

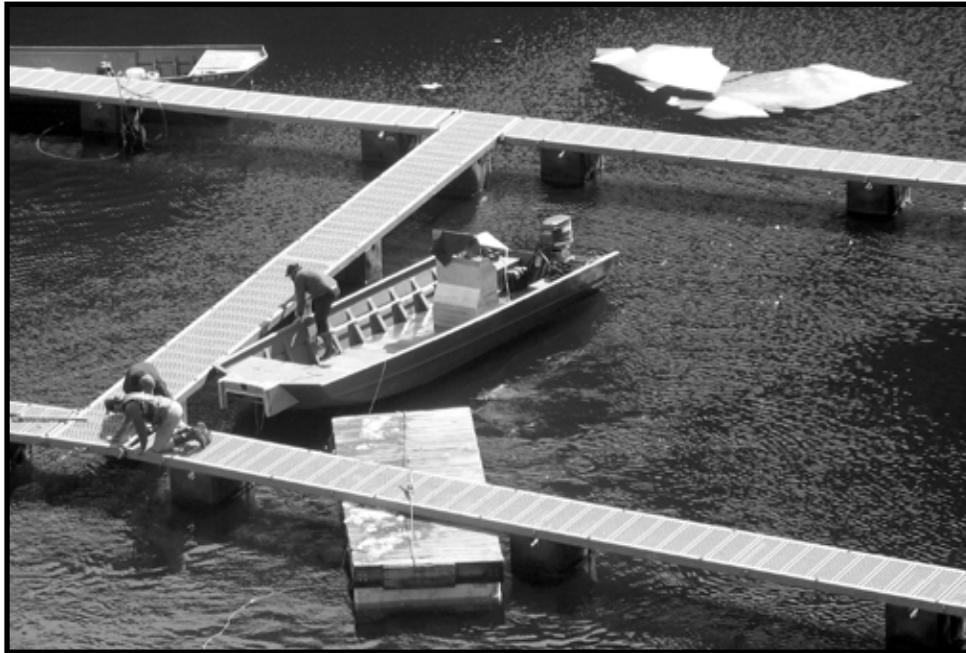
FISHRAP

Highlighting releases, returns, policy and legislation affecting the Southeast Alaskan salmon fisheries

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Vol. 26 No. 1
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*Medvejie's crew set up
net pen frames in
Green Lake
for another season of
Chinook rearing*



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Ocean Acidification: More Bad News on Climate Change

For those who are paying attention to their carbon footprints it is hard to imagine that the news on climate change could get any worse. But it's true: the oceans, too, are undergoing a change that could dramatically upset their fragile balance, from the tiniest plankton right on up through the food chain.

The carbon dioxide that human activity has added to the atmosphere doesn't just hang around in the air, it turns out, it is also absorbed into the ocean. In fact, about 1/3 to 1/2 of the carbon dioxide we create goes in the world's saltwater, and it's beginning to wreak havoc with the ocean's sensitive geochemistry.

The process is called ocean acidification, a term invented just a few years ago. Sea water is slightly base on the pH scale, the logarithmic measurement of acidity. The higher the pH, the lower the acidity. Since the beginning of the industrial revolution, ocean pH has dropped globally – becoming more acid - by approximately 0.1 pH units, indicating a 30 percent increase.

Increased CO₂ uptake by the oceans is expected to reduce surface ocean pH by 0.3 – 0.5 units over the next century, almost tripling acidity, which would be the largest change in pH to occur in the last 20 – 200 million years, according to researchers.

Scientists say that the pH level isn't alarming all by itself, but that

what is alarming is the speed at which it has changed. On a graph that shows millions of years of pre-history up through the present, the majority of the line shows gradual ups and downs in the pH level, sort of like ocean swells, until 1800 through the present and the next century in projection, when the line plunges straight down, like a dive off a cliff.

Scientists don't know what will happen if acidification of the oceans continues at this rate, but they're doing their best to predict. Here in Alaska, Jeff Short, supervisory research chemist at the NOAA Ted Stevens Marine Research Institute in Juneau, runs the chemistry analysis facility. His team's work is focused on three major themes: effects of petroleum hydrocarbons on marine biota, nutritional ecology of marine fish, and effects of ocean acidification.

"The effects of ocean acidification are quite ominous, as under continued CO₂ emission rates we can expect to see the extinction of most coral reefs worldwide in about 40 years," Short said. "Along with a host of other catastrophic effects that are difficult to specifically predict because we know so

little about the precise ecological relationships and mechanisms involved."

"Our ocean acidification work is in its infancy and hampered by budget constraints that will preclude much meaningful work until 2010," Short said. "But we're trying to get up to speed as best we can anyway, and have invested heavily in analytical equipment to support experimental and monitoring work once funding improves."

What is not a mystery is how acidification does its dirty work. As explained on the very helpful website www.ocean-acidification.net, when carbon dioxide dissolves in seawater it forms carbonic acid, which releases hydrogen ions, which in turn combine with carbonate ions in the water to form bicarbonate. Carbonate ions are the basic building blocks for the shells of marine organisms, so the formation of bicarbonate makes less carbonate available for organisms' shells.

Another problem is the possibility of acidosis from a buildup of carbonic acid in organisms' body fluids, with all sorts of negative physiological effects.

Short noted that Pacific salmon on themselves probably won't suffer directly from acidification.

"Carbon dioxide enrichment is deliberately used in high-density fish culture (fish farming) to reduce the toxic effects of ammonia build-up, with no apparent adverse effects," Short said.

However, an obvious concern for Alaskans is that "the marine waters surrounding Alaska are among the most vulnerable to the effects of carbon dioxide enrichment on the planet."

"This is because carbon dioxide is more soluble in water as its temperature declines, and because deep, CO₂ enriched water upwells in the Gulf of Alaska, making it relatively acidic to start with," Short said. "Hence, we can expect to be among the first to witness the effects on our marine life."

This could be a cruel reality for the people of a state that has in general been very proactive in protecting its own marine ecology, and in managing its commercial fisheries in a sustainable manner. There simply is no state or country remote enough or "green" enough to escape the rest of the world's excess CO₂.

For Pacific salmon, one possible result is that they can expect to have more trouble finding prey during their marine growth phase.

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"the oceans... are undergoing a change that could dramatically upset their fragile balance, from the tiniest plankton right on up through the food chain."

Hatchery Reports

Hidden Falls

Chum

Overall the brood year (BY) 07 chum are doing well and should be released at the usual time in 2008, unlike last year, when the cold spring conditions resulted in a late release, reports hatchery manager Scott Wagner.

The 9 million Late-Large chum look good and are growing but water temperatures in late April were still in the 4 °C range, slowing their progress, Wagner noted.

Also on hand are 44.5 million Kasnyku chum and 45 million Takatz chum for release in late May.

"There are a fair number of pinheads – really small fish – in the Kasnyku group that we'll probably lose when we switch to the next size feed. This is probably because the average egg size last summer was the smallest in many years, and there was quite a bit of egg size variation in the early group of fish," Wagner said. "The Takatz group

seems to be faring better with fewer pinheads."

Coho

One million early entry fish were moved to saltwater in late April, with one group at 19 grams at entry and the other group averaging 17 grams each.

Wagner expects the late entry group to be released at 17 to 18 grams in early May.

"This is a little smaller than I would like, but hopefully they'll have a growth spurt if we get some decent weather," Wagner said.

Overall, Wagner is pleased that the fish attained typical release size in light of cold water temperatures throughout last summer.

"Last fall things were looking pretty grim, but the fish were able to put on weight all winter, stayed disease free, and have extremely low winter mortality."

The Deer Lake coho were ponded on April 22, two weeks earlier than last year, and Wagner expects them to reach the neces-

sary 1 gram size for stocking in the lake by mid-June. The Hidden Falls coho were ponded in late April and early May.

Chinook

The Hidden Falls group of 250,000 zero-check Chinook and the same amount of Lutak Chinook were vaccinated for *Vibrio* disease at the end of April.

The Lutak group is a new Chinook project for NSRAA this year, its very first Sport Fish project, on a ten-year contract with the Alaska Department of Fish and Game.

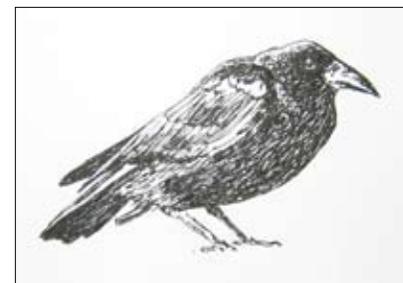
Three hundred thousand Tahini Chinook eggs were transported to Hidden Falls last October for incubation, ponded in the early winter, and put on a zero-check accelerated growth plan for transport by boat to Lutak Inlet near Haines for saltwater rearing, imprinting, and release.

Wagner noted that in late April their growth rate increased and he is still hopeful that they will reach 6 to 7 grams by the first

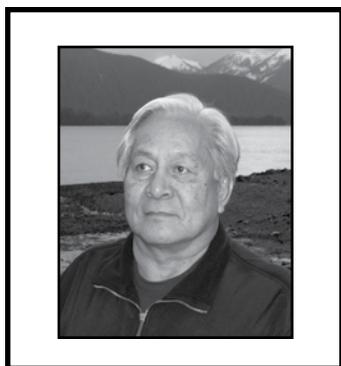
week of June. The target weight is 8 grams

Over-winter saltwater mortality in BY06 Chinook has leveled off to normal after some unusually high losses last year due to cold water temperatures and the Chinook's small size at saltwater entry.

"The rest of the Chinook look great, and are currently [in late April] at 35 grams, and are picking up their feed response," Wagner said. These 600,000 Chinook smolts will be released in mid to late May at a size of about 45 grams.



General Manager's Notes



I am sure that most of you are looking forward to another season on the water. The prospect of being on the ocean again is, however, clouded by the rising costs of fuel and all the commodities we need to do our business. It might even be taking some of the enjoyment out of fishing. But we will be out there again, because fishing is who we are and what we do.

At NSRAA we are doing everything we can think of to control the cost of producing fish. The NSRAA Budget Committee and the NSRAA Board of Directors is doing a wonderful job of overseeing the corporate financial picture. The Board, along with staff, has been looking for other sources of funding to help reduce the financial weight we are forced to put on the backs of our two largest cost recovery components: Hidden Falls and Deep Inlet chum.

One obvious source of finan-

cial support that has yet to be tapped is the sport charter industry. About six years ago we started talking with the City and Borough of Sitka's administration about various ways that the sport charter industry could contribute their fair share to salmon enhancement. Once that information was out, it was not surprising to see a crowd of charter operators at the next NSRAA Board meeting.

Essentially, the charter operators asked for some time to develop a plan to self-impose an assessment to help support NSRAA, and the Board agreed. I agreed to meet with the Sitka Charter Boat Operators Association (SCBOA) to help come up with a workable solution. I attended two or three meetings, but it was just me and the SCBOA president. To my knowledge, there were no more meetings, and nothing ever happened.

It has become painfully obvious that we will not be seeing an assessment plan from that sector of the industry, so I am wondering whether the time is right for asking the legislature to declare sport charters "commercial," and therefore subject to the 3 percent enhancement tax. I am curious to hear what you think of that idea.

I hope you all have a safe and as prosperous as possible season.

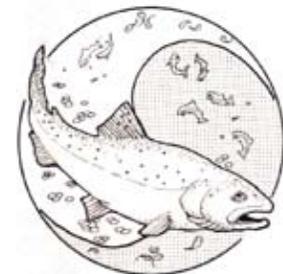
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Medvejie Hatchery Report

A cool, wet spring this year has resulted in lower than normal freshwater and saltwater temperatures, reports hatchery manager Lon Garrison.

The colder water slowed fish growth and forced NSRAA staff to delay ponding the chum fry by at least a week or 10 days.

"Still, they're all doing very well," Garrison said. "And the facility and staff came through the winter in good shape too."

Garrison notes that newest Medvejie employee David Fundak will be moving south to Oregon to be closer to family, and NSRAA is currently in the process of hiring his replacement. Medvejie's main staffing challenge will happen later this summer, when the new coho facility at Sawmill Cove is ready to go.

Chum

Medvejie staff began ponding chum fry on March 1st, one week later than normal.

"This was due to cooler average water temperatures throughout the entire incubation season but especially early on last fall when our water temperatures were nearly 2 °C lower than normal," Garrison said.

To fix some "tortuous" chum incubation problems that occurred this year due to a fungus, staff made some radical changes in their equipment cleaning procedures which turned out not only to be more effective but more efficient as well.

"By the time we had concluded our ponding operation we had cleaned all our incubators and set up the incubation rooms for next season in the same time frame that

we used to use just for ponding. This will allow us to focus on other projects in June and July and we have a much cleaner incubation facility," Garrison noted.

Medvejie is rearing 9.2 million chums for broodstock; at Deep Inlet there are 51.7 million rearing chums.

"For both sites, growth is very slow and fry are small, but they're eating what we give them and are growing as well as they can given the cold water temperatures," Garrison said. "We'll probably rear these fish a bit longer and hope for a warming trend soon."

Chinook

The multiple aspects of the Chinook program are all going well, Garrison reports. He's especially pleased with the broodyear (BY) 06 Green Lake and Medvejie Chinook smolts which over-wintered the best of any he's ever had, with very low mortality.

There are 1 million Green Lake Chinook that Garrison anticipates releasing at 60 to 65 grams.

The 1.09 million Medvejie and SeaReady smolts "have got to be the finest looking smolts we've ever raised," Garrison said. This group had an overwinter mortality rate of less than 1 percent, and Garrison expects to release them at 55 to 60 grams in mid-May.

The zero-check smolts were ponded in mid-December, earlier than usual as staff was able to advance the development of the eggs. However, since Green Lake was covered in ice until April 18, transferring these smolts to net pens had to wait until the end of April. Garrison hopes warmer water will allow adequate growth to



NSRAA's Chinook forecast shows an increase for 2008. 43,000 Kings are expected to return to Medvejie; 21,000 to Hidden Falls.

transfer them to saltwater net pens in late June.

The SeaReady zero-check smolts were also ponded about a month earlier than normal.

"We hope that by starting the process earlier we can send them to saltwater a month earlier and attain more growth in the warmer saltwater," Garrison said. Staff hope to release 20 gram smolts, where previous releases of SeaReady zero-checks have averaged around 12.5 grams.

The BY07 Medvejie yearlings are doing well. Staff ponded them in early January and they have grown steadily even with cold water. Their brothers, the Green Lake yearlings, were recently ponded in mid-April and also seem to be doing well, Garrison said.

Coho

The 214,000 BY06 Plotnikof coho smolts were treated to winter conditions that they normally would experience in the wild, even though they never left the hatchery.

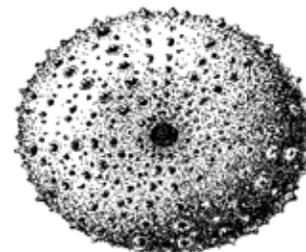
"In early January we took them off food and covered their raceways with black plastic, putting them into darkness, essentially mimicking an iced-over lake. During this time the fish eat nothing and their metabolism is greatly reduced," Garrison explained.

The smolts lost only one gram during this period and suffered almost no mortality.

"Since opening the raceways back up and starting them on feed, they have gained back that gram and added another half gram in just over 2 weeks. With this strategy we're hoping to stimulate rapid spring growth and that this will produce aggressive, high quality smolts like you'd see in the wild."

This experiment was carried out by the Alaska Department of Fish and Game over two decades ago to test its effect on the incidence of bacterial kidney disease (BKD). NSRAA first tried it in 2006-2007 with a group of coho.

"The dormancy reduces stress, and stress is a big inducer of BKD," explained Garrison. "I'm pleased with the initial results and just how well the coho came through the winter."



Coho fry spent the winter in netpens in Deer Lake in an effort to increase overwinter survival of smolt. Smolts will go to sea this spring.



Josh Homer clears the smolt pipeline route at Deer Lake. Josh will take over as project leader July 1, 2008.

NSRAA 2008 Forecasts

Returns in 2008 are looking up for all species of NSRAA salmon, reports Chip Blair, data analyst.

"We're happy to move on from a 2007 season that was disappointing for most NSRAA projects when returns came in much lower than expected," Blair said. "Commercial contribution numbers in 2007 were at a 15-year low."

The combined contribution from all species was 1,166,000 fish, worth an estimated \$3.96 million dollars. Contribution numbers were 31 percent of the 10-year average, while value was at 44 percent of the 10-year average.

"While we're not expecting exceptionally large returns this season, we should see a substantial improvement from last season. Prices are expected to climb for all species, which should translate into a big jump in commercial value," Blair said.

Chum

Medvejie/Deep Inlet should see 1.45 million chum, up from 800,000 in 2007. Hidden Falls' forecast is for 2 million chum, up from 1.2 million last year.

Approximately 20 percent of the harvest at each site will go to NSRAA's cost recovery, with an-

other 6 percent for broodstock.

"With this season's higher prices, fewer total chum will be needed to meet our budget needs," Blair said. "Last season NSRAA harvested 44 percent of the hatchery returns for cost recovery."

Late-Large Chum at Hidden Falls and Deep Inlet

Last year were the first returns of 4-year-old chum raised as late-large (L-L), a rearing strategy with later release timing and a larger fry, which helps the chum fry move off-shore quickly to avoid predation. If successful, marine survival rates will improve enough to offset the extra cost of the method, as has happened at DIPAC (Douglas Island Pink and Chum) projects.

NSRAA is still evaluating its L-L rearing strategy, since there is still just one year of return data.

Early analysis of otolith samples indicate that the first groups actually survived at a lower rate than the regular groups for Kasnyku Bay and Deep Inlet.

"Obviously this isn't the result we were hoping for," Blair noted. "It may be that holding on to the fry too long as water tem-

peratures rise during spring rearing has a detrimental effect on the fish. It's possible that we may not see the positive results that DIPAC has experienced at their rearing sites, where water temperatures remain colder throughout the season."

NSRAA has adjusted its L-L strategy, putting the groups out earlier in an attempt to get them released before water temperatures climb too high. Time will tell whether the strategy will be successful over the long term.

"We're hopeful that we'll see improved results from subsequent releases. This spring marks the fifth year of L-L releases," Blair said.

Boat Harbor and Limestone Inlet Chum (cooperative projects with DIPAC)

Boat Harbor should see about 319,000 chum, down from 427,000 in 2007. Limestone Inlet's forecast of 95,000 is just slightly less than the 115,400 that returned in 2007.

Haines Chum

In 2007, 15,000 chum returned to the spawning channel and incubation boxes near Haines, but in 2008 those numbers should be improved, with 22,600 forecast.

Chinook

Total Chinook numbers for all NSRAA projects are forecast to be 64,600, well up from the 41,800 seen in 2007.

Medvejie's return is projected to be 43,000 fish, an improvement over the surprising 31,000 last year. Hidden Falls should see 21,600, almost twice as many that returned in 2007.

"Medvejie's Chinook return was one of the brighter spots in the 2007 season, with the 31,000 return nearly doubling the 16,000 projection," Blair said.

Most of the "extra" fish were younger fish, which is a good sign for this year's return, Blair noted. Marine survival rates dipped below 1 percent for BY01 and BY02, but appear to be on the upswing again.

We saw 16,000 BY03 fish in 2007, compared to just 2000 and 3500 for BY01 and BY02," Blair said. "Hidden Falls Chinook are following this same trend, with poor survivals for BY01 and 02, followed by improved survival rates for BY03."

This year's BY03 return of 3 year olds is expected to account for the bulk of the 2008 return.

NSRAA began releasing zero-check smolt at Deep Inlet in 2006,

and expect the first group of two year olds to return this year.

"We don't expect a large return, but will get some idea of survival at Deep Inlet. This group is our first attempt at a remote release of zero-check Chinook," Blair said.

Coho

"We really have nowhere to go but up after last year's rather dismal coho return, which included the lowest Hidden Falls return on record since we came up to full production in 1995," Blair said.

The marine survival rate was just 2 percent for last year's returning group of Hidden Falls coho. "We are convinced the smolts were compromised in some way in their final weeks of rearing, although there was no outward manifestation. Generally Hidden Falls survival tracks or surpasses Deer Lake coho survival."

Deer Lake coho had a relatively normal survival rate of 10 percent, but had a smaller return due to low smolt numbers released in 2006.

260,000 coho are projected to return to NSRAA projects this year, up from 90,000 in 2007.

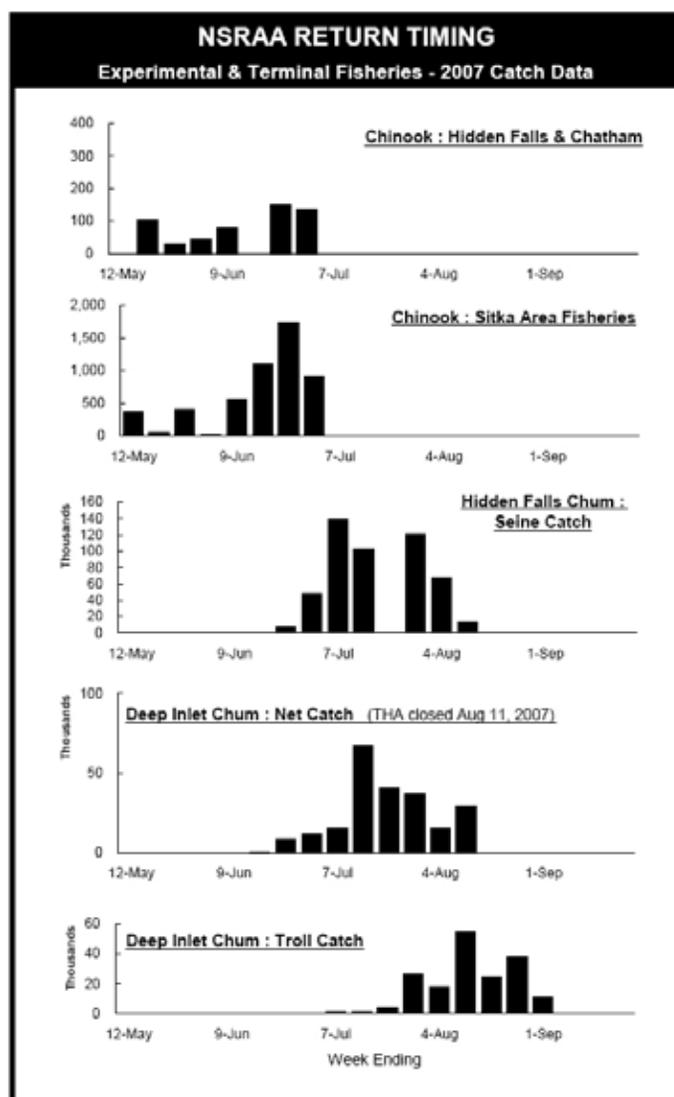
Coho returns are calculated using an average marine survival rate of 8 percent, since there are no earlier age classes returning to use as a gauge.

Hidden Falls' coho return is projected at 200,000, up from 56,000 in 2007.

Deer Lake's forecast is for 42,600 this season, up from 28,000 last year.

The Plotnikof stock coho returns to Medvejie and Deep Inlet of 2007 also have room for improvement, having had survivals of 3-4 percent in 2007.

Deep Inlet should see 16,000 coho this year, up from 5000 in 2007. Medvejie's coho return is forecast to double, from 372 last year to 800 in 2008.



NSRAA 2008 Returns to Date

Winter Troll Fishery:

Medvejie.....590

Hidden Falls.....295

Total NSRAA.....885

(4.2 % of 21,000 winter troll catch)

Field Projects Update

Field Projects Update

Limestone Inlet and Boat Harbor

(Cooperative projects with Douglas Island Pink and Chum)

A total of 15.2 million chum fry were transported to Limestone Inlet on March 28, a bit later than is ideal. But the fry survived the transport very well, with 99.6 percent completing the journey.

Fry growth is slow because the spring ocean temperatures are cooler than normal. NSRAA staff expects the fry to reach 1.5 grams prior to release in early June.

About 7.5 million fry will be reared longer and released in mid-June as a "late-large" component of this year's group.

Boat Harbor's season got off to a rocky start, as stormy seas in Lynn Canal damaged some of the net pens during the crossing.

Fry arrived on site the first week of April, also later than normal. Transport survival was also good for Boat Harbor, although the colder water temperatures will likely result in smaller than desired fry at release time in early June.

Coho Lake Rearing at Deer Lake

At the spring 2008 board meeting the NSRAA Board voted to fund a doubling of the number of pen-reared coho fry for the Deer Lake remote project from 1.2 to 2.4 million. Todd Buxton, Deer Lake project manager, reports that progress toward implementing this increase has begun, with the construction of two additional feed floats, a tool shed, and a fuel shed at Deer Lake.

The winter season wasn't easy on the Deer Lake project and staff.

"About as much snow fell at Deer Lake this winter as last winter's record snowfall, and the entire lake froze over," Buxton said.

The brood year (BY) 06 fry were overwintered in pens, a strategy introduced to protect the fry from being eaten by the lake's non-native trout population.

"The pens survived the ice just fine, but otters were discovered feeding on fry in the pens over the winter," Buxton said.

In mid-May, the lake was still frozen and it was too early to tell how many of the 1.2 million BY07 fry were lost to the otters. The ice also prevented staff from feeding the fish in the pens as they had intended in the spring.

A helicopter was used in April to sling supplies for feeding the fry from Mist Cove to Deer Lake. Everything went smoothly except a couple of 40 ft. long pipes intended to upgrade the smolt pipeline were released prematurely into a 300 ft. deep gorge when the sling snagged on a tree. The pipes have been located and will be airlifted out next spring.

All the buildings survived the winter without problems, despite yet another snag, this time in the mooring line that ties the float house to its winter location.

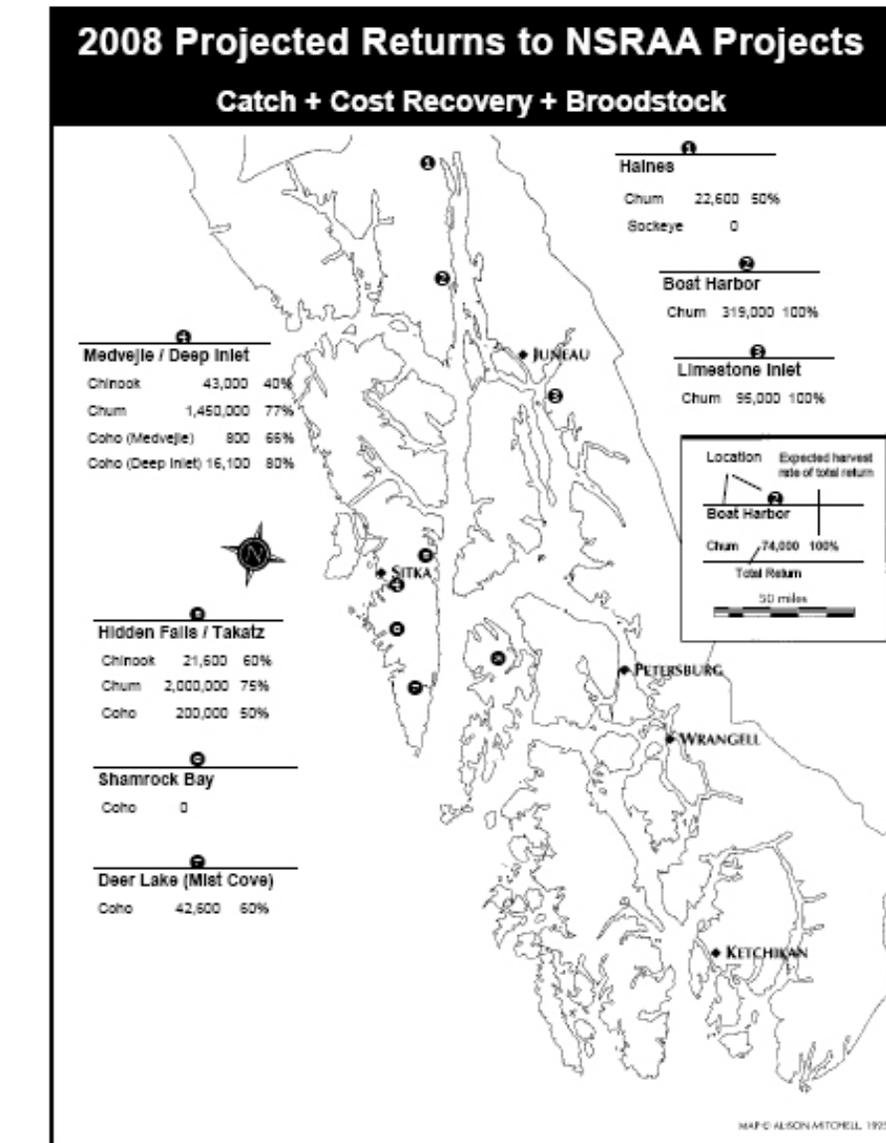
"Somehow that line became pinned under a boulder at the bottom of the cove and the cabin was held under water up to its rafters for we don't know how long," Buxton said. "There was surprisingly minimal damage to the equipment stored inside the cabin, fortunately."

Upper Lynn Canal/Haines Chum Projects

The Haines area chum projects in Upper Lynn Canal remain essentially unchanged from recent years, with the NSRAA Board continuing to fund eggtakes, otolith marking, and incubation site clean-up and maintenance.

The egg-to-fry survival rate of BY07 fish appears to have returned to the high 90th percentile after lower numbers last season, a welcome increase that project manager Buxton credits to improvements in their broodstock collection techniques.

A new spawning channel has been planned for Herman Creek



and Buxton had hoped to see it built this summer.

"However, because the U.S. Army Corps of Engineers permit for it must be obtained separately, rather than being included in the permit for other spawning channel projects in the area, construction will likely be delayed until the summer of 2009," Buxton said.

Improvements will be made

to the spawning gravel in the existing Herman spawning channel this summer with grant money earmarked for that purpose.



NSRAA 2008 Return Projections								
Site	Projected Return	Range		Commercial	Sport	Cost Recovery	Brood Stock	2007 Return
		Low	High					
Chum								
Hidden Falls	2,000,000	1,500,000	2,500,000	1,503,000	-	377,000	120,000	1,227,094
Medvejie/Deep Inlet**	1,450,000	1,000,000	2,000,000	1,118,000	-	274,000	60,000	803,582
Boat Harbor*	319,000	72,000	566,000	319,000	-	-	-	427,427
Limestone Inlet*	95,000	-	239,000	95,000	-	-	-	115,401
Haines Projects	22,800	11,300	38,900	11,300	-	-	11,300	14,778
	3,886,800	2,583,300	5,343,900	3,044,300	-	651,000	191,300	2,588,282
Chinook								
Hidden Falls	21,800	11,800	31,800	12,960	500	5,140	3,000	10,626
Medvejie	43,000	28,000	58,000	17,200	2,150	19,650	4,000	31,164
	64,800	39,800	89,800	30,160	2,650	24,790	7,000	41,790
Coho								
	<i>Marine Survival:</i>	<i>8%</i>	<i>4-6%</i>	<i>12%</i>				
Hidden Falls	200,000	150,000	300,000	100,000	4,000	86,000	10,000	56,074
Deer Lake	42,600	21,300	60,000	25,800	1,000	18,000	-	28,088
Medvejie	800	400	-	528	72	-	200	372
Deep Inlet	16,100	8,100	20,000	12,075	1,610	2,415	-	4,978
	259,500	179,800	380,000	138,203	6,682	104,415	10,200	89,512
Sockeye								
Chilkat Lake Stocking	-	-	-	-	-	-	-	-
Chilkat Lake Incub. Boxes	-	-	-	-	-	-	-	-
	ALL SPECIES TOTALS:	4,210,700	2,802,700	5,813,500	3,212,663	9,332	780,205	2,719,584

* Cooperative Project with DIPAC
** Cooperative Project with SJF

Board Member Profile: Sven Stroosma

Sven Stroosma, holder of the at-large seine seat on the NSRAA Board since last year, remembers the moment he chose fishing as his career.

"I had a sort of epiphany on the back deck of the *Eleanor*, crewing for Jim Bacon at Hidden Falls in 1985: what kind of office space could my education provide me with that would be better than what I saw around me that day? None. I had found my place. I think this is my 24th year seining in Southeast and as far as work goes, I don't think anything could suit me better."

The first seiner Stroosma ran was "the mighty *Betty June*" in 1990.

"It had a 'sugar plum purple' galley all year because I made the mistake – probably the only one of that year – of asking my wife and sister to paint it, trusting them to pick out a warmer, more inviting color than the original 'gun metal grey.'"

Now he purse seines on his boat, the *Voyager*, in both Southeast Alaska and Puget Sound.

A native of Washington State, Stroosma started commercial fishing in 1984 to pay for college and in those early years he also worked at Anderson Marine Repair in Seattle, trawled out of Sand Point, and gillnetted in Bristol Bay for seven seasons.

Stroosma completed his political science degree at the University of Washington in 1989, where he also played rugby and rowed on the

crew team. He and his wife Deidre met during his college days; now they have three sons: Aaron, Casey, and Noah.

"Deidre fished with me for 3 years before we had kids and now the kids fish with me as well as my dad," Stroosma said.

Stroosma's parents, Ria and Peter, are originally from the Netherlands. "They do not come from a maritime background but have always lived near the salt water since moving to the U.S.," Stroosma said. "This gave me the opportunity to develop an appreciation for living and working on the water."

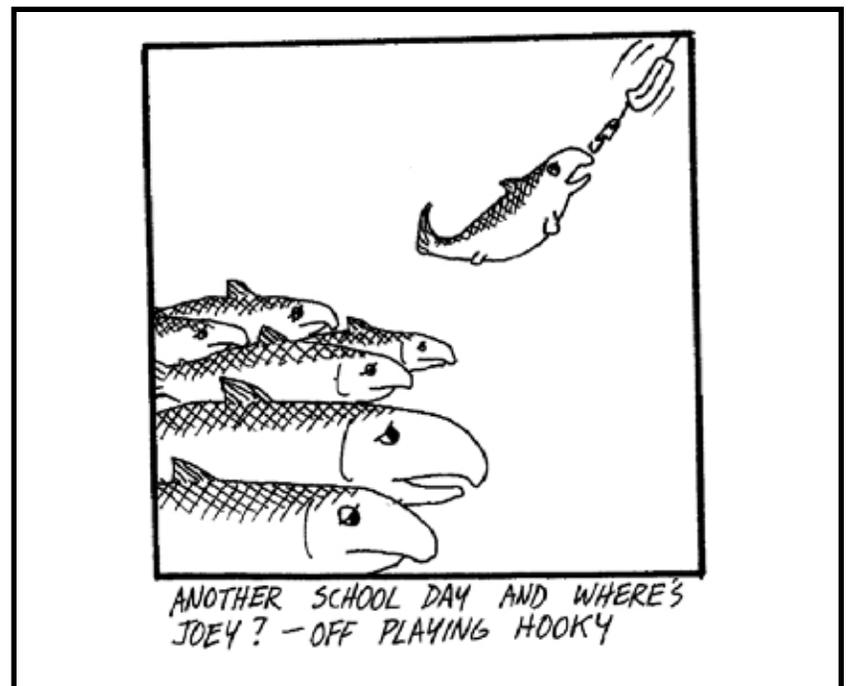
Stroosma joined the NSRAA Board to learn more about the organization, to help with the decision-making processes that affect its operation, and to represent the purse seine fleet.

"I'm also on the SEAS (Southeast Alaska Seiners) board and on the PSVOA (Purse Seine Vessels Owners Association) Board. I really enjoy the NSRAA Board," Stroosma said. "It is the most diverse of any I have been involved with. Making good decisions that also meet the needs of the user groups NSRAA was created to benefit can be quite a challenge."

He believes that NSRAA has some pressing issues to deal with right now, mainly enhanced fish allocation inequities and the skyrocketing prices of almost all the raw materials necessary to operate and maintain its hatcheries.

Uncle Rinkus

by Robert Rose



"Price increases require more of NSRAA's budget to cover raw materials from fish food to fuel to pipes, which means more cost recovery harvested from hatchery production, translating into less fish for the end users," Stroosma said. "Hopefully price increases for salmon due to improving market conditions will help to offset this."

Seiners have experienced

harvests below their allocated minimums in three out of the last five years, Stroosma said.

"Evening out harvest opportunities between gillnetters and seiners in Deep Inlet this coming year may help some," Stroosma said. "Region-wide, both in northern and southern Southeast, enhanced fish harvests will have to increase in order to get them back into their allocation plan range."

Sven's King Salmon

How does Stroosma like to eat salmon? Teriyaki style! He takes a 10 to 12 pound wild King salmon, fillets it, and glazes it with a teriyaki marinade composed of soy sauce, brown sugar, crushed garlic, and sesame oil. Grilled on the barbecue, it's got to be one of the best reasons ever for fishing.

Deep Inlet / Hidden Falls Harvest Plans

Some 1.45 million adult chum are projected to return to Deep Inlet this season. The Deep Inlet terminal harvest area (THA) opened May 4 and will see fishing activity for five months, through September.

The Deep Inlet harvest plan remains essentially the same as recent years, although there were vastly different results in 2006 and 2007.

There is one change in the double rotation fishing schedule. Gillnet openings will be on Monday/Tuesday and Thursday/Friday. Seine openings are on Sunday and Wednesday. Troll fishing is allowed in the THA on the off day – Saturday – each week.

"This arrangement was agreed upon at the NSRAA spring board meeting in an attempt to shift more

of the catch to the seine fleet due to recent allocation concerns," said Chip Blair, NSRAA data analyst. "Gillnetters are well above their targeted range and seiners have fallen below their range. This schedule gives the seiners a 'build-up' day each week, whereas the previous schedule alternated the build-up day between gear groups from week to week."

For the first eight weeks of the season, through June 28, fishermen will primarily target Chinook, and perhaps some chum in late June.

The Chinook return is projected to be 43,000 fish, some of which pass through the THA.

There are some restrictions



Gillnet fishing in Deep Inlet. 1,450,000 chum are expected to return in 2008.

cont. on next page

Strong Markets Expected for 2008 Season

Just about everything in the salmon marketplace is pushing wild salmon prices higher this year, and fishermen who harvest NSRAA enhanced stocks will most likely benefit from this trend.

Consider the plight of West Coast salmon fishermen: the salmon fishing season was canceled from Southern California all the way north to Cape Falcon, Oregon, due to an "unprecedented collapse" in the numbers of Sacramento River chinook.

The pink salmon harvest in Southeast Alaska is expected to be less than 20 million fish, which is about 43 percent of the average for the region over the last 11 years.

And a huge outbreak of Infectious Salmon Anemia (ISA) in farmed salmon in Chile has decimated the usually abundant supplies of salmon coming from south

of the equator. Safeway stores have restricted their purchases of Chilean farmed salmon due to ISA, citing problems with the quality of the fish.

"Chinook is going for \$30 a pound in Seattle, making one decent sized fillet worth more than a barrel of oil," noted NSRAA operations manager Steve Reifenhstahl. "This hasn't happened since the late 1980s."

John Garner, president of Norquest Seafoods, a division of Trident Seafoods, sees no reason to expect salmon prices to fall any time soon.

"Inflation is hitting all protein producers, so the consumer will face a higher cost whether they want fish, pork, beef, chicken, or even the staple grains. Second, there are some seafood shortages that are resulting in a supply

squeeze," Garner explained.

Some of the stocks coming up in short supply, Garner noted, are Chilean farmed salmon, tilapia from China, Alaskan pollock, and tuna throughout the world.

"So, at least in the short term, there are significant reductions in fish supplies, meaning more demand for what is available," Garner said. "Thank goodness, because the cost of everything, like fuel, will be squeezing profit margins."

Not everyone will be buying \$30 per pound Chinook, but Garner said salmon will be affordable to the average consumer in value-based pink, chum, and sockeye products such as salmon burgers, sockeye portions and fillets, and marinated chum portions that are healthy and "bargain" priced.

The rising costs of all kinds of food doesn't mean that salmon will be a comparatively less expensive option than it used to be.

"Cost increases for other proteins, overall, are probably about the same as what we face. Sure, cows have expensive grain, but we have expensive fuel. So I'm not sure that the relative place of these proteins in the marketplace is changing that much," Garner said. "What is changing for us is that, for example, tuna is getting much more expensive due to the lack of supply, which leaves a lot more room for pinks."

This early in the salmon season, there is not much current ex-vessel price data published. But a source at Sitka Sound Seafoods said that the price for troll caught Chinook was at \$9/lb. in late April and had dropped somewhat to \$7.50 in early May.

"The bids for our chinook and chum are the highest ever this year," Reifenhstahl said. "And thanks to a profit-sharing clause in our multi-year coho contract, we ought to do well with coho this fall too."

Deep Inlet / Hidden Falls Harvest cont. from previous page

during the early season fishing (pre-July 1):

- ADF&G regulation requires drift gillnet fishermen to fish with a minimum mesh size of 6 inches prior to June 20. The purpose is to reduce the harvest of any wild sockeye passing through the THA.

- As was the case last season, the western boundary of the THA was modified from May 1-21 to allow for a traditional troll drag in front of Pirate's Cove.

From June 29 through July 26, the fishing rotation changes to a single rotation of one seine and two gillnet days per week, Blair said.

Inner Deep Inlet will be closed during this time to allow chum to build up for cost recovery harvest, which begins during the first week of July.

NSRAA's cost recovery goal is 2.2 million pounds, or about 274,000 fish. Another 60,000 chum are needed for broodstock. If the return comes in as projected, the commercial harvest will be somewhere around 1.2 million fish.

"We are hoping that this schedule will allow us to harvest 50 to 60 percent of the cost recovery in July. Hitting this target greatly reduces conflicts with commercial fishing in August," Blair noted.

For the two-week period from July 27 through August 9, the double rotation will be reinstated with the entire THA open to fishing. Cost recovery will be restricted to a limited area east of a line from Silver Point to Galankin Island to a line at 57 degrees Lat. south of the hatchery in Silver Bay.

"This period is designed as a break in cost recovery fishing during a traditionally slow period between the Hidden Falls and Medvejie stock returns, and during the time outer East Channel is closed to cost recovery to allow the troll fleet access to chum in that area," Blair said.

NSRAA will continue cost recovery fishing in this time if good numbers are present in inner Silver Bay or at the hatchery itself.

It is anticipated that during the two-week period from August 10 – 23, the single-rotation schedule will be implemented, with inner Deep Inlet closed.

In 2007, due to an extremely weak return, the THA had to be closed at about this time for the remainder of the season to allow for cost recovery. However, in 2006, the entire THA remained open to commercial fishing and the schedule abandoned as there were plenty of chum to harvest outside the THA.

"Things couldn't have gone much better than in 2006, so we're hoping this scenario will repeat in 2008, as we always want to provide as much fishing opportunity as possible, especially during August during the peak of the return," Blair said. Blair noted that higher prices for salmon have allowed for a reduced 2008 cost recovery goal, and if the return comes in close to forecast a repeat of 2006 is possible.

"Of course every season is different, and with so many variables, a lot of things can happen. In-season adjustments may be necessary, and we'll keep fishermen informed

of any changes in a timely manner," Blair said.

The THA schedule will revert back to the double rotation once the cost recovery harvest is complete, or sooner if there are enough fish outside the THA to complete the harvest.

The entire Deep Inlet management plan, along with a printable calendar and maps, are available on the NSRAA website, www.nsraa.org, on the Fishery Updates page.

Hidden Falls Cost Recovery

The Hidden Falls cost recovery goal is 3 million pounds or 377,000 chum salmon. Cost recovery and broodstock management will be unchanged from recent years.

Higher prices have allowed the cost recovery goal to shrink by 25 percent from 2007.

"All salmon are up in value, continuing the trend for the fourth year in a row," said NSRAA operations manager Steve Reifenhstahl.

If the return forecast of 2 million fish holds, 75 percent of the Hidden Falls return, about 1.5 million fish, will go to the common property fisheries.

Reifenhstahl expects that Hidden Falls will be very important to seiners in 2008, due to a low forecast of just 19 million pink salmon in all of Southeast.

"I anticipate seeing boats at Hidden Falls early and staying close by, considering high fuel costs and little opportunity elsewhere," Reifenhstahl said.



Cost Recovery fishing begins in late June. With higher prices this season fewer cost recovery fish are needed to balance NSRAA's budget.

Sawmill Cove Update

The new coho hatchery at Sawmill Cove is on schedule and is expected to be completed this summer, says NSRAA operations manager Steve Reifenstuhl.

Former long-time Medvejie hatchery manager Jim Seeland has been involved in the process since the early design stages, and his expertise has been essential to the project's success, Reifenstuhl said. "Jim has worked in several hatcheries during his 25-year career and seen them all, so he knows what works and what doesn't."

"I have to say that this project is going extremely well and considering the tight budget, this is particularly important. What has made it a success is, quite simply, teamwork," Seeland said. "NSRAA has made use of professional engineering when necessary - Don Beard with KCM/Juneau - but has relied heavily on experienced personnel. Medvejie manager Lon Garrison and Medvejie maintenance manager Mike Pountney have both played a major role in design and development of the Sawmill Cove Hatchery."

Barring any unforeseen difficulties, the new facility should be ready for its first group of coho as soon as August.

"I was at the site 2 days ago and the main building is now tied into City power," Seeland said in early May. "Nearly all of the building electrical is completed and most of the interior finish work is done as well. Much work remains on interior plumbing, installation of outdoor rearing tanks and associated plumbing, and some grounds work

such as creating parking areas, constructing a veranda for outside the office area, and installing security fencing and yard lighting."

A ribbon-cutting ceremony will be scheduled in the fall, perhaps in conjunction with the fall NSRAA board meeting November 19 - 21.

This spring the effluent line was installed at the hatchery without any problems. This is a 1800 foot long 24-inch diameter heavy duty polyethylene effluent pipe with 1600 lb. concrete collars every 15 feet, that collects process water used in incubation and all rearing containers in order to transport it to a single location in deep ocean water.

"The ocean side of the pipe had to hit a precise latitude and longitude at 100 feet of water depth," Reifenstuhl said. "We surveyed it and it's sitting on the bottom just as it's supposed to."

Despite such complexities the project is still within its \$2.3 million budget, which Reifenstuhl notes is "particularly remarkable" given that the budget for a State of Alaska hatchery facility ballooned from \$50 million dollars three years ago to \$150 million in the recent legislative session.

"I think a heck of a lot of credit goes to Connor Nelson, the contractor," Seeland said. "Connor has proven his worth time and again with various NSRAA projects over the years. He not only has a great depth of knowledge of construction techniques, but has done a lot of aquaculture-related work such as pipeline installa-

tions, intricate hatchery plumbing configurations, and paying attention to budgetary restrictions. On a regular basis, Connor comes up with creative solutions and follows through by conferring with NSRAA staff before proceeding."

260,000 Plotnikof coho are currently rearing at Medvejie hatchery for the Sawmill Cove facility. Broodstock for the 2009

season at Sawmill Cove will be collected at Deep Inlet, Medvejie/Bear Cove, and Plotnikof Lake this fall.

"This should be the last year for broodstock collection at Plotnikof Lake, as we've been building up Plotnikof broodstock at Medvejie, and released 20,000 at Medvejie and 200,000 at Deep Inlet this spring," Reifenstuhl said.

New Board Member: John Barry



New to the NSRAA board in the Sitka seine seat is ten-year Sitka resident John Barry. Barry, who is originally from Hoonah and graduated from Hoonah High in 1989, seines, crabs, and longlines on his boat *Pillar Bay*. He began commercial fishing as crew in 1984.



Keystone Construction workers set the effluent pipeline for the Sawmill Cove Hatchery.

Ocean Acidification cont. from pg. 1

As Short explained, pink salmon in particular depend heavily on small marine snails called pteropods, which are especially vulnerable to the effects of acidification.

"Their shells are made of a form of calcium carbonate that is more readily attacked by acid, and there is some evidence that pteropods are already experiencing difficulties growing and maintaining their shells in the North Pacific," Short said.

There is no clear evidence that the pteropods' trouble has adversely affected pink salmon populations or sizes already, or that other salmon species with a different diet will be less affected than pinks in the long run, but little scientific effort has been expended as yet to

evaluate these issues.

"Our ocean acidification plan is aimed at very basic questions and will not likely be able to shed much light on salmonid niche adjustment in the North Pacific," Short said. The draft research plan for Short's Auke Bay team does make clear, though, that commercially important species of shellfish and fish will take first priority in their studies.

Short notes that if pteropods or any other favorite salmon food is not available, the fish will eat whatever is in abundance.

"In general, adult salmon are opportunistic feeders, and almost certainly will switch diets according to availability," Short explained. "The natural next question is whether the new diet is as nutritious as the old one, and we are thinking of projects to address this."