



# BYCATCH BYLINES

Issue 23 | April 2016

## HEADLINE

### Observer update

**Just like the truth, we know they're out there. But what have government fisheries observers been doing over summer in inshore fisheries, and what's planned for the months ahead?**

Summer has seen a lot of observer activity in FMA1. Observers have spent time on bottom longline vessels targeting snapper and bluenose. A priority of this coverage was monitoring seabird interactions. In particular, observers were interested in how operators are reducing seabird bycatch risk on a vessel-by-vessel basis. Observers also recorded fish catch.

On trawlers in FMA1, the introduction of electronic monitoring using on-board cameras is now largely complete. Currently this monitoring is focused on fish catch. Observers have also been deployed on vessels using Precision Seafood Harvesting methods.

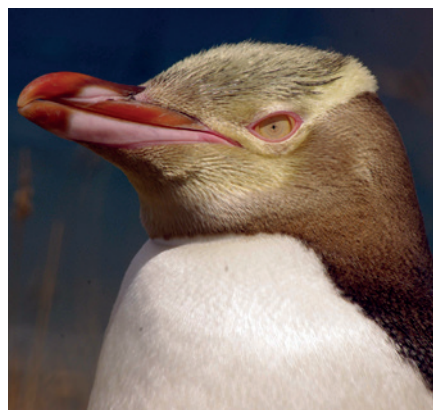
Moving south, observers have been working on set net vessels operating out of Dunedin. Coverage started in December and will continue through to June. Priorities for this coverage include monitoring protected species interactions, especially yellow-eyed penguins and Hector's dolphins.

So where to next? Set net coverage is moving to Southland, with observer deployments planned for vessels in Bluff and Riverton. In FMA1, trawlers carrying cameras will still host observers from time to time. Similarly, monitoring Precision Seafood Harvesting will continue to be priority.

New Zealand's international obligations influence the priority of some observer coverage. An example is the requirement by the Commission for the Conservation of Southern Bluefin Tuna that 10% of fishing

effort for STN is observed. CCSBT interests include the management of southern bluefin tuna fisheries and ensuring the long-term viability of pelagic shark populations. Beyond sharks, CCSBT's responsibilities for what it calls 'ecologically related species' also include what we call protected species. Delivering on CCSBT's observer requirements helps keep New Zealand in a strong negotiating position with the Commission as well as supporting our own management of this fishstock.

Observer coverage monitoring southern bluefin tuna fishing has started for 2016. Observers are collecting catch effort information and biological samples. They are also compiling information on protected species interactions with fishing operations, and operational practices intended to reduce seabird bycatch risks.



Observer coverage is rolled out annually in sync with the government financial year (July 1 – June 30). So what of next year, from July 1 2016? Planning is currently underway. Follow the link in 'Want to know more?'

The yellow-eyed penguin/hoiho – a focus for set net vessel observer coverage in Southland. Photo: J. P. Pierre

## WHAT'S UP?

### The Federation comes to Christchurch

Planning is abuzz for the NZ Federation of Commercial Fishermen's annual conference. This year, Christchurch welcomes the crew.

- The conference venue is Rydges Latimer Square – with plenty of room for relaxing outside or smoke breaks in the park opposite.
- The conference features the ever-popular Shipwreck Auction.
- Non-fishing partners are welcomed free with a dedicated partners' programme.
- Registration information is on the Feds' website: <http://www.nzfishfed.co.nz/>



Vessels at Lyttelton, just out of Christchurch. Photo: M.P. Pierre

## WHAT THE FAQ?!

### Going green, inside and out

Five species of marine turtles live around New Zealand. Green turtles are actually olive brown on top and pale yellow underneath. So how do they get their name?

- Green turtles actually get their name from the colour of their insides! Their meat, fat and cartilage are all coloured green.
- Adult green turtles are purely vegetarian. Young green turtles also eat jellyfish and crabs.



A green turtle near Poor Knights Island. Photo: L. Bernard, [www.doc.govt.nz/nature/native-animals/marine-fish-and-reptiles/sea-turtles/](http://www.doc.govt.nz/nature/native-animals/marine-fish-and-reptiles/sea-turtles/)

- Eating jellyfish sometimes leads young turtles to trouble. Plastic bags look like jellyfish in the ocean and turtles eat the bags too. This can kill turtles. Keeping rubbish out of the ocean will help turtles eat right.
- Turtles are caught in longline and trawl fisheries.
- Report sick or injured turtles to the DOC Hotline: 0800 362 468.

## Coral connections

Coldwater corals occur around New Zealand and can be caught by bottom fishing methods. But why aren't corals found everywhere? NIWA research sheds light on where corals call home and how that can change with time.

Coral distribution is a product of nature, history, and human influence. History includes past changes in ocean currents. For example, the world's largest and strongest ocean current – the Antarctic Circumpolar Current (ACC) – has changed its path over millions of years. This has influenced where a group of gorgonian octocorals, called bottlebrush corals, occur.

As well as influencing their distribution, the path of the ACC has restricted gene flow between bottlebrush coral populations over time. When gene flow is restricted, new species may form. Scientists suspect this may have happened for their regional populations of bottlebrush corals – a complex intertwining of nature and history.

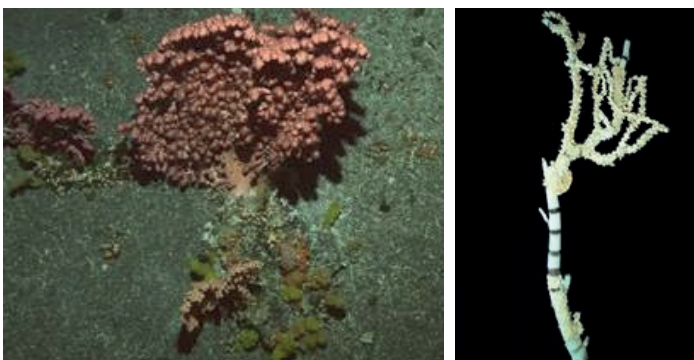


Small bottlebrush corals *Thouarella* and *Tokoprymno*.  
Photo: NIWA

In addition to ocean currents, environmental conditions affect where corals are found. Coral groups have different requirements and preferences in terms of the environmental conditions they live in. For example, nutrient supply and bottom temperature are

considered particularly important influences on coral locations. Changes in ocean chemistry (e.g., an increase in acidity) will affect the distribution of some corals significantly.

Working with predictions of the future state of the oceans, scientists can forecast where corals might occur decades from now. There are winners and losers amongst our protected coral species in terms of how future ocean changes will affect them. For example, looking ahead to 2100, our waters are expected to become much less favourable overall for scleractinian stony corals. For bamboo and black corals, changes are more neutral, with conditions becoming better in some areas and worse in others. Gorgonian bubblegum corals may be winners, as conditions they prefer become increasingly prevalent.



Bubblegum coral (left) and bamboo coral (right). Photos: NIWA

Predictions of future coral habitat are useful for highlighting areas that could be prioritised for protecting corals – the 'bank' of corals if you like – to ensure species survival in a changing ocean. While indirect human influences such as climate change are altering ocean environments, the most obvious direct human influence on corals is bottom fishing. Outside current fishing footprints, there are areas of coral habitat protected. However, future-proofing protection so that corals survive both changes in ocean habitats and human activities is a key part of managing our impacts on these protected species.

## Safer weighting in surface longline fisheries: the long and the short of it

Adding weight to snoods is a proven method for reducing seabird bycatch in surface longline fisheries. Best practice recommendations for weighting are based on line sink rates and seabird captures. We know weights can be dangerous, so what's best practice for safety?

Weighting surface longline snoods is an effective seabird bycatch reduction measure. However, its uptake in New Zealand has been limited – in part due to safety concerns. Weighted snoods must be handled carefully, and can fly back under tension at hauling.

Safety concerns around line-weighting have led to the development of safer weight designs. For example, trials of lumo leads and safe leads have been completed in New Zealand surface longline fisheries. These novel weight designs are an improvement over the safety of traditional weighting approaches (e.g. weighted swivels), but they do not eliminate potentially injurious fly-backs.

Now, the safety impacts of attaching safer weights at different distances from hooks have been examined. Researchers simulated surface longline haul fly-backs by stretching 12 m monofilament snoods under 80 kg of tension, and then cutting the snoods. They did this a total of 170 times across 17 different snood configurations. Snoods were set up to compare the speeds and impacts on fly-back of lumo leads (of 45 g and 60 g), the very similar GloLeads (40 g and 60 g), and weighted swivels (45 g, 60 g, and 100 g).



40 g GloLeads (left) and a 45 g lumo lead (right) – safer weighting options, when placed within 1 m of a surface longline hook. Photos: <http://tinyurl.com/hj29bhz>, <http://fishtekmarine.com/lumolead.php>

Of the 170 tests conducted, 112 fly-backs were considered dangerous. These were categorised as more than 50% likely to cause fractures to the head or chest on impact. 58 fly-backs were considered safer, at less than 50% likely to cause fractures on impact.

So, which weighting arrangements were safest? Researchers did not consider weighted swivels to be safe. Further, weights at distances of more than 1 m from the hook were not considered safe. The safest weighting configurations tested were for GloLeads and lumo leads of 60 g or less, set at distances of 1 m or less from the hook. GloLeads and lumo leads slide down and off cut snoods as the monofilament thins under tension – a critical contribution to safety.

And what next? Researchers have requested that parties to the Agreement on the Conservation of Albatrosses and Petrels revise their thinking about what's known as 'best practice' to make it better for humans as well as good for birds.

### WANT TO KNOW MORE?

- *Headline:* Find out more about 2016/17 proposals for inshore observer coverage: <http://tinyurl.com/zdhnlej>.
- *The Big Picture:* Find out how ocean currents can affect corals. NIWA's research is published at: <http://tinyurl.com/jekqfeh>.

### FEEDBACK

To submit feedback or questions, please email: [jpecnz@gmail.com](mailto:jpecnz@gmail.com)

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