

January/February 2005

The Adipose



The Bi-Monthly Newsletter of the Wild Steelhead Coalition

Volume 5, Issue 1

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The President's Run

January

".... Snow began drifting in coldly from the north, and the line kept freezing in the rings of the rod. After half an hour of it my fingers were so cold and stiff that I could hardly turn the reel..." ".... The fish took with a jolt that snapped the ice fragments yards away. He ran straight upstream, deep down, jumped as he was opposite me and fell back on his tail..." "A River Never Sleeps" by Roderick Haig-Brown

January turning to February is a transitional time, in typical fashion the hatchery steelhead run is dwindling while the wild steelhead run continues to build on our coastal rivers in the Northwest. Let's hope our continuing work for wild steelhead will bring a few more wild steelhead this season and the runs will build to abundance. As I write this western Washington just completed a vicious cold snap with rivers running low and very cold and now the big pineapple blew into town and the rivers are cresting above flood stage with record high temps in the low sixties. In one week, I came off the river where I felt the cold trying to steal my soul to cruising outside in short sleeves, hearing the frogs croaking!

Transition is also occurring in the WSC Board as we say thank you to two respected members of our board, at the same time welcoming two new members. **Les Johnson**, VP of Communications and **Peter Dorn**, VP of Fundraising are moving on from the board back into membership. Les' senior guidance and experience in fish conservation has been invaluable to the board and is also one of our founding board members. But, Les assured me he is not totally going away and I am pleased of that assurance. Peter has done a tremendous job as our VP of Fundraising, planning and implementing two very successful fundraisers as well as raising raffle items, making contacts in industry and securing donations for the WSC. Peter's work for the WSC is to be commended and we look forward to his plans to stay involved as a member. I would also like to recognize our two new board members that volunteered to step up to the challenge, (*continued*)

Brian Simonseth and **John Case**, who are very capable looking forward to their contributions. I want to take time to thank the rest of board members who are committing to another term; your continued work is to be commended and wild steelhead are better off due to your commitment.

Transition is also taking place with WSC meetings as we go to an alternating monthly schedule and changing to a new location at the Center of Urban Horticulture on the University of Washington campus. Please refer to the article titled WSC Organizational Plan in this issue of The Adipose. Please join us for an evening of steelheadin' on Wednesday evening, February 2, at the inauguration of our new location as we welcome a presentation by **Steve Raymond**, author of such books as "Steelhead Country".

The WSC Board has also continued to move forward with various projects, most notably opposing the WDFW/ODFW proposal to raise the allowable commercial by catch impacts of ESA listed wild steelhead from 2% to 6%. Board members, Todd Ripley and Dick Burge have been doing great job with all their work and testimony on this import issue. Please contact your Fish and Wild Life Commission and express with them that this is a bad idea for the future of wild steelhead.

Nate Mantua, Dick Burge and Jack Berryman are in process of revising our second white paper for a final print and putting the finishing touches of WSC Steelhead Management Plan for distribution. Once the plan is completed we will place a link on the web site for our membership to download and offer input. If you do not have access to the web site contact us and we will mail you a copy.

We are also planning and procured a booth for the Sportsman Show in Puyallup on January 26-30. The board feels this is a real opportunity for the WSC to gain a more inclusive audience and deliver the message about the plight of wild steelhead in the Northwest. Our display will include enlarge color charts as well as facts and information about our organization. We will also be raffling of some rods and reels to offset the cost of the booth. So if you attend the show stop by and say hi or spend a few hours in the booth lending a hand.

The WSC Board also voted unanimously to make a \$500 scholarship award to **Michael Daurer**, a doctoral student at the University of Washington. Michael is going to continue the project started by **Jennifer McLean** on steelhead genetics study at the Forks Creek, a tributary of the Willapa River. The Board also voted unanimously to become a member of the Stilly Snohomish Fisheries Task Force supporting their work on habitat enhancement and also renewed the WSC membership in the Washington Wildlife and Recreation Coalition, recognizing their work in preserving public access and habitat.

The WSC continues to grow with fifteen new members in last month and once again we are also prospecting for some support and relief for our busy Board. We still are in need of another Board Member with a fisheries/science background to work with our two board members, Dick Burgee, VP Conservation, and Nate Mantua, VP of Science. We also are looking for a candidate to serve as our new VP at Large. If you are interested, or know of a potential candidate please contact me at 425-880-4254. *(continued)*

In closing I would also like to take this opportunity to wish everyone a belated happy New Year. And would like to leave you with a top five list of things you can do as members for wild steelhead right now :

1. Write, email or call the Fish and Wildlife Commission and tell them not to raise the by catch rate for wild steelhead in the Columbia River.
2. Contact our new board member, Brian Simonseth 360-708-8802 and volunteer to help with a watershed committee project.
3. Give your local Legislator a call and educate him/her why you are concerned about the future of wild steelhead.
4. Propose an idea to the WSC board, but also offer to take the lead on the idea and run with it, we will support you.
5. If your involved with another organization that is not involved with the Steelhead Summit Alliance, get them involved.
6. (OK, I know I said 5, but...) Offer and take a kid or member of the younger generation fishing and teach them the etiquette, tradition and value of wild steelhead in our future!

Sincerely,

Rich Simms

President

Wild Steelhead Coalition

WSC February 2, 2005 General Meeting 7:00PM

Our new meeting place will be at the Union Bay Campus of the Center for Urban Horticulture in the Isaacson Classroom. Links to maps with driving directions (as pdfs) and the buildings are on the web at:

<http://depts.washington.edu/urbhort/html/info/facilities.html>

A Steelhead Presentation by Steve Raymond

Steve is the author of “Blue Upright: Flies of a Lifetime”, “Rivers of the Heart”, “Steelhead Country”, “The Year of the Angler”, “The Year of the Trout”, “Kamloops”, and others on fly-fishing. A winner of the Roderick Haig-Brown Award for significant contributions to angling literature, Raymond also has been editor of two magazines, “The Fly fisher” and “Fly Fishing in Salt Waters”. He was a steelhead fishing companion with two of the Northwest’s legendary fishermen. Ralph Wahl and Enos Bradner. Steve retired after a thirty-year career as editor at the SEATTLE TIMES and is a very active writer, fisherman, and conservationist.

WSC Board Members Slated for 2005

Brian Simonseth, Stanwood, Washington, Brian is the big guy that is on the river's (Chrome Triangle) a lot, on the neighborhood of 200 days a year. Born in Mount Vernon Washington he started fishing the Skagit, Sauk and Stillaguamish in the late 60's; this led too traveling to different parts of the State's of Idaho, Oregon, and Washington and across the border into Canada in the pursuit of Steelhead. He fishes for Steelhead 10 months out of the year and takes the other tw o off.

Brian started seeing the decline of wild steelhead and decided to get involved with groups with a goal to save Wild Steelhead for future generations. *(continued)*

Brian is also a Member of:

- Steelhead and Cutthroat Policy Advisory Group
- Skagit Watershed Council
- Stillaguamish Implementation and Review Committee
- Skagit Fisheries Enhancement Group (Lead Person for Carcass Distribution in the Skagit Watershed)
- Wild Steelhead Coalition
- Fidalgo Fly Fishers (Past-President)

John Case moved to Seattle from the east coast seven years ago, and started fishing for steelhead the month he arrived, hooking (and losing) his first fish on the Deschutes. John has been an avid flyfisherman since he was six years old, and has traveled to New Zealand, Christmas Island, Alaska, Costa Rica, Mexico, and the Caribbean among other Places in search of fish. His favorite river is the Sustut in British Columbia, but locally spends 90% of his fishing days on the Skykomish with one of his spey rods. John is very passionate about the unique challenges faced on rivers like the Skykomish where rapid residential growth and steelhead habitat collide, and looks forward to working with WSC members and other key stakeholders on such situations.

The other officers of your board for 2005 include:

Jack Berryman

Dick Burge

Richard Hunt

Jeff Johnson

Nate Mantua

Todd Ripley

Rich Simms

Bob Young

Special thank you to our departing board members: Les Johnson and Peter Dorn!

Attention!
New Organizational & Meeting Plan Established for WSC!

Objective: Develop a meeting plan for the WSC Board that balances organizational objectives with board members time commitments.

New Meeting Schedule: First Wednesday of every month, starting February 2005, at Center for Urban Horticulture at the University of Washington, alternating board meetings and membership meetings to every other month.

- **Full Board Meeting Schedule:** once every two months: January, March, May, July (if appropriate), September and November. Also Mini Board Meetings for an hour prior to Membership Meetings. Conduct regular business through email, phone and informal project meetings when needed between board members.

- **Membership Meetings Schedule:** Once every two months, alternating the theme of the meetings between science and the steelheading experience, no meetings in July: February- Steelhead Celebration, Presentation by Steve Raymond

April- Science Topic

June- Steelhead Celebration

August- Science Topic

October- Steelhead Celebration

Mid November- WSC Fundraiser

December- Science Topic

- **New Board Positions:** Split VP Science/Education into separate board positions- VP of Science and VP of Education and add VP at Large position. Other board members can will also lighten the load of other board members by taking on some extra responsibilities by solicitation of membership for support.

Columbia Wild Steelhead at Risk!

Legislative and Political Update

The Columbia River has been experiencing higher runs of hatchery spring Chinook salmon for the last several years, and in an effort to cash in on those higher runs, the Columbia River Gillnet Fleet, along with the WDFW Region 5 Harvest Managers, have asked for and received from NOAA-F the go ahead to TRIPLE the allowable impacts on ESA-listed wild steelhead in the Lower Columbia ESU.

The Columbia River spring Chinook fishery is what is known as a "mixed stock" fishery. What that means is that the fishing areas for hatchery spring Chinook are at the same time occupied by other stocks of fish, in particular wild steelhead and wild Chinook, both of which are listed under the Endangered Species Act. The limit for how many hatchery Chinook the gillnet fleet can harvest is actually controlled by the mortality impacts on those stocks, rather than on the target hatchery Chinook stock.

The gillnet fishery has traditionally used large mesh nets (9") that capture Chinook well, but allow the smaller steelhead to pass through with a low instance of catch and mortality. These nets, however, have a very high mortality on the ESA-listed wild Chinook.

The gillnet fleet and Reg. 5 have been experimenting with "tangle nets", which are actually gillnets designed to catch the smaller coho salmon and steelhead. Wild Chinook captured in these nets can be released from the net with a relatively low mortality. However, wild steelhead caught in those nets suffer high mortality.

As the commercial fleet has shown an inability to meet their harvest goals due to the high associated mortality of the Lower Columbia River wild steelhead, which has been capped at 2% of the entire steelhead run, the WDFW Reg. 5 Harvest Managers have asked NOAA-F to allow them to harvest up to 6% of the steelhead run, so that they could harvest more of the hatchery Chinook.

NOAA-F has approved the 300% increase in wild steelhead take, but it must be approved by the Oregon and Washington Fish & Wildlife Commissions, too, before it can actually be used by the gillnet fleet.

The justification for such an increase is that the wild steelhead have been making recent increases in abundance, due to years of sportfishing restrictions and favorable, but temporary, marine conditions, and that the wild steelhead populations can handle the 300% increase without jeopardizing their recovery.

The lower Columbia stocks of wild steelhead are showing an overall increasing trend, but only in specific areas, such as the Willamette River, where stocks have increased greatly. At least five of the stocks are at or below replacement level now, and cannot handle any additional mortality, much less a 300% increase. WDFW's own biologist in Reg. 5 has concluded that the increased impacts would likely result in the extinction of the wild steelhead run in the Toutle River.

This must not be allowed to happen. The people of Washington and Oregon have invested too much resources and time into recovery of those stocks to see them gambled away on a "selective tangle net" fishery that has proven to be anything but

selective, in that it captures two ESA-listed fish for every target fish that it captures, with individual mortality impacts on those listed fish upwards of 30%.

In the next few weeks both state F&W Commissions will be holding public meetings where they will hear WDFW Reg. 5 staff defending the increase, and will take public testimony regarding the proposal. Everyone who is concerned about the health of wild steelhead in the Lower Columbia needs to contact the Commissions with e-mails, letters, and best of all, needs to show up at the Commission meetings and testify, asking the Commission to stop this irresponsible, biologically and economically, fishery from tripling its impacts on those wild fish.

Here are the dates, times, and places for the upcoming meetings, and the addresses to send written testimony about this important issue:

WDFW Commission

commission@dfw.wa.gov

600 Capital Way, Olympia WA 98501

WDFW Meeting:

Feb. 4/5, Olympia, Washington, information at

<http://www.dfw.wa.gov/com/meetings.htm>

ODFW Commission

ODFW.info@state.or.us

3406 Cherry Avenue N.E., Salem, Oregon 97303

ODFW Meeting:

Feb. 10/11, Troutdale, OR, information at

<http://www.dfw.state.or.us/Comm/schedule.htm>

Please take the time to send your comments to the above e-mail AND snail mail addresses, and if at all possible, please attend one or both meetings to testify as to your belief that this is not the proper way to manage wild steelhead bycatch of the commercial fishing fleet.

E-mails and letters are very important, but nothing speaks louder than personal attendance and testimony at the meetings...please make time to attend!

Sincerely,

Todd Ripley

VP Political Affairs,

Wild Steelhead Coalition

c_n_r_nates@hotmail.com

Commission Briefed on Steelhead Proposal

Thursday, January 20, 2005

By ALLEN THOMAS, Columbian staff writer

OLYMPIA - A proposal to boost the incidental kill of wild winter steelhead in the Columbia River in 2005 from 2 percent up to 6 percent received a mixed reaction from the Washington Fish and Wildlife Commission.

The panel was briefed on the proposal Saturday.

Washington and Oregon fisheries officials want to be allowed up to the 6 percent ceiling on steelhead if needed so the commercial fishery can catch its allocation of spring chinook salmon.

Steelhead are caught inadvertently in the commercial net fishery for spring salmon in February and March in the lower Columbia between the mouth of the Willamette River at Kelley Point and the ocean.

A five-year agreement signed in 2001 between state, federal and tribal fishery agencies stipulated up to 2 percent of the wild winter steelhead could be killed as an incidental catch in order to harvest chinook.

Wild winter steelhead in the upper Willamette, lower Columbia and mid-Columbia areas are protected under the federal Endangered Species Act.

Cindy LeFleur of the Washington Department of Fish and Wildlife told the commission the 2 percent limit was selected in 1998 when wild steelhead first were listed under the Endangered Species Act.

At that time, the commercial fleet used large-mesh nets, which passed steelhead easily.

But with the rejuvenation of the upper Columbia-Snake spring chinook run in 2001 came the opportunity for much larger sport and commercial fisheries, LeFleur said.

The commercial season targets on hatchery-origin spring chinook headed for the Willamette River and, to a much lesser extent, hatchery upper Columbia chinook.

To catch its share of Willamette salmon without using up its quota of wild upper Columbia chinook too quickly, the net fleet has shifted to tangle nets.

Tangle nets are a smaller mesh. They capture chinook and steelhead by the teeth or jaw, rather than the gills. Wild fish released from tangle nets have a much higher survival rate.

But tangle nets also result in a much higher handle of steelhead, thus the proposal to increase the incidental kill from the existing 2 percent to a maximum of 6 percent.

LeFleur said wild winter steelhead runs have increased the past two years and exceeded minimum spawning goals in 2003 and 2004. The wild winter run was 33,600 in 2004.

The forecast for this year is 27,000.

Sportsmen are required to release all wild steelhead, but between 1 percent and 6 percent of the wild fish are killed by handling in tributary fisheries targeting on hatchery steelhead, said Guy Norman, regional director for the Department of Fish and Wildlife.

The Lower Columbia Salmon Recovery Plan allows a joint 10 percent incidental kill in the combined sport and net fisheries, he said.

The National Oceanic and Atmospheric Administration has approved the increase to 6 percent in the lower Columbia on a one-year basis.

On Saturday, several members of the state Fish and Wildlife Commission voiced concern over the potential tripling of the wild winter steelhead kill in the Columbia.

Commission member Bob Tuck of Selah said two years of increases in wild winter steelhead numbers are encouraging, but do not constitute recovery of a threatened species.

"This is pretty squishy," Tuck said. "I'm a little nervous when we chase these couple of years of increasing runs."

Commission member Ken Chew of Seattle wanted to see river-by-river spawning counts.

"It's very easy to combine things to show a general trend," he said.

Commission member John Hunter of Cashmere had similar concerns to both Tuck and Chew.

"I'm very hesitant to say, 'OK, we've got two years of increases let's jump on it and harvest more,'" Hunter said. "That makes me really, really nervous. As we go run by river that will give us a heck of a lot better basis of what to look at."

Commission member Fred Shiosaki of Spokane said it appears the improvement in wild winter steelhead returns is largely due to better ocean survival conditions.

"What happens when those conditions change and surely they will change," he said. "My expectation is those things will start back down again."

Commission member Clyde McBrayer of Olympia asked why the departments want a 6 percent ceiling on wild steelhead when the actual take in the past two years has been 1 percent or less.

"I have a lot of trouble understanding why you need to raise this when you haven't had a problem meeting it," McBrayer said. "It doesn't seem to me like it's a crisis."

McBrayer also asked if the commercial fishery catches its full allocation and then the run is significantly smaller than forecast the situation in 2004 would the sport fishery be closed early.

"By the time you lower that run size, the gillnets have taken their quota, which now is way more than their quota," he said.

LeFleur said both the sport and commercial fleets have buffers built in their catches to exceed going over their allocations.

Commission chairman Will Roehl of Bellingham said it sounds like the 2 percent ceiling on incidental kill of wild winter steelhead was not set on any scientific basis.

"Is the 2 percent a magic number or has it become a magic number because we put it out there?" he asked. "That's what it seems to me. You put it out there and it becomes the magic number and everybody assumes there was some sound basis for establishing it and it doesn't sound like there was."

The Washington Fish and Wildlife will take public testimony and make a decision on the issue Feb. 4 and 5 in Olympia.

Oregon's Fish and Wildlife Commission is scheduled to decide on the matter Feb. 11 in Troutdale.

Submitted by,

Bill Bakke

Native Fish Society

503 977.0287

Steelhead Summit Alliance-Who We Are

The Wild Steelhead Coalition is the founder and has been hosting the Steelhead Summit Alliance with donation support from various clubs and organizations in participation.

The Steelhead Summit Alliance (SSA) is a consortium of organizations pursuing a common goal: conservation and restoration of wild steelhead populations throughout their native range. The purpose of forming the SSA is to coordinate wild steelhead advocacy among the participating groups, and to enable participating groups to advocate collectively to maximize our efficacy in obtaining policies, laws and regulations to achieve our goals.

The SSA is comprised of some 40 organizations from California to British Columbia that have participated in one or more summit meetings and have expressed an interest in forming an alliance. They include fishing clubs, fish advocacy groups, and conservation organizations at the local, state and national levels. A volunteer steering committee has been formed to assist in managing the SSA.

The SSA is an informal collaboration and is not organized as a separate legal entity. The SSA is a forum for participating groups to communicate and strategize regarding wild steelhead conservation; it does not take positions on behalf of participating groups and participating groups must determine for themselves their positions on specific issues.

To date, ten issue committees have been formed within the SSA to develop general policies on such issues as hatcheries, hydropower, habitat, ESA listings, education/outreach, research, and enforcement. These policies are intended to guide the advocacy of participating groups, but are not binding and participating groups can use or not use these policies as they deem appropriate.

A principal purpose of the SSA is to establish a communication network through which member groups can be informed of policy, legal and management issues regarding wild steelhead conservation and take action to influence decision-makers. By joining the SSA, groups agree to become part of this network. However, participation in the network does not require any group to take action on any particular issue or to adopt a particular position.

*Accepted by Summit IV attendees
November 6, 2004*

WSC December Meeting Summary

Guest Speakers: Fred Goetz, Army Corps of Engineers and Ed Connor, Seattle City Light

Attendees of the December 1st member meeting were treated with a terrific presentation about ongoing studies aimed at uncovering some of the secrets of Puget Sound's char populations. Fred Goetz, from the Seattle office of the Army Corps of Engineers, and Ed Connor, a fish ecologist with Seattle City Light, have been key participants in this research. It is no exaggeration to say that the early results of this char research program have revolutionized the way scientists now think about bull trout and Dolly Varden. The acoustic tracking array that has been developed for North Puget Sound bull trout also offers an infrastructure that has the potential to serve other migratory species. Tracking Puget Sound steelhead during smolt and kelt migrations to the ocean, for instance, could easily be done with this technology, and ideas are now being discussed for the development of a steelhead tracking pilot project (stay tuned, as updates on ideas for tracking the habitat use and marine migratory behavior of Puget Sound steelhead will appear in future issues of the Adipose).

On behalf of the Wild Steelhead Coalition, we thank Fred and Ed for sharing their time and insights with us, and we thank them and their co-authors for the extended and detailed abstract that follows.

Sincerely

Nate Mantua

WSC VP of Education

Puget Sound Bull Trout: the Unrecognized Anadromous Salmonid of the Pacific Northwest

Authors

Fred Goetz, Corps of Engineers

Ed Connor, Seattle City Light

Eric Jeanes, R2 Resource Consultants

George Hart, Corps of Engineers

Chuck Ebel, Corps of Engineers

Bull trout (*Salvelinus confluentus*) is one of three federally listed fish species that are found in the estuarine and marine waters of Puget Sound and the Pacific Coast of Washington. Until 1980, bull trout were considered the inland version of Dolly Varden (*S. malma*), and unrecognized as an anadromous salmonid. Until 2001 no systematic study had ever occurred on this unknown life history type, all previous work had been in the inland waters of Pacific Northwest. To understand this large, highly mobile predator we have developed a regional acoustic telemetry array that covers four river deltas (Skagit, Stillaguamish, Snohomish, and Lake Washington), most of the length of the Skagit River, and over 200 km of NE Puget Sound's nearshore marine shoreline. This array permits us to track individual fish at individual shoreline areas as well as along long migratory pathways. Following are preliminary results from the first three years of a

multiyear study investigating the behavior, habitat use, and diet of bull trout in estuarine and nearshore marine waters of western Washington.

Puget Sound Historic Abundance and Distribution. In the 19th Century, bull trout were found in all of the east Puget Sound river deltas and estuaries. They were described as occurring in “immense or vast” numbers in south Puget Sound estuaries and rivers including the Duwamish, Puyallup, Green, and Nisqually. They were one of the most abundant fishes caught in marine fisheries of central Puget Sound from the 1880’s to the early 1900’s. A dramatic change apparently occurred in the early 20th Century where state catch records in 1916 listed 25,000 lbs of bull trout caught in Puget Sound with a decline to no catch by the mid-1920’s. Since that time there have only been a few dozen fish reportedly caught from estuaries from the central basin to south Puget Sound. *In the past 50 years there are catch reports for only 5 bull trout from West Seattle to the south end of Puget Sound.* Based on our results, we hypothesize that most of these fish are apparently migrating from more abundant populations in North Puget Sound, most likely the Lower Skagit or the North Fork Skykomish. Bull trout are still found in very high numbers in the Whidbey Basin in river, estuary, delta, and beach shoreline areas. There have been very few fish documented in the Straits and none have been reported in the San Juan Islands (rocky habitats).

Migratory Behavior and Habitat Use. In their life history and their migrations, bull trout display similarities to steelhead, coastal cutthroat, and Dolly Varden in arctic waters – migrating as smolts or sub-adults from 6-12 inches in size (2-3 years of age); spawning multiple times in their life, eating fish as a primary prey item. In Dolly Varden two simple life history types are considered, anadromous or river migratory. In contrast, we believe bull trout show a continuum of behaviors, with fish occupying a gradient of habitats from lower river freshwater, freshwater tidal, brackish tidal estuary, river delta, and nearshore marine, in nearshore marine areas fish may be inshore or offshore based on size or time of day. Overall we find bull trout migrating into estuarine and nearshore water largely between March and July with the return migration to freshwater beginning as early as late May and ending usually by end of July. Fish may return to marine waters for multiple years, we have tracked one fish returning to the same site at Jetty Island in the Snohomish River for 3 consecutive years. Within their season of residence in marine waters, individual fish may move back and forth through these habitats as environmental conditions change or they seek different prey items. On an annual basis they may switch behaviors, changing life history from anadromous to fluvial and vice versa.

Bull trout use estuary and nearshore marine areas for 1-4 months, residents may be anywhere from 1 to 10 years of age. In foraging for prey, they can display a series of behaviors: 1) site fidelity, remaining in a localized area of hundreds of meters of shoreline, some fish home to this site year after year so far for up to 3-years; 2) they can use exploratory behavior migrating between habitats in estuary and nearshore areas, stopping at sites for hours to days at a time covering 10’s of kms; and 3) they move inshore and offshore based on the light cycle and on tidal cycles, changing depths from as shallow as a 1-m to as deep as 25 m; although most of their prey is located in the upper 10-m or in the photic zone.

The highest summer temperature fish were found at was 18 C with all other fish less than 17 C – ranging from 9.7 to 17 C. In 2002, fish migrated upriver into cooler water areas beginning in June and July. In 2003, fish migration began in late May and all but two fish had left nearshore marine areas by the end of July (warmest summer on

record). We have found that fish occupying any particular estuarine/marine area may come from one to three different river basins. Salinity in Puget Sound is not a problem for anadromous bull trout. Fish were found in the full range of salinities present in Puget Sound (1-28 parts per thousand (ppt)). Some fish occupied intertidal areas where salinity ranged from 3 ppt to 25 ppt over one tidal cycle. One depth tagged fish continually occupied areas of 26-28 ppt. At high tide, sub-adults and adults use intertidal mud flats for foraging, returning to deeper channels at low tide. Fish were found from 1 m to 20 m depths, over all substrates, many nearby to eelgrass area. Protected areas appear to have more fish.

Prey. Bull trout are recognized as an apex predator in river and estuarine waters and can show a wide array of behaviors in their search for available prey, which can include juvenile salmon and forage fish such as surf smelt, sand lance and herring. Jordan (1884; 1887) first qualitatively described bull trout and its food habits as “From Puget Sound northward it is generally abundant. It feeds voraciously in the salt water on smelt of various sorts, young trout, sand lances, shrimps, anchovies, herrings, and even sticklebacks. In fresh waters it probably eats whatever living thing it can get.” Prior to 2001, only eight bull trout captured in Puget Sound were quantitatively evaluated for the prey items with other information provided by observation. Researchers in this study have worked collaboratively with researchers at the Skagit River System Cooperative (SRSC) and the University of Washington to compile quantitative samples from 187 fish from Shilshole Bay to the Swinomish Channel in North Puget Sound.

Following is a summary of samples representing fish captured from Skagit Bay, Port Susan, and Possession Sound. Collectively, these fish averaged 329 mm fork length (FL) (range = 110–620 mm), weighed 594 g (range = 10-3,250g). Bull trout consumed a total of 0.9 kg of prey items for an average of 9.5 g of food per stomach. Surf smelt (weight = 603.2 g; 69.1%), Pacific sand lance (weight = 123.7 g; 14.2%), unidentified fish flesh (weight = 72.4 g; 8.3%), and Pacific herring (weight = 36.8; 4.2%) comprised the overwhelming majority (>95%) of all prey items for bull trout. Together, more than 99% of the total prey biomass (pooled data for all locations) in bull trout stomach samples was comprised of fish species. Individually, adult surf smelt had the largest biomass of the species consumed by bull trout in the Puget Sound, averaging 19.5 g (range = 5.5-35.6 g), followed by Pacific herring (mean weight = 12.3 g; range = 9.4-15.2 g), juvenile salmonids (mean weight = 2.7 g; range = 0.3-15.5g), and unidentified fish (mean weight = 2.4 g; range = 0.2-14.0 g). Three-spine stickleback (*Gasterosteus aculeatus*) and shiner perch (*Cymatogaster aggregata*) had greater biomass than some of the above prey items but small sample sizes (N=1) make their analysis problematic.

Age. In Puget Sound bull trout, we find the first expression of anadromous behavior in bull trout at the southern margin of their range. Bull trout collected in this study ranged in size from 135-650 mm FL and in age from 1-7+. Kraemer (2003) indicated that most anadromous bull trout reach sexual maturity at age-4+ when they are approximately 450 mm TL. Of the 154 bull trout that we collected in northern Puget Sound, approximately 37% (N=57) met those criteria; however we found it was problematic to consistently identify spawning checks from scale samples collected in the saltwater. We found that most bull trout in the northern Puget Sound migrate downstream at age-2+. While the majority of bull trout migrated downstream at age-2+, a small percentage migrated down at age-1+ or 3+. The size of char at a specific age is dependent upon the life history pattern the individual fish adopts. If the fish resides in headwater streams for an extra year, it will be much smaller than a fish which heads downstream to the saltwater. A fish

that heads downstream after one year will be larger than a fish that rears in the headwater stream for two years. However, it appears that the yearly growth is similar for 1.x, 2.x, and 3.x char after they have migrated downstream to the saltwater. We also find that with bull trout anadromous and fluvial life history types in Northern Puget Sound that anadromous fish are larger and do grow faster at an early age, but this growth rate diminishes after age-5. Kraemer (2003) also suggested that fluvial fish can grow as fast as anadromous fish during years of high year pink salmon (odd years) when millions of adult carcasses and eggs are available for consumption.

Future Actions. In 2005, we are studying bull trout for a fourth year with Seattle City Light and the USFWS as our sponsors and we are expanding the area of coverage to Padilla Bay and west Whidbey Island. We are looking for additional opportunities to expand the array to include study of other species. Our monitoring array may be one catalyst for a regional monitoring network that could include juvenile and adult salmon, steelhead, cutthroat trout and other marine species – in January 2005, NOAA Fisheries received funding from the PSC to add Chinook salmon smolts to our study.

Thank You!

The Northwest Women's Flyfishers have donated \$ 250 to the WSC to help defray the cost of hosting the next Steelhead Summit Alliance Meeting!

WSC Steelhead Management Plan Update

The final draft of the WSC Wild Steelhead Management Plan is nearing completion. Nate Mantua and Dick Burge reviewed the first draft with the membership at a general meeting last fall and received many good comments and ideas from those attending. The final draft will be placed on the WSC website www.wildsteelheadcoalition.com for all members to review and comment.

The WSC second white paper "The Status of Wild Steelhead and their Management in Western Washington" is being edited by the authors and is due to be completed within a month. This white paper will contain the major concepts of the Wild Steelhead Management Plan. The white paper will be copied by WSC for distribution to all that are interested.

Thanks for Supporting Wild Steelhead!

The Wild Steelhead Coalition (WSC) is an organization dedicated to increasing the return of wild steelhead to the waters and rivers of the Pacific Northwest.

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