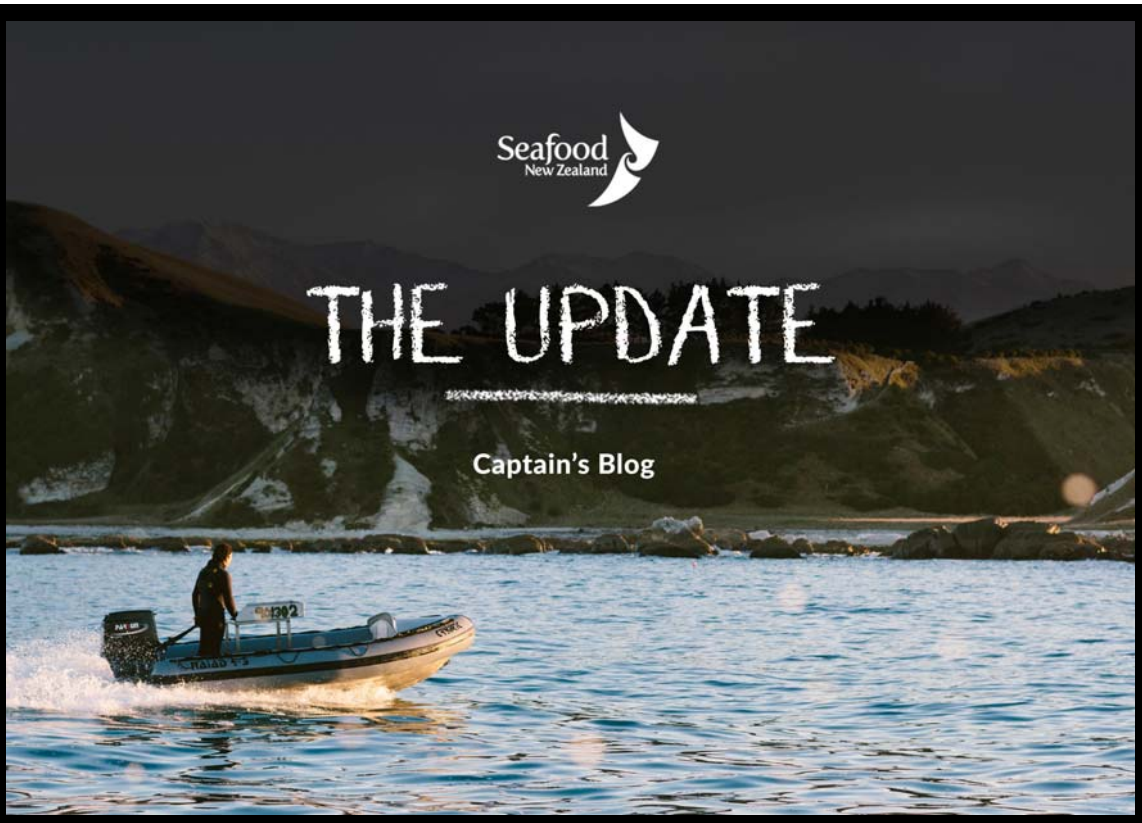


Industry committed to limiting impact

It is distressing whenever seabirds or mammals are caught during commercial fishing, but much is being done to reduce that risk.

There is no denying fishing has an impact on the marine environment, just as farming does on land.

But attitudes and practices have changed significantly in the last 20 years or so.

Every mortality report agitates the anti-commercial fishing lobby in particular anew, rightly so, but what is not recognised is the huge strides made in minimising risks.

For example, the development of upper escape openings in squid trawl nets has seen sea lion deaths plummet.

The claim endangered sea lions are being driven to extinction by the fishing industry is simply not credible.

Observer coverage in that Southern Ocean fishery is virtually 100 percent. Every single tow is independently monitored.

Last year only two sea lions were caught, the year before none.

Five captures this year early in the season is a serious concern but it needs to be kept in perspective.

There were an estimated 70 to 140 captures a decade or more ago.

Fisheries NZ said its observers reported the boats concerned this season were complying with regulations and were correctly using the exclusion devices in their nets.

Even so, Sanford, two of whose vessels caught the creatures, responded by withdrawing from the area while an investigation was done.

There was also understandable concern at the recent capture of five endangered Antipodean albatrosses by a longliner off the Bay of Plenty.

Again, the regulator confirmed the vessel was not acting illegally.

The National Institute of Water and Atmospheric Research (NIWA) has demonstrated the domestic fishing industry is not the main driver of the decline in the Antipodean population and that it is likely being driven by captures on the high seas – or potentially by unknown environmental factors.

The industry is committed to mitigating its impact and strongly supports the Department of Conservation liaison officer project which deploys seabird risk management plans on vessels.

Several trials are under way, including 1800 hookpods (devices that sheath the hooks until below the surface) on the surface longline fleet, monitoring fishing gear sink rates and assessing use of electronic monitoring for black petrels.

Hector's and Maui dolphin protection is also of concern, with updated threat management plans currently being worked on.

Te Ohu Kaimoana chief executive Dion Tuuta summed up the industry approach.

"Groups like Forest & Bird, they care about these issues, but it doesn't mean they have a monopoly on caring about the environment.

"Te Ohu Kaimoana is also concerned about these matters but it we are also interested in coming up with solutions which stop the unintended capture of animals, not just watching it on a camera, and that's why we fund organisations like the Southern Seabirds Solutions Trust (along with Seafood NZ and World Wildlife Fund), which works with fishers to find ways to mitigate the negative effects of fishing on seabirds."

The bright lights and superstructure of cruise ships are also a hazard for seabirds, according to the Department of Conservation.

Should we limit or ban this aspect of the booming tourism industry?

That would be about as logical as the calls to ban some commercial fisheries.

The most effective way for those concerned about our marine life to make a difference is to engage constructively, as the World Wildlife Fund, The Nature Conservancy and the Environmental Defence Society do to varying degrees.

But, then, demonising the fishing industry is so much easier.

Sensor sheds light on ocean acidification

Christina McGraw's most recent invention is being termed a scientific 'lightsabre' for the battle against ocean acidification.

The 5cm long cylindrical blade is as thin as a credit card, but packed with electronics to collect data on ocean acidification.

The concept for the Saturation State Sensor came to McGraw five years ago after reading about a scale sensor for industrial processors.

"It was the kind of scale that forms on the inside of pipes," explained McGraw.

"I realised it could be adapted to directly measure dissolution of calcium carbonate structures. My sensor directly measures that."

Calcium carbonate is the same substance used in the formation of shells, with the added benefit of protecting molluscs from ocean acidity. Scientists predict that higher levels of ocean acidity will cause shells to fracture and dissolve.

"We call it the saturation state. If the saturation state is below one we expect calcium carbonate structures to dissolve and if it is above one, we don't."

"For New Zealand, thank goodness, we are [currently] surrounded by a saturation state greater than one."

Ordinarily, measuring the break-down of minerals due to ocean acidity involves a complex set of calculations. This new sensor however, is more efficient, cost-effective and simpler to use.

The exterior of the sensor is covered in minute grains of calcium carbonate. As the mineral on the sensor dissolves, it provides McGraw with a direct measure of the rate of degradation - and all at a cost of just $200 in materials per device.

Traditional equipment can cost up to $10,000 and use indirect measures through seawater parameters, such as pH and alkalinity.

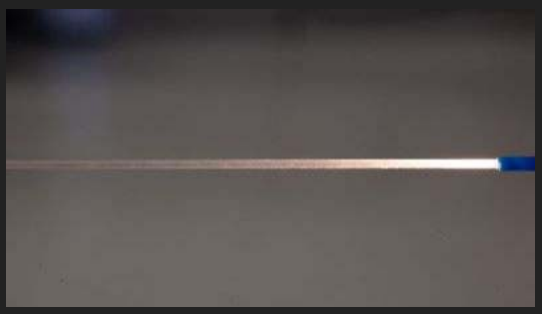
Two trial deployments of the sensor have already been successfully completed, one last April in the Marlborough Sounds and another in November. The sensor operated without a glitch for 12 hours of the first trial and is expected to run for months at a time on a single battery charge once the final prototype is complete.

McGraw credits the project's progression to the hard work and ideas of PhD student Wayne Dillon.

“Wayne completely redesigned the electronics and data logging system after our April deployment.”

In time, the sensors will provide detailed data on sea water conditions and ocean acidity and provide scientists with another tool to complement existing systems.

The team are now redesigning final components and hope to have the first fully operational device out in the water by the middle of the year.



The Saturation State Sensor made by marine chemist Christina McGraw (right) and her team.

RV Tangaroa returns home

NIWA research vessel, the *Tangaroa*, docked in Wellington on Saturday after a six-week long journey exploring the marine ecosystem in Antarctica.

Twenty-one scientists and 19 crew travelled nearly 12000 km, examining everything from bacteria, to whales and ocean circulation. The vessel reached its southernmost point on 4 February.

The journey marks part of a long-term monitoring programme inside the Ross Sea Marine Protected Area (MPA) – a collaboration between NIWA and the Commission for the Conservation of Antarctic Marine Living Resources.

A lack of sea ice and good weather made the exploration particularly successful. The team were extremely lucky to be able to continue their work uninterrupted, said voyage leader Richard O’Driscoll.

“Remarkably, we did not lose any time due to rough weather while south of 60°S.”

Scientists collected nearly 33 hours of video footage and 8000 images of marine life living on the seabed. More than 4700 samples have been preserved from the area.

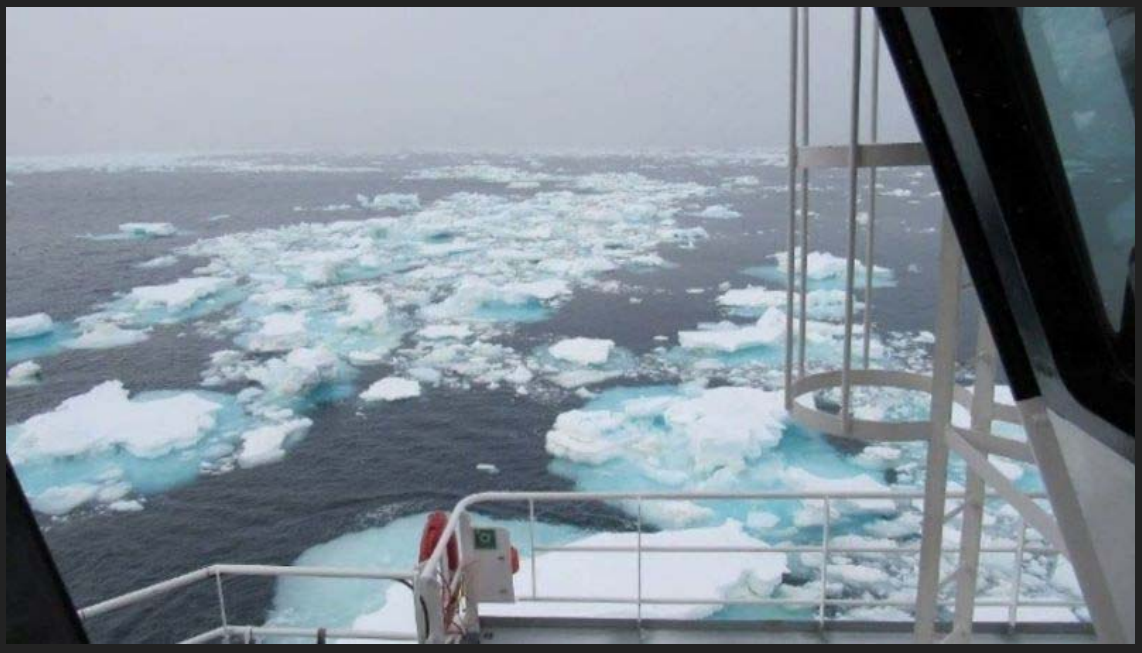
Forty-one fish trawls were completed, catching 1946kgs of fish comprised of 110 marine species and 56 types of fish. Several unusual species, whale-fish, snail-fish and big-scale fish, have been brought back for identification by Te Papa.

Monitoring devices were also deployed, including 31 electronic buoys, six moorings and 35 underwater cameras. The moorings will continue to collect oceanic data until 2021.

The work will greatly benefit both New Zealand and global science communities, said O'Driscoll.

"Data collected on the voyage will also build on New Zealand's reputation for research on atmosphere and ocean circulation processes.

"New Zealand has a commitment to playing a leading role in monitoring the MPA, and this voyage is a key contribution."



Sea ice seen from *RV Tangaroa's* 2019 Antarctic voyage. Photo, Diana Macpherson.

News

A man who took more than eight times the daily paua limit said he did it to impress his grandparents for their 50th anniversary. Akuhata Charles Pirere appeared in the Dunedin District Court last week on charges of taking excess and undersized paua and for obstructing a fisheries officer. The defendant was diving for shellfish on 9 October at Warrington. It is part of the East Otago Taiapure, with a daily limit of five paua per person. Pirere was spotted by a fisheries officer in dive gear with a heavy-looking bag, and the official waited by the roadside to inspect his catch. As the officer checked Pirere's details,

he ran off to the shore despite being ordered to stop. The officer found 41 paua, 40 of which were undersized, concealed in long grass down a bank near the sea. "He said he felt ashamed about taking so many small paua, as he was Maori and that was not the type of person he usually was," a summary of facts said. Pirere was sentenced to 200 hours community work and his dive equipment - including wetsuit, snorkel and knife - were forfeited.

The Ministry for Primary Industries is refuting claims that New Zealand's primary products are facing delays at the border in China. Last week, fishing company Sanford said it was having issues getting salmon exports to China cleared through the country's ports. New Zealand's relationship with China has been under scrutiny recently after the GCSB's rejection of Huawei's bid to roll out Spark's 5G network in New Zealand late last year. Since then, an Air New Zealand flight has been turned back from Shanghai, and a tourism event postponed. However, an MPI spokesman said goods continue to clear the border in China as usual. MPI director market access Tim Knox said they have not received an indication of anything out of the ordinary in China's border clearance procedures for New Zealand products. "As with any large trading relationship, temporary technical trade issues can occur from time to time with products at the border," he said. "There are established mechanisms for resolving temporary technical trade issues, which includes working constructively with Chinese authorities and exporters. The overall picture is one of a significant trade relationship working effectively, in both directions."
