

FISH RAP

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

A new record: The troll fleet enjoyed their highest value from NSRAA production in 2013. Ex-vessel troll value is estimated at \$4.6 million.



Trollers landed over 450,000 Deep Inlet chum this summer.

Change Service Requested

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NSRAA Narrows Down Sites For Chum Expansion

It has been more than two years since NSRAA's board directed its staff to explore options for an enhancement project away from Sitka, and while a site or project still has yet to be determined, NSRAA's board has not lost interest or enthusiasm in its efforts to expand.

"The board is very excited about pursuing some new project opportunities," says Steve Reifenstuhl, NSRAA General Manager.

Since the board first gave direction to explore potential locations for a new hatchery or enhancement project away from Sitka Sound in early 2011, Steve and Scott Wagner, NSRAA Operations Manager, have traveled to various locations, including the town of Pelican and Excursion Inlet, to meet with the public and examine possible sites.

NSRAA submitted a request to incubate chum and coho at a hatchery in Pelican and release the fry and smolt in Lisianski Inlet. When the Alaska Department of Fish and Game (ADF&G) expressed concern about the potential impacts of such a project on wild stocks, NSRAA proposed instead to use summer run chum stock from Douglas Island Pink and Chum (DIPAC) and release the fry in Excursion Inlet. But that proposal was met with similar concerns.

Such resistance has not discouraged Steve and Scott, nor has it dampened the board's interest in expansion. But rather than continue to develop proposal after proposal and risk rejection, they asked the ADF&G to assist. At NSRAA's request, the ADF&G management and research staff spent a day reviewing all areas in northern Southeast – from Taiya Inlet near Skagway, down to Malmesbury in Chatham Strait and from Thomas Bay by Petersburg to Snipe Bay, south of Sitka – for a location that might be acceptable for new chum salmon projects.

"The effort they went to was a huge help to us to narrow down what the options might be," says Steve. "ADF&G isn't saying, 'We'll permit these.' They're saying, 'We'll work with these areas.'"

The NSRAA board reviewed ADF&G's selection at its meeting this fall. Board members discussed locations, potential costs and whether they wanted to open a new hatchery as they prioritized their efforts to expand. With a price tag of about \$25 - 30 million, developing a new hatchery is not only costly but also means a longer wait before fish are in the waters and in fishermen's holds.

"The board decided it is not interested in pursuing a brand new hatchery at this time, due to the upfront cost," says Steve. He went through the list of options from ADF&G, prioritized the project possibilities and presented his picks to the board. "The reason I see these as priorities is

because I think we can ramp them up quickly with the lowest cost."

The board reviewed Steve's recommendations and selected four top priorities (in order of priority): pursue additional cooperative chum opportunities with Gunnuk Creek Hatchery at Southeast Cove on Kuiu, raise chum in net pens at Crawfish Inlet, investigate Thomas Bay for potential chum release and/or hatchery site and Malmesbury as a potential chum salmon release site.

Southeast Cove came out on top because NSRAA is already permitted there through an agreement with Gunnuk Creek. Considering this, it would be easy for NSRAA to increase the number of chum released there without a formidable bill.

"Out of all the options, Southeast Cove would be the quickest to get fish in the water for the least money," says Scott.

To do so, however, NSRAA must first get permission from Gunnuk Creek and would need to expand the infrastructure at Hidden Falls to accommodate the increased production.

"We're probably going to move ahead on that, so that if we do get the invitation from Gunnuk Creek we can jump on it right away," says Steve.

Scott and Steve plan to develop budgets for the four options to present to the board at its meeting in the spring.



Troll-caught chum salmon from Deep Inlet. NSRAA is moving forward to pursue new chum production away from Sitka.

Hatchery Reports



A duplex is currently being constructed at Medvejie. This will be a great improvement to housing needs at the hatchery.

General Manager's Notes

Challenges, Challenges

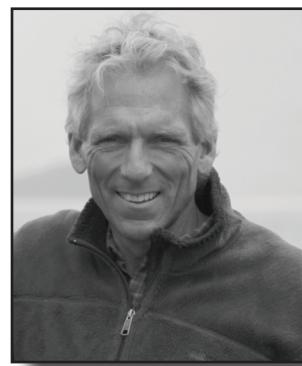
As fishermen, you face challenges every day: mechanical, regulatory, crew, and daily production (catch), to name some big ones. As an organization, NSRAA faces many similar challenges, with one exception; we work to produce fish and create opportunities for you to catch those fish. Maximizing these two aspects of NSRAA are challenging, but when done well, they reduce the risk to you as fishermen and increase your chances of success. This year NSRAA contributed 91 percent of our salmon production to common property fisheries, a portion of which is due to DIPAC's financial contribution. A major partner of ours, DIPAC is committed to investing some of its surplus cost recovery revenue back into common property fisheries.

What NSRAA would like to do now is make that ninety percent contribution part of a much larger pie. We continue to explore ways to increase our production and maximize your catch. Two ongoing initiatives are the 4.0 chum program at all our chum release sites, which represents about 20 percent of our production, and the new partnership with Gunnuk Creek Hatchery at Southeast Cove, near Kake, where we released 10 million 4.0 chum this spring. The first adults from these programs will return as 4-year-olds in 2016.

At the November meeting, the NSRAA board endorsed pursuit of new production at Sawmill Cove Hatchery and Hidden Falls. The Sawmill Cove physical plant can be modified to produce 50 million Medvejie stock chum eggs without diminishing its current coho production. The challenge is to find a new release site for these chum on the outer coast of Baranof Island. Hidden Falls will also need to undergo some capital expansion to accommodate more chum for Southeast Cove or perhaps Thomas Bay. We are working to finalize the details of both projects.

From opening the THAs for coho trolling, to tax assessment in lieu of cost recovery, to 3:3 rotational net fisheries at Deep Inlet that look more like 3:2, we continually look for creative solutions to maximize fishing opportunities for the fleets. Our staff is fully engaged to expand our facilities and programs for the benefit of Southeast fishermen and communities. We love the challenges.

Have a warm and Merry Christmas, Happy Holidays and New Year.



Medvejie Prepares To Care For Sawmill Creek's Fish

The staff at Medvejie met its coho egg take goal for the first time since it began work to open Sawmill Creek Hatchery several years ago. But any triumph from that accomplishment is tempered by the worry of where to put those fish in the fall, when the water at Sawmill Creek Hatchery is shut off.

Sawmill Creek, NSRAA's newest facility, gets its water from Blue Lake, the penstock for Sitka's hydroelectric plant. This year, the city begins construction to expand the dam and increase the capacity of the lake. Currently, the penstock is scheduled to be shutdown and Sawmill Creek Hatchery will be without water for a minimum of two months, during August and September.

NSRAA must transfer about 1.1 million fish from Sawmill Creek Hatchery to Medvejie during the water shutdown. The fish will be transferred by truck and trailer, which will likely require about 10 trips back and forth over the rough road between the hatcheries, with about 100,000 fish per trip.

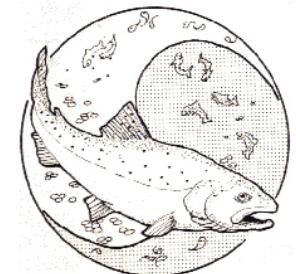
Typically, Medvejie cares for about 600,000 fish in its freshwater raceways at that time of year, so the transfer will almost triple the fish at Medvejie during a time when the hatchery is also holding adult broodstock for spawning. Fish densities will be at their maximum, with little extra water or space. The staff at Medvejie must improve its existing infrastructure to ensure that the high density levels don't negatively affect

Medvejie Report Continued on page 3

Northern Southeast Regional Aquaculture Association FISH RAP

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Any interested party may also receive **Fish Rap** free of charge. Send your address to NSRAA.

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Medvejie Report (continued)

the health of the fish.

Among the preparation work scheduled at Medvejie are the installation of airlift systems to all raceways to increase dissolved oxygen levels, testing all pumps, and the addition of an 8-foot diesel-powered pump in case of an emergency. There will also be additional staff onsite at night, in case of a pump failure or similar emergency.

"This time is going to be really challenging for everyone here," says Angie Bowers, Hatchery Manager. "This is the first time I've ever started praying for a rainy summer during the winter."

As a last resort, NSRAA could move some of the fish to Green Lake.

"It will depend on how dire our water situation is," she explains.

If Medvejie does not have enough water to support the high number of fish, the staff will then determine how many fish would be moved to Green Lake. But this backup plan is not foolproof. First, NSRAA must receive approval for the permit request it submitted to increase the number of fish at Green Lake during this time. If approved, NSRAA must also be able to transfer the fish to – and from – Green Lake before the snows fall.

"We need to use a tractor trailer and a large transfer trailer," says Angie. "They can't drive on that road if there is any snow."

It's a big undertaking and a lot to worry about. The best the staff at Medvejie can do for now is make the necessary preparations and hope for the best – and, perhaps, a very rainy summer.

NSRAA Employee Changes

NSRAA has only had a few employee changes since last spring, which means less time training personnel and more time focused on operations.

Cain Depriest and Jess Eller, were promoted from fish technicians to fish culturists at Hidden Falls.

Jason Dagenhart joined NSRAA's staff as the new maintenance engineer at Hidden Falls. Previously an airplane mechanic for Harris Air in Sitka, Jason and his family are now living on site at Hidden Falls.



Hidden Falls's new dock is a reality. Construction took place this summer.

Hidden Falls Sets Records Despite Construction

Hidden Falls collected a record number of chum eggs this year, in record time. While this alone is notable, the staff at Hidden Falls achieved this accomplishment during the relative chaos that occurred while the hatchery's deteriorating dock was demolished and removed, and a new dock and pier built in its place.

More than 25 years old, the aging dock had become a safety concern. After almost two years of planning and permitting, NSRAA hired Clifton Enterprises, LLC., of Sitka this spring to construct a new docking facility. The construction project included the installation of a new concrete barge ramp, a pile-supported pier, gangway, new concrete dock floats and a 3-ton crane at the end of the pier.

Though construction was scheduled to begin in May and be completed by mid-July, the first freight delivery of material for the project didn't arrive until June. Clifton Enterprises arrived on site in early July to begin the demolition work and construction continued through late October – NSRAA's busiest season.

During that time, freight barges came and went, loaded with demolition waste and construction materials. Among the items used to build the new docking facility were aggregate and concrete planks, loads of timber, 31 steel piles, 14-foot I-beams and the new 85-foot aluminum gangway. The construction team used Alaska Marine Lines facility in Kake (the closest shipping location to Hidden Falls, about 40 miles away) as the primary distribution location for materials.

Needless to say, construction of that scale is bound to interfere with the hatchery's operations, yet the staff worked diligently to ensure that its effects were minimal.

NSRAA's largest facility, Hidden Falls raises and releases about 90 million chum each year. In addition, the fish culturists care for and release about 600,000 Chinook and 3 million coho smolts annually. This year, the hatchery was scheduled to collect 135 million eggs for its chum program – close to the largest eggtake ever. In anticipation of the size, Adam Olson, Hidden Fall's Hatchery Manager, added a third spawning station in an effort to maximize efficiency.

His efforts were successful. The staff collected its permitted 135 million chum eggs in a record 13 days (The previous fastest eggtake was 122 million eggs in 14 days.) and set another record in the process, by collecting just over 14.6 million eggs in one day.

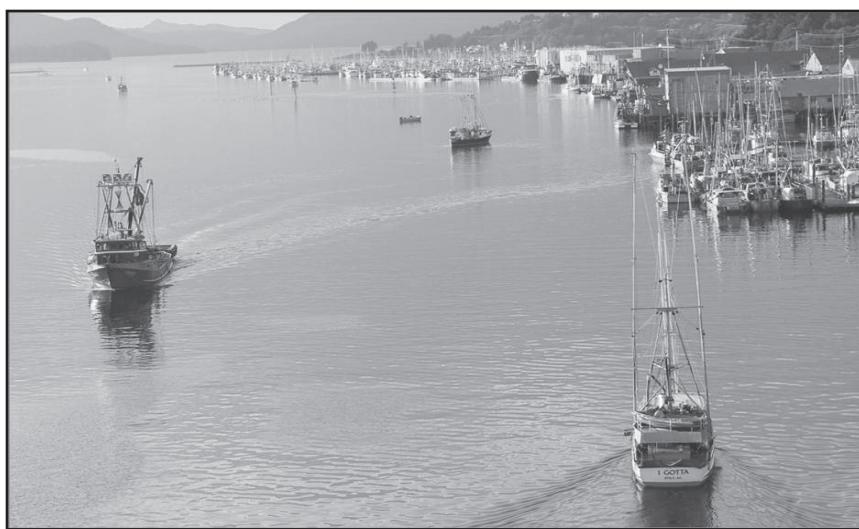
When Kake's Gunnuk Creek Hatchery project fell short of its chum eggtake goal, the Hidden Falls staff collected another 19 million eggs, for a total of 154 million eggs collected in just 15 days.

"The new pier and docking facilities has already proven to be an incredible addition to Hidden Falls," says Adam, who is clearly proud of his crew for their accomplishments this season despite the construction.



Hidden Falls crew spawning chums. A record 154 million eggs were collected this season for Kasnyku, Takatz, Southeast Cove and Gunnuk Creek Hatchery.

Market report: Chum Prices Soft But Steady



Boats deliver their catch. Summer 2013.

Alaska chum prices have declined since their high in 2011, but should stay relatively steady for the remainder of the season as long as there isn't an unexpected change in the market.

The price of salmon climbed dramatically after Chile cut production of its farmed salmon in 2008, after an epidemic virus outbreak in its net pen production. Alaskan fishermen benefitted from high prices until 2012, when Chile recovered from the virus and returned to the world market in full force.

"They came back with a vengeance," says Randy Babich, commercial fisherman and owner of Trader Bay Ltd., a chum processor in Washington. "They flooded the market. I believe they were selling at cost or below cost to get back into the market."

Chum prices dropped in response to the sudden influx, but Chile's return to the market wasn't the only factor contributing to the drop in Alaskan salmon prices. Combined, there are about 14 countries farming salmon these days, including Norway, with its enormous production.

"It's hard to sell in a flooded market," he says.

Randy, who also processes and sells roe and ikura, believes the demand for roe has helped keep chum prices from falling further.

"Roe is driving the bus still, to a large extent," he says, explaining that chum roe is considered superior to the eggs from other salmon – especially farmed. Fortunately for Randy and other processors of wild salmon roe, the eggs of farmed salmon are generally considered inedible, and chum eggs are considered superior to even the eggs of king or sockeye salmon because of their texture, flavor and oil content.

Despite the demand for chum eggs, the prices for roe and ikura have

also dropped recently as the yen to dollar ratio shifted in the past year and the yen has strengthened to the dollar.

"For us, as exporters, it goes directly against us when we're selling," says Randy. "Basically, it's a 20 percent cut right off the top of the price of caviar."

Of course, Japan isn't the sole consumer of roe and ikura. Russia and Europe are also major consumers. But as the largest consumer, Japan sets the price for ikura. Adding insult to injury, this year Japan experienced higher than forecasted chum returns to its salmon hatcheries in Hokkaido, further lessening its demand for Alaska chum and caviar.

This season's tremendous pink return may have also contributed to softening prices for chum, speculates John Sackton, editor of the website, Seafood.com.

"This year, you had a huge production of pink salmon," he says. "There's going to be a lot of frozen pinks and pink filets on the market."

It seems there's a lot working against chum prices. Still, the demand for chum products went up slightly this fall as prices for Atlantic farmed salmon products increased.

"Suddenly, chum salmon becomes a cheaper alternative, instead of an equal to or more expensive alternative," says one Alaskan processor, who wished to remain anonymous.

"There's going to be strength on that species right now," agrees Rob Reierson, President and CEO of Tradex, an international seafood manufacturing company in Canada. He believes out of the freezer chum prices should stay steady into 2014, barring any unforeseen changes.

But there are always uncertainties.

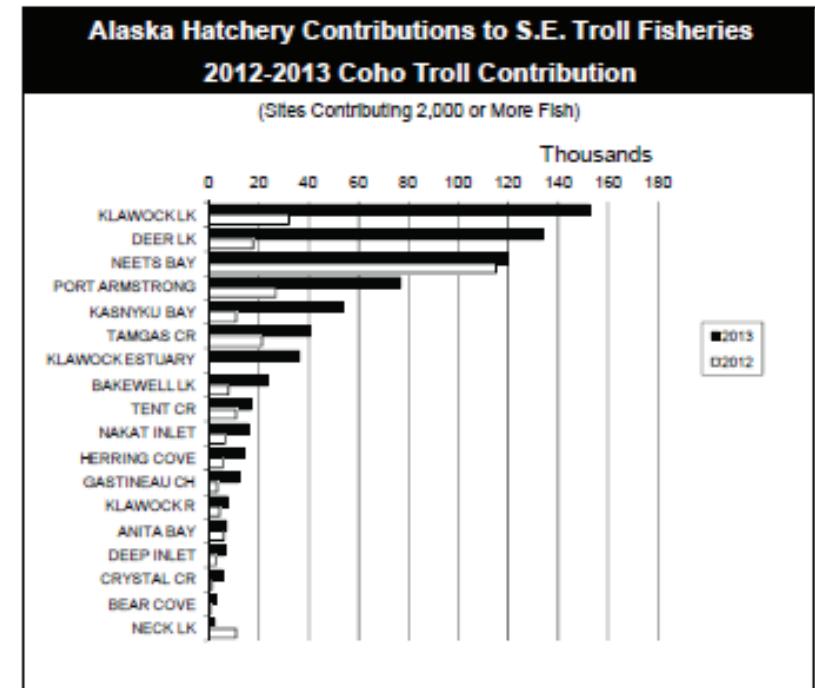
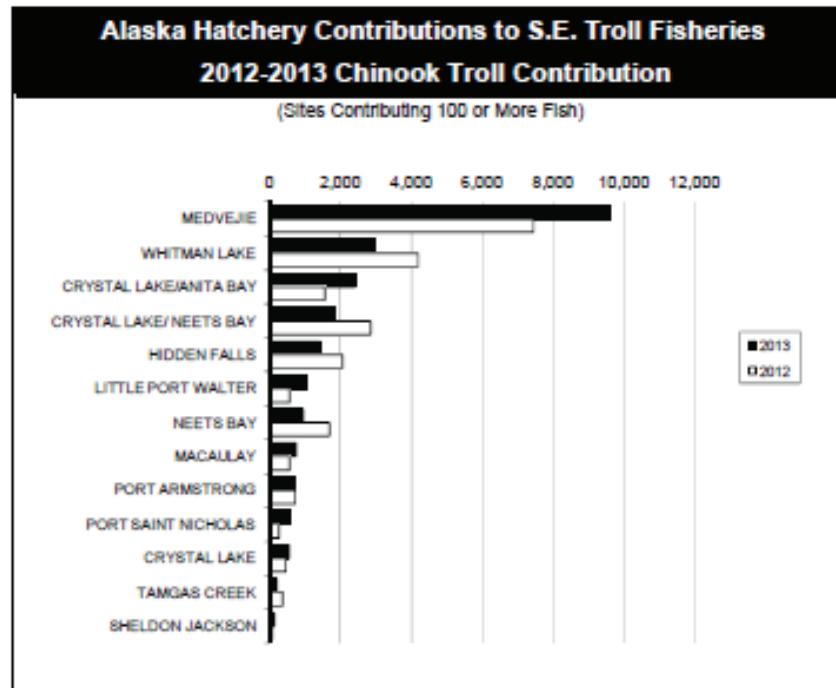
"The only question in my mind is how the pink salmon supply would affect the market for chum," says John.

Hokkaido's strong returns might also cause an upset. Japan's hatcheries raise and release fish by the billions, Rob points out.

"China was not letting any of that fish into (their) market for production after the nuclear disaster," he says, "but I believe that's been lifted. That fish has to go somewhere. Japan can't eat it all."

Given the volume of salmon in the world market, it's unlikely the prices for chum will turn around dramatically anytime soon, says Randy. Fortunately, Alaska has created a niche in market with its wild salmon. But even that is no guarantee in a market with an ever-increasing volume of farmed salmon.

"The only way out of the tunnel is volume," he says, pointing out that Alaska's percentage of the world salmon market has dropped from approximately 32 percent to about 28 percent over the past few years. "Thumbs up to NSRAA for continually working to increase the production of wild salmon. We need this enhanced volume in order to sustain a seat in the arena of world salmon supply. Without them, we would be blown out of the water."



NSRAA's Returns Strong For All Species

NSRAA's returns for all species of salmon exceeded expectations this year, with some returns double those forecasted.

The three gear groups harvested more than 15.6 million pounds of NSRAA-produced salmon this season. In terms of the number of fish, it was the largest return since 2006 and the 7th largest in NSRAA's history.

"Overall, the value is looking like it's going to be about \$18 million at current prices," says Chip Blair, NSRAA Data Analyst. "With post-season adjustments, we're expecting that might climb to as high as \$20 million. It looks like, after post-season adjustments, it will be the highest-valued catch ever."

Chum

At \$14.3 million, chum accounted for the largest portion of NSRAA's combined value, with strong returns both at Deep Inlet and Hidden Falls. It's been a while since chum returns have been sizeable at both sites in the same season. Hidden Fall's return of 1,387,000 million fish was slightly over NSRAA's forecast, while the Deep Inlet return of 2,232,000 fish exceeded the forecast by 63 percent.

"We were kind of surprised by the size of the return to Deep Inlet," says Chip, who believes the weather contributed to the number of fish caught by trollers there this year. "We had a lot of sunny, warm weather this summer. Historically, when we see that kind of weather pattern, with little or no rain, the fish aren't drawn into the inlet, which gives the trollers an opportunity to fish on them for an extended period of time."

Trollers caught more than 454,000 NSRAA chum this year, setting a new record at Deep Inlet.

Coho

Coho returns were tremendously strong throughout Southeast Alaska this year and NSRAA was no exception.

"Coho catches started out strong and never really slowed down," says Chip.

Though the coho return to Hidden Falls was only 80 percent of forecasts, returns to Deer Lake, Medvejie and Deep Inlet easily made up for it with returns as much as double those forecasted. Combined, those numbers brought the value of NSRAA's coho contribution to \$2.2 million.

"It looks like, after post-season adjustments, 2013 will be the highest-valued catch ever."



A troller delivers a load of chum salmon.

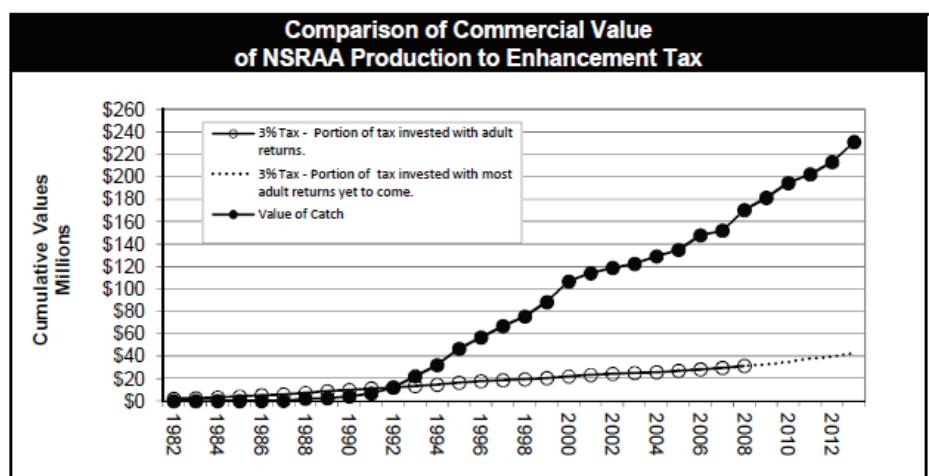
Chinook

Fishermen were disappointed when the Chinook Abundance Index Model failed to come close to accurately predicting this season's Chinook returns and percentages available for harvest. Though the Alaska Department of Fish and Game (ADF&G) sets the first summer opening so that 70 percent of the quota will be harvested during that time, the index was apparently so far off this season that fishermen met their entire quota within the first opening and a second summer opening was never allowed.

And, still, the Chinook came. So many Chinook returned this year, in fact, several NSRAA fishermen reported they had to leave areas with good coho fishing because of the numbers of Chinook on their gear.

At NSRAA, Chinook returns were a bit lower than expected at Hidden Falls and more than forecasted at Medvejie, but "all in all, it was a real successful year for Chinook," says Chip. NSRAA's Chinook contribution came to \$1.5 million.

All in all, it was a good year for all species at NSRAA.



NSRAA Contribution to Southeast Alaska Commercial Fisheries Number of Fish : 2012 - 2013

	Gillnet		Seine		Troll		All Gear	
	2013	2012	2013	2012	2013	2012	2013	2012
Chinook	6,377	5,355	6,541	5,262	11,181	9,561	24,099	20,178
Chum	609,843	165,921	2,346,544	1,413,726	455,590	21,117	3,411,977	1,600,764
Coho	2,871	512	58,894	1,514	196,327	32,160	258,092	34,186
Sockeye	-	-	-	-	-	-	-	-
All	619,000	172,000	2,412,000	1,421,000	663,000	63,000	3,694,000	1,655,000

Board Member Profile: William Bergmann



William and Joyce Bergmann. William holds the NSRAA Conservation Seat on NSRAA's board.

Though William Bergmann hadn't planned to get involved with NSRAA's board, the former commercial fisheries manager is enjoying his new commitment.

William was appointed to NSRAA's conservation seat when Bob Ellis retired after nearly 30 years on the board. According to William, a board member asked if he'd be interested in serving on the board and before he could check with his wife, the decision was already made.

"Before I even talked with my wife, I was on the board," he says, chuckling. "But I would have said yes."

Now that he's retired, William and his wife, Joyce, don't do much without consulting each other, but that hasn't always been the case. Like Bob, William has an extensive fisheries background. He worked as an Area Management Biologist for the Alaska Department of Fish and Game (ADF&G) for 37 years, managing salmon, herring, sea cucumber and spot shrimp fisheries in central Southeast Alaska, an area extending in a radius of about 50 miles from his home in Petersburg.

It was William's responsibility to assess stocks and population numbers to determine what needed protection and how much could be harvested. He spent endless hours estimating salmon populations from a super cub, scuba diving to evaluate sea cucumber and herring populations,

and walking streams to gather pertinent information.

He laughs when asked if he loved his job.

"One of my assistants said to me, once, 'William, you've got the best job in the world.' And that's what I thought. It really was a great job."

Perhaps what he loved the most about his job was being outdoors, but there was more to it than that, he says. It was never routine, but varied from season to season, sometimes from day to day, "not only the type of species you harvested, but the fishermen you worked with and all the things you did on the job, whether it was flying or diving or working with people."

Now that he's retired, William continues to spend most of his time outside. But instead of the rigors of a job, he now enjoys hunting and fishing and travelling with his wife. The couple has three grown daughters, two of whom live in Washington, six grandchildren and another expected at the end of 2013.

"We try to spend as much time as we can with our grandchildren," William says. The older grandkids are getting old enough to spend several weeks at a time in Petersburg with their grandparents, which has been especially fun.

Almost 40 years spent managing commercial fisheries has given William a sound knowledge of hatcheries. He's worked with state, private and regional hatcheries in his career.

"There are good ones and there are some not so good ones," he says. "NSRAA is sort of the cream of the crop. It does the right thing. It's interested in maintaining the wild resources. It puts a lot of money back into the economy. It seems to do a good job without trying to trample any of the wild stocks."

William finds some humor in the fact he's in NSRAA's conservation seat, though.

"I've probably been responsible for the death of millions of fish," he jokes. After all, besides opening commercial fisheries for harvesting, the almost-native Alaskan (he's lived here since he was four) started fishing early in life. He began beach seining at the mouth of the Petersburg Creek with his mother as the skipper and then purse seining, long lining and king crabbing while attending high school and college.

But perhaps it is a good fit, after all.

"The ADF&G is more into conservation than preservation," he says. And after a life-long career working for the ADF&G, William is certainly well-versed in conservation.

Deer Lake's Coho Return Doubled Expectations

This was a great season for coho. NSRAA's coho returns were strong, but Deer Lake's return far exceeded expectations and was the third highest in the history of the project.

NSRAA's forecasts estimated 124,000 coho would return to Deer Lake this season. Instead, more than 248,000 fish returned – twice that predicted – indicating a marine survival rate of 12 percent.

"It was the best return for any of NSRAA's projects this year," says Scott Wagner, NSRAA Operations Manager. There were more than two million smolts released in 2012. "The 2013 release was even greater, so it bodes well for the project. Next year, there could be an even greater return."

The forecast for next season's return is an estimated 146,000, but that's based on a 6 percent survival rate. Coho marine survival has been as high as 17 percent for the Deer Lake project and up to 20 percent for NSRAA's other coho projects.

NSRAA has struggled with high over-winter mortality rates since it began overwintering fry in net pens in Deer Lake about five years ago. Between overcrowding, escapement, predation and malnourishment, overwinter survival rates dropped as low as 30 percent; dramatically affecting the number of fish released each spring.

But in the past two years, net pen overwintering at Deer Lake has taken a turn for the better. The Deer Lake crew was thrilled with the 8.6 percent overwinter mortality rate in 2012, but last winter's survival exceeded that, with only 1.6 percent of the fry lost to mortality.

Because of the various struggles it has experienced over the years, the Deer Lake crew is gradually increasing the number of fish contained in net pens each year until it reaches its goal of 50 percent overwintering in the lake and 50 percent in net pens.

This winter, 42 percent of the fry are being held in the net pens, with the remainder in the lake. NSRAA will need two more net pens to reach its 50/50 goal next winter. According to Scott, having an equal number of fish in the net pens and in the lake is a bit of insurance in case anything goes wrong.

"If the lake population does poorly, hopefully the net pen population will do better, or vice versa," he explains. "Also, if the lake ices over and is still iced over during their natural migration timing, the fish in the lake won't leave. They'll stay another year. We can force the fish in the net pens out, but we can't force the fish in the lake out."

Trollers were able to take advantage of Deer Lake's coho return this year when the Special Harvest Area (SHA) was opened to them for the first time ever. NSRAA's decision to allow commercial trollers in the SHA was not a result of the large return but merely a coincidence, explains Scott. A combination of factors allowed for that change this year, including cooperation from the Alaska Department of Fish & Game (ADF&G) in opening the SHA to trollers while leaving the seine line at its traditional location.

"We're trying to give trollers more opportunities to catch our salmon and this was one way to do it," says Scott.

Haines Works To Expand, Gauge Success

As NSRAA works to expand its chum programs in the Haines area, the staff is also trying to measure the success of the program to date.

The aquaculture association has tried a variety of salmon enhancement projects over the years in Haines, including stocking lake with sockeye, incubating chum and sockeye streamside, and constructing spawning channels. These days, the Haines program consists of four chum spawning channels and three chum streamside incubation sites.

After receiving a legislative grant of \$620,000, in 2012, to expand the enhancement program in the northern Lynn Canal area, NSRAA began exploring sites for potential new spawning channels and incubations boxes.

Of the four spawning channels in NSRAA's Haines program today, only one, known as the Herman Creek spawning channel, has met expectations. Scott Wagner, NSRAA Operations Manager, believes the success of the other three has been compromised by low water flows, poor gradient and excess siltation when the Chilkat floods.

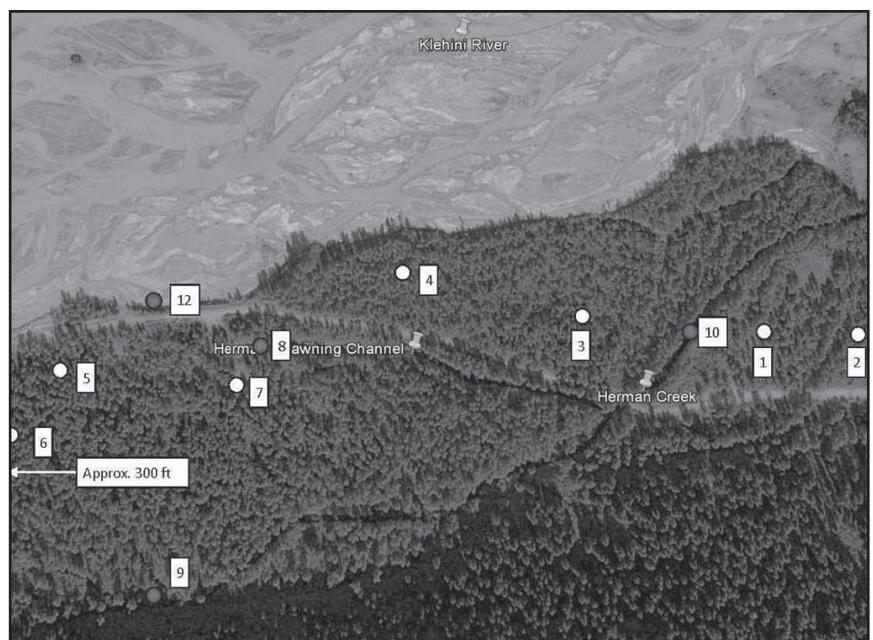
As NSRAA evaluates potential sites, it is using the information from the Herman Creek site as a comparison to gauge for the potential success of the other sites. Already, one site, in Klukwan, has been eliminated from the possibilities using this information.

"It doesn't have sufficient slopes or water flow," explains Scott, "so it wouldn't really be a productive location."

Site evaluation began earlier in 2013, continues through the winter and should be completed by late spring. Construction could begin this summer or next winter. According to the stipulations of the grant, any work for the project must be complete by the end of 2017.

Meanwhile, NSRAA is also trying to measure the success of its Haines programs. In 2010, the Haines crew otolith-marked two of the incubation boxes – a difficult process in a remote location like Haines.

"Up there, it's very hard to mark the fish because they're outside in the stream," says Scott. To otolith-mark successfully, an egg must be at a certain stage of development. In the warmer waters of a hatchery environment, the eggs mature more quickly. But in Haines' cooler waters, it's typically not possible to mark them until December or January, when it's very cold.



Surface and groundwater monitoring is ongoing at Herman Creek in an attempt to gain better understanding of the hydrology of the area.

"It's costly and, really, impossible to mark them all, the way the streamside incubation program is set up," he says, adding that NSRAA is looking for an alternative method of marking. This year, a small number of brood year (BY) 10 three-year-olds returned and of the roughly 300 fish sampled, 2 were found with NSRAA's otolith-markings.

The number may seem minuscule, but Scott was not discouraged.

"Typically, we see very few age-3s return," he explains. "We expected to see very few this year, so I was actually surprised we found any otolith-marked fish. It was encouraging. It let us know we're on the right track and we just need to expand on the sampling."

Ultimately, NSRAA would like to determine the percentage of its contribution in the Haines area, but for now, the staff will focus on improving its sampling method in time for the BY10 four-year-olds to return next summer – when they expect a substantially larger number of fish, including those otolith-marked.

Only then will NSRAA have a true idea of how successful its chum enhancement work in the Haines area has been in recent years.



About 50,000 coho smolt were released at Bear Cove this spring. An additional 160,000 were released at Deep Inlet.



Baxter Poe shows off a nice Salmon Lake coho. The fish was caught as part of a population study conducted each year to gain a better understanding of wild-hatchery coho interactions.

Strong Returns, Good Prices Make 2013 A Record Year For NSRAA

Despite declining prices for Alaskan salmon over the past two years, 2013 was a record year for NSRAA.

"This was one of the best years NSRAA has had," says Steve Reifenhauer, General Manager. The final numbers weren't in when this issue of Fish Rap went to press, but by early December the total value of NSRAA's contribution was already near \$18 million. "We've had only three years in our entire history when the total value has been in the \$18 -19 million range. We're right in record territory."

Since the value of salmon has increased a bit with the holidays, this season could easily work its way up to the top. But even if it doesn't break the records for NSRAA's highest overall contribution, it has surely made it into the top three and broken other records along the way.

For one, the combined catch of NSRAA-produced Chinook, chum and coho by the troll fleet was the highest value ever – by far, says Steve. The trollers also caught a record number of chum from Deep Inlet and Medvejie.

"That record is just inches past a former record, but it was a record nonetheless," he says.

NSRAA's total coho return was the second highest ever, says Chip Blair, NSRAA Data Analyst.

Strong fish returns were a large part of this season's success. The return to Deep Inlet was twice that forecasted, for example, and the Deer Lake return experienced a stronger than expected ocean survival.

"With the high value of chum salmon, that made a huge difference," says Steve.

"I can't really remember another year where all three species had strong returns for most of our projects," says Chip. "Usually, you might have a strong chum year and a weak Chinook year, or a good Chinook year and a poor coho year. It seems like there's always one species that kind of lags for one reason or another."

Indeed, NSRAA was not alone with its strong returns this year. It was a record year for pink salmon throughout Southeast Alaska. The region also experienced a tremendous coho return this year, perhaps only second to the 1994 season, and Chinook numbers far exceeded expectations.

Altogether, the value of the salmon catch for Southeast Alaska is around \$240 million, says Steve. "That's an all time high."

The enhanced portion of that catch is more than \$49 million, the second highest value, next to last year's \$64 million.

"If prices stay where they are now, I think we'll break that record in the next five years," he says. "We have new projects coming on line, new rearing strategies for larger chum, and Douglas Island Pink and Chum (DIPAC) is making larger contributions each year, so it seems the production inputs are sufficiently stoked to yield record returns the next time we get good ocean conditions."



Round pond complex at Sawmill Creek. Over 1 million coho will rear in these ponds in 2014.

Sawmill Creek Ramps Up Production Quickly

Sawmill Creek Hatchery, NSRAA's newest facility, opened a year ago in December when staff transferred 160,000 coho fingerlings there from Medvejie. A mere twelve months later, the facility has its first release on the books – a successful one at that – and is ramping up its production dramatically.

The aquaculture association began work toward the opening of its newest hatchery about five years ago, in its continuing efforts to produce more fish for the commercial fleets. Though the facility itself was completed several years ago, NSRAA was forced to delay its opening due to unexpected problems with fish growth, size and survival and bacterial kidney disease (BKD) among the broodstock.

NSRAA was later approved to switch its broodstock to Salmon Lake, just a few miles away from Medvejie. The adults there were large and robust, with a significantly higher fecundity among its females than the previous stock. Still, the broodstock switch set the hatchery opening back several years.

Unlike NSRAA's Medvejie and Hidden Falls hatcheries, Sawmill Creek is an incubation and fresh water rearing facility only. In order to prevent broodstock from straying to nearby Salmon Lake and mixing with the wild population there, the fish for broodstock are released from Medvejie, and the bulk of the fish, remotely, from Deep Inlet.

Until this year, the Sawmill Creek fish have been raised at Medvejie. This was the first season fish raised at the new hatchery were released. This coming summer will mark the facility's first return.

"This past spring, we released the largest coho we've ever released from Deep Inlet," says Bill Lyden, Hatchery Manager. The goal was to release the fish at an average weight of 20 grams, but the fish were already 24 grams when they were transferred from fresh to salt water and likely grew to about 26 grams in the several weeks before they were released. "They did really well."

Sawmill Creek's brood year (BY) 12 is on target to grow as large before its release this spring.

"Sawmill is off to a great start," he says. The fish that returned this year also were of a good size and survived the ocean well. "This project has more or less been sitting dormant since 2007, but it is finally starting to produce some fish for the common property."

Though officially open, Sawmill Creek Hatchery would have been described, at best, as bare bones when it opened a year ago. Bill has spent the past 12 months getting the facility properly equipped and ready to ramp up its production. The hatchery is scheduled to double its releases each year, for three years.

Eggtakes for the facility are a cooperative effort between Sawmill Creek and Medvejie. The eggs and milt for Sawmill are taken from broodstock released from and returning to Medvejie. The gametes are transferred to Sawmill Creek Hatchery where they are then fertilized, hatched and reared until their transfer to Deep Inlet.

Approximately 160,000 fish were transferred from Medvejie when the hatchery opened and released last spring. More than double that number is scheduled to be released this spring, and, this fall, staff collected an estimated 1.4 million eggs for the project, for a scheduled release of about 1 million fish in 2015.

"It's really been a lot of fun," Bill says of the past year. "I've got a lot of experience managing other sites, but this one has been a real challenge since the hatchery was fairly sparse when I arrived. The board has been very generous, so I was able to get all the equipment I needed to produce the best fish possible. It's been a lot of fun being part of the project and starting something from the ground up."