From: **Tom peters** <tpete@reninet.com>
Date: Thu, Feb 8, 2018 at 1:16 PM
Subject: salmon hearings
To: pfmc.comments@noaa.gov

It was with great disappointment that I read that there where NO informational or season hearings scheduled north of Santa Rosa. The northern ports of Eureka, Fort Bragg, Crescent City, and Trinidad have very strong interests in the development of salmon seasons and in the status of our salmon resources.
It is often difficult and costly to travel several hundred miles, Incur hotel costs, and spend the required time to get even to Santa Rosa.
I would hope that an informational meeting could be held in Eureka, a good central location. It is far more practical to bring a staff of 8 or 10 to Eureka than it is to bring an audience of 50 to 100 people to Santa Rosa.
Thanks for thinking of us on the North Coast.
Tom Peters
tpete@reninet.com

From: **Pete** <peteza7@yahoo.com>
Date: Tue, Feb 6, 2018 at 9:39 AM
Subject: Salmon season April 2017
To: "pfmc.comments@noaa.gov" <pfmc.comments@noaa.gov>

My name is PeteForchini and I am a recreational salmon fisherman. I have read our three proposals for this upcoming season and after studing them all, I feel number 1 alternative gives both the fish and I the most benefit.
Thank you for this opertunity to voice my opinion

From: **terry** <terrymontonye@msn.com>
Date: Tue, Feb 6, 2018 at 12:26 PM
Subject: Comments for briefing book for March meeting -- salmon
To: "pfmc.comments@noaa.gov" <pfmc.comments@noaa.gov>

Members,

In my opinion, much improved enforcement via satellite sensing of transmitters on all North Pacific fishing boats, EEZ & beyond, must happen or adult salmon returns from the North Pacific, too, soon will be history. Terminating hatcheries and fish farms and more grey whales upwelling bottom nutrients into the mouths of returning salmon, too, must happen. But, satellite sensing, such as described in the three articles below, first must counter the "larceny in the hearts of most fishermen" that is primarily responsible for the declining returns of adult Pacific Salmon over the last 50 years!

I'm retired Coast Guard with five foreign fishing vessel seizures under my belt, "Vodolaz, Symbol of The

Foreign Fishing Menace" to the Kodiak Chamber of Commerce in '71 triggering the '77 200-mile EEZ act. Today, as I'm WRIA-l fishers caucus chairman here in Bellingham (see attachment), I encourage you to enjoin NOAA/Coast Guard/UN action on — at least attract attention to — satellite sensing as the key for revitalizing North Pacific salmon returns!

Sincerely,
James Terrence Montonye
Capt., USCG (ret)

ATTACHMENT 1 of 4:

North Puget Fish & Fishers Back!

FIRST: **NMFS FISH COPS,** EEZ and beyond, guided by British 'Catapult' and/or Paul Allen 'Vulcan' satellite monitoring of UN-required transmitters on all offshore fishing vessels.

SECOND: **WDFW Night & day enforcement of 50%+ escapement openings** at strait & river mouths (*King of Fish p241*)-- vice dark money from untaxed fee land tribal groups (see reverse).

THIRD: **NO HATCHERIES & FARMS** to stop infecting of wilds, interbreeding, hatchery smolts eating wild fry & parr, diluting of gene pools vital to wilds adapting to change & total extinction -- e.g., our NE & now Asia (*King of Fish p164-176)/Araki Science 318/Salmon, People & Peace p29, 42)!*

FOURTH: **No gill, tangle or pelagic nets,** stiffer penalties for anglers, some marine mammal killings, more Dolly & cut-throat angling on sockeye lakes & **a clean-coal GPT** protecting Arctic ice, 'copepods salmon prey eat' & our farmed shellfish by reducing acid rain out of Asia**.** Plus, **no habitat spending, upper reaches especially, until king & silver returns start back up!**

THEN: "**RIVER WATCHERS"** (*King of Fish pg 235*), say at 9.9K/yr, one each in 12 Nooksack half reaches, Squalicum Creek south, Cherry Point north, & Cherry Point south, who pollution test, spot poachers, & identify "real causes" in 1-2 page quarterly reports to the Watershed Management Board via the WRIA-1 PU, thereby **pigeonholing key upgrades** while keeping **things whole locally** via NSEA, PIC, Whatcom Family Farmers, etc. They'd key on **onsite water recharges** as per the Washington State Ground Water Association, e.g., summer flow duration curves via V-notch weirs in drainage exits for worked out areas, 30-ft, 66% open riparian zones free of water-absorbing cottonwoods, water from northern aquifers, etc. And, by also effecting side-channel extensions, day-lightings (restoring silt-binding weed roots), gravel pits (vice 'bar scalping'), armor & culvert fish barrier remediations, fertilized ovum boxes in spawning beds, nitrate-grabbing trenches, Nooksack dredged up to Marietta Bridge, 50-ft lower-reach treed setbacks feeding insects to parr & smolts, slough & marsh enhancements of summer-rearing habitats & slow-water refuges during winter floods, etc., **they'd maximize adult returns of best tasting wild kings & silvers very much more quickly & at far, far less cost**!

PLUS, BACK ONTO TABLES, THEN, AS WELL, due to Victoria's new secondary sewage treatment plants, DOE's MTCA grant "half-fundings" to City & Port for waterfront clean-ups, 'natural eco upgrades' due to pollution testings by river watchers and Whatcom County monitorings for pesticides in ground water, **steelheads, pinks, smoked chums, caviar & shellfish** -- the kings, silvers & sockeyes on tables already being larger & cheaper due to feedings from bottom nutrient upwellings from more whales, fewer seals & sea lions to compete with & no hatchery fish. **Halibut, herring & other bottom & forage**

feeders, too, would edge their ways back over ten or so years as septic fixes due to PIC & river watchers, new eelgrass- & herring-enhancing docks at Cherry Point, PAH, zinc & copper filters in city storm drains due to RE Sources, & bay toxin removals due to Sen. Ericksen's 'environment committee' all happen.

BOTTOM LINE: light crude & LNG exports added to heavy crude imports via buoyed one-way routes to & from Cherry Point, the 'maker movement' in garages, plus all of the above can have **salmon, orcas, fishers, farms, tribes, refineries, factories, tax bases, jobs, canneries, new jail & eateries** all profiting maximally as Asians no longer process 94% of seafood Americans eat & whales (& nutrients) rebound!

Terry Montonye
Fishers Caucus, WRIA-1 Planning Unit 2/5/2018

ATTACHMENTS 2, 3, and 4 follow:

Dragnet

A new satellite-based surveillance system will keep a sharp eye on those plundering the oceans

THE *Yongding* is something of a ghost ship, disappearing and changing her name many times, along with her flag of registration. The 62-metre vessel was last spotted on January 13th in a marine conservation area in the Southern Ocean, blatantly hauling up outlawed gill nets laden with toothfish, a catch so prized that it is known as "white gold". Interpol is seeking information about who operates the ship and profits from its activities, as well as those of two accompanying vessels, *Kunlun* (pictured above, landing a toothfish) and *Songhua*. In the vastness of the open ocean, policing vessels like *Yongding*, *Kunlun* and *Songhua* is hard. But it is about to get easier—for with just a few mouse clicks a satellite-based monitoring system, unveiled this week, will be able to compile a dossier of evidence about even the most clandestine fishing operations.

The scale of illegal and unreported fishing is, for obvious reasons, difficult to estimate. The Pew Charitable Trusts, an American research group, has nevertheless had a stab at it. It reckons that around one fish in five sold in restaurants or shops has been caught outside the law. That may amount to 26m tonnes of them every year, worth more than $23 billion. This illegal trade, though not the only cause of overfishing, is an important one. Stamping it out would help those countries whose resources are being stolen. It would also help to conserve fish stocks, some of which are threatened with extinction. It might even (if the more apocalyptic claims of some ecologists are well founded) slow down the journey towards a wider extinction crisis in the oceans.

A global game of hide and seek

The new monitoring system has been developed by the Satellite Applications Catapult, a British government-backed innovation centre based at Harwell, near Oxford, in collaboration with Pew. In essence, it is a big-data project, pulling together and cross-checking information on tens of thousands of fishing boats operating around the world. At its heart is what its developers call a virtual watch room, which resembles the control centre for a space mission. A giant video wall displays a map of the world, showing clusters of lighted dots, each representing a fishing boat.

The data used to draw this map come from various sources, the most important of which are ships' automatic identification systems (AIS). These are like the transponders carried by aircraft. They broadcast a vessel's identity, position and other information to nearby ships and coastal stations, and also to satellites. An AIS is mandatory for all commercial vessels, fishing boats included, with a gross tonnage of more than 300. Such boats are also required, in many cases, to carry a second device, known as a VMS (vessel monitoring system). This transmits similar data directly to the authorities who control the waters in which the vessel is fishing, and carrying it is a condition of a boat's licence to fish there. Enforcement of the AIS regime is patchy, and captains do sometimes have what they feel is a legitimate reason for turning it off, in order not to alert other boats in the area to profitable shoals. But the VMS transmits only to officialdom, so there can be no excuse for disabling it. Switching off either system will alert the watch room to potential shenanigans.

The watch room first filters vessels it believes are fishing from others that are not. It does this by looking at, for example, which boats are in areas where fish congregate. It then tracks these boats using a series of algorithms that trigger an alert if, say, a vessel enters a marine conservation area and slows to fishing speed, or goes "dark" by turning off its identification systems. Operators can then zoom in on the vessel and request further information to find out what is going on. Satellites armed with synthetic-aperture radar can detect a vessel's position regardless of weather conditions. This means that even if a ship has gone dark, its fishing pattern can be logged. Zigzagging, for example, suggests it is longlining for tuna. When the weather is set fair, this radar information can be supplemented by high-resolution satellite photographs. Such images mean, for instance, that what purports to be a merchant ship can be fingered as a transshipment vessel by watching fishing boats transfer their illicit catch to it.

As powerful as the watch room is, though, its success will depend on governments, fishing authorities and industry adopting the technology and working together, says Commander Tony Long, a 27-year veteran of the Royal Navy who is the director of Pew's illegal-fishing project. Those authorities need to make sure AIS and VMS systems are not just fitted, but are used correctly and not tampered with. This should get easier as the cost of the technology falls.

Enforcing the use of an identification number that stays with a ship throughout its life, even if it changes hands or country of registration, is also necessary. An exemption for fishing boats ended in 2013, but the numbering is still not universally applied. Signatories to a treaty agreed in 2009, to make ports exert stricter controls on foreign-flagged fishing vessels, also need to act. Fishermen seek out ports with lax regulations to land illegal catches.

Preserving Nature's bounty

One of the most promising ideas for using the watch room is that shops could employ its findings to protect their supply chains, and thus their reputations for not handling what are, in effect, stolen goods. Governments sometimes have reason to drag their feet about enforcing fisheries rules. Supermarkets, though, will generally want to be seen as playing by them. The watch room's developers say they are already in discussions with a large European supermarket group to do just this.

The watch room will also allow the effective monitoring of marine reserves around small island states that do not have the resources to do it for themselves. The first test of this approach could be to regulate a reserve of 836,000 square kilometres around the Pitcairn Islands group, a British territory in the middle of the South Pacific with only a few dozen inhabitants.

The Pitcairn reserve, which may be set up later this year, will be one of the world's largest marine sanctuaries. By proving that the watch room can keep an eye on such a remote site, its developers hope other places with similar requirements will be encouraged to get involved.

The watch-room system is, moreover, capable of enlargement as new information sources are developed. One such may be nanosats. These are satellites, a few centimetres across, that can be launched in swarms to increase the number of electronic eyes in the sky while simultaneously reducing costs. Closer to the surface, unmanned drones can do the same. The watch room, then, is a work in progress. But in the game of cat and mouse that enforcing fishing regulations has become, it will give the cat an important advantage. ■

How to catch the overfishermen

Big data allow fish to be protected as never before. Governments should take advantage of this

OVERFISHING is reaching catastrophic levels. According to a recent study, stocks of the biggest predatory species, such as tuna and swordfish, may have fallen by 90% since the 1950s. Another study, published last week in *Science*, suggests extinction is on the cards for many species. This matters for numerous reasons, not the least of which is that a lot of people rely on fish as part of their regular diet. About 3 billion of the Earth's inhabitants get a fifth or more of their protein from fish—which means that fish are a bigger source of the stuff than beef is.

The difficulty is, in part, a consequence of the problem known as the tragedy of the commons, whereby a commonly held resource is over-exploited. Nobody owns the high seas, which are therefore vulnerable to a perfectly legal free-for-all. But a lot of fishing is carried out in territorial waters that stretch 12 nautical miles from a country's coastline, as well as so-called exclusive economic zones that stretch to 200 nautical miles beyond coastlines, over which a more limited sovereignty exists. Governments, in thrall to fishing lobbies which are more concerned with making money today than preserving fish stocks for the future, set unrealistic quotas, and there is a lot of illegal fishing too, conducted without permission in controlled waters. The Pew Charitable Trusts, an American research group, estimates that one fish in five sold in a shop or served in a restaurant has been caught illegally. That amounts to 26m tonnes of fish a year, worth more than $23 billion.

Until now, trying to stop this illegal trade has been more or less futile. The oceans are vast. Navies and coastguard patrols are small. Even finding those who are up to no good has been hard. That, though, is changing through the use of "big data". It is now feasible (see page 70) to synthesise information from sources such as radio transponders and satellite observations, in order to track every ocean-going vessel that is, or might be, a fishing boat. Such data can show when a vessel is behaving suspiciously in a prohibited area. They can also link particular vessels with the receiving ships to which they transfer their catches for transport to market.

This promising system will work only if governments enforce existing rules. Like other vessels, fishing boats are required to carry transponders that indicate their position, speed and direction. Captains may switch their transponders off, of course. But the very act of doing so will be noticed, and will immediately suggest they are, as it were, up to something fishy. Other means of scrutiny, such as direct observation by satellite, can then be brought to bear.

Chain reaction

Crucially, given many governments' ambivalence towards enforcing fisheries rules—especially when their own nationals are fishing in other people's waters—the new technology will also help companies protect their supply chains. The one-in-five illegal fish identified by Pew are often being sold by otherwise law-abiding firms that have no way of reliably tracing them back to the vessels that caught them. Soon, retailers will be able to do so—and at least some of their customers will care enough about the matter to make sure these supply chains are, indeed, traced routinely in the way that meat is now traced from farm to chiller-cabinet.

The existence of policing technology will also make it easier to set up marine reserves in which fish can breed, to the benefit of fisheries outside these protected areas. Experiments have shown that these reserves increase catches in the long term, provided no one cheats by plundering them. Big data will make it easier to stop such plunder.

There is a nice irony in this development. Overfishing is the product not just of human greed, but also of technologies such as sonar that have made finding and catching fish far more efficient in recent decades. It is a matter for celebration that technology is now up to the task of catching illegal fishermen as well as fish. ■

Satellites Help Reel In Fish Poachers

By Rob Taylor

CANBERRA, Australia—Researchers in Australia and the U.S., backed by Microsoft Corp. co-founder Paul G. Allen, are using satellites to fight illegal fishing—which causes billions of dollars a year in commercial losses and depletes stocks.

With the world's third-largest fishery zone covering 3.5 million square miles, Australia is at the forefront of efforts to combat poaching. Its patrol ships have chased illegal trawlers almost as far as South Africa, a distance of 4,600 miles, to stop the plunder of prized Patagonian toothfish—sold in the U.S. as Chilean sea bass.

Australian government scientists and **Vulcan** Inc., Mr. Allen's private company, have developed a notification system that alerts authorities when suspected pirate vessels from West Africa arrive at ports on remote Pacific islands and South America.

The system relies on anti-collision transponders installed on nearly all oceangoing craft as a requirement under maritime law. These devices are detectable by satellite.

A statistical model helps identify vessels whose transponders have been intentionally shut off. Other data identify fishing boats that are loitering in risk areas, such as near national maritime boundaries.

"We can shine a spotlight on vessels acting suspiciously based on factors including the vessel's history, movement and whether its transmitter has been intentionally disabled," said Chris Wilcox, who helped develop the system for Australia's Commonwealth Scientific and Industrial Research Organization.

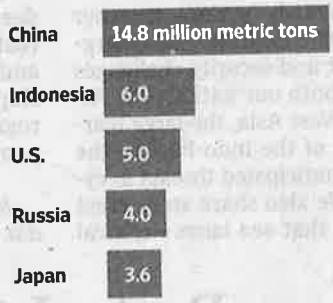
AUSTRALIAN BORDER FORCE/XINHUA/ZUMA PRESS

Australian officers prepared to board an illegal fishing vessel at Dianne Bank, 250 nautical miles northeast of Cairns, in September.

Hook, Line and Sinker

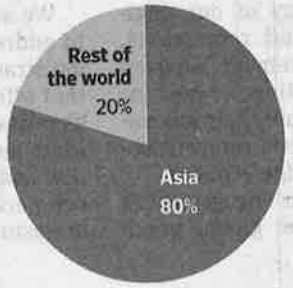
The global fishing fleet, much of it from Asia, is expected to have nearly 10 billion mouths to feed by 2050.

Biggest fisheries catches, 2014



Source: U.N. Food and Agriculture Organization

Motorized fishing vessels, 2014



THE WALL STREET JOURNAL.

"On one hand you can't see them [if their transponder is switched off], but on the other it means they've just flagged themselves as avoiding surveillance, and as a risk indicator, that's at the top of the list," he said.

Illegal fishing is estimated to account for 11% to 19% of the global catch, according to Australia's government and the United Nations Food and Agriculture Organization. And one-third of all fish sold in the U.S. is believed to be caught illegally.

Seafood consumption in wealthy nations has soared in recent decades, increasing reliance on imports.

Illegal fishing can be highly lucrative because violators don't pay duties or taxes on their illegal catches. And it is nearly impossible to detect illegally caught products when they enter the global seafood market, Dr. Wilcox said.

Poachers ignore catch quotas intended to protect species from overfishing and use outlawed equipment, including nets stretching 15 miles or more that scoop up everything in their path. Illegal fishing causes commercial losses of as much as $23 billion a year worldwide, according to the U.N.

Nearly half the world's population relies on seafood as a primary source of protein, the Commonwealth Scientific and Industrial Research Organization says, and demand is expected to grow. Fish exports were valued at about $148 billion in 2014, U.N. statistics show.

The researchers' satellite-based tracking tool will begin operating in October and will be free to access. It was set up in response to a treaty aimed at eradicating illegal fishing that came into force last June. The Agreement on Port State Measures had agreement from 29 countries, including African nations previously linked to illegal fishing.

"Countries that use this new tool will now be able to reverse the tide of illegal fishing and help rebuild depleted fish stocks," said Mark Powell, illegal fishing program officer for Vulcan.

China is the world's largest seafood producer, followed by Indonesia, the U.S. and Russia. The most critical area for poaching is off the coast of West Africa, where illegal, unauthorized and unregulated fishing accounts for an estimated 40% of fish caught, according to the World Ocean Review. Other areas of concern include the western and southern Pacific and the southwest Atlantic. Illegal trawlers contribute to overfishing that threatens marine ecosystems and food security in some of the poorest countries.

PFMC
02/09/18