Northern Southeast Regional Aquaculture Association

FISH RAP

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

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Inside

NSRAA Awarded PST Funds Toward Expansion

Infrastructure work toward the expansion of NSRAA's Sawmill Creek Hatchery continues this summer, thanks to monies from the Pacific Salmon Treaty (PST) Mitigation Fund.

Located on the outskirts of Sitka, Sawmill Creek is an incubation and fresh water rearing facility only. The fish reared at the hatchery are released remotely, from Medvejie, Deep Inlet and Crawfish Inlet. The 5,000-square-foot building was originally designed to raise 2 million coho smolt annually.

NSRAA is working toward expanding that facility to approximately 11,000-square-feet to increase its capacity for chum production to 100 million, and add a rearing program for 2 million zero-check Chinook. (Zero-check Chinook are reared for only six months before being released to the ocean, instead of the traditional 18 months).

The expansion has been broken into phases, starting with infrastructure work and permitting. Last year, NSRAA finalized the necessary water agreement with the City of Sitka to provide for increased water demands for the expansion. The agreement included provisions to upgrade the existing water delivery infrastructure. NSRAA has also partnered with the City of Sitka on the installation of a secondary water source intake to provide emergency backup water to the hatchery and the city when the Blue Lake penstock must be drained every five years.

NSRAA was awarded $600,000 in PST funds for the previous fiscal year, which is being used for infrastructure work this summer. That work includes the secondary water source intake in Sawmill Creek, as well as the addition of a new supply line to the expansion location. Upgrades to the existing penstock supply, an afterbay pumping system, and a new drain line from the location of the expansion to the saltwater are scheduled for the next fiscal year.

"Two of those three phases involve improvement in water delivery and availability, which allows for increased flows to accommodate the new facility," explains NSRAA Operations Manager, Adam Olson.

The total estimate for that infrastructure work is $1.8 million. NSRAA is awaiting the final award of those funds from the PST monies in July in order to move forward with the next phase.

"(The PST award) pays for everything except the building itself," says NSRAA General Manager, Scott Wagner.

Engineers have estimated a total of $6 million for the building construction and the necessary incubation and rearing equipment, but water preparation must be complete before NSRAA can move forward from the conceptual phase to the actual construction of the building.

"That could either be done as one main project or, again, potentially broken up into phases over years," Adam says. "Our hope is that we will receive additional PST funding next year that will allow us to start construction of the facility."

Bulk line construction at Sawmill Creek Hatchery

The expansion site next to Sawmill Creek Hatchery

General Manager's Notes

While life in general has not fully returned to pre-COVID conditions, I am relieved to have NSRAA and the fishing fleet operating in a more stable environment. While all the State of Alaska COVID-19 Health Mandates related to Critical Industries and Commercial fishing have been rescinded or expired, they have been replaced by State of Alaska Health Advisories. Why commercial fishing continues to be the only industry in the state with specific Health Advisories is puzzling. On top of the State Health Advisories, the Federal Mask Mandate on all commercial vessels, including commercial fishing vessels, continues to dismay many small commercial fishing vessel operators. At least now, as of early June, the CDC says if you are fully vaccinated and out on deck, you can take your mask off.

The COVID-19 Mandates in the 2020 season cost the seafood processors in Alaska over $50 million dollars in increased expenses to keep their staff and the communities in which they operate safe. This increased cost was also borne, by you the salmon fishermen, in lower dockside prices. Combine these increased costs and low salmon prices with a terrible salmon year, and many had their worst fishing season in decades. While the pandemic is winding down, the processors still have increased cost with COVID-19 mitigation measures. Fortunately, the increased demand for Alaska salmon coming out of the pandemic continues to push prices higher than last year, offsetting some of the increased costs borne by the processors.

An extremely poor salmon return to Alaska last year, combined with the pandemic buying habits of America, resulted in little to no carryover of salmon in cans or cold storage. This, in conjunction with rising prices, has created a much better environment for fishermen to have a successful season. Now we just need the fish to show up.

NSRAA's return forecast of 4.4 million this season is slightly better than last year's forecast of 4.2 million. Unfortunately, last year our chum return was only about 66 percent of the forecast. The past several years of returns have broken down the model traditionally used for forecasts, which were based on historic percentages at the age of return. Those percentages of age at return have shifted recently. The 2020 season continued the trend of a higher percentage of age 3 chum return than is typically seen. In past years, the high percentage of age 3 chum would correlate to a strong return of age 4 and 5's for that brood year, but that pattern has not continued. If we get back what we are forecasting, it will be a decent year. We will have to wait and see how the season unfolds.

I know this doesn't sound like a rosy outlook on the season, but I am optimistic that as far as the pandemic and salmon returns, we have brighter days ahead. Best of luck out on the water this season.

Scott Wagner

Sawmill Creek Hatchery

Returning Chum Present New Challenges at Medvejie

While the staff at Medvejie is adept at collecting eggs for the next generation of salmon, this year's summer chum eggtake has presented new challenges.

The summer chum at Medvejie is a relatively new program. After a steady decline in returns from fish released into Chatham Strait from the Hidden Falls facility, the NSRAA board decided to release 20 million summer chum from Medvejie as an alternative brood and cost recovery site. The first summer chum were released there four years ago.

Last year was the first year those summer chum returned to spawn, but that was only a small number of three-year-olds. Traditionally, four-year-olds represent the highest percentage of returning chum – comprising as much as 80 percent or more of all age groups.

NSRAA has forecasted 30,000 to 50,000 summer chum to return to Medvejie this summer.

A large return is always a good problem to have. This summer, however, it creates a challenge as the chum spawn will overlap with the Chinook return. The hatchery staff must be able to count the Chinook at the same time the crowds of chum come in.

"We need 5,500 Chinook for broodstock," explains Cain DePriest, Medvejie Hatchery Manager. "Obviously, trying to count Chinook when there is up to 50,000 chum around is going to be difficult. Medvejie gets quite a bit of sport fish pressure for Chinook. We need to know we have the Chinook so we can manage the sport fishery. That's great,

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Juneau, Alaska 99801

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

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Medvejie Report, cont. from page 2

but we need to know we have enough Chinook for broodstock. We want the chums to be able to pass freely to come in to spawn, because they spawn sooner than the Chinook, but we also need to be able to count the kings."

Cain is hopeful he has come up with a solution that will successfully solve the problem: a picketed fyke.

It's a V-shaped fish lead that funnels the Chinook into the net. Once they swim into it, they can't find the opening to get out again. The width of the pickets varies so that the chum, which are smaller, can swim through them while the Chinook can't.

"The picket fyke is new," says Cain. "We built it this year. We've already passed 20 kings through it. We were worried they may be a little shy of the structure but they didn't seem fazed by it."

Hatchery staff will count the Chinook as they pass through the fyke at higher tides.

Medvejie began releasing a summer chum run in 2018 as a backup in case the returns at Hidden Falls continue to deteriorate. This allows the hatchery to collect eggs for Hidden Falls, if necessary.

"We're being cautious," he says. "Our goal is to collect 30 million eggs here at Medvejie. We'll send backup to Hidden Falls. If they don't need any extra eggs, we'll use them for cost recovery."

The new picketed fyke at Medvejie Hatchery

Gunnuk Creek Prepares for First Eggtake

The first eggtake at NSRAA's Gunnuk Creek Hatchery is scheduled for this summer. The eggtake marks the last step in bringing the newly renovated hatchery to a fully functional facility and – if the fish return at healthy numbers – the first time the commercial fleets could have a fishery at the newly renovated hatchery.

NSRAA has forecasted 77,000 fish to Gunnuk Creek Hatchery this season – a combination of three- and four-year-olds.

Last summer, NSRAA staff was pleasantly surprised when the first brood year of three-year-olds came back to Gunnuk Creek at double the number predicted. Though hatcheries around Southeast Alaska have seen a recent spike in the percentage of three-year-olds, four-year-olds typically represent the highest portion of returning chum.

Gunnuk Creek Hatchery Manager, Ryan Schuman is hopeful those traditional patterns will hold true for these chum, and that last year's robust return is an indication of their strong marine survival, rather than a disproportionate number of three-year-olds.

"We need to collect 20 million eggs in order to perpetuate the chum program here at Gunnuk Creek," Ryan says. "That will require approximately 26,000 fish to come up the creek and up our ladder. We are prepared to take additional eggs if Hidden Falls experiences another shortfall this year, as well as do more broodstock transfers, if need be, though, of course, we hope that will be unnecessary."

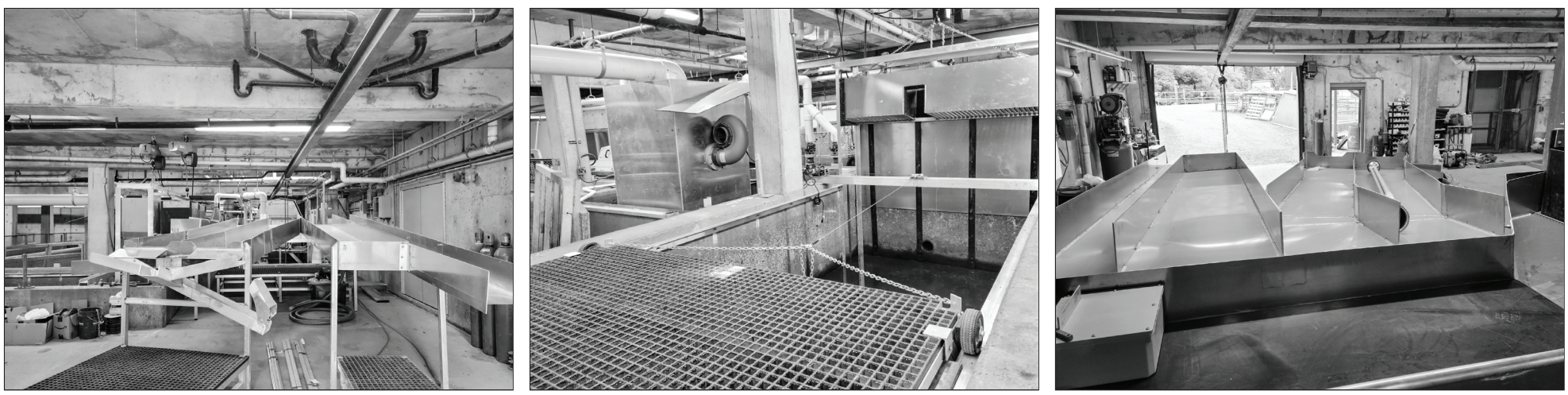
NSRAA is permitted for an annual eggtake of 65 million at its Gunnuk Creek hatchery. The staff plans to gradually increase the egg-take, by 10 million each year, until it reaches the permitted amount.

NSRAA staff fabricated a spawning deck, fish crowders and a fish lift in Sitka, which were then shipped to Kake and installed at the hatchery in June in preparation for this summer's eggtake. This will be the third year the hatchery has incubated eyed eggs. In 2019, 3 million eyed-eggs were transferred from Hidden Falls for incubation and, in 2020, 10 million. This year's scheduled eggtake will double the total eggs incubated at Gunnuk Creek last year.

Each summer, the hatchery staff must drain the reservoir at the Gunnuk Creek dam. This summer, the staff took advantage of the drainage to complete some installations and repairs of infrastructure necessary to be prepared for this summer's eggtake and upcoming incubation. The hatchery is scheduled to receive additional incubators to accommodate the additional 10 million fish it will rear on-site this winter.

Preparations for the eggtake – from the infrastructure to the timing of the various projects – has gone smoothly, Ryan says. Whether the eggtake itself will go as smoothly as the preparations remains to be seen.

"Eggtake will depend on streamflow conditions," he explains. "Unlike Medvejie, which pulls fish directly from the ocean, and Hidden Falls, where they can manipulate flow to the lagoon to encourage fish to the ladder, we are located a quarter-mile upstream from the ocean. If there is not sufficient flow to get the fish from the ocean to our ladder, we will have a hard time getting fish in the building."



Gunnuk Creek Hatchery fabrications for eggtake

NSRAA Welcomes New Board Members

NSRAA welcomed five new board members at its meeting this spring; Kord Christianson, Bill Davidson, Matt Giambrone, Dave Gibson, and Max Worhatch.

Kord Christianson volunteered to be on the board when he joined the City of Sitka in September as the electric systems generation manager and noticed NSRAA's Sitka Municipality seat was vacant. Kord worked in the seafood industry before a career in renewables, wind and diesel energy took him around the world.

"With the shared use of water between the electric department and NSRAA, I want to see a win-win success for the fisheries and the hatchery, as well as good water utilization by everyone," says Kord. Born and raised in Sitka, he has watched NSRAA evolve over the past few decades. "I'm interested in seeing that the seafood industry grows and prospers."

Another longtime Sitka resident, Bill Davidson, took the vacant Interested Person seat. Bill has worked cooperatively with NSRAA throughout his career, beginning with his time as manager of the Sheldon Jackson hatchery and through to his position as the Alaska Department of Fish and Game regional management coordinator for Southeast Alaska commercial fisheries.

"I have a background in fisheries and am very familiar with NSRAA," Bill says. "I'm interested in seeing that NSRAA continues to be a successful program."

The vacant seine representative seat was filled by Matt Giambrone, a commercial seiner who lives in Aspen, Minnesota. Born and raised in the Midwest, Matt first came to Alaska to work in the canneries and fishing to pay for school. "I got done with school and kept fishing," laughs Matt, who has been a commercial seiner for almost 25 years. This is his first time getting into fish politics.

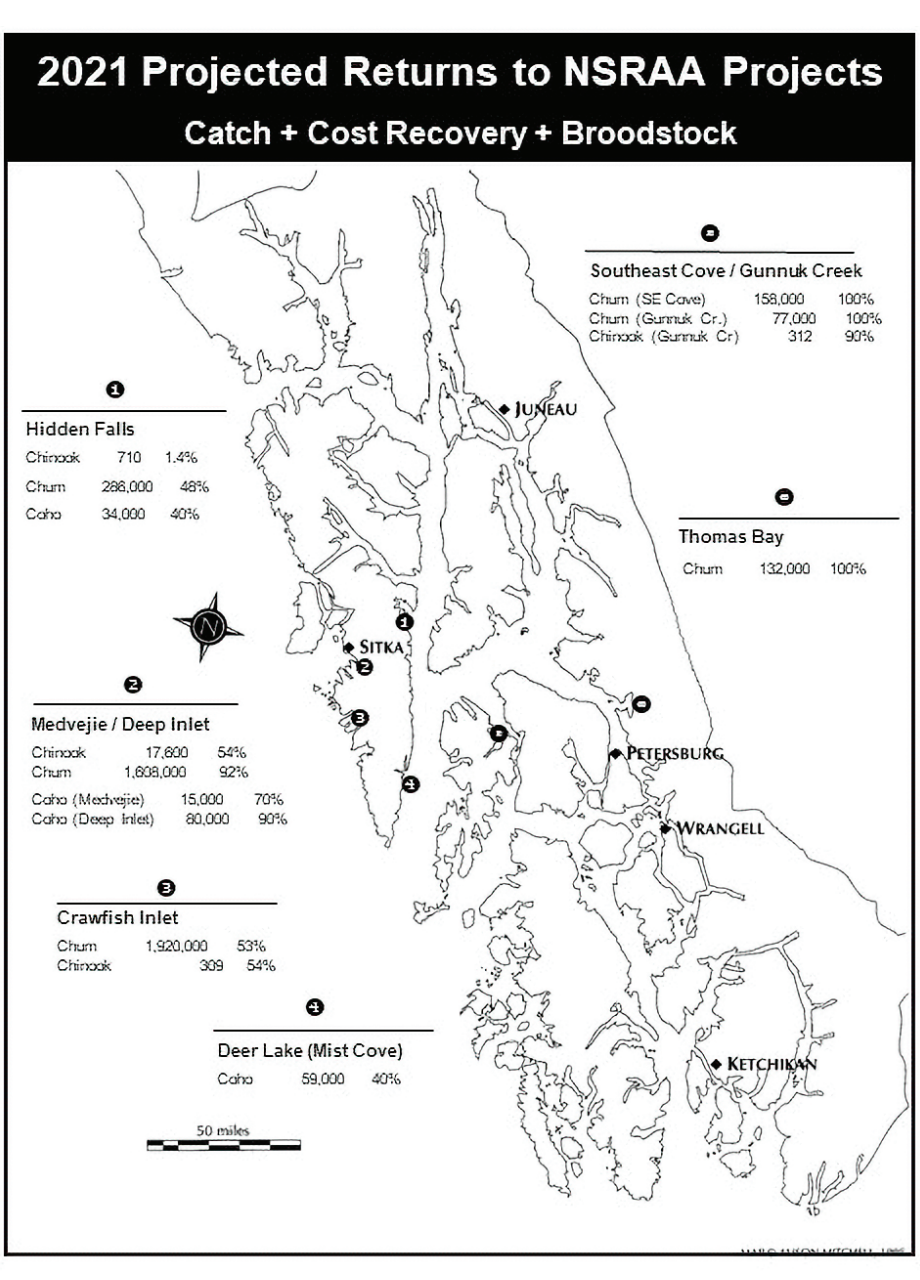
"I've been interested in getting involved for a few years now," Matt says. "I think my concerns mirror everyone else on the board: continued financial stability for NSRAA, and figure out how to make Hidden Falls successful again. I feel like NSRAA is doing a really good job and I want to do what I can to make sure that keeps happening."

Dave Gibson joined the board as one of two new gillnet representatives. Born and raised in Juneau, Dave has fished Deep Inlet almost every year since shortly after it opened and has witnessed the growth in commercial fishing over the years. Though he has decades of experience longlining and gillnetting from Southeast Alaska to the Bering Sea, Dave is new to fish politics.

"I chose to run because I decided I needed to be more involved," he says. Dave recently joined the United Southeast Alaska Gillnetters board (USAG) as well. "My goal is to spread the fleet out."

Max Worhatch of Petersburg, also joined the board as a gillnet representative. The executive director of USAG, Max has a long history in fish politics and has been gillnetting for 40 years.

"I gillnet frequently in the northern region of Southeast Alaska and I felt like the gillnet group needed some better representation," he says.



Deer Lake Experiments with Releases

After experimenting with different rearing strategies, the crew at NSRAA's Deer Lake project is hopeful it has found a strategy that will improve marine survivals.

The project is designed to overwinter coho in the remote site and release more than 2 million fish annually from Mist Cove. The overwinter strategy has changed over the years until half the fish were overwintered in net pens in Deer Lake and the other half were released into the lake each December. The fish in the net pens are pumped to the weir at the outlet of the lake, while the fish that have been released into the lake emigrate on their own to the weir.

NSRAA uses coded-wire-tags to differentiate between the two release groups and determine the marine survival for each.

"What we've been seeing, based off the coded-wire-tags is the marine survival of the lake fish is significantly better than the fish that overwinter in the net pen," says Project Leader, Schuyler Mace. "Half of the fish that were released (into the lake) in 2019 represented 85 percent of the fish that returned last year."

Schuyler is hopeful that the difference in survival between the two groups is directly related to the way the fish were overwintered.

"Our hypothesis is that the fish get a practice run at being in the ocean by swimming and foraging in the lake," he explains. "Whether it's fitness or what, we don't really know. They get a trial run and with ocean conditions right now, that seems to be making the difference."

Last winter, the crew increased the percentage of coho that overwintered in the lake to three-quarters, with only one-quarter of the fish overwintering in net pens.

"Hopefully those 1.5 million fish (that were in the lake) will return with a 5 to 6 percent survival," Schuyler says. "Which, in turn, would result in more fish for the fishermen and more fish for cost recovery."

Pandemic Changes Marketplace

The opening of every salmon season is filled with uncertainty, but last year's surely topped the chart, with the pandemic's travel and quarantine restrictions, staffing shortages, and workplace distancing requirements added to the list of worries. For some in the salmon business, however, the pandemic restrictions turned out to be surprisingly fruitful.

"A year ago, when the whole pandemic started, there was a lot of apprehension and fear that the fisheries would shut down and not happen," says NSRAA General Manager, Scott Wagner. "All of those (pandemic) concerns are gone – they're not 100 percent gone, but it's not the same risk going into this season. The market is rebounding, but it's also changing."

As the pandemic changed the nation's habits – more people at home, more time outdoors – it has also changed the marketplace. While some businesses closed and shuttered, others experienced record sales.

"We were unsure what was going to happen during the pandemic and whether people would have enough disposable income to buy seafood," says Marsh Skeele, Vice-President of Sitka Salmon Shares. "Then, all of a sudden, our sales went through the roof."

Sitka Salmon Shares is a community-supported fishery (modeled after community-supported agriculture) that offers home delivery. Both business concepts collapse the supply chain by connecting customers directly to farmers or fishermen without retail.

Though the company built a website and invested in digital marketing, it used farmer's markets in the Midwest as its primary source of gaining new customers. Business grew slowly, but steadily. By the time the pandemic hit, Sitka Salmon Shares had expanded its product selection to include other fish species, such as halibut and black cod, and was also owner of a fish processor in Sitka, and had a warehouse and several distribution hubs in the Midwest.

Not only did the pandemic create concerns about the company's customer base and product demand – especially since farmer's markets might not be possible with the social distancing requirements – but there were also the worries of staffing the processor, and how to keep their employees there and those at the fish plants safe.

"There was a lot of uncertainty – we were trying to prepare for the worst," Marsh says. "We were living in constant fear of our plants being shutdown with a big pile of fish and no one there to cut it. That was a very real fear for us for a big chunk of the season."

While the fear of a processor or plant shutdown did not lessen as the season progressed, Sitka Salmon Shares quickly found that it no longer needed to worry about its customer base or a drop in demand. By early April, sales were already up and, soon, they began to spike.

With folks at home, restaurants closed, and many people reluctant to go to the grocery store in person, Sitka Salmon Share's online presence suddenly found leverage.

"People were looking for a safe way to get food and good meals to cook at home," Marsh says. "That definitely helped our sales along at a much higher rate than we'd ever experienced. It was, by far, the highest sales volume we'd ever experienced as a company – 200 to 300 percent over what we were expecting."

Of course, the higher sales presented an entirely new set of worries and challenges – would they be able to get enough fish to meet the new demand? for example – but Marsh and his colleagues welcomed those.

"It was definitely a challenge, but we were able to fill that demand, so that was great," he says. "There was a lot of uncertainty in our fleet, too, about what the markets were going to be, so we were able to pay really solid prices despite the lowered dock price (that resulted from) some markets being shut down, like the restaurant market. I think that was a big win, that we were able to pay our fishermen really good prices."

Fortunately, the market looks more promising this summer. Optimism is high, now that the COVID vaccinations are more readily available, many restrictions have been lifted, and people begin to return to their pre-pandemic lifestyles.

"There is greater confidence in the marketplace this year," says Scott. "The prices are rebounding."

Seafood sales fared exceptionally well in 2020 – setting records, in many cases – despite the pandemic and all the market uncertainties going into the summer season. According to a February report by fish journalist, Laine Welch, in Anchorage Daily News, retail sales of seafood saw a substantial jump in 2020 and the price for a troll-caught king salmon averaging 11 pounds was worth $116.16.

Seafood sales growth is expected to continue this year.

The demand will inevitably change. As more folks go out to eat and purchase less food for home, frozen sales – the sector that saw the highest increase in sales – could decline, while other areas will likely experience increased sales. At Sitka Salmon Shares, sales have already dropped from last year's record levels.

"It's slowed down quite a bit," Marsh says. "It's more back to normal."

Still, Marsh is optimistic. The pandemic helped make home delivery of food a reality for many who might not have otherwise tried it.

"Our model isn't just about a quick sale, but about building and retaining long-term customers," he explains. "Because of that, we still have a lot of people coming back that we got as customers during the pandemic. We still have a big year ahead of us. It seems like restaurants are opening up and there's a strong demand (for salmon). I just hope – especially related to NSRAA – that our oceans are productive. You never know what you're going to get as far as fish returns. We're just hoping for a bountiful salmon season."

Congratulations to the 2021 NSRAA Scholarship recipients!

Annie Christensen
Lydia Martin
Mark Davis

THA Schedules - 2021

NSRAA THA SCHEDULES - 2021

Deep Inlet	Sun	Mon	Tue	Wed	Thu	Fri	Sat
	Seine	Gillnet	Gillnet	Gillnet	Seine	Seine	Troll

2021 chum forecast *- 389,000 early run, 1,219,000 late run (both Deep Inlet and Bear Cove)*
Begin: Tuesday, June 1, 2021
No Cost Recovery scheduled, 130,000 chum broodstock needed at Medvejie.

Hidden Falls	Sun	Mon	Tue	Wed	Thu	Fri	Sat
	Seine				Seine		

2021 chum forecast *- 286,000*
****Closed in 2021 unless adequate run strength is determined***
Experimental Cost Recovery prior to brood colelction. 150,000 chum broodstock needed
No 2021 Hidden Falls Assessment Tax

Southeast Cove	Sun	Mon	Tue	Wed	Thu	Fri	Sat
	Seine				Seine		

2021 chum forecast *- 158,000 (Southeast Cove), 77,000 (Gunnuk Creek)*
Begin: Sunday, June 20, 2021 *- Southeast Cove only*
20,000 chum broodstock needed at Gunnuk Creek. Surplus will be harvested as cost recovery.

Thomas Bay	Sun	Mon	Tue	Wed	Thu	Fri	Sat
	Seine				Seine		

2021 chum forecast *- 132,000*
Begin: Sunday, June 20, 2021

Crawfish Inlet	Sun	Mon	Tue	Wed	Thu	Fri	Sat
	Seine				Seine		

2021 chum forecast *- 1,920,000*
Begin: Late July with cost recovery; will open to seine upon completion of cost recovery.

Troll:
Trolling is open in ***West Crawfish Inlet*** *throughout the return.*
Trolling is open in ***Crawfish Inlet*** *when cost recovery boats are not present, and on non-seine days after cost recovery is complete.*

Cost Recovery:
Cost recovery will occur primarily at the back half of the bay unless more aggressive harvest is necessary to maintain quality. Some cost recovery may take place in West Crawfish if there is a build-up of fish at the head of the bay. West Crawfish cost recovery would occur at the direction of ADF&G.

See NSRAA's website for THA maps, return timing, and further details.

LPW Cooperative Agreement Edges Forward

A cooperative agreement between NSRAA and the National Oceanic and Atmospheric Administration (NOAA) at Alaska's oldest year-round biological research station, Little Port Walter, edges forward with a baseline study this summer.

Located near the southern tip of Baranof Island, Little Port Walter is the primary field research facility of Auke Bay Laboratory. It has been host to a wide variety of fisheries research and rearing projects for more than 80 years, but continued budget cuts threaten the future of the facility.

NSRAA has utilized research from Little Port Walter over the years to improve its hatchery production. Knowing that budget cuts could jeopardize the important work at Little Port Walter, Steve Riefenstuhl, NSRAA General Manager at the time, approached NOAA several years ago to propose a cooperative agreement between the two organizations to ensure continued operations at the research station. NSRAA and NOAA negotiated a draft cooperative agreement last year.

"There is a substantial cost for NSRAA to help facilitate operations at Little Port Walter," explains NSRAA Operations Manager, Adam Olson. "Rather than take money from an existing site to pay for this, the board wants a new production site somewhere in the area in order to offset the cost."

"If we were to operate at Little Port Walter, we would have to find a way to subsidize those expenses," says NSRAA General Manager, Scott Wagner. "There would not be an ability to pay for itself based upon the chinook releases there, so we would look at chum releases to fund that."

Big Port Walter, the bay adjacent to Little Port Walter, might be the answer. If NSRAA could use the area for remote rearing and release of approximately 30 million chum for cost recovery, it could provide the necessary funds for NSRAA's part of the financial obligation.

Before it can approve Big Port Walter as a site for hatchery-raised salmon, however, the Alaska Department of Fish and Game (ADFG) must first confirm that a remote hatchery rearing site there wouldn't impact any local runs. There are wild pink and sockeye salmon in the area.

This summer, NSRAA and ADFG will begin a baseline study to sample wild fish in the area and determine whether the site may be suitable for NSRAA's proposed remote chum site. The baseline study has become standard operations when a new release site is proposed.

Scott is optimistic about the baseline study at Big Port Walter.

"It's similar to what NSRAA did in 2014 for Thomas Bay," he explains. "We'll be doing weekly fishing and sampling of the various salmon in the area to determine if it's a suitable location that would not impact existing wild stock in the area. We'll review the information with the board at its fall meeting to see if it still wants to pursue this. Ideally, we would want to start working there in 2022, but depending on what we catch, ADFG may ask us to continue the baseline fishing for two more years."

Recently, researchers at Little Port Walter have been working in cooperation with ADFG to develop a new broodstock for Chinook salmon from the Keta River, east of Ketchikan. The Keta River system naturally produces a component of zero-check smolt that has intriguing potential for NSRAA. Zero-check Chinook are raised for six months before being released to saltwater, whereas hatchery Chinook are traditionally raised for 18 months before release. The shortened timespan can translate to substantial savings in a hatchery – but only if the marine survivals are similar to or better than those achieved through traditional rearing.

Marine survivals of NSRAA's current Chinook (a broodstock from Andrews Creek, a tributary of the Stikine) have fluctuated dramatically. The Keta broodstock offers the potential for increased survival with cost savings.

NSRAA has been working with Little Port Walter with the hope of eventually moving some of the Keta broodstock to its Hidden Falls Hatchery to test larger production numbers. To date, there has been insufficient broodstock at Little Port Walter to facilitate this transfer as the Keta broodstock run is still in the building phase of its development.

The Keta broodstock project is just one example of the work and research that would be lost if Little Port Walter were to close.

NSRAA 2021 Return Projections

Site	Projected Return	Range Low	Range High	Commercial	Sport	Cost Recovery	Brood Stock	2020 Return	2020 Forecast
Chum									
Hidden Falls	286,000	142,000	673,000	136,000	-	-	150,000	185,522	364,000
*Medvejie/Deep Inlet**	1,608,000	848,000	2,376,000	1,478,000	-	-	130,000	704,885	1,478,000
Crawfish Inlet	1,920,000	986,000	2,860,000	1,020,000	-	900,000	-	1,526,233	1,579,000
Southeast Cove	158,000	34,000	238,000	158,000	-	-	-	126,118	306,000
Gunnuk Creek	77,000	39,000	116,000	77,000	-	-	20,000	6,488	3,000
Thomas Bay	132,000	66,000	198,000	132,000	-	-	-	55,293	222,000
Haines Projects	-	-	-	-	-	-	-	2,000	2,000
	4,181,000	2,115,000	6,461,000	3,001,000	-	900,000	300,000	**2,606,539**	**3,954,000**
Chinook									
Hidden Falls	710	379	1,899	10	200	-	500	466	842
Gunnuk Creek	312	89	162	281	31	-	-	184	142
Medvejie	17,600	8,800	35,400	9,504	880	3,216	4,000	12,977	10,697
Crawfish Inlet	700	400	1,100	378	35	287	-	391	905
Halibut Point	2,400	800	3,900	1,296	120	984	-	1,753	2,328
Crescent Bay	2,400	1,200	3,600	1,800	600	-	-	-	-
	24,122	11,668	46,061	11,469	1,266	4,487	4,500	**15,771**	**14,914**
0-ck Chinook									
Medvejie	120	60	180	65	6	49	-	-	428
Crawfish Inlet	309	155	464	167	15	127	-	126	324
	429	215	644	232	21	176	-	**126**	**752**
Coho									
Hidden Falls	34,000	16,900	67,600	13,600	4,000	6,400	10,000	24,921	27,000
Deer Lake	59,000	29,700	119,000	23,600	4,000	31,400	-	63,165	71,000
Lake Stocking	1,000	700	2,800	-	-	-	-	-	-
Medvejie	15,000	7,600	30,600	10,500	1,500	-	3,000	12,657	15,000
Deep Inlet	80,000	39,900	159,400	72,000	8,000	-	-	25,940	95,000
	189,000	94,800	379,400	119,700	17,500	37,800	13,000	**126,683**	**208,000**
ALL SPECIES TOTALS:	**4,394,551**	2,221,683	6,887,105	**3,132,400**	**18,788**	**942,463**	**317,500**	**2,749,119**	**4,177,666**

* Cooperative Project with SJH

NOTE: Projections for Medvejie/Deep Inlet are for total returns (NSRAA + SJH fish).

Chum cost recovery goals for 2021 will be between 750,000 and 1,125,000 fish, taken from Crafish Inlet.

Coho projections are now based on 5-year-average marine survival, with ranges based on the the 5-year range.

NSRAA Initiates Predator Study

Once NSRAA's largest and most productive hatchery, Hidden Falls' fish runs have dropped dramatically over the past decade. Despite the staff's continued attempts during rearing to boost the salmon's marine survivals, returns to the hatchery have not improved substantially. This summer, NSRAA has initiated a study it hopes will shed some light on the problem and lead to a more definitive solution.

When salmon returns at Hidden Falls first began to drop, NSRAA staff theorized that whales had become habituated to feeding on the salmon fry releases. The staff adjusted its release strategies (such as towing the fry away from shore for release and releasing the fish gradually to avoid attracting whales) to mitigate the loss from whale predation. Still, returns have not improved.

Now NSRAA's staff and board is faced with the difficult decision of whether or not to continue its chum releases from Hidden Falls.

"We are trying to determine what is driving the poor survivals at Hidden Falls, all the way down Chatham Strait to Port Armstrong, on the southern tip of Baranof Island," says NSRAA General Manager, Scott Wagner. "We're trying to determine whether it's a long-term shift or a cyclical function that we may come out of."

At its meeting in November, the NSRAA board agreed to initiate a study to try to determine if the persistent poor survivals are the result of other fish predators that may be feeding on the hatchery fry. NSRAA has collaborated with the Sitka Sound Science Center, National Oceanic and Atmospheric Administration (NOAA) and the University of Alaska for the research.

The NSRAA board allocated $50,000 to initiate the pilot study, which began this spring. The organization is scheduled to receive $140,000 from Pacific Salmon Treaty (PST) Mitigation Fund monies, in July, toward the study, which has several components, including the capture of predators to sample for isotopes and stomach contents, as well as acoustic studies to determine biomass of predators in the area.

"There are three questions to our study," Scott explains. "Which species, if any, of fish are predating on our salmon? Once we know that, we need to determine how much of our fry they are consuming on an individual basis. Let's say it's a rock fish. Are they eating one fry a day or five fry or ten? And then we are trying to expand that to determine the scale of the impact on our production."

NSRAA's decreased production at Hidden Falls and its other projects in Chatham Strait over the past years has resulted in an estimated $70 million loss to the commercial fleets.

"That's a substantial loss to the fleets," says NSRAA Operations Manager, Adam Olson. "A major change needs to happen. There's no point in releasing fry just to feed predators."

Though the NSRAA staff and board would like to determine the cause as soon as possible, it is likely the study would continue for two years or more in order to collect ample data.

NSRAA has hired Todd Buxton, a GeoScience, Fisheries and Hydrologic consultant, to develop the research and lead the predator capture. Todd is a former NSRAA employee and has since worked with the organization as a consultant for its spawning channels in Haines.

"Part of the study plan is to look at the predators in the area before we release the fry and, again, afterwards to see if their diet composition changes," Adam explains. "Another component is to see if they ate our fry in the past. Our fry are fed a land-based protein, so they will have a different carbon signature. You can analyze that and potentially determine who ate what and how much."

The acoustic survey will help determine the abundance and type of predators in an area and whether that predator base changes over time.

"I don't think we'll have enough information after this season to make a drastic decision," Adam says. "If there is something we can avoid or modify through release strategy, that would be the first approach. I don't think anybody wants to move all this production, but if the commercial fleet doesn't get anything out of it, it's in our best interest to find a location that will benefit our fleets."

Sawmill Creek: Leak Threatens Water Supply

A leak in the City of Sitka's bulk water line, near the Sawmill Creek Hatchery water tap, threatened the hatchery's water supply last fall and led to a stressful, uncertain winter as the staff wondered if the leak would create further problems at the facility this spring.

"We had everything at full capacity," says Rebecca Olson, Hatchery Manager. "We had 4,700 gallons per minute running through the hatchery with full incubation rooms of chum, Chinook and coho, and 22 full rearing containers of coho outside. We were pretty concerned because our backup water goes through that pipe."

The staff was able to decrease flows and supply the hatchery water from three fire hydrants in order to inspect the leak, which they discovered was coming from the bulk water line. Though they were able to temporarily fix the leak, the pipe began leaking again a month later.

"We were worried it would break in the middle of the night and we'd really have an emergency situation, instead of fixing it on our own terms," Rebecca explains. "It was pretty stressful. Anything could happen. We didn't know what could happen or how bad it could be."

Fortunately, the second repair – a reinforcement to the first repair – held through the spring, when the staff was able to move the broodyear 2019 coho to Deep Inlet and the broodyear 2020 Chinook to Crawfish Inlet. All that was left was 2.1 million broodyear 2020 coho, which were then transferred to Medvejie Hatchery at the end of April.

"Thankfully, the second patch held and we were able to get through the winter and spring without any other water issues," says Rebecca. "Every group of fish that we ponded or moved out without incident felt like a huge sigh of relief. Now we can fix it and, hopefully, move on without having any more problems."

Once the fish were transferred from the building, all water to the facility was shut off. Workers from NSRAA, in cooperation with the City of Sitka, will fix the leak in unison with the first phase of infrastructure work that was already scheduled for the facility's expansion this summer.

Bulk Line Repair at Sawmill Creek Hatchery

Cain DePriest and Kenny Gray weld HDPE pipe

NSRAA Staff Profile: Jon Pearce

Jon Pearce with his wife, Emily, and son, Aiden

For Jon Pearce, NSRAA isn't just a job; it's also his home.

Born and raised in a small, rural town in Rhode Island, Jon has always loved the outdoors.

"There's was not a lot of TV time in my household," Jon says. "I got kicked out of the house a lot. I was always playing in ponds and catching tadpoles and turtles."

Jon and his brother began hunting and fishing with their father as young boys. They were in the Boy Scouts and Eagle Scouts. Their childhood in the outdoors ignited a passion for adventure that eventually took Jon across the nation, from Rhode Island to Wisconsin, through the Rocky Mountains, and, finally, to Alaska.

Jon was a sophomore in high school when his family moved to Wisconsin. Though his hometown in Rhode Island was considered rural, his new home in Wisconsin was even more so.

"The whole school district was the size of Rhode Island," Jon says.

In Wisconsin, Jon met more people with interests similar to his. He explored the forests in his new home and as his passion for hunting and fishing grew, he travelled out West, to Colorado, Montana and Idaho.

"Alaska was the next step," says Jon. "If you're a passionate hunter and outdoorsman, you want to get to Alaska."

Jon had graduated from the University of Wisconsin with a degree in fisheries and was looking for work when he saw a job posting for a fish technician at NSRAA's Hidden Falls Hatchery. He applied, got the job, and flew to Alaska to start work at the hatchery. It was early January and Jon's first time in the state.

"We arrived in the dark," Jon recalls. "The next morning, I woke up and even the view from the bunkhouse is gorgeous mountains. It was stunning."

Though Jon was undecided whether he wanted to go back to school, by April, he'd received word that he'd been accepted to a Master's program at Northern Michigan University in the Upper Peninsula of Michigan. He left NSRAA that August to go back to school.

Jon was among a group of graduate students that studied the genetics of brook trout along the southern shoreline of Lake Superior. Jon's high school sweetheart, Emily, moved to Marquette with him. When Jon wasn't busy with his research, the couple explored the land of their new home – hunting, fishing, climbing and skiing.

Eventually, Jon and Emily moved to Newfoundland, where Jon began a PhD program studying the genetic sequencing of Atlantic salmon along the Atlantic coast. His research work took him into river systems and untouched wilderness hundreds of miles north of Newfoundland. Jon loved it. But after a few years, when it was time to take all the data he had collected and analyze it in a laboratory, Jon wasn't ready.

"I felt like I was being narrowed into a genetic field working in a lab or back into a university setting," Jon explains. "I wanted more field work, more physical labor."

He reached out to NSRAA to see about the possibility of returning. That was six years ago. Jon and Emily have been living remotely at the Hidden Falls Hatchery ever since. Jon is now the Hatchery Manager and Emily has moved up to Lead Culturist. The couple is married and live with their son, Aiden, who was born this April. Remote living isn't for everyone, but Jon and Emily have yet to tire of it.

"We love the lifestyle and the work out here," Jon says. "Even when we lived in the Midwest, we were two hours from a major city. It's pretty easy to go get your town fix and then escape the hectic-ness of town and get back to where everyone wants to get when they live in Juneau or Sitka. Hidden Falls is a great starting point."

Though his fisheries studies helped Jon's understanding of NSRAA and hatchery work, what he enjoys most about his job as Hatchery Manager is the challenge of how to overhaul a system to make it more efficient – from the initial concept phase to the funding to the construction and the final implementation.

"Personnel is always the hardest part," he says, chuckling. "Fish are easy, people can be difficult."

NSRAA FY22 Budget

Projected Income - FY22

Year	Income Source	Amount
2020	Enhancement tax	$944,741
Revenue - Fish sales / Assessment tax:		
2021	- Amount required from Chum	$3,253,084
Cost Recovery		
2020	- Chum	$4,064,282
2020	- Chinook	$3,772
2020	- Coho	$188,771
2020	- Incidental species	$7,728
2020	- Roe	$10,095
2020	- Carcass	$46,778
Other Revenue / Funds from Reserves		
2020	Rental Income	$45,953
2020	Investment Earnings (net of fees)	$602,645
	Total	**$9,167,849**

Projected Expenses - FY22

Expense Source	Amount
Operational Budget	$8,660,277
Capital Budget	$507,570
Port Walter Baseline Study	$20,000
Total	**$9,187,847**