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- Regenerating Alaska fisheries
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ON THE COVER: Crewmen move pollock aboard a fishing vessel in the Bering Sea. Chris Miller photo

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Wesley Loy

Fishing and drilling

The commercial fishing industry has a complicated relationship with the oil industry.

Both industries have proud histories and have played a vital role in the development of our society.

And certainly, fishermen depend heavily on petroleum products. Just imagine how many gallons of diesel fuel our fleets along the West Coast and Alaska must burn each year to bring in the catch.

That said, you can count on fishermen and fishing communities to be among those crying out at the idea of drilling and oil production nearby. We need oil, just so long as it comes from someplace else. Someplace far away.

Just where that someplace is, we don't know. It seems no place is a perfect place for oil drilling.

It's thus no surprise that the Trump administration's recent proposal to open over 90 percent of the U.S. outer continental shelf to oil and gas lease sales drew widespread criticism – from the fishing industry, among others.

This would be a huge reversal from current policy, which puts most of the offshore off-limits to drilling.

The administration is aiming to establish a new leasing program for 2019-24. It proposes sales all around Alaska, not just in the Arctic but across the Gulf of Alaska. Sales also are proposed off Washington, Oregon, and California.

Commercial fishing people aren't pleased.

In one media report, Linda Behnken, a Sitka longliner and member of the International Pacific Halibut Commission, called the leasing proposal "deeply disturbing."

Noah Oppenheim, executive director of the Pacific Coast Federation of Fishermen's Associations, put out a statement saying: "The Trump administration wants to put fish and fisheries at significant risk while lining the pockets of their oil industry co-conspirators. Meanwhile, more frequent oil spills and more intense ocean acidification and warming are guaranteed to ensue."

U.S. senators from Washington, Oregon, and California signed onto a letter to Interior Secretary Ryan Zinke decrying the offshore leasing proposal, saying it would "needlessly put our coastal residents, businesses, oceans, and climate at grave risk."

Not everyone sees it this way. Alaska Sen. Lisa Murkowski, who chairs the Senate Energy Committee, applauded the leasing proposal.

"Secretary Zinke's 'blank slate' approach launches a new discussion with local stakeholders to determine where responsible energy development should take place," she said.

Indeed, a lot of discussion including public meetings will take place before the leasing plan is finalized.

Most likely, many of the closure areas will again prove sensible. The Trump administration already has decided not to schedule lease sales in Alaska's Bristol Bay, among the richest of U.S. fishing grounds.

It's also important to remember that many areas, including the Northwest, simply aren't very prospective for oil and gas. So leases sales might not translate to drilling rigs and oil tankers.

And so, the fossil fuels the fishing industry so depends upon will continue to come from someplace else. ⚓

Wesley

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It's the best commercial fishing news digest available in the North Pacific. Here's some of what you missed by not reading Fish Wrap.

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British Columbia fish farm fight: The advance of industrial fish farming in British Columbia is being fought against with occupations and protests. – *vancouversun.com*

Alaska's vanishing coast: Ordinary storms are having an increasingly intense impact on Alaska's coastal communities. – *scientificamerican.com*

Reversing Alaska's fishing losses: A new report outlines the challenges facing Alaska's fishing industry and recommends actions to address them. – *phys.org*

Warming Bering Sea: Water temperature and ecosystem changes in the Northern Bering Sea have left federal researchers "surprised and quite shocked." – *knom.org*

Bristol Bay's new milestone: A final tally of the sockeye salmon run in Bristol Bay's Nushagak District establishes a historic high. – *kdlg.org*

CG tows loaded trawler: The Coast Guard used a specialized rescue vessel to tow a disabled trawler and its fish haul across the Columbia River bar. – *content.govdelivery.com*

Escaped salmon invade Skagit: Escaped farmed salmon are in a northern Washington river system, triggering fears of interference with wild fish. – *bellinghamherald.com*

High Dungeness harvest: Making up for a disappointing summer season, Southeast Alaska's fall commercial Dungeness crab harvest is higher than expected. – *kfsk.org*

Dungeness price spike: The price of Dungeness crab is peaking as the commercial season continues to be delayed throughout most of the West Coast. – *sfchronicle.com*

Reaction to cod crash: The Kodiak Fisheries Work Group is considering the likelihood of a Pacific cod fishery disaster declaration. – *kmxt.org*

Pebble's new partner: Pebble Limited Partnership has announced an agreement with a new partner to advance its controversial mining project. – *kdlg.org*

Kodiak fishery fight: A Salmon Work Group has re-emerged to address what Kodiak fishermen view as a threat to the sockeye fishery. – *kmxt.org*

Cod losses loom: Reduction of the Gulf of Alaska cod quota will severely reduce and in some cases eliminate fishing opportunities. – *kmxt.org*

Dungeness crab shortage: West Coast Dungeness crab season delays are limiting supply as holiday demand peaks. – *nbcbayarea.com*

Pebble launches permit bid: The partnership seeking to mine copper and gold at a Bristol Bay wetlands site has submitted a permit application to the U.S. Army Corps of Engineers. – *peninsulaclarion.com*

Feds enter mining dispute: The U.S. State Department is responding to concerns about the impacts of B.C. mines on Alaska's watersheds. – *krbd.org*

Chinook plans opposed: Sitka salmon trollers are advancing alternatives to the Alaska Department of Fish and Game's Chinook management plans. – *kcaw.org*

From Sitka to Midwest: A Sitka-based seafood processor is making its products available to customers in Madison, Wisconsin. – *kcaw.org*

Feds propose drilling boom: President Donald Trump's administration has announced a plan to open more than 90 percent of U.S. coastal waters to oil and gas drilling. – *time.com*

Fish farm lease fight: Cooke Aquaculture has filed a lawsuit challenging a Washington government agency's termination of its salmon farming lease. – *peninsuladailynews.com*

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For more information on ComFish, go to www.kodiakchamber.org/comfish or www.facebook.com/ComFishAlaska.

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Kodiak, seen here, and Bristol Bay were the focus of the study. Wesley Loy photo

Five recommendations to regenerate Alaska fisheries

Editor's note: The following is adapted from "Turning the Tide," a new report from researchers with the University of Alaska Fairbanks, Alaska Sea Grant, and the Alaska Marine Conservation Council. The report explores how Alaska can address the "graying of the fleet" and the loss of rural fisheries access. See the full report at fishermen.alaska.edu/turning-the-tide.

Alaska is facing a growing problem of fisheries access.

Since limited entry programs were implemented in state commercial fisheries, permit holdings by rural residents local to their fisheries have declined by 30 percent. Some regions like Bristol Bay have lost over 50 percent of their local rural permits.

In federal fisheries, the trend is similar with small rural communities in the Gulf of Alaska experiencing over a 50 percent decline in individual fishing quota (IFQ) holdings.

Of the permits that do remain in rural Alaska, increasingly older fishermen hold them. In 1975, young fishermen (age 40 and under) held about 50 percent of all rural local permits. By 2016, that proportion had nearly been cut in half. The average fisherman today is over 50 years old, a decade older than the average fisherman of a generation ago.

This "graying of the fleet" and loss of local access to commercial fisheries in several important fishery regions in the state threatens the healthy succession of fishing as an economic and cultural mainstay in Alaska's communities, and creates a public policy concern for Alaska.

The geographic and demographic shifts in access to Alaska fisheries are the result of several factors. In our study of fishing communities in Bristol Bay and the Kodiak Archipelago, we found that privatizing fisheries access (i.e., the need to purchase permits and quota) has created large financial and other barriers to entry into commercial fisheries for the next generation of fishermen and has especially impacted small rural fishing communities.

First and foremost, privatization of fisheries access has resulted in increased financial capital and risk needed to enter into fisheries. Costs and associated risks of entry into most state and federal fisheries are prohibitive for many young or new fishermen seeking to make fishing a career or diversify into new fisheries. Other financial challenges include: mixing fishing with other, oftentimes limited local jobs; lack of stable markets, increasing risk; and lack of experience managing debt and small businesses.

We found that privatizing fisheries access (i.e., the need to purchase permits and quota) has created large financial and other barriers to entry into commercial fisheries for the next generation of fishermen and has especially impacted small rural fishing communities.

Limited entry and individual quota programs, by generating individualized, saleable fishing rights, led to a contraction of fishing fleets in communities where fishing rights have been sold or migrated away, thus affecting future generations' access to fishing in other ways. In our study, rural youth identified a host of social barriers to accessing fishing, including: lack of exposure to commercial fishing; lack of experience, knowledge, and family connections to fishing; discouragement from pursuing fishing as a career; and substance abuse and related problems in communities.

Our research findings are consistent with others across the globe that conclude young people, small-scale fishermen, and rural communities need improved access to commercial fisheries where access has been privatized. Alaska has undertaken multiple efforts to address the barriers to entry and upward mobility in commercial fisheries, but in total they have fallen short of stemming the outflow of permits from rural fishing communities and stimulating entry into the industry by new Alaska fishermen.

From our research and a review of international efforts to sustain local fishery access, we have developed the following recommendations:

RECOMMENDATION ONE

Explore supplemental forms of access to commercial fishing that are not market-based to facilitate new entry and provide diversification opportunities.

Nonmarket forms of access allow for a low-cost, low-risk means of participating in commercial fisheries. Iceland provides two examples of such programs: limited community quota freely accessible for fishing community residents, and quota-free fisheries restricted by landings and season. Other examples include recruitment quotas available to fishermen under the age of 30 in Norwegian fisheries and student licensing in the Maine lobster fishery. The creation of fishery trusts, which hold and lease access rights to fishermen, are also a new form of access that have emerged to address some of the barriers associated with privatized fisheries. Nonmarket access provides an opportunity for participants to gain experience and earn fishing income without the financial burden and risks of purchasing market-based access rights.

RECOMMENDATION TWO

Establish youth permits or student licenses and mentorship or apprenticeship programs to provide young people with exposure to and experience in fishing and a pathway to ownership.

Mentorship and apprenticeship programs in Alaska would formalize exposure to fishing occupations and provide the training and skill development necessary for advancement that have been constrained under privatization. Apprenticeships and student licenses have been used to regulate entry and promote ethical fishing practices in the Maine lobster fishery and to provide training in harvesting and financial support for vessel and gear purchases by new participants in the Prince Edward Island lobster fishery in eastern Canada. Though the aims of apprenticeship programs may vary, programs designed specifically to provide opportunities for young people hold potential for increasing entry into the fishing industry.

RECOMMENDATION THREE

Develop mechanisms to protect and diversify community-based fishing access, including provisions to protect local access and wider use of superexclusive registration in state fisheries.

Securing fishing access and benefits in rural communities protects small-scale fishing opportunities and is essential to the long-term sustainability of Alaska fishing communities. Programs which have served to protect small-scale, local, and rural access to fisheries have been implemented in Alaska's state fisheries, in Alaska's offshore federally managed fisheries through the community development quota and community quota entity programs, in Atlantic Canada, and in several fisheries in Scandinavia (Norway, Iceland, and Denmark). Norway, for example, has implemented a number of measures including an open access fishery for small-scale vessels and provisions to protect access for Norway's indigenous Sámi population.

RECOMMENDATION FOUR

Support local infrastructure to maintain local fisheries.

Another salient theme to emerge from our study is the need to support local infrastructure that benefits fishermen, processors, and local businesses. Seafood processors play a critical role in coastal Alaska, providing a market for fish, employment, and capital for growth and investment. Local government's support of infrastructure such as cold storages and industrial parks that house welders, mechanics, boatbuilders, and other services were frequently mentioned as critical to thriving local and regional fishing economies. These types of services were described as a means to increase the value of fisheries through extending fishing seasons and seafood processing employment, and supporting and providing for off-season employment opportunities through services frequently offered only seasonally.

RECOMMENDATION FIVE

Establish a statewide Fishing Access for Alaskans Task Force to review and consider collaborative solutions to reverse the trend of the graying fleet and loss of fishing access in rural Alaska.

We recommend that a statewide Fishing Access for Alaskans Task Force be established to take steps toward implementation of the priorities identified in the governor's 2014 transition report on fisheries (posted at tinyurl.com/y8ljncf5). The task force would focus in more detail on the multifaceted problem of fisheries access and develop potential and appropriate solutions. Similar to the current Mariculture Task Force, this could be established by administrative order. By seeking out qualified Alaskans to identify, understand, and creatively pursue specific solutions, Alaska has the opportunity to provide pathways to entry for the next generation of commercial fishermen and slow or reverse the loss of fishing opportunities and benefits from coastal Alaska. ⚓

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by JERRY MCCUNE

Alaska's commercial fishermen are concerned about ocean acidification

Fishing families and businesses across Alaska are veterans at keeping an eye out for change – day-to-day and season-to-season. The largest single employer in the state, and a food source for millions, the successes of Alaska seafood harvests rise and fall with a dynamic marine food web. New research is shedding light on a big change within that system – ocean acidification – and Alaska's salmon fishermen are watching closely.

Researchers from NOAA and the University of Washington have found that wild salmon runs may be affected by rising ocean acidity – a well-documented global trend that is particularly pronounced in the cold, carbon-rich waters off Alaska's vast coastline.

The ocean naturally absorbs carbon dioxide, which triggers a chemical reaction increasing acidity. This process has accelerated rapidly in recent years, with varying effects on marine life. Most recently, researchers found that increased acidity negatively impacts salmon's smelling ability, which they rely on for a variety of essential functions, including avoiding predators.

United Fishermen of Alaska's Salmon Habitat Information Program (SHIP) co-hosted a panel on ocean acidification in November at Pacific Marine Expo in Seattle, gathering experts to discuss acidification and fisheries. This was in direct response to fishermen's concerns, voiced through a 2016 UFA survey on salmon habitat that polled more than 500 Alaska fishermen. The second-highest habitat concern fishermen noted was climate-related changes and impacts, including ocean acidification. Research developments since that survey continue to raise red flags for fishermen around the world, and the recent links to salmon have hit home in the North Pacific.

For the thousands of Alaskans dependent on salmon for food and income, as well as countless chefs, grocers, and other consumers across the globe, this is sobering news. Alaska's salmon fishermen, who add almost 33,000 full-time equivalent national jobs and $1.7 billion in national labor income, are accustomed to the natural ebb and flow of returning salmon. Yet, we are deeply concerned about state and national implications of an ecosystem shift that could impact such fundamental functions on a species-wide level. This is why we need to know more about what is happening within our ocean's chemistry – what we can expect as it continues to absorb carbon dioxide, what impacts marine species are likely to face in the coming years, and how fishermen can adapt to them.

This developing research field has provided valuable information about impacts on a wide variety of species, including reduced growth and increased mortality in Alaska crab species, other shellfish, and essential food web elements like pteropods. Researchers are working hard to develop a baseline of ocean acidity data to better monitor changes, but for now, we are all left with more questions than answers. Now more than ever we need the information that scientific research provides, so that we can better prepare for our fishing futures in Alaska.

While ocean acidification has been a prominent topic of concern for years, these new developments have Alaska fishermen asking ever-harder questions about the future of our marine resources. UFA's SHIP program is working to respond to those concerns and provide essential information on acidification to our ocean-dependent people.

Together, fishermen will continue to work with researchers, decision-makers, and communities to address this issue and its impacts on Alaska fisheries. ⚓

Jerry McCune is president of United Fishermen of Alaska, a statewide trade association representing 34 Alaska commercial fishing organizations. Online at ufafish.org.

New trade rule combats illegal, fraudulent seafood

Seafood traders are now required to provide more documentation for fish and fish products they wish to sell to American consumers. As of Jan. 1, importers have new recordkeeping requirements for proving that seafood products entering the United States are legally and sustainably caught, and truthfully represented.

The new rule, known as the Seafood Import Monitoring Program, marks a significant step in the global effort to prevent illegal, unreported, and unregulated (IUU) fishing and seafood fraud from entering U.S. markets. IUU fishing and seafood fraud threaten valuable natural resources that are critical to global food security and put law-abiding fishermen and seafood producers here in the United States and around the world at a disadvantage.

The rule applies to the following priority species: Atlantic and Pacific cod, blue crab, mahi mahi, grouper, king crab, sea cucumbers, red snapper, sharks, swordfish, and tunas. In the future, the United States plans to add other species to the list, including shrimp and abalone.

Over the past year, NOAA Fisheries has worked with international importers to bring their operations into compliance with the new requirements.

Learn more about NOAA's efforts to crack down on global fish crime at tinyurl.com/yax3o62q. ⚓

– NOAA Fisheries

Western senators chase fisheries disaster relief

U.S. senators from Alaska and the West Coast were looking to secure fisheries disaster funding as Congress considered a relief package for hurricane and wildfire impacts in places such as Puerto Rico, Texas, and California.

The bipartisan group of Western senators requested the fisheries disaster relief in a Jan. 10 letter to Senate Appropriations Committee leaders.

"All fisheries, including commercial, recreational, charter, and fisheries of importance to American Indians and Alaska Natives are central components in the economy and culture of many coastal communities," the letter said. "In Pacific coastal states, fisheries support a diverse hub of commerce including shipbuilders, hotels, restaurants, and vessel support services among others. Prolonged diminished returns in fisheries have stifled economic development, threatened the financial stability of fishing families dependent upon the industry's vitality, and severely endangered Native American subsistence and ceremonial harvests."

The letter continued: "As of January 2018, the U.S. Department of Commerce has declared a total of nine fisheries disasters in Alaska, California, and Washington state, with several other disaster declarations pending official designation. While complete economic impact is difficult to evaluate, NOAA Fisheries has estimated that the total direct losses for all outstanding declared fisheries disasters is equal to approximately $150 million in Alaska, $140 million in California, and $117 million in Washington state."

Senator signing the letter included Lisa Murkowski and Dan Sullivan of Alaska, Patty Murray and Maria Cantwell of Washington, Jeff Merkley and Ron Wyden of Oregon, and Dianne Feinstein and Kamala Harris of California.

Information on the fishery disasters is posted at tinyurl.com/ybathfrq. ⚓

– Wesley Loy

Sen. Murkowski introduces acid ocean bill

U.S. Sen. Lisa Murkowski, R-Alaska, has introduced legislation to "identify and assess communities, including island communities, low-population rural communities, and subsistence communities, that are most dependent on coastal and ocean resources that may be impacted by ocean acidification."

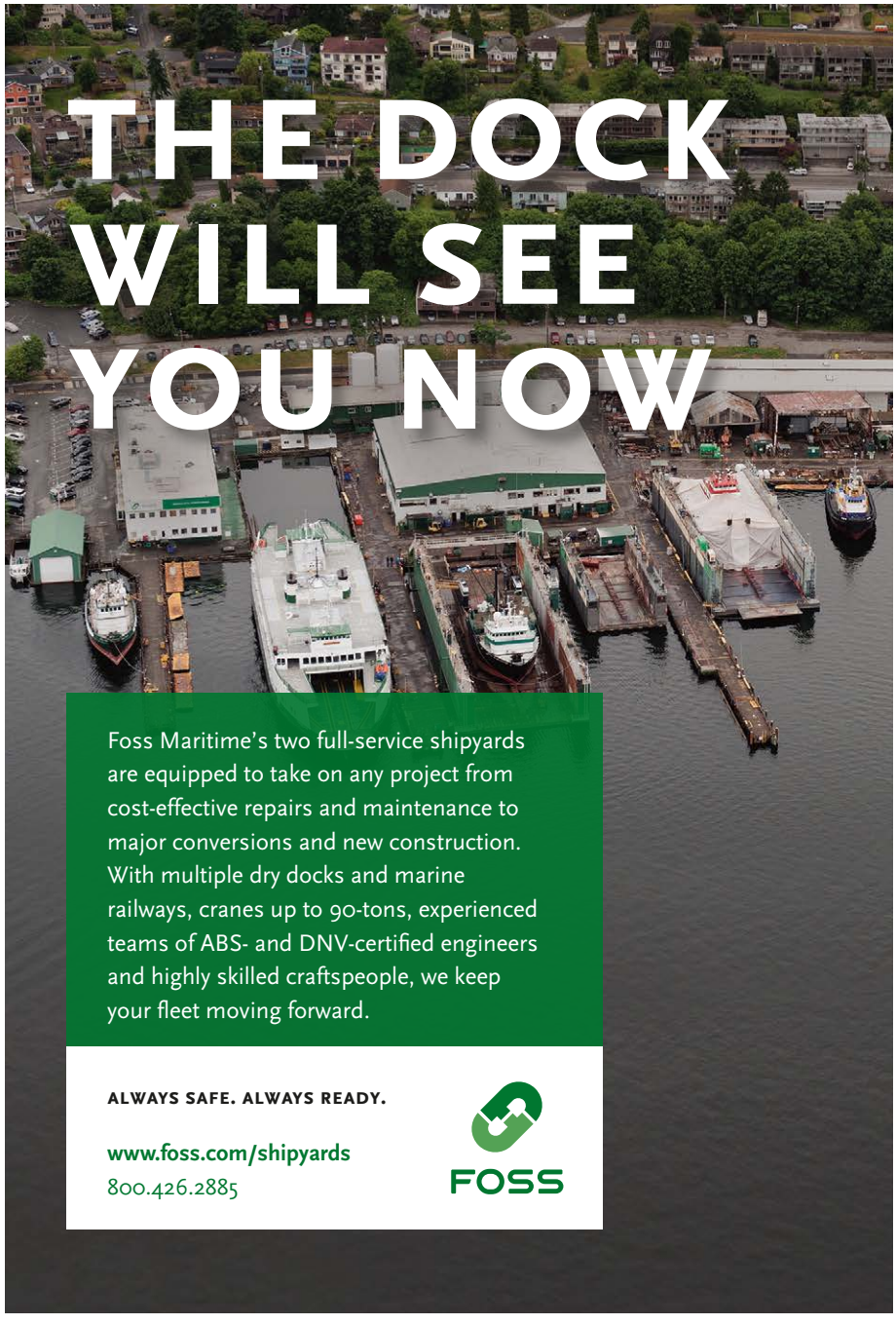
Cosponsors include Sen. Maria Cantwell, D-Washington; Sen. Susan Collins, R-Maine; Sen. Gary Peters, D-Michigan; and Sen. Sheldon Whitehouse, D-Rhode Island.

The legislation, titled the Coastal Communities Ocean Acidification Act (S. 2229), addresses "a very real issue," Murkowski said.

"This is significant legislation for those living in a state or community whose livelihood greatly depends on the health of our oceans," she said.

The bill directs the National Oceanic and Atmospheric Administration to conduct coastal community vulnerability assessments related to ocean acidification. ⚓

– Wesley Loy



SE Alaska seine boat forfeited in 'creek robbing' case

Editor's note: The following is a press release issued Jan. 11 from the Alaska Department of Law. The department's Office of Special Prosecutions supplied the photo of the F/V Tlingit Lady.

On Jan. 10, Prince of Wales Island commercial salmon seiner Curtis Demmert was sentenced on multiple misdemeanor counts relating to commercial fishing in closed waters, fishing too close to a salmon spawning stream, and falsifying his commercial fish ticket.

On Sept. 13 of last year, Alaska Wildlife Troopers received a report that the F/V Tlingit Lady, a 58-foot commercial seine vessel captained by Demmert, was seining for salmon at the head of Coco Harbor, roughly 65 miles into closed waters. Coco Harbor is home to several salmon spawning streams and has been closed to commercial fishing for nearly 30 years. Later that evening, the caller reported again that the F/V Tlingit Lady was making an additional set in Coco Harbor. After the final set, the vessel blacked out its lights and left Coco Harbor in the dark.

On the morning of Sept. 14, Demmert offloaded 23,159 pounds of salmon to a commercial tender vessel. Demmert claimed the fish were caught on Sept. 13 in open water near McLean Arm, some 65 miles from Coco Harbor. The average catch for seiners fishing in the open area was 9,000 pounds.

Based on the distance into closed water and the fact that Demmert was fishing near a salmon spawning stream (an illegal practice known as "creek robbing"), the wildlife troopers seized the F/V Tlingit Lady and everything on it, including the skiff and seine nets.

On Dec. 19, Demmert pled guilty to charges including commercial fishing in closed waters.

On Jan. 10, the defendant was sentenced by the court in Prince of Wales. The prosecutor from the Department of Law, Office of Special Prosecutions argued that Demmert took a calculated risk when he fished far into closed waters for potentially significant monetary gain and that his actions put a salmon run in peril.

The prosecutor stated that "without vigorous enforcement of the regulations, fish in Alaska could be wiped out, and the employment, sport, subsistence, and traditions of Alaskans gone with them."

In arguing for forfeiture of the vessel, the prosecutor stated "other commercial fishermen and the general public must know that if a fisherman commits an offense this egregious, the vessels and instrumentalities used in aid of the violation will be lost to them."

The court imposed a sentence including a $32,728.79 fine, 180 days of suspended jail time, forfeiture of $17,728.79 from the illegally caught salmon, and forfeiture of the F/V Tlingit Lady, the seine skiff, seine nets, and everything aboard the vessel to the state of Alaska. ⚓

ON THE HORIZON

Pacific Fishing *magazine's monthly digest of upcoming management meetings and other notable events.*

- **North Pacific Fishery Management Council meeting, Feb. 5-12, Seattle.**
- **Pacific Salmon Commission annual meeting, Feb. 12-16, Vancouver, British Columbia.**
- **Alaska Board of Fisheries meeting, March 6-9, Anchorage.** *The board will consider statewide (except Southeast and Yakutat) Dungeness crab, shrimp, other miscellaneous shellfish, and supplemental issues.*
- **Pacific Fishery Management Council meeting, March 8-14, Rohnert Park, Calif.**
- **Seafood Expo North America, March 11-13, Boston.** *More information at seafoodexpo.com/north-america.*
- **ComFish Alaska, March 22-24, Kodiak.** *More information at kodiakchamber.org/comfish.*
- **North Pacific Fishery Management Council meeting, April 2-10, Anchorage.**
- **Pacific Fishery Management Council meeting, April 5-11, Portland.**
- **Seafood Expo Global, April 24-26, Brussels, Belgium.** *More information at seafoodexpo.com/global.*
- **North Pacific Fishery Management Council meeting, June 4-12, Kodiak.**
- **Pacific Fishery Management Council meeting, June 6-14, Spokane.**

Bering pollock remains strong; cod crisis in Gulf

This year's total allowable catch (TAC) for Alaska Eastern Bering Sea pollock, one of the world's largest commercial fisheries, is a strong 1,364,341 metric tons.

That figure, as recommended in December by the North Pacific Fishery Management Council, represents a very slight increase over the 2017 TAC of 1,345,000 tons.

Bering Sea pollock anchors Alaska's huge groundfish fisheries, keeping two powerful fleets busy – the factory trawlers that process their catch at sea, and the catcher boats that deliver fish either to mothership processors or to shore plants at Dutch Harbor, Akutan, and other Alaska ports.

The council also set TACs for other important Bering Sea and Aleutian Islands groundfish stocks. For Pacific cod, the TAC is 203,831 tons, a 15 percent decrease from last year's level.

The yellowfin sole TAC is unchanged at 154,000 tons.

For sablefish, the TAC is 3,452 tons, a 15 percent increase.

Market trends: Pollock is processed into three primary products – surimi, fillets, and roe. The United States and Russia are the two major pollock producers globally.

Asian markets dominate for surimi, and "demand has remained strong," says a National Marine Fisheries Service economic report released in December.

"In recent years, U.S. surimi exports to South Korea have grown and in 2013 surpassed exports to Japan," the report says.

The high supply of pollock has put downward pressure on fillet prices in recent years, the report says. Also, the United States was the only producer of Marine Stewardship Council certified pollock until 2013, when about half of the Russian catch won MSC certification. This reportedly improved access for Russian-caught pollock in European and U.S. fillet markets, putting downward pressure on prices.

Fillet prices may increase slightly but not substantially this year, the report says.

Regarding pollock roe, the report says it's "unlikely that roe prices will return to levels as high as those observed prior to 2007 over the next four years."

Gulf cod crisis: For the Gulf of Alaska, the council set a pollock TAC of 166,228 tons, down 20 percent.

The sablefish TAC is 11,505 tons, up 14 percent.

The top story, however, centers on Pacific cod, where the council set a TAC of 13,096 tons, a staggering 80 percent cut from last year.

Cod is a mainstay for the gear-diverse fleets of Kodiak and other regional ports, and so this huge decrease is a calamity.

To alert fishermen, the council took the unusual step of issuing a one-page bulletin headlined "Attention Cod Fishermen!" It shows how 2018 catch limits compare to 2017 limits by area, fishery, and season.

So, what's behind the Pacific cod crash in the Gulf?

"Scientific information suggests that this decline is the result of an unusually warm mass of water (the 'blob') that persisted from 2014 through 2016," the bulletin says. "The warm water increased the metabolism of cod while reducing available food, resulting in poor body condition and increased mortality. The warm water also impacted cod egg production and larval survival, greatly reducing recruitment during these years. The lower number of adult and juvenile cod will affect the population and fishery for several years to come."

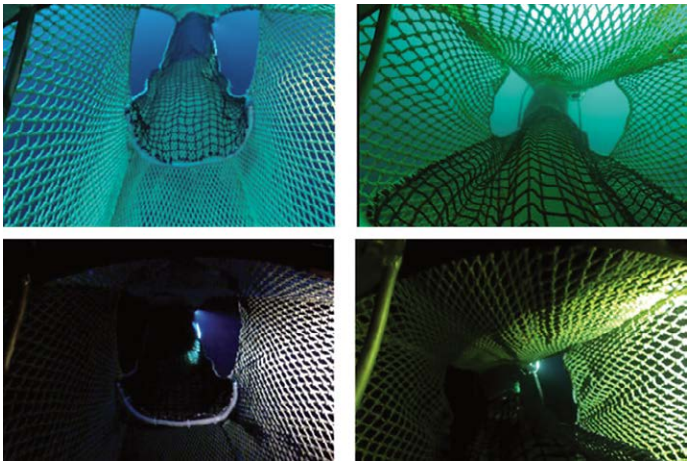
– Wesley Loy

Q&A LEDs light the way out for Chinook salmon bycatch

Editor's note: The following article comes from NOAA Fisheries.

The development of efficient, cost-effective light-emitting diode (LED) technology has led to a growing list of innovative residential and industrial applications. With NOAA Fisheries Bycatch Reduction Engineering Program funding, researchers have found that LEDs can play an important role in productive and sustainable fisheries as well.

A study by the Pacific States Marine Fisheries Commission and the Northwest Fisheries Science Center shows that LEDs are very effective in directing Chinook salmon to escape windows in Pacific hake trawl nets. Chinook salmon bycatch in the Pacific hake fishery, the largest groundfish fishery on the West Coast, can be an issue; if too many Chinook salmon are caught, management measures, such as temporary closures, are implemented to conserve this threatened and endangered species.



Data show that Chinook salmon are much more likely to exit the nets where lights are placed – 86 percent of escaped salmon used the well-lit, LED-framed openings. While further research is underway, the data suggest the LEDs can increase the salmon's escapement overall.

We caught up with Mark Lomeli, a researcher at the Pacific States Marine Fisheries Commission, for more on this important study.

Q: Tell us how this study came about.

A: It's always a concern for everyone involved when an ESA-listed species is being caught, so we wanted to develop a salmon excluder design to lower their incidental catches. Together with fishermen, we came up with a design that uses two sets of large, open escape windows that allow the salmon to swim out. We used a camera with an LED light attached to it to see if the escape windows were working, and we noticed the salmon seemed to be swimming toward the light. That made us wonder if we could modify our design with lights to influence where the salmon escape and how effectively they escape.

Our data and video observations indicate that at deeper, darker depths where trawl nets go, light from the LEDs are enhancing the salmon's ability to perceive the escape areas and the areas outside the nets.

Watch a three-minute video showing how an illuminated escape window can reduce Chinook salmon bycatch in the Pacific hake midwater trawl fishery.

tinyurl.com/ycm8b7sf

Q: Wouldn't the lit escape windows help the hake escape, too?

A: No, they're not nearly as strong swimmers as Chinook salmon. Our design is meant to exploit the strong swimming behavior of the salmon – they're quite powerful and can get to where they're trying to go. When hake are toward the back of the trawl nets, where the excluder device is positioned, they're generally too fatigued to swim out the escape windows.

Q: Can you shed some light on the type of LEDs used on the escape windows? Are they similar to the typical bulbs you see in homes?

A: They're fairly similar to LED lights you might see at the store. The lights we used on this bycatch reduction device are specifically manufactured by an outfit in Florida for longline fishing gear, so they're able to stand up to harsh ocean conditions.

Q: Can this technology be used to reduce bycatch of other species?

A: Yes, this technology has proven effective at reducing bycatch of eulachon (an ESA-listed species of Pacific smelt), and juvenile rockfishes and flatfishes in the ocean shrimp trawl fishery off Oregon. We also think the LEDs could be used in other fisheries – for example, in the walleye pollock midwater trawl fishery in Alaska – to reduce Chinook salmon bycatch.

Q: Have fishermen adopted this bycatch reduction device since you published your research results?

A: Many fishermen are aware of this technology now and use it if they think Chinook bycatch will be an issue. It's easy to use, relatively cheap, and widely available. You can easily clip the lights to the webbing of the net around the escape openings. With these research results in hand, the lights are on the shelf for them when they need them. We think these LEDs are low-hanging fruit for contributing to the recovery of this species, and can also play an important role in the stability of this fishery. ⚓

Dramatic decline seen in genetic diversity of Northwest salmon

Columbia River Chinook salmon have lost as much as two-thirds of their genetic diversity, Washington State University researchers have found.

The researchers reached this conclusion after extracting DNA from scores of bone samples – some harvested as many as 7,000 years ago – and comparing them to the DNA of Chinook currently swimming in the Snake and Columbia rivers.

Preserving genetic diversity is a central goal of the Endangered Species Act, in part because it helps a species adapt to changing environments. Yet it is rarely measured to this degree.

Writing in the journal PLOS One, the researchers say their analysis "provides the first direct measure of reduced genetic diversity for Chinook salmon from the ancient to the contemporary period."

Bobbi Johnson

In effect, they look beyond the four H's of fisheries management – habitat, harvest, hatcheries, and hydropower – to consider a fifth H, history.

The researchers found no specific cause for the decline. Possible impacts include heavy Native fishing pressures at falls along the Columbia, intensive fishing in the wake of European settlement, and the arrival of dams.

"The big question is: Is it the dams or was it this huge fishing pressure when Europeans arrived?" said Bobbi Johnson, who did the study as part of her WSU doctorate in biological sciences. "That diversity could have been gone before they put the dams in."

Johnson's co-authors are Gary Thorgaard, a WSU emeritus professor of biological sciences, and Brian Kemp, a former WSU molecular anthropologist and ancient DNA expert now at the University of Oklahoma. The researchers also worked closely with the Spokane and Colville tribes, associated agencies, and Stan Gough, director of Archaeological and Historical Services at Eastern Washington University.

Ancient garbage snapshot

The researchers started with a trove of 346 vertebrae drawn largely from ancient garbage piles, or middens. Wearing not one but two layers of medical gloves to avoid contaminating samples with their own DNA, the researchers gleaned sequences of mitochondrial DNA from a region shared by 84 of the ancient fish.

"It's like a little snapshot that tells you who's who, who's in what family or what lineage," Johnson said.

She then compared these with the same identifying regions on 379 contemporary samples.

"We found what was long suspected, that there was a lot of genetic diversity present, at least prior to when Europeans arrived," Johnson said.

The researchers were surprised to see a big difference between the diversity of contemporary Columbia and Snake River Chinook. On the upper Columbia, two-thirds of the Chinook genetic diversity has been lost. On the Snake, one-third has been lost.

While the researchers looked at ancient Chinook DNA from the Spokane River, there are no contemporary Chinook for comparison as construction of the Little Falls Dam in 1911 blocked their migration, Johnson said.

However, she said, the researchers found the ancient group had a large number of lineages, six, and "a diversity higher than any single-stock fishery in the contemporary Columbia sample."

Fishing and dams

Northwest Native Americans have caught Chinook for more than 9,000 years, often around natural barriers like waterfalls that served as bottlenecks for the salmon's prodigious runs.

Europeans were quick to exploit the fishery after arriving in the 1860s, and between 1889 and 1922 they harvested as many as 25 million pounds a year.

That declined to 15 million a year over the middle of the 20th century and now stands at less than 5 million, the researchers report.

The Rock Island Dam, the first on the main stem of the Columbia, was built in 1933, followed by the Bonneville Dam and the Grand Coulee Dam, in 1941, blocking oceangoing salmon from more than 1,000 miles of the upper Columbia. Dams on the Snake came more than a decade later.

The Columbia River Basin now has more than 400 dams, the researchers write, blocking more than half the river system's spawning habitat.

If the researchers were to tie a loss of diversity to market fishing or dam construction, they would need the DNA of fish from those periods. However, they were unable to draw workable DNA from salmon tissues preserved during the commercial fishing or dam-building eras. Their youngest ancient DNA sample was from a 150-year-old sample caught near Fort Colville.

Kemp, Johnson's co-adviser with Thorgaard, said the study's findings provide a baseline for what existed in the past and can inform discussions on the difficult task of bringing stocks back.

"This study serves as a tool for conservation genetics," he said.

Funding for the study was provided by Washington Sea Grant, the Northwest Scientific Association, Washington State University Elling Research Endowment, a NASA Space Grant Fellowship, and the Palouse Audubon Society. ⚓

– Washington State University

Bering Sea color change has ecosystem impact

NOAA Fisheries scientists are investigating the changing colors of the Bering Sea and what it means for the ecosystem that supports the nation's biggest fisheries.

In the summer of 1997, for the first time anyone could remember, a vast swath of the deep blue Bering Sea turned milky turquoise. That year, 190,000 seabirds died of starvation.

Satellite view of a coccolithophore bloom in September 2014. NASA Earth Observatory image

The colorful transformation repeated for the next few summers before diminishing to less intense blooms. Then, in 2014, the phenomenon returned on a large scale – and with it, another massive seabird die-off.

The culprit in the color change – and suspect in the seabird deaths – is a tiny drifter called a coccolithophore. These single-celled marine plants live in oceans around the globe and play a vital role in regulating atmospheric carbon dioxide. But under certain conditions their numbers can skyrocket locally into enormous "blooms" that cloud the waters with potentially catastrophic consequences for other marine life.

Exactly what those conditions are, why they suddenly set in 20 years ago, and what they portend for the Bering Sea ecosystem is still a mystery.

To begin to answer these questions, NOAA scientists are tracking late summer coccolithophore bloom extent from 1998 to 2016 using satellite color data. They are comparing this index with ocean conditions and looking at possible implications for forage fish and predators.

The study was initiated by oceanographers Lisa Eisner of the Alaska Fisheries Science Center and Carol Ladd of the Pacific Marine Environmental Lab after finding themselves in the middle of a bloom during a Bering Sea research cruise.

"I was amazed to see how extensive the bloom was, and the dramatic color," says Eisner. "I wanted to know, why is it here, and what is its impact?"

Chalk it up to chalk: Coccolithophores color the water because they are covered in chalk.

Unlike any other marine algae, coccolithophores armor themselves with plates of calcium carbonate – chalk. They shed multitudes of these tiny white discs, called coccoliths, into the surface water, where they linger long after the coccolithophores are gone. The plates reflect light the same way coral sands do in shallow Caribbean waters, with similar, shimmering turquoise results.

Stunning visual effects notwithstanding, coccolithophores can wreak havoc on the ecosystem. Eisner describes two ways that blooms can impact the Bering Sea ecosystem:

- They cloud the water, making it difficult for visual predators like seabirds and fish to find food.
- They may make the food web less efficient.

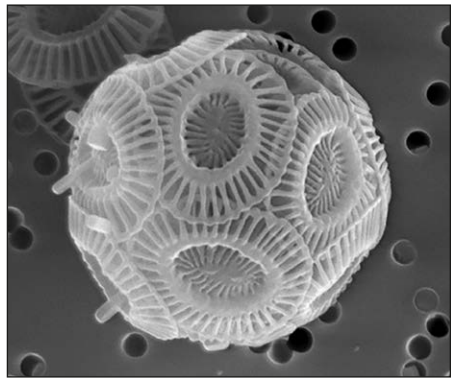
Because coccolithophores are so small, only very tiny predators can eat them. Every time one creature eats another, it gets only 10 percent of the nutritional value of its prey. When the food web starts very small with more creatures eating others on the way to the top, less nutritional value is left by the time it gets all the way up the long food chain to top predators like fish, seabirds, and mammals – including humans.

Coccolithophores normally thrive under low-nutrient conditions in calm waters – not those typical of the stormy, richly productive Bering Sea, famed for its bountiful fisheries.

To find out why coccolithophores are blooming there now, where they start, and what conditions trigger blooms, Eisner and Ladd's teams are comparing bloom extent with water temperature, nutrient levels, and water column stratification. In calm, stratified water, nutrients tend to be depleted near the surface where light is available for growth. If the water column is mixed by wind, nutrients are replenished in surface waters.

Not just warm years: Coccolithophores continue to defy expectations.

"We were surprised to see blooms in both warm and cold years, since they were thought to be a warm year phenomenon. We expected coccolithophores to do best with low nutrients, but found an unexpected positive relationship with slightly higher nutrients," says Eisner. However, she points out that all of the samples were taken during relatively low-nutrient conditions typical of summer in the Bering Sea.



Scanning electron microscope image of a coccolithophore from a 2015 bloom in the Eastern Bering Sea. University of California, Santa Barbara image

Eisner notes that there are limitations to the data they are working with.

"We can see the area covered by the coccolithophore bloom, but we can't tell how dense it is. Also, you don't see the color until coccolithophore populations reach bloom levels. That makes it hard to find out what conditions get them started. Finally, sometimes the color is caused by leftover coccoliths, not the living cells, lingering in the water. They still affect visibility but cannot be eaten so they would not be part of the food web."

Eisner has future plans to pin down the elusive conditions that trigger coccolithophore blooms in the Bering Sea.

"We are collaborating with leading experts on coccolithophores from the Debora Iglesias-Rodriguez Lab at the University of California, Santa Barbara. Through this collaboration we want to take samples spring through fall to watch the bloom from beginning to end, and hope to bring living coccolithophores back to the lab from the cruise this fall to see how temperature, nutrients, and light affect growth. Once we understand what causes the blooms, we will be able to predict and mitigate their effects on Bering Sea marine resources." ⚓

– Alaska Fisheries Science Center

New report documents amazing deep-sea coral, sponge resources

Red tree coral with a school of juvenile Pacific cod.

Deep-sea corals are among the slowest growing and oldest animals in the ocean, with some species living more than 4,000 years, and support ecosystems of incredible variety and diversity. Twenty percent of all known deep-sea coral species can been found off U.S. coastlines at least 50 meters (164 feet) below the ocean's surface. Deep-sea sponges can reach the size of a minivan, and may contain treatments for diseases such as pancreatic cancer. Many species create complex habitats that provide shelter, food, and nursery grounds, including for commercially important grouper, snapper, sea bass, rockfish, shrimp, and crab.

NOAA's new report, "The State of Deep-Sea Coral and Sponge Ecosystems of the United States," explains advances in deep-sea coral research over the past decade and how this new information is shaping deep-sea conservation. Each of the report's 13 peer-reviewed chapters was written by leading U.S. researchers. Six regional chapters summarize new research – much of it led by NOAA – and explain how results have led to improvements in deep-sea management. It also shares an understanding of coral and sponge taxonomy, species distributions, fisheries habitats, and the effects of human activities.

These chapters serve as a 10-year update to the first deep coral report, published in 2007, and provide the first look at U.S. deep-sea sponge ecosystems. Discoveries since the first report have also led to the description and increased understanding of 62 new species of deep corals in U.S. waters.

Six additional articles focus on cross-cutting topics including species discovery, interactions between fishing gear and corals/sponges, management of black coral harvests, improvements in habitat modeling, advances in coral aging and growth rate research, and current knowledge of coral genetics and reproduction. Research presented in this report consolidates our understanding of how deep-sea corals and sponges contribute to resilient ecosystems and sustainable fisheries.

The report highlights new diverse and dense deep-sea coral "gardens" discovered in every U.S. region, especially Alaska, where new evidence points to their role as habitat for fisheries of national and international importance.

The report also highlights expansion of national marine sanctuaries along the West Coast that protect deep-sea corals and sponges.

And it presents results of a major three-year exploration and research campaign to previously unexplored U.S. Pacific Island slopes, oceanic ridges, and seamounts.

The report also reveals progress in conservation and potential implications

Continued on Page 17

by NED ROZELL

A career fighting foxes in the Aleutians

On Halloween 2017, Alaskan Steve Ebbert, 56, retired from his job as an invasive species biologist. His longtime mission of removing arctic foxes and other human-introduced species from the Aleutian Islands has left him with a legacy few of us will match.

"There are hundreds of thousands more birds flying around on the planet because of that work. That's a pretty cool accomplishment," said Steve Delehanty, manager of the Alaska Maritime National Wildlife Refuge, referring to a program that began in the late 1940s. Ebbert took it over in 1995.

Ebbert's job was to reverse another legacy, that of Russian and American fur trappers who, starting in the late 1700s, dropped off a few pairs of arctic foxes on Aleutian islands. Those foxes, later harvested with their offspring for their fur, ate birds and their eggs, removing birds from some of the richest nesting cliffs and rye grass tangles on Earth.

In 1949, Bob "Sea Otter" Jones, a biologist and World War II veteran hired by the refuge, started removing foxes from Amchitka Island. Since then, refuge biologists and hired trappers have returned 48 islands to their fox-free beginnings, first using poison baits and since the 1990s using traps and rifles.

Dream job: In 1995, Ebbert stepped into a dream job for someone who as a teenager trapped muskrats and raccoons in Indiana. In summer of that year, as a start to his career with the refuge based in Homer, he camped on Simeonof Island with three seabird biologists. There, he trapped the last fox that survived a trapping effort the previous year.

From there, the burly biologist with a sourdough's beard planned and helped execute fox removal from different islands in the expansive refuge, which includes the entire sweep of the Aleutian Islands and stretches farther than the distance from St. Louis to San Francisco.

Ebbert remembers his summers by the islands he lived on, learning all the grassy bumps, fox trails, conical volcanic mountains, and freshwater streams. It was Seguam in 1996. Semisopochnoi was 1997. The next year was Kanaga. Attu was the year after that.

In his 22 years with the refuge, he and his seasonal teams of professional trappers cleared 18 islands of foxes. The islands ranged in size from Rootok (3,345 acres) to the farthest island in the chain, Attu (almost a quarter-million acres).

Birds come back: As the foxes disappeared, the birds returned. Heather Renner is a bird biologist who was Ebbert's supervisor. She remembers visiting Attu in 2003, right after foxes were removed from the mountainous island.

"We were doing a bird survey by skiff and we found the first Aleutian cackling goose nest since foxes were eradicated," she said. "If you go to Attu now, the valleys are deafening with the noises of Aleutian cackling geese."

That bird, similar to a Canada goose but with a shorter neck, was thought to be extinct before 1962, when Bob Jones found a few dozen on Buldir, a rugged and isolated island between Kiska and Shemya that had no foxes. Refuge biologists captured a few, bred some in captivity, and later released them on fox-free islands. Today, more than 150,000 Aleutian cackling geese nest in the Aleutians and winter in California and Washington. The bird moved off the endangered species list in 2001.

Renner thinks more islands could start to resemble Buldir, home of the largest and diverse bird colony in the northern hemisphere. She knows Ebbert had a lot to do with it.

Steve Ebbert with an Evermann's rock ptarmigan he captured on Attu and transported to Agattu in 2004. Ned Rozell photo

"We all wish we could leave the refuge a better place, and he's one of the people who can retire knowing he did."

She also appreciated that, on a staff dominated by bird biologists, Ebbert saw things through the eyes of that boy who received $7 for every muskrat he pulled from Indiana ditches.

"Steve had a different skillset than your typical refuge biologist," she said. "He was exactly what we needed. And he was always the guy who, if there was an oil spill (like when the Selendang Ayu broke in two off Unalaska Island in December 2004), he'd be the one to drop everything and go. Because of that, he knew the refuge better than anybody."

Over the phone from Indianapolis, where he was visiting his father and brothers on the family farm, Ebbert said his timing for retirement was good, in part because he had trapped himself out of a job.

All of the doable islands with problem foxes have been done, he said.

He also designed and helped finish plans to remove European rabbits from Poa Island and hoary marmots from Sud Island in 2010. In 2008, a team of partners killed all the Norway rats on the former Rat (now Hawadax) Island.

Ptarmigan transport: One of Ebbert's favorite memories is of a mission he designed to live-capture and transport a special group of birds from Attu to Agattu.

Evermann's rock ptarmigan exist only in the far-west Aleutians. When foxes came to Agattu in the 1800s, the birds disappeared. But they endured on Attu, perhaps because they could hide in the spacious mountains while foxes spent most of their time near the beaches.

In 2004, Ebbert enlisted grouse expert Clait Braun, wildlife veterinarian Bill Taylor, and volunteer Pat Pourchot to catch ptarmigan amid the rusting frames of Jeeps and other World War II relics on Attu. Using a 16-foot pole with a slipknot noose on one end and carpets that snagged ptarmigan toes, the men captured 27 birds. The crew of the refuge boat the Tiglax then transported the birds across 30 miles of North Pacific Ocean to Agattu, where foxes had been removed 40 years earlier.

The birds have a new foothold on the island, as many thousands of seabirds and songbirds now do on Aleutian islands that are becoming greener (from the added fertilizer) and louder each summer.

"It is one of the great conservation stories," said Jeff Williams, assistant manager of the refuge, who has stepped foot on each of the affected islands.

Trapping foxes off islands large and small "seems easy to do, but it's not," Williams said. "You need a person with drive and persistence. Tanaga, for example, took like six years of going back there to get the last couple pairs of foxes."

Camaraderie remembered: Ebbert will miss living on islands few people will ever see, but knows he will enjoy the lifetime of Saturdays ahead. He will also miss working off the Tiglax, with its able, professional crew, including a cook serving up fine breakfasts and dinners.

He forged a special bond with the hired trappers with whom he would share an island for a summer. For entire summers, pairs of men would be in their own territories, executing their duties on a wet, windy, often chilly island. Just like old-time trappers, two or three times each summer the trappers would walk to an island landmark to meet up with the others for a "rendezvous."

When Ebbert remembered those men, he might have been speaking of himself.

"No matter how old they are, they'll be able to point at a map and tell their kids and grandkids, 'I made that island fox-free.'" ⚓

Ned Rozell is a science writer for the University of Alaska Fairbanks Geophysical Institute.

Deep-sea coral *continued from Page 15*

of emerging industries such as deep-sea mining.

Deep-sea corals and sponges are extremely vulnerable to human activities that damage the seafloor or alter the surrounding environment, and once damaged, may take centuries to recover – if they recover at all. The report serves as a baseline for continued research to further understand and conserve these ecosystems.

Find the report online at tinyurl.com/ycupzeoc.

– NOAA Fisheries

DECEMBER 2017

FACEBOOK PHOTO CONTEST WINNER

HAILLEY MYERS

Summer 2017. Yakutat, AK.
Coho Trolling. Self portrait.

"You should see the other guys.
All 230 of them."

Thank you to everyone who entered the photo contest!

To enter the photo contest, go to our Facebook page:

facebook.com/PacificFishing

& look for the photo contest event.

Winners are announced monthly and published in the magazine.

ELECTRONICS

Furuno introduces new radar

Users of Furuno's popular NavNet TZtouch and NavNet TZtouch2 multifunction navigation units now have a another option for adding radar capability – the DRS4DL+.

Updating the company's DRS4DL radar unit, the DRS4DL+ adds Fast Target Tracking and Automatic Radar Plotting Aid technology to allow honing and tracking of up to 10 targets when used with a heading sensor.

Like its predecessor, the DRS4DL+ is compact and designed for easy interface with the NavNet TZtouch units.

Speed and course direction are quickly displayed once a target is selected. The unit's 5.2-degree horizontal beamwidth Radome antenna and digital signal processing allows users to see what Furuno calls "some of the clearest targets you'll ever find from a radar of this compact size."

The DRS4DL+ has a manufacturer's suggested retail price of $1,900.

Maintenance-free satellite compasses offered

Furuno's recent NavNet-compatible product releases also include two satellite compasses – the SC70 and SC130.

The new units interface with NavNet, sonar, radar, and fish finder networks through an Ethernet cable connection. Both use GPS technology to provide precise readings on a range of data, including heading, speed, rate of turn, and pitch/roll, and feature heaving compensation, which allows greater bottom and target detail.

Furuno describes the units as being "completely free from regular maintenance, unlike traditional magnetic compasses." The SC70 has an MSRP of $4,595 and the more precise SC130 retails at $10,395.

Simrad's user-friendly autopilot controller

One of Simrad's recent releases is the A2004 autopilot controller, which updates the AP70 and AP80 models.

The A2004's control layout is designed for ease of use – it features a large rotary control dial, a wide-angle color display screen, and dedicated buttons for quick access to steering control options.

The built-in controls are easy to use even while wearing gloves, and the unit also supports Simrad's autopilot remote controls and steering levers.

The unit's LCD display panel is constructed to eliminate internal condensation, making it visible in all weather, and features a 170-degree wide-angle visibility range.

The A2004 also works with interface modules for autopilot control of a single thruster.

WESMAR changes hands after 52 years

One of the marine electronics industry's best-known companies, Western Marine Electronics (WESMAR), has new ownership.

WESMAR founder Bruce H. Blakey in November announced the sale of the company to Roger Fellows.

Fellows is the former vice president of SkoFlo Industries, which specializes in chemical metering valves for the oil and gas industry.

Roger Fellows, left, WESMAR's new owner, and company founder Bruce Blakey.

Blakey founded WESMAR in 1965, with the company initially focusing on fish finders. The product range has since expanded to include bow thrusters, stabilizers, and hydraulic systems.

In a Nov. 20 press release announcing the sale, Blakey described Fellows as "a new innovator" who is "poised to take the company and its products to new heights."

The name of the company will stay the same, headquarters will remain in Woodinville, Washington, and employees will remain with the company, the press release said.

U.S., Canadian coast guards source electronics

Furuno recently landed deals with the U.S. and Canadian coast guards.

A five-year, $10 million U.S. Coast Guard contract is for installation of Furuno's DS60 Doppler Sonar on over 200 vessels, from patrol boats to 418-foot national security cutters, the Coast Guard's largest class of vessels.

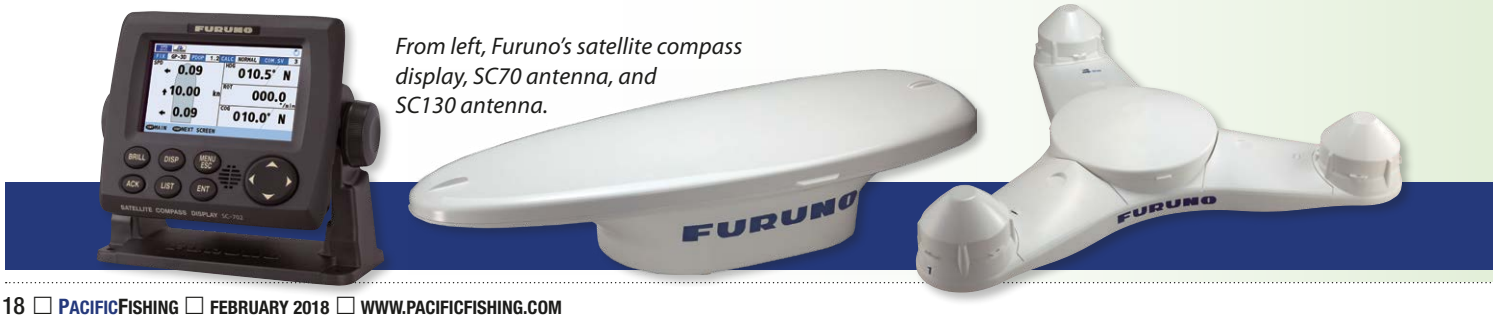
The DS60 is designed for precise berthing and docking, and features a single high-frequency transducer.

The Canadian Coast Guard chose Furuno to outfit a new series of search and rescue vessels with multi-station networks. The core components are NavNet TZtouch Black Box Processors and 19-inch and 14-inch touch screen displays.

The network radars include Furuno's 24-inch DRS4DNXT and the open array DRS6AX, which together attain long-range target detection of up to 96 nautical miles.

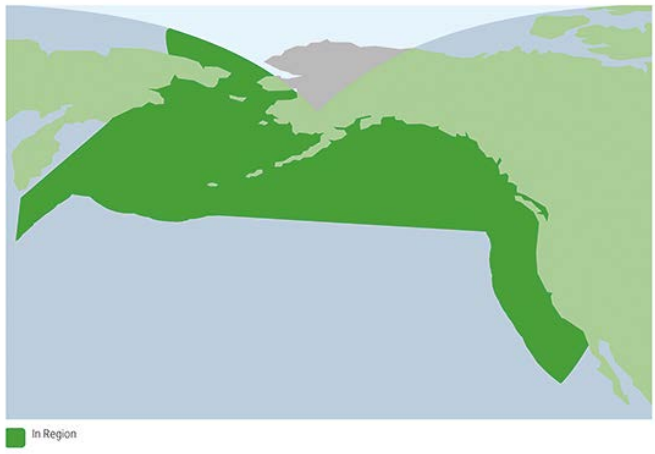
Furuno autopilot, depth sounder, depth sensor, thermal imaging, and digital data display units round out the navigation networks on the new Canadian Coast Guard vessels. ⚓

– Compiled by Daniel Mintz



From left, Furuno's satellite compass display, SC70 antenna, and SC130 antenna.

Inmarsat launches new Pacific Northwest pricing plan



Inmarsat Maritime has launched a new pricing plan for the Pacific Northwest to make it easier and more economical for regional Fleet One users to get live weather updates, track and trace fish, and send catch reports.

The new single SIM subscription plan represents the latest Inmarsat initiative to enhance vessel performance for Pacific Northwest fishermen, while also ensuring safety at sea, the company said in a Sept. 26 press release.

The targeted offer covers the Gulf of Alaska, parts of the Bering Sea, and coastal British Columbia, Washington, Oregon, and California.

It delivers free Fleet One to Fleet One voice calls for up to 30 minutes, pay-as-you-go IP data, and the seasonal flexibility to suspend services during inactive periods.

"We're delighted to offer a streamlined Fleet One Fishing Plan to regional fishers via the world's most advanced commercial global mobile satellite network," said Eric Griffin, of Inmarsat Maritime. "Fleet One delivers always-available connectivity as required for navigation and weather information, e-logs and tracking, as well as general applications. It allows fishing vessels to use the same platform for smartphone and tablet connectivity via Wi-Fi as they do for business-critical applications like VMS, email, and VPN."

Griffin continued: "Fleet One makes it possible to achieve greater vessel efficiency, improve seafarer connectivity, and meet regulatory obligations on catch data through a single solution which is easy to install and requires no specialist skills to run. Wi-Fi routing also means that seafarers' own mobile devices can be used over a satellite link fully protected by a firewall."

Using L-Band, Fleet One is specifically designed to provide reliable connectivity to low data usage customers operating routinely or intermittently outside VHF or GSM coverage areas, Inmarsat said in its press release.

"By delivering simultaneous voice and IP data at up to 100 kbps to vessels, it puts satellite broadband within reach of any vessel without users having to worry about network roaming charges. Fleet One has been proven as offering 99.9 percent availability globally," the company said. ⚓

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by ANJULI GRANTHAM

Chinese labor contractors and the early salmon industry

The first Asian-American cannery workers entered the salmon industry in 1870 at George Hume's cannery on the Washington side of the Columbia River. This was just six years after the Hume family founded the canned salmon industry. That year, Hume hired 15 Chinese men to work in his cannery.

By 1874, only one of the 13 canneries along the Columbia River had anything but an entirely Chinese crew. Chinese cannery workers traveled to Alaska in 1878 to help establish the first canneries at Klawock and Sitka.

As early as 1875, canners came to rely on Chinese labor contractors to provide nearly all the "inside" labor for the processing operation. Contractors were responsible for all aspects of managing the cannery crew, from recruiting, to overseeing work and production in the fish house, to feeding the employees and paying them at the end of the season.

Labor contracting provided a means for Asian immigrants to get work. For the contractors, it was a way to become wealthy. For example, when labor contractor Goon Dip died in 1933, he was president or on the board of directors of four different businesses, owned shares in mines, and was the Chinese consul in Seattle. Goon Dip Mountain and Goon Dip River on the west coast of Chichagof Island in Southeast Alaska are both named for this high-profile Chinese labor contractor.

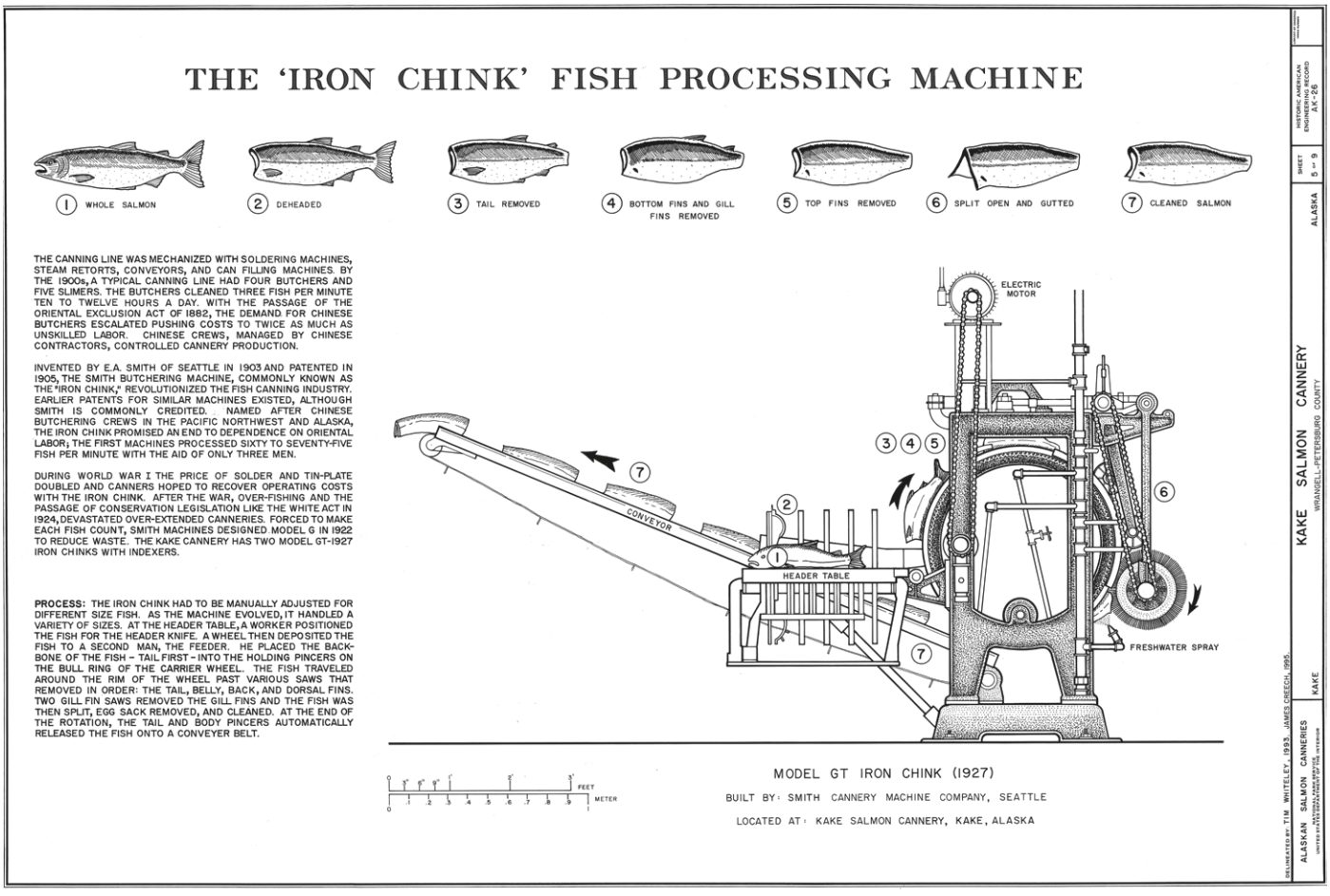
Early on, cannery work wasn't necessarily low-skilled, since it required finesse and practice to efficiently butcher fish, make cans by hand, and test cans to ensure they were properly sealed. There wasn't much incentive for canners to invest in new machines or dedicate resources to inventing labor-saving technologies when the canneries only produced canned salmon for a short portion of the year.

Mechanization: Much-touted innovations in the canning industry, like Edmund Smith's "iron chink," were not invented until decades after the establishment of the canned salmon industry. This can partially be attributed to the fact that canners had little incentive to mechanize since Chinese labor contractors provided an inexpensive, steady, and flexible migrant labor force.

As canners adopted new technologies, Chinese cannery hands weren't eager to abandon their skilled positions for what had become factory work. Chinese labor contractors sent inexperienced hands, often newer immigrants from Japan or the Philippines, to canneries that used new technologies so that the Chinese could cling to positions that were treated more as trades. This dictated the ethnic composition of canneries and the communities nearby.

But as mechanization increased, Asian-American workers were stuck in the same places within the cannery as the Chinese tinsmiths who had come before, even as the work had become increasingly lower-skilled. Machines changed, but the purview of the labor contractors and their employees within the cannery did not.

Continued on Page 30



Schematic drawing of the "iron chink." From the Library of Congress

by WESLEY LOY

Herring season approaches; a poor Copper River forecast

Herring outlook: State fishery managers have set healthy quotas for Alaska's two top herring fisheries.

The Sitka Sound sac roe herring fishery, which typically opens in mid-March, has a quota of 11,128 tons.

Last year's Sitka sac roe harvest was 13,923 tons on a quota of 14,649 tons. The ex-vessel value of the fishery was $4.29 million, Alaska Department of Fish and Game records show. That was a big increase from the $2.2 million tallied in 2016, when the harvest was 10,056 tons.

For the Togiak sac roe herring fishery in Southwest Alaska, managers have set a quota of 24,042 tons. Last year's fishery, which opened on April 28, produced a harvest of 17,403 tons.

The value of the Togiak fishery has been depressed for years, and last season's ex-vessel total was again modest at an estimated $1.74 million.

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Copper River forecast: Copper River salmon gillnetters appear headed for another subpar season.

The Department of Fish and Game is forecasting a commercial sockeye catch of 942,000 fish.

That, at least, would be considerably better than last season's dreadful result of 569,321 sockeye.

The famed Copper River fishery is expected to open in mid-May.

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Buyback proposal: Alaska legislators are in session again in Juneau, and they have an interesting piece of legislation to consider.

State Sen. Peter Micciche, R-Soldotna, introduced Senate Bill 135, which would establish a buyback program for eastside Cook Inlet setnet permits.

The bill says the Legislature finds it "in the public interest" to reduce the number of commercial setnet fishermen in the area.

Under the legislation, the state would conduct an election among eligible permit and land lease holders on whether to establish the buyback program.

If voters approve, participation in the buyback would be voluntary, the bill says.

The state Commercial Fisheries Entry Commission "shall purchase permits in the order in which they are offered for sale," the bill says. The commission would, "subject to appropriation," pay $260,000 for a permit.

Permits the commission purchases would be canceled. The buyback program would run until the number of permits is reduced by 40 percent.

Micciche himself is a Cook Inlet salmon fisherman, but he holds a driftnet permit, not a setnet permit.

Eastside setnetters have been in the eye of controversy in recent years, as they tend to catch some king salmon as they target sockeye. These kings are treasured by Kenai River sport fishermen.

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Sinking investigation: A federal investigation into the Dec. 6, 2016, sinking of a former crab vessel, the Exito, in the Bering Sea identifies "progressive flooding from an undetermined location" as the probable cause of the casualty.

"Contributing to the loss of life was the carriage of personnel on board, other than crewmembers, who were inadequately prepared and equipped for an emergency," adds the report from the National Transportation Safety Board.

The 117-foot Exito was on a 40-mile run from Dutch Harbor to Akutan, and had five people aboard – the captain, a crewman, and three contractors. During the trip, a wave struck the boat and it began listing to starboard. As the list increased, the captain gave the order to abandon ship.

The crew and one contractor made it to a life raft, but the other two contractors were never found, the NTSB report says.

At the time of the accident, the Exito was under charter agreement with Trident Seafoods Corp. to haul away "stickwater," a foul-smelling byproduct of fish processing, and crab waste from Trident's Akutan plant. And on occasion, the Exito carried general cargo such as the drums of antifreeze, crates of tools, and an industrial X-ray machine the boat was hauling the day of the sinking.

The captain estimated the weight of the deck cargo was far less than a full load of crab pots, the NTSB report says.

The Exito was among 25 crab boats selected in 2004 for a $97 million federal buyout. As part of the deal, the retired vessels were barred from commercial fishing anywhere in the world.

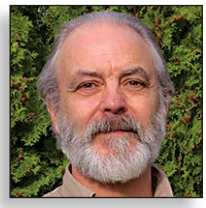
After the accident, the U.S. Coast Guard determined the Exito fell under the definition of a fish tender because it was predominantly engaged in hauling stickwater.

Because of the buyout, the Exito "should not have been used as a fish tender," the NTSB report says.

Wesley Loy is editor of **Pacific Fishing** *magazine and producer of Deckboss, a blog on Alaska commercial fisheries.*

by MICHEL DROUIN

Coalition calls for major fisheries reform



Petitioning for access: A broad group of organizations ranging from the Canadian Independent Fish Harvesters' Federation to the T. Buck Suzuki Environmental Foundation to Ecotrust Canada and community-supported fisheries is circulating a petition calling for major fisheries policy reform on Canada's west coast.

The group argues British Columbia fisheries are being managed using policies that result in the privatization of access to the fish with public resources now managed for the benefit of private investors and, increasingly, multinational companies.

"It is our fishermen, our communities, and Canadian citizens who are paying the price," the group's petition states, citing one recent transaction of over $50 million in licenses and quota sold to a corporate entity abroad.

The petition goes on to say that in B.C. the exorbitant cost of licenses and quota is leaving no room for independent fishermen and small-scale community and family fishing businesses to exist.

"Corporate investors are driving prices up and any fisherman in B.C. will tell you that it is extremely hard to enter and remain in Pacific fisheries due to extreme financial barriers," the petition states. "Our fisheries policies have allowed these practices to go unchecked, and have led to loss of jobs, seriously damaging communities and cultures along the coast."

But it is not just the producers who are being affected, the petition says. Consumers are being shortchanged too, it says, pointing out that currently 85 percent of Canadian seafood is exported while up to 93 percent of the seafood available to Canadians is imported.

"Canadian food security is in great danger when we cannot provide our own people with access to our own seafood," the petition says.

The petition calls on the federal government to commit to policy reform for Pacific fisheries that can address these issues.

For more information, visit saveourbc-fisheries.info.

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Endangered Fraser sockeye: The Committee on the Status of Endangered Wildlife in Canada announced Dec. 4 that some stocks of Fraser River sockeye are declining so fast that they should be listed under Canada's Species at Risk Act.

Nothing has been officially listed at this point, so it's unlikely that the announcement will have any impact on the eagerly anticipated Fraser River run in 2018.

With bumper runs in the cycle years of 2010 and 2014, sockeye fishermen are looking forward to a good year for Fraser fish.

But in its report, the committee said periodic collapses have caused serious concern, with 2016 seeing the lowest number of salmon returning to the Fraser River since records began in 1893.

Twenty-four distinct groups of sockeye salmon journey up the Fraser to their respective spawning sites in different tributary systems. The committee says they are exposed to common threats in the ocean and river, and some face particular threats on their spawning grounds.

The committee recommended eight populations as endangered, two as threatened, and five as "special concern." Nine populations were stable or increasing and so were assessed as being "not at risk."

One Fraser River stock, Cultus Lake sockeye – a tiny run that migrates to a lake in the lower Fraser Valley – already is listed as endangered by the committee. In the past 12 years, numbers of successfully spawning Cultus Lake sockeye have declined by 92 percent.

B.C. fishermen are looking forward to this season. In 2010, 28 million Fraser River sockeye returned, followed by 19 million in 2014. If the next generation on this cycle survives ocean conditions, fishermen are hoping for another successful fishery on this cycle.

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Fish farm viruses: A new study published Dec. 13 in the science journal PLOS One found that wild salmon exposed to salmon farms are more likely to contract piscine orthoreovirus (PRV).

PRV was detected in 95 percent of farmed Atlantic salmon, 37 to 45 percent of wild salmon from regions highly exposed to salmon farms, and 5 percent of wild salmon from the regions farthest from salmon farms.

"These results suggest that PRV transfer is occurring from farmed Atlantic salmon to wild Pacific salmon, that infection in farmed salmon may be influencing infection rates in wild salmon, and that this may pose a risk of reduced fitness in wild salmon impacting their survival and reproduction," the study found.

Michel Drouin has covered British Columbia's fishing industry since 1990. He lives in Vancouver, B.C.

by DANIEL MINTZ

Cooke Aquaculture comes under further fire

Government crackdown: Washington state is increasingly playing hardball against Cooke Aquaculture, which gained coast-wide infamy with last summer's mass escape of Atlantic salmon from its failed net pens at Cypress Island.

The scale of the escape is estimated at 160,000 fish and their invasive range is reportedly beyond Puget Sound, extending as far north as Vancouver Island. As 2017 closed, the company absorbed blows from various quarters of state government.

The Department of Natural Resources announced in mid-December that Cooke's Port Angeles salmon farming lease is terminated. DNR said that in addition to "operating in an unauthorized area," Cooke had "failed to maintain the facility in a safe condition" and allowed Styrofoam to disintegrate into a water pollutant.

A few days earlier, Washington's Department of Ecology announced that it fined the company $8,000 for essentially using Puget Sound as a bathtub for its dirty equipment at its Bainbridge Island net pen facility.

According to a press release on the fine, Cooke's pressure-washing of dirty equipment and other sloppy maintenance practices resulted in illegal wastewater discharges.

As of press time in early January, the next drop of the hammer was imminent. A multi-agency investigation into the Cypress Island fiasco was expected to be complete and its findings could trigger termination of the lease there.

DNR Commissioner of Public Lands Hilary Franz will review the investigation report and "assess DNR's full range of options" with regard to the Cypress Island lease.

The governmental actions compound the fallout Cooke is dealing with. A lawsuit filed in mid-November by the Wild Fish Conservancy advocacy group declares the release of the invasive salmon as a pollution discharge that violates the Clean Water Act.

On the legislative front, new bills that propose net pen bans in Washington waters are being advanced by lawmakers from both parties.

Cooke is pushing back, however. On Jan. 5, the company announced it had filed a lawsuit challenging DNR on the Port Angeles lease termination. In a press release, the company pointed out that DNR's "surprise filing" was made "just 10 days before Christmas" and "was based on erroneous and outdated information about the condition of the facility."

Cooke also advanced a spirited defense of salmon farming.

"Given Washington's commitment to the environment, we expect state officials to consider that farmed salmon represents one of the most sustainable protein sources available," said Joel Richardson, Cooke's vice president of public relations.

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Drilling unleashed: In a reversal of Obama-era energy policy, Interior Secretary Ryan Zinke began 2018 by announcing a five-year plan to "unleash America's offshore oil and gas potential."

The plan would open most of the outer continental shelf to drilling, including waters off Pacific Coast states where government oil and gas leases haven't been sold since 1984.

The plan proposes seven lease sales in the Pacific region. Northern, Central, and Southern California are each targeted for two lease sales and one sale is proposed for Oregon/Washington.

Sales of the leases would begin in 2019 if approved following what Zinke describes as a "lengthy and robust public comment period."

West Coast reaction was swift. Governors from the three coastal states jointly condemned the plan, warning that the proposed drilling would harm the fishing industry, threaten ocean ecosystems, and encourage carbon pollution.

The Pacific Coast Federation of Fishermen's Associations also spoke out.

The Interior Department announcement "confirms what fishermen have known for months: the Trump administration wants to put fish and fisheries at significant risk while lining the pockets of their oil industry co-conspirators," said Noah Oppenheim, the federation's executive director.

He added that "more frequent oil spills and more intense ocean acidification and warming are guaranteed to ensue" and the proposal "could cost fishermen hundreds of millions of dollars if it is implemented."

Oppenheim vowed that "West Coast fishermen will not stand for oil and gas exploration and exploitation in our ocean."

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Dungeness in a commercial crab trap. CDFW photo

Late to the table: West Coast Dungeness crab fisheries in Northern California, Oregon, and Washington were set to open on Jan. 15 after delays due to insufficient meat levels.

The season remained in doubt, however, as price issues and wind-driven ocean swells kept crab traps out of the water.

Leading up to the opening date, crabs were still testing below a 25 percent meat-to-total-weight ratio standard in Northern California and some areas of Washington and Oregon. Washington and Oregon together with Northern California are bound by an agreement to coordinate Dungeness opening times, and mid-January is the latest seasons can be held off due to meat quality.

California's central region south of Point Arena isn't bound by the tri-state pact and its season opened on time in mid-November.

Crabbing in the central region has been spotty, however. Dungeness crab was generally unavailable throughout the Christmas period, when fresh sales peak.

Season delays have become routine in recent years, due to low meat levels and opening price disagreements between fishermen and Pacific Seafood, which owns processing plants across the coast.

The presence of domoic acid wasn't a season timing factor after December. Amounts of the algae-related toxin subsided to safe levels in most areas of the coast.

Daniel Mintz reports from Eureka, Calif.

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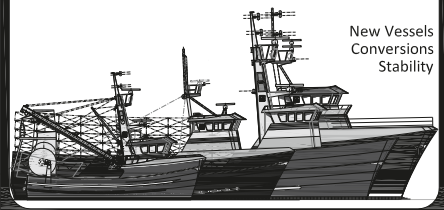

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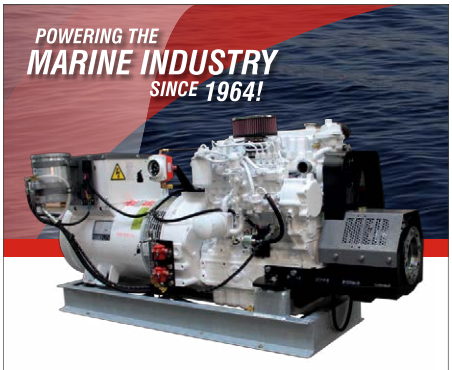

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P2143M – 32' 1983 ROBERTS STERNPICKER, CAT MAIN, TWIN DISC GEAR, ALUMINUM REEL W/AUTO LEVELWIND, BOW THRUSTER. WELL LAID OUT ROOMY CABIN. GREAT BASIC HEAVY DUTY BOAT. INCLUDES 7 SHACKLES OF GEAR FOR $55K. INCLUDES REBUILT RSW SYSTEM, READY TO INSTALL. PERMIT AVAILABLE AT MARKET.

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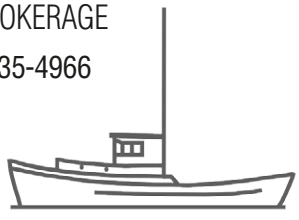

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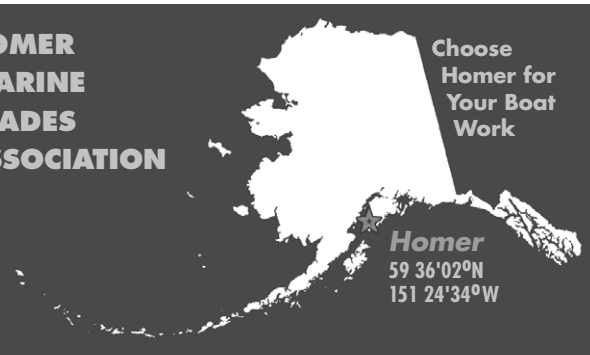

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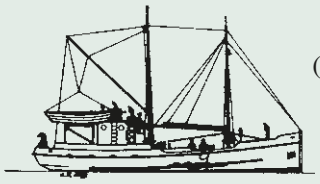

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IFQ NEWS

Price differences reflect the range from small blocks of D or C class on the lower end to unblocked B class unless ortherwise indicated.

HALIBUT

At the time of this writing, January 4, the halibut IFQ market is unstable. There are few trasactions, due primarily to the annual moratorium on transfers by NMFS and the proposed cuts in the TAC by the IPHC. Things typically get going again after the new TAC is actually set. Right now, however, people are wondering if the proposed cuts will stick, and what the consequences will be for the quota share market. Things could change quite a bit after the late-January IPHC meeting. Therefore, the values below (which are based on the 2017 TAC) are quite speculative and may shortly prove to be inaccurate.

AREA	ESTIMATED VALUES
2C	$60.00/# - $71.00/#
- Always buyer interst in 2C, but 27% cut recommended. Cuts temper enthusiasm.	
3A	$49.00/# - $61.00/#
- Relatively light 9% cut recommended.	
3B	$36.00/# - $45.00/#
- Ouch! Will the 40% cut stick?	
4A	$23.00/# - $28.00/#
- With 7% recommended cut, the least affected halibut area. Unblocked may come on the market.	
4B	$12.00/# - $22.00/#
- Down 10%, unblocked wanted.	
4C	$10.00/# - $20.00/#
- Suggested down 24%, little available.	
4D	$10.00/# - $20.00/#
- Same cuts as 4C, not much available.	

SABLEFISH

The 14% increase in the sablefish TAC in all areas of Alaska were confirmed. Interest in sablefish quota in all areas remains strong and availability is relatively tight. Buyers are looking for unblocked or decent sized blocks in all areas of the Gulf. In AI and BS buyers tend to be focused on A shares.

AREA	ESTIMATED VALUES
SE	$28.00/# - $36.00/#
- Some recent sales, little available now.	
WY	$28.00/# - $36.00/#
- Buyers looking, occasional blocks available.	
CG	$20.00/# - $30.00/#
- Increasing demand, stronger prices.	
WG	$11.00/# - $20.00/#
- Buyers looking, unblocked wanted.	
AI	$1.50/# - $7.50/# (A class)
- Demand for A shares, not B or C shares.	
BS	$1.50/# - $7.50/# (A class)
- Limited activity, buyer interest in A & B Shares.	

ALASKA PERMITS	ESTIMATED VALUES
AK Power Troll	$33K
Area M Drift	$155K
- Limited availability. Sellers wanted	
Area M Seine	$70k
Area M Setnet	$60k
Bristol Bay Drift	$155k
- Steady demand, but buyers not meeting recent asking prices.	
Bristol Bay Drift EMT	$19k
- Increased interest.	
Bristol Bay Setnet	$42K
- Several opportunites for rarely available sites.	
Chignick Seine	$140k - no offers
Cook Inlet Setnet	3 Packages Available
Kodiak Seine	$31k
Kodiak Tanner <60'	$25k
Lower Yukon Gillnet	$10k
PWS Drift	$140k
PWS Seine	$160k - $170k
Southeast Drift	$96k
-Offers remain low	
Southeast Seine	$210k
Chatham Sablefish	$412k
- Buyers actively looking	
Southeast Herring Seine	$320k

WEST COAST PERMITS	ESTIMATED VALUES
California Crab	Variable
Increasing interest, sellers wanted. - 175 pot - $50k-$80k range. Low demand. - 250 pot - $60k-$70k less than 30'. $70k-$150k for 30' - 58'. High demand for 45+. - 300+ pot - high demand and low availability. Range of $450-$700/pot depending on length. $700+/pot for 50'+.	
California Squid	$17k/ton - $19k/ton
- Increasing interest, but infrequency of sales make valuation difficult.	
California Squid Light	$17k/ton - $19k/ton
- Buyers actively looking for light permits, and brail permits with large tonnage endorsements.	
California Lobster	$95k (permit without gear)
Oregon Crab	Variable
- 200 pot: steady demand, any length. Offers of $45k-$55k. - 300 pot: $110k - 140k. Demand for 50'+. - 500 pot: high demand and low availability. Buyers looking.	
Puget Sound Crab	$175k
- Buyers looking. Interest remains strong	
Puget Sound Drift	$16k
Puget Sound Seine	$155k
Washington Crab	Variable
Activity has slowed with start of season, buyers remain active. - 300 pot: ranging from $2k - $3k/ft. High demand for 42'+. - 500 pot: high demand and low availablility.	
Washington Troll	$25k
Longline - Unendorsed	$100k-$120k for 30' to 50'+
Longline - Endorsed	Variable
- Some availability has led to an increase in activity.	

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HALIBUT IFQ

2C-C-U:	10,000 lbs	asking $72.00
3A-B-U:	4,900 lbs	asking $62.00
3A-C-B:	2,500 lbs	asking $55.00
3A-C-B:	1,800 lbs	asking $53.00
3B-B-B:	4,000 lbs	asking $43.00
4A-B-U:	13,000 lbs	asking $30.00

SABLEFISH IFQ

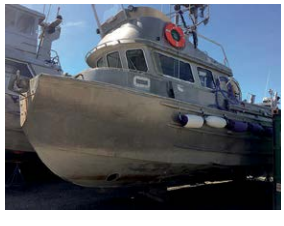
AI-B-U:	85,000 lbs	asking $3.10
CG-C-B:	5,400 lbs	asking $30.00
WG-C-B:	6,800 lbs	asking $18.00
WY-C-B:	4,750 lbs	asking $35.00

CO17-015 55.5'x17.5' steel combi, rigged for crab, longline & troll. 855 Cummins, 50 kW John Deere gen set. (2) radar, (2) GPS, (2) SSB, (2) VHF, sounder, sat phone, ComNav auto pilot, and more. Deck gear includes bait chopper, 19" Junes block, Junes roller, Kolstrand longline drum and more. Hull recently blasted to cap rails. New fish hold, ss fuel lines. Holds 26k# crab, 45k# halibut w/ ice, 25 tons tuna. Package INCLUDES Oregon 500 pot crab permit good to 58', Trilogy pots and 24 foot trailer. All good gear, no junk. Really clean boat. Asking $1,100,000.

SP17-019 37'x13' fiberglass flush deck gillnetter built by Wegly in 2015. John Deere tier 3 rated at 420 hp. Twin Disc 507 w/ trolling gear. Cruises at 10 knots and 19 knots WOT. Cummins Onan 6 kw genset. Stainless steel fuel and hydraulic lines though out. 500 gallons fuel capacity in (2) tanks. Packs 12k lbs of salmon in slush bags. A well equipped and comfortable boat. Asking $395,000.

SE17-004 57.5'x20' steel, rigged for seine/longline/pots, built 1987 by Fergusson. 425 hp John Deere 6135. 4.5:1 MG 514C gear. Deere 4045 99kw (new 2016) and Isuzu 30kw generators. Bow thruster. 40 ton RSW system. Packs 150,000#. Full electronics package. Price reduced to $850,000.

BB17-042 32'x14' fiberglass, RSW, flush deck, Bristol Bay gillnetter built by Maritime Fab in 2015. Scania Di12 w/ approx 650 hp. ZF360A marine gear w/ 2:1 ratio and ZF Mathers electronic controls. Power steering. Hydraulically driven Pac West 7.5 ton RSW. Naiad 8" bow thruster. Maritime Fab drum w/ Hawe valve controls, auto levelwind and 3rd gen. hub-less pwr roller. Packs approx 18k lbs in (12) insulated fish holds. Webasto diesel forced air cabin heater and propane stove. Asking $460,000.



BB17-063 32'x12.5' aluminum, RSW, Bristol Bay gillnetter built by Hydraulic Fishing Supply in 1982. CAT 3208 turbo rated at 435 hp. Twin Disk 507 gear. All running gear new in 2007. 8" bow thruster. New cabin, flush deck and fuel tanks by Alpha in 2006. RSW installed in 2007. Packs 11k lbs floating in insulated fish holds. Articulating drum w/ Maritime Fab levelwind, Rex Roth drive and Kinematics roller, all rebuilt in 2017. Asking $235,000.

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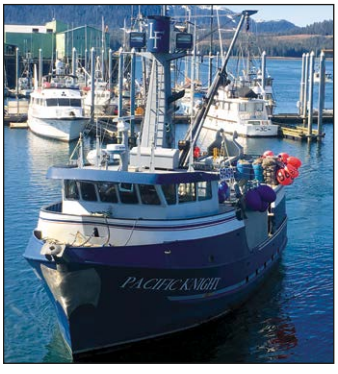
1990, 180' x 32' Steel double hull cargo ship in running condition. Good for fish plant, accommodation barge, feed barge or freight. 80, 60, 30 k gen sets 850 hp main engine, 10 kt @85 liters per hour, 30 ton hydraulic crane. Lying Pacific NW. Price $150 000. (360) 672-4009.



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58 foot longliner (auto baiter), seiner, crabber, tender. $1 million. Call 907-518-4551.

FOR SALE

Looking for California light-market brail boat licenses to sell. Call Don. (949) 279-9369.

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This unique 47' x16' Sunnfjord liveaboard/long range cruiser/potential fishing vessel is designed for comfort. It is unique in that it is entirely wheelchair accessible—including an elevator up to the pilothouse! 1500 hours on main Caterpillar 3208. 40hp Yanmar "get-home" diesel has less than 50 hours. 12.5kW Northern Lights genset and 5kW inverter. Niad stabilizers and a Webasto furnace keep you comfortable underway or at the dock. Washer/dryer and spacious galley and salon round out the amenities. Boat is in great condition in Ketchikan. Offered at $235,000. This is $100,000 BELOW REVENT SURVEY. Email mnkfitz@live.com or call/text 220-7490 or 617-1567 for more information and photos.

FOR SALE

Have several California lobster permits for sale. Some with traps. Priced to sell. Call Don Brockman. (949) 279-9369.

FOR SALE

114-ton California market squid purse permit. Priced to sell quickly. $2.3 million. Call Don (949) 279-9369.

FOR SALE

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FOR SALE

California purse seiner with market squid permit boat hold 80 ton of rsw squid. Two nets and skiff included and has crew already if needed, owner is retiring. 2,550,000 dollars. Call Don (949) 279-9369.

FOR SALE

Kodiak location – warehouse storage business and personal use – put together for a commercial fishing operation – 2.91 acres, 4 buildings, main warehouse 60'x180' – well outfitted shop, office and apartment and enough equipment to keep it going all year – forklift, flatbed, sander and 12 ton ford boom truck. Long term customers in place and lots of inside and outside space for own operation – $1,195,000.00 contact jefftsteele@icloud.com.

F/V ANNA

47' steel troller/sailer. Steel for price of wood. Isuzu 6BD1 130 h.p./550 fuel/good sails/aluminum poles & hayrack/full electronics/new aluminum pilot house, new hydraulic system and all new wiring 2005/drop in slush/crab tank/large insulated & glasses fish hold. Turn-key. Stika. Contact Bill Lewis (907) 738-1054 williamcampbelllewis@gmail.com

Looking Back *continued from Page 20*

Labor segregation, abuses: Labor contracting impacted the invention and adoption of new technologies and what ethnic groups worked at which canneries. The very landscape of the cannery was also shaped to accommodate the segregated work force. This was especially true in Alaska, where canneries had to provide bunkhouses and messing quarters for workers, since the plants were rarely established within or near an established settlement.

The architecture of segregation was evident in salmon canneries across Alaska. Ethnicities were segregated into different bunkhouses, mess halls, and bath houses, in addition to the segregated work assignments that developed, partially due to the labor recruiting channels adopted by the industry.

There were nefarious aspects of labor contracting. Some workers were never paid at the end of the season. Others left Alaska in debt to the contractor due to losing their earnings in contractor-run gambling rackets. Cannery workers were forced to purchase unnecessary goods, like fine suits at elevated prices from the contractors. Moreover, the only work that was made available for the Asian-American cannery hands was in the fish house. Fishing jobs, mechanic work, and beach gang employment was reserved for whites, and to a lesser extent, Alaska Natives.

Journalists in the 1920s drew attention to the cramped and filthy quarters provided to the minority crews on the ships that carried the workers to and from Alaska each year and other shadows inherent within the contracting system. Cannery workers and others filed a lawsuit against a San Francisco labor contractor, Mayer and Young, during which the workers' attorney asserted that the contractors were responsible for "the worst case of slavery since the Civil War."

The tarnished public image of labor contracting, paired with the Great Depression and the ascent of cannery unions, spelled the end to labor contracting within the salmon canning industry.

Anjuli Grantham is a public historian, writer, and producer based in Alaska. Read more of her work at anjuligrantham.com.

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2000 Crab - 30'5" x 11'
315 hp 6LPA Yanmar Diesel
$110,000(CAD) Stock# NA5137

Kwem-lm
2009 Prawn/Crab - 26'6"
330 hp Volvo D6 Diesel I/O
$135,000(CAD) Stock# NA5136

Kanaka Bay
1978 Longliner - 54' x 17'4"
325 hp CAT 3406-TA Diesel
$340,000(CAD) Stock# LA4553

Prawnto
2006 Prawn/Crab - 31' x 14'
C-7 Caterpillar Diesel
Vessel: $220,000(CAD)
Package: $790,000(CAD) Stock# LA5134

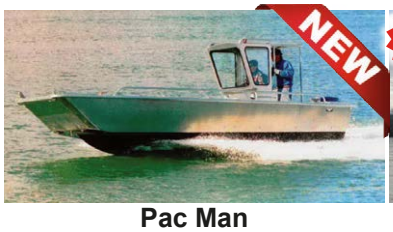
Ocean Horizon
1980 Longliner/Seiner/Trawler - 72' x 20'
475 hp KTA-1150 Cummins Diesel
$1,650,000(CAD) Stock# NS5132

Halcyon
1979 Seine/Longline/Crab - 46' x 14'5"
330 hp 6081 John Deere Diesel
$200,000(USD) Stock# NS5095

Sharon-Diane
1987 Gillnetter - 36'6" x 11'10"
240 hp 6068 John Deere Diesel
Vessel: $90,000(CAD)
Package: $230,000(CAD) Stock# LF5130

Moonlight Lady
1987 Gillnetter/Longliner - 36'4" x 12'6"
375 hp TAMD71B Volvo Diesel
Package: $310,000(CAD) Stock# LF5131

Rainforest Islander
1991 Ferry - 75' x 20'
2 x 425 hp John Deere Diesel
$850,000(USD) Stock# WA5068



Pac Man
2001 23 Utility Landing Craft - 23' x 8'6"
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250 hp 855 Cummins Diesel Inboard
Package: $600,000(CAD) Stock# LS5122

Jutland #2
1990 Gillnetter - 29'6" x 9'10"
720 hp 2 x 350 Mercruiser Gas I/O
Package: $125,000(CAD) Stock# LF5123

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INFO	LENGTH	PRICE WITHOUT BOAT	STOCK #
US Federal Permits			
Groundfish LLG - Can transfer January 2016		$50,000(USD)	2168-Lic
Central Gulf Non -Trawl Pot Permit - CV Pot Endorsed	56'	$80,000(USD)	2114-Lic
Western Gulf LLP Non Trawl	59'	$165,000(USD)	2088-Lic
Central Gulf Groundfish - Non-trawl and is pots, hook...	59'	$130,000(USD)	2221-Lic
US Permits - Alaska			
Alaska Shrimp Pot Southeast - Gear add $20,000(USD)		$25,000(USD)	2184-Lic
SE Shrimp Pot - Gear add $15,000(USD)		$18,000(USD)	2231-Lic
Chignik Salmon Purse Seine	43'6"	$210,000(USD)	2192-Lic
Longline Groundfish Central Gulf	50'	$10,000(USD)	2059-Lic
Central Gulf Cod Pot, Hook and Line, Jig Permit	87'	$200,000(USD)	2067-Lic
Kodiak Purse Seine	58'	$31,000(USD)	2370-Lic
Alaska SE Shrimp Pot Permit	58'	$18,000(USD)	2368-Lic
S Region Pribilof Isl. Red & Blue Crab	60'	$768,544(USD)	2375-Lic
S Region Pribilof Isl. Red & Blue Crab	60'	$1,142,575(USD)	2376-Lic
US Permits - Washington			
Puget Sound Gillnet	30'	$30,000(USD)	2127-Lic
Washington Salmon Troll		$35,000(USD)	2303-Lic
Washington Salmon Troll	46'	$35,000(USD)	2393-Lic

INFO	LENGTH	PRICE WITHOUT BOAT	STOCK #
US Permits - Oregon			
Oregon Salmon Troll Unlimited			2144-Lic
Oregon 200 Crab Pot Permit	32'	$73,500(USD)	2030-Lic
Oregon Salmon Troll	35'3"		2081-Lic
Oregon Salmon Troll Permit	36'	$10,000(USD)	2115-Lic
Oregon 300 Crab Pot Permit - 300+ Crab Pots	41'	$115,000(USD)	1922-Lic
Oregon Crab Pot 200 Permit	42'	$60,000(USD)	2086-Lic
Oregon Salmon Troll	42'	$15,000(USD)	2341-Lic
Oregon Salmon Troll Permit	42'	$35,000(USD)	1906-Lic
Oregon Salmon Troll Permit	46'	$25,000(USD)	2201-Lic
Oregon Unlimited Salmon Troll	60'		2279-Lic
Oregon Salmon Troll	46'	$20,000(USD)	2391-Lic
US Permits - California			
California Crab Permit T-7	35'	$75,000(USD)	2256-Lic
California Salmon Troll	41'	$14,000(USD)	2051-Lic
California Salmon Troll	45'	$35,000(USD)	2305-Lic
California Salmon Troll	46'	$35,000(USD)	2322-Lic
California Salmon Troll	47'	$25,000(USD)	2292-Lic
California Salmon Troll	46'	$35,000(USD)	2392-Lic

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