



SPAWNING NEWS

SOUTHERN SOUTHEAST REGIONAL
AQUACULTURE ASSOCIATION

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YEAR IN REVIEW | 2015

Coho survivals eyed as chum returns beat forecast

By JOHN BURKE

SSRAA General Manager

All the returning chum and chinook adults that left our sites as juveniles before the spring of 2014 did well. But those fish that returned from 2014 releases—coho and naturally produced pink salmon—did not do well.

Looking at the positive, about 4.3 million adult chum salmon returned from SSRAA releases, along with about 63,000 chinook. Both groups returned in greater numbers than anticipated.

THAT WAS NOT TRUE of coho. In 2014, approximately 700,000 adult coho returned from SSRAA releases; in 2015, the return was 290,000.

The average size of returning fish is also important to the total value of the return. Last summer's fish were as large as usual. Summer chum in Neets Bay averaged about 10 pounds, maybe a little larger. The same is true of coho; the terminal

Some places are simply better spots for releasing juvenile chum salmon. We have ideas as to why, but they relate to factors we cannot control.

coho in Neets Bay averaged 9-10 pounds. It's fair to assume that these fish found the normal amount of feed while at sea.

Looking at specific sites, as is often the case, the fish released at Nakat generally survived at the highest rate, followed by the Kendrick, Neets and Anita Bay releases.

If we talk about "survival," we have to consider the three different brood years returning independently in a given year. We do that in our assessment, but it isn't the easiest way to compare sites. We can also consider the percentage of the normal release that comes back in a given year.

THIS IS NOT a specific "survival rate" because it is comprised of three different brood years: 3s, 4s and 5s. But it is a general way to look at the sites. The average chum return is 2-4 percent of the fish released. The Nakat return was above average at 5 percent,



PHOTO COURTESY OF A.D.F.G.

The circle game—Seine crews in the SHA at Neets Bay rounded up enhanced chum salmon in August in alternation with gillnetters. Although coho returns were disappointing in 2015, chum numbers allowed extended fishing opportunities, helped by a DIPAC financial allocation.

while the other three (Kendrick, 3.2 percent; Neets, 3 percent; and Anita, 2 percent) were all within the average range for survival.

Why are they different? Some places are simply better spots for

releasing juvenile chum salmon. We have ideas as to why, but they relate to factors we cannot control. In our experience, this outcome can change somewhat from year to year with

See 'Year in review' on 4

DISAPPOINTING 2015 RETURN MAY IMPLICATE THE BLOB

Are coho the North Pacific's canaries in the coal mine?

By JOHN BURKE

SSRAA General Manager

SSRAA's total coho return in 2015 was considerably smaller than anticipated. At approximately 290,000 fish, it was less than half of the 2014 return of some 700,000 fish.

Coho return a year earlier than chum or sockeye released in the same spring; pink salmon released with coho return in the same year.

Both coho and pink salmon returns to southern Southeast in 2015 were less than was anticipated. Since we have the ability to count the coho, we know that coho did worse than usual; in general, considering all of SSRAA's releases, they survived at about half the normal rate. For the most part, there was nothing



different with these fish at release than fish released in previous years. There was nothing we could point to that would explain this decrease in survival.

In a parallel situation, the pink salmon harvest in 2015 was about half what was forecast. If you consider southern Southeast alone, survival was probably well under half of what was anticipated—while the return to northern Southeast

was closer to what was expected.

We are all aware of "the Blob." For almost two years, we have read about this pool of warm water in the North Pacific. It hasn't been fully explained and we don't know when normal ocean temperatures will resume. We do know this has caused some strange events, such as seine harvests

See 'Coho survival' on 2

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Ballots for SSRAA board seats feature a competitive campaign in the gillnet gear group

Voters in the gillnet fleet have choices to make in this winter's election for the SSRAA Board of Directors.

Chris Guggenbickler, Bob Martin and Jeffrey McKean offer to serve in the pair of gillnet seats up for election this winter.

Guggenbickler runs the F/V Noelani and lives in Wrangell. One of two incumbents running for re-election, Guggenbickler is in his second term on the board. Martin runs the F/V Sumner and lives in Petersburg; he is also seeking re-election and is serving in his second board term. McKean runs the F/V Sham'mah and lives in Port Hadlock, Wash.; he served two terms on the SSRAA board from 2000 to 2005.

One seat is up for election in the seine slate and one candidate is on the ballot. Brad Haynes runs the F/V Sovereign Grace and resides in Ketchikan.

The power troll seat on the ballot is expected to be retained by incumbent Dave Otte of Ketchikan. Otte has served on the SSRAA board since 1995.

Board members elected to gear-group seats serve three-year terms.

Eight appointee seats are also up this year. Appointee members of the SSRAA board serve two-year terms and have the same voting privileges as elected directors.

*Ballots for the
association board
of directors are due
at the SSRAA office
on Dec. 4, 2015*



Dec. 1	Purse Seine Task Force/ Sitka
Dec. 2	Gillnet Task Force / Sitka
Dec. 3	Regional Planning Team (RPT) Meeting / Sitka
Dec. 4	SSRAA Board of Directors ballots due at SSRAA offices
Dec. 7	SSRAA Election Committee / SSRAA offices
Dec. 14	SSRAA Production Committee / Ted Ferry Civic Center, Ketchikan
Dec. 15	SSRAA Finance Committee / Ted Ferry Civic Center, Ketchikan
Dec. 16	SSRAA Board of Directors / Ted Ferry Civic Center, Ketchikan
Jan. 21	SSRAA Finance Committee / Sunny Point Conference Center, Ketchikan
Jan. 22	SSRAA Board of Directors Annual Meeting / Sunny Point Conference Center, Ketchikan
March 11	SSRAA Board of Directors Meeting / Site TBA

Coho survival CONTINUED FROM 1

of sunfish; large abundances of squid; and the presence of unusual species of tuna in the North Pacific. I have first-hand knowledge of a skip jack caught in the Aug. 4 seine opening in inner Neets Bay SHA. This isn't something we've seen in the past.

Canaries were carried into coal mines as indicators of dangerous conditions for miners. The canaries died before miners did. When the canary died, it was good to be on the way out. While coho are not an indicator for something this dangerous, we have to think the poor return coupled with the poor return of pink salmon—fish that went to sea at exactly the same time—has something to do with The Blob.

Almost all of the mortality associated with juvenile fish results from predation: they are eaten by bigger fish, birds or mammals. The size of salmon at return, not the number of fish in the return, relates to the availability of food. In almost all instances, at least in salt water, juvenile mortality is tied to predation, not lack of food.

Consider that both the coho and pink salmon returning in 2015 were pretty much normal-sized. Something, or some things, ate young fish at a greater rate than usual. Historically, when abnormally warm water occurs, greater numbers of predators come north. While we can't be sure, even in retrospect, about what happened to the coho last summer, it is likely their decrease was related to The Blob and the predators that came north with warmer water.

Were the coho canaries? We hope not. But we have yet to see the first of the chum that went to sea in the spring of 2014 with these coho. They will return for the first time as 3-year-olds next summer.

SSRAA Board of Directors

SEINERS

Russ Cockrum	Ketchikan	F/V Viking Maid
Dan Castle	Ketchikan	F/V Little Lady
Jim Castle	Ketchikan	F/V Miss Ada
Leif Dobszinsky	Port Townsend	F/V Chasina

GILLNETTERS

Brennon Eagle	Wrangell	F/V Danegeld
Chris Guggenbickler (v.p.)	Wrangell	F/V Noelani
David Klepser	Ketchikan	F/V Hannah Point
Bob Martin	Petersburg	F/V Sumner

POWER TROLLERS

Tom Fisher	Ketchikan	F/V Carol W
Dave Otte	Ketchikan	F/V Sarah E
Charlie Piercy (pres.)	Ketchikan	F/V Tuckahoe
Tom Sims	Wrangell	F/V Arctic Nomad

HAND TROLLER

Craig Ring	Ketchikan
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APPOINTEES

John Clifton (treas.)	Ketchikan	Sportfish
Paul Cyr	Ketchikan	Processor
David Landis (sec.)	Ketchikan	Native Corporation
Nick Ohmer	Petersburg	Chamber of Comm.
Mike Painter	Ketchikan	Municipality
Cindy Lasiter	Ketchikan	Public at Large
John Scobic	Ketchikan	Public at Large
John Yeager	Wrangell	Subsistence

The 21-member SSRAA Board of Directors includes 13 commercial fishers along with representatives of interest groups and the public.

SSRAA Staff

ADMINISTRATION AND OPERATIONS

John Burke	General Manager
Bret Hiatt	Operations Manager
Bill Gass	Production Manager
Vacant	Assistant Production Manager
Cindy Walters	Executive Administrative Assistant
Liz Jones	Administrative Assistant
Jay Johnson LLC	Accounting Services

RESEARCH & EVALUATION

John Holt	Research & Evaluation Manager
Stephanie Sanguinetti	Lab Supervisor
Alan Murray	Lead Research Technician
Whitney Walters	Lead Research Technician

WHITMAN LAKE HATCHERY

Jay Creasy	Hatchery Manager
Mark Tollfeldt	Assistant Hatchery Manager
Cody Pederson	Lead Fish Culturist
Caitlin Brady	Fish Culturist
Jesse Knock	Fish Culturist

NEETS BAY HATCHERY

Stephen Hilton	Hatchery Manager
Mike Moreno	Assistant Hatchery Manager
Henry Hastings	Lead Fish Culturist
Stan Rice	Fish Culturist
Dale Wainscott	Fish Culturist
Vacant	Fish Culturist
Ryan Patten	Seasonal Fish Culturist
Jeremy Wingate	Maintenance Supervisor
Steve Williams	Seasonal Maintenance Technician

BURNETT INLET HATCHERY

Steve Reid	Hatchery Manager
Jon Thorington	Maintenance Supervisor
Tony Belback	Fish Culturist

CRYSTAL LAKE HATCHERY

Loren Thompson	Hatchery Manager
Kevin Chase	Assistant Hatchery Manager
Wesley Malcom	Lead Fish Culturist
Stephan Smith	Fish Culturist

NECK LAKE REARING AND HARVEST FACILITY

JR Parsley	Facility Manager
Dolores Loucks	Fish Culturist
William Pattison	Seasonal Fish Culturist

DEER MOUNTAIN HATCHERY

Matt Allen	Assistant Hatchery Manager
Michelle Leitz	Lead Fish Culturist

MAINTENANCE DEPARTMENT

Ted Addington	Maintenance Manager
Josh Bacus	Lead Maintenance Technician

SSRAA Spawning News is published by the Southern Southeast Regional Aquaculture Association, a private, non-profit aquaculture corporation based in Ketchikan, Alaska.

Our web site is www.ssraa.org.

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SSRAA PEOPLE

ADJUSTING TO SEA LEVEL The perspective of a hatchery manager's wife

By SHONA HILTON

For the Spawning News

"You really don't know anything about water?"

My husband looked at me with utter surprise. After 17 years of marriage, my inexperience with water wasn't obvious until we had to retrieve a dog that had fallen out of a canoe and was stuck under the dock. Steve had sensibly paddled one direction to save the dog and save the day. I had apparently attempted to randomly paddle the other direction, leaving the terrier to drown. Fortunately, Steve's paddling was stronger.

It was a small, almost insignificant moment—but one that highlighted something we had not really discussed over the years. When it comes to fish and water, I've run to the hills instead. Yup, we never really noticed this.

Steve has spent his entire working life with fish, mainly trout and salmon: on Scottish lochs; the Atlantic Ocean; the Pacific Ocean; Washington state rivers and hatcheries—and now here at Neets Bay. He lives and breathes fish and is as comfortable on water as he is on land. It's what he does.

Me? Given an opportunity, I'll be up on a mountain. Anywhere between 3,000 and 8,000 feet, I'm in my element. I've always looked down at the rivers, oceans and lakes, rarely going near them, instead running, hiking and cross-country skiing for hours, moving along on land. I feel claustrophobic unless I'm outside and up high.

But there are two things we Hiltons are good at: finding solutions to problems that should never have existed in the first place, and adapting to whatever comes our way—the second point being the key.

We have relished the chance to come to Neets Bay. In many ways, it's a logical progression in how we have chosen to live life: to the fullest, taking each opportunity that passes our way. Adjusting to new environments and challenges. Always moving forward and looking back only with fondness (mostly). Never regretting old ways left behind.

Steve is in his element as manager here—taking each project in stride and



Shona Hilton traded treks in the high country of the Lower 48 for kayak paddling in Neets Bay. With her sons, Jake and Lex, and her husband, Stephen, she's living the Hilton way—'adapting to whatever comes our way.'

PHOTO BY MATT ALLEN

viewing every challenge as an opportunity to improve operations and, most importantly, to keep the hatchery running smoothly. No matter if they're chum, chinook or coho, they are all King to us. The hatchery is the reason we are here and, along with the rest of the crew, we are justifiably proud of it. We want to continue its legacy and build on it.

And it is we who want this. Living on-site means I'm no longer able to gently steer the conversation away from fish, and homeschooling our two boys has curtailed my opportunities to get up in the mountains that surround us—so I've had to adapt. Taking the time to learn how things work out here has been high up my agenda and in addition to asking a billion questions, I watch what's going on.



When it comes to fish and water, I've run to the hills instead. Literally. Yup, we never really noticed this.

I watched, waiting with butterflies in my stomach, as the first salmon trickled into the bay, and then became the torrent of fish that all of the environment, including our many neighborhood bears, depends on.

I watched the staff work their butts off during egg-take and pick and as they maintained facilities and made sure everything ran smoothly. They never complained about the long hours or difficult conditions, wanting to make sure the job was done properly—and taking pride in the work of keeping Neets Bay the flagship hatchery for SSRAA.

I've watched every opener possible: seiners, gillnetters and trollers. It's true that to my untrained eye some of these openers resemble reenactments of naval battles. But

as I observed people on the boats, I've been acutely aware that they, and their families, rely in part on the salmon that come back here each year. That's a huge responsibility, one which we take very, very seriously indeed.

And I've watched as my 10- and 12-year-old sons have learned how the hatchery works, why it's here and why it's important. I see them growing up and becoming the next generation of those keeping the waters of Southeast Alaska abundant with fish.

And as for not being able to get up on the mountains right now? Well I've discovered kayaking around the bay is just as good for getting me outside and clearing my head—along with hunting and fishing. As I sat in a muskeg at Fire Cove, in a cold drizzle, with my husband and rifle, I realized I was ridiculously happy. And I think everyone would agree that The Mama's being happy goes a long way toward a successful transition to living as a family at a remote Alaskan salmon hatchery.

Always moving forward and adapting to circumstances: it's how we've rolled and we'll continue to do so. It's worked well so far.

HATCHERY HISTORY

Ketchikan aquaculture highlighted with other local features in exhibit linking the decades

Tongass Historical Museum in Ketchikan this winter is featuring a clever "Then & Now" exhibit pairing historic photos with contemporary re-creations. Each inspired photo set includes a short narrative explaining how the images are connected across time.

SSRAA's contribution outlines Deer Mountain Hatchery. Deer Mountain Hatchery is the association's newest addition, rearing half a million chinook each year. The hatchery along Ketchikan Creek is one of the oldest in Alaska. It sits near the site of the Ketchikan Territorial Hatchery, which operated from 1925 to 1931. The current facility has little resemblance to past hatcheries, but within the structure is evidence of the building put up in 1954 by the Ketchikan Chamber of Commerce for its annual King Salmon Derby. Over the years, there have been several operators with slightly differing missions, but they've been consistent in their commitments to producing chinook and conducting strong community outreach.

After taking on the city-owned hatchery, SSRAA revitalized operations in line with our mission to enhance salmon for all users. We are working toward expanding our outreach program at this facility as well. History does repeat itself.

When you're in Ketchikan this winter, check out "Then & Now" at the museum on Dock Street. The exhibit runs through Feb. 27, 2016.



KETCHIKAN MUSEUMS 2003.2.63.2.108

History repeats itself, ova and ova: 'Then and Now' at the Ketchikan museum displays Paulu Saari's 1955 image of the first chinook eggs handled in a new hatchery, pairing it with a contemporary photo by SSRAA staff that shows off 21st-century fish culturing. Here, Leo Thompson, left, and Stan Swanson work in a shiny facility 60 years ago.

Year in review CONTINUED FROM 1

different environmental conditions, but in general the pattern holds true. Juveniles released at sites closer to the open ocean, such as at Nakat Inlet and Kendrick Bay, have survived better than those released at sites farther from the open ocean, such as at Neets Bay and Anita Bay. In general, the fish are treated the same way, fed the same feed and released at times and sizes that optimize survival for that site. Once they leave the net pens, they are on their own. There is nothing more we can do to influence how many will return.

THE SHORT OF IT: chum returns were strong, above what was forecast in all instances, and the fish were large. Against a backdrop of poor pink returns in southern Southeast, they had a noticeable impact on the overall fishery for both harvesters and processors.

Neets Bay

There was a unique opportunity in Neets Bay this summer. DIPAC granted SSRAA \$1.5 million to be used against the SSRAA revenue target in order to move some chum in Neets Bay from cost recovery to common property. In addition, the value of the 3 percent enhancement tax from the 2014 fishery was larger than usual, at about \$2.5 million. These two factors lowered the SSRAA revenue target to \$5 million, from the usual \$7 million to \$8 million. Once the revenue target was met, we were to move the rest of the fish to common property harvest. This happened with a single rotational opening (seine and gillnet) in early August, when nearly 4 million pounds were harvested between the two gear groups.

Unfortunately, this opening wasn't as simple to conduct as we had hoped. Most of cost recovery has historically taken place while we managed the inner SHA for broodstock collection; for the first time in the history of Neets Bay, these two activities were out of sync.

BROODSTOCK IS the highest-priority activity in Neets Bay. Broodstock collection begins as decent-sized schools reach the barrier seine early in the third week of July. About 200,000 fish can be required to meet summer chum egg-take goals. "Best practices in fish culturing" are to take the fish during a time that spans the peak return at the barrier—maybe as long as three weeks. We put broodstock across at intervals, 10,000-20,000 fish at a time, maybe more. We then harvest all the fish mixed with these fish at the barrier for cost recovery. In several days, we collect another 10,000-20,000 fish from the next wave of fish moving up to the barrier. All the broodstock and 60-70 percent of cost recovery harvest are collected during this period, which closes at the end of the first week in August or slightly later. This pattern results in the desired diversity in broodstock related to both the age and size of the fish (larger fish tend to return sooner, independent of age). Last summer, for the first time in our history at Neets Bay, we met our cost recovery goal while there were still five to seven days left to meet our broodstock goals.

We opened the inner bay at that point to harvest the large number of fish that had accumu-

Most of cost recovery has historically taken place while we managed the inner SHA for broodstock collection; for the first time in the history of Neets Bay, these two activities were out of sync.



Chum in great numbers—Unexpectedly good returns of summer chum salmon boosted common property harvests at Neets Bay, although SSRAA's broodstock needs complicated the calendar. Returns of fall chum that came in greater than anticipated provided another benefit for commercial fishers—especially valuable in a year when pink salmon returns fell off.

PHOTO BY SSRAA STAFF

lated and were not needed for cost recovery, while waiting for the last one or two groups of fish required for broodstock. We opened only the inner portion of the SHA as these fish could be removed without jeopardizing the last group, or wave, from which we needed broodstock. In the past this has always been done with cost recovery harvest where we have control of the outcome; but we had already met our revenue goal. This single harvest was significant: nearly 4 million pounds between the two fleets. The accumulated fish in the group from which we had already collected brood was removed, so the final wave of fish necessary for broodstock could move up to the barrier without being mixed with the previous group. We could not open a larger area of the SHA without risking the final necessary group of broodstock. In the end, about 14 percent of SSRAA's total summer chum return was harvested for cost recovery.

Chinook

In the past several years, Anita Bay has been the best place to release a SSRAA chinook smolt, with Neets Bay a close second—different from our experience with chum.

WHILE SURVIVAL IS one way to assess chinook releases, another method is to gauge which fleet harvests the fish. While both Anita Bay and Neets Bay releases contribute substantially to all fleets, there has been a consistent pattern the past several years. More of the fish from Anita Bay are harvested by the drift fleet in District 8 and in the Anita Bay SHA, while more Neets Bay fish are harvested by seiners in the SHA. The Neets Bay and Whitman Lake releases contribute more fish to trollers, relative to the size of the return, than do the Anita Bay release. Because of the poor coho return last summer, the value of the chinook to the fleets was about twice the value of the coho return.

Though recent chinook survival throughout Alaska has not been particularly good, the survival of SSRAA releases has been consistently good—at least what we would expect. This likely is somewhat related to where the fish are released, farther south than almost all other chinook stocks.

Fall chum

Fall chum are released only at Nakat Inlet and Neets Bay. Fall chum returns were more than twice what was forecast. We don't often anticipate many fall chum, so this doesn't necessarily mean large numbers. The total return was 670,000 fish of the 4.3 million chum SSRAA released. These are smaller fish than summers, at 7-8 pounds.

BECAUSE WE HAD ALREADY met our revenue goal with summer chum, it was our intent to open the Neets Bay SHA to common property rotations as soon as possible. With the larger than anticipated return, we were able to start brood collection earlier than usual. The fish cooperated.

We follow the same broodstock collection pattern in the fall: we put some fish across the barrier and harvest their cohorts so the next group can move up. Because the run was larger than usual, cost recovery harvest during broodstock management was larger than anticipated (about 20 percent of the total fall chum return). The usual intent of cost recovery in the fall is to remove the fall coho that are mixed with the fall chum, so that we don't put coho across the barrier with the chum. This year, we saw very few coho and more chum than expected.

There is a second issue in the fall: September storms routinely bring Neets Creek to flood stage. As the creek floods, broodstock moves up to enter the freshwater raceways. The current in Neets Creek can be too strong and the fish exhaust themselves before reaching the hatchery. These fish are lost. We had two such events this fall, and though we put excess fish across the barrier we only barely reached our egg-take goal. Regardless, we were done with broodstock management in mid-September, about 10 days earlier than usual, and opened the SHA to rotational fisheries.

WE WILL LOOK BACK on 2015 as a good return, which was accentuated locally because the pink salmon return was much less than anticipated.

Planning and reacting drove construction projects during 2015

The calendar year of 2015 brought SSRAA to completion of four major construction projects. Two of them were carefully planned and designed, and two of them were forced on the association by emergencies.

WHITMAN LAKE HATCHERY

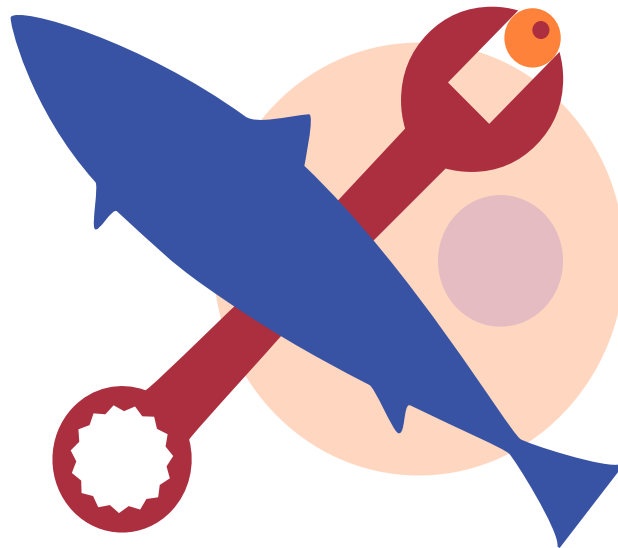
First to completion was the **pipng upgrade at Whitman Lake Hatchery**. This project was the result of several years of engineering and planning in conjunction with Ketchikan Public Utilities; it was necessitated by KPU's installation of a hydroelectric generation plant powered by water from Whitman Lake. The bulk of the work at our hatchery was underground, in the form of 48-inch high-density polyethylene pipe that supplies 22 million gallons of fresh water to the hatchery every day. The most visible addition was a centralized degassing system that towers above the facility. The degassers were built locally by Homestead Skiffs specifically for the Whitman Lake project and are capable of treating the entire hatchery flow if needed.

BURNETT INLET HATCHERY

Also finished in 2015 was the first stage of **expansion at the Burnett Inlet Hatchery** near Wrangell. Between June and September, a 6,000 square-foot concrete pad was set on a grid of steel pilings. A new 3,000 square-foot incubation building rests on the pad. SSRAA is completing the interior plumbing this winter while we form plans for utilizing the facility.



SSRAA built a new 6,000 square-foot concrete pad on steel pilings and an incubation facility at Burnett Inlet—one of two major planned projects.



CRYSTAL LAKE HATCHERY

The larger unplanned project of 2015 was **reconstruction of the incubation building** at Crystal Lake Hatchery. The incubation building, an adjacent generator building and a substantial amount of equipment burned to the ground in March 2014. Reconstruction began in fall 2014 and was completed in August 2015. Eggs from 2015 are currently developing in the new building and no production was lost beyond that destroyed in the fire.

DEER MOUNTAIN HATCHERY

Also completed in 2015 was the **interior remodel of Deer Mountain Hatchery**, forced on us by a burst pipe in the winter of 2014. Virtually everything but the structural shell of the building was redone, including plumbing and electrical service.

SSRAA incorporated an on-site residence into the floor plan, adding operational security to the facility. The first group of chinook was released in May 2015 and the first year of full production is rearing in new culture tanks installed in 2015.

SSRAA has no major construction projects planned for 2016.

2015 SEASON REVIEW | Prince of Wales Hatchery Association

From Staff of **POWHA**

POWHA provided 130,000 coho to common property fisheries in 2015. About 48,000 coho returned to the hatchery and we harvested 34,000 of these for cost recovery. The remaining fish were used for broodstock and escapement for natural spawning in the lake. Overall survival for brood year 2012 was 4.1 percent.

We currently have 4.8 million smolts rearing in the lake. The fish did well over the summer. They are between 17 and 23 grams as they enter winter dormancy.

Over the past several years, we have worked to upgrade the hatchery. In 2012 we received a \$475,000 legislative grant which we used



POWHA's new pipeline to the Klawock hatchery boosts water supply.

to purchase new vehicles, netpens, assorted fish culture equipment, boats and motors.

Through generous contributions from SSRAA and DIPAC, we upgraded our dock and work float on the lake. All of these items improved workplace conditions and safety for the staff. Operationally, Klawock is a very simple hatchery. Hatchery water is gravity-fed, so there are no pumps to maintain. All of these upgrades have put the hatchery virtually back to "new" status.

We received a grant in 2014 to replace the original Techite pipeline in 2015. This was our biggest hurdle. It is operational and provides 1,700 more gallons per minute than the old pipeline because it doesn't leak.

PHOTO COURTESY OF P.O.W.H.A.

SSRAA contributions | PRELIMINARY ESTIMATES OF HARVESTS OF ENHANCED SALMON IN 2015

Coho Release Site	Common Property				Special Harvest Area			SSRAA Cost		Other	Total
	Gillnet	Seine	Troll	Sport	Gillnet	Seine	Troll	Brood	Recovery		
BURNETT INLET	5925	608	1313	863				3,270	4,100		16,079
NECK LAKE	30375	1399	2756	29,140					37,947	1,077	102,694
ANITA BAY	6770	232	7824	353	1,993	94					17,267
CRYSTAL LAKE	655	118	3065	76						500	4,414
HERRING COVE	977	893	6410	786				3,850			12,916
NAKAT	8168	827	7308	456	9,386						26,145
NEETS BAY	20162	3166	56165	7,124	8,125	21,376	2,013		2,366		120,498
% By Group	24%	2%	28%	13%	7%	7%	1%	2%	15%	1%	100%
Total	73,033	7,243	84,841	38,798	19,504	21,470	2,013	7,120	44,413	1,577	300,013

Chinook Release Site	Common Property				Special Harvest Area			SSRAA Cost		Other	Total
	Gillnet	Seine	Troll	Sport	Gillnet	Seine	Troll	Brood	Recovery		
ANITA BAY	12,723	131	3,284	490	4,421	4,818	56				25,923
CRYSTAL LAKE	794	28	979	302				1,494		1,230	4,827
HERRING COVE	355	17	2,905	2,883				800	3,959	1,771	12,690
NEETS BAY	671		5,090	937	1,927	9,661	189		2,005		20,480
% By Group	23%	0.3%	19%	7%	10%	23%	0.4%	4%	9%	5%	100%
Total	14,543	176	12,258	4,612	6,348	14,479	245	2,294	5,964	3,001	63,920

S Chum Release Site	Common Property				Special Harvest Area			SSRAA Cost		Other	Total
	Gillnet	Seine	Troll	Sport	Gillnet	Seine	Troll	Brood	Recovery		
ANITA BAY	173,500	61,744	1,538		61,014	98,603	660				397,059
NAKAT	132,452	47,319			214,582						394,353
NEETS BAY	164,238	264,895	45,634		44,057	511,555	111,263	136,200	507,800	88,800	1,874,442
KENDRICK	111,428	605,321	1,734			248,606	745				967,834
% By Group	16%	27%	1%	0%	9%	24%	3%	4%	14%	2%	100%
Total	581,618	979,279	48,906	0	319,653	858,764	112,668	136,200	507,800	88,800	3,599,756

F Chum Release Site	Common Property				Special Harvest Area			SSRAA Cost		Other	Total
	Gillnet	Seine	Troll	Sport	Gillnet	Seine	Troll	Brood	Recovery		
NEETS BAY	22,854	21,900	8,690		23,573	158,133	20,276	80,130	141,520	21,350	498,426
NAKAT	100,294	3,820			68,021						172,135
% By Group	18%	4%	1%	0%	14%	24%	3%	12%	21%	3%	100%
Total	123,148	25,720	8,690	0	91,594	158,133	20,276	80,130	141,520	21,350	670,561

SSRAA releases | SMOLT PRODUCTION FOR 2015

Species	Release Site	Date (2015)	Number	Size (grams)
SUMMER CHUM	Neets Bay	4/6-4/16	62,585,000	2.45
	Nakat Inlet	4/14	8,380,000	2.90
	McLean Arm	4/9	28,822,000	2.88
	Anita Bay	4/14-4/20	21,152,000	2.82
	Anita Bay (Late Large)	5/5	1,913,000	3.99
	Burnett Inlet	4/25	4,950,000	3.05
FALL CHUM	Neets Bay	4/30	12,132,000	1.43
	Nakat Inlet	5/2	7,000,000	2.21
	Burnett Inlet	5/1	4,700,000	2.22
COHO	Whitman Lake	5/12	319,000	21.80
	Neets Bay	5/11-5/15	4,027,700	25.52
	Nakat Inlet	5/15	578,000	28.10
	Anita Bay	5/14	594,700	28.20
	Crystal Lake BY2012	5/19	19,900	37.20
SUMMER COHO	Burnett Inlet	5/15	234,000	26.60
	Neck Lake	5/5	1,634,000	31.28
CHINOOK	Whitman Lake	5/12	657,000	27.95
	Neets Bay	5/11-5/15	415,000	32.65
	Anita Bay	5/14	340,800	29.35
	Deer Mountain	5/15	89,000	28.00
	Crystal Lake	5/26	589,000	23.30

SSRAA returns | PRELIMINARY FORECAST FOR 2016

Species	Site	5 YR	4 YR	3 YR	CP	Terminal	Total
S Chum	Neets	90,000	704,000	443,000	333,990	903,010	1,237,000
S Chum	Nakat	31,000	195,000	34,000	130,000	130,000	260,000
S Chum	Anita	42,000	285,000	60,000	193,500	193,500	387,000
S Chum	Kendrick	50,000	637,000	181,000	607,600	260,400	868,000

F Chum	Neets	32,000	169,000	49,000	62,500	187,500	250,000
F Chum	Nakat	5,300	65,000	12,500	28,980	53,820	82,800

Species	Site	6 YR	5 YR	4 YR	CP	Terminal	Total
Chinook	Whitman	1,000	13,000	5,000	5,700	13,300	19,000
Chinook	Neets	800	9,700	7,000	5,250	12,250	17,500
Chinook	Anita	1,500	10,192	4,800	4,948	11,544	16,492
Chinook	Crystal	480	2,340	785	1,803	1,803	3,605

Species	Site	CP	Terminal	Total
Coho	Whitman	17,408	5,803	23,210
Coho	Neets	244,100	10,700	254,800
Coho	Nakat	20,700	2,300	23,000
Coho	Anita	12,800	2,300	15,100
Coho	Neck	30,750	30,750	61,500
Coho	Burnett	10,300	11,600	21,900
Coho	Crystal	600	500	1,100



PHOTO BY ALAN MURRAY

The board of directors and employees
of Southern Southeast Regional Aquaculture Association
wish you happy holidays and calm, bountiful seas in the year to come

FAIR SEAS
FOR 2016