

World News Roundup

Ecology

'Blob's' lingering effects

Parasitic 'sea' lice hit global salmon farms

ST ANDREWS, New Brunswick, Sept 18, (AP): Salmon have a lousy problem, and the race to solve it is spanning the globe.

A surge of parasitic sea lice is disrupting salmon farms around the world. The tiny lice attach themselves to salmon and feed on them, killing or rendering them unsuitable for dinner tables.

Meanwhile, wholesale prices of salmon are way up, as high as 50 percent last year. That means higher consumer prices for everything from salmon fillets and steaks to more expensive lox on bagels.

The lice are actually tiny crustaceans that have infested salmon farms in the US, Canada, Scotland, Norway and Chile, major suppliers of the high-protein, heart-healthy fish. Scientists and fish farmers are working on new ways to control the pests, which Fish Farmer Magazine stated last year costs the global aquaculture industry about \$1 billion annually.

So far it has been an uphill struggle that is a threat to a way of life in countries where salmon farming is a part of the culture.

"Our work has to be quicker than the evolution of the lice," said **Jake Elliott**, vice president of Cooke Aquaculture in Blacks Harbour, New Brunswick.

Experts say defeating the lice will take a suite of new and established technology, including older management tools such as pesticides and newer strategies such as breeding for genetic resistance. The innovative solutions in use or development include bathing the salmon in warm water to remove lice and zapping the lice with underwater lasers.

Farmers worldwide consider sea lice the biggest threat to their industry and say the persistent problem is making the fish more expensive to consumers. Farmed salmon was worth nearly \$12 billion in 2015, according to the Food and Agriculture Organization of the United Nations.

The only hope is to develop new methods to control the spread of lice, which are present in the wild, but thrive in the tightly packed ocean pens for fish farming, said Shawn Robinson, a scientist with the Canadian Department of Fisheries and Oceans.

"There are not enough tools right now to allow the farmer to really effectively deal with it," Robinson said. The lice can grow to about the size of a pea and lay thousands of eggs in their brief lifetime. But Atlantic salmon have held their own with sea lice in the wild for centuries, and fish farmers managed them in aquaculture environments for many years.

Then, farmers in Canada identified the lice as a problem around 1994, said Jonathan Carr, executive director of research and environment with the Atlantic Salmon Federation.

Feeding fish a pesticide with the active ingredient of emamectin benzoate became the tool of choice to control lice, Carr said. But around 2009, the lice appeared to become resistant to the pesticide, and they have spread globally since.

Evolved

The industry's key mistake was reacting when the lice evolved to survive pesticide, Carr said, rather than "getting ahead in the game."

"The efficacy went away and pressure developed to create new treatments," said Kris Nicholls, chief operating officer at Cooke, a major player in world salmon farming.

The worldwide supply of salmon fell almost 10 percent last year, with Norway, the largest producer in the world, especially hard hit. In Norway, there are hundreds of times more salmon in aquaculture than in the wild. And the fish potentially can escape their pens with lice attached and introduce them to wild fish.

Norwegian farmers are looking to use new closed-in pens that resemble giant eggs instead of typical mesh pens. Scottish farmers have deployed a device known as a Thermolicer to warm the water and detach the lice from fish. And farmers in North America and Europe are experimenting with using species of "cleaner fish" to coexist with the salmon and eat the lice.

Research about farming salmon along with mussels, which researchers have found will eat larval sea lice, is underway. Underwater drones inhabit the other end of the technological spectrum, zapping lice with lasers to kill them. That technology was developed in Norway and has been used there and in Scotland.

Cooke keeps a brood stock of fish in the hopes of breeding them for desirable traits such as disease resistance. And the company uses a pair of boats capable of pumping 10,000 fish at a time into a hydrogen peroxide bath, which kills most of the lice, although it also can stress and kill some fish.

On the shores of Beaver Harbour, New Brunswick, Cooke engineer Joel Halse stood recently aboard a \$4 million vessel containing a series of tubes that send 300 salmon a minute on a winding journey while dousing them with warm water to remove lice.

Halse, who likened it to a "waterslide park" for fish, said the fish farming industry has no choice but to try such innovations.

"The cost to the salmon farming industry from sea lice is huge," he said. "And having tools to control the population would be huge."

The mass of warm water known as "the blob" that heated up the North Pacific Ocean has dissipated, but scientists are still seeing the lingering effects of those unusually warm sea surface temperatures on Pacific Northwest salmon and steelhead.

Federal research surveys this summer caught among the lowest numbers of juvenile coho and Chinook salmon in 20 years, suggesting that many fish did not survive their first months at sea. Scientists warn that salmon fisheries may face hard times in the next few years.

Fisheries managers also worry about below average runs of steelhead returning to the Columbia River now. Returns of adult steelhead that went to sea as juveniles a year ago so far rank among the lowest in 50 years.

Scientists believe poor ocean conditions are likely to blame: Cold-water salmon and steelhead are confronting an ocean ecosystem that has been shaken up in recent years.

"The blob's fairly well dissipated and gone. But all these indirect effects that it facilitated are still there," Brian Burke, a research fisheries biologist with the Northwest Fisheries Science Center.

Marine creatures found farther south and in warmer waters have turned up in abundance along the coasts of Washington and Oregon, some for the first time.



In this May 9, 2017 file photo, Interior Secretary Ryan Zinke rides a horse in the new Bears Ears National Monument near Blanding, Utah. (AP)

Heritage

US Interior Secretary recommends changes to several sites

'Shrink six nat'l monuments'

WASHINGTON, Sept 18, (AP): Interior Secretary Ryan Zinke is recommending that six of 27 national monuments under review by the Trump administration be reduced in size, with changes to several others proposed.

A leaked memo from Zinke to President Donald Trump recommends that two Utah monuments - Bears Ears and Grand Staircase-Escalante - be reduced, along with Nevada's Gold Butte and Oregon's Cascade-Siskiyou.

Two marine monuments in the Pacific Ocean also would be reduced under Zinke's memo, which has not been officially released. The Associated Press obtained a copy of the memo, which was first reported by the Wall Street Journal.

Trump ordered the review earlier this year after complaining about improper "land grabs" by former presidents, including Barack Obama.

National monument designations add protections for lands revered for their natural beauty and historical significance with the goal of preserving them for future generations. The restrictions aren't as stringent as national parks, but some policies include limits on mining, timber cutting and recreational activities such as riding off-road vehicles.

The monuments under review were designated by four presidents over the last two decades. Several are about the size of the state of Delaware, including Mojave Trails in California, Grand Staircase-Escalante in Utah and Bears Ears, which is on sacred tribal land.

No other president has tried to eliminate a monument, but some have trimmed and redrawn boundaries 18 times, according to the National Park Service. Zinke told the AP last month that unspecified boundary adjustments

for some monuments designated over the past four decades will be included in the recommendations submitted to Trump. None of the sites would revert to new ownership, he said, while public access for uses such as hunting, fishing or grazing would be maintained or restored.

He also spoke of protecting tribal interests and historical land grants, pointing to monuments in New Mexico, where Hispanic ranchers have opposed two monuments proclaimed by Obama.

Energy

Zinke declined to say whether portions of the monuments would be opened up to oil and gas drilling, mining, logging and other industries for which Trump has advocated. It was not clear from the memo how much energy development would be allowed on the sites recommended for changes, although the memo cites increased public access as a key goal.

A spokeswoman for Zinke referred questions Sunday night to the White House, which did not offer immediate comment.

If Trump adopts the recommendations, it would quiet some of the worst fears of his opponents, who warned that vast public lands and marine areas could be lost to states or private interests.

But significant reductions in the size of the monuments, especially those created by Obama, would mark the latest in a string of actions where Trump has sought to erode his Democratic predecessor's legacy.

The recommendations cap an unprecedented four-month review based on Trump's claim that the century-old Antiquities Act had been misused

by past presidents to create oversized monuments that hinder energy development, grazing and other uses.

The review raised alarm among conservationists who said protections could be lost for areas that are home to ancient cliff dwellings, towering sequoia trees, deep canyons and ocean habitats. They've vowed to file lawsuits if Trump attempts any changes that would reduce the size of monuments or rescind their designations.

Zinke had previously announced that no changes would be made at six national monuments - in Montana, Colorado, Idaho, California, Arizona and Washington. He also said that Bears Ears monument in Utah should be downsized.

In addition to shrinking six monuments, Zinke recommends changes at several other sites, including two national monuments in New Mexico: Organ Mountains-Desert Peaks and Rio Grande del Norte.

He also recommended changes to Katahdin Woods and Waters in Maine.

Jamie Williams, president of the Wilderness Society, said the recommendations apparently made by Zinke "represent an unprecedented assault on our parks and public lands" by the Trump administration.

"This callous proposal will needlessly punish local, predominantly rural communities that depend on parks and public lands for outdoor recreation, sustainable jobs and economic growth," Williams said in a statement.

"We believe the Trump administration has no legal authority to alter or erase protections for national treasures. If President Trump acts in support of these recommendations, The Wilderness Society will move swiftly to challenge those actions in court."



This undated photo provided by Cooke Aquaculture shows a sea lice in its early stages. (AP)



Tillerson

Trump

Discovery

Mars research crew emerges: Six NASA-backed research subjects who have been cooped up in a Mars-like habitat on a remote Hawaii volcano since January emerged from isolation Sunday. They devoured fresh-picked tropical fruits and fluffy egg strata after eating mostly freeze-dried food while in isolation and some vegetables they grew during their mission.

The crew of four men and two women are part of a study designed to better understand the psychological impacts a long-term space mission would have on astronauts.

"It's really gratifying to know that the knowledge gained here from our mission and the other missions that HI-SEAS has done will contribute to the future exploration of Mars and the future exploration of Space in general," science officer Samuel Taylor said Sunday.

The data they produced will help NASA select individuals and groups with the right mix of traits to best cope with the stress, isolation and danger of a two-to-three year trip to Mars. The US space agency hopes to send humans to the red planet by the 2030s.

The crew was quarantined for eight months on a vast plain below the summit of the Big Island's Mauna Loa, the world's largest active volcano. After finishing their stint, they feasted on pineapple, mango and papaya. (AP)

5K 'Dieselgate' deaths in EU: Emissions from diesel cars rigged to appear eco-friendly may be responsible for 5,000 air pollution deaths per year in Europe alone, according to a study published Monday.

The numbers are in line with previous assessments of deaths due to the so-called "Dieselgate" scandal, which erupted when carmaker Volkswagen admitted in 2015 to cheating on vehicle emissions tests.

Many other carmakers have since fallen under suspicion.

In May this year, a study in the journal Nature said "excess" emissions from diesel vehicles exceeding certification limits were associated with about 38,000 "premature" deaths globally in 2015.

The new study, published in the journal Environmental Research Letters, focuses on the perils for Europe.

The researchers from Norway, Austria, Sweden and the Netherlands calculated that about 10,000 deaths in Europe per year can be attributed to small particle pollution from light duty diesel vehicles (LDDVs).

Almost half of these would have been avoided if emissions of nitrogen oxides (NOx) from diesel cars on the road had matched levels measured in the lab. Volkswagen admitted installing illegal

software devices in cars that reduced emissions only for the duration of tests.

If diesel cars emitted as little NOx as petrol ones, almost 4,000 of the 5,000 premature deaths would have been avoided, said the authors. (AFP)

Activist urges walrus rafts: An environmental activist is calling on the US Fish and Wildlife Service to reconsider placing anchored rafts in the ocean as resting platforms for walrus after stampedes killed 64 animals on Alaska's northwest coast.

Rick Steiner, an environmental consultant and former University of Alaska marine conservation professor, pitched the idea two years ago. The Fish and Wildlife Service concluded it didn't have the money or manpower to provide artificial resting plat-

forms that might give a few walrus relief but not benefit the population as a whole in the absence of ice in the Chukchi Sea.

Steiner said he's again asking the agency to take the lead in a raft pilot project because sea ice continues to diminish and artificial platforms could provide alternatives to huge herds gathering on the Alaska coast. "If it doesn't work, then it doesn't work," Steiner said Friday. "We know what doesn't work: sitting around in office looking at computer screens and having teleconferences expressing concerns about this." (AP)

US looks to work with Paris deal:

After a succession of mixed messages on the US stance on climate change, Secretary of State **Rex Tillerson** said Sunday that the



In this photo released by the University of Hawaii shows Hawaii Space Exploration Analog and Simulation, HI-SEAS crew members pose for a photo Sept 17, after emerging from their habitat after eight months of living in isolation in a Mars-like habitat in Mauna Loa volcano, Big Island, Hawaii. (AP)

Trump administration was seeking "ways in which we can work with partners in the Paris climate accord."

"We want to be productive, we want to be helpful," Tillerson said on the CBS program "Face the Nation."

His comments did not amount to a reversal from US President **Donald Trump's** widely criticized decision in June to withdraw from the landmark pact, signed by nearly 200 countries.

But Tillerson did appear to signal a softening from Trump's earlier characterization of the deal as a "draconian" pact that impinged on American sovereignty and unfairly favored countries like China and India over the US.

When European environment officials suggested over the weekend that the United States might be ready to reengage with the pact, the White House said that its position was unchanged, and that it could stay only if more "favorable" terms were achieved.

But Tillerson said Trump's chief economic adviser, Gary Cohn, was studying ways the US could cooperate with other countries on what, he said, "is still a challenging issue."

The remarks came days before Trump is to speak before world leaders at the UN General Assembly in New York, where climate change seems sure to be a major topic. They also came after two devastating hurricanes struck the US mainland in recent weeks - made more intense, some scientists said, by waters warmed by climate change.

Neither Tillerson nor Trump's national security adviser, H.R. McMaster, spoke of reopening negotiations over the Paris accord, an idea sharply rejected by other signatories. But the accord is voluntary, and it appeared the US might be able to find a way, within the pact, to recast its position. (AFP)