FishNet

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PWSAC falls short of 1995 return projections

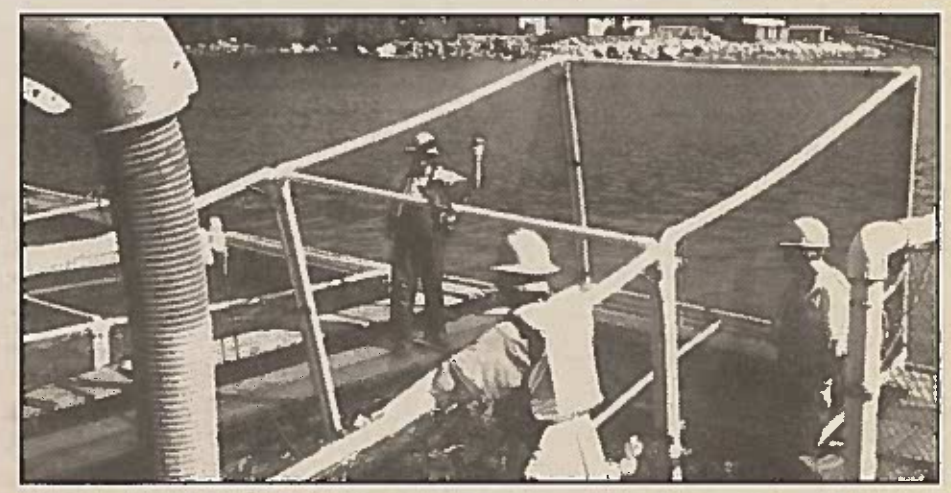
With shortfalls in pink, chum and sockeye returns, PWSAC's cost recovery revenue goals for the 1995 season have not been met. As of August 25, the corporation had a total of $3.31 million in fish sales, $2.8 million short of the corporation's revenue goal. Of the sales, $1.93 million came from pinks, $956,000 from chums, and $410,000 from sockeyes.

Both chums and Coghill-stock sockeyes returned at approximately half of the projected numbers, and provided approximately half the expected revenue. The best preliminary estimate of the shortfall in the pink return is also half of the forecast systemwide. Cannery Creek Hatchery performed above projection, while both Wally Noerenberg and Armin F. Koernig Hatcheries received less than half of their projected returns.

PWSAC will end the season with an estimated cash balance of $10.6 million. Anticipating approximately $3.5 million of FY97 revenues, the corporation has the resources to continue operations for two years, according to PWSAC President/CEO Ted Achilles.

A complete review of the current season will be presented at the September 23-24 Board of Directors meeting, along with the presentation of Business Plan 1996, and its recommendations for corporate change, Achilles said.

Operations Manager Eric Prestegard said that the numbers on returns of all species should be close to final by the Board meeting, but that difficulties in interpretation of the coded wire tag (CWT) data remain a concern. A serious percentage of tag loss in recovered adipose-fin-clipped fish complicates the analysis, and makes it more difficult to determine the percentage of hatchery-produced fish in the fishery, Prestegard said.



Seasonal employees at Wally Noerenberg Hatchery deliver live pink salmon in net pens to the tender vessel of a contract buyer.

In reviewing preliminary numbers, Prestegard said the early stock Eyak sockeyes returned to Main Bay Hatchery at about 70% of the projection, "a pretty decent return for an experimental group of fish." No cost recovery and no commercial fishery were conducted on the Eyak stock, as the numbers remain very small. Plans call for increasing the size of the Eyak component at Main Bay. (See Main Bay story, this page.)

The mid-timed, or Coghill stock returned to Main Bay at 50% of projection at best, Prestegard reported, and he was "not pleased with that return." However, the return of the

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PWS pink salmon: What's going on?

The pink salmon season in Prince William Sound is over, with the majority of the seine fleet putting their nets away without having caught what they needed to make it pay. The early pinks to Solomon Gulch Hatchery in Valdez Arm were strong, and the pink return to PWSAC's Cannery Creek Hatchery was excellent, but the returns to Noerenberg and Armin F. Koernig (AFK) Hatcheries have been extremely weak, with a particularly disastrous showing at AFK. The pattern in 1995 was very similar to that in 1994.

The question being asked on the street and around dinner tables: Why were pink returns so weak this year — and last year — in western Prince William Sound?

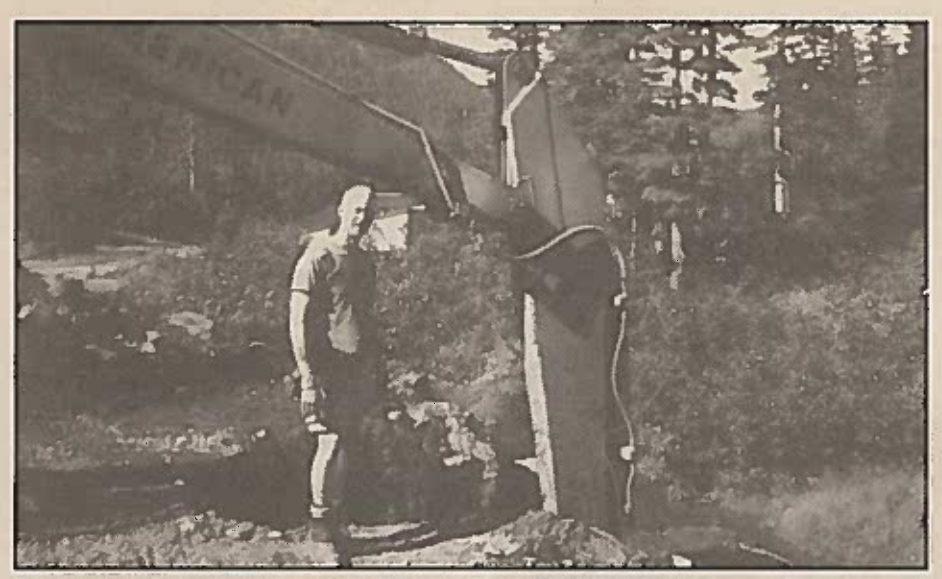
As well as the poor performance of the hatchery stocks in the western and northwestern areas of the Sound, wild pink stock escapements have been unsatisfactory in the Southwest, Northwest and Coghill Districts. In contrast, wild pink returns have been strong in the Eastern District, and on the islands in the Southeast District.

"It is pretty obvious that half the Sound did poorly this year," said Dan Sharp, area management biologist at the Cordova Dept. of Fish and Game. "There is a pattern developing for this year and last, for both hatchery and wild stocks. It"s a big mystery: what is driving the western side of the Sound?"

Although there are other possible explanations, such as lingering effects of the 1989 oil spill, speculation has focused on an increased predator population in the western Sound, literally eating

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Main Bay Hatchery construction begins



Russ Wright, construction worker on the Main Bay Hatchery bunkhouse, checks the site excavation soon after groundbreaking.

Construction of the Main Bay Hatchery bunkhouse is underway. This 6,000 square foot facility is the first phase of a two-year program funded by a grant from the State. It involves major conversions to the facility, including expansion of the incubation and start-tank capacity, addition of smolt rearing raceways, and construction of a second pipeline.

Scheduled for completion in December, the new bunkhouse will allow relocation of staff from present housing within the existing hatchery building, so the current housing area can be renovated to accommodate new incubation tanks, water distribution system and other fish culture requirements. As the new bunkhouse nears completion, materials and furnishing will be moved and renovation begun.

Bids on the bunkhouse project as originally conceived by the architectural and engineering firm SSOE, Inc., came in well above funds available for that part of the project. In considering options, PWSAC decided this spring to redesign and construct the facility as an in-house project.

When it became apparent that this was not going to work due to added pressures and time constraints on the existing organization, the project was awarded to Kuykendall, Inc., on a design-build contract. Kuykendall had originally submitted the lowest bid on the SSOE-designed project, and had also submitted a design-build proposal as an option to reduce costs to PWSAC. Fritz Kuykendall is the company owner, based in Fairbanks, Alaska.

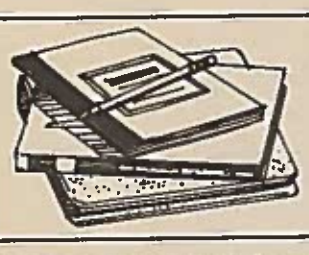
Kenton Wilde has been retained by PWSAC as contract manager for the MBH bunkhouse and subsequent stages of the overall site conversion. Kenton hails currently from California, although for many years has been involved in big construction projects in both urban and rural Alaska.

Kenton reports that the project's scope of work has been detailed, the plans completed, bid contract signed, materials moving and crews scrambling to get all significant exterior work completed before snow falls. The current timeline calls for substantial completion by December 21. We intend to begin hatchery demo in November or early December to get a jump start on Phase 2 of the project so we can complete all necessary fish- related renovations by the critical spring timeline. To do this, Phase 2 project review will begin in September. Additional design work and engineering is expected prior to bid solicitation. Plans are to award the bid in November.

What is the work to accomplish? At the heart of the matter is the need to physically separate sockeye stocks to protect against the spread of IHN, a very contagious viral disease present in almost all wild sockeye stocks. The State of Alaska built Main Bay as a chum hatchery, then switched it to sockeyes without making the changes needed to raise reds. The main purpose of the State's grant was to make the necessary modifications to meet sockeye culture requirements.

In addition to these improvements, we will expand incubation and rearing space to accommodate a significant shift to early run timed Eyak stock production. Currently the hatchery is capable of producing 1.4 million Eshamy stock smolts, 3.8 million Coghill stock smolts, and 50,000 Eyak fry. As a result of facility modifications, MBH will be able to produce 1.4 million Eyak smolts, 4.2 million Coghill smolts, and 1.4 million Eshamy smolts.

Also, a second pipeline will be constructed to provide a backup defense against pipeline failure and provide flexibility to water temperature control (deep and shallow intakes) to better manage incubation and hatch.



President's Notebook

We hope this newsletter is more to your liking. The intent is to make it more informative and a whole lot more readable than the old Sound Quarterly, which it replaces. Our readers were telling us that we'd gotten too "preachy," "too academic," and that we just weren't communicating with, or giving much value to, our primary audience, the fishermen of Prince William Sound.

I'm not sure how well I'm going to do with my first effort to contribute a column to this paper, but let me wade in and take a shot at it. First, I'll be honest, I'm writing this at the Airport Sheraton in London. I'm on my way (vacation time) to Romania tomorrow to see my future wife and her son, and God willing, the three of us will be back in Cordova together next week. (And what did I have for dinner in this international hotel? It was the least expensive item on the menu: smoked salmon. It came from Scotland — no surprise — but reminded me of the Atlantics I've been served at the Baranof in Juneau, and at the U.S. Consul General's home in Hong Kong. The message? We Alaskans have a major marketing job to do: to get Alaska back on the map. Nobody is going to do it for us.)

In June we asked your Board for permission to write a Business Plan. We said we'd like to get all of PWSAC's major problems up on the table where we could see them, and then take a run at coming up with some answers. Well, we did it. The plan is ready for review at the September 23-24 Board meeting. (The meeting just got delayed a week to let the Executive Committee chew on it a bit more before coming up with our final recommendations.)

Our banker at the Department of Commerce in Juneau said it was "pretty revolutionary;" a Director called it "radical." They're both right. What it represents is a fundamental philosophical shift from making ever more fish to making money and keeping the place afloat.

Is there a need and a place for PWSAC today? I'll answer that unequivocally "yes." But at the same time, if we don't learn how to secure our own future and how to pay our own way the number of people who agree with us is going to shrink, fast.

A quote caught my eye in today's Herald Tribune under the headline, "Bitter medicine to cure deficits." It went on to say: "[He opened] the meeting by warning of the difficulties of reversing deeply entrenched economic, social, political and demographic trends [and] social commitments that were based on assumptions and projections that have long since gone awry." That was Alan Greenspan, Chairman of the Fed., talking about the U.S. of A. Fits us pretty well, too, don't you think?

The business plan does not have all the answers. That's a given. But with help and guidance from the Executive Committee and the Board, we can get started in a new direction and see if we can't build something that will last for the long term. It's not only worth it, we owe it to everyone who brought us this far to see that their efforts succeed.

Ted Achilles

From the Chairman of the Board

There will be some articles in this newspaper that will be of major importance to all of you. This doesn't happen to be one of them.

I would like to let all of the permit holders in Area-E know that my main goal is to bring the fleet up to the same level of knowledge as the Board of Directors regarding the day-to-day operations of the Corporation. I personally believe that PWSAC can never be too open. We can never have too many newsletters or public meetings. I'm hoping to have a winter 1-800 hot line to keep the information flowing to the fleet. I'd rather have you calling me in December, than waiting until May 1st to try and fill in everything that has gone on over the winter.

I would like to ask all who hold permits in Area E to consider a role on the committees that PWSAC labors with each year. Those of you that have served on the Board in the past. Those of you that have run for the Board. And, those of you who don"t have the time to give to a Board position but would have the time to put into a committee. I would like you to contact me personally, to call or stop by the office, look over a list of committees, and put your name into the hat.

Production Planning is the first committee that comes to mind that could use some names from past committee members and some new. Production Planning plays a major role in the well-being of the fishing fleet and the number of people willing to serve is very limited. There will be no thank you for a job well done on this committee. There is a good chance that you will come under fire. There is a good chance that you will come close to losing friends over it. You may even quit! But, we need the people that all the permit holders believe are there for the best interest of all the Area-E permit holders and the Corporation!

If I go on I will fall prey to the Peter Principle, if I haven't already.

As always,
Bud Perrine

Sport fishers target Fleming Spit silvers

The fish-happy folks in Cordova, and a good number of visitors, were getting up early in the morning from mid-August into September, making sure not to miss the right stage of the tide for silvers returning to Fleming Spit, a cove just outside town. Two silvers were seined and tagged Sept. 1 off Fleming Spit, each worth $5,000 when caught in the Silver Salmon Derby sponsored by the Cordova Chamber of Commerce beginning Sept. 2. The annual Children's Salmon Derby took place on August 27 at the Spit, sponsored by the Elks and the Moose with prizes, T-shirts and free hotdogs.

The silvers returning to Fleming Spit are a result of smolt released each year through the joint efforts of PWSAC and the Cordova Sporting Club. The silvers — and kings — are incubated and reared at PWSAC's Wally Noerenberg Hatchery on Esther Island, then barged to Cordova every spring in huge stainless steel tanks. The fish are held in net pens and fed for a week or more at Fleming Spit lagoon to help imprint the juvenile salmon so they will return as adults. Sporting Club members volunteer for net pen construction and smolt feeding, and co-sponsor the annual salmon barbecue celebrating the May releases.

The PWSAC/Sporting Club releases of chinook (king) smolt began in 1990, and coho (silver) smolt in 1991. The king releases have ranged from 20,000 in 1990 to 100,000 in 1995, and the first adult king salmon returned in 1992. The first silver release was 40,000 smolt, growing to 100,000 in 1995. The first adult coho salmon were available for sport fishermen and women in 1992.

According to best estimates, local and visiting fishers will spend an average of 15,000 angler hours each season fishing for the kings and silvers at Fleming Spit. The kings appear in late May and throughout June, and the silvers in late August and into September.

The Cordova Sporting Club successfully applied for a recreational grant from the Dept. of Natural Resources to upgrade the Fleming Spit area to more safely and comfortably accommodate sport fishers. The project will provide cleaning stations, more parking areas and other amenities. The PWS Economic Development Council is the project manager for the reconstruction, due to be completed next season.



Officials from National Bank of Alaska visited Noerenberg Hatchery in August. Hatchery Manager Andrea Tesch, far right, explains the indoor raceways to, left to right, Cordova Branch Manager Jon Stavig, Vice President Jim O'Connell, Board Chairman Ed Rasmuson, and Vice President Mike McCormack.

Chief scientist plans study

PWSAC Chief Scientist Tim Linley and hatchery staff have undertaken several studies of salmon stocks in the hatcheries, seeking answers to ongoing questions regarding pink and chum development and marine survival. Work has already begun at Wally Noerenberg and AFK Hatcheries, setting up experimental protocols.

The following studies are beginning:

1. Parental effects on egg survival of AFK pink salmon.
2. Development rates of early chum salmon.
3. Chum salmon rearing strategies.

Detailed reports on the experimental work will be part of the next FishNet newsletter.

Plug into news from...

FishNet

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Above- **Noerenberg Hatchery Manager Andrea Tesch proudly stands next to the upper end of the Pescalator, and the pipe into the CO2 tank - elements in the new Noerenberg eggtake system.**
Below- **in the foreground is the CO2 tank where brood fish are stunned into immobility before being killed for spawning. The conveyor moves the fish into position to slide down into the hatchery eggtake room. Hatchery staff are, left to right, Andrew Arrow, Christine Mitchell, and Brian Dudek.**



Noerenberg eggtake system simpler, safer, less costly

Shattering all previous records for chum salmon eggtake, the crew at Wally Noerenberg Hatchery used the new eggtake system there for the first time in July for chums, and is now using it successfully for the pink eggtake. The new system was designed and fabricated by the hatchery staff on site — with the exception of a purchased "Pescalator" — to make the eggtake process more cost-efficient and less physically demanding.

Chum and pink salmon eggtakes at Noerenberg are labor intensive, with crews handling very large numbers of live fish 12-14 hours a day. The fish enter the brood holding pond at the hatchery under their own steam, but, until this season, they had to be beach seined and picked up one by one by crews chest deep in water. For chums, one person had to hold a muscular fighting fish while a second person clubbed it to death. For pinks, necks were broken one by one, by hand. The fish were then conveyed to the eggtake area for spawning.

With the new system, operators crowd fish to the end of the brood pond nearest the hatchery building, where they are conveyed alive by a Pescalator from the pond to tanks filled with water saturated with CO2. The Pescalator is a continuously moving spiral fish elevator. The CO2 in the tanks stuns the fish into immobility in a matter of minutes, so they can be easily killed by a blow to the head. Fish not ready or not needed for spawning are sent back to the water through a pipe. Ripe fish are automatically lifted onto a conveyor belt which takes them to a piping system that sends them directly into the refurbished eggtake room inside the hatchery building.

As the fish enter the eggtake room they are lifted onto the sorting table by conveyor. At the table, the crew sorts males and females and places the females into racks to be cut and spawned. Fertilized eggs go into buckets for transfer into the incubation room across the hall. The eggtake room has been certified by the State as an approved processing facility, so that eggs unusable for incubation may be sold as food grade roe. The green (unprocessed) roe is packed into five-gallon buckets, flown out, and made into finished products by both local and out-of-state processors.

The eggtake system upgrade was put together at a total cost of $59,180, including the fish killing station at $36,382 (including the Pescalator cost of $26,000), and the eggtake room improvements at $22,797. Facilitated by Hatchery Manager Andrea Tesch, the design-build team on site included Maintenance Manager Rich Overbeck, Senior Fish Culturist Dave Fundak and Fish Culturist II Kevin Steck.

"In addition to completely preventing the usual repetitive motion injuries, the new eggtake system cut the number of crew members needed for chum eggtake by four people, thus reducing personnel and all associated costs," said the very pleased hatchery manager.

Also, the Noerenberg crew established a new record for number of eggs taken in a single day — 10.5 million — beating the old record of 8.9 million. A total of 111 million chum eggs were in the incubator by July 27, sooner than any year except 1993.

The pink eggtake began at AFK and Noerenberg Hatcheries on August 22, and will continue until approximately September 20. The eggtake at Cannery Creek was delayed because of delayed ripening of the fish and eggs, but began August 31 and should also be complete by September 20.

Gulkana provides sockeyes for Flats and upriver harvest

The Gulkana Hatchery operated by PWSAC in the upper Copper River area contributes an estimated 290,000 sockeyes to the return each year. This year's record return to the Copper resulted in a successful commercial harvest of 1,271,000 sockeyes, as well as large catches in the upriver personal use and subsistence categories.

Gulkana contributed approximately 192,600 reds to the commercial catch on the Copper, and 31, 100 to the subsistence, personal use and sport catches upriver, according to Gary Martinek, Hatchery Manager. Close to 20,000 sockeyes are needed for brood stock at the hatchery, leaving an excess of about 46,200 fish, Martinek said.

The Department of Fish and Game closed the Chitina-based Copper River dipnet fishery on August 6 this year, three weeks sooner than average, according to ADF&G sport fish manager Andy Hoffman. The personal use allocation of 77,500 fish was reached early, with both the number of fishermen, and the number of fish caught, higher than average during the last two weeks. The total estimated catch is 81,301 fish, 94% of them sockeyes.

Hoffman said the number of permits fishing sockeyes has been almost double what it normally is this time of year, so the quota was reached sooner. High water conditions on the river resulted in reduced effort and low harvests at the beginning of the season, and heavy fishing when conditions improved.

"There are still lots of fish in the river, many of them Gulkana Hatchery fish — it's frustrating to have to close the fishery," Hoffman said. Coded wire tag data obtained from the personal use fishery this year indicates that the hatchery component appears to be strongest from mid-July to mid-August, according to Martinek.

The personal use fishery is allocated 60,000 sockeyes, based on 560,000 fish passing the sonar counter at Miles Lake. The final projected escapement past Miles Lake this season is 630,000 sockeyes, a difference of 70,000 fish. The personal use fishery is consequently allocated 25% of the additional fish, an extra 17,500.

Hoffman said the Copper River Salmon Management Plan is currently undergoing a revision process. The plan will be reviewed this fall by local Fish and Game Advisory Committees in Anchorage, Glennallen, Prince William Sound and Fairbanks, and by other regional organizations.

November 27-28 EVOS workshop to scrutinize PWSAC pink project

Supplementation of wild stock salmon injured by the Exxon Valdez oil spill (EVOS) has been a topic of substantial scientific debate, debate that continues without a decision on actions proposed by PWSAC through its collaborative proposal with the University of Alaska and the Native Village of Eyak. The 1995 season has brought continued serious pink salmon problems in large areas of Prince William Sound. However, the August 25 EVOS Trustee Council meeting to award funding for FY96 restoration did not address the PWSAC proposal. Rather, at the recommendation of Executive Director Molly McCammon, the Council deferred their decision on this and several other pink salmon projects until December.

Proposal 96093: Restoration of PWS Pink Salmon by Diversion of Harvest Effort has been a long while in development and evolution. The project has three subprojects including two University of Alaska projects related to early stock development and gene-flow into wild stock populations: (1) quantitative genetic assessment of early-returning pink salmon brood stock; (2) population genetic assessment of gene flow from early return stock. PWSAC's sub-project includes wild stock inventory and assessment, integrated SEA (Sound Ecosystem Assessment) research at proposed remote release sites, and diversion of fishing effort from injured wild stocks by developing early run timing stocks and remote releasing hatchery fish to areas where harvest pressures on those fish will not impact wild stocks.

PWSAC's original proposal (95093) was submitted to the EVOS Trustee Council in 1994, for funding and implementation in summer, 1995. The project has since been reviewed at an October, 1994, pink salmon workshop, a salmon genetics workshop, a supplementation workshop last January with more than 100 scientists and fishery managers, a round table meeting/worksession during the EVOS FY95 Science Workshop, and numerous small workgroup and teleconference sessions with University and ADF&G and EVOS staff. The proposal has been rewritten to address agency and reviewer concerns, but the long delays led to postponement of consideration for the 1995 funding cycle. PWSAC Special Projects Manager Howard Ferren has led the project to this point. Newly appointed PWSAC Chief Scientist Dr. Tim Linley is the current project leader.

FY96 funding was to be announced this summer; however, McCammon recommended on June 30 to defer funding for the project pending more detailed review of salmon genetic, stock identification and straying proposals. Originally set for July, the pink salmon project review has been re-scheduled for November 27-28, prior to the Trustee Council meeting in December.

In a July 12 project 96093 review, Trustee Council Chief Scientist Dr. Robert Spies recommends:

"1. With regard to alterations of run timing and/or remote release, previous guidance from the Trustee Council has emphasized the desirability of remote release rather than changes in run timing.

2. Criteria outlined at the January 1995 supplementation workshop regarding biological risk need to be more specifically addressed in the current proposal.

3. Reiterating the Executive Director's previous position, remote release sites need to be further considered, building upon the work previously done by the Regional Planning Team, including efforts to identify possible run timing adjustments as a means of reducing wild stock harvest pressures."

If 96093 is funded in December, project managers will have to move quickly to begin putting in place required work for the 1996 field season, seven years after the spill. Requested for FY96 is a total of $960,000. As currently planned, 96093 is a seven-year project that will require EVOS Trustee Council funding of more than $5 million in costs.

Soundings: An In-Depth Look

Coghill Lake restoration begins to show results

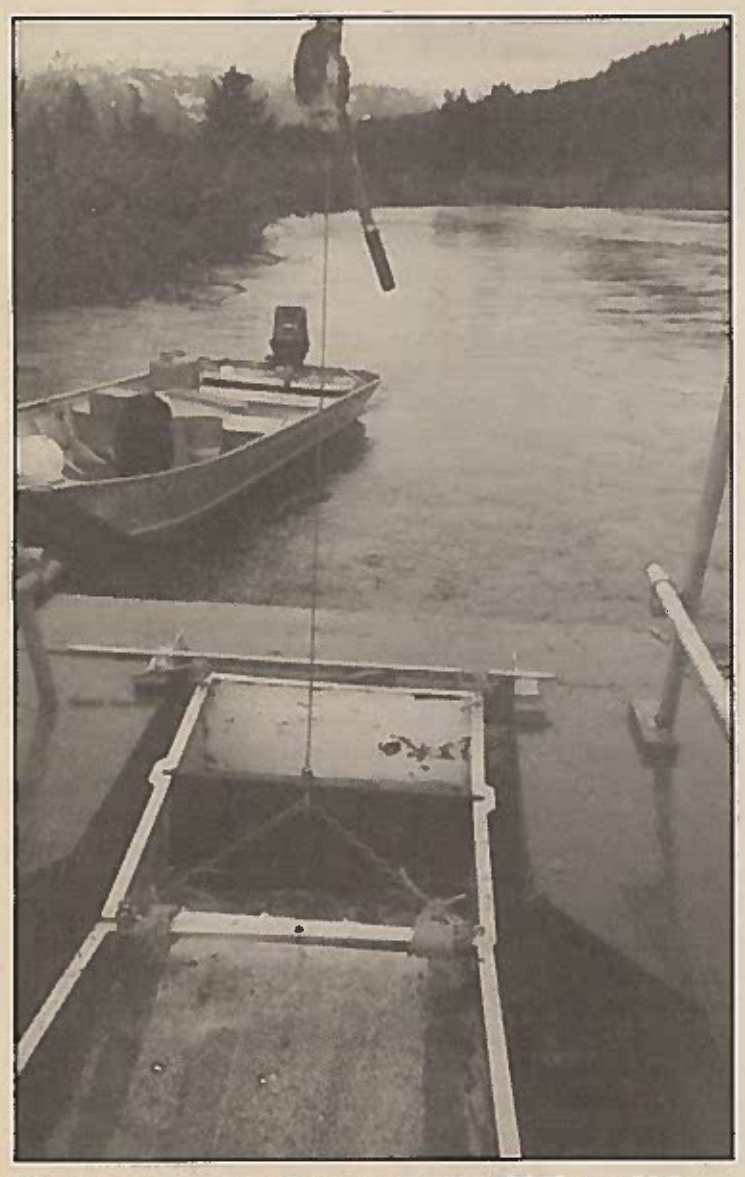
Historically, Coghill Lake in Port Wells in northwestern Prince William Sound has been an important producer of sockeye salmon, a mainstay of the summer commercial gillnet fishery, and a source of sport fish. In 1982 over one million sockeyes returned to Coghill Lake. However, since 1987, the sockeye returns to Coghill have steadily declined to less than 10,000 a year adult escapement into the lake in four of the last five years. 1989 was the last year the entire Coghill District was open to commercial fishing.

This season brought an unexpected late opening in the northern end of the Coghill District, as large numbers of sockeyes entered the lake later than expected, meeting the escapement goal of 30,000 fish and allowing an opener July 31 on fish milling at the mouth of the river. Additional openers built the commercial catch to over 72,000 sockeyes by mid-August. Coded wire tag data indicated that the fish caught were predominately hatchery-reared reds remote released on site as smolts, while the fish crossing the weir into the lake were predominately wild sockeyes.

However, until this seasonís upswing, the decline in Coghill productivity has resulted not only in a loss of traditional fisheries inside Port Wells, but also the imposition of strict management restrictions on fisheries in the Eshamy District, and on the gillnet fishery on early chums returning through the Esther Subdistrict to Noerenberg Hatchery. The restricted management is designed to reduce the interception of Coghill-bound sockeyes as they pass through adjacent fisheries.

Beginning in 1993, PWSAC joined ADF&G and the U.S. Forest Service in a five-year plan to increase the productivity of Coghill by fertilizing the lake, and by releasing hatchery-reared Coghill stock juvenile sockeyes at Coghill. This project, now in its third season, is presently funded by the Exxon Valdez Oil Spill (EVOS) Trustee Council, as an effort to replace losses of other fishery resources caused by the oil spill. Lake fertilization in 1993 and 1994 has resulted in increased food availability for the sockeye fry in the lake, increased size of juvenile fish, and increasing numbers of smolts outmigrating from the lake in the spring.

A Trustee Council decision on continued EVOS funding for the Coghill Lake restoration project has been deferred until the results of the FY95 season are reviewed. The review is scheduled for November 29 in Anchorage, followed by a Trustee Council decision in mid-December.



This is a sockeye smolt trap at the Coghill River, which traps a certain percentage of smolts leaving Coghill Lake each season. The traps are emptied and the smolts counted several times a day during outmigration; the juvenile fish are released alive. (Photo by Grant Bremer)

What caused the decline of Coghill Lake?

In the 1994 report on the Coghill Lake Restoration Project, the ADF&G said that several hypotheses have been proposed as causes for the decline in sockeye production, chief among them a decrease in zooplankton, small marine organisms which serve as feed for juvenile fishes.

"In particular, juvenile recruitment [fry hatched in the lake] from the 1980, 1981 and 1982 escapements (average 160,000), which were nearly three times the 30-year mean escapement, most likely reduced zooplankton densities which adversely affected the lake's rearing capacity," reported the authors.

ADF&G research biologist Mark Willette has also suggested that the oil spill might have hastened the decline because the juvenile salmon migrated through oiled habitats in western Prince William Sound. It has also been speculated that climatic effects may have contributed to reduced freshwater and/or marine survival, or that overharvest of the returning adult sockeyes has contributed to the decline.

The actual causes remain unknown, but limnological (freshwater) sampling has revealed that the lake is low in nutrients, and supports a limited stock of zooplankton, compared with other Alaskan lakes.

What is the restoration project design, and how well is it working?

The plan to restore Coghill sockeye is based on enriching the lake with nutrients, which in turn is expected to increase zooplankton abundance. In addition, the plan calls for gradually increasing fry recruitment by increasing escapement through management techniques and hatchery stocking.

Fertilizer is applied to the lake from the air once a week between the end of June and the third week of August. The liquid fertilizer contains nitrogen and phosphorus to correct the chemical makeup of the lake. In 1994, three times more fertilizer was applied than in 1993, to treat a larger portion of the lake and further supplement the nutrient loading.

Regular testing of the lake continues throughout the fertilization period. In 1993 the phosphorus level increased by 13% and the biomass (population) of algae increased three-fold compared to pre-fertilization years. The zooplankton biomass more than doubled.

In 1994, ADF&G continued regular sampling of the lake water, algae and zooplankton, sockeye fry in the lake, and sockeye smolt emigrating from the lake. The lake water was again significantly higher in phosphorus, and the concentration of nitrogen was twice the pre-enrichment level. The concentration of algae, the food for zooplankton, was almost identical to that in 1993 — a 2.5-fold increase over pre-enrichment years.

The density of a particular species of zooplankton — Bosmina — showed an average 50-fold increase over the course of the 1994 season compared to 1993, and was the highest ever observed for Coghill Lake. The size of the Bosmina biomass increased 100-fold from 1993. Bosmina is typically the first zooplankton species to respond to artificial nutrient enrichment. Two other species of zooplankton have not increased in biomass compared to pre-enrichment.



The adult weir at the Coghill River creates a barrier for sockeyes returning to the system. They are allowed to pass through a portion of the barrier, at which time they are individually counted by ADF&G field staff. (Photo by Grant Bremer)

The net effect of the program is that the juvenile fish appear to be eating, and surviving, better. In the fall of 1994, the fry were larger and in better condition than in 1993, with both length and weight increased. Smolt production has also increased: the total estimated outmigration of smolt in 1994 was 1.275 million, while the estimated number of smolt in 1993 was 289,611.

"The 1994 smolt outmigration was the largest since the sampling began in 1989, and represents a 6-fold increase in estimated smolt abundance compared to 1993," according to the authors of the ADF&G report.

Preliminary ADF&G estimates from the 1995 smolt outmigration indicate that 1.5 million smolt emigrated from Coghill Lake this spring, according to a memo from Regional Limnologist Gary Kyle.

How can fisheries management contribute to the restoration of Coghill?

As Area Management Biologist Slim Morstad states, "ADF&G is mandated under statute to protect and maintain wild stocks, it's our number one mission."

This mission requires that fisheries management measures be taken to preserve the Coghill Lake sockeye stock. In addition, the EVOS-funded restoration project includes and depends upon careful management: "Without a fishery management plan that reduces or eliminates interception rates of Coghill sockeye . . . restoration actions taken . . . may be insufficient." (EVOS Chief Scientistís Review Memo, October, 1994)

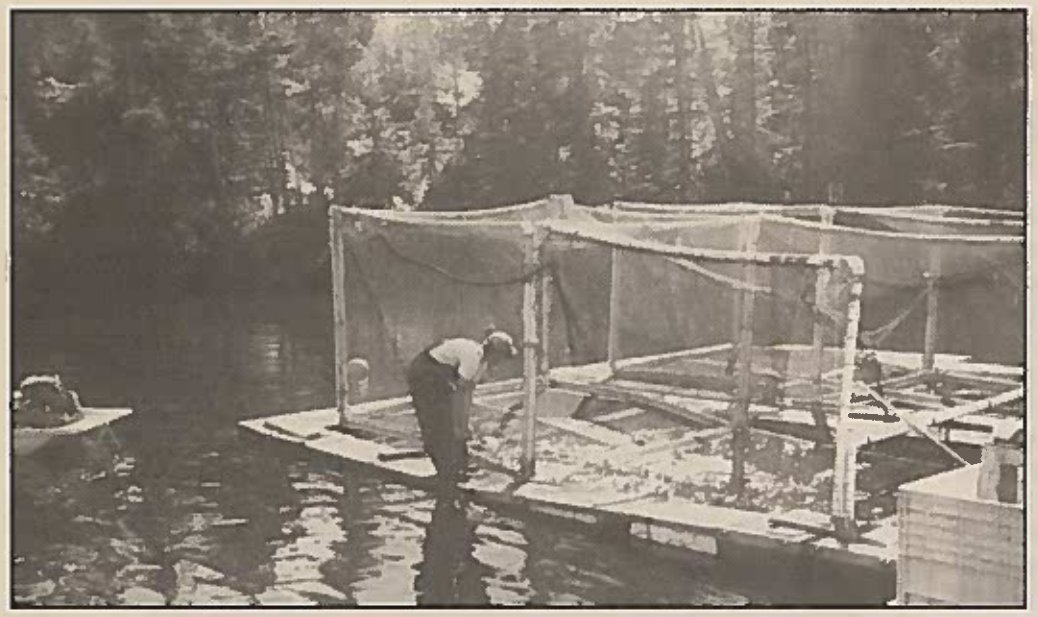
Before this season, the minimum escapement goal of 25,000 sockeyes had been met only once in the last five years, in 1992. According to the Department, the targeted escapement goal is consistent with the escapement levels of 30,000 to 50,000 which have historically produced the highest return per spawner of nine to one, and the maximum sockeye yield of 270,000.

According to the Department's report, "achieving adequate escapement into the Coghill system has been problematic due to the possible interception of sockeye in the commercial gillnet fisheries in the Eshamy and Coghill Districts."

These fisheries target enhanced sockeye and chum salmon returning to Main Bay and Noerenberg Hatcheries, and have been heavily restricted in the 1994 and 1995 management plans to reduce the harvest of Coghill-bound sockeyes. This year, the gillnet fishery on Noerenberg chums in the Esther Subdistrict was reduced midseason to 12-hour openers inside the bays, to maintain an escapement corridor for returning Coghill sockeyes. As mentioned above, large number of sockeyes did eventually return to the lake, and the commercial fishery was expanded, resulting in the best catch for many years.

What is the management outlook? Morstad believes it will improve: in 1997, sockeyes will be

continued on back page







Photograph upper left, ripe mid-timed sockeyes wait in net pens in the brood enclosure to be spawned. Second photograph, seasonal eggtake workers dip each sockeye individually from the net pen to be killed. Photograph upper right, the sockeye is placed in a rack and killed quickly with a sharp knife to the back of the neck.

PWSAC

PHOTO JOURNAL: SOCKEYE EGGTAKE







Photograph above, Fish Culturist II Jim Nolte is working as the "spawner" in the eggtake building. All raingear and equipment are disinfected to help avoid disease problems. Photograph above right, seasonal employee Dennis Patnode is working as the "bucker", who in a sockeye eggtake disinfects the outside of the fish, holds the females for the spawner to remove the eggs, and administers the sperm from the male fish. Bottom right, spawner and bucker working together over a sockeye.

Pink otolith marking equipment in hatcheries

Thanks to several years of united effort by fishermen and biologists, a new system to mark all the pink salmon released from four hatcheries in Prince William Sound is in place and ready for operation. The technique, called thermal otolith mass marking, uses temperature fluctuations in water circulating through the hatchery incubators to cause permanent marks to be formed on the otolith, a tiny bone in the salmon's inner ear. Marking equipment has been installed at PWSAC's Armin F. Koernig, Wally Noerenberg and Cannery Creek Hatcheries, and at the Solomon Gulch Hatchery operated by the Valdez Fisheries Development Association.

The otolith marking technique is intended to replace the current, more labor-intensive process of inserting coded wire tags (CWT's) into the nose cartilage of a percentage of the hatchery fish. However, to make sure of the reliability of otolith marking, the CWT program will continue for two more years.

Most of the cost of otolith marking installation and operations through FY96 have been funded by the Exxon Valdez Oil Spill (EVOS) Trustee Council, with conceptual approval of funding through 1998. The overlapping CWT recovery is also funded through FY96, with conceptual approval through 1998. Ops Manager Eric Prestegard says that PWSAC will be bearing some operational costs for the otolith program, and will continue to pay for the application of the coded wire tags.

By marking all the hatchery-produced pinks entering the Sound, fishery biologists will be able to more reliably differentiate those fish from wild pink salmon. This information will allow fishery managers to focus commercial harvests on hatchery stocks in order to protect wild pink stocks, particularly those in the Southwest District of the Sound most heavily injured by the 1989 oil spill.

In the usual hatchery environment, cold fresh water is constantly circulated through the incubator trays holding the fertilized salmon eggs and, later, the hatched fish. The otolith marking process takes place between October and December, requiring the addition of a boiler unit to increase the water temperature by the few degrees necessary to create bands in the otolith as it grows. The boilers have been installed and test-fired in all three PWSAC hatcheries, reports the new physical plant engineer Russ Bradley. The marked 1995 brood year pink fry will be released in the spring of 1996, to return as adults in 1997.

With coded wire tagging, only about one in 600 fish can be marked. Thermal marking all of the fish from each hatchery will increase the certainty of fishery managers dealing with in-season harvest allocations. Also, otolith marking does not require the human handling of each fry in the application of coded wire tags, decreasing the stress on the fish. In addition, there is some concern that imbedding a coded wire tag in the nose of a fish diminishes its ability to imprint and return to its release location — that could cause increased straying.

Information from the marked fish will be used in-season to help reduce interception of wild pink salmon in mixed stock fisheries. The marked fish will also help answer questions about how much returning hatchery and wild stocks stray from where they were hatched.

"Many subtle variables could be contributing to the declines we see in the wild stocks. The otolith marking program will give us greater flexibility and certainty to help answer some of these questions," said Mark Willette, ADF&G research biologist.

Studies being undertaken by NOAA (National Oceanographic and Atmospheric Administration) in the Gulf of Alaska will also benefit from the marked fish, making it possible for investigators to determine the migratory paths and behavior of pink salmon.



AFK Hatchery staff, left to right, Fish Culturist II Chris Schnipke, Assistant Hatchery Manager Chuck Pratt, and a seasonal employee inspect the newly-installed otolith marking boiler after a test run.



We know the otolith is connected to the ear bone; now how do you mark an otolith?

The marking pattern on an otolith looks a lot like the rings on a cross section of a tree trunk, with varying bands of light and dark coloration. The distinctive pattern created by the bands identifies the origin of the fish; each hatchery has its own unique registered pattern. Different groups of fish within a hatchery can also be marked with their own different patterns, and wild fish can even be marked in streams by chemical means.

In the hatchery setting, the marking is done with water temperature changes. While the eggs are in the incubator, a small increase in the temperature of the water running through the trays will result in more calcium being deposited in the otolith. This calcium deposit appears as a light-colored ring when viewed under a microscope. A drop in temperature causes more protein to be laid down, resulting in a dark-colored ring.

A change of 4 degrees Centigrade for 36 hours creates one band. By precisely manipulating the water temperature for a period of several days, hatchery staff is able to "label" each fish with its distinctive pattern.

The temperature manipulation is carried out with an assemblage of pipes through which heated water is mixed with the hatchery water supply. The boilers and piping are housed in a mobile van adjacent to each hatchery building.

When an adult fish returns to spawn, the otolith has grown from smaller than the head of a pin to about the diameter of a pencil eraser. The otoliths are removed from a percentage of the catch and analyzed in a laboratory to determine the fishes' origins.

Eric goes under

PWSAC Operations Manager Eric Prestegard was one of the dunkees recently in a Dunk Tank fund raiser for the Cordova Family Resource Center. The end of August benefit was one of the main events in the Black Top Boogie on Cordova's newly repaved and lighted Main Street.

Joining Prestegard on the cold seat were town luminaries such as Mayor Margy Johnson, Coast Guard Commander Jim Beckham, Body Builder Mary Franklin, and ADF&G managers Dan Sharp and Slim Morstad. The Ops Manager estimated that he went in 20 times in 15 minutes, and said his tormentors were "about evenly divided between gillnetters and seiners, but the worst was a four-year-old with a good aim."

The event was reminiscent of the old days when Prestegard was Manager of AFK Hatchery, and got thrown in the Sound at the end of eggtake.

PWSAC staff changes

On June 1, a not-so-new face, longtime PWSAC hatchery manager Jeff Milton replaced Eric Prestegard as Production Manager at the Cordova office after seven years at three remote sites in the Sound. Eric is still with us: he was named Operations Manager when Jeff Olsen left the company last fall. These changes in the central office have resulted in a cascade of changes, as experienced permanent staff members changed places into more responsible positions at the hatcheries.

Jeff has been with PWSAC since 1986, first as a seasonal and then as a Fish Culturist beginning in 1988. In 1990, he was named Assistant Manager at Cannery Creek Hatchery (CCH), moving up to Manager in 1991. In 1993 he was named Main Bay Hatchery (MBH) Manager, then Wally Noerenberg Hatchery (WNH) Manager in 1994. Jeff is married to Chamene, and the couple has two children, Mikal, 4, and Joseph, 3. The family loved the hatchery life, but are now really enjoying the amenities of town life, "all except for having to keep the dogs tied up."

Jeff was replaced as Manager of WNH by Andrea Tesch, formerly WNH Assistant Hatchery Manager. Andrea came to the company in 1987 as a seasonal Fish Tech, with an extensive background in tilapia rearing in East Africa. She was named Fish Culturist at WNH in 1988, Production Supervisor in 1989, and Assistant Hatchery Manager in 1990. Andrea married a PWS gillnetter in 1991, and lives at the hatchery with her husband, Charlie Tesch, and his son, Eric.

Christine Mitchell was named to replace Tesch as Assistant Hatchery Manager at WNH. With the company since 1988, Christine became a Fish Culturist at CCH in 1990, and Assistant Hatchery Manager in 1994. Like many of our permanent hatchery staff members, Chris graduated from Oregon State University with a degree in Fisheries Science.

Kirk Lingofelt replaced Mitchell as Assistant Hatchery Manager at CCH, moving up from Fish Culturist II at Armin F. Koernig (AFK) Hatchery, a position he has held since 1991. Kirk joined PWSAC in 1989 as a seasonal, with permanent status as a Fish Culturist I at WNH in 1990.

Andy McLaughlin replaced Lingofelt as Fish Culturist II at AFK, moving from his position as Fish Culturist I at MBH. He started with PWSAC in 1993 as a seasonal, and moved up to Fish Culturist in 1994. Replacing Andy at MBH is Paul Santavy, a seasonal Fish Tech since 1993. Moving from a seasonal position to Fish Culturist I at CCH (nine month position) is Tony Wardwell. Jan Gawel was hired as the AFK Maintenance Engineer to replace Joe Ramirez. (See Gawel story, page 7.)

And there are some completely new faces at the Cordova office. Russell Bradley was hired at the beginning of July to take the new position of Physical Plant Engineer. Russ has been an engineer in the seafood business for 20 years, most recently at the Silver Lining plant in Cordova. Denice Neel was hired in June to replace Monica Frost as Accounting Clerk I. She worked most recently at the Cordova Police Dept.

Resigning from PWSAC and leaving in late October are Vice President/CFO Joe Martin, and AFK Hatchery Manager Rich Corcoran. MBH Assistant Manager Karen Robinette is also leaving the company, in early November. Recruitment for these positions is currently underway.

Home At The Hatcheries

Main Bay Hatchery: The Somervilles

Mark and Carla, Casey and Cassidy: the Somervilles of Main Bay. Mark, the manager of Main Bay Hatchery since June, 1994, and Carla, a Fish Culturist II, met and married while both were working at AFK Hatchery. Casey James, 3, and Cassidy Lynn, nine months, are more recent arrivals.

Mark was born in New Jersey, and grew up on the East Coast, receiving his B.S. in Wildlife and Forest Biology in 1981, and his M.S. in Biology in 1986 from the State University of New York (SUNY). He first came to Alaska in 1984, to work seasonally for PWSAC in Lake Investigations, and became a permanent researcher in 1985.

A member of one of the original staffs at Wally Noerenberg Hatchery, Mark moved there in March, 1986, as a research biologist. His research at WNH included use of seawater as an incubation buffer, monitoring of elements for toxicity to juvenile pinks, establishing criteria for smolting of chums and coho.



Mark Somerville holds daughter Cassidy, left, and son, Casey, while Carla gets into her dry suit to dive to inspect the brood seine at Main Bay.

Moving to AFK as a Fish Culturist in 1986, Mark lived there for six years, advancing through the ranks to Hatchery Manager in December, 1989. He transferred to Manager of Main Bay in June, 1994.

Carla grew up in Oregon, and graduated from the Fisheries Biology program at Oregon State University in 1988. She worked as a Foreign Fisheries Observer in the Gulf of Alaska, and as a Dolphin Observer off the coast of South America before coming to work for PWSAC as a seasonal in 1988. Known for her extraordinary work ethic, Carla became a permanent Fish Culturist at AFK in December, 1989, and transferred to Main Bay in 1994.

Mark and Carla were married in May, 1991. Casey, born in June, 1992, has spent his whole young life at remote hatchery sites, with a live-in Austrian nanny to take care of him while Mom and Dad are at work. Cassidy joined the growing family December 21, 1994, and is definitely the cutest resident of Main Bay.

The family enjoys hunting, fishing and camping in Prince William Sound, and Mark and Carla are both certified SCUBA divers. They have both traveled extensively in South America, and spent a month in New Zealand.

AFK Hatchery: Polish Engineer

Originally from Poland, Jan Gawel began working at PWSAC's Armin F. Koernig Hatchery in July, 1995, as the Maintenance Engineer. He brings long experience as an engineer as well as interesting stories to entertain the staff during the long, remote winters, according to Personnel Manager Dyan Ferren.

Jon always wears a big smile and a friendly manner, and his co-workers appreciate his good spirits. "I am so happy to be in the USA, and also very glad to be working at AFK Hatchery," said Jan.

Jan (pronounced "Jon") was born and raised in a small community of about 600 people in Poland. His family owned a small, 40-acre farm where they raised pigs and potatoes. Since most businesses were government owned under Communist rule, there was great pride in owning your own farm, Jan said. The potatoes served as the main staple for the pigs, along with other natural foods. Their pigs were considered "naturally" raised and commanded a higher price at market than pigs raised on commercial feed containing mostly fish meal and added chemicals, Gawel said.

Although Jan enjoyed the farm chores, he had "a great desire, as many men do, to go to sea." Around 1975, he landed a job aboard a 75-foot catcher boat in the Baltic Sea, catching herring, codfish, and flounder. Nearly all fish processing was government controlled, with only about 10% to 20% of the fishing vessels privately owned.

After about two years, Jan graduated to large ocean-going factory trawlers. He worked as the "oiler" where he was responsible for upkeep on the engines, greasing them and making small repairs. His first expedition was a government contract to Antarctica for six months where they began testing new technology to make fish products. Krill was harvested, boiled, dried and processed into a granulated fish meal.

The second and third contract was also in Antarctica where they fished for hake and kargulena. "Fishing was in close proximity to the South Pole under very dangerous conditions, with the vessel having to maneuver between icebergs and shifting fields of ice," Jan said.

Boats ranged in size from 300 to 400 feet and stayed at sea about two months at a stretch. A port run for three days offered the only relief from work. After processing fish, the boat would be met by large freighters which would resupply them with food and fuel, and take their fish to markets in Japan and Spain.

"On the boat, life was mostly hard work, with not much time for anything else. The best diversion was eating. There was always excellent food on the boats," Jan said. "Everything was made from scratch, and they butchered animals onboard and had an unending supply of meat, chocolate, and other edibles. The pay was also good, sometimes three times more than any job on land."

In May of 1988, Jan had the opportunity to come to Alaska waters on a Polish fishing contract. After all of his travels fishing around the world, he decided he wanted to experience the freedom of a democratic country like the US. He was able to apply for legal immigration and find a Polish sponsor in Anchorage. Shortly thereafter, he landed a job with Arctic Alaska and began his life in the United States.

Cannery Creek Hatchery: The Reggiani Family

David, Molly and Brian Joseph Reggiani run Cannery Creek Hatchery. Actually, Dave is the hatchery manager (since 1993), and his wife, Molly, and their new son, Brian, live with him and make sure everything runs smoothly. The Reggianis have lived at Cannery Creek since moving there from Noerenberg Hatchery in late 1991.

Raised in Corvallis, Oregon, Dave came to work at Noerenberg in 1989, fresh from graduation from Oregon State University in Fisheries Science. Molly was raised in Lakeview, Oregon, and graduated in 1990 from Western Oregon State College with a degree in Elementary Education.

"I taught kindergarten for one year before marrying Dave and moving to Esther in 1991," said Molly. "We have been very happy here in Prince William Sound, with the challenges of hatchery operations, and the opportunities for deer hunting and fishing, and cross country skiing in the winter."

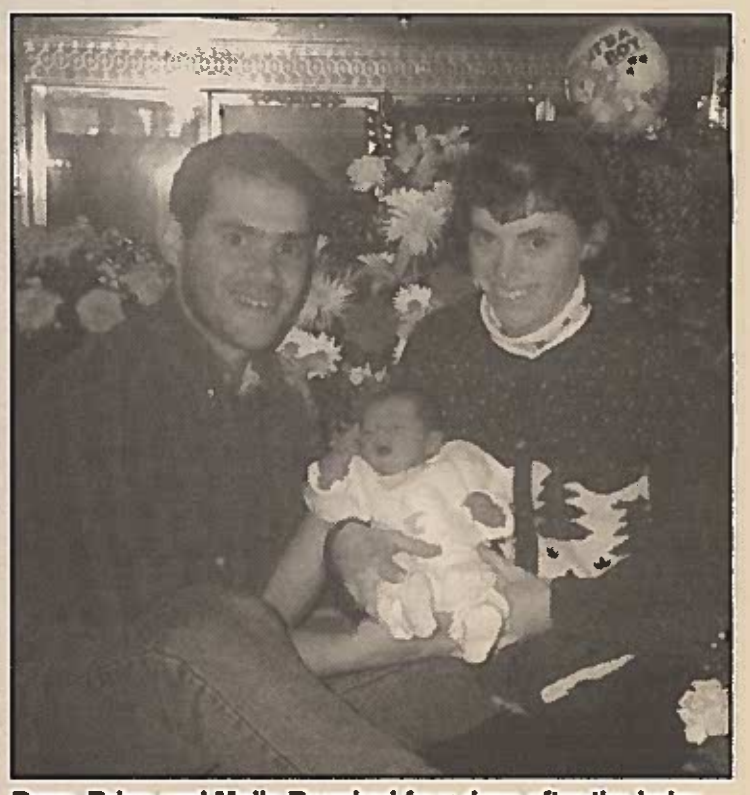
The biggest recent event of their life was the arrival of Brian Joseph on March 15, 1995. Molly tells the story:

"I went to Anchorage once a month for prenatal care, but decided to have the baby in Oregon in order to have family support. I went to Lakeview six weeks before the due date, and David flew down one week before. We walked three and a half miles a day in hopes that the baby would be born on time, because we had to get back to the hatchery.

"We must have done the right thing, because Brian arrived at 12:58 a.m. on his due date, delivered by the family practitioner who took care of me all the time I was growing up. He weighed 7 pounds, 4 3/4 ounces. He was somewhat of a celebrity baby in the small town of Lakeview (3,000 people), because he had come all the way from Alaska to be born!

"Brian and I spent three weeks with both sets of grandparents before coming home to Cannery Creek. Now Brian sees a pediatrician in Anchorage. He loves his wilderness lifestyle: walks in the backpack, boat rides, helping Mom pick salmonberries, watching fish in the creek with Dad."

Now that the busy summer season is close to over, Brian, Molly and Dave are looking forward to spending more quality family time together.



Dave, Brian and Molly Reggiani four days after the baby was born in Oregon.

PWSAC, *continued from page 1*

Coghill stock fish remote released at Coghill came in at 80% to 90% of the forecast, and were harvested 100% by the commercial fishery. (See Coghill story, page 4.)

On July 14, the hatchery seiner from Main Bay harvested and sold 13,568 Coghill stock sockeyes at Marsha Bay on Knight Island. The number was added to the total harvested at Main Bay and became part of the PWSAC percentage. The return to Marsha Bay was a result of a release of surplus Coghill fry into the lake in 1992; Prestegard said that additional fish would return there next season as 5-year-olds.

Of the combined returns to Main Bay, Coghill and Marsha Bay, PWSAC harvested approximately 37%, Prestegard reported. Sockeyes sold at daily bid averaged $1.20 a pound, while sockeyes sold under pre-season contract averaged $1.39 a pound, according to Vice President/CFO Joe Martin.

Noerenberg chums returned at about 60% to 70% of projection. Prestegard said that the four-year-old component of the return did not show well, which was expected because it sprang from the same brood year (1991) that produced the all-time lowest pink return to PWS hatcheries in 1993. The corporate share of the chums totaled closer to 50% than 40%, Prestegard said, but taken together (under aggregate management) with the Coghill stock sockeyes, the PWSAC percentage was under 40%.

Bid sales of PWSAC chums averaged $0.63 a pound, with most of the bid sales occurring early in the season. Chum pre-season contract sales averaged $0.49 a pound. The contract sales prices are based on the average daily grounds price paid to fishermen by the major Sound buyers. Chum prices traditionally decline after July 1 or 2. PWSAC daily bid prices and grounds prices did drop 10 to 12 cents a pound after the end of June, but the grounds prices also began to decline earlier, at the beginning of the third week of June.

Pinks at AFK and Noerenberg were a big disappointment. In looking for an explanation for the continuing shortfalls, management is closely examining coded wire tag data, and "patterns are starting to emerge." (See related story, PWS pink salmon, front page.)

PWSAC harvested 40% of the pinks for cost recovery. Pinks sold under daily bid for an average of $0.229 a pound at Cannery Creek, and an average of $0.236 at Wally Noerenberg. Most of the pink bid sales were made towards the end of the season, when prices tend to be lower, Martin said. Also, bid sales in general were limited due to the reduced size of the return. Under pre-season contract, pinks sold at an average price of $0.259 a pound at AFK, $0.223 at Cannery Creek, and $0.231 at Noerenberg, Martin reported.

Coghill, *continued from page 4*

returning from the 1992 escapement of 29,000 fish. This year, the returning sockeyes came from brood year 1990, when there was an escapement of 9,200 fish.

Can it get worse? "It can't get any worse than 12 hours in the Terminal Harvest Area," said Morstad, "except for no fishing at all. Fishermen seem to be recognizing the ongoing problem, and some are asking us to find a remote release site [for the hatchery chums]."

The Regional Planning Team, made up of Department and PWSAC representatives, currently recommend three principle remote release sites in Prince William Sound: Port Chalmers on Montague Island, Naked Island, and Nelson Bay. Potential sites are evaluated on the basis of, among other considerations, non-interference with wild stocks, appropriate freshwater source, and accessibility. Nelson Bay may be restricted by genetic requirements to release only local, Nelson Bay stock fish.

For additional detail on Coghill Lake restoration and management, contact the Department of Fish and Game in Cordova, or the PWSAC office at 424-7511. The 1994 report on the Coghill restoration project, authored by ADF&G's Gary Kyle, Jim Edmundson and Stan Carlson, is available at both locations.

PWS Pinks, *continued from page 1*

away at the salmon fry — both wild and hatchery — as they emerge in the spring. ADF&G biologists and other SEA (Sound Ecosystem Assessment) program scientists agree: indications are that it may be a predator problem. Suspected predators include an increased pollock population, measured in the tens of thousands of tons in the western corridors and passes by sonar researchers at the Prince William Sound Science Center in 1994 and 1995.

According to PWSAC Operations Manager Eric Prestegard, information provided by coded wire tags (CWT) from hatchery fish in 1994 shows that not all release groups of fry survived equally well. Groups of fry released later in the spring survived at much higher percentages than the larger number of fry in the mid-release groups. Biologists hope that 1995 CWT data, when available, may help them understand the survival pattern, which they speculate has to do with varying rates of predation on salmon fry released at different times and different sizes.

ADF&G research biologist Mark Willette said that there is some evidence in his work as part of the SEA program that the 1992 and 1993 pink salmon failures in PWS were caused by predation. SEA researchers conducted two broad-scale surveys of predator and plankton distribution throughout PWS in 1995. Information from the surveys should help if predator distribution is linked to the Sound-wide pattern of pink production. If pollock and/or other predators are eating the fry, what can be done through fishery management to remedy the problem?

GROUNDFISH MANAGEMENT IN PRINCE WILLIAM SOUND

Within harvest quotas set by the federal government, the Alaska Dept. of Fish and Game manages groundfish openings and closings in PWS. According to ADF&G's James Brady, "pollock are definitely on the short list of key predators affecting pink salmon survival in PWS."

Also, said Brady, pollock is a developing fishery in PWS. Last spring, three or four midwater trawlers from the Kodiak area ventured into the Sound, and in about 10 days caught 2,700 tons of pollock, much of it on the east side of Knight Island off Pt. Helen, and in Port Bainbridge in the extreme SW corner of the Sound.

"The catch per hour was fantastic," said Brady. "There seemed to be a large spawning aggregation in those areas, where there had never been a fishery before. . . . historic harvest figures have been 10,000 to 13,000 pounds per season. And the fish were good quality, with a high percentage of roe and extremely low bycatch."

All of Prince William Sound is part of the Eastern Gulf management unit, which is federally managed by the National Marine Fisheries Service (NMFS) Juneau office, according to Brady. Each unit is managed within the parameters of a Total Allowable Catch (TAC) set annually by NMFS following surveys of the available biomass and stock abundance trends. The TAC for last season was 3,360 tons for the whole Eastern Gulf, most of which was taken in PWS.

"We had no idea what the biomass was in PWS," said Brady. "All we had to go on was a 1989 trawl survey which estimated 10,000 tons. We let the fishery go well beyond the federal allowable exploitation rate of 15% of that estimated population — to 30% — before we closed it. The management of PWS is locked into the federal TAC. Once the TAC is reached, NMFS shuts down the Eastern Gulf, which they did right after we shut down PWS."

If the State wanted to independently manage pollock stocks in PWS, they would need to go to the North Pacific Fishery Management Council (NPFMC). They could ask for one of two changes. One, to split off a percentage of the existing Eastern Gulf TAC just for PWS. Two, try to show that the PWS biomass was independent of the Eastern Gulf biomass so it should not be subtracted from the Eastern Gulf TAC. In either case, the state would probably also need to prove that the PWS biomass was much larger than presently estimated.

Bill Bechtel, former manager of groundfish in this region for the Alaska Dept. of Fish and Game, is a new member of the Science Planning Team for the NPFMC, and has been asked to take information on PWS groundfish stocks to a meeting of that group next week, Brady said. Bechtel will be carrying the data from the SEA program surveys done in 1994 and 1995. NMFS is apparently interested in finding out more about the Sound"s developing pollock fishery and its ramifications.

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