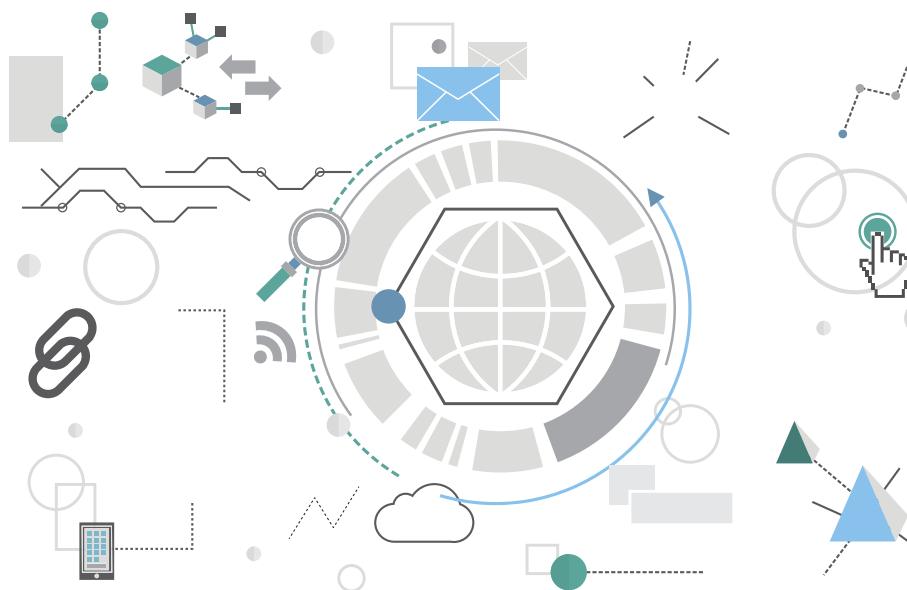# SOUTHERN SEABIRDS

Information for the Public About Seabird Bycatch in New Zealand Commercial Fisheries

DRAFT

Prepared for the Department of Conservation

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September 2023

1. INTRODUCTION

The incidental capture of seabirds in New Zealand commercial fisheries is reported on in national and local media on a fairly regular basis. Environmental NGOs, and the seafood sector also publicly communicate information on seabird bycatch. The bycatch figures and their interpretation are sometimes not correct, and this creates frustration and tension between stakeholders and is confusing for the public.

The members of Southern Seabirds agreed that this happens regularly enough, to explore ways to reduce the frequency of this happening. Our assumption in carrying out this project was that if the media and the various stakeholders were provided with accurate, plain language bycatch information that met their needs, they would be likely to use it.

With this in mind, the Department of Conservation (DOC) commissioned the Trust to develop a set of easily understood, public-facing seabird bycatch information drawn from the bycatch analysis already carried out by Government.

2. SCOPE

This project covers seabird bycatch in New Zealand commercial fisheries. While the project does not extend to recreational fishing or international fisheries, we took the opportunity to ask interviewees if they seek this type of information. Final web design is out of scope.

3. METHOD

During 2022, the Trust interviewed sixteen people who work for media outlets or whose role includes communicating seabird bycatch to the public. We interviewed people from five fishing companies, two industry representative bodies, four environmental NGOs, three central and regional government agencies, and two journalists. The purpose of the interviews was to find out what types of seabird bycatch data they routinely want, and how they currently obtain it. We asked them for their preference in terms of how bycatch data could be presented and where online they would naturally look to find it. We asked them for examples of websites that present statistical information that they find easy to understand. On the request of Fisheries New Zealand (FNZ), we also showed them sample pages from the FNZ Protected Species Capture database (also known as the Dragonfly Website) to seek feedback for the FNZ science team on its suitability for this audience.

A steering group of representatives from DOC, FNZ, Deepwater Group, Fisheries Inshore New Zealand and WWF-NZ was established to guide this project. Communication advisors from DOC and FNZ provided advice at various points during the project. The Steering Group used feedback from the interviews to recommend some simple bycatch metrics that might at least in part meet user needs. The steering group prepared a mock-up dashboard using 2019/20 bycatch data as an example of how the information could be presented.

4. OUTCOMES FROM INTERVIEWS

4.1. Frequency people seek data; and fisheries, species, and time periods of interest

The majority of people interviewed sought commercial seabird bycatch data on a quarterly basis or thereabouts. One or two sought information annually, timed around annual reports, and two people sought information at least monthly.

The fisheries that were mentioned as a priority were the set net, trawl, and longline fisheries (inshore and tuna specifically mentioned). Most people were interested in all types of seabirds, and several

mentioned they were interested in any threatened species. Hoiho, Antipodean albatross, and black petrel were specifically singled out by some. Those interviewed who work for fishing companies were most interested in the seabird species their fleets overlap with.

Area specific information was mentioned by two people, and in both cases it was the Hauraki Gulf.

Almost everyone spoken to commented that they wanted access to data for the previous year (e.g. for annual reporting), but some also wanted information from the current year. The main reason for the latter was to contextualize significant capture events with the rest of the fleet. *"Any major issues pertain to a single vessel (a poor performer), and we want to refute comments made about it being fleet wide as soon as possible, but we can't"*.

Most people interviewed had sought recreational fishing seabird bycatch information, but less often. A smaller subset had sought international fisheries information.

4.2. How people use bycatch information, and turnaround times

The data are used for media releases, responses to media releases, magazine articles, feature stories, blogs, responses to OIAs, annual reports, social media, websites, fund-raising, TV series, schools, letters to Ministers, internal newsletters, papers to submit to Regional Fisheries Management Organisation meetings, and for science publications.

Except for articles and annual reporting, people want to be able to access information immediately. Journalists need information same day or the next day. *"For media enquiries they approach us in the morning and need the information that afternoon."*

4.3. How people access data now

The people interviewed obtain their information in three ways: through Official Information Act (OIA) requests, searching online, or by asking an in-house science expert. Some of the in-house science experts also use the OIA process to gain the data, and then analyse or collate it for their communications advisors.

Overall there was confusion about where to look online – some went to the DOC website, others to the MPI/FNZ website. One person gave a list in order of where they look currently: Stats NZ, DOC, MPI, Dragonfly Science. Several people said they type in key words to find seabird bycatch information. One person usually approached academics.

Around half of the people interviewed were aware of the Protected Species Database (they know it as the 'dragonfly website') but only a few use it as a source of data for public reporting: *"I'm guilty of not going there."* The few who regularly use it commented the information is over a year old and therefore not that helpful for public use. There is more feedback on the Protected Species Database later in the document.

4.4. Seabird bycatch metrics people want

People Interviewed were asked how relevant and useful six key types of seabird bycatch information were for their purposes:

- - seabird bycatch data collected by fisheries observers
- - seabird bycatch estimates
- - trends in seabird bycatch caught over time
- - trends in seabird bycatch rates over time
- - self-reported fisher seabird bycatch
- - impact of seabird bycatch on seabird populations

They were asked to rank the usefulness of each metric from 1-5, with 5 most useful, and give their reasoning for their rank.

Seabird bycatch data collected by fisheries observers

The majority of people scored observer data highly (4 or 5), because *"it is collected by someone with high trust, there is nothing better"*, and the *"public want to know what the observers are seeing"*. As well it was preferred because it is *"raw data"*. One person awarded observer data a (2) because *"it doesn't tell you what is caught on non-observed trips"*. Another gave a (3) *"observer coverage isn't great but it is important information, but not the whole picture"*. One person asked if "EM captures" will be made public.

Seabird bycatch estimates

There were mixed views on the usefulness of estimates, with three people giving estimates a (5) and the rest between (2) and (4). The issues people raised with estimates are that *"the calculations are controversial because of things like cryptic mortality"*, and "peop*le treat the estimate as fact and the range is lost, as has happened with Maui dolphins"*.

Trends in seabird bycatch numbers over time

Generally people thought this was a useful metric; *"people love a change story",* and "*demonstrates if the problem is getting better or worse"*, and *"we want to be able to show that albatross deaths have declined as a result of our efforts."* One person commented *"in the snapper fishery we won't see any future downward trend because we have achieved it."* One person said trends in estimates *"don't take account of the population or effort."*

Trends in seabird bycatch rates over time

People scored trends in bycatch rates highly (4) or (5) because *"it benchmarks against hooks"*, "*can see how the industry is performing"* and is *"good for transparency work – can see whether mitigation works"*. Two people said rates are more difficult for the public to understand, so they need to be carefully explained.

Timeframes for seabird bycatch trend data

The majority of people said five years is a good time period. Anything longer is "*not relevant*." Several people said there have been operational and area changes over longer periods that cloud the picture. A couple thought ten years, and one said – "*NGOs use old data so it is not favoured"*, but later said *"major change happened earlier so it is good to show it."*

Self-reported fisher seabird bycatch

Most people didn't value self-reported data on its own (2). *"Feedback through facebook suggests the public don't trust fisher self-reports"* and "*MPI are trusted more, and we care about what the public believe."* However, a higher score (4) or (5) was assigned *"when it is compared to observer data"*. Two people mentioned verification by cameras: *"Cameras will take away the doubt in people's minds."* One person commented *"In the snapper fishery, the self-reports are higher than what observers report."*

Impact of seabird bycatch on seabird populations

The majority of people thought this was useful information (4 or 5), because it was the *"real world"* and *"provided the wider context."* One person said *"Understanding the impact of fishing is key."* Another said "*We want to know if there were 300 caught but a population of 3 million, compared to a population of 3,000. So a graph showing the numbers caught as a proportion of the population would be good." However,* a couple of people gave it a (2) or (3) because the public are less trusting of modelling. Several people suggested it would be useful to understand the relative threat fishing poses to the population, compared to other threats.

5. Protected Species Capture website

People were shown the following graphs from the Protected Species Database.

Before showing the graphs, each person was asked how comfortable they were interpreting statistics (means, confidence limits, etc). Four described themselves as having low comfort and the remainder said things like "*fairly comfortable*", "*very comfortable*", "*Intermediate*", "*if given time*", "*studied stats but a bit rusty.*"
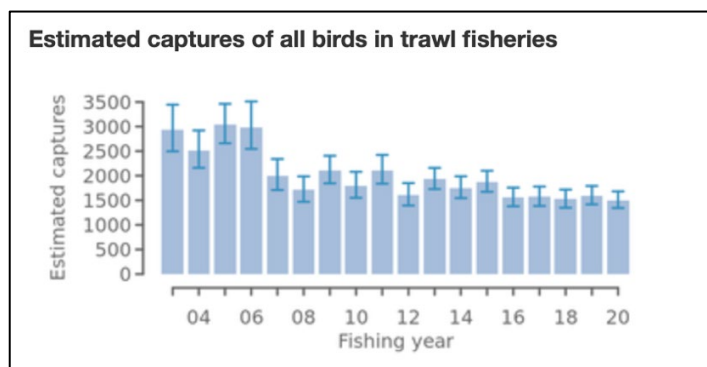
Overall people understood this graph, with some varying interpretations. Several people didn't know what the 95% confidence intervals were:

"*Nothing much has changed in the last 10 years. Something happened in 2006. High numbers*"

"*Captures slowly declining*" (noted would be better as a line graph)

"*Trending down and then holding steady over the last 6 years. I'm not sure what the lines are*"

"*Over time catching less but plateaued*"

"*Captures have decreased in recent years*" (didn't know what the bars indicated)
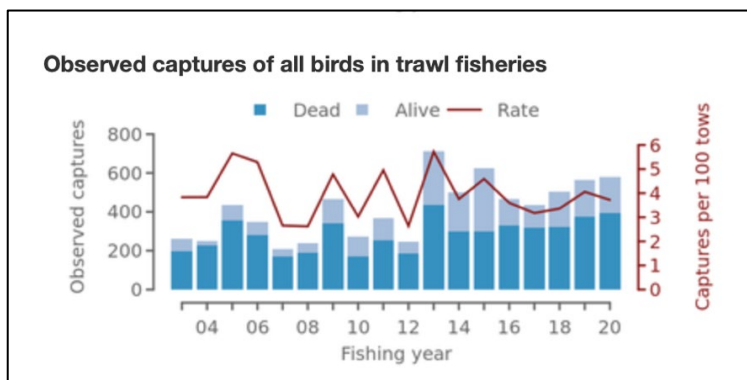
"*What are the little bars?*"

"*Going down over time, what are the lines?*"

"*Captures declining*"

"*This shows captures have declined by 30% over the last 15 years*"

"*Decline in numbers by 30% over 20 years*"

Observed captures of all birds in trawl fisheries

This graph caused confusion for some, mainly it seemed because of the combination of several metrics on one graph. Several tried to relate this graph to the previous graph and struggled to reconcile the two.

"Spike in 2013, confusing because it says observed captures, too much going on"

"Slight increase in captures of dead birds but overall captures are declining"

"Data improved in 2010, capture rate stayed the same, if not increased"

"Bit confusing to me"

"This and the first graph seem at odds as the rate seems the same over time"

"Red line is number of tows"

*"Seems opposite to the above graph and I don't understand why"*

"Birds captured alive increased plus dead. Increase in bird captures but how does this compare to the previous graph?"

"Benchmarked against effort, not just a number….trying to decipher….since 2015 trending down"

"Tricky for Joe public….captures/100 tows have come down, but somewhat up and down"

'The rate is flat, and numbers of dead is going up"

"Looking at the first and the second graph, they are at odds as the rate seems the same over time but captures are declining. And what does coverage mean compared to observed?"

Fishing effort and observations in trawl fisheries
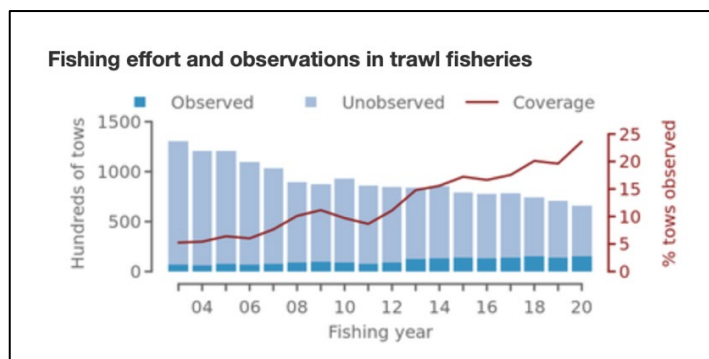
Most people understood this graph but there was confusion for some when they tried to relate it to the earlier graphs.

"This tells me they are catching more birds over time because effort has decreased"

"Coverage is up, and effort is going down – about half"

"Marginal increases in observer coverage, but trawling effort going down"

"Observer coverage increasing"

"increased observation, less tows"

"Over time unobserved fishing trips have decreased"

"Says they are reporting. With more observers, reporting has dropped. Too much going on"

"Increase in observed rate, number of tows has decreased. Looking at the first graph and this bottom one together, can be more confident the number of seabird captures has decreased because of observer coverage"

General comments on the Protected Species Capture Database

As mentioned, around half of the people interviewed had not heard of the database. Several who had commented the database is built for scientists and not broader use; *"Fine if you are a scientist, so inaccessible"* and *" I don't have time to figure this out for myself. If I don't understand it the public won't."* The absence of interpretation of the graphs created some confusion; *"Overall there seems to be holes in it. Makes me want to ask more questions, without context, hard to know what I'm getting out of it."* Those that knew about the website tended not to use it because the data are several years out of date, and the public are most interested in the latest information.

6. Preferences for the way data are presented and where it is housed

The views on how data could be best presented varied, reinforcing the comment made by several people interviewed that we all assimilate information in different ways. *"I like graphs, I'm visual, but it needs to be in multiple ways as people have different ways of absorbing information."*

Almost everyone said the data need an *"explainer"* – several sentences or bullet points summarising what the data are showing. The explainer would need to be simple: *"We show our annual report to 9 year olds – if they don't understand it adults wont either."* One person suggested that the explainer could be discussed and agreed, to build buy-in and address concerns around bias in the interpretation.

Several people wanted the ability to drill down, to get into more detail if they needed it. There was mention of hovering over something to enable you to drill down. Tables with figures were mentioned by a number of people as preferable over graphs; *"I prefer figures so I can interpret them myself, and create graphics from the figures. So a table with the figures".*

Spreadsheets were not popular; *"I was sent a spreadsheet and had to go through it myself with a highlighter."* Other ideas included dashboards; *"I have to search through hundreds of pages of reports, I'd much prefer a dashboard")* infographics, animations, interactives. One person said *"Something I can cut and paste into a report."*

One person suggested that the information should be presented alongside management targets to provide perspective and context. Another suggested including a call to action: *"how people can contribute."* One person suggested an alert when the pages were updated.

People were asked for examples of websites that present information in a way they like and the following were mentioned:

- Our world in data https://ourworldindata.org (interactive, hover over the globe and a data screen pops up), easy to read, up to data and good colours)
- Litter Intelligence https://litterintelligence.org (a great data driven website)

- Hubspot allows the presentation of data and explainers e.g The Living Planet Report
- https://f.hubspotusercontent20.net/hubfs/4783129/LPR/PDFs/ENGLISH-SUMMARY.pdf
- CIA World Fact Book https://www.cia.gov/the-world-factbook/
- Our World in Data https://ourworldindata.org
- Pew Stock Assessments
- BBC https://www.bbc.com and The Guardian https://www.theguardian.com "cool stats"

People proposed that the natural home for the New Zealand bycatch data was either DOC or FNZ.
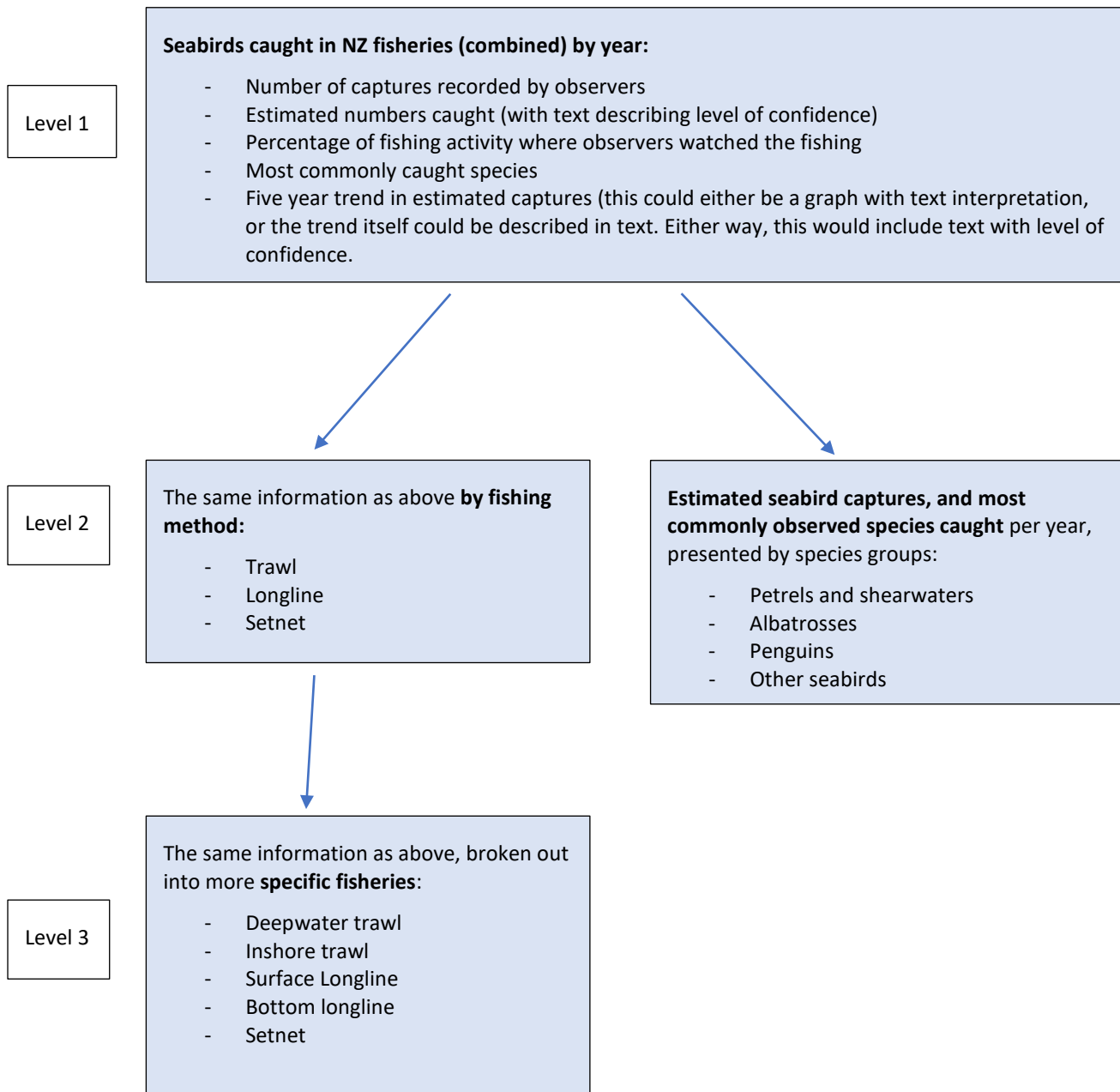
7. Recommended seabird bycatch metrics

The Steering Group discussed feedback from the interviews and used this to guide recommendations on the bycatch metrics that could be made readily available online.

The group agreed on some principles on how the information could be presented to best meet the needs of the users:

- Use non-statistical language. For example, instead of using confidence intervals, use words that describes how confident we are in the data (e.g. very confident in this figure, moderately confident in this figure, need more information to be confident in this figure)

- Use non-technical language. For example instead of 'fishing effort' use "fishing activity' or 'days at sea.'

- Provide careful explanations of what graphs are showing, rather than leaving it up to the viewer to try and interpret what is shown. Or describe whatever a graph would be showing in words rather than using graphs. Mention any caveats around the data, in laypersons language.

- Prepare a FAQ to explain how data is collected and analysed.

- Include a glossary (noting if non-statistical, non-technical language is used this should in fact be quite short or not needed at all).

- Present bycatch information so users can scroll down/click through, to access more detail. And at a certain point, direct them to the Protected Species Database or technical reports for more specific information.

- Include links to information on seabirds and their threat status, such as NZ birds online and the DOC threatened species list

The steering group noted the people interviewed were interested in almost all types of data that could be made available (although less interest in fisher self-reports), and manually preparing all of this in a form that is easily understood and consistently interpreted each year would be quite a big task. In an ideal world, the Protected Species Capture database would be the one-stop shop, but clearly it is unsuitable for the general public at the moment. The group therefore decided it would be prudent to present high level information initially, and consider adding more data in future.

The steering group recommended the following information is presented. The three levels could either be accessed with click-throughs, or by scrolling down:

Level 1

Seabirds caught in NZ fisheries (combined) by year:

- Number of captures recorded by observers
- Estimated numbers caught (with text describing level of confidence)
- Percentage of fishing activity where observers watched the fishing
- Most commonly caught species
- Five year trend in estimated captures (this could either be a graph with text interpretation, or the trend itself could be described in text. Either way, this would include text with level of confidence.

Level 2

The same information as above **by fishing method:**

- Trawl
- Longline
- Setnet

Estimated seabird captures, and most commonly observed species caught per year, presented by species groups:

- Petrels and shearwaters
- Albatrosses
- Penguins
- Other seabirds

Level 3

The same information as above, broken out into more **specific fisheries:**

- Deepwater trawl
- Inshore trawl
- Surface Longline
- Bottom longline
- Setnet

Appendix 1 shows a draft mock-up of this, to help visualise the dashboard using the analysed bycatch information for 2019/20 fishing year. This was shown to a sub-group of people interviewed during the first part of this project, and they liked the simple layout of information.

8. Where the data is hosted

The steering group recommended that the FNZ website was the most appropriate home but linked to the DOC website link.

9. Protected Species Capture Database

Most of the key information people indicated their interest in is available on the Protected Species Capture database, noting a couple of exceptions including:

- observer coverage, observed captures, capture estimates and trends in captures and capture rates for all NZ fisheries combined
- observer coverage, observed captures, capture estimates and trends in captures and capture rates for set nets
- capture estimates for all albatrosses across NZ fisheries combined
- as above for petrels and shearwaters
- as above for penguins
- as above for other seabirds
- fisher self-reported seabird captures compared to seabird bycatch estimates using observer data
- impact of fishing on seabird species (found separately in the FNZ Aquatic Environment Working Group paper).
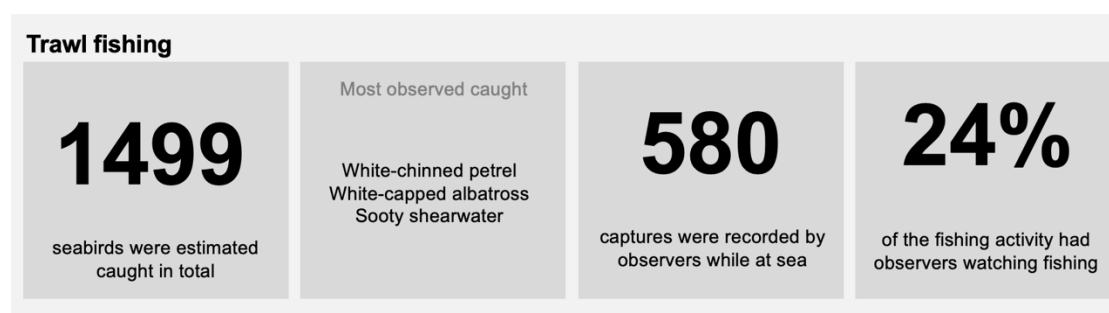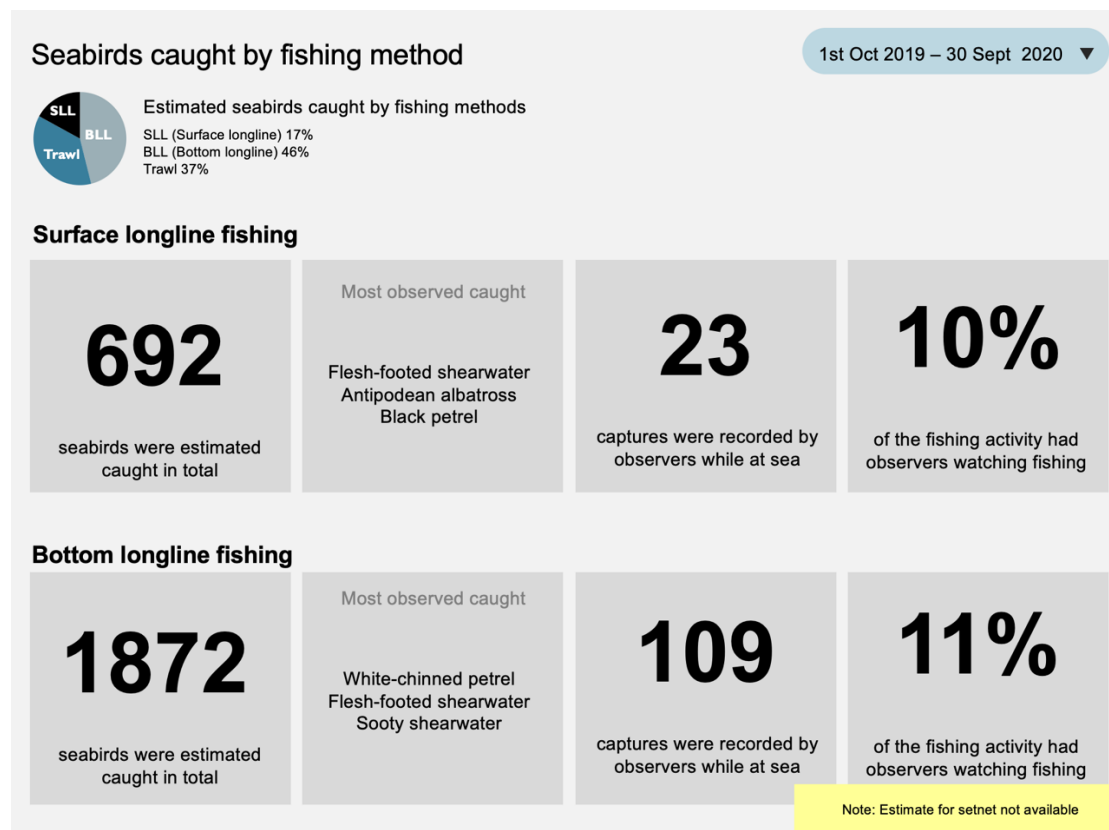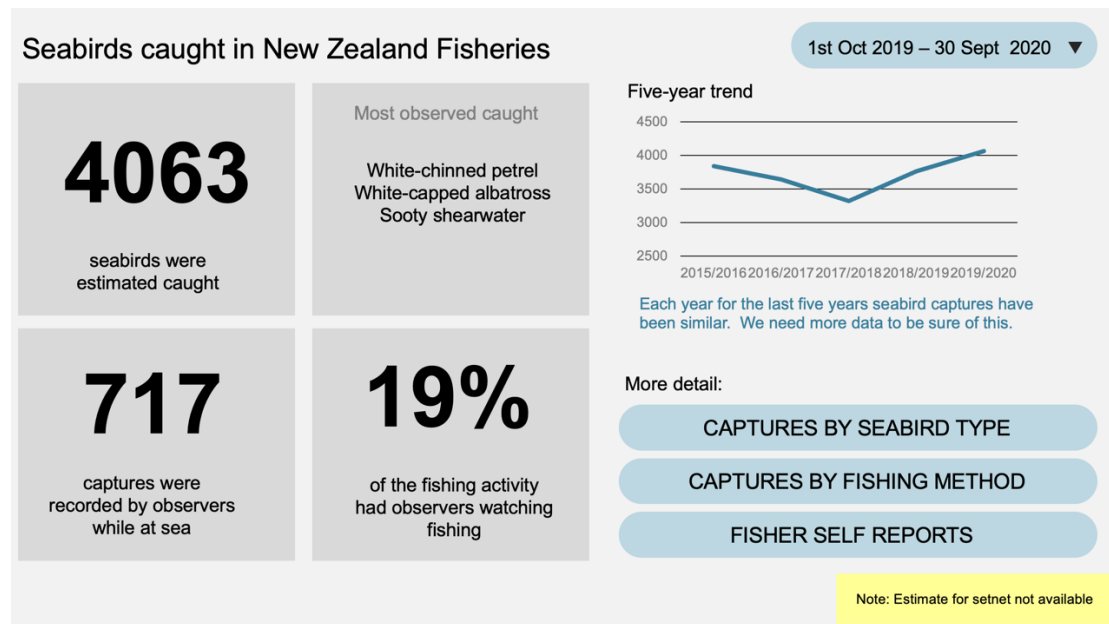
This project has provided some useful insights about the database. We learnt it is probably not used to any great extent by people whose role it is to inform the public about seabird bycatch. They struggle to understand and interpret the graphs and don't have time to search the database for the information they need. It may be useful to explore how it could be modified to broaden usage, to help fill the information gap.

Even with database modifications it is likely some people will always seek out dashboard style information. Ideally this would be a linked to the database and automatically updated every time the database is updated.

Appendix 1: Mock-up Dashboard Using Data from October 2019 – September 2020

Seabirds caught in New Zealand Fisheries

1st Oct 2019 – 30 Sept 2020 ▼

4063

seabirds were estimated caught

Most observed caught

White-chinned petrel
White-capped albatross
Sooty shearwater

Five-year trend

Each year for the last five years seabird captures have been similar. We need more data to be sure of this.

717

captures were recorded by observers while at sea

19%

of the fishing activity had observers watching fishing

More detail:

CAPTURES BY SEABIRD TYPE

CAPTURES BY FISHING METHOD

FISHER SELF REPORTS

Note: Estimate for setnet not available

Seabirds caught by fishing method

1st Oct 2019 – 30 Sept 2020 ▼

Estimated seabirds caught by fishing methods
SLL (Surface longline) 17%
BLL (Bottom longline) 46%
Trawl 37%

Surface longline fishing

692

seabirds were estimated caught in total

Most observed caught

Flesh-footed shearwater
Antipodean albatross
Black petrel

23

captures were recorded by observers while at sea

10%

of the fishing activity had observers watching fishing

Bottom longline fishing

1872

seabirds were estimated caught in total

Most observed caught

White-chinned petrel
Flesh-footed shearwater
Sooty shearwater

109

captures were recorded by observers while at sea

11%

of the fishing activity had observers watching fishing

Note: Estimate for setnet not available

Trawl fishing

1499

seabirds were estimated caught in total

Most observed caught

White-chinned petrel
White-capped albatross
Sooty shearwater

580

captures were recorded by observers while at sea

24%

of the fishing activity had observers watching fishing

Seabirds

Petrels and shearwaters

Total observed caught	Most observed caught
476	White-chinned petrel Sooty shearwater Flesh-footed shearwater

Albatrosses

Total observed caught	Most observed caught
236	White-capped albatross Salvin's albatross Southern Buller's albatross

Penguins

Total observed caught	Most observed caught
2	Hoiho Little penguin

Other types of seabirds

Total observed caught	Most observed caught
0	

Note: Setnet included. In future, 'estimates' rather than 'observed caught' will be used.