

Looking Back: The Tordenskjold's new life

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Trawl monitoring systems

- Alaska groundfish quotas
- California fishing fees

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Market challenges

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ON THE COVER: The halibut schooner Tordenskjold, in for paint at Fishing Vessel Owners Marine Ways at Fishermen's Terminal in Seattle. See Anjuli Grantham's Looking Back column on Page 16 for details on the boat's new career. Jeff Pond photo

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As this issue was heading to the printer, news outlets carried stories that potentially could challenge the Pacific seafood industry.

One story, from Bloomberg News, discussed meatless meat products and the rise of “vegan seafood.”

This is fake fish, made along the lines of plant-based beef products.

The story suggested vegan seafood has significant growth potential and mentioned a number of producers such as Sophie's Kitchen, of Sebastopol, California, and Tofuna Fysh, based in Portland, Oregon.

Sophie's website touts products such as VeganToona, Breaded Vegan Fish Fillets, and even Vegan Smoked Salmon. The company says its products are 100 percent plant-based using ingredients such as Konjac root and pea protein (but not soy).

As selling points, Sophie's talks about how some consumers are allergic to real seafood such as shellfish. The company also cites environmental problems with fish farming and “overfishing” of wild stocks.

Could vegan seafood catch on?

As always, Pacific fishermen and processors should focus on delivering the freshest and most responsibly harvested product possible. That's the best defense against any new competitor.

Parasitic PR problem: Another news story concerned the discovery of a tapeworm species in Alaska salmon.

The discovery was described in a research letter in the February issue of the government journal *Emerging Infectious Diseases*. See the article at tinyurl.com/hhb73gg.

The article said researchers, in July 2013, examined 64 wild salmon of various species and found “a single larva” in the musculature of a pink salmon collected in Resurrection Creek, near Hope, Alaska. This larva was identified as the Japanese broad tapeworm.

The researchers noted the “increasing popularity of eating raw fish” and said Pacific salmon are frequently exported unfrozen, on ice.

“This report provides additional evidence that salmon from the Pacific coast of North America may represent a source of human infection,” the researchers wrote.

The scientific article drew widespread coverage from CNN and other media outlets.

When bad news drops, it always poses a dilemma to industry: Do we respond, potentially generating more publicity, or stay quiet in hopes the story fades?

In this case, the Alaska Seafood Marketing Institute issued an immediate written response, saying “the original news story misinterpreted the study.”

ASMI said the discovery of one species of tapeworm in a pink salmon not taken or processed commercially was “not an indictment of the greater Alaska salmon commercial catch.”

Alaska salmon processors follow U.S. Food and Drug Administration guidelines on freezing or cooking “to effectively kill any parasites,” ASMI said.

It further noted that very little pink salmon goes out as a fresh product.

“For raw or semi-raw preparations, such as sushi and ceviche, ASMI recommends using properly frozen seafood,” ASMI said.

OK, so there's your defense of Alaska salmon. And it's a good one.

I'm guessing, however, that some consumers may still be squeamish over the thought of a tapeworm, even a dead one, in their salmon. Also, the discovery of one tapeworm larva is likely to spawn more scientific inquiry into just how widespread this parasite might be.

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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.

Northern California crab season set:

The commercial Dungeness fishery will open Dec. 1 north of Humboldt Bay to the Oregon state line. – cdfgnews.wordpress.com

Pollock power: The quota for Bering Sea pollock is likely to remain high next year based on the new stock assessment. – deckboss.blogspot.com

New commerce secretary: President-elect Trump has tapped billionaire Wilbur Ross for commerce secretary, and part of his job will be overseeing the nation's fisheries. – npr.org

Willapa woes: Gillnetters in Washington state's Willapa Bay seem to be losing their grip. – chinookobserver.com

What sank the F/V Alaska Juris? A public hearing is set to begin next week into the July sinking of the Bering Sea trawler. – deckboss.blogspot.com

Seeking relief: The commercial Dungeness fishery will open Dec. 1 north of Humboldt Bay to the Oregon state line. – cantwell.senate.gov

Poor king outlook: Directed Chinook salmon fisheries are unlikely next year at Southeast Alaska's Stikine and Taku rivers. – adfg.alaska.gov

Bering Sea sinking: Three crewmen are rescued and a search was underway for two more after the fishing vessel Exitto went down near Dutch Harbor. – uscgnews.com

Golden grains: Plans are afoot to mine beach sands northwest of Yakutat, Alaska. – kcaw.org

New protections: President Obama has issued an executive order creating a "climate resilience area" in the northern Bering Sea. – alaskapublic.org

Alaska's fury: The state's congressional delegation slams President Obama's latest executive order. – murkowski.senate.gov

Strong herring outlook: The Alaska Department of Fish and Game announced a quota of 14,649 tons for the 2017 Sitka Sound sac roe herring fishery. – deckboss.blogspot.com

Not so fast: A proposed rejiggering of commercial fishing license fees in Washington state is drawing opposition. – ballardnewstribune.com

Undone deal: Plans for a new Orca Bay Seafoods plant at a site in Federal Way, Wash., reportedly have been scrapped. – seattletimes.com

Dealing with deficits: Alaska Gov. Bill Walker has proposed cutting hundreds more state jobs as part of his budget plan. – juneauempire.com

Rising costs: Alaska's governor is proposing much higher taxes on motor fuels, including marine fuel. – murkowski.senate.gov

UW research: A new global study finds three key attributes of successful fisheries management. – washington.edu

Crabbing grounds expand: More of the California coastline is opening to commercial Dungeness harvest. – cdfgnews.wordpress.com

Delay nearly over: More of the Oregon coast will open for commercial Dungeness crabbing starting Jan. 1. – dfw.state.or.us

Unequal treatment: A federal appeals court has reinstated a California law allowing the state to charge nonresidents much higher fees than residents for commercial fishing licenses. – sfgate.com

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State, council fail to help Kodiak trawl fisheries

Editor's note: This commentary originally appeared on Jan. 5 in Alaska Dispatch News.

The North Pacific Fishery Management Council has a record for successful fishery management, built on principles known as the Alaska Model. Recently, the council abandoned the Alaska Model and its solid reputation for progressive fishery management. In doing so, the council failed the Gulf of Alaska trawl groundfish fisheries and our community of Kodiak.

Led by the state of Alaska, the council voted at its December meeting in Anchorage to "postpone indefinitely" any further work to address the goal of bycatch reduction through a cooperative management program for Gulf of Alaska trawl fisheries. Instead, the council ended a four-year public process to develop a program to achieve this goal. By their action, the state and the council put politics first, and the health of our fisheries and coastal communities came in dead last.



A Kodiak trawler, the Topaz. Photo courtesy of Alaska Groundfish Data Bank

Seafood is Kodiak's largest basic industry by a wide margin. Groundfish (Pacific cod, pollock, flatfish, and rockfish) provide more jobs and income to Kodiak than any other fishery. Most of this groundfish, 83 percent in 2014, is harvested with trawl gear as it is the only effective gear type for many of these species.

Kodiak city and borough recently contracted with McDowell Group to better understand Kodiak's fishery economy. That report shows that groundfish fishing and processing has the largest economic impact of any fishery in Kodiak, accounting for about half of the seafood jobs (1,952), labor income (\$111 million), and total seafood output (\$187 million) in the Kodiak economy in 2014. Further analysis by the North Pacific Council confirms the high percentage of Kodiak resident captains, crew, and processing workers dependent upon these fisheries and highlights the city's continued investment in infrastructure and utilities to support fisheries which provide vital, year-round jobs and contribute to the local and state tax base.

However, challenges for managing these fisheries continue to mount. Gulf trawl fisheries

operate in a race for fish under strict halibut and salmon bycatch caps that can close the fisheries well before the season's target catch is harvested. In 2016, this was about 120 days of lost harvesting and processing opportunity for Kodiak that could have been prevented.

Management systems to fix this problem are being used in several other fisheries in the north Pacific. They consistently result in more fish across the dock, cleaner fishing and improved products, and significant reductions in bycatch. Like it or not, we are in a global market for fish, and the Gulf of Alaska groundfish fisheries cannot compete under the current management system.

The need for a new approach was underscored during the council's June meeting in Kodiak. Roughly 2,000 people attended a celebration in support of Kodiak trawl fisheries, and the overwhelming testimony by trawl fishery participants supported the need for a positive change. As a result of this outpouring of public support, Alaska Department of Fish and Game Commissioner Sam Cotten stated several times on the record that he and the administration of Gov. Bill Walker and Lt. Gov. Byron Mallott wanted to work with trawl fishery participants to develop an acceptable program.

Fishery participants took Cotten's offer seriously and tried to work with him to understand the state's concerns and develop policies to improve management of the Gulf trawl fisheries that would meet those concerns. Over the course of several meetings the state was unable to identify changes it wanted to consider or even acknowledge how the Gulf trawl fisheries fit into the state economy. Absent the will to solve the problem, the council voted to stop work on this issue indefinitely.

Anyone who says that this outcome supports our coastal communities, small-boat fishermen, or other fisheries is mistaken. It is clear that the groundfish trawl fisheries support the economies of Gulf communities like Kodiak, Sand Point, and King Cove. The proposed new cooperative management system included protections for those communities and would have stabilized the fisheries they depend on. Measures for increased monitoring, individual vessel bycatch accountability, the ability to fish slower and with less impact, and reductions in halibut and salmon bycatch were also included. All of which would have benefited small-boat fishermen as well as the trawl fisheries.

This could have been a win-win for the state, the fisheries, and our coastal communities. But politics won out, instead of public input or analysis, and the federal fisheries management process failed. This was not the result of a healthy and functioning public process. Rather, it underscores a dramatic lack of willpower on the part of the council, and a failure of the process to tackle difficult but resolvable problems.

And our community and livelihoods will suffer for it. ↴

Paddy O'Donnell, a 27-year veteran fisherman, is the owner-operator of the 85-foot Kodiak trawl vessel Caravelle. Mitch Kilborn is director of operations for International Seafoods of Alaska in Kodiak.



Feds declare disasters for Alaska, West Coast fisheries

U.S. Commerce Secretary Penny Pritzker on Jan. 18 determined there are commercial fishery failures for nine salmon and crab fisheries in Alaska, California, and Washington.

In recent years, each of these fisheries experienced sudden and unexpected large decreases in fish stock biomass due to unusual ocean and climate conditions. This decision enables fishing communities to seek disaster relief assistance from Congress.

In Alaska:

- Gulf of Alaska pink salmon fisheries (2016)

In California:

- California Dungeness and rock crab fishery (2015-16)
- Yurok Tribe Klamath River Chinook salmon fishery (2016)

In Washington:

• Fraser River Makah Tribe and Lower Elwha Klallam Tribe sockeye salmon fisheries (2014)

• Grays Harbor and Willapa Bay non-treaty coho salmon fishery (2015)

• Nisqually Indian Tribe, Jamestown S'Klallam Tribe, Port Gamble S'Klallam Tribe, and Squaxin Island Tribe South Puget Sound salmon fisheries (2015)

• Quinault Indian Nation Grays Harbor and Queets River coho salmon fishery (2015)

- Quileute Tribe Dungeness crab fishery (2015-16)
- Ocean salmon troll fishery (2016)

"The Commerce Department and NOAA stand with America's fishing communities. We are proud of the contributions they make to the nation's economy, and we recognize the sacrifices they are forced to take in times of environmental hardship," said Samuel D. Rauch III, deputy assistant administrator for regulatory programs, NOAA Fisheries. "We are committed to helping these communities recover and achieve success in the future."

Under the Interjurisdictional Fisheries Act and the Magnuson-Stevens Fishery Conservation and Management Act, the commerce secretary can determine a commercial fishery failure due to a fishery resource disaster, which then provides a basis for Congress to appropriate disaster relief funding to provide economic assistance to affected fishing communities, including salmon and crab fishermen, affected by the disaster.

If Congress appropriates funds to address these fishery failures, NOAA will work closely with members of Congress and affected states and tribes to develop a spending plan to support activities that would restore the fishery, prevent a similar failure, and assist affected communities. ↓

– NOAA

Appeals court upholds California's higher fees for nonresident fishermen

California's charging of higher commercial fishing license and permit fees to nonresidents has withstood a legal challenge.

In a Dec. 21 majority opinion, the 9th U.S. Circuit Court of Appeals overturned previous court decisions, ruling that California's higher fees for nonresidents are justified because the state has "a rational basis for charging the differential fees."

A group of nonresident fishermen challenged the state's charges, arguing that they pay several types of California taxes yet are comparatively handicapped by the higher commercial fishing fees. The plaintiffs described the fees as discriminatory and unconstitutional.

The state's attorneys argued that the higher fees allow proportional recouping of expenses associated with management, enforcement, and conservation efforts. The state held that if nonresidents were charged the same fees as residents, they would essentially be "free riding," by adding to state management expenses that are subsidized by California taxpayers.

In siding with the state, the appeals court majority ruled that the fees aren't discriminatory because they aren't based on race, religion, or other protected categories.

"California's interest in receiving compensation for the benefit its management confers provides a 'rational basis' for its fee differentials," the ruling states.

Management subsidy: The ruling is influenced by the state's subsidization of commercial fishing management.

"For many years, California has managed its commercial fishery at a substantial loss," according to the ruling.

It cites financial data from the 2010-11 fiscal year, in which the

state spent \$20 million on commercial fishery management. Total vessel registration, licensing, and permit fees brought in only \$5.8 million, and the \$14 million-plus shortfall was covered through the state's general fund.

In reviewing case law, the ruling notes that "on several occasions, the Supreme Court has stated that a state's expenditures may justify discrimination against nonresidents that would otherwise be impermissible."

Pointing out that "the fee differentials charged by California are less than the amount by which California subsidizes the management of the nonresidents' portions of its commercial fishery," the ruling deems the higher fees to be justified.

The state has held off on charging the differential fees since Oct. 30, 2013, following the previous rulings in favor of the plaintiffs.

In 2010, California residents were charged \$120 for a commercial fishing license while nonresidents were charged \$361. At \$507, nonresidents were charged about twice as much for Dungeness crab vessel permits.

Residents were charged \$336 for herring gillnet permits, while out-of-state fishermen were charged \$1,269.

Nonresidents accounted for 9.4 percent of the state's commercial fishing vessel registrations in 2012 and 12.9 percent of its commercial fishing licenses.

A San Francisco Chronicle reporter quoted a lawyer for the plaintiffs as saying he would appeal the 9th Circuit ruling to the U.S. Supreme Court. ↓

– Daniel Mintz

Canadian officials want safety reforms in wake of F/V Caledonian sinking

Editor's note: The following is a news release issued Dec. 14 from the Transportation Safety Board of Canada. It has been edited slightly.

Another fatal commercial fishing accident that occurred in 2015 off British Columbia has led the Transportation Safety Board of Canada (TSB) to issue several new recommendations.

On Sept. 5, 2015, the Caledonian, a 100-foot fishing vessel with four crew members on board, capsized 20 nautical miles off the west coast of Vancouver Island.

The crew had been fishing for two days. After the final catch was hauled aboard, and as the crew prepared to stow it, the vessel began to list. Within a couple of minutes, water covered the deck and the vessel rolled over.

No distress call was sent and none of the vessel's emergency signaling devices activated. The vessel sank about six hours later. Only one crew member was wearing a personal flotation device (PFD), and this crew member was the only one who survived.

"At the TSB, we have seen similar circumstances occur far too often. In fact, on average, 10 fishermen die each year somewhere in Canada's commercial fishing industry. These deaths are nearly all preventable, and this is why this issue is still on our Watchlist," said Kathy Fox, chair of the TSB. "We are asking that all commercial fishing vessels have a stability assessment appropriate for their size and operation, that this assessment information be kept current, and that it be used to determine safe vessel operating limits."

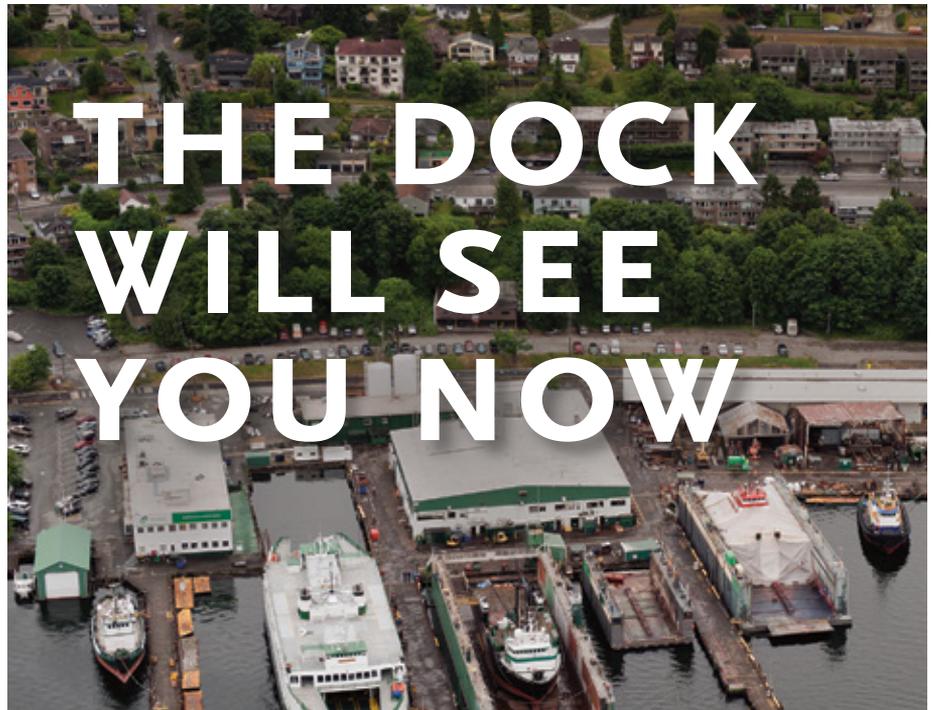
Stability issues: The investigation determined that the capsizing of the Caledonian was caused by a combination of factors. The most significant ones were the operating practices, such as where the fuel was stored and the way fish and seawater were loaded, and the tendency of vessels to grow heavier with time. These factors caused the vessel to float lower in the water and reduced its stability, which changed its safe operating limits. The crew, however, did not recognize that the vessel had grown heavier over the years or that their operating practices were putting them and the vessel at risk.

"Here in British Columbia, roughly 70 percent of all fishing-related fatalities in the past decade came while not wearing a PFD.

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The Caledonian moored in Port Hardy, April 2015. TSB photo



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Efficiency is the name of the game for trawlers today, and that's why many have invested in catch monitoring technology, experts say. Chris Miller photo

Subsea vision

Catch monitoring systems can help you get more out of your trawl gear

Sonar technology is essential for finding fish. But for trawlers, that's only the first step in the process of catching them. Monitoring the parameters of trawl doors and nets – such as their depth relative to water surface, their distance from the seabed, and the spread between trawl doors – is fundamental for making the most of each drag.

Catch monitoring systems give fishermen an underwater view of their equipment as it operates. The key units comprising these systems are wireless or cabled sensors that transmit acoustic signals.

Hydrophones or underwater receivers installed near a vessel's bow pick up the signals, which are processed into computer images that show a range of detailed information.

The variety of information depends on the number of sensors used. There are sensors for every aspect of trawl equipment, and

some can perform multiple functions.

Bottom trawlers will use different components than midwater trawlers, but a typical system will include monitoring of trawl doors, their pitch and roll (lift and tilt angles), and catch level or the amount of fish coming into the net.

"That would be the most typical, average catch monitoring system," said Patrick Belen, sales manager for Marport Stout, a Snohomish, Washington, company that manufactures wireless catch monitoring equipment.

Monitoring trawl doors requires two sensors, one on each door, while monitoring catch level is done with up to four sensors, depending on the size of the trawl net. The net sounder, which relays information on fish as they enter the net, is a single sensor mounted on the headrope.

Technological momentum: The scale of monitoring capability is constantly expanding. "Catch monitoring systems are advancing so fast with the implementation of new technology," Belen said.

There are sensors for monitoring every aspect of trawl behavior, including the speed at which a net moves through the water. Net positioning can also be precisely monitored, which allows maneuvering around the sides of canyons and through pinnacles to get to the most productive fishing areas.

A recent product release from Marport is its high-definition Trawl Explorer, a net sonar that uses Compressed High-Intensity Radar Pulse, or CHIRP, technology. Sweeping through a range of frequencies, CHIRP enhances image accuracy and detail.

Belen said the Trawl Explorer achieves vertical resolution of about 1 inch.

"That allows us to detect, with high precision, very, very small targets," he said. "In essence, it allows you to see and define the size of the fish coming into the net."

Marport's recently developed trawl speed sensors "allow the crew to configure the deployment of the trawl in the most efficient way," Belen said.

The advantages of catch monitoring systems

make them "a normal type of equipment that you find in all sorts of trawlers, from the factory trawlers to the small catcher boats," he said.

"That's because it's important to be efficient," Belen said. "In today's fisheries, it's not about how much you catch - quotas are set and everybody knows what they can get. But if you can do it efficiently, you're maximizing your effort."

Wired vs. wireless: In addition to sensor types, fishermen have the option of choosing wired or wireless systems.

Mike Hillers, sales and marketing manager for Simrad Fisheries in Lynnwood, Washington, said wireless systems perform reliably in still water conditions, but there's potential for interference if weather is rowdy or if other acoustic devices are operating.

Wired monitoring delivers very precise, stable imaging. But a winch and cable are necessary, significantly adding to a system's price.

Wireless is the better choice for getting a good display of the net opening.

"With parameter information like door spread, it would be totally impractical to do it with a cabled system," Hillers said.

But he added that Simrad has made a wireless/wired hybrid that uses wireless



Catch monitoring sensors may be placed on trawl doors, the footrope, headrope, or codend to relay critical information such as distance to the surface or bottom, distance between the trawl doors, temperature, or the filling rate of fish.

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TRAWLING

sensors to send signals to a wired sensor mounted on the headrope. The advantage is that the wireless signal only spans the distance to the headrope and from there on, it's a wired signal to the vessel.

Hiller described door spread as "the No. 1" parameter for trawlers, followed by roll.

"Roll is particularly important because you can gain so much money from having your doors off the bottom, even if your net's on the bottom," he said. "Dragging a door on the bottom – besides the environmental impact that that has – is also not fuel-efficient."

Product offerings: Simrad's Trawl Vision 80 processor is used with the company's PX series sensors. It takes signals from the hydrophone and processes them into the images displayed on a monitor.

The company's recently released TrawlEye unit has a built-in

echo sounder and uses CHIRP technology to deliver a clean, clear signal.

"You're not going to have as fine a resolution as you would if you had a wired echo sounder down there, but we're getting really close with it," Hillers said.

Simrad also makes a wired live video unit that's extremely useful for detecting and avoiding bycatch.

"When guys are fishing and get into rockfish or salmon or something they're not supposed to be catching, having a live video to look at is incredible," Hillers said. "We're the only ones doing it at this point, but we're going to have competition at some point, I'm sure."

The next advancement in catch monitoring isn't yet cost-effective, but Hillers said Simrad is assessing it. Using what he described as a "constellation" of numerous low-cost sensors on the trawl headrope, doors, and net, a 3D-type visual presentation is possible.

"When you know the position of the sensors in relationship to each other, the result will be the ability to see a dynamic shape of the net in the wheelhouse," he said.

Making the investment: The benefits of catch monitoring systems are significant, but so are the costs.

"If you're new to going into this, you're probably going to spend \$25,000 for a basic system," said Kandi Herrington, sales manager for Seattle-based Harris Electric.

It scales up from there, and investment in a more complete system is often done in stages. Herrington said that most fishermen who buy catch monitoring equipment are upgrading or adding to what they already have.

"Maybe they've decided to use their boat year-round and are going to do a different fishery, so they need a different function that can't be done with what they currently own," she said.

Herrington noted that "sensors can be very expensive if you lose them," which can happen if their shackles are broken.

"There are a lot of things that can go wrong, and most of these boats have spares," she said. "As technology has changed, sensors are now programmable on board the boat, so you don't have to have as many as you used to. But most boats have dual sets."

Sensors are built to last, however, and can withstand being banged around.

"If you've seen these things, they're beautiful when you first buy them," Herrington said. "And then after about a year on a boat, when they've been hit on the deck, been dropped, smacked across the side of the boat, you name it – they've got some good-sized dents on them." ↓

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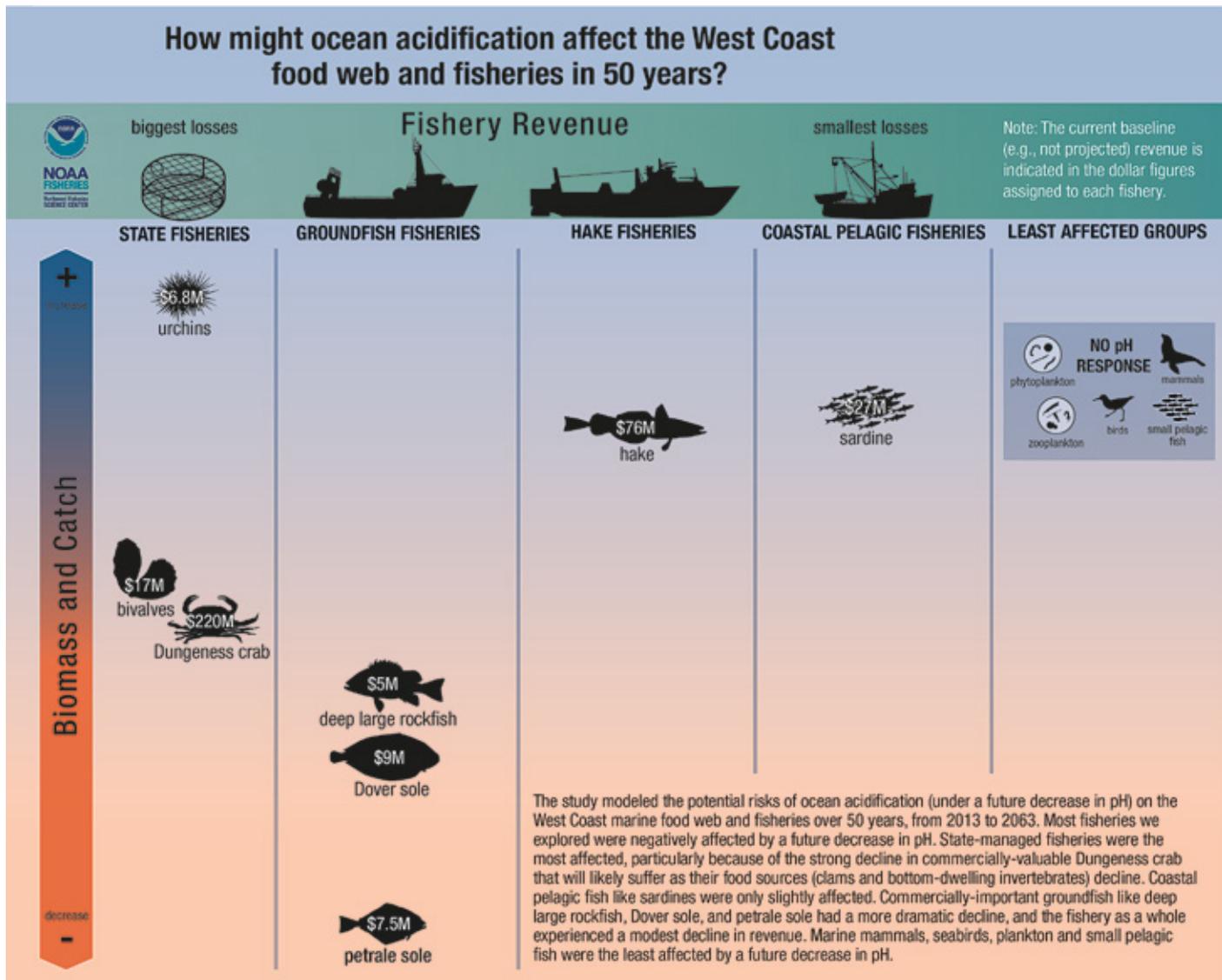
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Ocean acidification to hit West Coast Dungeness crab fishery, study shows



The acidification of the ocean expected as seawater absorbs increasing amounts of carbon dioxide from the atmosphere will reverberate through the West Coast’s marine food web, but not necessarily in the ways you might expect, new research shows.

Dungeness crabs, for example, likely will suffer as their food sources decline. Dungeness crab fisheries valued at about \$220 million annually may face a strong downturn over the next 50 years, according to the research published Jan. 12 in the journal *Global Change Biology*. But pteropods and copepods, tiny marine organisms with shells that are vulnerable to acidification, likely will experience only a slight overall decline because they are prolific enough to offset much of the impact, the study found.

Marine mammals and seabirds are less likely to be affected by ocean acidification, the study found.

“What stands out is that some groups you’d expect to do poorly

don’t necessarily do so badly – that’s probably the most important takeaway here,” said Kristin Marshall, lead author of the study who pursued the research as a postdoctoral research associate at the University of Washington and NOAA Fisheries’ Northwest Fisheries Science Center. “This is a testament in part to the system’s resilience to these projected impacts. That’s sort of the silver lining of what we found.”

Ecosystem effects: While previous studies have examined the vulnerability of particular species to acidification in laboratories, this is among the first to model the effects across an entire ecosystem and estimate the impacts on commercial fisheries.

“The real challenge is to go from experiments on what happens to individual animals in the lab over a matter of weeks, to try to capture the effects on the whole population and understand how

Continued on Page 12

vulnerable it really is,” said Isaac Kaplan, a research scientist at the Northwest Fisheries Science Center in Seattle.

The research used sophisticated models of the California Current ecosystem off the Pacific Coast to assess the impacts of a projected 0.2 unit decline in the pH of seawater in the next 50 years, which equates to a 55 percent increase in acidity. The California Current is considered especially vulnerable to acidification because the upwelling of deep, nutrient-rich water low in pH already influences the West Coast through certain parts of the year.

The ocean absorbs about one-third of carbon dioxide released into the atmosphere from the burning of fossil fuels, which has led to a 0.1 unit drop in pH since the mid-1700s.

The research built on an earlier effort by NOAA scientists Shalin Busch and Paul McElhany that quantified the sensitivity of various species to acidification, as originally reported in 393 separate papers. In a novel approach, Busch and McElhany weighed the evidence for each species based on its reported sensitivity in the laboratory, relevance to the California Current, and agreement between studies.

This synthesis by Busch and McElhany identified 10 groups of species with highest vulnerability to acidification. Marshall and colleagues incorporated this into the ecosystem model to examine how acidification will play out in nature. The study particularly examined the effects on commercially important species including Dungeness crab; groundfish such as rockfish, sole, and hake; and coastal pelagic fish such as sardines and anchovy over the period from 2013 to 2063.

“This was basically a vulnerability assessment to sharpen our view of where the effects are likely to be the greatest and what we should be most concerned about in terms of how the system will respond,” said Tim Essington, professor at the University of Washington and coauthor of the research.

The study provides a foundation for further research into the most affected species, he said.

Commercial species impacts: Although earlier studies have shown that Dungeness crab larvae is vulnerable to acidification, the assessment found that the species declined largely in response to declines in its prey – including bivalves such as clams and other bottom-dwelling invertebrate species.

Since Dungeness crab is one of the most valuable fisheries on the West Coast, its decline would have some of the most severe economic effects, according to the research. Groundfish such as petrale sole, Dover sole, and deep-dwelling rockfish are also expected to decline due to acidification, according to the assessment. However, fisheries for those species are much less valuable so the economic impact would not be as large.

Coastal pelagic fish were only slightly affected.

“Dungeness crab is a bigger economic story than groundfish,” Kaplan said. “There are winners and losers, but the magnitude of the impact depends on how important the species is economically.”

The research was funded by the NOAA Ocean Acidification Program and the National Centers for Coastal Ocean Science. Marshall was supported by a National Research Council fellowship. ↴

– NOAA Fisheries

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Bad behavior spreads like a disease among sea lions at Bonneville Dam

A new study used the same kind of models that scientists use to track disease to instead examine how some California sea lions have learned to prey on salmon gathering to ascend fish ladders at Bonneville Dam.

Although sea lions commonly feast on fish, their predation on salmon at Bonneville Dam on the Columbia River poses wildlife management challenges. The sea lions that gather on the Columbia each spring are protected by the Marine Mammal Protection Act while the salmon they are eating are protected by the Endangered Species Act.

In 2008, NOAA Fisheries authorized Oregon, Washington, and Idaho wildlife authorities to begin trapping and removing sea lions shown to repeatedly prey on salmon at the dam. The removal program was designed to reduce impacts on protected salmon.

NOAA Fisheries recently authorized the states to continue the removals over the next five years.

The new study examined the effectiveness of the removal program, employing epidemiological models to assess how the behavior of eating salmon at the dam passes among sea lions. The research concluded that the removal program has successfully slowed the transmission of the behavior among sea lions, but would have been more effective if it had started sooner.

The findings highlight the need to act early “from both a conservation and management perspective to prevent the spread of a detrimental behavior and to minimize the total number of animals removed,” the scientists wrote in the paper published in the journal *Proceedings of the Royal Society B*.

Act early: “The earlier you start, the more effective you are at slowing the spread, and the fewer animals you have to remove to make a difference,” said Zachary Schakner, who coauthored the study as a graduate student at UCLA and is now recreational fisheries coordinator in NOAA Fisheries’ West Coast Region.

The states have removed 166 California sea lions since the effort began in 2008, a small fraction of the number of animals that migrate to the Columbia each winter and spring. The states may euthanize sea lions if no permanent holding facility, such as a zoo



Sea lions at Bonneville Dam are a major source of salmon mortality when they prey on migrating fish at the dam’s fish ladder. U.S. Army Corps of Engineers photo

or aquarium, can be found.

In 2017, NOAA Fisheries will review the last five years of the program, and will take the study findings into account, said Robert Anderson, of NOAA Fisheries’ West Coast Region in Portland.

“What was really new was the combination of behavioral ecology with disease ecology to come up with management recommendations that could make the program more effective,” said Michael Buhnerkempe, coauthor of the research and an assistant project scientist at UCLA.

Refining the cull: The study examined the association between sea lions known to prey on salmon at Bonneville Dam with other animals that later developed the same behavior, assessing how the behavior passed among animals. The researchers then modeled various strategies for removing sea lions to determine which were most effective and which required the removal of the fewest sea lions.

Just as diseases are easiest to stop when they have affected only a few individuals, so are undesirable wildlife behaviors such as the predation on salmon at Bonneville Dam. The study found that the removal of sea lions would have been more effective, requiring the removal of fewer animals overall, if it had started soon after biologists first realized that sea lions were targeting protected salmon.

“If you can do that, you’re beating it before it has a chance to explode into more of an epidemic,” Buhnerkempe said. “Otherwise it quickly gets out of control.” ↓

– NOAA Fisheries

Important salmon-producing areas protected in final Tongass National Forest plan amendment

On Dec. 9, the U.S. Forest Service finalized an amendment to its Tongass Land and Resource Management plan that includes important measures for better conserving more than 70 salmon and trout streams within Southeast Alaska’s 17-million-acre Tongass National Forest.

The measures are the culmination of a multiyear community-supported process, and are detailed in the final record of decision for the Tongass Forest

plan amendment.

“The decision is a major step toward safeguarding fish and wildlife across wide areas of the Tongass National Forest,” said Mark Kaelke, Southeast Alaska project director for Trout Unlimited, a coldwater fisheries conservation organization. “In making Tongass 77 areas offlimits to old-growth logging, the Forest Service has recognized both the economic and social significance of salmon to residents and visitors to

the region, and the agency has deepened its commitment to true multiple use management of the Tongass.”

Key provisions of the decision include increased conservation standards for the Tongass 77, which are a collection of the most important and productive wild salmon areas on the forest.

The amendment also provides for a gradual transition of the Tongass timber

Continued on Page 30



The Michael Lisa went into the Platypus Marine yard and came out a very different boat (inset). Photos courtesy of Platypus Marine

Rebuilds & newbuilds

Platypus Marine makes over the F/V Michael Lisa, while Fred Wahl turns out another killer combo

Here's a look at shipyard activity along the U.S. West Coast and in British Columbia.

At **Platypus Marine Inc.** in Port Angeles, Washington, the 58-foot Westport shrimper-crabber Michael Lisa was in for a complete rebuild, with the hull widened to 26 feet from 19 feet.

The project began with a 1972 Jensen and included adding a 60-inch bulbous bow integrated with the new construction.

After coordination with the naval architects and 3D imaging, the yard removed the entire bow from the engine room forward, bulwarks for the entire length of the vessel, the house and the

mast, and the transom and entire main deck aft of the house.

"In effect, what was left was an engine room to the transom sitting on a keel," said Platypus regional representative David Kane. "We built and completed the project giving the new owner a 58-footer with a new 26-foot beam, new bow and bulb forward of the engine room, all-new raised wheelhouse, increased beam and tankage, increased freeboard, new stern, and considerably more deck space and tanks for fishing. It's a gorgeous new boat."

The design was by Tim Nolan Marine Design and Columbia-Sentinel Engineers, and lofting was by Mark Siburg of

Argonaut Marine.

Another recently completed Platypus project was the sponsoring of the Petersburg seiner-tender Freedom.

During her sponsoring, the vessel received a complete rebuild of her Caterpillar 3406 main and gear box, a complete electrical systems and wiring replacement, a new 18-ton refrigerated seawater system, refreshed crew quarters and pilothouse interiors, and a new navigation electronics suite.

Fred Wahl Marine Construction Inc. in Reedsport, Oregon, delivered the Winter Bay, a new combination boat rigged for pot fishing out of Kodiak.

The steel-hulled vessel is 58 feet long and 28 feet wide.

Alaska state records indicate the boat belongs to a company involving Frank J. Abena III, of Sebastopol, California, and Donald Norton, of Kodiak.

The boat's value is listed at \$3 million.

Mavrik Marine Inc. in La Conner, Washington, was building two gillnetters and completed, in mid-November, a 38-foot Puget Sound crabber.

Mavrik also was doing a repower and refit of the 58-foot seiner Morgan.

Port Townsend Shipwrights Co-op in Port Townsend, Washington, was ready to launch the fiberglass Noble Hunter, which was extended by 5 feet to 46 feet and had a new aluminum tophouse built.

The Trask, a 75-foot wooden tender from Prince William Sound, had some planking done and repairs to the port side bulwarks.

The Rocky B, a 68-foot crabber-longliner out of Washington, was in for an annual haulout. And the Quaker Maid, an 80-foot wooden tender, was in for its annual haulout and wood work.

Seaspan Shipyards, which has yards in Vancouver and Victoria, British Columbia, repaired three large U.S. fishing vessels in 2016.

They were the 680-foot Ocean Phoenix, a 1962 steam turbine-powered processing ship managed by Premier Pacific Seafoods, the 280-foot Trident Seafoods factory trawler Kodiak Enterprise, and the 295-foot American Seafoods factory trawler Katie Ann.

In 2017, Seaspan has preliminary bookings for the American Seafoods factory trawlers Ocean Rover and Northern Eagle and Premier Pacific's 367-foot processor Excellence.

Ray Cox, owner of **Giddings Boatworks Inc.** in Charleston, Oregon, said Nov. 18 that the yard was about to start work on an 87-foot trawler.

The boat is going to Alaska as a replacement vessel for Laura Fisheries.

Giddings also recently lengthened and effectively rebuilt the crabber-shrimper Stillwater, owned by John Roos, Cox said.

"It was gutted and we put in a new generator, a new 640-horsepower Cummins engine, and two 6-inch and two 4-inch pumps," he said. "The vessel received a new bulb in the bow, a whaleback, new nozzle and wheel, all stainless plumbing, and fuel lines. It was totally redone."

At **Pacific Fishermen Shipyard** in Seattle, General Manager Doug Dixon reported working on numerous fishing vessels. The 123-foot Marco-built trawlers Sea Storm and Storm Petrel were among vessels in the yard in mid-November.

At **WCT Marine & Construction Inc.** in Astoria, Oregon, work was proceeding on a new shallow-draft Yukon River salmon tender.

As of November, the project was far enough along to drop in

Continued on Page 30



The newly built combination boat Winter Bay will fish out of Kodiak. Photos courtesy of Fred Wahl Marine Construction

A new home and job for an old halibut schooner

Who can resist rubbernecking while driving over the Ballard Bridge in Seattle? There is much to admire, moored there at Fishermen's Terminal. But soon, a familiar sight will be missing. The Tordenskjold, one of the noble halibut schooners who made her berth at the dock for decades, has found a new home with the nonprofit Northwest Seaport Maritime Heritage Center.

This 75-foot halibut schooner is such an icon that she barely needs an introduction. She was built in 1911 in Ballard by John Strand, a Norwegian immigrant, with fir planks and old-growth timber. This same shipwright built the Polaris and Vansee. The schooner was named for a Norwegian naval hero, Peter Tordenskiold, which seems appropriate, since after fishing for a jaw-dropping 100 years, the Tordenskjold has become something of a naval hero herself.



The fishing vessel Tordenskjold last fall at Fishermen's Terminal in Seattle. Anjuli Grantham photo

In "The Pacific Halibut" by F. Heward Bell, a classic treatise on the halibut fishery, the author uses the Tordenskjold as the example of a "typical schooner." Halibut schooners were built with an afterdeck pilothouse and an onboard internal combustion engine. Earlier boats were steam- or sail-powered. Northwest Seaport's executive director, Nathaniel Howe, notes that early halibut schooners like this one provided an early market for new diesel technology. The schooners still had two masts, which were used for ancillary wind power and stabilization.

Halibut schooners like the Tordenskjold were purpose-built beginning around 1911. Previously, halibut boats had been used primarily for pelagic sealing, with halibut being a secondary occupation. But pelagic sealing came to an end in 1911. Moreover, investors were building cold storages along the Pacific coast and refrigerated rail cars started shipping Pacific halibut to East Coast consumers. Thus, the Tordenskjold is one of the early examples of vessels that were constructed just for the halibut fishery, at a specific moment in which the halibut industry came into its own.

Birth of a fishery: The beginning of the Pacific halibut fishery has been traced to Sept. 20, 1888. That's when the Oscar & Hattie landed halibut in Tacoma. The fish were then shipped eastward on

the North Pacific Railroad.

Like the Oscar & Hattie, the Tordenskjold's crew initially fished from dories. Six dories were stacked on deck, and a crew of 13 or 14 set out from Seattle. Once they reached the fishing grounds, they set an average of five skates per dory. In the 1930s, the use of dories was abandoned and gear was set from the schooners, reducing the number of crew.

The Tordenskjold was built for halibut, but she participated in more fisheries than any of the other schooners. From 1939 to 1979, she operated as a trawler. The boat fished king crab, shrimp, tuna, and even dogfish during World War II. Marvin Gjerde purchased the boat in 1979 and fished it until 2011. Gjerde donated the vessel to Northwest Seaport this winter.

From the days of dory fishing, to dogfish, to crab, and more, in a century of fishing the Tordenskjold never lost a crew member. As Bell stated, "It was an extremely seaworthy vessel and was able to cope with the worst of the severe weather encountered in North Pacific winters."

This winter, the Tordenskjold is spending time at Fishing Vessel Owners Marine Ways at Fishermen's Terminal, getting a marine survey and a fresh coat of paint.

"It's a floating legend on the ways," said Howe, "and wonderfully solid."

Sometime in February, the Tordenskjold will be moved from Fishermen's Terminal to South Lake Union, near the Museum of History and Industry.

What's ahead: Don't think of this as a retirement, though, since the boat is being converted into an operational museum ship. The Tordenskjold will continue to sail, with museum visitors, school groups, and apprentices on board. She'll be the "only fishing vessel around for people to come out, come on board," Howe said.

Most importantly, the Tordenskjold will be utilized for maritime sector training. Staff and board of Northwest Seaport intend to utilize the boat as a functioning marine classroom, where aspiring mariners will learn boat

handling, line handling, marine engine repair, and more.

Howe noted that the average age of those in the maritime sector on Seattle's waterfront is 58. Northwest Seaport wants to "create an interface with the public to understand (the maritime sector) and for young people to learn about the craft and see it's not purely historical."

Howe said the museum recognizes that "preserving maritime heritage means preserving the current industry," and critical to that is increasing interest in maritime professions and training for those who want to enter the sector.

Were you one of the hundreds of people who fished on the Tordenskjold, or perhaps you snapped a picture of the boat on the fishing grounds? Northwest Seaport is seeking photographs of the Tordenskjold and is interested in capturing the stories of those who have worked on deck. Moreover, the organization is fundraising to pay for maintenance costs and is also seeking volunteers. There are many ways to be involved and become a part of the history of this still-living legend. Go to nwseaport.org to learn more.

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



Bering Sea trawlers set for another big pollock catch

Groundfish quotas: The total allowable catch (TAC) for Bering Sea pollock remains strong this year at 1,345,000 metric tons, a slight increase from the 2016 level.

The North Pacific Fishery Management Council set TACs for pollock and other Bering Sea groundfish at its December meeting in Anchorage.

"Overall, the status of the stocks continues to appear favorable," the council said in its December newsletter.

Pacific cod is another major groundfish fishery, and the council set a TAC for the Bering Sea and Aleutian Islands of 239,399 tons, down nearly 5 percent.

The Bering Sea and Aleutian Islands sablefish TAC is 3,009 tons, up 11 percent.

The council also set TACs for several other species, including Atka mackerel, Pacific Ocean perch, and a variety of flatfish including yellowfin sole.

As always, the combined TACs for all Bering Sea and Aleutian Islands groundfish total 2 million tons, which is the annual cap fishery regulators adhere to as a conservation policy.

The council also set TACs for Gulf of Alaska groundfish. The pollock TAC is 208,595 tons, down 19 percent. The Pacific cod TAC is 64,442 tons, down 10 percent. The sablefish TAC is 10,074 tons, up nearly 11 percent.

Trawl-caught Alaska pollock is one of the world's largest and most valuable fisheries. The fish are used for a variety of products including surimi and fast-food products such as fish sticks and the McDonald's Filet-O-Fish sandwich. Pollock roe also is a valuable product.

A recent market analysis the McDowell research firm prepared for the Alaska Seafood Marketing Institute said: "Wholesale prices for Alaska pollock products have generally trended down in recent years due to a stronger U.S. dollar and increasing harvest volumes in both Alaska and Russia."

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Copper River forecast: The Copper River salmon forecast is out, and it's not so exciting.

The Alaska Department of Fish and Game is projecting a commercial catch of 889,000 sockeye and 4,000 Chinook salmon.

Last year, the Copper River District produced a catch of 1.18 million sockeye, which was well below the 10-year average, Fish and Game said.

Based on department sampling, the average sockeye weight last year was 5.04 pounds, the smallest on record.

The Chinook harvest in 2016 was 13,075 fish.

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Washington watch: Alaska's junior U.S. senator, Dan Sullivan, has been named chairman of the Senate Commerce Subcommittee on Oceans, Atmosphere, Fisheries, and Coast Guard.

Sullivan, a Republican, takes over the subcommittee gavel from the previous chairman, U.S. Sen. Marco Rubio, R-Florida.

"This committee is particularly relevant to Alaska, the largest producer and exporter of seafood in the nation, home to the largest Coast Guard base in the nation, and home to more ocean coastline than the rest of the United States combined," Sullivan said in a Jan. 13 press release.

"This is good news for fishermen in Alaska and the U.S.," said Jerry McCune, president of United Fishermen of Alaska. "We are

impressed that Sen. Sullivan has come up to speed quickly on fisheries issues."

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Fukushima watch: Alaska seafood has again tested clean for radiation related to the 2011 Fukushima nuclear disaster in Japan.

Testing performed in 2016, as in previous years, showed no detectable levels of Fukushima-related radionuclides, the Alaska Department of Environmental Conservation said in a Jan. 9 press release.

"Fish species were chosen for testing based on their importance to subsistence, sport, and commercial fisheries and because they spend part of their life cycle in the western Pacific Ocean," DEC said. "These species include king salmon, chum salmon, sockeye salmon, pink salmon, halibut, pollock, sablefish, herring, and Pacific cod. Samples of fish were taken by DEC Environmental Health officers during regular inspections of commercial fishing processors throughout the state. The results of testing conducted on Alaska fish in 2016 showed no detection of Fukushima-related radionuclides iodine-131, cesium-134, and cesium-137."

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Personnel file: Trawl giant American Seafoods has a new CEO, Mikel Durham. She takes over for Bernt Bodal, who remains chairman.

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



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Alaska budget could stabilize this year, a relief to industry



Juneau watch: Alaska Gov. Bill Walker’s proposed budget for fiscal year 2018 includes a 0.3 percent increase, to \$70.8 million, for the state Department of Fish and Game’s commercial fisheries division.

That’s a relief for the fishing industry, which has seen the division’s budget slashed in recent years. Budget cuts can mean trouble for the industry.

“All regions show slight increases,” said Tom Gemmell, a numbers guru and executive director of the Halibut Coalition in Juneau. “It was a nice surprise this year to get a little bit of a plus up.”

Fishery management offices in the Central, Westward, and Arctic-Yukon-Kuskokwim regions are slated for budget increases of under 1 percent, while Southeast’s proposed budget boost is 1.8 percent.

The statewide management headquarters in Juneau is marked for a 0.7 percent decrease.

The Alaska Seafood Marketing Institute appears poised to receive a paltry \$1 million from the state general fund. ASMI, which promotes Alaska seafood in the United States and abroad, is funded primarily by the seafood industry, and lawmakers have put the agency on notice that state support will be zeroed out by 2019.

While the early budget news is encouraging, state legislators ultimately hold the purse strings. The legislative session began on Jan. 17.

Gemmell believes it would be tough to cut an already bare-bones budget.

“I think we’re at a point where if there is no management, there is no science. Fishery managers have to be conservative, and that means reduced fishing time and harvests, with the net result being job losses for the harvesters, processors, and communities,” he said. “They’ve cut all of the fat already and we’re down to bone. It would be very hard to cut the budget further without having dramatic impacts on fishermen.”



Year in review: Here are 10 of my fishing picks and pans for 2016, plus my choice for the biggest story of the year.

- Best fish legislators: Rep. Louise Stutes, R-Kodiak, and House Speaker Bryce Edgmon, D-Dillingham.
- Biggest new industry potential: Seaweeds. Kelp alone is a \$5 billion global industry. A task force has one year to provide the governor with a statewide mariculture plan for producing more seaweeds and shellfish.
- Best fish sigh of relief: Gulf of Alaska fishermen will now be allowed to use pots instead of hooks to catch sablefish. The pots thwart whales that can swipe fish off hooks.
- Best fishing career builders: University of Alaska Southeast and Kodiak College for their courses in boat hydraulics, electronics, repairs, fishery technology, and more.
- Trickiest fishing conundrum: Sea otters vs. crab and dive fisheries in Southeast Alaska.
- Scariest fish story: Ocean acidification.
- Best global fish story: The United States and other nations cracking down on fish pirates.
- Most encouraging fish talks: Alaska and British Columbia officials cooperating on protecting transboundary waters from mining accidents.
- Biggest fish bust: Poor pink salmon catches, prompting a state request for federal disaster relief.
- Biggest fish boo-boo: Nearly half of Bristol Bay’s 1,500 active driftnetters still don’t chill their salmon catches. That pushes down fish prices in the bay and beyond.
- Fish story of the year: At its December meeting, the North Pacific Fishery Management Council turned its back on plans to reduce Chinook salmon and halibut bycatch taken by trawlers in the Gulf of Alaska.

The program, under discussion for years, aimed to slow the race to catch whitefish, including cod, pollock, and flounder.

Stakeholders were pushing for a mix of catch shares and cooperatives to help them avoid bycatch while catching their full quotas.

Now, trawlers face strict bycatch caps that shut down fisheries when the caps are reached. The closures result in an idled waterfront and no steady, year-round work for Kodiak’s large seafood-processing workforce.

Calling it “too divisive,” the council, led by Alaska Fish and Game Commissioner Sam Cotten, tabled the entire program and just walked away.

Laine Welch writes the Fish Factor column and produces “Alaska Fish Radio” out of Kodiak.

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Old-timer goes to scrap, but colorful memories remain

Adios, Kimsquit: I was saddened to see a photo on the West Coast Fisherman Facebook page recently of the old packer Kimsquit being towed away to be scrapped.

I spent several salmon and herring seasons cooking on the old girl and will miss her. The roomy galley and personal stateroom were real perks of the position.

The 104-foot wooden vessels Kimsquit and Hesquiat were built in 1944 by Newcastle Shipbuilding in Nanaimo, British Columbia, as supply vessels for the Royal Canadian Air Force (RCAF). In 1944-45, the Kimsquit was owned by the RCAF Marine Division.

In 1946, she was owned by Robert E. Walker, of Vancouver, B.C. From 1947 to 1958, she was owned by British Columbia Packers Ltd., of Vancouver.

From 1949 to the early 1950s, the Kimsquit was used as a whaling vessel at the Coal Harbour Whaling Station on the west coast of Vancouver Island and then converted to a fish packer. From 1961 to 1978, she was owned by The Packers Steamship Co. Ltd., of Vancouver. From 1979 to 1997, she was owned by British Columbia Packers Ltd., of Richmond, B.C., and from 2001 to 2016 by Jim Pattison Enterprises Ltd.

She was powered by a 730-horsepower Caterpillar engine driving twin screws.

I had two memorable trips on the Kimsquit – a trip to Ketchikan, Alaska, one herring season, and a voyage from the mouth of the Fraser River to Prince Rupert during sockeye season.

The Ketchikan trip happened this way. We were on the Kimsquit in Johnstone Strait, headed to the Central Area for a gillnet roe herring opening, when we were contacted by the company's main office. Apparently the Cape Pine, one of the other packer boats in the Canadian Fishing Co. (CFC) fleet, was headed to Prince Rupert and Ketchikan with a brine barge in tow but was having trouble with the barge. I can't remember what exactly the problem was – maybe the old reversing Enterprise engine on the Cape Pine wasn't up to the job. But anyway, we ended up transferring destinations, and we took the barge in tow with the Kimsquit (Kimmie to her friends) and proceeded toward Rupert.

After a brief stop in Prince Rupert, we towed the barge to Ketchikan to CFC's associated company plant at Alaska General Seafoods and tied the barge up. A U.S. Customs officer came aboard to clear us, a process that took longer than delivering the barge, and we then untied the lines and left for Prince Rupert without going ashore. The worst thing was my new black cap from the fuel dock in Rupert fell in the pump foam and slime in the water and was never the same after that.

The sockeye trip was in 2002, my notes tell me. The gillnet opening was on Aug. 12.

After filling up the boat with gillnet-caught sockeye, we left the Fraser River loaded with 250,000 pounds of fish bound for Rupert. Just over 24 hours later we sailed by Port Hardy, up Goletas Channel, and as it started to get dark, went through Christie Pass headed out into Queen Charlotte Strait.

As soon as we got past the Scarlett Point light I could tell this

was going to be a fun ride. Even though the wind wasn't bad, there was a big westerly lump rolling in, and we could feel the old boat trying to lift up into the swells as we got into the open on the way to Pine Island and beyond. I was sure glad that as cook I'd fed everybody and cleaned up the galley already and headed for my bunk.

As the night proceeded, the lump got bigger, and I could feel the Kimmie struggling to make way. Pretty soon, water leaking into the cabin started sloshing around on the floor of my stateroom. "Sploosh," the water went as we rolled to one side. Then there was a pause until she rolled over the other way, with another "sploosh" along the row of drawers at the bottom of my bunk.

I wedged myself into my bunk and tried to go to sleep. I could tell at some point in the middle of the night the water got deeper in my room, and the roll got even worse. Then suddenly it felt different – it felt like we were surfing. Finally it got flat calm and I heard the anchor chain go out.

It turned out we couldn't make way in that swell – the boat was plowing into the waves and not lifting, but just submarining into the waves and taking enormous amounts of water on deck. So the skipper decided to turn around and find a harbor. We were

anchored in a quiet cove tucked into the shore of Nigei Island when I got up. By that time, the drawers under my bunk were full of water and I had about 8 inches of water on the floor.

It wasn't until just last year when I was talking to the guy who was skipper on the boat

that I realized we might have been in tougher shape than I realized.

"I thought we were going to lose her that night," he told me.

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Oil watch: Fishermen, north coast residents, and environmentalists breathed a sigh of relief Nov. 29 when Prime Minister Justin Trudeau announced that the Northern Gateway pipeline from Alberta to Kitimat on Douglas Channel would not be approved.

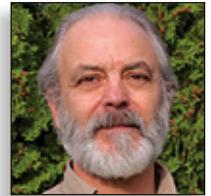
In the same announcement, he declared a moratorium on oil tanker traffic on B.C.'s north coast.

However, the prime minister announced the go-ahead of the Kinder Morgan Trans Mountain pipeline from Alberta to Burnaby, a suburb of Vancouver at the head of Burrard Inlet, Vancouver's seaport.

The Trans Mountain expansion project will more than double the capacity of an existing pipeline to 890,000 barrels a day. That will translate to one oil tanker a day negotiating the narrow entrance to the harbor at the first narrows under the Lions Gate Bridge.

Objecting to the pipeline expansion are some First Nations living along the pipeline route and environmentalists. Some have vowed to actively protest the expansion.

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



As the night proceeded, the lump got bigger, and I could feel the Kimmie struggling to make way. Pretty soon, water leaking into the cabin started sloshing around on the floor of my stateroom.

Gov. Inslee seeks higher license fees, new fisheries staffer



Proposed budget: In December, Washington Gov. Jay Inslee released a proposed budget for the next biennium that includes several items that would impact the state’s maritime industry.

Among the proposals is an increase in both commercial and recreational fishing license fees. The state said the increases would provide funding that will “maintain current fishing opportunities for recreational, commercial, and tribal interests while also protecting wild stocks.”

According to state budget documents, recreational and commercial fisheries “generate over \$540 million annually to local and state economies and support over 16,000 jobs.”

“This has been a priority for the industry and a priority for the governor as well,” said Joshua Berger, the governor’s maritime sector lead in the Department of Commerce. “It comes out of the need for further administrative support for the fisheries council.”

It also comes from a need to look at how Washington engages with the fishing industry in the years to come, Berger said.

The job as currently envisioned would involve coordinating with various industry leaders to see how and where the state can advance efforts to modernize the fleet, efforts that are already underway in the state and industry, Berger said.



Nice save: Dungeness crabbers in Oregon, Washington, and California were finally getting back into the water after striking for higher prices when the 55-foot F/V Star King capsized and sank near the mouth of the Columbia River.

The U.S. Coast Guard received a mayday call at 4:30 a.m. on Jan 7, with five people reported to be in the water.

But by the time Coast Guard motor lifeboats reached the area, crew from another crabbing vessel, the Sea Ballad, had already managed to pull the entire crew out of the water. No one needed medical attention.

“The quick, selfless actions taken by the crew of the good Samaritan crab vessel Sea Ballad and the fact that the Star King’s crew put on survival suits saved five lives today,” said Chief Petty Officer Justin Urbano, command duty officer with Coast Guard Sector Columbia River.

One Star King crew member, writing later on a commercial fishing Facebook page, reminded other fishermen to always know where tools that could be used to break out windows are located on a vessel.

According to the Coast Guard, the Star King, which homeports in Astoria, Oregon, went down with about 300 gallons of fuel on board.

On Jan. 8, another commercial boat got into trouble, this time roughly 4 miles offshore of Long Beach, Washington. The crew of F/V Tracer reported that the boat had no engine power and was taking on water.

The Coast Guard responded, assisting the crew in bringing the boat back to shore.



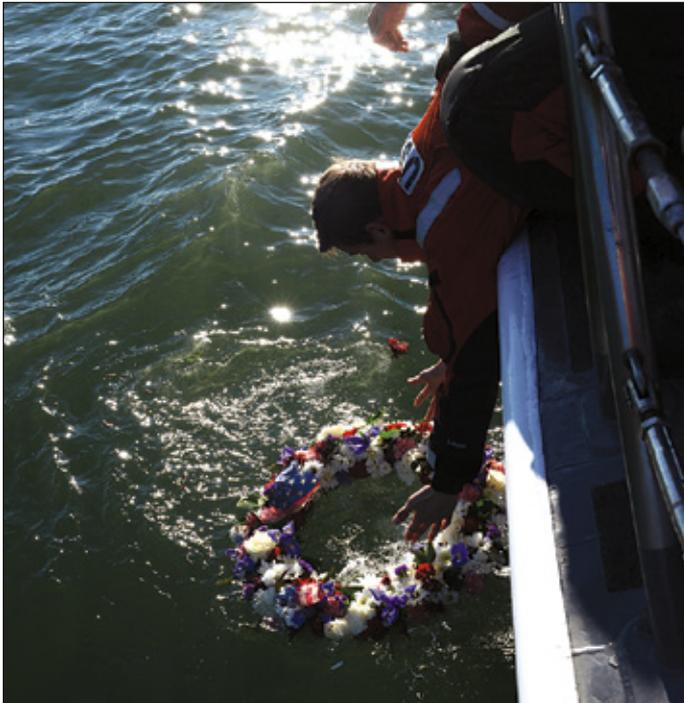
Hatchery changes: In mid-December, National Marine Fisheries Service staff briefed stakeholders on “significant changes” that could be coming to Mitchell Act-funded salmon and steelhead hatcheries along the Columbia River in Oregon and Washington.

The briefing was purely informational, NMFS officials said. But they outlined changes that, in the years to come, could reverberate throughout fisheries that count on the runs from these hatcheries.

The 62 hatchery programs that receive Mitchell Act funds in the Columbia Basin produce more than 63 million fish annually, NMFS said. The proposed changes, which would increase production at some hatcheries while decreasing production at others, will be phased in over the next five years, and the full effects of any decreases likely would not be felt in fisheries until 2026, according to some estimates.

The proposed changes are part of a biological opinion that was slated to be released Jan. 15.

Katie Frankowicz reports from Astoria, Ore.



Boatswain’s Mate 3rd Class Austin Kettleton, from Coast Guard Station Cape Disappointment, places a wreath into the Pacific Ocean near the North Head Light in Ilwaco, Wash., during a Jan. 14 memorial ceremony for lost Coast Guardsmen and mariners. For more photos and details on the tragedies remembered, go to tinyurl.com/j6cgmhr. USCG photo

Looking at a breakdown of fees across fisheries and the state’s proposal, fishermen would see an increase in almost all license fees in 2017, but some increases would be greater than others, and other fees would actually drop slightly.

More on people’s minds is the part of the proposal that would require all crew members except family members to purchase \$101 annual licenses. For smaller operations, these and other fee increases, including increases to fish dealer licenses (going up from \$355 to \$550), could really hurt, fishermen and buyers said.

Also included in the proposed budget is a new program manager position based in the state Department of Commerce, whose purpose would be to support the North Pacific Fishery Management Council (which oversees fishing off Alaska) and to back “economic development opportunities to support modernization of the North Pacific fishing fleet.” The state proposes dedicating \$148,000 to this position for the next biennium.

Dungeness price cut disrupts West Coast season



Fishermen strike: This year’s West Coast Dungeness crab season was again in suspense as buyers including Pacific Seafood – the Oregon-based giant that sets the market – dropped the ex-vessel price by 25 cents, to \$2.75 per pound, in the days after Christmas.

Fishermen from Morro Bay, California, to Westport, Washington, went on strike to sustain the original \$3 price.

“Pretty much the entire coast is tied up and not setting gear,” Ken Bates, of the Humboldt Fishermen’s Marketing Association, said in late December.

The big-picture goal for the strikers was to avoid a price-drop precedent. If fishermen were to accept the lower price, it would be “very hard to get any of that back this year or next year,” Bates said.

Ultimately, on the night of Jan. 6, fishermen and processors agreed to a halfway compromise of \$2.875 per pound.

Persistent domoic acid concerns led to staggered openings across the West Coast, affecting crabbing for a second straight season.

Demand for fresh crab tapers after Christmas. And after New Year’s Day, the market shifts to frozen product.



West Coast Dungeness crabbers and processors reached a compromise price of \$2.875 per pound to end a fishermen strike. CDFW photo

Domoic acid was affecting the Asian live crab market. On Dec. 21, Undercurrent News reported that live crab imports to China stopped due to the time it takes to carry out newly required domoic acid inspections.

The loss of the first week of Northern California crabbing led to an announcement that Eureka’s annual crab festival would be canceled. As of press time, there was no word on whether the end of the strike would resuscitate the late January festival.

↓ ↓ ↓ ↓

Water wars: A series of events intensified California’s “water wars” as 2016 came to a close.

First, winter storms replenished northern region reservoirs, making more water available to fight over.

Second, Congress passed long-debated legislation in mid-December that was interpreted as a win for agricultural water users.

Fishing industry advocates were “pissed” at Sen. Dianne Feinstein, who was accused of slipping an “anti-salmon” rider

into a bill that provides federal funding to improve water infrastructure and address drought impacts.

The above remarks are from a Dec. 22 opinion piece in the Eureka Times-Standard newspaper. Commercial fisherman Bob Borck, of Eureka, also wrote that Feinstein “led the charge” to weaken protections for Central Valley salmon in favor of sending more federally controlled water to Big Ag.

A third event was brewing in the form of Donald Trump, who made it clear while campaigning for president that farmers were nearer to his heart and agenda than fish.

Trump’s picks for commerce and interior secretaries were aligned with his campaign rhetoric. Fisheries advocates and environmentalists expect an altered, ag-friendly style of Endangered Species Act interpretation.

↓ ↓ ↓ ↓

Tunnel vision: Having endured years of drought, California is ramping up its water planning. And as the planning ramps up, so do the battles over it.

In late December, the state Department of Water Resources held hearings on its water flow plans for the environmentally sensitive Sacramento-San Joaquin Delta.

While the northern portion of the state is strong on salmon defense, the Central Valley area is equally gung-ho on sustaining farm irrigation.

Decrying the state’s salmon-saving flow proposals as completely bereft of wording on “mitigating human pain, or easing the economic catastrophe the state is about to wreak,” a front-page Dec. 19 Modesto Bee newspaper editorial described salmon as being “available in virtually every fish restaurant in America and anything but endangered.”

The diametrically opposed views on how to engineer water delivery hit a high pitch a few days before Christmas, with the finalization of the environmental review for the state’s plan to construct two \$15 billion, 35-mile-long tunnels that aim to bypass the delta and its myriad dilemmas.

The tunnels would allow water to be pumped from the Sacramento River instead of the south delta, where powerful diversion mechanisms suck in water and, unfortunately, migrating salmon from the lower San Joaquin River. The pumping site is also ringed by aging, earthquake-vulnerable levees.

The project is eyeing a 2018 groundbreaking, but that scenario is best case.

Environmentalists and fisheries advocates are joining delta farmers in opposing the tunnels plan, saying it would be the enabler of increased water diversion to Southern California water districts.

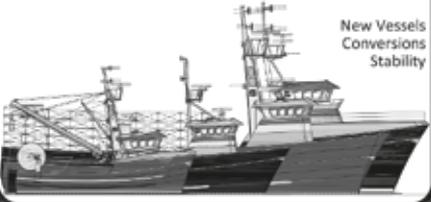
Whether the tunnels project complies with federal and state endangered species laws is one of many questions fit for courtrooms. The stakes are sky-high – this is a project that Gov. Jerry Brown has described as being “absolutely essential if California is to maintain a reliable water supply.”

Daniel Mintz reports from Eureka, Calif.

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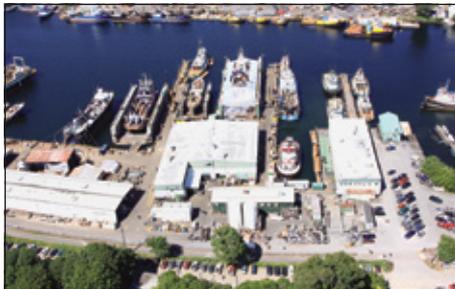


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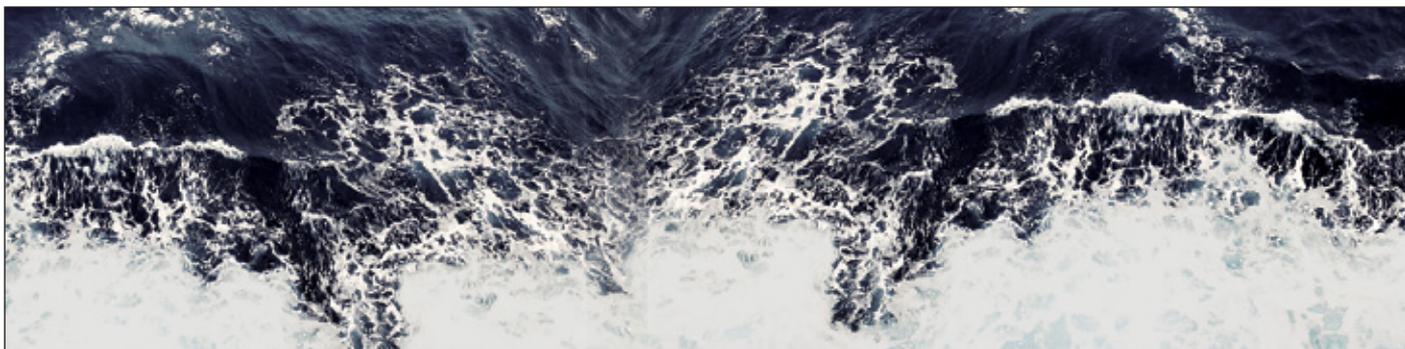
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Alaska Entry Permit Prices

(as of 2-1-17)

Species	Fishery	Asking Price*	Offer*	State Value*
SALMON	S SE DRIFT	90	80-	84.3-
	S PWS DRIFT	145	140+	134.3-
	S COOK INLET DRIFT	50-	40-	54.1-
	S AREA M DRIFT	118	110+	100
	S BRISTOL BAY DRIFT	132-	125-	132.2+
	S SE SEINE	178.5+	178.5+	163.4-
	S PWS SEINE	145-	140+	142.4-
	S COOK INLET SEINE	60	50	68.3
	S KODIAK SEINE	32	30	38.3
	S CHIGNIK SEINE	145	130	167.2
S AREA M SEINE	60	50	57.4	
S	YAKUTAT SET	16	12	16.6
	COOK INLET SET	18	16	15.4
	AREA M SET NET	62+	55	56.5
	BRISTOL SET NET	40	36	35
	LOWER YUKON	9	8	9.9+
S	POWER TROLL	37	34-	34.5-
	HAND TROLL	10.5	9.5-	9.4-
	HERRING	H SE GILLNET	12	N/A
H KODIAK GILLNET		5	3	5
H	SITKA SEINE	325+	240	243.8
	PWS SEINE	20-	16	30.9
	COOK INLET SEINE	10	8	16.8
	KODIAK SEINE	21-	20	30.3
	SE POUND SOUTH	25	24	27.6
H	SE POUND NORTH	30	25	43.1
	PWS POUND	5	3	3.5
SHELLFISH	S SE DUNGY 75 POT	18	17	15.5+
	S SE DUNGY 150 POT	39	36	38.8
	S SE DUNGY 225 POT	60	55	55.3
	S SE DUNGY 300 POT	80	70	56.9
	S SE POT SHRIMP	22	20	18.3
	S KODIAK TANNER <60	24	22	29.7
	S PUGET SOUND DUNGY	175	165-	N/A
	S WASHINGTON DUNGY	2,000-4,500/FT	1,500-4,000/FT	N/A
	S OREGON DUNGY	2,000-4,500/FT	1,500-4,000/FT	N/A
	S CALIFORNIA DUNGY	300-800/POT	250-700/POT	N/A
SE ALASKA DIVE	SE AK Dive URCHIN	3.5	2.5-	2.5
	SE AK Dive CUCUMBER	28	23	30.3+
	SE AK Dive GEODUCK	55	50	62.5-

Prices in FEBRUARY vary in accordance with market conditions. *In thousands
+ denotes an increase from last month. N/A denotes No Activity.
- denotes a decrease from last month.

By Mike Painter and the Permit Master

Gillnet: Bay permits started moving in the low to mid \$130s in the first week of the new year. More permits were available in that range and supply and demand was pretty balanced. SE permits are still available starting as low as \$90k. Offers for PWS permit rebounded to around \$150k. No new activity in Cook Inlet permits over the past month. Nothing new over the past month in Area M where permits are available starting around \$120k.

Seine: Buyers are still looking for SE permits, but offers are still below \$200k and sellers are looking for closer to \$250k. PWS bounced back to \$150k or better and one moved recently for around \$150k. A Kodiak permit was pending in the low \$30s, the first real activity there in a long time. A few buyers are looking for Area M permits at around \$50k, but there aren't many sellers and asking prices are around \$60k.

Troll: Power troll permits are still slow to move, but asking prices have down as low as \$35k recently. No new interest in hand troll.

Halibut & Sablefish IFQ Prices

Recent market activity in halibut and sablefish quota shares

Species	Regulatory Area	Vessel Category*	Poundage (thousands)	Status (blocked/unblocked)	Ask (per pound) Low High	Offer (per pound) Low High
H	2C	D	1-10	B	60.00-64.00	56.00-60.00
H	2C	C/B	1-3	B	65.00-67.00	58.00-62.00
H	2C	C/B	4-10	B	67.00-68.00	62.00-64.00
H	2C	C/B	ANY	U	68.00-70.00	66.00-68.00
H	2C	A		B/U	70.00	68.00
H	3A	D		B/U	48.00-58.00	44.00-50.00
H	3A	C/B	1-5	B	50.00-55.00	47.00-50.00
H	3A	C/B	5-10	B	55.00-58.00	48.00-52.00
H	3A	C/B	>10	U	57.00-60.00	54.00-56.00
H	3A	A		B/U	60.00	60.00
H	3B	D		B	30.00-36.00	30.00-35.00
H	3B	C/B	1-10	B	45.00-46.00	42.00-43.00
H	3B	C/B	>10	U	46.00-50.00	43.00-44.00
H	3B	A		B/U	N/A	46.00
H	4A	D		B/U	16.00-24.00	14.00-18.00
H	4A	C/B	1-10	B	20.00-26.00	18.00-22.00
H	4A	C/B	>10	B	24.00-28.00	20.00-24.00
H	4A	C/B	>10	U	30.00-32.00	22.00-26.00
H	4B/C/D	C/B	1-10	B	12.00-20.00	10.00-15.00
H	4B/C/D	C/B	>10	B/U	20.00-25.00	15.00-16.00
S	SE	C/B	1-10	B	24.00-27.00	22.00-24.00
S	SE	C/B	>10	U	29.00-30.00	25.00-27.00
S	SE	A		B/U	32.00	30.00
S	WY	C/B	1-10	B	24.00-27.00	22.00-25.00
S	WY	C/B	>10	U	28.00-30.00	26.00-28.00
S	WY	A		B/U	30.00	30.00
S	CG	C/B	1-10	B	20.00-22.00	16.00-20.00
S	CG	C/B	>10	U	26.00-28.00	23.00-24.00
S	CG	A		B/U	32.00	30.00
S	WG	C/B	1-10	B	11.00-13.00	8.00-10.00
S	WG	C/B	>10	B	12.00-14.00	10.00-11.00
S	WG	C/B/A	>10	U	14.00-17.00	12.00-16.00
S	AI	C/B/A		B/U	1.00-4.00	.50-2.00
S	BS	C/B		B/U	1.50-5.00	.75-3.00
S	BS	A		B/U	4.00-6.00	3.00-4.00

*Vessel Categories: A = freezer boats B = over 60' C = 35'-60' D = < 35'

NOTE: Halibut prices reflect net weight, sablefish round weight. Pricing for leased shares is expressed as a percentage of gross proceeds. ** Too few to characterize.

By Mike Painter and the Permit Master



A recent sale of unblocked 2C sold in the high \$60s. Listings are scarce and buyers are looking for more. A few new listings of 3A came on the market recently, but listings are definitely low. Prices remain steady. A recent sale of unblocked 3B sold in the mid \$40s. Asking prices range from \$45 to \$50. A few new listings for 4A have come on the market. Asking prices are all over the board, ranging from the low \$20s to low \$30s. No change further west.

Nothing new in SE Sablefish IFQ where prices for unblocked are holding right around \$30. Unblocked WY would be about the same...if there was any. Interest in CG has picked up with offers as high as \$24 for unblocked. WG continues to move with smaller blocks going for \$9-10 recently. No recent changes in AI/BS.

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- 7,000# "B" AI BCOD BLKD @ \$3
- 75,000# "B" AI BCOD UNBLKD @ \$3.10
- 18,000# "B" BS BCOD UNBLKD @ \$5
- ANY# "B/C/D" 2C HAL BLKD @ WANTED
- ANY# "B/C" 3A HAL UN/BLKD @ WANTED
- ANY# "B/C" 3B HAL UN/BLKD @ WANTED
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- 20,000# "B" 4D HAL UNBLKD @ \$20

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PWS SEINE.....	\$21K	POWER TROLL.....	\$35K
COOK INLET SEINE.....	\$11K	HAND TROLL.....	\$11K
KODIAK SEINE.....	\$26K	PUGET SOUND DRIFT.....	\$19K
SE GILLNET.....	\$12K	PUGET SOUND SEINE.....	\$175K W/NET
KODIAK GILLNET.....	\$5K	SHELLFISH	
NORTON SOUND.....	\$2K	SE DUNGY 300 POT.....	N/A
HOONAH POUND.....	N/A	SE DUNGY 225 POT.....	\$65K
CRAIG POUND.....	N/A	SE DUNGY 150 POT.....	N/A
PWS POUND.....	N/A	SE DUNGY 75 POT.....	N/A
SALMON		SE POT SHRIMP.....	\$22K
S.E. DRIFT.....	\$90K	KODIAK TANNER <60'.....	\$28K
PWS DRIFT.....	\$170K	OR DUNGY 58'/500 POT.....	WANTED
COOK INLET DRIFT.....	N/A	WA DUNGY 58'/500 POT.....	\$295K
COOK INLET SET.....	\$50K/PKG	DIVE	
AREA M DRIFT.....	\$150K	SE GEODUCK.....	MAKE OFFER
AREA M SET.....	N/A	SE CUCUMBER.....	\$28K
BBAY DRIFT.....	\$135K	MISC.	
BBAY SET.....	N/A	CHATHAM BLACKCOD.....	WANTED
SE SEINE.....	\$250K	OR TROLL/34'.....	\$5.5K
PWS SEINE.....	\$175K	CAL DUNGY 46'/350 POT.....	\$215K
COOK INLET SEINE.....	\$87K	WA TROLL.....	\$30K
KODIAK SEINE.....	\$39.5K		

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P2268M – 32 X 11.7 HFS STERNPICKER, 440 CHRYSLER MAIN, BORG WARNER 72C GEAR, 2 HYDRAULIC PUMPS, ARTICULATING REEL W/LEVELWIND, BASIC ELECTRONICS. BOAT HAS BEEN HAULED OUT AND HASN'T FISHED FOR A WHILE, SO WILL NEED TO BE GONE THROUGH. BOAT, PERMIT AND GEAR FOR ONLY \$150K.



P2269M – 76' STEEL COMBO, GMC MAIN, JOHN DEERE 55KW AUX, ISUZU 23KW AUX, 24 TON RSW W/STONE TITANIUM CHILLER. 2 HOLDS CARRY 70K/50K. PACKS 7,500 GAL FUEL, 2,500 GAL WATER, 800 GAL HYDRAULIC OIL, 750 GAL DECK TANK FOR TENDERING. 10" RYAN PUMP W/COMPLETE TENDER SET UP. COMPLETE ELECTRONICS. LOTS OF RECENT UPGRADES. VERY WELL MAINTAINED. ASKING \$375K.



P2270M – 42 X 14 FLUSHDECK JENSEN STERNPICKER, TWIN GMC MAINS, 10KW ISUZU AUX W/HYDRAULICS FOR 11 TON CUSTOM RSW. FISH HOLDS ALL STRIPPED, CHECKED AND REFINISHED IN 2014. 5 X 5 DRUM W/LEVELWIND. LOADED W/ELECTRONICS. TURN-KEY W/NETS, 2 CONTAINERS, SPARES. \$300K FOR PACKAGE W/AREA M DRIFT PERMIT OR \$200K FOR BOAT AND GEAR.

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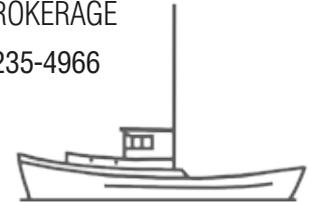
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BB16-048 32'x12.8' flush deck, RSW, fiberglass Bristol Bay gillnetter built by Daniels in 1979. Lugger 6125 w/ 460 hp. Rebuilt injectors and injector pump. IMS 7.5 RSW w/ new circ pump assembly. Packs 14k lbs in (7) insulated fish holds. Rex Roth drum drive, Maritime auto levelwind and new Kinematics power roller. Call for a survey. Asking \$165,000.



SE16-021 53'x15.6'x7' fiberglass seiner, built by Delta/LeClerc in 1980 as 48', stretched to 53'. 60 Series GMC main, new in 2013, rated at 450 hp. 50 kw Isuzu gen set. Packs appr 60,000# in 2 holds, 18 ton IMS RSW system. Electronics include (2) Furuno radar, (2) VHF, Furuno sounder, GPS, computer w/ Nobeltec, ComNav autopilot and more. Asking \$650,000.



CO16-032 58'x16.5'x7.6' wood tender/crabber, built in 1964 by Hansen. 290 hp Detroit 8V71 main w/ appr 8,000 hrs on overhaul. New 25 kw Isuzu genset. 15 ton RSW system, packs 52K# in tanked fish hold. Hull recently recaulked. (2) picking booms. 17" crab block. Electronics include (2) VHF, radar, color sounder, ComNav pilot, and more. Asking \$225,000.

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F/V HADASSAH. 58x19' Delta Seiner, longliner, pot boat. 343 main; 30kw generator, 7-1/2, 9 kw Northern Lights Generator; upgrades include new awlgrip paint job and visor addition; complete new RSW system, 2015 rebuilt transmission, replaced stainless fuel lines and day tank; large rolling chawks; UHMW guards; metalized hydro valves and stainless lines; bulbous bow; Furuno sonar; many more upgrades. Also available: 19' Rozema Skiff, net, long line gear, cod pots and pot gear. (907) 399 7219.

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Progressor 19

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2 x 130 hp Isuzu 6BD1 Diesels
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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 & line fishery	59'	\$130,000(USD)	2221-Lic
US Permits - Alaska			
Bristol Bay Drift Gillnet		Reduced to \$168,000(USD)	2098-Lic
Alaska Shrimp Pot Southeast - Gear add \$20,000(USD)		\$25,000(USD)	2184-Lic
SE Shrimp Pot - Gear add \$15,000(USD)		Reduced to \$18,000(USD)	2231-Lic
Kodiak Salmon Purse Seine	34'	\$45,000(USD)	2166-Lic
Chignik Salmon Purse Seine	43'6"	\$210,000(USD)	2192-Lic
Southeast Salmon Purse Seine	48'	Reduced to \$275,000(USD)	2060-Lic
Longline Groundfish Central Gulf	50'	\$10,000(USD)	2059-Lic
Kodiak Salmon Purse Seine Permit	52'	\$25,000(USD)	2198-Lic
Central Gulf Unfished - Unfished Sablefish (Black Cod) IFQ, 7500 lbs. at \$22(USD) /pound	60'	Reduced to \$165,000(USD)	2022-Lic
Tanner Bairdi Crab / Pot Gear - Kodiak Tanner Bairdi Crab fishery with Pot Gear under 60ft in Kodiak area	60'	\$35,000(USD)	2277-Lic
Central Gulf Cod Pot, Hook and Line, Jig Permit	87'	\$200,000(USD)	2067-Lic
US Permits - Washington			
Puget Sound Gillnet	30'10"	Reduced to \$30,000(USD)	2127-Lic
Washington Salmon Troll	34'	\$30,000(USD)	2262-Lic

INFO	LENGTH	PRICE WITHOUT BOAT	STOCK #
US Permits - Oregon			
Oregon Salmon Troll Unlimited	24'	\$9,000(USD)	2144-Lic
Oregon Black and Blue Rockfish	32'	\$73,500(USD)	1991-Lic
Oregon 200 Crab Pot Permit	32'	\$73,500(USD)	2030-Lic
OR Black/Blue Limited Entry Permit	33'	\$32,500(USD)	1967-Lic
Oregon Salmon Troll	34'		2048-Lic
Oregon Salmon Troll	34'	\$10,000(USD)	2263-Lic
Oregon Salmon Troll	35'3"		2081-Lic
Oregon Salmon Troll Permit	36'	\$10,000(USD)	2115-Lic
Oregon Salmon Troll	38'	\$10,000(USD)	2241-Lic
Oregon Crab Pot 200 Permit	42'	Reduced to \$60,000(USD)	2086-Lic
Oregon Salmon Troll Permit	42'	\$35,000(USD) Offers	1906-Lic
Oregon Salmon Troll Permit	46'	\$25,000(USD)	2201-Lic
US Permits - California			
Nearshore South Central Coast - Nearshore South Central Coast Permit, Hook & line, 19 species allowed.		\$80,000(USD)	2278-Lic
State of California General Gill Net Permit	32'	\$5,500(USD)	1787-Lic
State of California Southern Rock Crab Trap Permit	32'	\$35,000(USD)	1788-Lic
California Salmon Troll	34'		2049-Lic
California Crab 400 Pot	34'	\$225,000(USD)	2050-Lic
California Crab Permit T-7	35'	\$80,000(USD)	2256-Lic
California Salmon Troll	41'	Reduced to \$14,000(USD)	2051-Lic
California Salmon Troll	47'	\$25,000(USD)	2292-Lic

Caledonian *continued from Page 7*

Yet many fishermen still don't wear them," Fox said. "It's no longer acceptable to think of fishing as just a dangerous job and that nothing can be done about it. There are steps that we can take; there are steps that we must take."

Including this occurrence, the TSB has investigated 28 occurrences in the past 10 years resulting in 26 fatalities in commercial fishing in Canada. This investigation is similar to many other investigations, and that is why the TSB is recommending that:

- All commercial fishing vessels, large and small, have

their stability assessed, and that this stability information be kept up to date and be presented in a way that is clear and useful for the crew.

- Both regulators, WorkSafeBC and Transport Canada, require crews on fishing vessels to wear suitable PFDs at all times on deck and develop ways to confirm that they are complying.

The TSB is an independent agency that investigates marine, pipeline, railway, and aviation transportation occurrences. Its sole aim is the advancement of transportation safety. It is not the function of the board to assign fault or determine civil or criminal liability. ↴

Tongass plan *continued from Page 13*

program from one based on old-growth logging to one based on sustainable young-growth forest management.

By increasing conservation measures for high value salmon streams and creating more flexibility for the Forest Service to plan young-growth timber sales, this decision promises to help move the Tongass beyond the longstanding controversies of old-growth logging while allowing the forest to better serve residents and communities who depend on hunting, fishing, tourism, or commercial fishing.

"Including the Tongass 77 areas in the amended forest plan will help ensure that in the future we have viable fresh-water streams that are crucial to our guests' experience in the Tongass," said Arne Johnson, owner of Bear Creek Outfitters in Juneau.

Broad support: A diverse group of more than 7,000 Alaska businesses and individuals that value and rely on wild salmon and trout for their livelihoods – including commercial fishermen, guides, and outfitters, as well as conservationists and sport anglers – voiced support for conserving top fish-producing watersheds within the Tongass

during the lengthy public process leading up to the final plan amendment.

"Conserving the Tongass 77 is a huge step in the right direction for the people and businesses of Southeast Alaska," said Mark Hieronymus, sport fish outreach coordinator for Trout Unlimited and veteran fishing guide on the Tongass for the past 11 years. "Fisheries, tourism, and recreation are the economic drivers in Southeast, and this new plan amendment recognizes those values and sets sound conservation measures for the high-value areas of the Tongass 77 that will ensure their continued contributions to the Southeast Alaska economy."

The Tongass is the nation's largest national forest, producing hundreds of millions of wild salmon each year that support commercial and sport fishing industries, account for 10 percent of all regional employment, and contribute \$1 billion annually to the local economy. Visitors from all over the world come to see the Tongass and support a booming travel industry, accounting for another 15 percent of regional employment and another \$1 billion in economic activity. ↴

– Trout Unlimited

Around the Yards *continued from Page 15*

the engines.

The steel hull, 57 feet by 21 feet, will have an operating draft of 3 feet 10 inches.

All fish will be transported in totes on the main deck and loaded with the aid of a hydraulic knuckle boom mounted just aft of the raised forepeak.

The deck space is designed to accommodate two 20-foot containers or other general cargo bound for villages along the river.

An aluminum deckhouse, with galley and single bunk, is mounted aft. A middle deck provides one more bunk space. Above that, the wheelhouse will offer a 21-foot eye-level view. A pair of push-knees will be mounted forward.

Three Cummins QSL9 engines, each delivering 335 horsepower, will supply propulsion. The starboard engine is fitted with a hydraulic takeoff to power the deck crane and anchor winch.

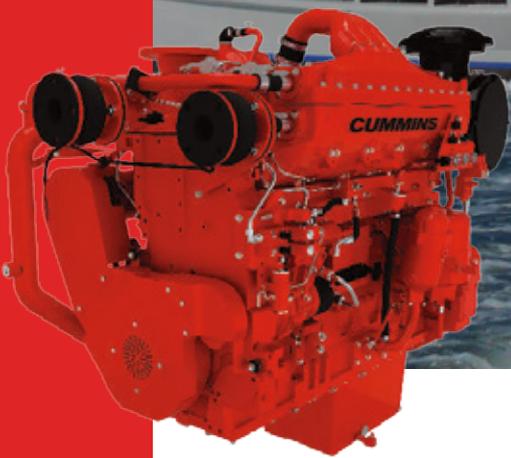
Delivery of the finished vessel is expected in the spring, after which it will travel north. ↴



The 140-foot crab boat Pinnacle, seen here in August in the Dakota Creek Industries yard at Anacortes, Washington. The vessel received new paint. Jeff Pond photo

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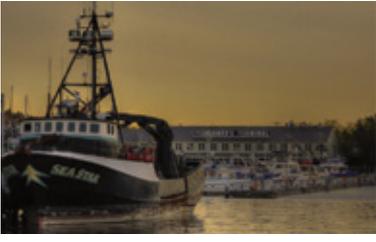
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