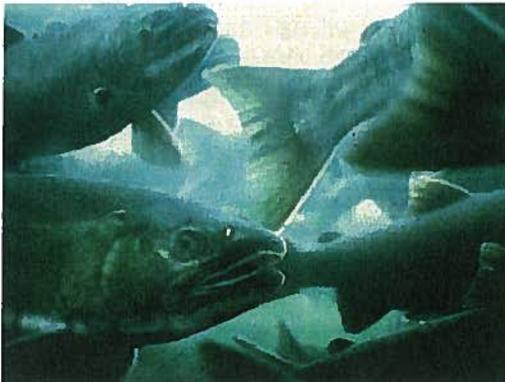
This newsletter was initially distributed through a mail list created at the multi-stakeholder workshops held in the winter of 2000-2001. If you would like to join this mail list, or know of anyone who does, please contact:

Erica Blake (250) 729-8361

For further information on selective fishing please visit Fisheries and Oceans website at:

<http://www-comm.pac.dfo-mpo.gc.ca/english/selective/default.htm>

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## **This issue features...**

**Project Submission Process**

**Summary of Community Workshops**

**Columbia River Projects**

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**Workshop For Harvesters Announcement**



## 2001 Project Submission Process

**T**he Selective Fisheries Program will be winding down this year. Part of the program has been to develop, modify, or test fishing gear and practices that improves the selectivity in the salmon fishery. As funding for this final year is greatly reduced, specific priorities have been set for the projects in 2001. A summary of the key aspects for the program includes:

- Further research on post-release mortalities of coho and chinook, which will also focus on the long-term effects of catch and release of salmon, a scientific review of studies done to date, and the effects of multiple captures of fish within a fishery;
- Very specific selective fishing gear development (proposals which are currently being assessed);
- Implementation of demonstration level fisheries;
- The introduction of performance measurement (post-release mortality audits carried out during the fishery);
- Catch monitoring programs that incorporate real-time monitoring using technology such as satellite data transmission;
- Fisher sponsored training and education programs for gillnet and troll harvesters; and
- Building upon training and awareness programs with First Nations to promote selective fishing techniques and practices.

A call for proposals put forward in March of this year resulted once again in the receipt of many project submissions. A total of 31 applications were received to work on improving the selectivity of seine and gillnet gear and methods. Seine proposals included projects with grids, revival tanks, fish sorting methods, and monitoring of

operations. Gillnet proposals included work to compare web types, mesh sizes, revival tank modifications, and avoidance of sea bird bycatch. As well, there were a number of other proposals submitted to do further work with alternative gear types such as fish wheels, trap nets, beach seines and dip nets. Some of these



latter proposals may not fit with the particular criteria of the 2001 selective fishing call for proposals, and thus may be referred to other parts of the program, such as the First Nations selective fishing or research components.

Representatives from the federal and provincial governments, with participation from commercial harvesters, evaluated the proposals in late April. The ranking will be based on the identified priorities of work to be completed and funded this season. As projects are approved in principle DFO staff and the project proponents will be working together to finalize the details of each project and to ensure that all requirements and contingencies have been anticipated. Starting in mid to late May, the projects will then be submitted for final approval, funding, and licencing. Some projects will likely be underway shortly after that time, while others may occur later in the season.



## Community Workshop Summary

Over the past several months a series of community workshops were conducted through the Selective Fisheries Program. Community workshops are instrumental in disseminating information and collecting advice that shape the process of incorporating selective fishing practices into British Columbia fisheries. Coordinated by local community organizations, the intent of these sessions was to take stock of the progress that has been made including reviewing research findings, projects, gear/methods development, and consulting on the implementation of selective fishing methods for 2001.

In December 2000, and January 2001, workshops were held in Prince Rupert, Port Hardy, Port Alberni, Nanaimo, and Williams Lake. The workshops provided a forum to share information, applaud progress made to date and to accumulate people's recommendations for upcoming fishing plans. The focus of the workshops this year bore a higher priority on the technical rather than policy issues.

In comparison to past events, this recent series of workshops were based in smaller more remote communities to allow for greater participation from First Nations, commercial, and recreational harvesters who may not have had the opportunity to attend the larger urban-held events. This geographical transition was a response to recommendations made by participants at a previous meeting. Presented here, are a number of common themes and suggestions on selective fishing that arose from the recent community workshops.

The workshop summaries illuminated a high level of commitment and participation by those attending, and of support from community leaders and organizations. There was a recognition of the reality and necessity of implementing selective fishing, but also a need to have DFO actively recognize the achievements and improvements that have been made to date.

*First Nations, commercial and recreational fishermen have been instrumental in changing*

*the direction of the fishery with their innovation and enthusiasm.*

Another key theme from the workshops was communication. It was expressed that DFO has not been effective in communicating with fishermen, and that DFO should be more flexible and responsive, with open, transparent, and accountable decision-making.

*Greater communication, cooperation, and trust are a goal. A communications plan has been initiated to remedy this impression (newsletter).*

Cooperation and communication could also be enhanced between sectors. Pre-season community workshops were applauded as a good forum to share information.

Workshop participants expressed a desire for better feedback from DFO specifically with regards to the impact of selective fishing and the steps achieved in 2000. More consistent and timely announcements are also needed to give an earlier indication of intent for the coming season, which would allow fishermen time to plan and prepare.

It was generally agreed that there has been good progress made with regards to conservation through selective fishing. However, a lack of funding may limit further efforts to promote conservation. Suggestions to address these financial restraints included greater cooperation between DFO and harvesters to meet information needs. For example, stock identification, or the sharing of on board observers between vessels.

*With many stocks at risk, and others in decline, conservation has been placed as the top priority in managing the fishery. In the Selective Fishing policy, conservation is identified as the primary objective and will continue to take precedence in managing the resource.*

The feeling was that although current selective fishing gear may be adequate to achieve conservation goals, the fishery is not yet economically viable. This was a major point of concern, arising at all of the workshops. There needs to be economic incentives for fishing selectively, and perhaps this can be achieved through greater fishing opportunities when selective gear and methods are effectively implemented. Other suggestions for a more economic fishery included assessing cost-recovery policies, and focussing the fishery on catch value rather than on volume. Focusing on price would require a slower paced fishery that could then concentrate on higher value live and fresh markets. Making a selective fishery economically viable, and addressing harvest and earnings aspects, should be a major focus for 2001. Although significant advances have been made there was recognition that there will continue to be a need to have the resources for addressing future selective fishing issues.

*The department will continue to make 5 percent of the total allowable coast-wide catch available for selective fisheries research and development.*

*Over time, commercial allocations will favour those that can demonstrate their ability to fish selectively. At this time, no selectivity adjustments will be made to target allocations for commercial gear types. In keeping with the "Policy for Selective Fishing", by January 2003, selective fishing standards and timelines for adherence will be established in consultation with harvesters. Fishing activities that do not meet these criteria may subsequently be curtailed.*

The opinion was also expressed that DFO needs to enact more flexible standards and policies. For example, enacting greater flexibility with regards to time and area closures in response to coho presence, and establishing 'reasonable' mortality rates. Harvesters could

also be involved in this decision process. Workshop participants expressed a desire to have input in the development of training and education materials. While it should be a shared responsibility, it was hoped that DFO could provide assistance in the form of funding, producing materials and developing policies. Having selective fishing training and certification as a condition of licence was also proposed.

*As the Selective Fisheries Program winds down in 2001/2002 the cost of continued training and awareness will become the responsibility of harvesters.*

*Under the Program, a comprehensive review of all programs, educational materials, and resources related to responsible and selective fisheries was completed. From this review, a strategic plan was developed with First Nations, recreational, and commercial leaders to establish training and educational programs to benefit harvesters and anglers for years to come.*

There needs to be time for education and gear changes. It has been recognized by many that attitude of harvesters and anglers to embracing a new and responsible and selective fishery is a key focus for awareness, training and education programs. To properly implement new gear and methods, fishers feel that there needs to be more fishing time allowed in order to achieve their allocations.

At several workshops there were concerns raised about the disparities between the application of selective requirements for each sector. Participants wanted to see everyone being required to do, and doing, their fair share.

There was some frustration expressed about the slow pace of implementation. Those gear and methods proven to be effective need to be implemented into the fishery. Some types of gear were identified as ready for routine use and implementation while other gear and methods may be unworthy of further consideration.

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## Gillnet Alternatives in the Columbia River

Throughout British Columbia, selective fishing measures currently being explored or already in practice by fishermen are at the leading edge of global fishing technology. The use of selective gears and methods are also being explored in other regions, and the value of expanding our knowledge through the experience of others is obvious. Last year, local managers in the Washington Department of Fish and Wildlife (WDFW) began experiments in the Columbia River with two new types of fishing gear, tangle nets and floating box traps.

The Columbia River is the dominant river system in southeastern British Columbia and the Pacific Northwest United States. The health and sustenance of this river system is of vital importance to communities and stakeholders on both sides of the border. Even though there are many healthy stocks of wild and hatchery salmon returning, the commercial fleets are experiencing unprecedented restrictions to protect weaker stocks. Last fall, the first gathering in Washington State to deal with selective

fishing occurred in the Columbia Basin. Participants there were given an overview of a large number of selective fishing projects undertaken by BC fishermen. Local fishermen and managers in Washington State are looking North to learn how to harvest surplus target stocks while minimizing or avoiding the harvest of wild stocks of conservation concern.

The intent of the gear experimentation in the Columbia River was to develop methods of catch that allow for a more selective harvest than traditional gillnets. Gillnets pose a problem for selectivity in that they can suffocate a fish by compressing their gills or injure them as they struggle through the net.

In the Columbia River tests, half of the coho and chinook caught with a traditional gillnet either died or could not be revived to a condition where they were likely to survive. By compari-

(Continued on page 6)

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*In 2001/2002 the Department will be implementing the findings of the experimental pilot projects into the Integrated Fisheries Management Plans. Previous efforts have now clearly identified the priorities requiring further work and this has been reflected in the current project selection criteria.*

Finally, there was some desire expressed to see the continuation of funding under the Selective Fisheries Program, particularly until other economic structures are in place.

*After \$ 18.3 million has been invested, including over 100 experimental pilot projects the program is winding down in 2001.*

The outcomes of the community meetings were put forward to the annual regional workshop held

in Vancouver in late January (see enclosed article).

The information and advice will be used to guide the implementation of the Selective Fisheries program and responsible salmon fishing strategies in 2001. The focus for 2001 has been streamlined through the identification of priorities for further work arising from previous year's efforts. Selective fishing is a fundamental and permanent change to the Pacific fishery that allows fishermen to continue to harvest more abundant stocks while protecting weaker ones. Implementing such measures will provide a sustainable, more secure resource for those that continue to fish, and a strong and viable resource for the future.



son, using a tangle net, about 80% of the chinook and coho released from the net still appeared healthy. A tangle, or "tooth" net uses a smaller, looser mesh to entangle salmon or capture them by the teeth or jaw, thereby allowing them to respire while in the net. In the Columbia River, tangle nets caught half as many chinook but just as many coho as the gillnet. An important finding of the Washington State studies was that the tangle net caught more non-salmonid species than the conventional gill net. Design changes are being made to reduce this catch and to improve live release of these species; an example is raising the nets off the bottom to avoid crab bycatch. The effects of the tangle net on non-salmonid species must be a consideration if the gear is implemented.

Experiments have also been conducted with tangle nets here in BC. Including investigations into the optimal mesh size and twine characteristics for a tangle net. The study indicated that with decreased mesh size, the numbers of fish caught and net mortality rates decreased. As twine thickness increases, the ability of the net to catch fish also decreases. The vast majority of fish held in a net pen seemed to survive the catch-and-release from the tooth tangle net. While perhaps less efficient than traditional gilling web, these nets appear to promote the capture of more live fish in better condition. The key element to capturing more live fish appears to be a short set time. A live fishery not only enables greater selectivity, but can also increase the monetary value of fish caught.

The other new selective gear implemented for tests in Washington State was the "floating box trap". This trap captures salmon by funnelling them into a small webbed chamber. The captured fish never come in direct contact with the net, and thus remain in good condition. Of any gear used this trap had the highest rates of survival, a 100% survival rate, but also caught the fewest fish. Tested only at Willapa Bay the floating box trap caught a total of 36 salmon. While fish traps are widely used around the world, the ability of traps to catch fish is highly site and design specific. A trap working well in one site might not be transferable to another.

The effectiveness of floating trap nets has also been explored on the Fraser River. Of the various experiments in the past few years, catchability rates have fluctuated widely, due largely to a combination of small run sizes, design and site issues.

This coming year a more thorough and extensive series of selective fishing studies are underway on the Columbia River. There are four components to the projects. The first is a two-month gillnet and tangle net fishery on Spring Chinook in the lower river to evaluate the effects of different mesh size on the post release survival rates of free swimming fish. "By tagging and upstream monitoring, we hope to show the relative survival rates, and the actual decrease in survival of the post-release fish," said Geraldine Vander Haegen, the biologist supervising the selective gear studies. Other components of the projects include an evaluation of soak times on short-term survival, and another ten-day session with the floating box trap. "It (Floating box trap) didn't work very well at Willapa Bay, but from a selective point of view it is a very good gear," says Vander Haegen. The final component to the 2001 Columbia River Projects is a small permit fishery. There are 20 local boats which have been selected through lottery, each boat is to have a two-shackle net, one shackle of tangle net and one of the fishers choice. These boats have an individual daily limit, and can keep and sell their catch of marked Chinook.

Selective fishing projects on the Columbia River are funded through the Northwest Power Planning Council and the Bonneville Power Administration. Results of the current studies will be posted regularly on the Internet, to check them out visit [www.wa.gov/wdfw/fish/commercial/selective/](http://www.wa.gov/wdfw/fish/commercial/selective/)

As Washington State begins to explore selective fishing, creating awareness and sharing information across the border could be a valuable asset as they are working in similar environments and the results may enhance future endeavours in BC.



## New Modified Revival Tanks

Recently, design improvements have been made to the required on-board revival tanks. Modifications in the original design have been made to ensure the best and quickest recovery of salmon. For this season, implementing the new tanks is encouraged but not mandatory. However, it could be anticipated that next year, commercial boats will be required to use the redesigned tanks.

A revival tank, also known as a holding tank or resuscitation/recovery box, is used to provide a calm, safe environment to revive stressed fish before release. Revival tanks appear to reduce the post-release mortality of non-target and vulnerable stocks such as coho.

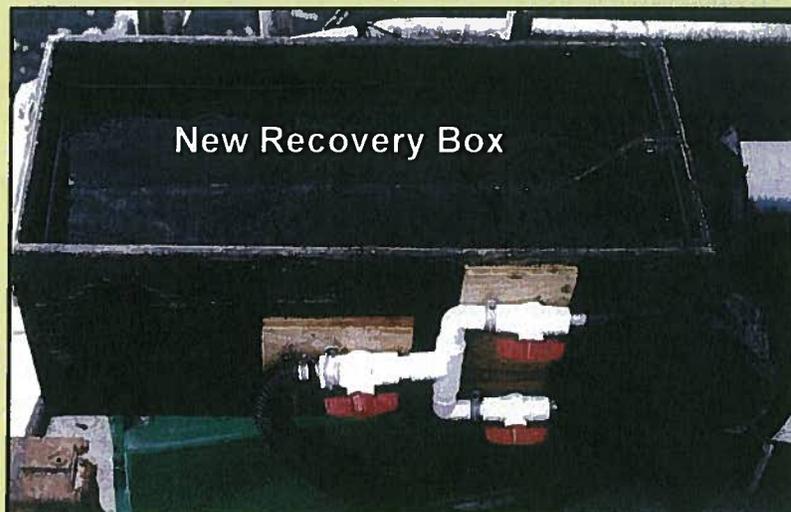
The major changes with the new design are...

1. Laminar flow. The new tank is set up to hold the fish in the tank so water flows from head to tail. This supports the fish, even in an exhausted state, and ensures maximum oxygen exchange through the gills.
2. Release Method. The tanks are set up with a rubber release chute so that there is no further handling of the fish with release.

Critical elements to ensuring the success of a revival tank include both water quality and the tank condition. Cold, clean water is required, and there must be ventilation of the fish through the maintenance of water flow rates. Preventing further scale and slime loss through maintaining a smooth inside surface of the tank is also highly important. If the tank doors are facing forward on the boat, the released fish are less likely to swim back into the net. Positioning the tank fore & aft also helps in fish recovery as they tend to repeatedly hit the end of the tank if it is across the boat and the boat is rolling. Finally, in handling fish, it is important to keep rain gear and gloves clean to reduce the transfer of bacteria and disease from fish to fish.

The new design plans and further description of critical factors are now available on the DFO website. Plans include designs for both the single and double recovery tanks.

<http://www.pac.dfo-mpo.gc.ca/ops/fm/Salmon/Imaging/box.PDF>



## Vancouver Coast-Wide Workshop

### Will there be fisheries in our future?

The message from the January 2001 Selective Fisheries Multi-stakeholder Workshop was loud and clear: We can keep fishing into the future; but only if harvesters fish selectively so that threatened stocks can rebuild; and only if trust is built between fishery managers, fish harvesters and their communities. Our common interest and common stake in the future need to be conveyed and understood by all.

There are concerns about conservation: some fish stocks are not rebuilding as quickly as expected, notably coho stocks in recent years. Some would say, "Stop! No more fishing until we figure out why." But those who fish, and communities that depend on fish, are reluctant to forego the economic opportunities provided by fishing. "Selective fishing" is their answer: a way to have conservation and catch fish too. Since fish stocks intermingle in fishing areas, harvesters, anglers, and fishery managers have been developing ingenious ways to avoid catching stocks of concern, and to release them unharmed if they are caught.

What is at stake is the ability to continue fishing in British Columbia. Members of all the "stakeholder" groups have been working hard for three years now to find the right balance between conservation and fishing opportunities. Through initiatives of the Selective Fisheries Program, stakeholders have been turning out for meetings, conducting selective fishing experiments, and taking part in demonstration fisheries. All around the coast and on river systems throughout the province, British Columbians have been joining together to solve problems. There have been notable successes involving collaborations between scientists, fishermen, anglers, and First Nation's harvesters. Fishery managers have been struggling to stay ahead of the action and get everyone working together. Stakeholder groups have

been working to instill, among their members, an acceptance and understanding of the differing points of view on how fisheries in the Pacific region should be conducted.

The dialogue has begun, but the biggest challenge is yet to come. Leadership is needed to support and encourage change. Well-informed representatives must convince their various constituencies that selective fishing is here to stay; that lingering animosities must be put behind us; that it is possible to work together for the common good—and that time is running out.

The January multi-stakeholder workshop included a diverse range of participants; from the sectoral leader who feels he has been hammering away at the same messages for three years now and he's getting tired; to the representative from one of the community workshops who is enthused about regional resources co-management; to the innovative fisherman with a great new idea about how to market value-added fish from her selective fishing experiment.

The participants put in two solid days' work at the Morris J. Wosk Centre for Dialogue, developing a shared vision around the theme: "*What does the selective and responsible salmon fishery of the future look like, and how do we get there?*" A framework for action was created through a series of questions that were answered during the course of the workshop, in small groups and large, through many debates, and sometimes without consensus:

#### 1. *What is it we're trying to do?*

Our **GOALS** are to:

- **conserve** fish stocks and habitat
- provide **fishing opportunities** for all sectors
- have everyone **fish selectively**
- make the **best use** of the fish
- have **equity and fairness** of fishing
- **benefit communities**

## 2. How are we going to meet these goals?

Our **TOOLS** are to:

- **avoid catching species at risk** (by time and area closures; by selective fishing gear and methods)
- **release species at risk alive and unharmed**, if they are caught (by live release gear and methods; by revival of stressed fish)
- use management strategies aimed at minimizing conflict and gaining **harvester, angler, and community acceptance** of selective fishing (by local and inclusive management processes; clear performance standards; "carrot and stick" incentives; education and training; effective communications; demonstration fisheries; adequate funding; and meeting knowledge needs)

## 3. Who is responsible?

In working groups and plenary sessions, **RESPONSIBILITIES** were assigned to each of the goals and tools (DFO, harvesters, anglers, First Nations, other communities, joint-process local management, the Province, fish companies, and sport fishing businesses variously were named as responsible).

## 4. How do we evaluate and measure what is being done?

Detailed lists of **ACCOUNTABILITIES** were developed and standards were discussed.

The stakes are high, and worth working hard for. This is exemplified by the effort put into the heartfelt dialogues at the Vancouver workshop and regional workshops held in Prince Rupert, Port Hardy, Nanaimo, Port Alberni, and Williams Lake during the winter of 2000-2001.

Now the 2001 fishing season has begun, and the Selective Fisheries Program is entering its fourth season of policy development, dialogue, research, fishing experiments, and demonstration fisheries. Whatever the outcome, participants in all these endeavours will at least have the satisfaction of knowing they have helped build a foundation for change.

Whether there will be fisheries in our future may depend on whether a critical mass of believers can be developed before global warming, habitat degradation, irresponsible fishing, and other hostile forces conspire to decide the fate of the fish.

While we can't predict the outcome, we know that the participants in all these endeavours—through their willingness to listen, their hard work, and their creative ideas—have built a solid foundation for change.

Information on all aspects of the Selective Fisheries Program, including reports on the 2000-2001 multi-stakeholder workshops, is available at the Selective Fisheries web site:

<http://www-comm.pac.dfo-mpo.gc.ca/english/selective/default.htm>

Printed copies are also available through the Selective Fisheries Program, please call:

Sharon Ratzlaff (250) 756-7257



## Announcement !

Selective fishing workshops for commercial Gill Net and Troll harvesters will be taking place in Prince Rupert, Bella Bella, Sointula, Campbell River, Nanaimo, Maple Ridge, Cloverdale, and Ladner. Through the month of May, these one-day workshops will provide commercial harvesters with the background on selective fishing and practical information on the methods and equipment for the avoidance or release of non-target species. These workshops will be delivered by commercial Gill Net and Troll harvesters under the theme of providing stable and sustainable fishing opportunities for the commercial Salmon Gill Net and Troll fishery.

For more information call:  
Erica Blake at (250) 729-8361

or check the notices to industry at:  
[http://www-ops2.pac.dfo-mpo.gc.ca/fnsreports/BrowseNotices\\_Result.cfm?id=ALL](http://www-ops2.pac.dfo-mpo.gc.ca/fnsreports/BrowseNotices_Result.cfm?id=ALL)





# Selective Fishing Newsletter



Vol. 1 Issue 2 September 2001

## Welcome to the Second Edition of the Selective Fishing Newsletter!

At the mid-point of the season many of the selective fishing projects are still ongoing, but we highlight some early results from a range of First Nation, commercial and recreational projects. The intent of the Selective Fisheries Program is to develop fishing gear and methods first through scientific experimentation, moving to demonstration-level fisheries, then on to implementing new techniques as part of regular fisheries.

Would you or someone you know like to join our mailing list?  
Please contact:

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For more information, please visit our website (issue 1 also available online):

<http://www-comm.pac.dfo-mpo.gc.ca/english/selective/default.htm>

### Featured in this Issue:

- Small Mesh Gillnet and Short Set Times Leads to Live Salmon
- Area 20 Recreational Selective Fishing Project
- SN Revival Tank and Air Exposure Study
- Area 20 Seine Demonstration Fishery
- Real-time Satellite Catch Reporting for Trolling
- Area 4 (Skeena) Selective Gill Net Fishery
- Nisga'a Fishwheels
- The Special Selective (Skeena) Seine Fishery
- Training and Education Update



# Experimental Projects

## **SMALL MESH “GILLNET” AND SHORT SET TIMES LEADS TO LIVE SALMON**

Fred and Linda Hawkshaw's gillnetter may look like an ordinary fishing vessel but when you go aboard you see how different it really is. Their vessel is modified to keep all their landed catch alive through to release or delivery. They have two revival tanks and their four hold compartments have been plumbed for circulating seawater to keep their target catch alive. Fred and Linda have taken selective fishing beyond something they must do, to an innovative and efficient operation that allows them to produce the best quality wild salmon while live releasing their bycatch.

Fred and Linda use a half-length gill net made of 4" four-strand monofilament. This net catches most of the salmon by the mouth or projections near the mouth so it is not really a "gill net". This type of capture results in almost all of the salmon coming aboard alive, when combined with a twenty minute soak time, and they stay alive as a result of the good handling practices. The half-length net speeds up the time from when a salmon is entangled to when it is aboard, even during heavy fishing. If you land all your fish alive you have options.

The pay-off for the Hawkshaw's is conserving non-target species and the increased price they receive for delivering top quality fish. Their non-lethal capture method and holding of the catch live allows them to take the time after the fishery to bleed and dress the catch just prior to delivery. These fish have no net marks on the body, very little scale loss, no bruising and no blood. There is no better quality than this. Highly prized, these fish received a higher price than traditional gillnet

caught salmon. Selective fishing and quality salmon go hand in hand.

The Hawkshaw's have four other vessels working with them on this experiment to determine the ability of their methods to allow live release of by-catch while catching economically viable quantities of quality salmon. The other skippers working with them have been so impressed with the effectiveness of the small mesh net and different fishing methods that they also chose to fish this gear in the commercial fishery. ■

**(This article is accompanied by two photographs that can be found on page 4 of the newsletter)**

## AREA 20 RECREATIONAL SELECTIVE FISHING PROJECT

"Pink, 4 lbs, hook location...jaw, fish condition...3, pink & white flasher, pink hootchie, clickety-click...that's 66 feet," adds Wayne Harling, BC Wildlife Federation Project Leader. Observer Jen Humphrey records this information and checks the compass for fishing direction. She also adds information on whether or not the fish has been finclipped, and if any sampling information has been collected. As the boat moves through the fog bank approximately 3 miles offshore from the mouth of Port San Juan, the fish is released and everyone sits back for a moment anticipating the next strike.

This fishing expedition is part of a recreational selective fishing study located in Area 20, near Sooke and Port Renfrew in the Strait of Juan de Fuca, sponsored by Fisheries and Oceans Canada. It tests the hypothesis that the use of 'pink gear' allows the harvest of sockeye and pink salmon, with minimal impacts on non-target species, particularly coho salmon. It is the last day of a 14 day experiment where paired boats have fished 4 days a week/ 6 hours a day in close proximity, with one boat fishing conventional coho gear and the other fishing 'pink gear'. On alternate days, the gear is rotated between boats in order to eliminate any bias. Daily catch of sockeye, pink, coho, chinook and other species is recorded and compared.

Today, the "Miss Emily", owned by Trailhead Charter operator Pete Hovey, is using "pink gear". Everyone aboard is interested in demonstrating their ability to fish selectively for sockeye and pink, and avoid stocks like Thompson River coho. Preliminary results indicate that by using 'pink gear', the catch of coho is significantly less than when 'coho gear' is used. Additional information regarding marked (finclipped) coho and

DNA analysis is also being collected to justify a marked-only coho retention fishery for the future.

A formal report detailing this information will be available at the beginning of December, 2001. ■

**(Two photographs accompanying this article on page 5)**

**Photos for: Small Mesh Gillnet and Short Set  
Times Leads to Live Salmon**



Linda Hawkshaw with a quality sockeye caught by a small mesh gillnet on the skeena river.

August 2001  
Photo taken by: Gordon Curry

A sockeye salmon caught with a 4 inch 4-stand mono net in the skeena river

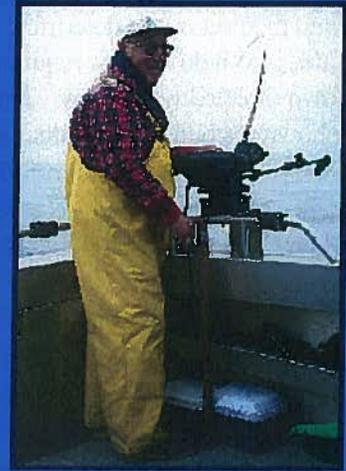
August 2001  
Photo taken by: Gordon Curry



**Photos for: Area 20 Recreational Selective Fishing Project**



**Coho Sampling for DNA**



**Wayne Harling -  
checking his gear**

Above photos taken by: Erica Blake

**Photo for: Modified Seine Revival Tank and  
Air Exposure Study**



**Sockeye Being  
Tagged for the Air  
Exposure Study**

## **MODIFIED SEINE REVIVAL TANK AND SALMON AIR EXPOSURE STUDY**

John Legate (MV Queen's Reach) and Ron Ross teamed up to modify the existing seine revival tank and then set out to determine if it performs better than the mandatory one currently in use. Their idea is to hold salmon requiring resuscitation in slings suspended in the tank with each fish having its own directed water flow. This is the same concept as the new gill net and troll revival tank that has shown encouraging results. A practice run with the new tank started with some live chinook at the Pacific Biological Station followed by work in Alberni Inlet on sockeye to help perfect the methods. Once the methodology is satisfactory the project will switch to coho and attempt to scientifically test their concept against the existing tank.

John and Ron are also experimenting to determine how quickly salmon need to be placed back into a water environment before suffering increased mortality as a result of air exposure. Initial results have shown that sockeye appear to be very hardy. Two of the four holds on the Queen's Reach have been converted into a live tank complete with supplemental oxygen (when needed) for 24 hour mortality assessments based on how long a salmon is exposed to an air environment. A spin-off benefit of the live hold is a practical test of whether they can transport live sockeye from Alberni Inlet to Vancouver. What a surprise when they arrived in Vancouver after 20 hours with only about 1.5% mortality on 669 sockeye. About half of these salmon had been held for at least three days in the hold in water up to 19 degrees celsius.

Ron Ross has commercially fished in his past but presently produces videos. He is using his talents to document this experiment for others to see. John has set up his vessel in an efficient manner for his crew and to the benefit of the fish they handle. Ron wants to capture on video some of these good ideas and good fish handling practices to complete a video that is almost ready for distribution and demonstrates how to implement selective fishing on seine vessels. ■



**See Page 5 for a photograph of a sockeye being tagged for  
the Air Exposure Study**

# Demonstration

## AREA 20 SEINE DEMONSTRATION FISHERY

On August 5 and 6, 2001, seine vessels fished in Area 20 (Juan de Fuca Strait) for the first time since 1997. The presence of Thompson River coho, the generally low sockeye returns and a high inside diversion rate (sockeye predominantly migrating through Johnstone Strait instead of the West Coast of Vancouver Island) have kept this area closed since 1998. This year a high outside diversion rate for an expected large run of sockeye prompted industry and DFO to develop a selective fishing plan for seines to re-enter this area. Extensive planning by industry and the Department for this selective demonstration fishery started last year.

Seine fishermen and DFO have been working together to create the fishing gear and methods that meet the changing conservation standards. Each fishing area has its own set of conservation challenges so the harvesters and managers choose the tools that they believe will meet these challenges. The Area 20 fishery is a good example of the seine fleet demonstrating how selective they can be when using a number of selective gear and methods.

Some of the measures employed included:

- Mandatory selective fishing training (skipper & one crew member)
- An industry-managed \$5000 performance bond for each vessel
- Pool fishery (non-competitive) to control fishing effort and allow extra time for handling bycatch
- An on-grounds DFO resource manager and industry co-ordinator controlled the fishery and effort
- Observers on vessels to monitor, sample and verify catch
- Brailing all sets and use of dip-nets to assist with releasing bycatch
- Sorting boxes for handling one brailer load at a time
- Revival tanks for recovery of lethargic salmon prior to release
- Many vessels had chutes to allow for efficient release of salmon back to the ocean
- In-fishery mortality study to measure the survival rate of released salmon
- Tagging study to measure the rate of multiple re-captures

A total of 73 vessels fished in this demonstration fishery for a disappointingly low overall catch of 45,000 sockeye. The number of coho intercepted and released during this fishery appeared to be well within acceptable limits. Endangered Thompson River coho are only a very small percentage of the overall coho in this area so the impact on these fish should be minimal. Many of the strategies used in this demonstration fishery were aimed at releasing non-target salmon with a minimum of harm. Some of the vessels and crew found all these measures a challenge as they had not fished many days in the past few years and this was the first fishery of the year. Others who also fish in northern waters have made adjustments and gained experience in fisheries like the Skeena River selective seine fishery, to create a smooth operation onboard. The style of fishery was a huge learning experience for both the harvesters and the managers and will help guide the development of similar fisheries in the future.

A large body of information was gathered during this fishery that will take some time to analyse. DFO and Industry will be looking at what worked well and building on this success. They will also be looking at what did not meet expectations and make recommendations for improvements. Assessment of the mortality of released salmon in Area 20 appears to be higher than other areas so, possible reasons and solutions will be examined.

This style of fishery was a huge learning experience for both the harvesters and the managers and will help guide the development of future fisheries in Juan de Fuca Strait. ■

(Photos to follow on page 9)

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## REAL-TIME SATELLITE CATCH REPORTING FOR TROLLING

Accurate and timely catch information is crucial to effective management of fisheries and can provide benefits to harvesters. Satellite data transmission systems have been used for several years to better manage fisheries worldwide. Locally, the Area D Gill Net Association experimented with two satellite systems in 1999 and 2000, which has paved the way for Area G trollers to demonstrate this technology in their 2001 fisheries.

A satellite system allows catch data to be sent from a fishing vessel via satellite to a ground based station that relays the information to an accessible location, all within minutes. Trollers on the West Coast of Vancouver Island decided to use this type of system in their Spring chinook fishery. They used a central fishing vessel with an observer onboard to gather daily catch data from vessels within VHF radio range. The observer then entered this information onto a computer and sent it via modem and satellite to the resource manager in Nanaimo. This system worked very well and allowed the manager to monitor bycatch rates and if necessary, move the fleet away from high incident areas. This system allows for quick response to minimize encounters with bycatch species while allowing the vessels to continue fishing.

Area G also decided to assess two other methods of transmitting data in a real-time fashion during their

sockeye fishery. One method was very similar to the previous method but the observer entered the data from vessels onto a "PSION" handheld data entry device. This method saw the data going directly into the DFO catch monitoring database where it was automatically entered and accessible.

The second method used satellite phones in two ways. In one application a skipper reported the catch from a group of vessels he was fishing with while the other phone was used by an individual fisherman for his own catch.

These catch-monitoring methods are being explored to find what works and to analyse the costs. Catch monitoring will become an industry responsibility so these tests will help to find a method that provides accurate and timely data and is affordable. ■



**Releasing a Chinook Salmon in the Area 20 Demonstration Fishery**

August 2001      Photo taken by: Gordon Curry



**“The Office,” A live hold vessel for transport of salmon to the net pen. 4 seine vessels in the August 2001 Demo Fishery**

Photo Taken by: Gordon Curry

# Implementation

## **AREA 4 (SKEENA) SELECTIVE GILL NET FISHERY**

Commercial harvesters have been telling DFO managers they want more fishing time but, without a fishery that takes into account conservation concerns, it wasn't happening. In recent years gill net fishing after July 18 has been very limited. This year gill net advisors worked with DFO to craft a selective fishing plan to get them back in the water by late July and through into August.

In the past few years a few individuals working with the department have developed new tools to fish more responsively and selectively by gill net. These tools include weedlines, revival tanks, short sets, tangle nets and good handling practices. These and other tools were ready to be tested and implemented in this year's fishery. The plan called for short sets involving a soak time of only 20 minutes, timed from when the net was fully extended until the net had to be retrieved. When fishing is heavy this becomes difficult, and so the nets were half lengthed in order to aid the survival of bycatch. These two measures would allow a far greater percentage of the non-retention salmon to be landed alive and therefore allow release with higher survival. The question in many minds was could we do this and catch enough fish to make this method economically feasible?

The fishery opened on July 21, 2001 for six hours, with the possibility for an extension if compliance was good. DFO had charter and government patrol vessels to monitor the fishery as well as 20 observers onboard gill net vessels. It was interesting to hear many harvesters on the radio convincing those that did not believe in this fishery to give

it a try. The compliance was determined acceptable and the first day ended with an extension until 10 p.m. resulting in an overall vessel average of 305 sockeye. This style of fishery continued for a total of 9 fishing days past July 18<sup>th</sup> ending on August 6<sup>th</sup> for a total catch of 650,000 sockeye for up to 420 vessels. This doubled the commercial gill net catch in the area for the 2001 season.

This fishery demonstrated what can happen when harvesters are willing to try some of the selective fishing tools that address conservation concerns present in this and other fisheries. Further analysis of the results of this fishery will help guide future fisheries in this area. ■



**Gillnetters fishing off the mouth of the  
Skeena River with short nets and  
short sets**

August 2001  
Photo taken by: Gordon Curry

## THE RETURN OF THE FISHWHEEL

Many First Nation fishermen are readopting traditional selective harvesting techniques, and the Nisga'a are one of many groups leading the way. Reviving, refining and pioneering selective fishwheel fishing techniques first introduced in the 1800's is proving to be beneficial to scientists and harvesters alike. Since 1992, the Nisga'a have taken on an increasing role in fisheries science. Through the prize winning Nisga'a fisheries program, developed in consultation with Department of Fisheries and Oceans scientists and funded through the Nisga'a Canada Interim Program (IMP), the Aboriginal Fisheries Strategy (AFS), and now the Nisga'a Treaty, the Nisga'a have been contributing to fisheries management activities for Nass River salmon stocks. The Provincial government (Ministry of Environment, Lands and Parks) and Fisheries Renewal BC have also provided funding for steelhead studies involving the fishwheels.

A joint technical committee of Nisga'a, LGL Ltd. biologists, and Fisheries and Oceans staff co-ordinates the Nisga'a fisheries program. Four to eighteen fisheries technicians are involved in the construction, maintenance, operation and demobilization of the fishwheels. Under the direction of biologists, this operation provides Nisga'a trainees with opportunities to acquire all the skills necessary to fill administrative and technical positions in the future Nisga'a fisheries management system. With the success of the program and high training standards, the Nisga'a technicians are now traveling to share their expertise with other First Nations and Agencies in Canada, North Carolina, Washington State, and Alaska.

Currently, two fishwheels are located approximately 46 km from the mouth of the Nass River at Gitwinksihlkw, and four fishwheels are located 17-20 km further upstream near Grease Harbour. In operation from late May / early June through

September, the fishwheels are primarily used, but not limited to:

1. Evaluate escapement by capturing and recapturing all species of salmon on the Nass River to determine in-season and post-season escapement numbers. The daily information collected assists fishery managers in effectively managing aboriginal, commercial and sport salmon fisheries allowing an efficient harvest of salmon, while still meeting conservation goals.
2. Collect biological information in the form of lengths, sex, scales, and DNA tissue to determine age and stock composition, run-timing and migration rates. Catch of other non-salmonid species also provides information.
3. Harvest - as part of the entitlement and harvest agreements of the Nisga'a Treaty, the fishwheels are used to selectively fish for sockeye (and other species when permitted), and harvest when ESSR (Escapement Surplus to Spawning Requirements) fisheries are approved by DFO.

### Other programs include:

#### Tagging program

- Mark-recapture population estimates; calibration of fishwheel capture rates
- Travel rates from the lower fishwheels to the upper fishwheels and beyond to the Meziadin fishway (150 km upstream of the fishwheels)

#### Mortality Studies

- Studies of immediate and delayed mortality related to fishwheel capture
- Each year less than 25 fish are found dead in live tanks from a total catch of 40,000 to 60,000 fish
- A small amount of delayed mortality may be present but difficult to determine

## Catch Statistics

<u>Species</u>	<u>Range</u>	<u>Average</u>	<u>% Run Captured</u>		<u>Catch 2001 (to Aug. 13<sup>th</sup>)</u>	
			<u>6 FWs</u>	<u>Individual FWs</u>	<u>Catch</u>	<u>Includes # Tagged</u>
Sockeye	21,000 – 41,500	26,000	11%	Ranges between 2 and 5% of the run of each species	30,648	6,595
Pink	9,000 – 22,000	15,000			19,936	
Coho	1,900 – 8,529	4,100	9%		5,315	1,367
Chinook	950 – 5,003	2,700	15%		*RECORD 12, 046	3,601
Chum	120 – 371	250			39	
Steelhead	111 – 1,476	425			278	242

2001 to Aug 13<sup>th</sup>: + 222 Lamprey (162 tagged), 97 Dolly Varden, 47 Cutthroat, 18 Whitefish, 15 Long-nose suckers, 5 Prickly sculpins

The fishwheels have captured more than just fish. The occasional seal, duck or beaver and even a mouse have been scooped from the water. Crew actions have prevented the capture of a black bear and a moose, not to mention carcasses...pheww!!

## Nisga'a Nass River Fishwheel - Timeline

**1829** Fishwheels are common on the east coast of the United States as early as 1829

**1879** Fishwheels are introduced on the Columbia River in 1879

**1992** Pilot year; 2 Fishwheels (FWs) in operation; Radio tagging study

--3 net-lined baskets or scoops line with 3.8 cm knotless seine mesh attached to a central axle that is suspended between two pontoons

--Assembled, the overall dimensions are approximately 38' long x 20' wide; the aluminum pontoons are 38' long x 3' wide x 1.5' deep

--The baskets can be raised or lowered by a cable and winch system attached to the overhead tower

- 1993** 3 FWs in operation; ESSR harvesting; Radio tagging study
- 1994** 4 FWs in operation through 1999; Fishwheel Escapement Program started
- 1995** Annual operation including a Radio tagging study and ESSR harvesting
- 1996** Annual operation
- Baskets are 10' wide x 10' deep and fish 8-9' of river depth
  - Fishwheels are tethered to shore and remain stationary when fishing, unless adjustments are made to maximize catching potential or operational speed (RPM)
  - The holding tanks are submerged within the pontoons and measures 12-14' in length with a depth of 5'
- 1997** Annual operation
- 1998** Annual operation
- 1999** Annual operation including ESSR harvesting
- Fishwheels are powered by the river current and typically operate between 2-3 revolutions per minute (RPM), but can range between 1-4 RPM
  - Fishwheels are primarily constructed of aluminum, but the slides from the baskets to the holding tanks are made from wood
  - Fishwheel fabrication costs range from \$30,000 to 40,000, depending on aluminum costs and the addition of special options.
- 2000** 6 FWs in operation through 2001 Test Index Fishing; ESSR harvesting
- 2001** Annual operation including ESSR harvesting

**2002 and beyond**

To continually evolve scientific methods; reduce in handling; better estimates of post-handling survival rates; improved procedures for in-season escapement estimates; development of velocity mapping, turbidity readings/water level statistical modelling.

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Special thanks to Richard Alexander, B.Sc., R.P.Bio., Nisga'a Fisheries Stock Assessment Manager and Michael Linke both of LGL Limited for their time and admirable submissions of information and pictures of the Nisga'a fishwheel Program.



**Measuring a tagged sockeye**



**Nass Fishwheel No. 1**

## **THE SPECIAL SELECTIVE (SKEENA) SEINE FISHERY**

The North Coast seine fleet has been developing a selective fishery since the 1980's. They have been releasing chinook in Area 1, steelhead and coho in Area 4. When concern for Upper Skeena coho developed they were ready with some tools to allow them to fish at times when other gear were considered not to be as selective. Fishing for sockeye after July 18<sup>th</sup> became a key date as the management focus shifts to the bycatch of coho.

In 2000 the seines had proven their ability to fish after the July 18<sup>th</sup> cut-off date and caught approximately one million sockeye after this date. This year, the seines fished for a total of 14 days after the 18<sup>th</sup> with 6 days (August 7-16) under the "Special Selective Seine Fishery." This year's selective seine fishery (after July 18<sup>th</sup>) resulted in a catch of 570,498 sockeye and 1,032,786 pinks by up to 89 vessels.

Besides the brailing, sorting and use of revival tanks each vessel is required to have an observer onboard at least 1 in 4 days and the continuation of the fishery is dependent on performance, which includes good bycatch handling. These vessels could only retain sockeye and pink salmon during this special fishery. A mortality study to determine the impact on released chinook was also carried out during this fishery to expand knowledge on impacts on these fish when they are released.

Leaders from within the seine fishery have been advancing their methods and gear as well as training others on how to be more selective and responsible in their fishery. The seine fishery has found that having the selective tools and the ability to implement them has resulted in more fishing time to access their allocations. Materials on salmon identification have been made available to all vessels and a video on selective seine fishing has been produced for distribution later this year. ■



**Brailing Sockeye in the Selective Seine Fishery in Area 4 off the Skeena River**

August 2001      Photo taken by: Gordon Curry

## TRAINING AND EDUCATION UPDATE

Since 1998 dramatic change has occurred to all salmon fisheries and making harvesters and anglers aware of these changes has been a part of the DFO Selective Fisheries Program. DFO has sponsored numerous regional and local workshops to promote awareness and discussion on the move to selective fisheries. The next step involves training and education for those involved in the fishery so everyone can implement the best-known practices and gear. Three videos were produced under the title "Salmon Sense: A Training Series for Responsible Fishing" to help in this task. This video is available at libraries throughout the province and describes the move to selective and responsible fisheries, identification of salmon, and how and why you must take care when handling live salmon.

Materials like these videos, other useful reference materials, and training sessions are increasingly necessary for harvesters and departmental staff to keep pace with the changes in the fishery. Discussions between First Nations, recreational and commercial harvesters, and the Provincial and Federal governments will be ongoing to address future training needs.

### First Nations

The British Columbia Aboriginal Fisheries Commission is facilitating the production of a video on the many selective fisheries that First Nations in B.C. and the Yukon are implementing. This video will be included under the "Salmon Sense" title and will be used with other materials being developed to create a one-day workshop on selective fishing for Aboriginal people. When these materials are completed and trainers have been trained, this package will hit the road and visit many communities in B.C. and the Yukon.

### Recreational

Lead proponents for selective angling have updated

two videos on selective fishing that are being distributed to Fish and Wildlife clubs, angling associations, Fisheries and Oceans, and local cable stations. The first video is "Release 'em Right II" which provides some of the best techniques for releasing salmon in tidal waters. The other video is "Surviving the Hook" and outlines current information on survival rates for released salmon.

The recreational community is also developing educational materials that could be used to train anglers about the new code of conduct, salmon identification, effective handling and release techniques. These materials will be used in training sessions to explore methods of best reaching the many and varied anglers we have in this province. The selective fishing message has also been included in radio and television shows.

### Commercial

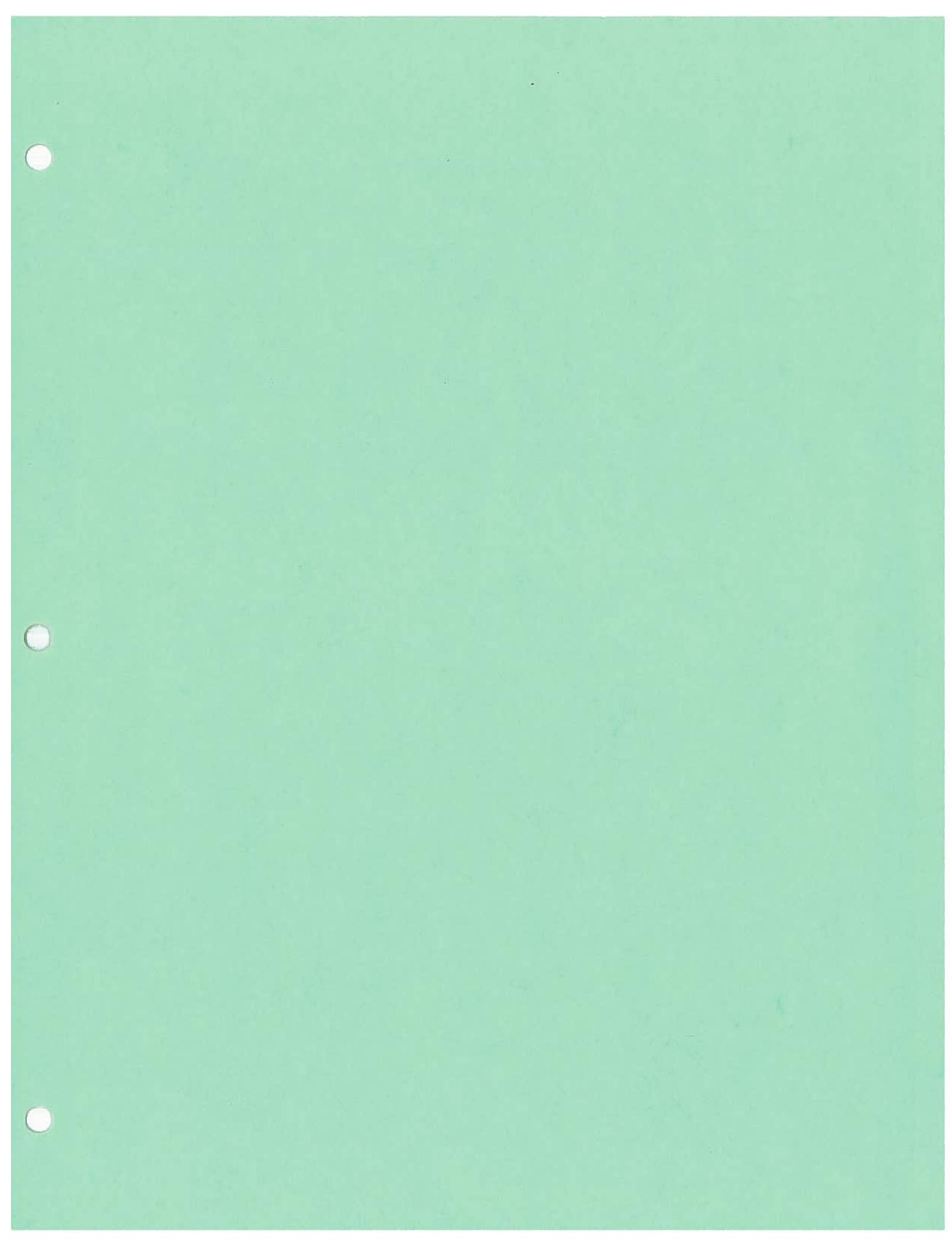
In May, Jake Fraser (North Coast Selective Gillnet Association) and Mike Griswold (President, Gulf Troller's Association) developed and delivered gill net and troll selective fishing workshops. Gill net workshops were held in Prince Rupert, Bella Bella, Sointula, Campbell River, Nanaimo, Ladner, Cloverdale and Maple Ridge. Troll workshops were included in Prince Rupert, Nanaimo and Ladner. Some of the topics presented and discussed included:

- Why fish selectively?
- Avoidance and catch and release techniques
- The new design of revival tanks
- Science's part in developing the tools to fish selectively
- What are the benefits to harvesters now and in the future?

The Area B seine fleet developed mandatory training sessions that each skipper and one crew member attended in order to participate in the Area 20 demonstration fishery. In June three workshops

were held in the Lower Mainland along with one in Campbell River and another in Prince Rupert. These sessions also reviewed the why and how of selective fishing with seine vessels and updated the catch reporting and management restrictions of the Area 20 commercial demonstration fishery.

Three videos are nearing completion that detail how to be selective on gill net, troll and seine vessels. These videos will be added to the "Salmon Sense" series and will be distributed later this year. ■





Fisheries and Oceans  
Canada

Pêches et Océans  
Canada



# Selective Fishing Newsletter



Pacific Region

Vol. 1 Issue 3 January 2002

## Welcome to the final edition of the Selective Fishing Newsletter

The intent of the Selective Fisheries Program is to develop fishing gear and methods first through scientific experimentation, moving to demonstration-level fisheries, then on to implementing new techniques as part of regular fisheries. Although the funding for the Program will end in March, 2002, the lessons learned and the quest for continued improvements to fishing gear and methods will proceed into the future. The sustainability of our resources is essential, and achievable, through efforts by First Nations, commercial and recreational harvesters working to preserve the resource for today and for future generations.



For more information or to view past newsletter issues, please visit our website at:

<http://www-comm.pac.dfo-mpo.gc.ca/english/selective/default.htm>

### Featured in this Issue:

- Grids in seine bunts and bycatch
- Beach seining
- Gill nets access Fraser River chum
- Anglers in the classroom
- Links of Interest



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# Experimentation

## GRIDS IN SEINE BUNTS

*RELEASE OF BYCATCH PRIOR TO TAKING THE CATCH ABOARD*

For a number of years, harvesters on the East Coast of Canada have been experimenting and using grids in their fishing gear. Their strategy is to release bycatch in the water to avoid the increased mortality associated with sorting on deck.

Experimentation with grids in seine bunts here on the West Coast were initially undertaken as a potential solution to a persistent problem with mortality of immature salmon in Area 20 (Juan de Fuca Strait). This common sense approach to the problem in Area 20 and other areas is based on the principle that if small salmon swim out of the bunt before the catch is taken aboard, their survival rate is bound to be higher.

Under the Selective Fisheries Program, grids were again tested in Barclay Sound as part of a large 1998 experiment looking at many mortality effects associated with commercial seine, troll and gill net fishing. This experiment, and a subsequent one by Bob Rezansoff (CFV Taaska), showed that rigid plastic grids allowed the release of immature or small salmon. This approach avoided the gilling of salmon in a standard bunt by using a small knotless web with the grids.

Although these experiments started to solve some of the questions surrounding grids, many others remained. Some of these questions included:

- How do grids compare to a standard bunt with 70 or 100 mm web?

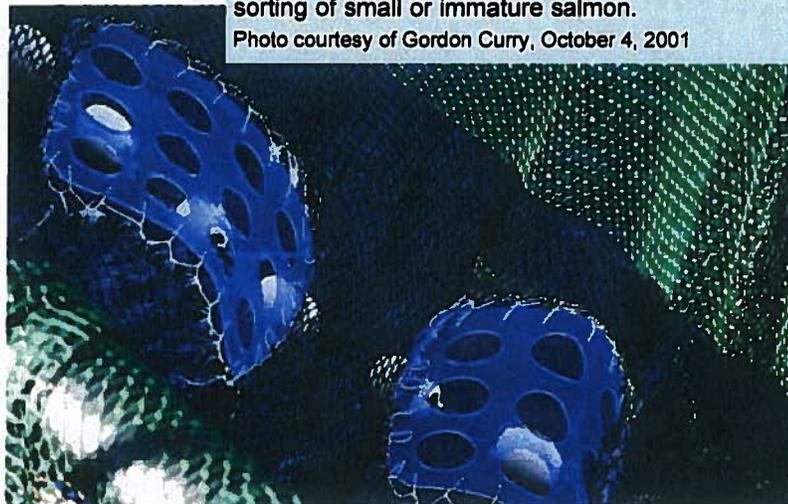
- Where should grids be located in the bunt?
- How many grids should be installed in a bunt to be effective?
- What type and size of bunt web should be used to minimize gilling?
- What operating procedures are required to allow the escape of bycatch?
- What grid opening width (and shape) will release what size range of fish?
- What material should grids be made of?
- What colour best attracts salmon and other species to the escape route?
- What is the cost to convert to a bunt with grids?

As you can see, what seems to be a simple solution soon has many valid questions requiring investigation. Intuition and experience with this gear can help guide the harvester in answering these questions and yet without well designed experimental design there is often no proof.

continued...

Clear plastic grids in the bunt (small mesh knotless web) of a commercial seine net being tested to allow in-water sorting of small or immature salmon.

Photo courtesy of Gordon Curry, October 4, 2001



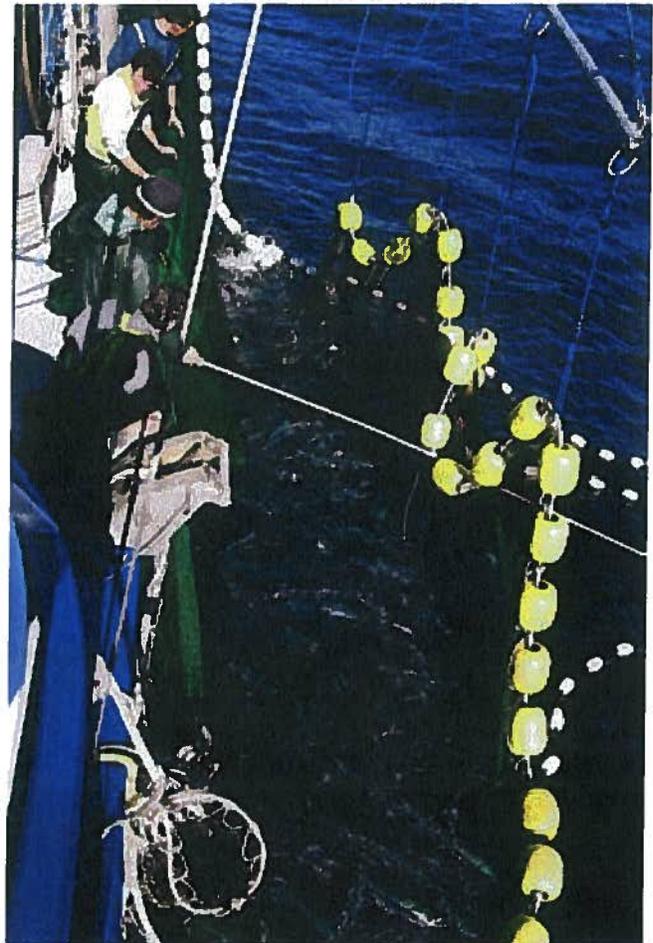
# Experimentation

## GRIDS IN SEINE BUNTS

continued from page 2...

Paul Brajcich (CFV Franciscan #1) approached this challenge from a different perspective. He proposed to test a range of flexible materials that would be more “net and people friendly”. Paul’s grid testing over the past three seasons has focused on narrowing the choices around grid material (strong enough), colour (including clear), opening shape and size.

At this point, through his testing it appears salmon are attracted to the clear grid material and significant numbers of small salmon use this escape method. Some salmon get trapped in the grid openings or push through, while the rigid slots appear to have little problem with this. Answers to the many questions are being revealed, however analysis of all the data is required to determine what has been proven and what requires further testing next season.



Paul Brajcich and crew on the CFV Franciscan #1 in Johnstone Strait with chums in the net and giving the non-target fish a chance to escape through the grids into the catcher bags for sampling.

Photo courtesy of Gordon Curry, October 5, 2001

# Implementation

## SELECTIVE BEACH SEINING

*THE T'SOU-KE FIRST NATION APPROACH*

The T'sou-ke First Nation have explored a number of selective fishing methods. They developed and operated a trap net to harvest salmon that pass near their community -- and it was successful at catching a significant number of sockeye while allowing the live release of chinook, coho and steelhead. The Sooke River remains as their most reliable local source for supplying their community with salmon. The river has returns of chum, coho and chinook and often the chum run is strong while the coho, and in particular, the chinook run is weak.

Members of the T'sou-ke First Nation have been fishing the Sooke River salmon run using a beach seine for many years so that they can select those species that can sustain harvest while releasing those that are weak. A beach seine encircles a number of salmon and, when operated effectively, provides an opportunity to release, with a minimal amount of handling, those fish not targeted for harvest. The key is to avoid drying-up the net too much while having harvesters skilled in salmon identification and handling to release bycatch quickly and with a minimum of harm.

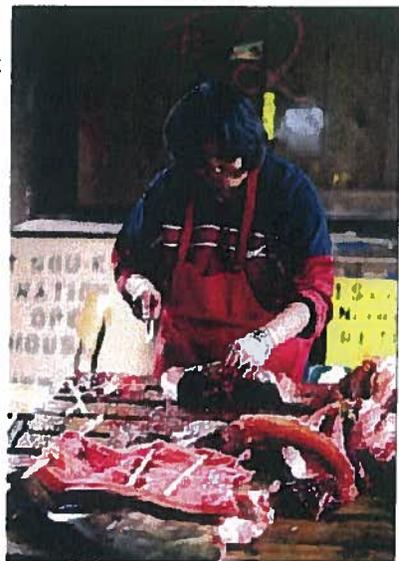


The T'sou-ke First Nation setting a beach seine in the tidal portion of the Sooke River to target chums while releasing coho.

Photo courtesy of Gordon Curry, October 13, 2001

This past fall, the T'sou-ke First Nation and South Islands Aquatic Stewardship Society jointly celebrated the return of the salmon by demonstrating this responsible fishery. The day started with the beach seine fishery near the mouth of the Sooke River, with a catch of about 30 chum salmon and the release of about eight coho. The chum salmon were then skillfully filleted and prepared for the smokehouse. Even the salmon heads were split open for smoking, as this is considered a delicacy. Some of the fish were barbecued and provided a delicious meal along with traditional songs and drumming.

The T'sou-ke First Nation have been avid promoters of selective and responsible fishing even before the international community was developing a code of conduct for responsible fishing and the eventual funding of DFO's Selective Fisheries Program. The decline of local stocks in the past fueled T'sou-ke's salmon managers (former commercial harvesters) to seek solutions by modifying harvesting techniques. Their efforts continue to inspire others in the move to wards more selective and responsible fisheries.



Preparing selectively harvested chum salmon for the smoke house at the T'sou-ke First Nation. Photo courtesy of Gordon Curry, October 13, 2001



# Implementation

## GILL NET ACCESS TO FRASER RIVER CHUM

### *ADDRESSING COHO AND STEELHEAD CONCERNS*

Some Fraser River commercial gill net harvesters fish the Skeena River and have seen first-hand how to create a viable solution to coho conservation concerns.

Over a period of time, a few innovative Skeena River harvesters have been experimenting with gear and fishing method changes to prove what works, and then implementing these measures with the assistance of the Fisheries and Oceans' resource managers. This year, the successful result was a catch of approximately 650,000 Skeena River sockeye after July 18 (previous coho conservation closure date) by introducing short set times and half-lengthed nets to the existing selective fishing methods.

Playing on the success of the Skeena River selective fishing measures, Fraser River gill net harvesters (Area E) proposed a plan to test a weedline in the Fraser River at a time when Thompson coho concerns were lifted but a conservation concern for steelhead still exists. Most Thompson River coho have migrated into the upper river by about October 15<sup>th</sup>, but steelhead concerns can continue until November 9<sup>th</sup> which is near the end of the chum run. The theory behind the Fraser River experiment was as follows: if the Area E harvesters could demonstrate that a weedline in concert with other selective fishing gear and methods has a minimal impact on steelhead, they might be able to re-enter the water to fish for chum earlier when the fish are more abundant.

The Area E experiment involved 16 vessels fishing in pairs with half length nets; the standard 200 fathom net was cut in half, providing each

vessel with a 100 fathom length of net. One half of the net was unchanged (the control) while the other half had a ten-foot weedline (a section of a gill net designed to allow the unimpeded passage of fish near the surface). The gear that was chosen for this experiment focused on the belief that steelhead predominantly travel near the water surface, often in the top one metre. The use of a weedline, in other coastal areas, has been shown to significantly reduce the incidental catch of steelhead. The Fraser River experiment saw eight "fishing pairs" fishing four different areas of the Lower Fraser River commercial fishing area, from Mission downstream to Sandheads.

When the results of this experiment have been analyzed and reported, discussions can occur between Area E harvesters, DFO and provincial fishery managers regarding further study requirements and potential fishing strategies.



Gillnet vessel.  
DFO archives.



# Education

## ANGLERS IN THE CLASSROOM

*FROM ETHICS TO TRAINING MODULES*

Promotion of selective fishing to anglers of all ages and experience levels is happening across B.C. Through a variety of methods, anglers and the general public are learning all about fishing.

For example, the Code of Conduct for sport fishing in B.C., developed by the Sport Fishing Advisory Board, is on its way to becoming famous. This spring, flyers featuring the Code of Conduct will be handed out at sport fishing tradeshows that Fisheries and Oceans Canada and the Sport Fishing Institute will attend. Local anglers, as well as fishing enthusiasts south of the border, will become familiar with the Code of Conduct and the angling ethics that it endorses. A logo and promotional items featuring the Code are in the process of being developed.

Advancing selective fishing techniques and responsible fishing practices is not only about training the avid angler. Efforts to educate future anglers or potential anglers will help to mold angling habits and increased respect for the resource. Through programs such as "Fish Smart", an education module being piloted on Vancouver Island, children are learning about responsible fishing, including the importance of fishing to communities and even fish-related career opportunities.

The Fraser Valley Salmon Society is also working on an educational tool: a Freshwater Salmon Species Identification package (that helps anglers differentiate salmon species and salmon from trout species). This ID package will accompany a training module that the Society is developing for angling clubs and other organizations. Keep an eye out for "All About Fishing", a hands-on freshwater recreational training and education fair that the Society is hosting from March 22 - 24, 2002 in Chilliwack. For more information, call Sandy Ritchie, Fraser Valley Salmon Society, at (604) 792-1646.

## CODE OF CONDUCT

1. Handle all fish with care.
2. Limit your catch to ensure fish for the future.
3. Leave your fishing spot cleaner than you found it.
4. Respect the rights of property owners and other outdoor enthusiasts.
5. Use the proper tackle and methods for the species being targeted.
6. Promote the sport by teaching children and new participants how to fish.
7. Become informed about your fishery and participate in its management.
8. Report all illegal fishing activities to the proper authorities.
9. Respect the space of others, leave enough room for everyone to fish.
10. Learn the fishing and boating laws and abide by them.



# Links of Interest

Researching selective fishing techniques and methods does not necessarily mean heading out to the water. "Fishing" the Internet from your own computer may prove to be useful and reveal some interesting projects that are being conducted in another part of the country or internationally.

Below are some selective fishing related websites that you may find intriguing:

**Fisheries and Oceans Canada, Pacific Region, Selective Fishing website:**

<http://www-comm.pac.dfo-mpo.gc.ca/english/selective/default.htm>

**Fisheries and Oceans Canada's Canadian Responsible Fishing Summary:**

[http://www.dfo-mpo.gc.ca/communic/fish\\_man/resp98/index\\_e.htm](http://www.dfo-mpo.gc.ca/communic/fish_man/resp98/index_e.htm)

**BC Aboriginal Fisheries Commission and Selective Fishing:**

<http://www.bcafc.org/docs/selective/index.html>

**Washington Selective Fishing - Commercial:**

<http://www.wa.gov/wdfw/fish/commercial/selective/>

**Marine Institute of Memorial University of Newfoundland - Fishing Technology Unit:**

<http://www.ifmt.nf.ca/~ftu/ftu.htm>

**Australia's Department of Fisheries - Commercial:**

<http://www.wa.gov.au/westfish/hab/broc/bycatch/>

**The Seabird Bycatch Project:**

<http://www.ifrfish.org/alb-bib1.htm>

**Gulf of Mexico Bycatch Monitoring Programs - Mississippi State University:**

<http://rsca.org/docs/ib324.htm>

