INT2019-04 Identification and storage of cold-water coral bycatch specimens

Milestone 3: Final annual report

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At-sea digital image of cf. Villogorgia (Plexauridae; gorgonian octocoral sea fan) collected during TRIP5939 by bottom longline. [Observer, FNZ].

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Executive summary

Many protected coral species occur as bycatch in commercial fisheries around New Zealand. The Conservation Services Programme (CSP) of the Department of Conservation (DOC) recognise that Government Fisheries Observers on commercial fishing vessels are not always able to identify this bycatch at sea with high precision (especially to species level), with the confirmation of species requiring identification from a coral taxonomist in many cases. For this reason, a research project was initiated in 2016 (INT201503 - DOC16307, currently INT201904 - DOC20303) to determine, through the examination of returned coral specimens and specimen images, the taxon and the provenance of corals bycaught in New Zealand fisheries.

This report summarises the sample and image identifications of all observed coral bycatch collected under the project during the period 1 July 2019 to 30 June 2020. A total of 51 physical specimens in 36 samples were collected and returned for identification during the reporting period. Sub-samples from each live specimen were taken for future genetic studies (n=97). Additionally, there were 123 historical physical samples with revised higher-level identifications made during the reporting period, and these are also reported on.

A total of 255 specimens were identified by digital images during the reporting period; 214 were protected coral taxa, and 193 of these were able to be georeferenced. Additionally, nine specimens were identified by images received in April 2017 (for the reporting period 1 July 2016 to 30 June 2017). These historical specimens are black coral taxa, and five of them were able to be georeferenced. Also, two specimens (initially reported in Tracey et al. 2019a) were re-identified from *Stephanocyathus platypus* to *Flabellum knoxi*, and an unidentifiable bryozoan-looking specimen was confirmed as Bryozoa, after examination of the physical specimens. A further two specimens received in June 2020 and reported in Macpherson et al. (2020) were re-identified from primnoid coral *Thouarella* to black coral *Parantipathes*.

The data summaries herein are presented by Fisheries Management Areas (FMA), fishing method, and target fishery. The greatest number of protected coral specimen counts by images came from the Southern Offshore Islands (SQU6T within FMA6) and South-East Coast (FMA3) regions, as well as in the northern FMA's (FMA1 and 9). Most were taken by bottom trawl operations targeting the deep-sea species orange roughy and smooth oreo, and arrow squid. Similarly, most protected corals identified from physical specimens came from orange roughy, smooth oreo, and arrow squid bottom trawl fisheries, and the highest number of samples came from Southern offshore Islands (FMA6A).

We continue to provide information to brief Observers and give input into coral guide resources. As in our previous reports, we stress the use of labels when images are taken and recommend new three-letter Ministry for Primary Industries (MPI) codes be prepared.

1 Background

Deep-sea protected coral samples taken as bycatch in commercial fishery operations are collected by government Observers on commercial fishing vessels. Through time, NIWA has received these coral bycatch samples or sub-samples and has been contracted to provide identifications. All such corals are identified by experts to the lowest feasible taxonomic level, counted, and the information reported in the relevant databases. This information, along with associated fishing data including fishing method, fishery area, and target fish species, are presented in this report. All raw data are also provided to CSP in spreadsheet form.

Data from this research helps to identify interactions between protected corals and commercial fishing activities (Tracey et al. 2011; Clark et al. 2019). It provides vital baseline information that can help to better inform research underpinning marine protection planning such as predictive modelling (Anderson et al. 2014; Rowden et al. 2017; Georgian et al. 2019), benthic risk assessments (Clark et al. 2014), and management of benthic marine protected species. It also allows for a more comprehensive mitigation framework to be implemented to protect cold-water corals in New Zealand waters.

For this three-year contract NIWA has, along with carrying out the identification of specimens, also provided:

- the identification and georeferenced labelling of images and the digital storage there-of, and
- the sub-sampling of protected coral tissue material for genetic studies (see Bilewitch & Tracey 2020a and 2020b).

The contract provides for up to 200 protected coral samples (physical specimens) and 200 specimen images to be identified per annum. Often the number of physical coral specimens identified has been exceeded because of historic samples and/or research trawl survey samples being identified in addition to recently collected Observer samples. This can also occur when international coral taxonomists have visited the NIWA Invertebrate Collection (NIC) – as part of or separate to this project. For this project, if time allows, a backlog of historical coral samples collected by Observers are identified, but priority is given to recent Observer collected samples from within New Zealand's Exclusive Economic Zone (EEZ), followed by research trawl survey samples, then high-sea samples.

This project does not report on coral specimens by images photographed from the high-seas.

2 Objectives

The overall objective of the Conservation Services Programme (CSP) service requirements is to determine which protected cold-water coral species are captured in commercial fisheries, and the mode of their capture, while also building on the New Zealand cold-water coral collection sample size for use in future research.

The specific objectives for this project (INT201904 - DOC20303) are:

1. To determine, through examination of returned protected cold-water coral specimens and images, the taxon, and where possible the provenance of cold-water corals killed in New Zealand fisheries (for returned dead specimens).
2. To collect sub-samples of all protected cold-water coral specimens for genetic analysis in future.
3. To assist with Observer training and the development/improvement of Observer training resources (a variation in the contract is underway to add amendments to this objective).

Here we report on Milestone 3. Final Annual Report detailing all corals identified by specimens and images bycaught during the period 1 July 2019 – 30 June 2020.

3 Methods

3.1 Objective 1

Determine, through examination of returned protected cold-water coral specimens and images, the taxon, and where possible the provenance of cold-water corals killed in New Zealand fisheries (for returned dead specimens).

There are three key activities for specific objective 1:

3.1.1 Identification of returned protected coral specimens

The cold-water coral bycatch that could not be identified by Observers at sea were retained (whole specimens or sub-samples of the specimens) and delivered to NIWA for identification. A similar method used to process bycatch collected by Observers under a Fisheries New Zealand (FNZ) project *Identification of benthic invertebrate samples from research trawls and observer trips* (*DAE2018-04)* (Tracey et al. 2019b; Mills et al. 2020) was followed.

High-seas samples were not differentiated from within-EEZ samples at the time of arrival at NIWA for processing. Trip data are provided on sacks of frozen material but no information on general location is given. Once the frozen sacks have thawed it is most efficient to process all of their contents rather than separating and refreezing high-seas samples. As such, high-seas samples are partially processed within this project. The high seas samples are a helpful contribution to habitat suitability modelling exercises in the high seas (e.g., see Georgian et al. 2019).

The corals were thawed, sorted into main groups and initially identified to coarse taxonomic level (mostly to order and family level). The tasks of fixing and preserving samples, providing containment (jar or pail storage), documenting samples (station numbering, labelling) and high level sorting (dividing samples into major or minor taxonomic groups – 'taxa' – in the laboratory), were all carried out under the FNZ *Data Custodianship Services* project DAT2016-01P. Sample data were entered into the web-interfaced NIWA Observer Samples Database (version 2.3.1; 2020), then returned to frozen storage, fixed in ethanol, or dried where appropriate.

A catalogue of all samples/specimens received by NIWA was provided to the NIWA Invertebrate Collection (NIC) Manager. Data from OSD were uploaded into the NIC Specify database *niwainvert* and the specimens were curated for formal taxonomic identification.

Experts then identified all corals to the species level wherever possible and when this was not possible, to genus or family level, and assigned the most appropriate three-letter MPI code (noting that coral codes have not yet been allocated for all coral taxa recognised by experts). Specimen handling followed NIWA procedures for identifying specimens housed in the NIC. NIWA currently manages specimens according to the "Guidelines for the care of natural history collections" (Committee on Common Philosophies and Objectives, 2010). NIWA also has its own collection policy document: "NIWA Marine Invertebrate Collection Policy and Procedures", which also guided the process. Specimens retained in the NIC are held in stewardship for DOC.

Expert identification of the samples was carried out by Di Tracey (Scleractinia, gorgonian octocorals), Peter Marriott (Stylasteridae, Coralliidae), Kate Neill (Pennatulacea, seaweeds), Rob Stewart (Antipatharia), Jaret Bilewitch (Plexauridae, Acanthogorgiidae) (all NIWA), Dr Stephen Cairns (Primnoidae) (Smithsonian Institution, USA), and Dr Marcelo Kitahara (Scleractinia) (Universidade Federal de São Paulo, Brazil) and updated species names and counts were entered into *niwainvert*.

3.1.2 Updating species identifications in the FNZ Centralised Observer Database (COD)

Sample information for the newly identified observed coral records extracted from Specify database *niwainvert* were provided to the COD database manager for loading and table updates, as described in Macpherson et al. (2019). NIWA manages the COD database for FNZ and it is regularly updated with revised identifications when corals are returned from sea (Tracey & Mills 2016). In this process the generic coral three-letter MPI codes initially used by Observers to record unidentified corals, are updated with revised codes based on the expert identification.

These updates made to COD allow for the potential interactions between individual coral taxa and fishing gear to be better quantified, and therefore help to identify factors that may have contributed to coral mortality.

3.1.3 Processing and identification of specimens from images

A document prepared for Observers collecting coral data at sea was prepared and provided to CSP and, following their approval, forwarded to the Observer Services Unit of the FNZ Observer Programme in early 2017 (*Instructions to observers when carrying out at-sea protected coral data collection* (Tracey & Mills, 2016)). Specifically, it was emphasised that images were to be captured in a well-lit area using a plain grey background if possible, and a reference size scale, with a specimen label showing trip and tow numbers and the Observer's name included in the image. The name of the Observer taking the image was to be retained, as this is important for feedback, training, and acknowledgement (particularly if the images are used for other purposes, e.g., guide production, Client Reports).

The digital images and metadata collected by Observers for this reporting period were obtained from the FNZ Observer Programme by a CSP Group representative and delivered to NIWA via Dropbox in June 2020, with a further set delivered in March 2021.

Identifications of the specimens and their associates shown in the images were carried out by coral and non-coral experts as follows: Di Tracey (Scleractinia, gorgonian octocorals), Rob Stewart (Antipatharia), Jaret Bilewitch (Plexauridae, Acanthogorgiidae), Peter Marriott (Stylasteridae, Coralliidae), Diana Macpherson (Hydrozoa), Sadie Mills (Ophiuroidea), Dennis Gordon (Bryozoa), Wendy Nelson (seaweeds) (all NIWA) along with Dr Stephen Cairns (Primnoidae), Dr Dennis Opresko (Antipatharia) (Smithsonian Institution, USA), Dr Frederic Sinniger (Zoantharia) (Sesoko Marine Laboratory, Japan), Dr Estefanía Rodríguez (Actiniaria) (American Museum of Natural History, USA) and Dr Marcelo Kitahara (Scleractinia) (Universidade Federal de São Paulo, Brazil).

The provenance of the specimens captured in the images were determined (where possible), using the trip and tow numbers shown on the label in the image to extract tow coordinates from COD. Specimens in images that were determined to be from outside New Zealand's EEZ (i.e., collected within high-sea Fishery Management Area's: Challenger Plateau (CET), Lord Howe Rise (HOWE), Louisville Ridge (LOUR), Three Kings Rise (TKET) and Wanganella Bank (WANB)) were not identified by experts.

Efforts were made to determine tow numbers, if they were not shown on the labels in the Observer images, by using the trip number and the date and time stamp of images (extracted from the digital image properties) together with the FNZ photographic logs and 'Benthic Materials' forms. Location details were extracted for the trip and the likely tow number from the COD database. By applying these methods, we were, with a reasonable degree of confidence, able to assign a tow number to several such images and therefore produce georeferenced images.

Metadata for the images, including provenance data, were then assembled manually in a spreadsheet. The following metadata were embedded into each image file where available: expert ID in the form of taxonomic name (species, genus or family level); trip and tow number; initial Observer ID and expert ID in the form of three-letter MPI species code; specimen count, specimen comments, keywords relevant to the subject of the image; the NIWA Invertebrate Collection catalogue number (where applicable); the Observer name (photographer); and image rating (where the best rating is 1 – very good quality and the worst is 5 – very poor quality). An image rating classification was developed specifically for this project as there is no universal standard (International Press Telecommunications Council 2019). Image ratings help indicate the quality and usefulness of an image and as part of the workflow, enable the images to be sorted and filtered at a later point in time. Table 3-1 shows the image rating classification used and outlines the factors taken into consideration when assigning a rating to an image.

Table 3-1: The classification system used to assign a rating to an image.

Image Rating	Classification
1	Very good quality. The specimen is in focus and the whole specimen has been photographed. Good lighting and background. The image includes a label with complete data. There may also be a scale present. The specimen weight may also be shown in the image.
2	Good quality. All the specimen, or part of the specimen is in focus. The lighting and background is sufficient. The image includes a label with some or complete data. May include more than one coral specimen. There may also be a scale present. The specimen weight may also be shown in the image.
3	Average quality. All the specimen, or part of the specimen is in focus. The image may include a label with some data, and a specimen weight may be shown. Insufficient lighting and background. May include more than one coral specimen.
4	Bad quality. All the specimen, or part of the specimen may be in focus, or in focus enough to be able to determine what it is. There is no label in the image. It is not photographed against a good background with a scale and good lighting, and/or photographed at an unhelpful angle. The image is of an aggregated group of corals and other specimens, so it is not clear what the subject of the image is. The image is of a non-coral.
5	Very bad quality. The specimen, or part of the specimen is out of focus and is not able to be identified to a sufficient taxonomic level as a result. There is no label in the image. It is not photographed against a good background with a scale and good lighting, and/or photographed at an unhelpful angle. The image is of an aggregated group of corals and other specimens, so it is not clear what the subject of the image is. The image is of a non-coral.

Using the ACDSee Photo Studio Professional 2020 (version 13.0) software to manage the metadata information, data for each image was either added manually into the relevant field or assigned from a drop down ‘picklist’. These data were then embedded in the image file.

Finally, trip, tow and fishery data sourced from COD for each specimen by image were added to the spreadsheet. Data included position (the start and end coordinates of the tow that sampled the photographed coral), depth (minimum and maximum depths), along with the collected date, fishing method, target species, and Observer reported Fisheries Management Area in which the coral was caught.

3.2 Objective 2

Collect sub-samples of all protected cold-water coral specimens for genetic analysis in future.

Tissue sub-samples were taken from all live-collected protected coral samples provided to NIWA by Observers. The sub-samples were stored with their corresponding NIC registration label in standard vials in 99% high grade absolute ethanol. The subsamples are currently stored in the NIC wet collection along with the parent samples.

3.3 Objective 3

Assist with Observer training resources.

To meet this objective resources such as the *Instructions to observers when carrying out at-sea protected coral data collection* (Tracey & Mills, 2016), and any recommendations which have been highlighted in these reports, are regularly passed on to CSP representatives when requested to assist with Observer training.

Input into the development and improvement of Observer training resources such as revised guide material and expert review of material has also been provided.

4 Results

4.1 Objective 1: Determine, through examination of returned protected cold-water coral specimens and images, the taxon, and where possible the provenance of cold-water corals killed in New Zealand fisheries (for returned dead specimens).

4.1.1 Identification of returned protected coral specimens

During the reporting period 1 July 2019 to 30 June 2020, NIWA received and processed 36 Observer-collected samples containing 51 specimens, and 123 historical (i.e., collected prior to the current reporting year) samples (131 specimens) identified since the last final report in 2019. Additionally, three research trawl-collected protected coral specimens collected between July 2019 and June 2020 and 59 historical trawl survey samples (81 specimens) were included in this summary.

A summary of the 221 samples (266 specimens) identified by experts are provided in extracts from the NIWA Invertebrate Collection (NIC) Specify Database *niwainvert* (Appendix A (a–c)). The extracts include re-identifications of physical specimens of *Thouarella* and closely related genera in the Primnoidae family collected by observers in previous years of this programme. These revisions have been included in a recently published NIWA Biodiversity Memoir (Cairns, 2021). There were also several re-identifications of historical samples of black coral, bamboo coral and a *Chrysogorgiidae* based on molecular results from the work of Bilewitch and Tracey (2020a; 2020b).

In the current reporting year Observers correctly identified 24 of the 36 samples to at least Order level (66% accuracy). There were three misidentification of black corals, for example where the Observer had tried to identify to a genus level what they thought was a specimen of *Dendrobathypathes* (code DEN), whereas the expert later identified this specimen as *Parantipathes* (code PTP), which is in the same family. In another instance, an Observer had incorrectly coded a *Calyptrophora*, Primnoidae specimen (code CTP) as a black coral (code COB). Two common stony coral species, *Desmophyllum dianthus* and *Solenosmilia variabilis* were coded as unidentified (UNI) and coral (unspecified) (COU), respectively. However, the *Solenosmilia* sample was a dead matrix so this may have confused them. One sample of hydrocoral was identified by the Observer as *Calyptopora reticulata* (CRE) however this was identified by the expert as *Conopora verrucosa* (COO), another white hydrocoral species.

Two samples sent in as coral rubble and a rock that was thought to potentially be coral rubble, were both identified as Bryozoan samples and will be identified by an expert under the FNZ funded bycatch identification project DAE2018-04 (see the identification advice provided below on a common Bryozoan specimen that Observers also confused as coral in previous years).

Identification advice - Bryozoa-Scleractinia confusion

The following Observer photos and physical specimens were received at NIWA as part of the year 3 reporting period for the previous DOC contract (July 2018-June 2019, received Oct 2019) and were initially identified as Scleractinia (SIA). After later microscopic examination by taxonomist Dr Dennis Gordon (NIWA) these were identified as the bryozoan *Heteropora neozelanica.* These bryozoans contain microscopic pores, which stem from the individual zooids that make up the colony, but when broken or worn the hollow core of the stems of this branching colony form could be confused with the cups of the colonial stony coral *Culicia rubeola*. The NIWA Invertebrate Collection has records of

Heteropora neozelanica from 28–668 m deep, around Southern New Zealand, Stewart Island, the Subantarctic Islands, and several records from Northland.

Figure 4-1: Photos taken by Observers of specimens labelled at sea as scleractinian stony corals but identified as the bryozoan species *Heteropora neozelanica* by expert Dr Dennis Gordon. From left to right: TRIP5643/11; TRIP5616; TRIP5616/56. [Observer, FNZ].

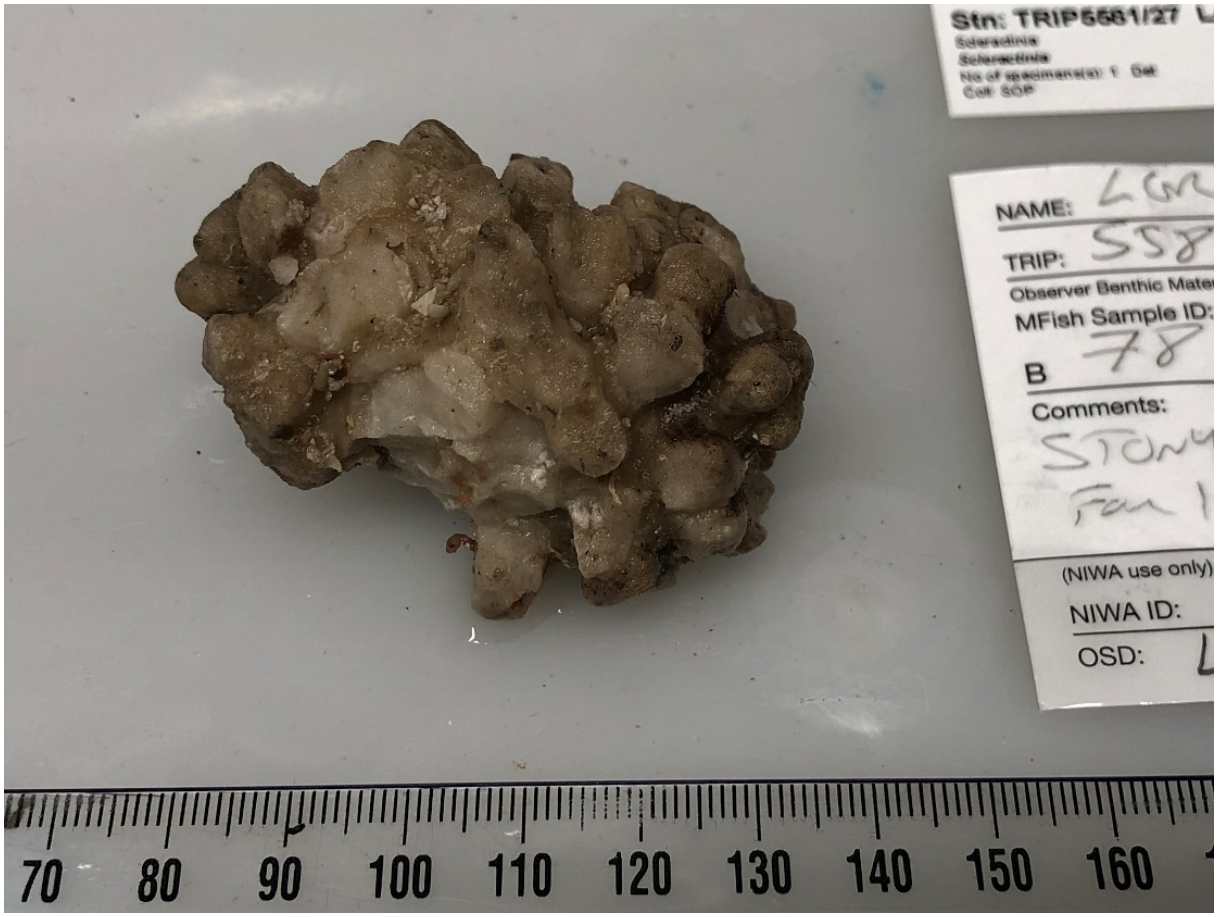

Figure 4-2: Physical specimen sent in by an Observer, named a stony coral at sea but identified as bryozoan species *Heteropora neozelanica*. NIWA129094, TRIP5581/27, collected from 132–190 m. [Sadie Mills, NIWA].

The *Heteropora neozelanica* bryozoan identifications were updated in COD as part of the FNZ funded project DAE2018-04 (Mills et al. 2020), not as part of this project.

The stony coral *Culicia rubeola* is found in shallow water around the North Island of New Zealand and Fiordland from 0–148 m deep. It forms low encrusting colonies that bud into short circular corallites with obvious cups and thecae.

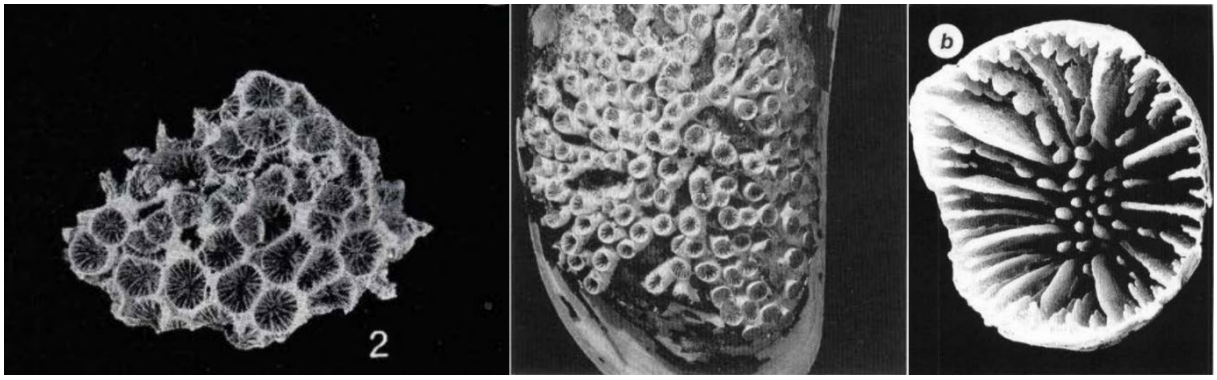

Figure 4-3: Examples of the stony coral *Culicia rubeola*. Left to right: A colony (image taken from Plate 1, Squires & Keyes, 1967 New Zealand Oceanographic Institute Memoir no. 43); A colony encrusting on a mussel shell (image taken from Plate 5 in Cairns, 1995 NIWA Biodiversity Memoir 103); A close up of a single corallite cup or calyx (image taken from Plate 4 in Cairns, 1995 NIWA Biodiversity Memoir 103).

4.1.2 Summary of physical specimen data loaded into COD

The revised identifications from the *niwainvert* database were provided for uploading into COD. The COD extract summary is provided in Appendix B.

Of the 159 rows of Observer-collected physical specimen data (36 current year, 123 historical) provided for upload to COD:

- 69 rows were able to be matched to the catch record for the specimen and were updated
- 80 rows were not able to be matched to the catch record for the specimen so had to be inserted as new records. A non-match could occur when:
  - a sample lot has more than one species in it so has been split to numerous rows, one of which is the original catch record,
  - the three-letter code written on the specimen label does not match the code written on the catch form,
  - an observer has forgotten to record the returned specimen in the catch form,
  - historical samples are more likely not to match, which suggests that processes have improved.
- 1 row was a duplicate sample (NIWA 60355 = a subsample of NIWA 42824) and so was deleted
- 9 rows related to trips that were not present in COD*:*
  - TRIP5980 did not have a report available in the COD database at time of upload,
  - TRIP5812 was a Bottom Longlining trip, for which new forms are only just starting to be entered to COD and the backlog has not yet been cleared.

Data summaries for the specimens identified from physical specimens are provided below and include a count by Fisheries Management Area (FMA) (Table 4-1) and a count of tows and specimens by fishing method and target fishery (Table 4-2). Also see Figure 4-4 for an illustration of the

geographic spread of physical samples in the New Zealand region. During the current reporting period samples came from all over the region but the highest number was from the Southern Offshore Islands (SOI FMA6A) just north of the Auckland Islands, and from fisheries targeting orange roughy (Table 4-1 (a), 4-2 (a)). The historical samples examined were mostly from the Sub-Antarctic (SUB, FMA6), Chatham Rise (South-East, SOE, FMA4) and Southland (SOU, FMA5), targeting orange roughy (Table 4-1 (b), 4-2 (b)). Most samples come from bottom trawling, but there are several bottom long line samples represented in both current and historical samples. Twenty-three of the historical samples identified were collected from the high seas regions South Tasman Rise, Challenger Plateau, Wanganella Bank, Lord Howe Rise, and Louisville Ridge.

Table 4-1: Summary of protected coral samples by Fisheries Management Area (FMA) or from high seas region (ET), for Observer collected protected coral samples. (null) = No Data available.Samples collected in the current reporting year (1 July 2019–30 June 2020).

Area	Description	Count of Samples
SOI	Southern offshore Islands (FMA6A)	9
AKW	Auckland West (FMA9)	6
SOE	South-East (FMA4)	6
CEE	Central East (FMA2)	2
SUB	Sub-Antarctic (FMA6)	2
SEC	South-East (Coast) (FMA3)	1
SOU	Southland (FMA5)	1
(null)	(null)	9
Total		36

(b) Historical samples identified in this reporting period but collected prior to July 2019.

Area	Description	Count of Samples
SUB	Sub-Antarctic (FMA6)	29
SOE	South-East (FMA4)	27
SOU	Southland (FMA5)	19
TMAR	South Tasman Rise (ET)	9
AKE	Auckland East (FMA1)	8
SEC	South-East (Coast) (FMA3)	7
SOI	Southern offshore Islands (FMA6A)	5
CET	Challenger Plateau (ET)	4
WANB	Wanganella Bank (ET)	4
AKW	Auckland West (FMA9)	3
HOWE	Lord Howe Rise (ET)	3
LOUR	Louisville Ridge (ET)	3
CEE	Central East (FMA2)	2
Total		123

Table 4-2: Count of tows and specimens by fishing method and target fishery for physical specimens. TWL = Trawl, BLL = Bottom longline, (null) = No Data available. Samples collected in the current reporting year (1 July 2019–30 June 2020).

Target Fishery (common name)	FNZ Code	Fishing Method	Count of tows	Count of specimens
Orange roughy	ORH	TWL	16	20
Smooth oreo	SSO	TWL	9	9
Arrow squid	SQU	TWL	2	2
(null)	(null)	(null)	9	20
Total			36	51

(b) Historical samples identified in this reporting period but collected prior to July 2019.

Target Fishery (common name)	FNZ Code	Fishing Method	Count of tows	Count of specimens
Orange roughy	ORH	TWL	51	53
Oreos	OEO	TWL	18	19
Smooth oreo	SSO	TWL	17	18
Hoki	HOK	TWL	6	7
Black oreo	BOE	TWL	5	5
Patagonian toothfish	PTO	BLL	4	5
Scampi	SCI	TWL	3	4
Arrow squid	SQU	TWL	3	4
White warehou	WWA	TWL	3	3
Alfonsino	BYS	TWL	3	3
Cardinalfish	CDL	TWL	2	2
Barracouta	BAR	TWL	1	1
Bluenose	BNS	BLL	1	1
Alfonsino & long-finned beryx	BYX	TWL	1	1
Hake	HAK	TWL	1	1
Hapuku & bass	HPB	TWL	1	1
Mixed fish	MIX	TWL	1	1
Snapper	SNA	BLL	1	1
Arrow squid	SQU	BLL	1	1
Total			123	131

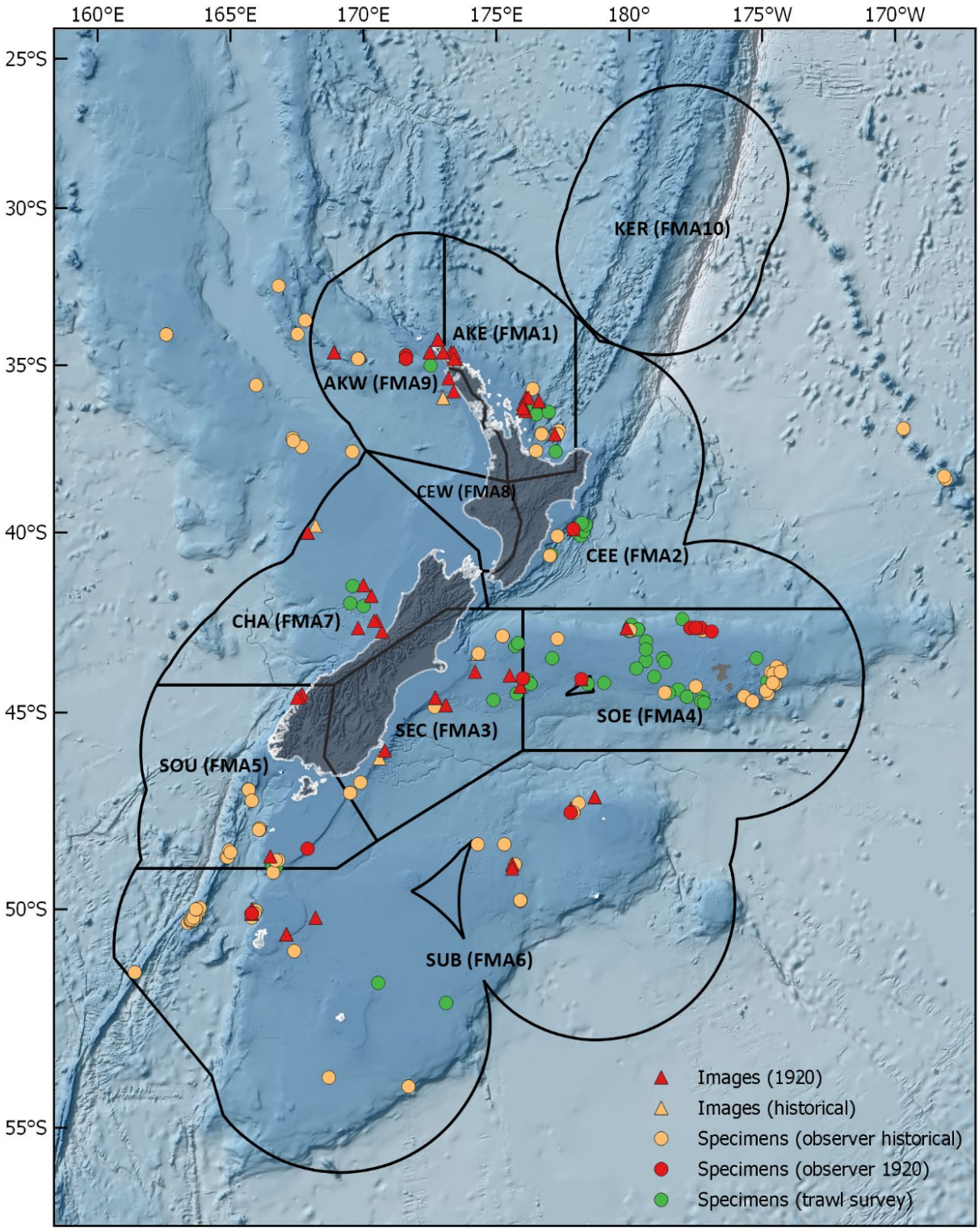

Figure 4-4: Location of identified protected coral samples (266 physical specimens; 193 imaged specimens) within Fisheries Management Areas (FMAs), physical specimens (circles), and images data (triangles). 1920 = current reporting year 1 July 2019–30 June 2020.

4.1.3 Processing and identification of specimens from images

During the reporting period 1 July 2019 to 30 June 2020, NIWA received 505 digital images and 217 of these were processed. The remaining 288 were not processed either because they were of non-protected coral taxa, or they were of coral bycatch taken outside of New Zealand's EEZ.

In total, 255 specimens were identified from the 217 images that were processed (as sometimes multiple specimens are in a single photo). Of the 255 specimens, 214 were protected coral taxa, and 193 of these were able to be georeferenced. This left 21 protected coral specimens with no associated information due to missing tow number or incomplete FNZ photographic logs and 'Benthic Materials Form' data, or with data entered on new bottom longline forms which are not yet available from COD. The remaining 41 specimens were determined to be non-protected taxa: bryozoans, algae, ascidian, rocks with hydroids, bryozoans and soft corals growing on them, and jewel anemones and snake stars encrusting a large protected *Antipathella* black coral (Appendix C, part (a)). The jewel anemones and snake stars could not be georeferenced as the fishing event was recorded on the new bottom longline form and data were not available at the time of writing.

Observers provided a label showing trip and tow number information for 128 of the 217 processed images. Tow numbers for a further 89 images were able to be determined to a reasonable degree of accuracy by either:

- using COD database and the image timestamp to cross check the trip tow start and tow end date and time details already entered in COD, in the FNZ photographic logs, and on the 'Benthic Materials' form, or
- by cross checking the images with specimen records already entered in the *niwainvert* database - as some specimens that had been photographed were also sent to NIWA by the Observer and they had a label indicating the tow number.

The most photographed protected coral species was the stony cup coral *Flabellum knoxi* (n = 47 specimens), followed by stony branching corals *Solenosmilia variabilis* (n = 31 specimens) and *Goniocorella dumosa* (n = 10 specimens), and the gorgonian bamboo coral *Keratoisis* spp. (n = 16 specimens). A range of genera and species from the octocoral families Isididae (bamboo corals) and Primnoidae (sea fans, sea whips) were well represented in the images. A diverse range of Antipatharia (black corals) and Scleractinia (stony corals) were also noted (Table 4-3; Figure 4-5).

Table 4-3: Count of imaged specimens identified by species.

Phylum	Class	Order	Family	Genus	Species	Total no. of specimens
Bryozoa	Gymnolaemata	Cheilostomatida	Celleporidae	*Celleporina*	*grandis*	5
				Celleporina	*sinuata*	10
				Galeopsis		5
	Stenolaemata	Cyclostomatida	Diaperoeciidae	*Diaperoecia*	*purpurascens*	10
Bryozoa undet.						2
Chordata	Ascidiacea					1
Cnidaria	Anthozoa	Alcyonacea	Acanthogorgiidae	*Acanthogorgia*		2
				Anthogorgia		2
			Chrysogorgiidae	*Chrysogorgia*		2
			Coralliidae	*Corallium*		1
			Isididae	*Acanella*		4
				Isidella		3
				Keratoisis	*magnifica*	1
				Keratoisis		15
				Lepidisis		2
			Isididae indet.			9
			Paragorgiidae	*Paragorgia*		4
			Plexauridae	*Astrogorgia*		1
				cf. Murceides		1
				cf. Villogorgia		2
				Muriceides		1
				Placogorgia		3
				Swiftia		1
			Primnoidae	*Callogorgia*		1
				Calyptrophora		1
				Metafannyella	*moseleyi*	1
				Parastenella		1
				Primnoa		1
				Thouarella	*hilgendorfi*	1
				Thouarella	*variabilis*	2
				Thouarella indet.		8
				Tokoprymno		3
			Primnoidae indet.			4
		Alcyonacea indet.				2
		Antipatharia	Leiopathidae	*Leiopathes*		1
			Myriopathidae	*Antipathella*		4
			Schizopathidae	*Bathypathes*	*patula*	1

Phylum	Class	Order	Family	Genus	Species	Total no. of specimens
				Dendrobathypathes		1
				Dendropathes		1
				Lillipathes	*lilliei*	2
				Parantipathes	*cf. helicostricha*	1
				Parantipathes		4
				Saropathes		1
			Schizopathidae indet.			1
			Stylopathidae	*Tylopathes*		1
		Antipatharia indet.				1
		Corallimorpharia	Corallimorphidae	*Corynactis*		1
		Scleractinia	Caryophylliidae	*Caryophyllia*	*ambrosia*	1
				Caryophyllia indet.		3
				Desmophyllum	*dianthus*	5
				Goniocorella	*dumosa*	10
				Solenosmilia	*variabilis*	31
				Stephanocyathus	*platypus*	4
			Dendrophylliidae	*Cladopsammia*		1
				Eguchipsammia?		1
				Enallopsammia	*rostrata*	2
			Dendrophylliidae indet.			1
			Flabellidae	*Flabellum*	*knoxi*	47
				Flabellum indet.		2
	Hydrozoa	Anthoathecata	Stylasteridae	*Errina*	*novaezelandiae*	2
				Errina indet.		3
			Stylasteridae indet.			3
		Leptothecata				2
Ochrophyta	Phaeophyceae	Sporochnales	Sporochnaceae	*Perithalia*	*capillaris*	1
Echinodermata	Ophiuroidea	Euryalida	Euryalidae	*Astrobrachion*	*constrictum*	1
Rock						3
Grand Total						255

Figure 4-5: Specimen images. a: Cup coral *Flabellum knoxi*, the most photographed species during this reporting period; b: fish bin image showing a mixture of live, recently dead, and long dead matrices of stony branching coral *Solenosmilia variabilis*; c: a live matrix of stony branching coral *Goniocorella dumosa*; d: small live matrix of *Solenosmilia variabilis* (physical specimen received, NIWA 131939); e: a species of *Corallium* precious coral; f: a species of *Errina* hydrocoral; g: fish bin shot showing broken colonies of a species of *Keratoisis* bamboo coral; h: a species of *Acanella* bamboo coral; i: a species of *Callogorgia* primnoid sea fan; j: a species of *Primnoa* primnoid sea fan; k: a species of *Dendropathes* black coral; f: black coral *Lillipathes lilliei*. [Observer, FNZ].

During this reporting period Observers assigned identification codes for 170 specimens out of the 255 specimens received (i.e. 85 specimens did not show a label or did not show an Observer identification code on the label shown in the image). Observers correctly identified 122 of the specimens to at least Order level (71.8% accuracy). There were 47 specimens identified by Observers as either stony branching corals (code CBR), coral (unspecified) (code COU) or unidentified (code UNI).

Observers assigned 33 specimens to coral (unspecified) (COU); experts further identified one specimen as a species of *Errina* hydrocoral (ERR), one as stony branching coral *Solenosmilia variabilis*

(SVA), and one as black coral *Bathypathes patula* (BTP). The remaining specimens were identified by Dr Dennis Gordon as several species of Bryozoa (COZ) by examining the returned physical specimens (*Galeopsis* sp., *Celleporina grandis*, *Celleporina sinuata* and *Diaperoecia purpurascens*).

There were 11 specimens that were assigned by Observers to stony branching corals (CBR) that were determined by experts as octocorals: bamboo coral either to the family level Isididae (ISI) or as a species of *Keratoisis* (BOO); primnoids *Thouarella* (THO) or *Tokoprymno* (there is no code for *Tokoprymno* so its family level code is used instead; Primnoidae; PRI); and Bryozoa (non-coral). It is noted however that some of these specimens (*Thouarella*, *Tokoprymno* and Bryozoa) were photographed growing on *Solenosmilia variabilis* (SVA) which is a stony branching coral, and the bamboo coral specimens were photographed in a fish bin with *Solenosmilia variabilis* in bulk fashion. The Observer obviously intended to assign the CBR code to the *Solenosmilia variabilis* specimens, but it may have been simpler to photograph many specimens together using it as an overarching code.

Three specimens assigned by Observers as UNI or UNI/COU were determined by experts as bamboo coral *Keratoisis*, a species of Bryozoa, and a species of thecate hydroid.

A photographed specimen was identified by macroalgae expert Dr Wendy Nelson (NIWA) as *Perithalia capillaris*, an endemic, large, tall and robust brown algae with a horse-hair like texture frequently found in northern North Island (Figure 4-6). It often hosts other small red epiphytic algae species, a red blade of which can be seen in Figure 4-6 a, top left corner. Due to its large size and robustness, this species can be easily confused with a black coral *Antipathes*.

Figure 4-6: Images of large brown algae *Perithalia capillaris* which could be confused with black coral *Antipathes*. [Observer, FNZ].

A summary of the nine specimens identified by images received in April 2017 (for the reporting period 1 July 2016 to 30 June 2017), and the two specimens re-identified by images received in October 2019 (for the reporting period 1 July 2018 to 20 June 2019) is also provided in Appendix C, part (b). All nine specimens identified by images received in April 2017 were black coral taxa and five were able to be georeferenced. Four specimens were collected from Auckland West (FMA9) and one from Challenger (FMA7), all by bottom trawls targeting either orange roughy, alfonsino and long-finned beryx. The remaining two specimen identifications (initially reported in Tracey et al. 2019a) were revised from *Stephanocyathus platypus* to *Flabellum knoxi*, and an unidentifiable bryozoan-like specimen was confirmed as Bryozoa, after examination of the physical specimens. A further two specimens by digital images received in June 2020 and reported in Macpherson et al. (2020) were re-identified from primnoid octocoral *Thouarella* to black coral *Parantipathes* (see Appendix C, part (a)).

Data summaries for the specimens identified from images are provided below and include a count by Observer Fisheries Management Areas (FMA) (Table 4-4,) and a count of tows and specimens by fishing method and target fishery (Table 4-5).

Table 4-4: Summary of imaged specimens by Fisheries Management Area (FMA). (null) = No Data available.

Area	Description	Count of Specimens
AKE	Auckland East (FMA1)	20
AKW	Auckland West (FMA9)	29
CEE	Central East (FMA2)	2
CHA	Challenger (FMA7)	12
SEC	South-East Coast (FMA3)	52
SOE	South East (FMA4)	15
SOI	Southern Offshore Islands (SQU6T)	83
SOU	Southland (FMA5)	4
SUB	Sub-Antarctic (FMA6)	15
(null)	(null)	23
Total		255

Table 4-5: Count of tows and specimens by fishing method and target fishery for imaged specimens. TWL = Trawl, BLL = Bottom longline, SN = Set netting, (null) = No Data available.

Target Fishery (common name)	FNZ code	Fishing Method	Count of Tows	Count of specimens
Black oreo	BOE	TWL	2	5
Alfonsino & long-finned beryx	BYX	TWL	2	2
Cardinalfish	CDL	TWL	1	1
Hake	HAK	TWL	1	1
Hoki	HOK	TWL	5	20
Ling	LIN	TWL	1	1
Ling	LIN	BLL	2	2
Orange roughy	ORH	TWL	23	70
School shark	SCH	BLL	1	1
School shark	SCH	SN	3	3
Snapper	SNA	BLL	1	1
Snapper	SNA	TWL	1	1
Arrow squid	SQU	TWL	5	66
Smooth oreo	SSO	TWL	5	34
Tarakihi	TAR	TWL	5	11
Trevally	TRE	TWL	6	13
(null)	(null)	(null)	>8	23
Total				255

The FMAs with the highest number of coral bycatch were those around the Auckland Islands (SQU6T within FMA6), the South-East Coast (FMA3), and the northern FMA's (FMA1 and 9). The target fisheries with the most tows providing coral bycatch were the bottom trawl fisheries for orange roughy, arrow squid and smooth oreo, followed by hoki, trevally and tarakihi.

4.1.4 Summary of image data loaded into COD

The loading of expert identification codes from protected coral images into COD was not a formal objective during the first three-year project with CSP (INT201503-DOC16307), rather outputs from the image identifications were to be stored in an image database. However, for the third and final reporting year of INT201503-DOC16307 (July 2018 – June 2019), expert identification codes for the images were able to be loaded into COD. For the current project, for this and the next reporting period (INT201904-DOC20303), image data are being loaded into COD (into table t_coral_images). An outstanding task is the retroactive loading of expert identification codes from images identified for year one and two of data of project INT201503-DOC16307. We hope to load these earlier data within the current project timeline.

Moving forward, discussions with FNZ and NIWA COD database managers need to be held to ensure that the loading process is clear and consistent, and the location of the image data and all previous image data collected will be accessible when extracts are retrieved from COD.

4.2 Objective 2: Sub-samples of protected coral specimens for genetic analysis

Tissue sub-samples were taken from all live collected protected coral samples provided to NIWA by Observers. Accumulated protected coral tissue samples retained for future genetic studies now numbers 97. Sub-samples of many black coral (CSP project POP201806-DOC19306) and octocoral (CSP project INT201905- DOC19304) specimens have now been analysed and the results are reported in Bilewitch and Tracey (2020a; 2020b).

4.3 Objective 3: Assist with Observer training resources

The instructions to Observers when carrying out at-sea protected coral and revised invertebrate data collection (Tracey & Mills, 2016; Tracey et al. 2019b) were passed onto Observers via the CSP, to assist with Observer training. Additionally, recommendations which have been highlighted in these reports, and in the instruction documents, were passed on to the Conservation Services Programme (CSP) and included the methods used for sampling and image labelling.

Future Observer training workshops will include NIWA staff. The interactive training will include: using coral samples from the NIC and current guides to help with coral identification; explaining how to differentiate easily confused taxa; and going over sample and image collection methods. This follows the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) Observer briefing methods used by NIWA staff annually.

Other ongoing tasks to help fulfil this objective include input into a draft coral identification guide and video, both currently in development via the CSP project POP2020-02 with input from NIWA.

5 Summary and conclusions

The objective to identify images and physical specimens of bycaught protected corals returned by fisheries Observers was met. The process was efficient as the identification methods have been consistent and standardised over several years. The required database updates have been made. The difficulty in matching some digital images with trip data in the COD database is an ongoing issue but is expected to improve in the following reporting years with the recent efforts by Fisheries New Zealand to address methods of invertebrate image data collection at-sea and with the provision of labels.

The identified samples were collected opportunistically from commercial fishing activity when either Observers were uncertain of their identification of the coral specimen, the specimen was caught outside the expected depth range or distribution, or when the specimen was considered rare or unusual. Such samples are highly valuable and continue to augment the datasets used to highlight interactions between fishing and protected corals, for example in the modelling of species distributions and community classifications. Recognising the importance of these data for enhancing basic understanding of coral distribution and given recent elucidation of unexplored cryptic diversity in some coral groups, Observers are now being encouraged to return a specimen or sub-sample whenever they are able to, regardless of how confident they are in their identification.

A total of 221 physical samples (266 physical specimens), and 255 specimens by images were identified to the finest taxon level possible. Of the 255 specimens by images, 214 were protected coral taxa, and 193 of these were able to be georeferenced. There were 41 specimens by images that were identified as non-protected coral taxa.

The number of Observer specimens returned for identification from within the EEZ were low for this period (36 physical samples containing 51 physical specimens). The return of samples has been low for the past few years (also noted in Mills et al. 2020 where the numbers of non-protected invertebrates returned under Fisheries New Zealand Project DAE201804 have also been reduced). The COVID-19 pandemic may have indirectly impacted the quantity of material returned, but it is also possible that less samples were returned because of Observers growing confidence in their sample identifications. We have however met and often exceeded the numbers required by this Contract by identifying high-seas, historical, and research trawl samples. Often the contracted numbers have been exceeded in previous years thanks to efforts from visiting international experts. This project however, does not report on the high-seas protected coral bycatch.

6 Recommendations

The effort of Observers working at-sea to collect specimens and/or specimen images is mostly carried out to a very high standard. However, for some returned physical specimens and images, the processing and identification ashore is made difficult if labelling protocols and photography instructions are not followed.

Images should be taken with a label that includes trip and station data, and the coral specimen, or a sub-sample of the specimen. This information helps experts verify the identification.

Standardised, easy-to-use labels with pre-printed required fields for Observers to include in photographs should improve the process and hence the accuracy of accompanying metadata. Examples of different labelling methods used by Observers during this reporting period (current year, not historical) can be seen in Figure 6-1 and in the cover image of this report.

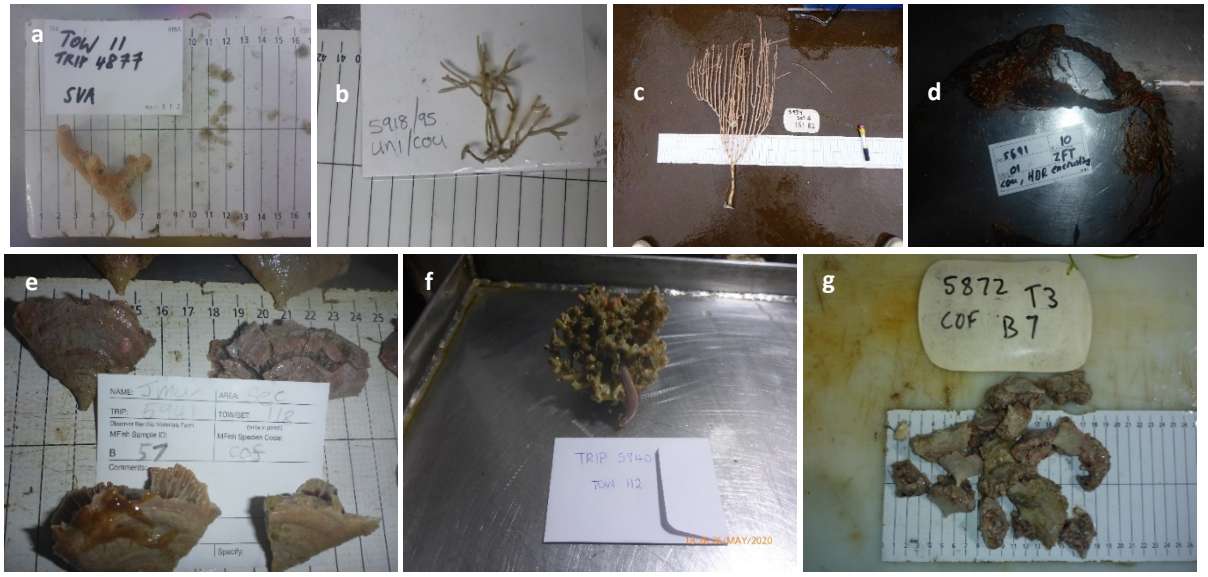

Figure 6-1: Examples of different labelling seen in photographs taken by Observers. a: NIWA RV *Tangaroa* shipboard label used on research voyages; b: scrap paper; c and g: reusable whiteboard and attached marker pen; d: older style Observer Samples Database (OSD) label provided by NIWA e: current style OSD label; f: otolith envelopes [Observer, FNZ].

It is also noted that some physical specimens are returned with a 'Department of Conservation (CSP) Observer Programme, Label to Accompany, Marine Specimen for Necropsy/Identification' label.

The protected coral families and genera shown in Table 6-1 do not have an assigned three-letter MPI species code. We suggest creating new codes for these taxa, to help match data records and improve the accuracy of our expert identifications. This task to obtain new codes can be managed by NIWA COD database managers, and dissemination of these codes will occur through the Observer Programme and into Observer resources and training materials to facilitate ongoing improvement.

Table 6-1: Protected coral families and / or genera that require a three-letter MPI species code to be allocated.

Common name	Family	Genus	Species	Current available code
Sea fan; gorgonian coral	Primnoidae	*Metafannyella*	spp.	PRI (Primnoidae)
Sea fan; gorgonian coral	Primnoidae	*Parastenella*	spp.	PRI (Primnoidae)
Sea fan; gorgonian coral	Primnoidae	*Tokoprymno*	spp.	PRI (Primnoidae)
Sea fan; gorgonian coral	Primnoidae	*Dasystenella*	spp.	PRI (Primnoidae)
Sea fan; gorgonian coral	Plexauridae	*Muriceides*	spp.	PLE (Plexauridae)
Sea fan; gorgonian coral	Plexauridae	*Astrogorgia*	spp.	PLE (Plexauridae)
Sea fan; gorgonian coral	Plexauridae	*Placogorgia*	spp.	PLE (Plexauridae)
Sea fan; gorgonian coral	Plexauridae	*Swiftia*	spp.	PLE (Plexauridae)
Sea fan; gorgonian coral	Plexauridae	*Villogorgia*	spp.	PLE (Plexauridae)
Sea fan; gorgonian coral	Acanthogorgiidae			GOC (Gorgonacea)
Sea fan; gorgonian coral	Acanthogorgiidae	*Anthogorgia*	spp.	GOC (Gorgonacea)
Sea fan; gorgonian coral	Anthothelidae			GOC (Gorgonacea)
Sea fan; gorgonian coral	Anthothelidae	*Anthothela*	spp.	GOC (Gorgonacea)
Sea fan; gorgonian coral	Anthothelidae	*Iciligorgia*	spp.	GOC (Gorgonacea)
Sea fan; gorgonian coral	Victorgorgiidae			GOC (Gorgonacea)
Sea fan; gorgonian coral	Victorgorgiidae	*Victorgorgia*	spp.	GOC (Gorgonacea)
Black corals	Schizopathidae	*Saropathes*	spp.	COB (Antipatharia)
Black corals	Schizopathidae	*Telopathes*	spp.	COB (Antipatharia)
Black corals	Stylopathidae	*Tylopathes*	spp.	COB (Antipatharia)
Bamboo corals	Isididae	*Isidella*	spp.	ISI (Isididae)
Stony corals - branching	Dendrophylliidae	*Eguchipsammia*	spp.	CBR (Dendrophylliidae, Oculinidae (Families) and some spp. in Caryophyllidae (Family))
Stony corals - branching	Dendrophylliidae	*Cladopsammia*	spp.	CBR (Dendrophylliidae, Oculinidae (Families) and some spp. in Caryophyllidae (Family))

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Appendix A Summary output from NIWA Invertebrate Collection (NIC) Specify Database *niwainvert*.

This publicly accessible website can be used to search the initial and expert ID species codes: https://marlin.niwa.co.nz/species_codes/

a) Updated with revised identifications of 51 bycatch specimens (in 36 sample lots) collected between 1 July 2019 to 30 June 2020

TRIP	Tow	NIWA Cat. No.	OSD No.	Initial ID Code	Expert ID Code	Phylum	Class	Order	Family	Genus	Species	Specimen Count	Date Collected	Latitude1	Longitude1	Depth 1	Depth 2
5615	10	131859	4375	CBB	COZ	Bryozoa						1	05/04/2019	-44.1	176.0	150	188
5616	51	131873	4365	ROK	COZ	Bryozoa						1	21/04/2019	-48.5	168.0	141	138
5844	37	131932	4808	GOC	GOC	Cnidaria	Anthozoa	Alcyonacea	Acanthogorgiidae	*Acanthogorgia*		1	04/12/2019	-42.7	-177.3	1182	1182
5799	54	131903	4761	BOO	ISI	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Isidella*		1	06/11/2019	-34.7	171.6	1059	
5799	55	131896	4760	ISI	ISI	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Isidella*		1	06/11/2019	-34.7	171.6	1068	
5851	92	131944	4815	BOO	BOO	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*		1	24/12/2019	-50.1	165.8	1395	1245
5854	24	131917	4787	UNI	BOO	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*		1	05/12/2019	-34.8	171.6	1050	1166
5854	24	131919	4792	ISI	BOO	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*		1	05/12/2019	-34.8	171.6	1050	1166
5854	24	131922	4794	ISI	BOO	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*		1	05/12/2019	-34.8	171.6	1050	1166
5851	89	131941	4809	BOO	BOO	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*	*magnifica*	1	24/12/2019	-50.1	165.8	780	
5844	136	131934	4806	PAB	PAB	Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	*Paragorgia*		1	25/12/2019	-42.7	-177.5	1210	1228
5844	32	131940	4810	COB	CTP	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Calyptrophora*		1	03/12/2019	-42.7	-177.7	1156	1165
5851	92	131946	4819	THO	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	3	24/12/2019	-50.1	165.8	1395	1245
5851	92	147600	4819	THO	PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Tokoprymno*		1	24/12/2019	-50.1	165.8	1395	1245
5812	39	131890	4763	COB	AHL	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	*Antipathella*		1	null	null	null	null	null
5854	31	131923	4797	COU	BTP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Bathypathes*	*patula*	1	09/12/2019	-39.9	178.0	1168	1100
5844	35	131933	4807	DEN	PTP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Parantipathes*		1	04/12/2019	-42.7	-177.5	1178	1195
5706	17	131607	4380	ATP	COB	Cnidaria	Anthozoa	Antipatharia	Stylopathidae	*Tylopathes*		1	19/07/2019	-42.8	-176.9	908	948
5854	24	131916	4788	UNI	DDI	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum*	*dianthus*	3	05/12/2019	-34.8	171.6	1050	1166

TRIP	Tow	NIWA Cat. No.	OSD No.	Initial ID Code	Expert ID Code	Phylum	Class	Order	Family	Genus	Species	Specimen Count	Date Collected	Latitude1	Longitude1	Depth 1	Depth 2
5844	21	131936	4814	SVA	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	29/11/2019	-47.6	177.8	873	960
5844	21	131937	4813	SVA	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	29/11/2019	-47.6	177.8	873	960
5844	23	131939	4811	SVA	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	30/11/2019	-44.1	178.2	975	1016
5851	89	131942	4817	CBR	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	24/12/2019	-50.1	165.8	780	
5851	89	131943	4816	CBR	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	24/12/2019	-50.1	165.8	780	
5851	89	131945	4820	CBR	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	24/12/2019	-50.1	165.8	780	
5851	89	131954	4827	CBR	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	24/12/2019	-50.1	165.8	780	
5854	31	131918	4790	COU	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	09/12/2019	-39.9	178.0	1168	1100
5851	92	131947	4818	CRE	COO	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Conopora*	*verrucosa*	1	24/12/2019	-50.1	165.8	1395	1245
5980	32	146415	5212	COF	COF	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*	1	null	null	null	null	null
5980	36	146416	5213	COF	COF	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*	1	null	null	null	null	null
5980	29	146417	5214	COF	COF	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*	3	null	null	null	null	null
5980	42	146418	5215	COF	COF	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*	2	null	null	null	null	null
5980	41	146419	5216	COF	COF	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*	4	null	null	null	null	null
5980	28	146420	5217	COF	COF	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*	4	null	null	null	null	null
5980	33	146421	5218	COF	COF	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*	3	null	null	null	null	null
5980	30	146422	5219	COF	COF	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*	1	null	null	null	null	null

b) Historical bycatch specimens identified from 1 July 2019 to 8 April 2021

TRIP	Tow	NIWA Cat. No.	OSD No.	Initial ID Code	Expert ID Code	Phylum	Class	Order	Family	Genus	Species	Specimen Count	Date Collected	Latitude1	Longitude1	Depth 1	Depth 2
5058	39	106568	3613	LEI	MTL	Cnidaria	Anthozoa	Alcyonacea	Chrysogorgiidae	*Metallogorgia*		3	16/07/2017	-35.7	176.4	717	773
3246	22	69550	1274		GOC	Cnidaria	Anthozoa	Alcyonacea	Chrysogorgiidae	*Pseudochrysogorgia*		1	31/12/2010	-35.6	166.0	851	1141
5613	96	131891	4745	SEO	RAD	Cnidaria	Anthozoa	Alcyonacea	Chrysogorgiidae	*Radicipes*		1	01/05/2019	-42.9	175.2	560	522
4837	9	106598	3688	SIA	CLL	Cnidaria	Anthozoa	Alcyonacea	Coralliidae			1	19/01/2017	-51.5	161.4	1375	1258
1227	52	104313			CLL	Cnidaria	Anthozoa	Alcyonacea	Coralliidae			1	14/05/1999	-54.1	171.7	1315	
3028	128	66214	539		ACN	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Acanella*		1	09/01/2010	-44.5	-178.7	670	920
3028	18	66212	537		ACN	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Acanella*		1	24/12/2009	-48.7	164.8	431	363
3802	24	88593	2603		ACN	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Acanella*		1	16/07/2013	-47.0	165.7	484	721
4219	55	88895	3051		ACN	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Acanella*		1	09/10/2014	-47.0	165.7	423	
4448	41	95183	3205		ACN	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Acanella*		1	16/07/2015	-38.4	-168.1	263	298
3415	37	75810	2064		ISI	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Isidella*		1	30/11/2011	-44.8	172.7	1185	1147
5438	97	129022	4152	ISI	BOO	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*		1	05/10/2018	-47.6	177.9		951
3028	169	66208	533		LLE	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Lepidisis*		1	14/01/2010	-43.9	-174.6	660	
3136	46	88588	2598		LLE	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Lepidisis*		1	15/06/2010	-34.0	167.5	746	938
3252	9	69580	1311		LLE	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Lepidisis*		1	30/12/2010	-33.6	167.8	841	1049
4038	5	88692	2780		LLE	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Lepidisis*		1	17/02/2014	-37.0	177.4	1000	1200
5117	16	106577	3667	CSB	PLE	Cnidaria	Anthozoa	Alcyonacea	Plexauridae			1	02/09/2017	-40.7	177.0	228	564
1227	52	127359			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Callozostron*	*carlottae*	1	14/05/1999	-54.1	171.7	1315	
2718	31	65928	1081		PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Dasystenella*	*austasensis*	1	14/11/2008	-49.8	175.9	855	1032
2253	23	47784			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Metafannyella*	*moseleyi*	1	30/05/2006	-42.7	-177.7	1166	1092
1124	58	9679			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Metafannyella*	*moseleyi*	1	06/08/1998	-37.1	176.7	1011	
5613	96	131909	4752	CHR	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*		1	01/05/2019	-42.9	175.2	560	522
2718	245	66110	911		THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*brevispinosa*	1	10/12/2008	-48.4	175.3	948	1026

TRIP	Tow	NIWA Cat. No.	OSD No.	Initial ID Code	Expert ID Code	Phylum	Class	Order	Family	Genus	Species	Specimen Count	Date Collected	Latitude1	Longitude1	Depth 1	Depth 2
1171	76	9611			THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*brevispinosa*	1	04/12/1998	-50.0	166.0	850	
1171	76	9609			THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*brevispinosa*	1	04/12/1998	-50.0	166.0	850	
2571	147	42611	37		THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1	18/03/2008	-50.1	163.8	934	1012
2571	187	42610	68		THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1	24/03/2008	-50.3	163.4	957	967
3750	90	87073	2535		THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1	02/06/2013	-46.8	169.9	442	617
1171	12	9717			THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1	25/11/1998	-48.0	166.1	935	
1171	12	9718			THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1	25/11/1998	-48.0	166.1	935	
1171	22	9725			THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1	27/11/1998	-48.0	166.1	943	
1171	24	9674			THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1	27/11/1998	-48.0	166.1	940	1180
1171	25	9716			THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1	27/11/1998	-48.0	166.1	980	
1171	30	9714			THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1	28/11/1998	-48.0	166.1	937	
1171	46	11323			THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1	30/11/1998	-48.6	165.0	940	1180
2807	111	66353	879		BTP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Bathypathes*	*alternata*	1	21/02/2009	-44.2	-174.5	653	957
2955	53	66342	243		BTP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Bathypathes*	*alternata*	1	10/10/2009	-44.0	-174.6	700	897
4823	43	106520	3496	BTP	BTP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Bathypathes*	*alternata*	1	19/10/2016	-34.0	162.6	503	726
1950	36	43034			BTP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Bathypathes*	*patula*	1	16/06/2004	-38.4	-168.2	864	850
4823	1	106519	3495	COB	BTP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Bathypathes*	*patula*	1	07/10/2016	-37.6	169.6	959	1066
3248	16	69595	1327		COB	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	n. gen.?		1	15/12/2010	-32.5	166.8	395	384
4823	44	106522	3498	COB	COB	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	n. gen.?		1	19/10/2016	-34.0	162.6	499	733
1731	13	47416			TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	19/01/2003	-44.2	-174.5	850	1183
1823	86	43037			TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	2003	-50.3	163.6	975	1205
1950	8	43035			TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	2004	-36.9	-169.7	1200	1200
2101	140	47879			TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	16/06/2005	-42.8	-177.2	999	1002
2320	82	45887	18		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	31/10/2006	-48.7	164.9	911	1028

TRIP	Tow	NIWA Cat. No.	OSD No.	Initial ID Code	Expert ID Code	Phylum	Class	Order	Family	Genus	Species	Specimen Count	Date Collected	Latitude1	Longitude1	Depth 1	Depth 2
2468	20	45888	2		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	22/07/2007	-47.4	178.1	929	942
2551	47	42839	1		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	14/12/2007	-44.5	-174.8	1288	1408
2551	98	42812	1		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	19/12/2007	-43.8	-174.3	806	1174
2571	158	42820	45		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	19/03/2008	-50.3	163.5	1125	1291
2571	159	42824	53		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	19/03/2008	-50.3	163.5	1043	1116
2571	159	60355	53		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	19/03/2008	-50.3	163.5	1043	1116
2571	160	42816	55		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	20/03/2008	-50.2	163.7	1092	1311
2571	163	42814	1		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	20/03/2008	-50.0	163.8	849	898
2571	217	42834	75		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	29/03/2008	-49.8	175.9	849	993
2595	52	47911	9		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	08/03/2008	-44.6	-175.7	758	1147
2608	117	42813			TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	07/05/2008	-43.9	-174.7	668	
2744	132	69649	1433		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	06/01/2009	-44.4	-174.8	1070	1111
2744	253	69648	1432		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	23/01/2009	-44.0	-174.6	659	1020
2807	142	49468			TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	2	26/02/2009	-44.7	-175.4	810	
2807	142	49469			TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	26/02/2009	-44.7	-175.4	810	
2807	207	66354	880		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	06/03/2009	-43.8	-174.5	810	939
2911	56	66335	97		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	30/07/2009	-42.8	-177.2	909	1010
2920	103	66344	449		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	29/09/2009	-49.8	175.9	900	1014
2955	157	66337	203		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	25/10/2009	-44.7	-175.4	1120	1269
3028	176	66348	541		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	15/01/2010	-44.0	-174.6	835	1161
3252	9	69577	1308		TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	30/12/2010	-33.6	167.8	841	1049
1153	17	4298			TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	03/09/1998	-47.4	147.7	1085	
1153	17	24197			TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	03/09/1998	-47.4	147.7	1085	
1153	32	14769			TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	06/09/1998	-47.5	148.8	890	

TRIP	Tow	NIWA Cat. No.	OSD No.	Initial ID Code	Expert ID Code	Phylum	Class	Order	Family	Genus	Species	Specimen Count	Date Collected	Latitude1	Longitude1	Depth 1	Depth 2
1153	45	14770			TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	09/09/1998	-47.5	148.6	998	
1153	50	14773			TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	10/09/1998	-47.7	147.4	1104	
1171	57	14771			TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	02/12/1998	-50.2	163.6	1006	
1355	1	24198			TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	01/05/2000	-34.8	169.8	790	
1357	107	15044			TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	15/06/2000	-37.2	167.3	1061	1102
5544	6	129098	4267	DDI	DDI	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum*	*dianthus*	2	02/01/2019	-43.0	177.3	335	352
5615	4	131605	4370	CAY	DDI	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum*	*dianthus*	1	02/04/2019	-47.1	169.5	126	285
1579	57	104681			DDI	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum*	*dianthus*	1	13/11/2001	-49.1	166.6	591	
1282	23	89158			GDU	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Goniocorella*	*dumosa*	1	01/11/1999	-40.1	177.3	399	
5615	4	131606	4369	GDU	GDU	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Goniocorella*	*dumosa*	1	02/04/2019	-47.1	169.5	126	285
1390	8	89128			SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	10/09/2000	-47.3	165.8	943	1090
1577	167	89160			SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	22/11/2001	-50.0	163.7	911	1038
1577	175	89159			SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	23/11/2001	-50.0	163.7		
1731	20	89098			SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	20/01/2003	-43.9	-174.3	1005	1191
1124	69	89127			SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	16/08/1998	-37.1	177.3	617	654
1152	7	89122			SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	10/09/1998	-37.5	167.7	904	
1153	70	89138			SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	14/09/1998	-47.2	148.7	950	
1171	21	95063			SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	26/11/1998	-48.6	165.0	1071	
1171	38	89116			SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	29/11/1998	-48.6	165.0	1061	
1171	53	88261			SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	01/12/1998	-50.3	163.5	1033	
1171	57	89095			SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	02/12/1998	-50.2	163.6	1006	
1643	18	145037			SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	24/04/2002	-44.2	-174.6	985	1060
1693	14	89229			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	11/10/2002	-48.4	174.3	872	920
1153	45	89228			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	09/09/1998	-47.5	148.6	998	

TRIP	Tow	NIWA Cat. No.	OSD No.	Initial ID Code	Expert ID Code	Phylum	Class	Order	Family	Genus	Species	Specimen Count	Date Collected	Latitude1	Longitude1	Depth 1	Depth 2
1153	83	89227			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	19/09/1998	-50.2	165.8	984	
1153	87	89224			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	19/09/1998	-50.1	165.9	989	
1153	87	89238			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	19/09/1998	-50.1	165.9	989	
1164	2	89237			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	30/09/1998	-37.3	167.4	755	
1164	16	89230			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	11/10/1998	-47.5	148.8	911	
1164	16	89241			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	11/10/1998	-47.5	148.8	911	
1171	22	89171			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	2	27/11/1998	-48.0	166.1	943	
1171	46	89235			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	30/11/1998	-48.6	165.0	940	1180
1227	52	89232			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	14/05/1999	-54.1	171.7	1315	
1242	18	89225			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	25/06/1999	-37.1	176.7	927	
1337	16	89170			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	28/03/2000	-37.1	177.3	733	
1337	20	89226			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	30/03/2000	-37.1	177.3	730	
1573	91	89239			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	25/10/2001	-53.9	168.7	795	
1643	18	104345			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	24/04/2002	-44.2	-174.6	985	1060
1643	44	89233			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	02/05/2002	-42.8	-180.0	804	928
5425	33	131514	4271	COF	COF	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*	1	30/08/2018	-51.0	167.4	495	500
5473	2	129020	4150	COF	COF	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*	1	03/10/2018	-37.6	176.5		
5503	90	129059	4202	COF	COF	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*	2	07/12/2018	-44.3	-177.5		515
5613	101	131886	4746	COF	COF	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*	1	02/05/2019	-43.4	174.3	575	
2324	18	67808			MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1	14/11/2006	-48.9	175.7	953	1020
5438	97	129023	4153	SIA	MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1	05/10/2018	-47.6	177.9		951
1171	32	103637			MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1	28/11/1998	-48.0	166.1	1079	
1355	2	103639			MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1	01/05/2000	-34.8	169.8	770	
1624	43	104314			MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1	24/03/2002	-34.8	169.8	650	1187

TRIP	Tow	NIWA Cat. No.	OSD No.	Initial ID Code	Expert ID Code	Phylum	Class	Order	Family	Genus	Species	Specimen Count	Date Collected	Latitude1	Longitude1	Depth 1	Depth 2
1643	18	145036			MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1	24/04/2002	-44.2	-174.6	985	1060
5581	45	129091	4257	HDR	ERR	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Errina*	*bicolor*	1	01/03/2019	-48.8	166.7	166	163
5581	50	129090	4256	HDR	ERR	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Errina*	*bicolor*	1	02/03/2019	-48.8	166.8	166	
5287	13	125192	3813	COU	ERR	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Errina*	*chathamensis*	3	23/03/2018	-44.1	176.0	218	

c) Identification of physical specimens collected during the 1 July 2019-30 June 2020 reporting period and historically by NIWA staff on fisheries research trawl surveys

Cruise	Station	NIWA Cat. No.	Lot Number	Initial ID Code	Expert ID Code	Phylum	Class	Order	Family	Genus	Species	Specimen Count	Date Collected	Latitude1	Longitude1	Depth 1	Depth 2
TAN1811	81	145020	128	PRI	GOC	Cnidaria	Anthozoa	Alcyonacea	Acanthogorgiidae	*Acanthogorgia*		1	17/12/2018	-49.0	166.6	490	511
TAN1801	25	139132	51	PAB	PAB	Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	*Paragorgia*	*arborea*	1	11/01/2018	-42.5	-178.0	865	893
AEX0101	25	11322			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Dasystenella*	*austasensis*	1	22/10/2001	-44.6	-177.2	826	
TAN9511	18	113999			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Dasystenella*	*austasensis*	2	08/10/1995	-44.7	174.9	818	800
TAN9812	15	9634			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Dasystenella*	*austasensis*	1	02/10/1998	-44.2	179.1	959	
TAN9812	25	9750			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Dasystenella*	*austasensis*	1	07/10/1998	-44.4	-178.2	805	
TAN9812	31	9616			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Dasystenella*	*austasensis*	1	09/10/1998	-44.6	-177.8	978	
TAN9812	31	9615			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Dasystenella*	*austasensis*	1	09/10/1998	-44.6	-177.8	978	
TAN9812	85	9632			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Dasystenella*	*austasensis*	1	25/10/1998	-44.5	-178.5	940	956
KAH0001	63	9681			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Metafannyella*	*moseleyi*	1	17/02/2000	-36.2	176.2	340	340
KAH9915	92	128290			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Metafannyella*	*moseleyi*	1	30/10/1999	-35.0	172.5	167	
SMT9501	27	9680			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Metafannyella*	*moseleyi*	1	25/06/1995	-36.5	176.5	956	
TAN1003	169	76704			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Metafannyella*	*moseleyi*	1	07/04/2010	-40.6	177.1	875	
TAN1003	22	76766			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Metafannyella*	*moseleyi*	1	21/03/2010	-40.0	178.1	820	
TAN1003	24	76767			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Metafannyella*	*moseleyi*	1	22/03/2010	-40.1	178.2	744	
TAN1003	40	76760			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Metafannyella*	*moseleyi*	1	23/03/2010	-40.0	178.3	1288	
TAN1003	45	91293			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Metafannyella*	*moseleyi*	1	24/03/2010	-39.8	178.4	830	
KAH0108	22	9643			PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Metafannyella*	*n. sp. rigida*	1	04/09/2001	-43.2	175.7	399	
TAN0219	75	104273			THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1	10/12/2002	-48.9	166.6	380	434
TAN0414	66	25515			THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1	16/12/2004	-48.9	166.5	389	443
TAN0414	67	25518			THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1	16/12/2004	-48.9	166.6	467	503
TAN1412	85	98603	132		THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1	19/12/2014	-48.9	166.7	394	

Cruise	Station	NIWA Cat. No.	Lot Number	Initial ID Code	Expert ID Code	Phylum	Class	Order	Family	Genus	Species	Specimen Count	Date Collected	Latitude1	Longitude1	Depth 1	Depth 2
TAN9812	3	9635			THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1	29/09/1998	-44.2	178.4	1090	
TAN9812	39	9751			THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1	11/10/1998	-44.7	-177.3	1100	
TAN0109	21	14781			TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1	04/07/2001	-39.7	178.2	957	
TAN1101	20	104235			DDI	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum*	*dianthus*	1	06/02/2011	-43.6	-179.4	386	396
TAN2001	88	147902	I393	CAY	DDI	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum*	*dianthus*	1	23/01/2020	-44.1	176.2	384	362
TAN9701	72	88009			DDI	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum*	*dianthus*	12	16/01/1997	-44.2	176.3	484	579
TAN9701	72	88009			DDI	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum*	*dianthus*	6	16/01/1997	-44.2	176.3	484	579
KAH0108	21	95061			GDU	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Goniocorella*	*dumosa*	1	04/09/2001	-43.1	175.8	467	
KAH9801	16	88284			GDU	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Goniocorella*	*dumosa*	1	20/01/1998	-37.6	177.2	445	467
TAN0101	43	88263			GDU	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Goniocorella*	*dumosa*	1	05/01/2001	-44.0	-179.1	306	
TAN0201	66	95062			GDU	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Goniocorella*	*dumosa*	1	08/01/2002	-43.5	-178.7	435	
TAN0401	23	88266			GDU	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Goniocorella*	*dumosa*	1	01/01/2004	-43.6	-178.6	440	422
TAN2001	71	141768	I212		GDU	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Goniocorella*	*dumosa*	1	20/01/2020	-43.8	-179.7	379	381
TAN2001	81	147900	I302	GDU	GDU	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Goniocorella*	*dumosa*	1	22/01/2020	-43.5	177.1	279	263
AEX9901	56	89155			SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	02/07/1999	-42.7	-180.0	1071	1076
SMT9801	27	89135			SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1	20/06/1998	-36.4	177.0	862	
TAN1807	58	144436	237	STP	STP	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Stephanocyathus*	*platypus*	1	06/08/2018	-42.1	170.0	915	920
TAN1807	62	144435	244	STP	STP	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Stephanocyathus*	*platypus*	3	07/08/2018	-41.5	169.6	891	896
TAN1807	65	144434	311	STP	STP	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Stephanocyathus*	*platypus*	1	07/08/2018	-42.0	169.5	971	974
AEX0101	80	104259			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	01/11/2001	-44.7	-177.2	753	
TAN0208	35	99614			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	03/07/2002	-42.7	-179.7	927	1087
TAN9713	46	88401			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1	08/12/1997	-44.5	175.8	758	
TAN9908	39	88412			ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	2	10/07/1999	-42.8	180.0		
AEX0101	80	145028			MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1	01/11/2001	-44.7	-177.2	753	

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AEX9901	17	104263			MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1	25/06/1999	-42.8	-180.0	810	
AEX9901	20	104260			MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1	26/06/1999	-42.8	-179.9	940	
AEX9901	54	104264			MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1	02/07/1999	-42.8	-179.9	947	
AEX9901	55	104258			MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1	02/07/1999	-42.8	-180.0	800	
AEX9901	56	104315			MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1	02/07/1999	-42.7	-180.0	1071	1076
AEX9901	6	89096			MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1	23/06/1999	-42.6	-179.9	1173	1173
TAN9104	82	104246			MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1	28/10/1991	-44.2	-174.8	931	1000
TAN9406	254	103640			MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1	04/07/1994	-42.7	-179.7	817	817
TAN9406	254	104250			MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1	04/07/1994	-42.7	-179.7	817	817
TAN9406	254	104255			MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1	04/07/1994	-42.7	-179.7	817	817
TAN9908	39	103638			MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1	10/07/1999	-42.8	180.0		
TAN0219	23	127880			CRE	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Calyptopora*	*reticulata*	1	30/11/2002	-52.2	173.1	639	650
TAN1801	15	126919	31	CRE	ERR	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Errina*	*chathamensis*	1	09/01/2018	-43.1	-179.4	525	525
TAN1801	48	126622	161	ERR	ERR	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Errina*	*chathamensis*	3	15/01/2018	-43.5	-175.2	243	243
TAN1801	14	126930	47	CRE	ERR	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Errina*	*gracilis*	1	09/01/2018	-43.3	-179.4	433	455
TAN1610	18	139235	91	ERR	ERR	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Errina*	*reticulata*	1	17/09/2016	-51.7	170.6	449	461

Appendix B Summary of physical specimen data loaded into COD.

This publicly accessible website can be used to search target species and expert species codes: https://marlin.niwa.co.nz/species_codes/ and FMA codes: https://marlin.niwa.co.nz/area_codes/. The fishing method codes are as follows: TWL = Trawling, includes bottom trawl and midwater trawl; BLL = Bottom LongLine.

niwa_no	trip_number	station_number	target_species	fishing_method	event_start_date	start_obs_fma	start_seabed_depth	trunc_start_latitude	trunc_start_longitude	expert_species	phylum	class	order	family	genus	species	count
129091	5581	45	BAR	TWL	2019-03-01	SOU	166	-48.8	166.7	ERR	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Errina*	*bicolor*	1
69595	3248	16	BNS	BLL	2010-12-15	WANB	395	-32.5	166.8	COB	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	n. gen.?		1
42834	2571	217	BOE	TWL	2008-03-29	SUB	1099	-49.7	175.9	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
65928	2718	31	BOE	TWL	2008-11-14	SUB	1065	-49.7	175.8	PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Dasystenella*	*austasensis*	1
66110	2718	245	BOE	TWL	2008-12-10	SUB		-48.3	175.2	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*brevispinosa*	1
66344	2920	103	BOE	TWL	2009-09-29	SUB	1111	-49.7	175.9	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
66214	3028	128	BOE	TWL	2010-01-09	SOE	670	-44.4	181.3	CAN	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Acanella*		1
89122	1152	7	BYS	TWL	1998-09-10	CET	581	-37.4	167.6	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1
106520	4823	43	BYS	TWL	2016-10-19	HOWE	506	-34	162.5	BTP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Bathypathes*	*alternata*	1
106522	4823	44	BYS	TWL	2016-10-19	HOWE	504	-34	162.5	COB	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	n. gen.?		1
106577	5117	16	BYX	TWL	2017-09-02	CEE	322	-40.6	177	PLE	Cnidaria	Anthozoa	Alcyonacea	Plexauridae			1
89237	1164	2	CDL	TWL	1998-09-30	CET	780	-37.3	167.3	ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1
89226	1337	20	CDL	TWL	2000-03-30	AKE	730	-37.1	177.2	ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1
104681	1579	57	HAK	TWL	2001-11-13	SUB	591	-49.1	166.6	DDI	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum*	*dianthus*	1
89239	1573	91	HOK	TWL	2001-10-25	SUB	795	-53.8	168.7	ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1
87073	3750	90	HOK	TWL	2013-06-02	SEC	430	-46.8	169.8	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1
129059	5503	90	HOK	TWL	2018-12-07	SOE	502	-44.2	182.5	COF	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*	2
131909	5613	96	HOK	TWL	2019-05-01	SEC	560	-42.9	175.2	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*		1

niwa_no	trip_number	station_number	target_species	fishing_method	event_start_date	start_obs_fma	start_seabed_depth	trunc_start_latitude	trunc_start_longitude	expert_species	phylum	class	order	family	genus	species	count
131891	5613	96	HOK	TWL	2019-05-01	SEC	560	-42.9	175.2	RAD	Cnidaria	Anthozoa	Alcyonacea	Chrysogorgiidae	*Radicipes*		1
131886	5613	101	HOK	TWL	2019-05-02	SEC	575	-43.4	174.3	COF	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*	1
95183	4448	41	HPB	TWL	2015-07-16	LOUR		-38.4	191.9	CAN	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Acanella*		1
75810	3415	37	MIX	TWL	2011-11-30	SEC	1168	-44.8	172.6	ISI	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Isidella*		1
9717	1171	12	OEO	TWL	1998-11-25	SOU	935	-48	166.1	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1
9718	1171	12	OEO	TWL	1998-11-25	SOU	935	-48	166.1	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1
95063	1171	21	OEO	TWL	1998-11-27	SOU	1071	-48.5	164.9	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1
9725	1171	22	OEO	TWL	1998-11-27	SOU	943	-48	166	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1
89171	1171	22	OEO	TWL	1998-11-27	SOU	943	-48	166	ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	2
9674	1171	24	OEO	TWL	1998-11-27	SOU	930	-48	166.1	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1
9716	1171	25	OEO	TWL	1998-11-27	SOU	935	-48	166.1	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1
9714	1171	30	OEO	TWL	1998-11-28	SOU	937	-48	166.1	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1
103637	1171	32	OEO	TWL	1998-11-28	SOU	936	-48	166	MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1
89116	1171	38	OEO	TWL	1998-11-29	SOU	1061	-48.5	164.9	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1
89235	1171	46	OEO	TWL	1998-11-30	SOU	1054	-48.5	164.9	ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1
11323	1171	46	OEO	TWL	1998-11-30	SOU	1054	-48.5	164.9	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1
88261	1171	53	OEO	TWL	1998-12-01	SUB	976	-50.2	163.5	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1
14771	1171	57	OEO	TWL	1998-12-02	SUB	1002	-50.2	163.6	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
89095	1171	57	OEO	TWL	1998-12-02	SUB	1002	-50.2	163.6	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1
89229	1693	14	OEO	TWL	2002-10-11	SUB	872	-48.4	174.3	ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1
43037	1823	86	OEO	TWL	2003-10-12	SUB	975	-50.2	163.5	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
67808	2324	18	OEO	TWL	2006-11-14	SUB	953	-48.9	175.7	MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1
89127	1124	69	ORH	TWL	1997-09-16	AKE	617	-37.1	177.2	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1

niwa_no	trip_number	station_number	target_species	fishing_method	event_start_date	start_obs_fma	start_seabed_depth	trunc_start_latitude	trunc_start_longitude	expert_species	phylum	class	order	family	genus	species	count
9679	1124	58	ORH	TWL	1998-08-06	AKE	843	-37.1	176.5	PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Metafannyella*	*moseleyi*	1
24197	1153	17	ORH	TWL	1998-09-03	TMAR	1085	-47.3	147.6	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
4298	1153	17	ORH	TWL	1998-09-03	TMAR	1085	-47.3	147.6	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
14769	1153	32	ORH	TWL	1998-09-06	TMAR	890	-47.4	148.8	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
14770	1153	45	ORH	TWL	1998-09-09	TMAR	998	-47.5	148.5	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
89228	1153	45	ORH	TWL	1998-09-09	TMAR	998	-47.5	148.5	ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1
14773	1153	50	ORH	TWL	1998-09-10	TMAR	1004	-47.6	147.4	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
89138	1153	70	ORH	TWL	1998-09-14	TMAR	950	-47.1	148.7	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1
89227	1153	83	ORH	TWL	1998-09-19	SOI	984	-50.2	165.8	ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1
89238	1153	87	ORH	TWL	1998-09-19	SOI	989	-50	165.9	ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1
89224	1153	87	ORH	TWL	1998-09-19	SOI	989	-50	165.9	ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1
89241	1164	16	ORH	TWL	1998-10-11	TMAR	919	-47.4	148.7	ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1
89230	1164	16	ORH	TWL	1998-10-11	TMAR	919	-47.4	148.7	ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1
9609	1171	76	ORH	TWL	1998-12-04	SOI	850	-50	165.9	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*brevispinosa*	1
9611	1171	76	ORH	TWL	1998-12-04	SOI	850	-50	165.9	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*brevispinosa*	1
89225	1242	18	ORH	TWL	1999-06-25	AKE	927	-37	176.7	ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1
89170	1337	16	ORH	TWL	2000-03-28	AKE	733	-37	177.2	ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1
24198	1355	1	ORH	TWL	2000-05-01	AKW	790	-34.8	169.8	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
103639	1355	2	ORH	TWL	2000-05-01	AKW	770	-34.8	169.8	MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1
15044	1357	107	ORH	TWL	2000-06-15	CET	1061	-37.2	167.3	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
104314	1624	43	ORH	TWL	2002-03-24	AKW	650	-34.8	169.8	MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1
104345	1643	18	ORH	TWL	2002-04-24	SOE	985	-44.2	185.3	ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1
145037	1643	18	ORH	TWL	2002-04-24	SOE	985	-44.2	185.3	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1

niwa_no	trip_number	station_number	target_species	fishing_method	event_start_date	start_obs_fma	start_seabed_depth	trunc_start_latitude	trunc_start_longitude	expert_species	phylum	class	order	family	genus	species	count
145036	1643	18	ORH	TWL	2002-04-24	SOE	985	-44.2	185.3	MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1
89233	1643	44	ORH	TWL	2002-05-02	SOE	804	-42.7	180	ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1
47416	1731	13	ORH	TWL	2003-01-19	SOE	850	-44.2	185.4	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
89098	1731	20	ORH	TWL	2003-01-20	SOE	1005	-43.8	185.7	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1
43035	1950	8	ORH	TWL	2004-06-10	LOUR	1200	-36.9	190.3	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
43034	1950	36	ORH	TWL	2004-06-16	LOUR	864	-38.3	191.8	BTP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Bathypathes*	*patula*	1
47879	2101	140	ORH	TWL	2005-06-16	SOE	999	-42.7	182.7	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
47784	2253	23	ORH	TWL	2006-05-30	SOE	1166	-42.7	182.3	PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Metafannyella*	*moseleyi*	1
42839	2551	47	ORH	TWL	2007-12-14	SOE	1326	-44.4	185.2	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
42812	2551	98	ORH	TWL	2007-12-19	SOE	1176	-43.8	185.6	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
47911	2595	52	ORH	TWL	2008-03-08	SOE	1111	-44.5	184.3	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
42813	2608	117	ORH	TWL	2008-05-07	SOE		-43.9	185.3	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
69649	2744	132	ORH	TWL	2009-01-06	SOE	1120	-44.4	185.1	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
69648	2744	253	ORH	TWL	2009-01-23	SOE	889	-43.9	185.4	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
66353	2807	111	ORH	TWL	2009-02-21	SOE	916	-44.1	185.4	BTP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Bathypathes*	*alternata*	1
66354	2807	207	ORH	TWL	2009-03-06	SOE	921	-43.7	185.5	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
66335	2911	56	ORH	TWL	2009-07-30	SOE		-42.7	182.7	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
66342	2955	53	ORH	TWL	2009-10-10	SOE		-43.9	185.4	BTP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Bathypathes*	*alternata*	1
66208	3028	169	ORH	TWL	2010-01-14	SOE	660	-43.9	185.4	LLE	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Lepidisis*		1
66348	3028	176	ORH	TWL	2010-01-15	SOE	835	-44	185.4	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
88588	3136	46	ORH	TWL	2010-06-15	WANB	887	-34	167.5	LLE	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Lepidisis*		1
69550	3246	22	ORH	TWL	2010-12-31	HOWE		-35.6	165.9	GOC	Cnidaria	Anthozoa	Alcyonacea	Chrysogorgiidae	*Pseudochrysogorgia*		1
69577	3252	9	ORH	TWL	2010-12-30	WANB	1065	-33.6	167.8	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1

niwa_no	trip_number	station_number	target_species	fishing_method	event_start_date	start_obs_fma	start_seabed_depth	trunc_start_latitude	trunc_start_longitude	expert_species	phylum	class	order	family	genus	species	count
69580	3252	9	ORH	TWL	2010-12-30	WANB	1065	-33.6	167.8	LLE	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Lepidisis*		1
88692	4038	5	ORH	TWL	2014-02-17	AKE	1382	-36.9	177.3	LLE	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Lepidisis*		1
106519	4823	1	ORH	TWL	2016-10-07	CET	981	-37.6	169.5	BTP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Bathypathes*	*patula*	1
106568	5058	39	ORH	TWL	2017-07-16	AKE	731	-35.7	176.3	MTL	Cnidaria	Anthozoa	Alcyonacea	Chrysogorgiidae	*Metallogorgia*		3
131607	5706	17	ORH	TWL	2019-07-19	SOE	908	-42.8	183.1	COB	Cnidaria	Anthozoa	Antipatharia	Stylopathidae	*Tylopathes*		1
131903	5799	54	ORH	TWL	2019-11-06	AKW	1059	-34.7	171.6	ISI	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Isidella*		1
131896	5799	55	ORH	TWL	2019-11-06	AKW	1068	-34.7	171.6	ISI	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Isidella*		1
131940	5844	32	ORH	TWL	2019-12-03	SOE	1156	-42.7	182.2	CTP	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Calyptrophora*		1
131933	5844	35	ORH	TWL	2019-12-04	SOE	1178	-42.7	182.5	PTP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Parantipathes*		1
131932	5844	37	ORH	TWL	2019-12-04	SOE	1182	-42.7	182.6	GOC	Cnidaria	Anthozoa	Alcyonacea	Acanthogorgiidae	*Acanthogorgia*		1
131934	5844	136	ORH	TWL	2019-12-25	SOE	1210	-42.7	182.5	PAB	Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	*Paragorgia*		1
147600	5851	92	ORH	TWL	2019-12-24	SOI	1395	-50.1	165.8	PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Tokoprymno*		1
131944	5851	92	ORH	TWL	2019-12-24	SOI	1395	-50.1	165.8	BOO	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*		1
131946	5851	92	ORH	TWL	2019-12-24	SOI	1395	-50.1	165.8	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	3
131947	5851	92	ORH	TWL	2019-12-24	SOI	1395	-50.1	165.8	COO	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Conopora*	*verrucosa*	1
131917	5854	24	ORH	TWL	2019-12-05	AKW	1050	-34.7	171.6	BOO	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*		1
131919	5854	24	ORH	TWL	2019-12-05	AKW	1050	-34.7	171.6	BOO	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*		1
131922	5854	24	ORH	TWL	2019-12-05	AKW	1050	-34.7	171.6	BOO	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*		1
131916	5854	24	ORH	TWL	2019-12-05	AKW	1050	-34.7	171.6	DDI	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum*	*dianthus*	3
131918	5854	31	ORH	TWL	2019-12-09	CEE	1168	-39.9	177.9	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1
131923	5854	31	ORH	TWL	2019-12-09	CEE	1168	-39.9	177.9	BTP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Bathypathes*	*patula*	1
104313	1227	52	PTO	BLL	1999-05-14	SUB	1315	-54	171.6	CLL	Cnidaria	Anthozoa	Alcyonacea	Coralliidae			1
127359	1227	52	PTO	BLL	1999-05-14	SUB	1315	-54	171.6	PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Callozostron*	*carlottae*	1

niwa_no	trip_number	station_number	target_species	fishing_method	event_start_date	start_obs_fma	start_seabed_depth	trunc_start_latitude	trunc_start_longitude	expert_species	phylum	class	order	family	genus	species	count
89232	1227	52	PTO	BLL	1999-05-14	SUB	1315	-54	171.6	ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*	1
106598	4837	9	PTO	BLL	2017-01-19	SUB	1375	-51.5	161.4	CLL	Cnidaria	Anthozoa	Alcyonacea	Coralliidae			1
89158	1282	23	SCI	TWL	1999-11-01	CEE	380	-40	177.3	GDU	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Goniocorella*	*dumosa*	1
131514	5425	33	SCI	TWL	2018-08-30	SOI	495	-50.9	167.3	COF	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*	1
129098	5544	6	SCI	TWL	2019-01-02	SOE	335	-42.9	177.2	DDI	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum*	*dianthus*	2
129020	5473	2	SNA	BLL	2018-10-03	AKE		-37.6	176.4	COF	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*	1
125192	5287	13	SQU	TWL	2018-03-23	SOE	218	-44	176	ERR	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Errina*	*chathamensis*	3
129090	5581	50	SQU	TWL	2019-03-02	SOU	166	-48.8	166.7	ERR	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Errina*	*bicolor*	1
131606	5615	4	SQU	TWL	2019-04-02	SEC	126	-47.1	169.4	GDU	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Goniocorella*	*dumosa*	1
131605	5615	4	SQU	TWL	2019-04-02	SEC	126	-47.1	169.4	DDI	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum*	*dianthus*	1
131859	5615	10	SQU	TWL	2019-04-05	SOE	150	-44	176	COZ	Bryozoa						1
131873	5616	51	SQU	TWL	2019-04-21	SOU	141	-48.5	167.9	COZ	Bryozoa						1
89128	1390	8	SSO	TWL	2000-09-10	SOU	943	-47.3	165.7	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1
89160	1577	167	SSO	TWL	2001-11-22	SUB	911	-50	163.7	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1
89159	1577	175	SSO	TWL	2001-11-23	SUB	946	-50	163.6	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1
45887	2320	82	SSO	TWL	2006-10-30	SOU	911	-48.7	164.8	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
45888	2468	20	SSO	TWL	2007-07-22	SUB	922	-47.3	178	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
42611	2571	147	SSO	TWL	2008-03-18	SUB	1140	-50	163.8	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1
42820	2571	158	SSO	TWL	2008-03-19	SUB	1429	-50.2	163.5	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
42824	2571	159	SSO	TWL	2008-03-19	SUB	1245	-50.2	163.4	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
42816	2571	160	SSO	TWL	2008-03-20	SUB	1414	-50.2	163.6	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
42814	2571	163	SSO	TWL	2008-03-20	SUB	1132	-49.9	163.8	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
42610	2571	187	SSO	TWL	2008-03-24	SUB	1160	-50.3	163.3	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	1

niwa_no	trip_number	station_number	target_species	fishing_method	event_start_date	start_obs_fma	start_seabed_depth	trunc_start_latitude	trunc_start_longitude	expert_species	phylum	class	order	family	genus	species	count
49468	2807	142	SSO	TWL	2009-02-26	SOE		-44.7	184.6	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	2
49469	2807	142	SSO	TWL	2009-02-26	SOE		-44.7	184.6	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
66337	2955	157	SSO	TWL	2009-10-25	SOE		-44.6	184.6	TEO	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Telopathes*	*tasmaniensis*	1
129023	5438	97	SSO	TWL	2018-10-05	SUB		-47.5	177.8	MOC	Cnidaria	Anthozoa	Scleractinia	Oculinidae	*Madrepora*	*oculata*	1
129022	5438	97	SSO	TWL	2018-10-05	SUB		-47.5	177.8	BOO	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*		1
131937	5844	21	SSO	TWL	2019-11-29	SUB	873	-47.5	177.8	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1
131936	5844	21	SSO	TWL	2019-11-29	SUB	873	-47.5	177.8	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1
131939	5844	23	SSO	TWL	2019-11-30	SOE	975	-44.1	178.2	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1
131954	5851	89	SSO	TWL	2019-12-24	SOI	780	-50.1	165.8	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1
131943	5851	89	SSO	TWL	2019-12-24	SOI	780	-50.1	165.8	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1
131942	5851	89	SSO	TWL	2019-12-24	SOI	780	-50.1	165.8	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1
131941	5851	89	SSO	TWL	2019-12-24	SOI	780	-50.1	165.8	BOO	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*	*magnifica*	1
131945	5851	89	SSO	TWL	2019-12-24	SOI	780	-50.1	165.8	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	1
66212	3028	18	WWA	TWL	2009-12-24	SOU	431	-48.7	164.8	ACN	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Acanella*		1
88593	3802	24	WWA	TWL	2013-07-16	SOU	484	-47	165.6	ACN	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Acanella*		1
88895	4219	55	WWA	TWL	2014-10-09	SOU	423	-47	165.6	ACN	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Acanella*		1

Appendix C: Summary of digital images processed and identified.

This publicly accessible website can be used to search the target species, initial and expert ID species codes: https://marlin.niwa.co.nz/species_codes/ and FMA codes: https://marlin.niwa.co.nz/area_codes/. The fishing method codes are as follows: TWL = Trawling, includes bottom trawl and midwater trawl; BLL = Bottom LongLine; SN = Set Net; BT = Bottom Trawl (single).

a) Spreadsheet summary of digital images processed and identified for the reporting period 1 July 2019 to 30 June 2020

trip_number	station_number	fishing_method	target_species	event_start_date	start_obs_fma	trunc_start_latitude	trunc_start_longitude	start_seabed_depth	Phylum	Class	Order	Family	Genus	Species	NIWA Cat. No.	OSD No.	Initial ID Code	Specimen count	Expert ID Code
5679	32	TWL	HOK	2019-07-13	CHA	-42.7	169.8	717	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Stephanocyathus*	*platypus*				1	STP
5679	38	TWL	HAK	2019-07-16	CHA	-41.8	170.3	641	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Caryophyllia*	*ambrosia*				1	CAY
5679	38	TWL	HAK	2019-07-16	CHA	-41.8	170.3	641	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Caryophyllia*	*ambrosia*				0	CAY
5706	12	TWL	ORH	2019-07-18	SOE	-42.7	182.6	930	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*				GOC	1	THO
5706	17	TWL	ORH	2019-07-19	SOE	-42.8	183.1	908	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Stephanocyathus*	*platypus*			STP	2	STP
5706	17	TWL	ORH	2019-07-19	SOE	-42.8	183.1	908	Cnidaria	Anthozoa	Antipatharia	Stylopathidae	*Tylopathes*		131607	4380		1	COB
5706	17	TWL	ORH	2019-07-19	SOE	-42.8	183.1	908	Cnidaria	Anthozoa	Antipatharia	Stylopathidae	*Tylopathes*		131607	4380		0	COB
5706	37	TWL	ORH	2019-07-29	SOE	-42.7	179.9	813	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Parantipathes*					1	PTP
5706	37	TWL	ORH	2019-07-29	SOE	-42.7	179.9	813	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Parantipathes*					0	PTP
5706	40	TWL	ORH	2019-07-31	SOE	-42.8	182.9	(null)	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Metafannyella*	*moseleyi*			GOC	1	PRI
5706	40	TWL	ORH	2019-07-31	SOE	-42.8	182.9	(null)	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Metafannyella*	*moseleyi*			GOC	0	PRI
5706	50	TWL	ORH	2019-08-06	AKE	-37.1	177.2	714	Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Muriceides*					0	PLE
5706	50	TWL	ORH	2019-08-06	AKE	-37.1	177.2	714	Cnidaria	Anthozoa	Alcyonacea	Isididae						1	ISI
5706	50	TWL	ORH	2019-08-06	AKE	-37.1	177.2	714	Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Muriceides*					1	PLE
5706	54	TWL	CDL	2019-08-07	AKE	-36.1	176.6	860	Cnidaria	Anthozoa	Alcyonacea	Chrysogorgiidae	*Chrysogorgia*				CHR	1	CHR
5706	54	TWL	CDL	2019-08-07	AKE	-36.1	176.6	860	Cnidaria	Anthozoa	Alcyonacea	Chrysogorgiidae	*Chrysogorgia*				CHR	0	CHR
5736	11	TWL	ORH	2019-08-22	AKW	-34.6	168.9	539	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*				ISI	1	BOO

trip_number	station_number	fishing_method	target_species	event_start_date	start_obs_fma	trunc_start_latitude	trunc_start_longitude	start_seabed_depth	Phylum	Class	Order	Family	Genus	Species	NIWA Cat. No.	OSD No.	Initial ID Code	Specimen count	Expert ID Code
5736	11	TWL	ORH	2019-08-22	AKW	-34.6	168.9	539	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum*	*dianthus*				1	DDI
5736	11	TWL	ORH	2019-08-22	AKW	-34.6	168.9	539	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*					1	BOO
5736	11	TWL	ORH	2019-08-22	AKW	-34.6	168.9	539	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Errina*					1	ERR
5736	11	TWL	ORH	2019-08-22	AKW	-34.6	168.9	539	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Dendrobathypathes*					1	DEN
5736	11	TWL	ORH	2019-08-22	AKW	-34.6	168.9	539	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*				THO	1	THO
5736	11	TWL	ORH	2019-08-22	AKW	-34.6	168.9	539	Cnidaria	Anthozoa	Alcyonacea	Primnoidae						1	PRI
5736	11	TWL	ORH	2019-08-22	AKW	-34.6	168.9	539	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Parastenella*					1	PRI
5736	13	TWL	ORH	2019-08-23	AKW	-34.6	168.9	530	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Acanella*				BOO	1	ACN
5736	13	TWL	ORH	2019-08-23	AKW	-34.6	168.9	530	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Acanella*				BOO	1	ACN
5736	13	TWL	ORH	2019-08-23	AKW	-34.6	168.9	530	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Acanella*				BOO	1	ACN
5736	13	TWL	ORH	2019-08-23	AKW	-34.6	168.9	530	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Dendropathes*				DEN	1	DDP
5736	13	TWL	ORH	2019-08-23	AKW	-34.6	168.9	530	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Dendropathes*				DEN	0	DDP
5746	2	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Alcyonacea	Coralliidae	*Corallium*					1	CLL
5746	2	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*					1	BOO
5764	33	TWL	SSO	2019-09-20	SEC	-44.8	173.1	984	Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	*Paragorgia*					1	PAB
5764	33	TWL	SSO	2019-09-20	SEC	-44.8	173.1	984	Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	*Paragorgia*					1	PAB
5764	33	TWL	SSO	2019-09-20	SEC	-44.8	173.1	984	Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	*Paragorgia*					0	PAB
5782	9	TWL	TAR	2019-09-22	AKE	-34.6	173.3	134	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*					1	THO
5782	9	TWL	TAR	2019-09-22	AKE	-34.6	173.3	134	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*					1	THO
5782	9	TWL	TAR	2019-09-22	AKE	-34.6	173.3	134	Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Astrogorgia*					1	PLE
5782	19	TWL	TRE	2019-09-27	AKE	-34.8	173.5	90	Cnidaria	Anthozoa	Alcyonacea	Primnoidae						1	PRI
5782	21	TWL	TAR	2019-09-28	AKE	-34.6	173.4	200	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*					1	COF
5790	13	TWL	ORH	2019-10-05	CHA	-40	167.9	923	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*					1	THO

trip_number	station_number	fishing_method	target_species	event_start_date	start_obs_fma	trunc_start_latitude	trunc_start_longitude	start_seabed_depth	Phylum	Class	Order	Family	Genus	Species	NIWA Cat. No.	OSD No.	Initial ID Code	Specimen count	Expert ID Code
5790	13	TWL	ORH	2019-10-05	CHA	-40	167.9	923	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Parantipathes*					1	PTP
5790	13	TWL	ORH	2019-10-05	CHA	-40	167.9	923	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Parantipathes*					0	PTP
5790	13	TWL	ORH	2019-10-05	CHA	-40	167.9	923	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*					0	THO
5790	22	TWL	ORH	2019-10-07	CHA	-40	167.9	904	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Callogorgia*				CLG	0	CLG
5790	22	TWL	ORH	2019-10-07	CHA	-40	167.9	904	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Callogorgia*				CLG	1	CLG
5790	27	TWL	ORH	2019-10-08	CHA	-40	167.9	(null)	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*hilgendorfi*			THO	1	THO
5790	27	TWL	ORH	2019-10-08	CHA	-40	167.9	(null)	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*hilgendorfi*			THO	0	THO
5790	32	TWL	ORH	2019-10-09	CHA	-40	167.9	885	Cnidaria	Anthozoa	Alcyonacea	Acanthogorgiidae	*Anthogorgia*				GOC	1	GOC
5790	38	TWL	ORH	2019-10-10	CHA	-40	167.9	892	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Parantipathes*					1	THO
5798	10	TWL	TAR	2019-10-11	AKE	-36	176.1	234	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Goniocorella*	*dumosa*			SIA	5	GDU
5790	42	TWL	ORH	2019-10-12	CHA	-41.5	170	948	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Lepidisis*				LLE	1	LLE
5790	42	TWL	ORH	2019-10-12	CHA	-41.5	170	948	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Lepidisis*				LLE	0	LLE
5798	25	TWL	TAR	2019-10-18	AKE	-36	176.1	205	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Goniocorella*	*dumosa*			SVA	1	GDU
5798	31	TWL	HOK	2019-10-20	AKE	-36	176.2	385	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae					CBR	1	CBR
5798	31	TWL	HOK	2019-10-20	AKE	-36	176.2	385	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae					CBR	0	CBR
5790	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Lepidisis*					1	LLE
5790	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Lepidisis*					0	LLE
5798	46	TWL	TAR	2019-10-26	AKE	-36.2	176	251	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Saropathes*				ATP	1	COB
5798	48	TWL	HOK	2019-10-27	AKE	-36.4	176.1	394	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*				COF	1	COF
5797	36	TWL	LIN	2019-10-27	SUB	-50.2	168.2	541	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Errina*				COU	1	ERR
5797	36	TWL	LIN	2019-10-27	SUB	-50.2	168.2	541	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Errina*				COU	0	ERR
5827	18	TWL	BYX	2019-11-05	SOE	-43	182.5	380	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*					1	BOO
5827	18	TWL	BYX	2019-11-05	SOE	-43	182.5	380	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*					0	BOO

trip_number	station_number	fishing_method	target_species	event_start_date	start_obs_fma	trunc_start_latitude	trunc_start_longitude	start_seabed_depth	Phylum	Class	Order	Family	Genus	Species	NIWA Cat. No.	OSD No.	Initial ID Code	Specimen count	Expert ID Code
5799	54	TWL	ORH	2019-11-06	AKW	-34.7	171.6	1059	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Isidella*		131903	4761	BOO	1	ISI
5799	55	TWL	ORH	2019-11-06	AKW	-34.7	171.6	1068	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Isidella*		131896	4760	ISI	2	ISI
5827	27	TWL	BYX	2019-11-08	SOE	-43	182.1	348	Cnidaria	Anthozoa	Alcyonacea	Acanthogorgiidae	*Anthogorgia*					1	GOC
5827	27	TWL	BYX	2019-11-08	SOE	-43	182.1	348	Cnidaria	Anthozoa	Alcyonacea	Acanthogorgiidae	*Anthogorgia*					0	GOC
5810	12	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	*Antipathella*					1	AHL
5810	12	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	*Antipathella*					0	AHL
5834	5	BLL	SNA	2019-11-13	AKE	-34.8	173.4	(null)	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*				1	ERO
5841	9	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Placogorgia*					1	PLE
5841	9	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Placogorgia*					0	PLE
5841	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Placogorgia*					1	PLE
5828	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Goniocorella*	*dumosa*				1	GDU
5828	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Goniocorella*	*dumosa*				1	GDU
5844	17	TWL	BOE	2019-11-27	SUB	-48.9	175.6	969										1	ROK
5844	17	TWL	BOE	2019-11-27	SUB	-48.9	175.6	969										1	ROK
5844	17	TWL	BOE	2019-11-27	SUB	-48.9	175.6	969	Cnidaria	Anthozoa	Alcyonacea	Isididae						1	ISI
5844	17	TWL	BOE	2019-11-27	SUB	-48.9	175.6	969	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum*	*dianthus*				1	DDI
5844	18	TWL	BOE	2019-11-28	SUB	-49	175.6	873										1	ROK
5844	21	TWL	SSO	2019-11-29	SUB	-47.5	177.8	873	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	131936	4814	SVA	1	SVA
5844	21	TWL	SSO	2019-11-29	SUB	-47.5	177.8	873	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	131937	4813	SVA	1	SVA
5844	22	TWL	SSO	2019-11-29	SUB	-47.2	178.7	920	Cnidaria	Anthozoa	Alcyonacea	Primnoidae						1	PRI
5844	22	TWL	SSO	2019-11-29	SUB	-47.2	178.7	920	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Primnoa*					1	PMN
5844	22	TWL	SSO	2019-11-29	SUB	-47.2	178.7	920	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Tokoprymno*					1	PRI
5844	22	TWL	SSO	2019-11-29	SUB	-47.2	178.7	920	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum*	*dianthus*				1	SIA

trip_number	station_number	fishing_method	target_species	event_start_date	start_obs_fma	trunc_start_latitude	trunc_start_longitude	start_seabed_depth	Phylum	Class	Order	Family	Genus	Species	NIWA Cat. No.	OSD No.	Initial ID Code	Specimen count	Expert ID Code
5844	22	TWL	SSO	2019-11-29	SUB	-47.2	178.7	920	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Caryophyllia*					1	CAY
5844	22	TWL	SSO	2019-11-29	SUB	-47.2	178.7	920	Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	*Paragorgia*					1	PAB
5844	22	TWL	SSO	2019-11-29	SUB	-47.2	178.7	920	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum*	*dianthus*				1	DDI
5844	22	TWL	SSO	2019-11-29	SUB	-47.2	178.7	920	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum*	*dianthus*				0	DDI
5812	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae						1	COR
5812	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae						0	COR
5812	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae						0	COR
5812	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae						0	COR
5812	39	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	*Antipathella*		131890	4763	COB	0	AHL
5812	39	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	*Antipathella*		131890	4763	COB	1	AHL
5812	39	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Corallimorpharia	Corallimorphidae	*Corynactis*		131888	4765		1	ANT
5812	39	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Echinodermata	Ophiuroidea	Euryalida	Euryalidae	*Astrobrachion*	*constrictum*	131889	4764		1	ABC
5812	39	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Caryophyllia*					1	CAY
5844	23	TWL	SSO	2019-11-30	SOE	-44.1	178.2	975	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	131939	4811	SVA	1	SVA
5844	23	TWL	SSO	2019-11-30	SOE	-44.1	178.2	975	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	131939	4811	SVA	0	SVA
5854	2	TWL	ORH	2019-12-02	AKW	-34.7	171.6	1040	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*					1	BOO
5849	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Errina*					1	ERR
5854	24	TWL	ORH	2019-12-05	AKW	-34.7	171.6	1050	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*		131917	4787	UNI	1	BOO
5849	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Alcyonacea							1	GOC
5849	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Alcyonacea							1	GOC
5844	32	TWL	ORH	2019-12-03	SOE	-42.7	182.2	1156	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Calyptrophora*		131940	4810	COB	1	CTP
5844	35	TWL	ORH	2019-12-04	SOE	-42.7	182.5	1178	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Parantipathes*		131933	4807	DEN	1	PTP
5849	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Enallopsammia*	*rostrata*				1	ERO

trip_number	station_number	fishing_method	target_species	event_start_date	start_obs_fma	trunc_start_latitude	trunc_start_longitude	start_seabed_depth	Phylum	Class	Order	Family	Genus	Species	NIWA Cat. No.	OSD No.	Initial ID Code	Specimen count	Expert ID Code
5844	37	TWL	ORH	2019-12-04	SOE	-42.7	182.6	1182	Cnidaria	Anthozoa	Alcyonacea	Acanthogorgiidae	*Acanthogorgia*		131932	4808	GOC	1	GOC
5844	37	TWL	ORH	2019-12-04	SOE	-42.7	182.6	1182	Cnidaria	Anthozoa	Alcyonacea	Acanthogorgiidae	*Acanthogorgia*		131932	4808	GOC	0	GOC
5854	22	TWL	ORH	2019-12-05	AKW	-34.7	171.6	1052	Cnidaria	Anthozoa	Alcyonacea	Chrysogorgiidae	*Chrysogorgia*					1	CHR
5849	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Swiftia*					1	PLE
5849	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*Placogorgia*					1	PLE
5854	31	TWL	ORH	2019-12-09	CEE	-39.9	177.9	1168	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*	131918	4790	COU	1	SVA
5854	31	TWL	ORH	2019-12-09	CEE	-39.9	177.9	1168	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Bathypathes*	*patula*	131923	4797	COU	1	BTP
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*		131941	4809	CBR	1	BOO
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	0	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	0	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	0	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA

trip_number	station_number	fishing_method	target_species	event_start_date	start_obs_fma	trunc_start_latitude	trunc_start_longitude	start_seabed_depth	Phylum	Class	Order	Family	Genus	Species	NIWA Cat. No.	OSD No.	Initial ID Code	Specimen count	Expert ID Code
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	0	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	0	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	3	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Desmophyllum*	*dianthus*			CBR	1	DDI
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Alcyonacea	Isididae					CBR	1	ISI
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	0	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	0	SVA
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*	*magnifica*	131941	4809	BOO	1	BOO
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*	*magnifica*	131941	4809	BOO	0	BOO
5851	89	TWL	SSO	2019-12-24	SOI	-50.1	165.8	780	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*	*magnifica*	131941	4809	CBR	0	BOO
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*				1	SVA
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*					1	BOO
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Alcyonacea	Isididae						1	ISI
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*				BOO	1	BOO
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*		131944	4815	BOO	0	BOO
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*		131944	4815	BOO	1	BOO
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Alcyonacea	Primnoidae					BOO	1	PRI
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Tokoprymno*				CBR	1	PRI

trip_number	station_number	fishing_method	target_species	event_start_date	start_obs_fma	trunc_start_latitude	trunc_start_longitude	start_seabed_depth	Phylum	Class	Order	Family	Genus	Species	NIWA Cat. No.	OSD No.	Initial ID Code	Specimen count	Expert ID Code
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Bryozoa								CBR	1	COZ
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Alcyonacea	Isididae					CBR	1	ISI
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*				CBR	1	BOO
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Alcyonacea	Isididae					CBR	1	ISI
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*				CBR	1	THO
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Alcyonacea	Isididae					CBR	1	ISI
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*				BOO	1	BOO
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Tokoprymno*		147600	4819	THO	1	PRI
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	131946	4819	THO	1	THO
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*	*variabilis*	131946	4819	THO	1	THO
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*				THO	1	THO
5851	92	TWL	ORH	2019-12-24	SOI	-50.1	165.8	1395	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae					CRE	1	COR
5851	93	TWL	ORH	2019-12-24	SOI	-50	165.8	1164	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Solenosmilia*	*variabilis*			CBR	1	SVA
5851	93	TWL	ORH	2019-12-24	SOI	-50	165.8	1164	Cnidaria	Anthozoa	Alcyonacea	Isididae					CBR	1	ISI
5851	93	TWL	ORH	2019-12-24	SOI	-50	165.8	1164	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*				CBR	1	BOO
5844	136	TWL	ORH	2019-12-25	SOE	-42.7	182.5	1210	Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	*Paragorgia*		131934	4806	PAB	1	PAB
5844	170	TWL	ORH	2020-01-01	SOE	-44	185.4	847	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Acanella*					1	ACN
5650	4	BLL	SCH	2019-05-24	CHA	-42.8	170.7	218	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Caryophyllia*					1	CAY

trip_number	station_number	fishing_method	target_species	event_start_date	start_obs_fma	trunc_start_latitude	trunc_start_longitude	start_seabed_depth	Phylum	Class	Order	Family	Genus	Species	NIWA Cat. No.	OSD No.	Initial ID Code	Specimen count	Expert ID Code
5650	11	BLL	LIN	2019-06-23	CHA	-42.5	170.5	339	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*					1	BOO
5650	11	BLL	LIN	2019-06-23	CHA	-42.5	170.5	339	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*					0	BOO
5650	19	BLL	LIN	2019-06-30	CHA	-42.5	170.4	431	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Goniocorella*	*dumosa*				1	GDU
5691	10	TWL	SQU	2019-07-03	SOI	-50.6	167.1	175	Bryozoa	Gymnolaemata	Cheilostomatida	Celleporidae	*Galeopsis*		131892	4744	COU	5	COZ
5691	10	TWL	SQU	2019-07-03	SOI	-50.6	167.1	175	Bryozoa	Gymnolaemata	Cheilostomatida	Celleporidae	*Celleporina*	*grandis*	131892	4744	COU	5	COZ
5691	10	TWL	SQU	2019-07-03	SOI	-50.6	167.1	175	Bryozoa	Gymnolaemata	Cheilostomatida	Celleporidae	*Celleporina*	*sinuata*	131892	4744	COU	10	COZ
5691	10	TWL	SQU	2019-07-03	SOI	-50.6	167.1	175	Bryozoa	Stenolaemata	Cyclostomatida	Diaperoeciidae	*Diaperoecia*	*purpurascens*	131892	4744	COU	10	COZ
5691	10	TWL	SQU	2019-07-03	SOI	-50.6	167.1	175	Bryozoa	Gymnolaemata	Cheilostomatida	Celleporidae	*Galeopsis*		131892	4744	COU	0	COZ
5691	10	TWL	SQU	2019-07-03	SOI	-50.6	167.1	175	Bryozoa	Gymnolaemata	Cheilostomatida	Celleporidae	*Celleporina*	*grandis*	131892	4744	COU	0	COZ
5691	10	TWL	SQU	2019-07-03	SOI	-50.6	167.1	175	Bryozoa	Gymnolaemata	Cheilostomatida	Celleporidae	*Celleporina*	*sinuata*	131892	4744	COU	0	COZ
5691	10	TWL	SQU	2019-07-03	SOI	-50.6	167.1	175	Bryozoa	Stenolaemata	Cyclostomatida	Diaperoeciidae	*Diaperoecia*	*purpurascens*	131892	4744	COU	0	COZ
5691	10	TWL	SQU	2019-07-03	SOI	-50.6	167.1	175	Bryozoa	Gymnolaemata	Cheilostomatida	Celleporidae	*Galeopsis*		131892	4744	COU	0	COZ
5691	10	TWL	SQU	2019-07-03	SOI	-50.6	167.1	175	Bryozoa	Gymnolaemata	Cheilostomatida	Celleporidae	*Celleporina*	*grandis*	131892	4744	COU	0	COZ
5691	10	TWL	SQU	2019-07-03	SOI	-50.6	167.1	175	Bryozoa	Gymnolaemata	Cheilostomatida	Celleporidae	*Celleporina*	*sinuata*	131892	4744	COU	0	COZ
5691	10	TWL	SQU	2019-07-03	SOI	-50.6	167.1	175	Bryozoa	Stenolaemata	Cyclostomatida	Diaperoeciidae	*Diaperoecia*	*purpurascens*	131892	4744	COU	0	COZ
5691	10	TWL	SQU	2019-07-03	SOI	-50.6	167.1	175	Cnidaria	Hydrozoa	Leptothecata						HDR	1	HDR
5691	10	TWL	SQU	2019-07-03	SOI	-50.6	167.1	175	Chordata	Ascidiacea								1	ASC
5807	10	TWL	ORH	2019-10-20	SOE	-44.1	185.4	1140	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae						1	COR
5807	10	TWL	ORH	2019-10-20	SOE	-44.1	185.4	1140	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae						0	COR
5872	3	TWL	HOK	2019-12-21	SEC	-43.9	174.2	535	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*			COF	16	COF
5856	80	TWL	TRE	2020-01-04	AKW	-35.8	173.4	109	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*				1	COF
5877	11	TWL	SQU	2020-01-17	SOU	-48.7	166.5	197	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Eguchipsammia?*				SVA	1	CBR
5877	11	TWL	SQU	2020-01-17	SOU	-48.7	166.5	197	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Eguchipsammia?*				SVA	0	CBR

trip_number	station_number	fishing_method	target_species	event_start_date	start_obs_fma	trunc_start_latitude	trunc_start_longitude	start_seabed_depth	Phylum	Class	Order	Family	Genus	Species	NIWA Cat. No.	OSD No.	Initial ID Code	Specimen count	Expert ID Code
5890	4	SN	SCH	2020-01-31	SOU	-44.5	167.7	(null)	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Errina*	*novaezelandiae*				1	ERR
5890	5	SN	SCH	2020-02-01	SOU	-44.6	167.6	(null)	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	*Errina*	*novaezelandiae*				1	ERR
5890	6	SN	SCH	2020-02-01	SOU	-44.6	167.5	(null)	Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*cf. Murceides*					1	PLE
5913	4	BT	TRE	2020-02-13	AKW	-35.4	173.2	(null)	Cnidaria	Anthozoa	Antipatharia	Schizopathidae						1	COB
5913	17	BT	TRE	2020-02-16	AKW	-34.6	172.5	(null)	Cnidaria	Anthozoa	Alcyonacea	Acanthogorgiidae	*Acanthogorgia*					1	GOC
5913	17	BT	TRE	2020-02-16	AKW	-34.6	172.5	(null)	Cnidaria	Anthozoa	Alcyonacea	Isididae						1	ISI
5913	17	BT	TRE	2020-02-16	AKW	-34.6	172.5	(null)	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	*Antipathella*					1	AHL
5913	17	BT	TRE	2020-02-16	AKW	-34.6	172.5	(null)	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	*Antipathella*					0	AHL
5913	17	BT	TRE	2020-02-16	AKW	-34.6	172.5	(null)	Cnidaria	Anthozoa	Antipatharia							1	COB
5913	17	BT	TRE	2020-02-16	AKW	-34.6	172.5	(null)	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	*Antipathella*					1	AHL
5913	17	BT	TRE	2020-02-16	AKW	-34.6	172.5		Ochrophyta	Phaeophyceae	Sporochnales	Sporochnaceae	*Perithalia*	*capillaris*				1	PHA
5913	17	BT	TRE	2020-02-16	AKW	-34.6	172.5		Ochrophyta	Phaeophyceae	Sporochnales	Sporochnaceae	*Perithalia*	*capillaris*				0	PHA
5913	17	BT	TRE	2020-02-16	AKW	-34.6	172.5	(null)	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Stephanocyathus*	*platypus*				1	STP
5935	33	BT	SNA	2020-03-21	AKE	-36.3	176	(null)	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Cladopsammia*					1	CBR
5935	33	BT	SNA	2020-03-21	AKE	-36.3	176	(null)	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	*Cladopsammia*					0	CBR
5939	4	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Alcyonacea	Isididae	*Keratoisis*				ISI	1	BOO
5939	11	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Alcyonacea	Plexauridae	*cf. Villogorgia*				GOC	2	PLE
5939	9	(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Antipatharia	Leiopathidae	*Leiopathes*				LEI	1	LEI
5918	95	TWL	SQU	2020-04-21	SEC	-46	170.8	130	Bryozoa								UNI/COU	1	COZ
5918	95	TWL	SQU	2020-04-21	SEC	-46	170.8	130	Cnidaria	Hydrozoa	Leptothecata						UNI/COU	1	HDR

trip_number	station_number	fishing_method	target_species	event_start_date	start_obs_fma	trunc_start_latitude	trunc_start_longitude	start_seabed_depth	Phylum	Class	Order	Family	Genus	Species	NIWA Cat. No.	OSD No.	Initial ID Code	Specimen count	Expert ID Code
5964	58	TWL	HOK	2020-05-18	SEC	-44	175.5	538	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*				1	COF
5940	112	TWL	SQU	2020-05-26	SEC	-44.3	175.9	208	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	*Thouarella*					1	THO
5940	112	TWL	SQU	2020-05-26	SEC	-44.3	175.9	208	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	*Goniocorella*	*dumosa*				1	GDU
5941	118	TWL	SQU	2020-05-30	SEC	-44.6	172.7	331	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*			COF	29	COF
5941	118	TWL	SQU	2020-05-30	SEC	-44.6	172.7	331	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*			COF	0	COF
5941	118	TWL	SQU	2020-05-30	SEC	-44.6	172.7	331	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*			COF	0	COF
5941	118	TWL	SQU	2020-05-30	SEC	-44.6	172.7	331	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*			COF	0	COF
5941	118	TWL	SQU	2020-05-30	SEC	-44.6	172.7	331	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*			COF	0	COF
5941	118	TWL	SQU	2020-05-30	SEC	-44.6	172.7	331	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*			COF	0	COF
5941	118	TWL	SQU	2020-05-30	SEC	-44.6	172.7	331	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*			COF	0	COF
5974	35	BT	TRE	2020-06-02	AKW	-34.2	172.8	(null)	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Lillipathes*	*lilliei*				1	LIL
5974	35	BT	TRE	2020-06-02	AKW	-34.2	172.8	(null)	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Lillipathes*	*lilliei*				0	LIL
5974	35	BT	TRE	2020-06-02	AKW	-34.2	172.8	(null)	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Parantipathes*	*cf. helicostricha*				1	PTP
5974	35	BT	TRE	2020-06-02	AKW	-34.2	172.8	(null)	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Parantipathes*	*cf. helicostricha*				0	PTP
5974	35	BT	TRE	2020-06-02	AKW	-34.2	172.8	(null)	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Parantipathes*	*cf. helicostricha*				0	PTP
5974	35	BT	TRE	2020-06-02	AKW	-34.2	172.8	(null)	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Parantipathes*	*cf. helicostricha*				0	PTP
5974	35	BT	TRE	2020-06-02	AKW	-34.2	172.8	(null)	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Parantipathes*	*cf. helicostricha*				0	PTP
5974	38	BT	TRE	2020-06-06	AKE	-34.6	173	(null)	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Lillipathes*	*lilliei*				1	LIL
5974	38	BT	TRE	2020-06-06	AKE	-34.6	173	(null)	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Lillipathes*	*lilliei*				0	LIL

b) Spreadsheet summary of specimens identified/re-identified from images received in April 2017 and October 2019

Images received	trip_number	station_number	fishing_method	target_species	event_start_date	start_obs_fma	trunc_start_latitude	trunc_start_longitude	start_seabed_depth	Phylum	Class	Order	Family	Genus	Species	NIWA Cat. No.	OSD No.	Initial OBS ID	Specimen count	Expert ID
Apr-17	4465	16	TWL	ORH	2015-07-27	AKW	-36	173	946	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Dendropathes*					1	DDP
Apr-17	4465	16	TWL	ORH	2015-07-27	AKW	-36	173	946	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Dendropathes*					0	DDP
Apr-17	4465	16	TWL	ORH	2015-07-27	AKW	-36	173	946	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Dendropathes*					0	DDP
Apr-17	4465	16	TWL	ORH	2015-07-27	AKW	-36	173	946	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Dendropathes*					0	DDP
Apr-17	4465	28	TWL	BYX	2015-08-10	AKW	-34.6	168.9	621	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Dendrobathypathes*					1	DEN
Apr-17	4465	28	TWL	BYX	2015-08-10	AKW	-34.6	168.9	621	Cnidaria	Anthozoa	Antipatharia	Stylopathidae	*Triadopathes*					1	TDP
Apr-17	4465	28	TWL	BYX	2015-08-10	AKW	-34.6	168.9	621	Cnidaria	Anthozoa	Antipatharia	Stylopathidae	*Triadopathes*					0	TDP
Apr-17	4465	33	TWL	BYX	2015-08-11	AKW	-34.6	168.9	566	Cnidaria	Anthozoa	Antipatharia	Stylopathidae	*Tylopathes*		95177	3194		1	SLP
Apr-17	4465	33	TWL	BYX	2015-08-11	AKW	-34.6	168.9	566	Cnidaria	Anthozoa	Antipatharia	Stylopathidae	*Tylopathes*		95177	3194		0	SLP
Apr-17	4589		(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Bathypathes*					1	BTP
Apr-17	4589		(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Dendrobathypathes*					1	DEN
Apr-17	4589		(null)	(null)	(null)	(null)	(null)	(null)	(null)	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Dendropathes*					2	DDP
Apr-17	4676	10	TWL	ORH	2016-04-19	CHA	-39.8	168.2	930	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	*Dendropathes*				COB	1	DDP
Oct-19	5613	101	TWL	HOK	2019-05-02	SEC	-43.4	174.3	575	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*	131886	4746	COF	1	COF
Oct-19	5613	101	TWL	HOK	2019-05-02	SEC	-43.4	174.3	575	Cnidaria	Anthozoa	Scleractinia	Flabellidae	*Flabellum*	*knoxi*	131886	4746	COF	0	COF
Oct-19	5615	13	TWL	SQU	2019-04-07	SEC	-46.2	170.6	154	Bryozoa						131859	4375	CBB	1	COZ