

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

1 July 2020 - 30 June 2021

Final Annual Report

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*At sea digital image of large fragments of at least one colony of the bubblegum coral *Paragorgia sp.* caught by bottom trawl targeting orange roughy on the Chatham Rise (TRIP5971). Note the seabird by-catch also in the fish bin. [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, an ongoing research project was initiated in 2016, 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 2020 to 30 June 2021. A total of 43 physical specimens in 32 samples were collected by Observers and returned for identification during the reporting period. Sub-samples from each live specimen were taken for future genetic studies (n=29). Additionally, there were three historical physical samples collected by Observers with revised higher-level identifications made during the reporting period. A total of 19 research trawl-collected specimens in 15 samples are also reported here.

There were 251 specimens identified from digital images of catch reported as coral during the reporting period; 213 were protected coral taxa, and while Observers provided a label showing trip and tow number information for only 18 of the 257 processed images, all were able to be georeferenced. The remaining images were of non-protected corals. Corrected identification (where the Observer identification is revised by a coral expert), for all coral specimens and images have been amended in the COD database. Original and amended identification fields are held in COD, and all raw data extracts are provided in the Appendices and as separate excel files.

The data summaries of protected coral by-catch occurring in New Zealand region fisheries 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 SOU Southland (FMA5) and SOE South East (FMA4) regions. Most were taken by bottom trawl operations targeting the deep-sea species orange roughy, and set net operations targeting school shark. Similarly, most protected corals identified from physical specimens came from SOE South-East (FMA4) bottom trawl operations targeting orange roughy.

While no formal analyses of accuracy have been carried out during this reporting period, between Observer and NIWA expert identifications, brief summaries of accuracy are provided. Agreement for some verified species identification codes are good, often down to family level, and for some groups such as stony cup corals and bubblegum corals, accurate to genus or species level. Other taxa remain problematic.

We continue to provide information to brief Observers and give input into coral guide resources including the updated and revised Deepsea Coral Guide, to help improve overall accuracy of protected coral species identification at-sea. Through this programme, we have facilitated the creation of 29 new protected coral species codes, and one non-coral code. As in previous reports, we stress in our recommendations to Observers the use of labels when images are taken, and consistency in specimen label and benthic form recording processes.

## 1 Background

Deep-sea protected coral samples taken as bycatch in commercial fishery operations are collected by government Observers on commercial fishing vessels. Over time, NIWA has received these coral bycatch 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. Since 2016, this information, along with associated fishing data including fishing method, fishery area, and target fish species, have been presented in reports. All raw data have also been provided to CSP in spreadsheet form.

Data from this research helps to better characterise 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 from habitat suitability modelling (e.g., 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 helps to pave the way forward towards a more comprehensive mitigation framework to be implemented to protect cold-water corals in New Zealand waters.

For this project NIWA has, along with carrying out the identification of specimens, also provided:

- the identification and georeferenced labelling of images and the digital storage thereof, and
- the sub-sampling of protected coral tissue material for genetic studies (see Bilewitch & Tracey 2020a and 2020b; current DOC project *Octocoral bycatch diversity on the Chatham Rise*; and CSP 2022/23 research proposal *Documenting cryptic coral diversity in fisheries bycatch* submitted by NIWA).

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), (for the current year and historical), 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 is as follows: 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 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.

Here we report on all corals identified by specimens and images bycaught during the period 1 July 2020 – 30 June 2021.

## 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 deep-sea 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 of invertebrates (excluding protected corals) collected by Observers under a Fisheries New Zealand (FNZ) project *Identification of benthic invertebrate samples from research trawls and observer trips*, (Mills et al. 2020; Schnabel et al. 2021), 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 at this stage. 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 very useful 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 in the laboratory), were all carried out under the FNZ project *Data Custodianship Services*. 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 Ministry for Primary Industries (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 and updated species names and counts were entered into *niwainvert*. See Table 3-1 for the list of experts that carried out identifications.

**Table 3-1: Experts, their affiliation and their speciality.**

<b>Expert</b>	<b>Affiliation</b>	<b>Taxon Group</b>
<b>Di Tracey</b>	NIWA	Scleractinia, gorgonian octocorals
<b>Peter Marriott</b>	NIWA	Stylasteridae, Coralliidae
<b>Rob Stewart</b>	NIWA	Antipatharia
<b>Jaret Bilewicz</b>	NIWA	Plexauridae, Acanthogorgiidae, other gorgonian octocoral groups
<b>Diana Macpherson</b>	NIWA	Hydrozoa (excluding Stylasteridae)
<b>Dennis Gordon</b>	NIWA	Bryozoa
<b>Scott Nodder</b>	NIWA	Rocks
<b>Sadie Mills</b>	NIWA	Ophiuroidea
<b>Dr Stephen Cairns</b>	Smithsonian Institution, USA	Primnoidae
<b>Dr Marcelo Kitahara</b>	Universidade Federal de São Paulo, Brazil	Scleractinia
<b>Dennis Opresko</b>	Smithsonian Institution, USA	Antipatharia
<b>Dr Phil Alderslade</b>	Previously CSIRO, Hobart, Australia	Keratoisididae

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

Sample information of expert-identified coral specimens collected by Observers for this reporting period were extracted from Specify database *niwainvert* and provided to the COD database manager for loading and table updates. 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 three-letter MPI codes initially used by Observers to record unidentified corals, are updated with revised codes based on the expert identification. For example, SIA (Scleractinia) to COF (Flabellum cup coral).

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 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, species code, 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.

Identifications of the specimens and their associates, such as another coral attached to the specimen, shown in the images were carried out by coral and non-coral experts (Table 3-1).

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)
- 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 3-2 shows the image rating classification used and outlines the factors taken into consideration when assigning a rating to an image.

**Table 3-2: 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.

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<b>2</b>	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.
<b>3</b>	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.
<b>4</b>	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.
<b>5</b>	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.

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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 (see Figure 4-1).

### 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

#### 4.1.1 Identification of returned protected coral specimens

During the reporting period 1 July 2020 to 30 June 2021, NIWA received and processed 32 Observer-collected protected coral samples containing 43 specimens, and 3 historical (i.e., collected prior to the current reporting year) samples (3 specimens), identified since delivery of the previous progress report (Macpherson et al. 2021b).

A summary of these 35 samples (46 specimens) identified by experts are provided in extracts from the NIWA Invertebrate Collection (NIC) Specify Database *niwainvert* (Appendix A (a–b)). One of the historical samples was a re-identification of a black coral specimen as newly described species *Bathypathes pseudoalternata*, which was examined and illustrated in Molodtsova et al. (2022).

Additionally, 4 research trawl-collected protected coral samples (4 specimens) collected between July 2020 and June 2021, and 11 historical trawl survey samples (15 specimens) are included in this summary (see Appendix A(c)). These trawl survey samples were included for identification due to the low number of returned Observer collected specimens as stated in the contract for this project (Attachment 1 – NIWA Expanded Methodology, section 1.3: “...priority will always be given to the Observer collected protected corals, then to research trawl samples, then ET samples.”). It is time-efficient for the experts to look at the specimens simultaneously.

While no formal ‘analyses of accuracy’ have been carried out between the Observer and NIWA expert identifications, such as those presented in Parker et al. (2009), a summary of the accuracy of Observer ID is presented and will be useful for on-going Observer training exercises. We note that the sample sizes we are commenting on are small. For the current reporting year, Observers correctly identified 20 of the 32 samples, with one correctly identified to genus or species level (Bubblegum coral *Paragorgia arborea* and *P. spp.*, PAB), three to family or family group level (stony cup corals - CUP, and Stylasteridae - COR), nine to order level (Antipatharia - COB, Scleractinia - SIA) and seven to phylum level (unidentified coral code - COU). This indicates a 60% accuracy of Observer code use overall for the physical samples, regardless of the taxonomic level of the ID (see colour coding and final column of Appendix A(a)).

Eleven of the samples were incorrectly identified by Observers, however the identifications were within the correct coral class (one sample), order (six samples) or family level (four samples). One of the codes used was UNI, i.e., the Observer could not identify the sample. Observers correctly identified specimens to at least order level approximately half of the time (15 samples with correct ID, or incorrect but at least acceptable to order level = 46%); to family level 22% of the time (7 samples with correct ID correct, or incorrect but at least acceptable to family level); and or to species level 3% of the time (1 sample with ID correct to species level) (Appendix A(a)).

#### 4.1.2 Summary of physical specimen data loading processes 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 35 rows of Observer-collected physical specimen data (32 current year, 3 historical) provided for uploading into COD:

- 24 rows were able to be matched to the catch record for the specimen and were updated.
  - Note that the Observer ID code sometimes differs between the specimen label and the code entered onto the benthic form. Often an improved higher-level identification code was entered into the benthic form. As an example, the generic black coral code COB was entered on a specimen label but then changed to species code LEI (*Leiopathes secunda*) on the benthic form. These types of inconsistencies create some difficulties when matching codes during the COD database updates and highlight how important it is to have the additional MPI sample number from the benthic form and sample label to assist with the data update process.
- 10 rows were not able to be matched to the catch record for the specimen and so had to be inserted as new records. A non-match could occur when:
  - a sample lot has more than one species in it (which could include non-corals) so has been split to numerous rows, one of which is the original record,
  - a three-letter code written on the specimen label does not match the code written on the benthic form and/or the MPI sample number was incorrect or not provided, hence the sample and COD record cannot be reconciled,
  - an observer has forgotten to record the returned specimen in the catch form,
  - historical samples are more likely not to match and this was the case for all three historical samples included in this year’s identifications. It is noted that sample matching is improving over time.
- 1 row was not able to be entered because no benthic form was received from FNZ for TRIP6330. A request has been made to FNZ at time of writing and the specimen record will be updated (matched and / or inserted) when this is entered to COD.

#### 4.1.3 Data summaries and locality plots for physical sample identifications

Data summaries for the physical specimens identified from Observer collected protected coral samples in the reporting year (1 July 2020–30 June 2021), are provided below. These 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 4-1 that illustrates the geographic spread of physical sample coral by-catch in the region. A high-seas region (ET), sample is included in Figure 4-1.

**Table 4-1: Summary of protected coral samples by Fisheries Management Area (FMA) or from high-seas regions (ET), for Observer collected protected coral samples.** Collected during the current reporting year (1 July 2020-30 June 2021)

FMA	Description	Count of samples
SOE	South-East (FMA4)	18
CEE	Central East (FMA2)	6
AKE	Auckland East (FMA1)	4
CHA	Challenger/Central Plateau (FMA7)	1
SEC	South-East (Coast) (FMA3)	1

FMA	Description	Count of samples
SOU	Southland (FMA5)	1
CET	Challenger Plateau (ET)	1
<b>Total</b>	All areas	32

(b) Historical samples identified in this reporting period but collected prior to July 2020.

FMA	Description	Count of samples
AKE	Auckland East (FMA1)	1
SOU	Southland (FMA5)	1
SOI	Southern Offshore Islands - Auckland & Campbell Is. (FMA 6A)	1
<b>Total</b>	All areas	3

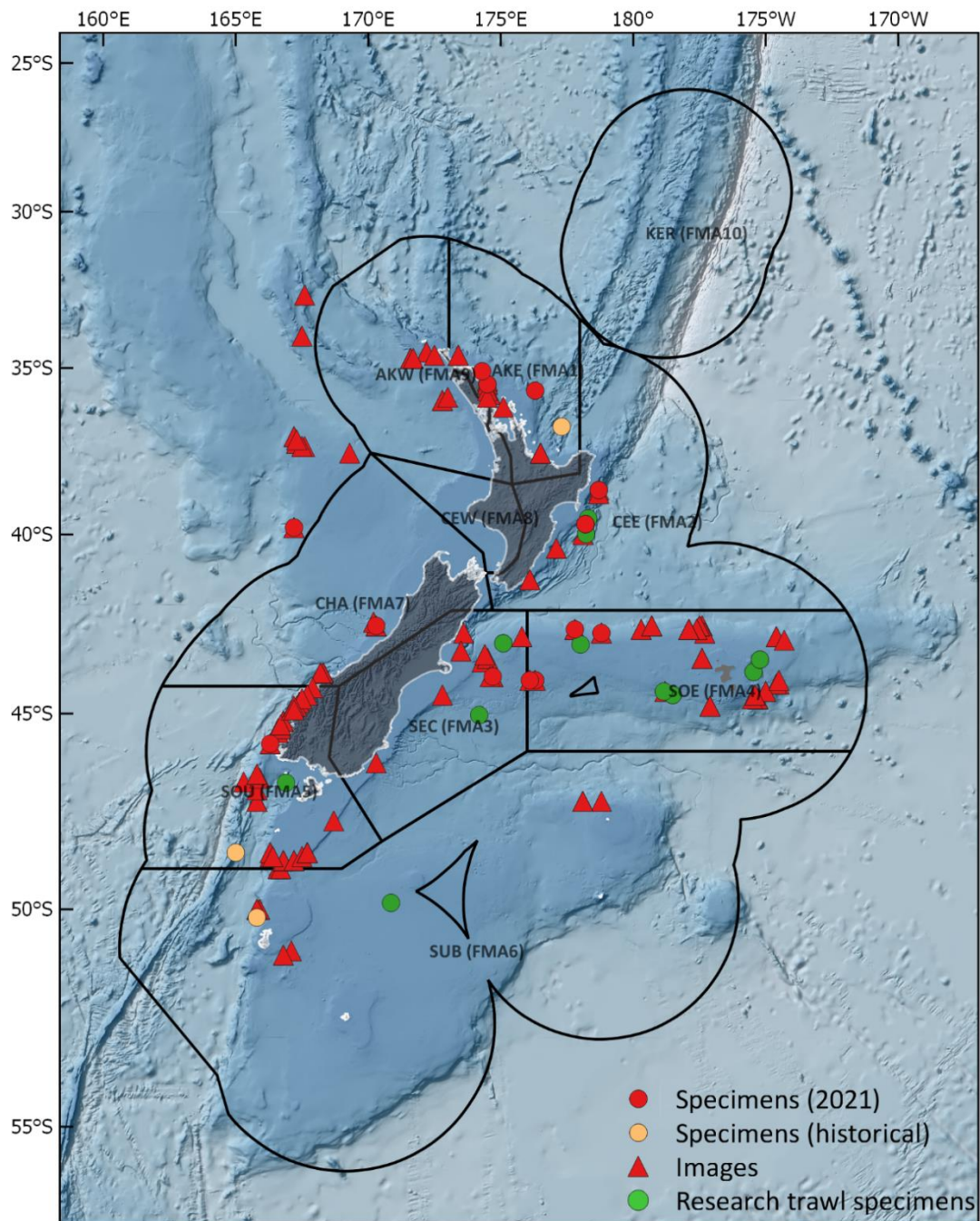
**Table 4-2: Count of tows and specimens by fishing method and target fishery for physical specimens.** BLL = Bottom Longlining; BT = Bottom Trawl; MW = Midwater Trawl; PRB = Precision Seafood Harvesting Bottom Trawl. Samples collected in the current reporting year (1 July 2020–30 June 2021).

Target Fishery (common name)	FNZ Code	Fishing method	Count of tows	Count of specimens
Orange roughy	ORH	BT	16	21
		MW	1	1
Hoki	HOK	BT	2	6
		PRB	1	2
Alfonsino & long-finned beryx	BYX	BT	4	4
Snapper	SNA	BLL	3	3
Ling	LIN	BLL	2	4
Arrow squid	SQU	BT	1	1
Smooth oreo	SSO	BT	1	1
All	–	All	32	43

(b) Historical samples identified in this reporting period but collected prior to July 2020

Target Fishery (common name)	FNZ Code	Fishing method	Count of tows	Count of specimens
Orange roughy	ORH	BT	1	1
Oreos	OEO	BT	1	1
Smooth oreo	SSO	BT	1	1
<b>Total</b>			3	3





**Figure 4-1: Location of identified protected coral samples (65 physical specimens; 251 digital image specimens) within Fisheries Management Areas (FMAs).** Physical specimens (circles), and images data (triangles). 2021 = current reporting year 1 July 2020–30 June 2021.

#### 4.1.4 Data processing and identification of specimens from digital images

During the reporting period 1 July 2020 to 30 June 2021, NIWA received 356 digital images and 257 of these were processed. The remaining 99 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. Note, however, that some images taken outside of NZ’s EEZ were mistakenly processed since the image was identified by an expert before it was georeferenced.

In total, 251 specimens were identified from the 257 images that were processed (the numbers differ as sometimes there are multiple images of the same specimen). Of the 251 specimens, 213 were protected coral taxa, and all of them were able to be georeferenced. The remaining 38 specimens were determined to be non-protected taxa: bryozoans, algae, sponges, rocks, hydroids, soft corals, stalked crinoids, zoanthids, and snake stars. Many of these taxa were associated with large protected *Antipathella* spp. black corals (Appendix C).

Observers provided a label showing trip and tow number information for only 18 of the 257 processed images. Tow numbers for the remaining 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. This method applied to 33 specimens in 27 sample lots.

The highest number of digital images of protected coral species was of the hydrocoral *Errina novaezelandiae* (28 specimens), followed by octocoral species belonging to family Plexauridae (16 specimens), black coral *Antipathella fiordensis* (13 specimens), and bubblegum coral *Paragorgia* spp. (11 specimens). A range of genera and species from octocoral family Primnoidae (sea fans, sea whips) were well represented in the analysed images. A diverse range of Antipatharia (black corals) and Scleractinia (stony corals) were also present (Table 4-3; Figure 4-2).

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

Phylum	Class	Order	Family	Genus	Species	Specimen count
<b>Annelida</b>	Polychaeta					4
<b>Arthropoda</b>	Maxillopoda	Cirripedia				1
<b>Bryozoa</b>	Gymnolaemata	Cheilostomatida	Catenicellidae			2
	Stenolaemata	Cyclostomatida	Ceriporidae	<i>Tetrocycloecia</i>	<i>neozelanica</i>	1
			Cinctiporidae	<i>Cinctipora</i>	<i>elegans</i>	1
<b>Cnidaria</b>	Anthozoa	Alcyonacea	indet.			4
			Acanthogorgiidae	<i>Acanthogorgia</i>		3
			Clavulariidae			1
			Coralliidae	<i>Hemicorallium</i>		1
			Keratoisididae	indet.		4
				<i>Acanella</i>		4
				<i>Isidella</i>		1
				<i>Keratoisis</i>		9
			Nephtheidae			1
			Paragorgiidae	<i>Paragorgia</i>	sp.	11
				<i>Paragorgia</i>	<i>arborea</i>	1
			Plexauridae spp.			16
			Primnoidae	indet.		6
				<i>Callogorgia</i>		1
				<i>Callozostrom</i>		1
				<i>Calyptrophora</i>		4
				<i>Metafannyella</i>		2
				<i>Primnoa</i>		4



Phylum	Class	Order	Family	Genus	Species	Specimen count
				<i>Thouarella</i>		2
		Antipatharia	indet.			6
			Antipathidae	<i>Antipathes</i>		1
			Cladopathidae	<i>Trissopathes</i>		2
			Leiopathidae	<i>Leiopathes</i>		2
			Myriopathidae	<i>Antipathella</i>	<i>sp.</i>	4
				<i>Antipathella</i>	<i>fiordensis</i>	13
			Schizopathidae	indet.		2
				<i>Bathypathes</i>		5
				<i>cf. Dendropathes</i>		1
				<i>Dendropathes</i>	<i>intermedia</i>	1
				<i>Lillipathes</i>	<i>sp.</i>	1
				<i>Lillipathes</i>	<i>lillei</i>	1
				<i>Parantipathes</i>		4
			Stylopathidae	indet.		1
				<i>Tylopathes</i>		1
		Scleractinia	Caryophylliidae	indet.		1
				<i>Caryophyllia</i>		4
				<i>Desmophyllum</i>	<i>dianthus</i>	7
				<i>Goniocorella</i>	<i>dumosa</i>	8
				<i>Solenosmilia</i>	<i>variabilis</i>	4
				<i>Stephanocyathus</i>	<i>platypus</i>	9
			Dendrophylliidae	<i>Eguchipsammia</i>	<i>japonica</i>	1
				<i>Enallopsammia</i>	<i>rostrata</i>	2

Phylum	Class	Order	Family	Genus	Species	Specimen count
			Flabellidae	indet.		1
				<i>Flabellum</i>	<i>knoxii</i>	10
				<i>Monomyces</i>		1
				<i>Truncatoflabellum</i>	<i>angiosomum</i>	3
			Oculinidae	<i>Madrepora</i>	<i>oculata</i>	9
		Zoantharia				2
	Hydrozoa	indet.				1
		Anthoathecata	Solanderiidae	<i>Solanderia</i>		1
			Stylasteridae	indet.		3
				<i>Conopora</i>	<i>verrucosa</i>	1
				<i>Errina</i>	<i>gracilis</i>	1
				<i>Errina</i>	<i>novaezealandiae</i>	28
		Leptothecata				8
<b>Echinodermata</b>	Crinoidea					1
	Ophiuroidea	Euryalida	Euryalidae	<i>Astrobrachion</i>	<i>constrictum</i>	3
<b>Ochrophyta</b>	Phaeophyceae	Laminariales				1
<b>Porifera</b>						3
<b>Rock</b>						7
<b>Unidentifiable</b>						1
<b>Total</b>						251



**Figure 4-2: A selection of representative specimen images.** a) Hydrocoral *Errina novaezelandiae*; b) stony cup coral *Monomyces*; c) sea fan coral *Metafannyella*; d) sea fan coral *Acanthogorgia*; e) and f) bubblegum coral *Paragorgia*, (note the numerous small bubblegum coral colonies in image e); g) black coral *Bathypathes*; h) black coral *Antipathella fiordensis*.

During this reporting period Observers assigned identification codes for 206 specimens out of the 251 specimen images identified by experts. Observers correctly identified 157 of the specimens to at least Order level (76% accuracy). There were 49 protected coral specimens identified incorrectly by Observers as either a different protected coral species, hydroid (code HDF), soft coral (code SOC), coral unspecified (code COU) or unidentified (code UNI). Codes such as rock (code ROK) and sediment (code SED) were used presumably to indicate what the corals are attached to.

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), ranked by specimen count.**

Area	Description	Total no. of specimens
SOU	Southland (FMA5)	73
SOE	South East (FMA4)	67
SEC	South-East Coast (FMA3)	21
CHA	Challenger (FMA7)	19
CET	Challenger Plateau, beyond the EEZ (FMA) (ET)	17
AKE	Auckland East (FMA1)	13
AKW	Auckland West (FMA9)	12
CEE	Central East (FMA2)	9
SOI	Southern Offshore Islands - Auckland & Campbell Is. (FMA 6A)	9
SUB	Subantarctic (FMA6)	9
WANB	Wanganella Bank (ET)	2
<b>Total</b>		<b>251</b>

**Table 4-5: Count of tows by fishing method and target fishery for imaged specimens.** BLL = Bottom Longlining; BT = Bottom Trawl; MW = Midwater Trawl; PRB = Precision Seafood Harvesting Bottom Trawl; POT = Potting; SN = Set netting

Target Fishery (common name)	FNZ code	Fishing Method	Count of Tows	Total no. of specimens	Remarks
Orange roughy	ORH	BT	25	60	
School shark	SCH	SN	15	30	
Orange roughy	ORH	BT	10	17	ET FMA
Orange roughy	ORH	TWL	9	11	
Snapper	SNA	BLL	7	11	
Arrow squid	SQU	BT	6	7	
Hapuku & bass	HPB	BLL	5	22	
Ling	LIN	BLL	5	8	
Smooth oreo	SSO	BT	3	11	
Hoki	HOK	BT	3	9	
Ling	LIN	POT	3	9	
Cardinalfish	CDL	BT	3	5	

Target Fishery (common name)	FNZ code	Fishing Method	Count of Tows	Total no. of specimens	Remarks
White warehou	WWA	BT	2	9	
Hoki	HOK	TWL	2	4	
Tarakihi	TAR	BT	2	4	
Arrow squid	SQU	MW	2	3	
Black oreo	BOE	TWL	2	3	
Smooth oreo	SSO	TWL	2	2	
Trevally	TRE	BT	2	2	
Scampi	SCI	BT	2	1	
Barracouta	BAR	BT	1	6	
School shark	SCH	BLL	1	6	
Ling	LIN	BT	1	3	
Hake	HAK	BT	1	2	
Black oreo	BOE	BT	1	1	
Hapuku & bass	HPB	BLL	1	1	ET FMA
Hoki	HOK	PRB	1	1	
Orange roughy	ORH	MW	1	1	ET FMA
Silver warehou	SWA	BT	1	1	
Tarakihi	TAR	PRB	1	1	
<b>All</b>			<b>120</b>	<b>251</b>	

The FMAs with the highest number of coral bycatch were those around the SOU Southland (FMA5) and SOE South East (FMA4) regions. Most were taken by bottom trawl operations targeting orange roughy, and set net operations targeting school shark.

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

During this reporting period, tissue sub-samples were taken from 29 specimens from all live Observer collected protected coral samples. Accumulated protected coral tissue sub-samples retained for future genetic studies now number 103, and DOC projects using these samples for molecular studies have been carried out or are underway. Sub-samples of many black coral and octocoral specimens have now been analysed and the results are reported in Bilewitch & Tracey (2020a; 2020b). Currently, the genetic diversity of octocoral species in the family Primnoidae collected by Observers on the Chatham Rise is being investigated under a non-cost recovered CSP biodiversity project, using the sub-samples collected from this objective.

## 4.3 Objective 3: Assist with Observer training resources

Recommendations which have been highlighted in these reports, along with the instructions to Observers when carrying out at-sea protected coral and revised invertebrate data collection, including the methods used for sampling and image labelling (Tracey & Mills 2016; Tracey et al. 2019) were passed onto Observers via the CSP, to assist with on-going Observer training.



A key activity during this reporting period has been to assist with the development and improvement of Observer training resources. The focus has been on the production of a revised and updated Coral Identification Guide for use at-sea by Observers, see Macpherson et al. (2021b) for details of this work. Additionally, initial discussions around the production of a coral identification training video for Observers took place.

New three-letter MPI species codes were created to aid in the production of the guide, to help match COD data records, and to improve the accuracy of our expert identifications. A total of 29 codes were created for protected coral species of black corals, bamboo corals, sea fans and stony corals (Table 4-6). A non-coral code was also added for species of hydroid that is often confused with a coral (*Cryptolaria* sp; CRT). Some existing codes were revised for clarity and to reflect updated taxonomy. See Macpherson et al. (2021b) for further details of this work.

**Table 4-6: A list of new 3-letter species codes.**(see [https://marlin.niwa.co.nz/species\\_codes/with](https://marlin.niwa.co.nz/species_codes/with) corresponding scientific and common name details that are now loaded into NIWA managed FNZ databases (updated from Macpherson et al. 2021b).

Code	Common name	Scientific name	Family scientific name
ACC	Acanthogorgiid coral	<i>Acanthogorgia</i> spp.	Acanthogorgiidae
ACD	Acanthogorgiid coral	Acanthogorgiidae	Acanthogorgiidae
ANA	Acanthogorgiid coral	<i>Anthogorgia</i> spp.	Acanthogorgiidae
ANB	Anthothelid coral	<i>Anthothela</i> spp.	Anthothelidae
AND	Anthothelid coral	Anthothelidae	Anthothelidae
ASD	Plexaurid sea fan	<i>Astrogorgia</i> spp.	Plexauridae
CMB	Ambrosia cup coral	<i>Caryophyllia (Caryophyllia) ambrosia</i>	Caryophylliidae
CLA	Clumping cup coral	<i>Cladopsammia</i> spp.	Dendrophylliidae
CUR		<i>Culicia rubeola</i>	Rhizangiidae
DSY	Bottlebrush coral	<i>Dasystenella</i> spp.	Primnoidae
DDB	Stony branching coral	<i>Dendrophyllia</i> spp.	Dendrophylliidae
EJA	Stony branching coral	<i>Eguchipsammia japonica</i>	Dendrophylliidae
FAP	Apertum cup coral	<i>Flabellum (Ulocyathus) apertum</i>	Flabellidae
ICI	Anthothelid coral	<i>Iciligorgia</i> spp.	Anthothelidae
ISP	Bamboo coral	<i>Isidella</i> spp.	Keratoisididae
JAS	Jasonisis	<i>Jasonisis</i>	Keratoisididae
MEF	Branching sea fan coral	<i>Metafannyella</i> spp.	Primnoidae
MRI	Plexaurid sea fan	<i>Muriceides</i> spp.	Plexauridae
PRF	Plexaurid sea fan	<i>Paracis</i> spp.	Plexauridae
PRG	Plexaurid sea fan	<i>Paramuricea</i> spp.	Plexauridae
PLD	Primnoid sea fan	<i>Parastenella</i> spp.	Primnoidae
PLO	Plexaurid sea fan	<i>Placogorgia</i> spp.	Plexauridae
SRO	Black coral	<i>Saropathes</i> spp.	Schizopathidae
SWI	Plexaurid sea fan	<i>Swiftia</i> spp.	Plexauridae
TOK	Branching bushy coral	<i>Tokoprymno</i> spp.	Primnoidae

Code	Common name	Scientific name	Family scientific name
TYL	Black coral	<i>Tylopathes</i> spp.	Stylopathidae
VCT	Deep-sea purple gorgonian	<i>Victorgorgia</i> spp.	Victorgorgiidae
VIC	Deep-sea purple gorgonian	Victorgorgiidae	Victorgorgiidae
VIL	Plexaurid sea fan	<i>Villogorgia</i> spp.	Plexauridae
CRT	Feathery hydroid	<i>Cryptolaria</i> spp.	Zygophylacidae

No assistance has been required by CSP for in-person Observer training during this reporting period although the intention with any future Observer training workshops is that it will include NIWA staff. The interactive training will follow that of the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) Observer briefing methods used by NIWA staff annually. Training will include using coral samples from the NIC and revised guides to help with coral identification. The focus will be on using general accuracy information summaries to inform the identifications, explaining how to differentiate easily confused taxa, and re-stating sample and image collection methods and labelling.

## 5 Summary and conclusions

Protected corals continue to be taken as by-catch within the region, primarily from bottom trawl fishing methods but also from the bottom long-line and school shark set net fisheries. The identified samples were photographed and or 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 always encouraged to return a specimen or sub-sample of the specimen, whenever they are able to, regardless of how confident they are in their identification. Overall, the accuracy of the Observer identification is good and for some groups can be carried out to family and sometimes genus or species level. While the sample sizes used in the general accuracy summaries are small, it is clear certain taxa continue to be confused.

A total of 65 physical specimens, and 251 specimens from digital images were identified or verified to the finest taxon level possible by experts. Of the 251 digital images, 213 were of protected coral taxa and were able to be georeferenced. There were 38 digital images of non-protected coral taxa.

The number of Observer specimens photographed were high, however physical samples returned for identification from within the EEZ were low for this period (32 physical samples containing 43 actual specimens). An overall low return of samples by Observers was also noted in Schnabel et al. (2021) (FNZ Project BEN202103, previously DAE201804), where the numbers of invertebrates returned for expert identification have reduced.

## 6 Recommendations

For some returned physical specimens and images, the processing and identification ashore and database updates is made difficult if labelling protocols and photography instructions are not

followed. While we appreciate the workload that is placed on Observers at sea, recommendations here-in are made on their at-sea data collection methods.

Digital Images need to be taken with a label that includes trip and station data, and the coral specimen, or a sub-sample of the specimen, the MPI number, and a species code. This information helps experts verify the identification. Over time, standardised easy-to-use pre-printed labels for Observers to include in photographs should improve this process and hence the accuracy of accompanying metadata. Examples of different labelling methods used by Observers are shown by Macpherson et al. (2021a). We note the standardised use of pre-printed labels and photocards has recently progressed within FNZ (see section 2.1, Figures 1 and 2 of Schnabel et al. 2021).

The MPI sample number and the initial Observer three-letter identification code are crucial components in the data matching process used for updating the COD database with the expert ID of the physical specimens. For ease of database updates, we recommend that the initial MPI sample number and three-letter code written on the specimen label corresponds to the sample number and code on the benthic form. If Observers decide to change their identification code at a later date while filling out electronic or paper catch forms, we ask that they also amend the specimen labels to match the benthic forms.



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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/](https://marlin.niwa.co.nz/species_codes/) and FMA codes: [https://marlin.niwa.co.nz/area\\_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). Latitude1 and Longitude1 = start position; Depth1 and Depth2 = start and finish depth in metres).

- (a) Revised identifications of 43 bycatch specimens (in 32 sample lots) returned by observers between 1 July 2020 to 30 June 2021. Green highlighted cells indicate the level of matching where three-letter identification codes were correctly used, yellow highlighted cells indicate the level at which the identification is valid where incorrect identification codes were used.

TRIP	Tow	NIWA Cat. No.	OSD No.	MPI Sample No.	Initial ID code	Expert ID code	Phylum	Class	Order	Family	Genus	Species	Specimen Count	Date Collected	Latitude1	Longitude1	Depth 1	Depth 2	Code match level
6030	43	146424	5221	4	LLE	ISI	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae			1	31/07/2020	-42.6	-179.3	1052	1080	Incorrect ID but ok to family
6030	21	146425	5222	2	CHR	ACN	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Acanella</i>		1	24/07/2020	-42.8	178.8	1075	1092	Incorrect ID but ok to order
6288	85	146545	5394	102	COU	BOO	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Keratoisis</i>		1	03/06/2021	-39.7	178.2	388		correct phylum level ID
6135	129	146461	5277	52	ACN	BOO	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Keratoisis</i>		1	27/11/2020	-44.4	-175.0	880	1300	Incorrect ID but ok to family
6135	151	146463	5279	58	PAB	PAB	Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>	<i>arborea</i>	1	30/11/2020	-44.9	-177.0	1124	1290	correct species level ID
6288	85	146546	5395	102	COU	PLE	Cnidaria	Anthozoa	Alcyonacea	Plexauridae	<i>Discogorgia</i>		1	03/06/2021	-39.7	178.2	388		correct phylum level ID
6333	28	146539	5387	15	COU	CLG	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Callogorgia</i>		1	20/06/2021	-42.7	177.8	683	642	correct phylum level ID
6288	85	146547	5396	102	COU	CLG	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Callogorgia</i>		1	03/06/2021	-39.7	178.2	388		correct phylum level ID
6135	86	146466	5282	36	BTP	COB	Cnidaria	Anthozoa	Antipatharia			indet.	1	21/11/2020	-42.8	-177.9	830	985	Incorrect ID but ok to order
6135	22	146479	5297	4	COB	LEI	Cnidaria	Anthozoa	Antipatharia	Leiopathidae	<i>Leiopathes</i>		1	03/11/2020	-44.5	-175.3	675	908	correct order level ID

TRIP	Tow	NIWA Cat. No.	OSD No.	MPI Sample No.	Initial ID code	Expert ID code	Phylum	Class	Order	Family	Genus	Species	Specimen Count	Date Collected	Latitude1	Longitude1	Depth 1	Depth 2	Code match level
6288	85	146544	5393	102	COU	LEI	Cnidaria	Anthozoa	Antipatharia	Leiopathidae	<i>Leiopathes</i>		1	03/06/2021	-39.7	178.2	388		correct phylum level ID
6135	69	146481	5300		BTP	LEI	Cnidaria	Anthozoa	Antipatharia	Leiopathidae	<i>Leiopathes</i>		1	10/11/2020	-44.5	-175.3	672	910	Incorrect ID but ok to order
6184	5	146472	5289	1	COB	AHL	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>	1	05/01/2021	-35.5	174.5	60	66	correct order level ID
6184	5	146474	5291	1	COB	AHL	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>	1	05/01/2021	-35.5	174.5	60	66	correct order level ID
6135	22	146537	5380	5	COB	BTP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Bathypathes</i>		1	03/11/2020	-44.5	-175.3	675	908	correct order level ID
6135	51	146536	5379	20	LEI	BTP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Bathypathes</i>		1	06/11/2020	-44.5	-175	880	946	Incorrect ID but ok to order
5672	15	131608	4393	26	COB	DDP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Dendropathes</i>	<i>intermedia</i>	1	21/06/2019	-39.8	167.2	985	1016	correct order level ID
6135	101	146468	5285	44	COB	COB	Cnidaria	Anthozoa	Antipatharia	Stylopathidae			1	24/11/2020	-44.2	-174.5	850	1180	correct order level ID
6338	5	146553	5402	1	SIA	TYL	Cnidaria	Anthozoa	Antipatharia	Stylopathidae	<i>Tylopathes</i>		1	17/06/2021	-42.8	-177.3	891	891	Incorrect ID but ok to class
5058	37	106566	3611	15	LEI	TYL	Cnidaria	Anthozoa	Antipatharia	Stylopathidae	<i>Tylopathes</i>		1	16/07/2017	-35.7	176.4	743	1224	Incorrect ID but ok to order
6135	129	146462	5278	50	TPT	TYL	Cnidaria	Anthozoa	Antipatharia	Stylopathidae	<i>Tylopathes</i>		1	27/11/2020	-44.4	-175	880	1300	Incorrect ID but ok to order
6288	70	146549	5398	4	CUP	CAY	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Caryophyllia</i>	<i>lamellifera</i>	3	30/05/2021	-38.7	178.7	939	1077	correct family group level ID (CUP includes three families)
6288	70	146550	5399	4	CUP	DDI	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Desmophyllum</i>	<i>dianthus</i>	4	30/05/2021	-38.7	178.7	939	1077	correct family group level ID (CUP includes three families)
6281	37	146519	5357	6	UNI	DDI	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Desmophyllum</i>	<i>dianthus</i>	5	20/04/2021	-44.1	176.3	397	418	Unidentified code used, no matching ID at any level

TRIP	Tow	NIWA Cat. No.	OSD No.	MPI Sample No.	Initial ID code	Expert ID code	Phylum	Class	Order	Family	Genus	Species	Specimen Count	Date Collected	Latitude1	Longitude1	Depth 1	Depth 2	Code match level
6281	37	146518	5356	6	COU	GDU	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Goniocorella</i>	<i>dumosa</i>	1	20/04/2021	-44.1	176.3	397	418	correct phylum level ID
6135	23	146482	5301	6	SIA	SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia</i>	<i>variabilis</i>	1	03/11/2020	-44.6	-175.2	990	1280	correct order level ID
6159	3	146471	5288	3	SIA	EJA	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	<i>Eguchipsammia</i>	<i>japonica</i>	3	15/12/2020	-42.6	170.3	254	344	correct order level ID
6135	129	146465	5281	49	SIA	ERO	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	<i>Enallopsammia</i>	<i>rostrata</i>	1	27/11/2020	-44.4	-175	880	1300	correct order level ID
6333	55	146540	5388	37	COF	CUP	Cnidaria	Anthozoa	Scleractinia	Flabellidae	<i>Truncatoflabellum</i>	<i>angiostomum</i>	1	29/06/2021	-44.10	174.7	511		Incorrect ID but ok to family
6330	5	146532	5375		COU	OVI	Cnidaria	Anthozoa	Scleractinia	Oculinidae	<i>Oculina</i>	<i>virgosa</i>	1	19/06/2021	-35.1	174.3	68	68	correct phylum level ID
6057	42	132000	5231	4	COR	COO	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Conopora</i>	<i>verrucosa</i>	1	24/08/2020	-45.8	166.3	322	366	correct family level ID
6267	48	146522	5362	71	LPT	ERR	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Errina</i>	<i>gracilis</i>	1	22/04/2021	-44.1	176.1	260	174	Incorrect ID but ok to family

(b) Revised identifications of three historical bycatch specimens returned by observers, identified between 9 April 2021 to 23 March 2022.

TRIP	Tow	NIWA Cat. No.	OSD No.	MPI Sample No.	Initial ID Code	Expert ID	Phylum	Class	Order	Family	Genus	Species	Specimen Count	Date Collected	Latitude1	Longitude1	Depth 1	Depth 2	
1124	66	24195					BTP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Bathypathes</i>	<i>pseudoalternata</i>	1	15/08/1998	-37.1	177.3	690	800
1171	123	158167					SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia</i>	<i>variabilis</i>	1	13/12/1998	-48.6	165.0	1067	
1292	5	158168					SVA	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia</i>	<i>variabilis</i>	1	18/11/1999	-50.2	165.8	1090	1172

(c) Revised identifications of physical specimens collected by NIWA staff on fisheries research trawl surveys during the 1 July 2020-30 June 2021 reporting period, and historically collected but identified between 9 April 2021 to 23 March 2022.

Cruise	Station	NIWA Cat. No.	Lot Number	Initial ID Code	Expert ID code	Phylum	Class	Order	Family	Genus	Species	Count	Date Collected	Latitude1	Longitude1	Depth 1	Depth 2
TAN2001	110	141785	I514	PLE	ICI	Cnidaria	Anthozoa	Alcyonacea	Anthothelidae	<i>Iciligorgia</i>		1	27/01/2020	-43.1	175.1	261	278
TAN2001	110	147903	I515	PLE	ICI	Cnidaria	Anthozoa	Alcyonacea	Anthothelidae	<i>Iciligorgia</i>		1	27/01/2020	-43.1	175.1	261	278
TAN1801	48	126958	159	PLE	ICI	Cnidaria	Anthozoa	Alcyonacea	Anthothelidae	<i>Iciligorgia</i>		1	15/01/2018	-43.5	-175.2	243	243
TAN2014	17	157348	I49	PRI	RAD	Cnidaria	Anthozoa	Alcyonacea	Chrysogorgiidae	<i>Radicipes</i>		1	01/12/2020	-49.8	170.9	517	514
TAN2001	99	141786	I397	ISI	LLE	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Lepidisis</i>		1	25/01/2020	-45.0	174.2	1162	1170
TAN2105	9	157764	I12	COU	PRG	Cnidaria	Anthozoa	Alcyonacea	Plexauridae	<i>Paramuricea</i>		1	23/06/2021	-40.0	178.2	859	815
TAN2001	63	158144	I166	THO	PRI	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Callozostrom</i>		1	19/01/2020	-44.5	-178.5	991	985
TAN2001	63	141784	I166	THO	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Thouarella</i>		1	19/01/2020	-44.5	-178.5	991	985
TAN2001	64	141795	I168	THO	THO	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Thouarella</i>		1	19/01/2020	-44.4	-178.8	865	860
TAN2105	7	157763	I8	COB	BTP	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Bathypathes</i>		1	22/06/2021	-39.5	178.3	845	852
TAN0401	48	112025			DDI	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Desmophyllum</i>	<i>dianthus</i>	3	05/01/2004	-43.9	-175.5	241	298
TAN0401	48	112065			GDU	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Goniocorella</i>	<i>dumosa</i>	1	05/01/2004	-43.9	-175.5	241	298
TAN1801	74	126963	178	GDU	GDU	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Goniocorella</i>	<i>dumosa</i>	2	20/01/2018	-43.1	178	350	334
TAN1801	48	126966	160	GDU	GDU	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Goniocorella</i>	<i>dumosa</i>	2	15/01/2018	-43.5	-175.2	243	243
TAN2014	75	157343	I181	STP	STP	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Stephanocyathus</i>	<i>platypus</i>	1	20/12/2020	-46.8	166.9	919	924

## Appendix B Summary of physical specimen data loaded into COD for the period 1 July 2020 to 30 June 2021.

This publicly accessible website can be used to search target species and expert species codes: [https://marlin.niwa.co.nz/species\\_codes/](https://marlin.niwa.co.nz/species_codes/) and FMA codes: [https://marlin.niwa.co.nz/area\\_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 Longlining; BT = Bottom Trawl; MW = Midwater Trawl; PRB = Precision Seafood Harvesting Bottom Trawl (also referred to as MHS = Modular Harvest System)

niwa_cat_nbr	trip_number	station_number	target_species	fishing_method_gea	event_start_date	start_obs_fma	trunc_start_latitude	trunc_start_longitude	start_seabed_depth	end_seabed_depth	initial_id	expert_species	class_id	order_id	family_id	expert_scientific	sample_count
146425	6030	21	ORH	BT	24/07/2020	SOE	-42.8	178.8	1075	1092	CHR	ACN	Anthozoa	Alcyonacea	Keratoisididae	<i>Acanella</i>	1
146424	6030	43	ORH	BT	31/07/2020	SOE	-42.6	180.7	1052	1080	LLE	ISI	Anthozoa	Alcyonacea	Keratoisididae	<i>Keratoisididae</i>	1
146461	6135	129	ORH	BT	27/11/2020	SOE	-44.4	185	880	1300	ACN	BOO	Anthozoa	Alcyonacea	Keratoisididae	<i>Keratoisis</i>	1
146545	6288	85	BYX	BT	3/06/2021	CEE	-39.7	178.2	388		COU	BOO	Anthozoa	Alcyonacea	Keratoisididae	<i>Keratoisis</i>	1
146463	6135	151	SSO	BT	30/11/2020	SOE	-44.8	182.9	1124	1290	PAB	PAB	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia arborea</i>	1
146546	6288	85	BYX	BT	3/06/2021	CEE	-39.7	178.2	388		COU	PLE	Anthozoa	Alcyonacea	Plexauridae	<i>Discogorgia</i>	1
146547	6288	85	BYX	BT	3/06/2021	CEE	-39.7	178.2	388		COU	CLG	Anthozoa	Alcyonacea	Primnoidae	<i>Callogorgia</i>	1
146539	6333	28	HOK	PRB	19/06/2021	SOE	-42.7	177.8	683	642	COU	CLG	Anthozoa	Alcyonacea	Primnoidae	<i>Callogorgia</i>	1
146479	6135	22	ORH	BT	3/11/2020	SOE	-44.5	184.6	675	908	COB	LEI	Anthozoa	Antipatharia	Leiopathidae	<i>Leiopathes</i>	1
146544	6288	85	BYX	BT	3/06/2021	CEE	-39.7	178.2	388		COU	LEI	Anthozoa	Antipatharia	Leiopathidae	<i>Leiopathes</i>	1
146481	6135	69	ORH	BT	10/11/2020	SOE	-44.5	184.6	672	910		LEI	Anthozoa	Antipatharia	Leiopathidae	<i>Leiopathes</i>	1
146472	6184	5	SNA	BLL	5/01/2021	AKE	-35.5	174.5	60	66	COB	AHL	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella fiordensis</i>	1
146474	6184	5	SNA	BLL	5/01/2021	AKE	-35.5	174.5	60	66	COB	AHL	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella fiordensis</i>	1
146537	6135	22	ORH	BT	3/11/2020	SOE	-44.5	184.6	675	908	COB	BTP	Anthozoa	Antipatharia	Schizopathidae	<i>Bathypathes</i>	1



niwa_cat_nbr	trip_number	station_number	target_species	fishing_method_gea	event_start_date	start_obs_fma	trunc_start_latitude	trunc_start_longitude	start_seabed_depth	end_seabed_depth	initial_id	expert_species	class_id	order_id	family_id	expert_scientific	sample_count
146536	6135	51	ORH	BT	6/11/2020	SOE	-44.4	185	880	946	LEI	BTP	Anthozoa	Antipatharia	Schizopathidae	<i>Bathypathes</i>	1
24195	1124	66	ORH	BT	15/08/1998	AKE	-36.8	177.3	765	787		BTP	Anthozoa	Antipatharia	Schizopathidae	<i>Bathypathes pseudoalternata</i>	1
131608	5672	15	ORH	BT	21/06/2019	CET	-39.8	167.2	985	1016	COB	DDP	Anthozoa	Antipatharia	Schizopathidae	<i>Dendropathes intermedia</i>	1
146468	6135	101	ORH	BT	24/11/2020	SOE	-44.2	185.4	850	1180	COB	COB	Anthozoa	Antipatharia	Stylopathidae	<i>Stylopathidae</i>	1
106566	5058	37	ORH	BT	16/07/2017	AKE	-35.7	176.3	772	1454	LEI	TYL	Anthozoa	Antipatharia	Stylopathidae	<i>Tylopathes</i>	1
146553	6338	5	ORH	MW	17/06/2021	SOE	-42.8	182.7	891	891	SIA	TYL	Anthozoa	Antipatharia	Stylopathidae	<i>Tylopathes</i>	1
146462	6135	129	ORH	BT	27/11/2020	SOE	-44.4	185	880	1300	TPT	TYL	Anthozoa	Antipatharia	Stylopathidae	<i>Tylopathes</i>	1
146466	6135	86	ORH	BT	21/11/2020	SOE	-42.7	182	830	985	BTP	COB	Anthozoa	Antipatharia		Antipatharia indet.	1
146549	6288	70	ORH	BT	30/05/2021	CEE	-38.7	178.7	939	1077	CUP	CAY	Anthozoa	Scleractinia	Caryophylliidae	<i>Caryophyllia lamellifera</i>	3
146550	6288	70	ORH	BT	30/05/2021	CEE	-38.7	178.7	939	1077	CUP	DDI	Anthozoa	Scleractinia	Caryophylliidae	<i>Desmophyllum dianthus</i>	4
146519	6281	37	HOK	BT	20/04/2021	SOE	-44.1	176.3	397	418	UNI	DDI	Anthozoa	Scleractinia	Caryophylliidae	<i>Desmophyllum dianthus</i>	5
146518	6281	37	HOK	BT	20/04/2021	SOE	-44.1	176.3	397	418	COU	GDU	Anthozoa	Scleractinia	Caryophylliidae	<i>Goniocorella dumosa</i>	1
146482	6135	23	ORH	BT	3/11/2020	SOE	-44.6	184.7	990	1280	SIA	SVA	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia</i>	1
158167	1171	123	OEO	BT	13/12/1998	SOU	-48.5	164.9	1067	1206		SVA	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia variabilis</i>	1
158168	1292	5	SSO	BT	18/11/1999	SOI	-50.1	165.8	1090	1172		SVA	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia variabilis</i>	1
146471	6159	3	LIN	BLL	14/12/2020	CHA	-42.6	170.3	254	344	SIA	EJA	Anthozoa	Scleractinia	Dendrophylliidae	<i>Eguchipsammia japonica</i>	3
146465	6135	129	ORH	BT	27/11/2020	SOE	-44.4	185	880	1300	SIA	ERO	Anthozoa	Scleractinia	Dendrophylliidae	<i>Enallopsammia rostrata</i>	1
146540	6333	55	HOK	PRB	28/06/2021	SEC	-44	174.7	511		COF	CUP	Anthozoa	Scleractinia	Flabellidae	<i>Truncatoflabellum angiosomum</i>	1
146522	6267	48	SQU	BT	22/04/2021	SOE	-44.1	176.1	260	174	LPT	ERR	Hydrozoa	Anthoathecata	Stylasteridae	<i>Errina gracilis</i>	1
132000	6057	42	LIN	BLL	23/08/2020	SOU	-45.8	166.3	322	366	COR	COO	Hydrozoa	Anthoathecata	Stylasteridae	<i>Conopora</i>	1

## Appendix C Summary of digital images processed and identified for the period 1 July 2020 to 30 June 2021.

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/](https://marlin.niwa.co.nz/species_codes/) and FMA codes: [https://marlin.niwa.co.nz/area\\_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); PRB = Precision Seafood Harvesting Bottom Trawl (also referred to as MHS = Modular Harvest System); POT = Potting. Note that there can be a time lag from when CSP request the images to when they are received, and so some images can get backlogged and as a result some images from 2019 are included in this report.

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.	Specimen count	Initial OBS ID Code	Expert ID Code
6030	21	TWL	ORH	24/07/2020	SOE	-42.8	178.8	1075	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Acanella</i>		146425	5222	1	CHR	ACN
6030	21	TWL	ORH	24/07/2020	SOE	-42.8	178.8	1075	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Acanella</i>		146425	5222	0	CHR	ACN
6057	42	BLL	LIN	23/08/2020	SOU	-45.8	166.3	322	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Conopora</i>	<i>verrucosa</i>	132000	5231	1	COR	COO
6057	42	BLL	LIN	23/08/2020	SOU	-45.8	166.3	322	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Conopora</i>	<i>verrucosa</i>	132000	5231	0	COR	COO
6112	54	BT	ORH	22/10/2020	AKW	-34.7	171.6		Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Isidella</i>				1	BOO	ISP
6112	54	BT	ORH	22/10/2020	AKW	-34.7	171.6		Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Keratois</i>				1	GOC	BOO
6112	54	BT	ORH	22/10/2020	AKW	-34.7	171.6		Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>			1	GOC	AHL
6112	54	BT	ORH	22/10/2020	AKW	-34.7	171.6		Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Keratois</i>				1	GOC	BOO
6122	6	TWL	HOK	19/10/2020	SEC	-43.6	174.3	554	Cnidaria	Anthozoa	Scleractinia	Flabellidae	<i>Flabellum</i>				1	COF	COF
6135	22	TWL	ORH	3/11/2020	SOE	-44.5	184.6	675	Cnidaria	Anthozoa	Antipatharia	Leiopathidae	<i>Leiopathes</i>		146479	5297	1	COB	LEI
6135	22	TWL	ORH	3/11/2020	SOE	-44.5	184.6	675	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Bathypathes</i>		146537	5380	1	COB	BTP
6135	23	TWL	ORH	3/11/2020	SOE	-44.6	184.7	990	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia</i>	<i>variabilis</i>	146482	5301	1	SIA	SVA
6135	23	TWL	ORH	3/11/2020	SOE	-44.6	184.7	990	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia</i>	<i>variabilis</i>	146482	5301	0	SIA	SVA
6135	23	TWL	ORH	3/11/2020	SOE	-44.6	184.7	990	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia</i>	<i>variabilis</i>	146482	5301	0	SIA	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.	Specimen count	Initial OBS ID Code	Expert ID Code
6135	23	TWL	ORH	3/11/2020	SOE	-44.6	184.7	990	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia</i>	<i>variabilis</i>	146482	5301	0	SIA	SVA
6135	23	TWL	ORH	3/11/2020	SOE	-44.6	184.7	990	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia</i>	<i>variabilis</i>	146482	5301	0	SIA	SVA
6135	42	TWL	ORH	5/11/2020	SOE	-44.2	185.5	830	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Thouarella</i>				1	GOC	THO
6135	51	TWL	ORH	6/11/2020	SOE	-44.4	185	880	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Bathypathes</i>		146536	5379	1	LEI	BTP
6135	101	TWL	ORH	24/11/2020	SOE	-44.2	185.4	850	Cnidaria	Anthozoa	Antipatharia	Stylopathidae		<i>indet.</i>	146468	5285	1	COB	COB
6135	129	TWL	ORH	27/11/2020	SOE	-44.4	185	880	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Acanella</i>		146461	5277	1	ACN	ACN
6135	151	TWL	SSO	30/11/2020	SOE	-44.8	182.9	1124	Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>		146463	5279	1	PAB	PAB
6151	58	TWL	ORH	26/11/2020	SOE	-42.6	182.6	1458	Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>				1	PAB	PAB
6151	58	TWL	ORH	26/11/2020	SOE	-42.6	182.6	1458	Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>				1	PAB	PAB
6151	89	TWL	ORH	1/12/2020	SOE	-44.6	184.5	1435	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Bathypathes</i>				1	COB	BTP
6155	5	TWL	HOK	12/11/2020	SEC	-43.5	174.5	538	Cnidaria	Anthozoa	Scleractinia	Flabellidae	<i>Flabellum</i>	<i>knoxii</i>			3		COF
6155	5	TWL	HOK	12/11/2020	SEC	-43.5	174.5	538	Cnidaria	Anthozoa	Scleractinia	Flabellidae	<i>Flabellum</i>	<i>knoxii</i>			0		COF
6155	5	TWL	HOK	12/11/2020	SEC	-43.5	174.5	538	Cnidaria	Anthozoa	Scleractinia	Flabellidae	<i>Flabellum</i>	<i>knoxii</i>			0		COF
6159	3	BLL	LIN	14/12/2020	CHA	-42.6	170.3	254	Rock								1		ROK
6159	3	BLL	LIN	14/12/2020	CHA	-42.6	170.3	254	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	<i>Eguchipsammia</i>	<i>japonica</i>	146471	5288	0		EJA
6159	3	BLL	LIN	14/12/2020	CHA	-42.6	170.3	254	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Caryophyllia</i>				1		CAY
6159	3	BLL	LIN	14/12/2020	CHA	-42.6	170.3	254	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	<i>Eguchipsammia</i>	<i>japonica</i>	146471	5288	1		EJA
6182	23	TWL	SSO	1/01/2021	SOU	-46.8	165.3		Cnidaria	Anthozoa	Alcyonacea	Coralliidae	<i>Hemicorallium</i>				1	CLL	CLL
6182	37	TWL	BOE	3/01/2021	SOU	-47.3	165.8		Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Goniocorella</i>	<i>dumosa</i>			1	GDU	GDU
6182	37	TWL	BOE	3/01/2021	SOU	-47.3	165.8		Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Goniocorella</i>	<i>dumosa</i>			0	GDU	GDU
6182	45	TWL	BOE	4/01/2021	SOU	-47.3	165.8		Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>				1	PAB	PAB
6182	45	TWL	BOE	4/01/2021	SOU	-47.3	165.8		Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>				0	PAB	PAB

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.	Specimen count	Initial OBS ID Code	Expert ID Code
6182	45	TWL	BOE	4/01/2021	SOU	-47.3	165.8		Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia</i>	<i>variabilis</i>			1	GDU	SVA
6182	45	TWL	BOE	4/01/2021	SOU	-47.3	165.8		Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia</i>	<i>variabilis</i>			0	GDU	SVA
6030	21	TWL	ORH	24/07/2020	SOE	-42.8	178.8	1075	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Acanella</i>		146425	5222	1	CHR	ACN
6030	21	TWL	ORH	24/07/2020	SOE	-42.8	178.8	1075	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Acanella</i>		146425	5222	0	CHR	ACN
6057	42	BLL	LIN	23/08/2020	SOU	-45.8	166.3	322	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Conopora</i>	<i>verrucosa</i>	132000	5231	1	COR	COO
6057	42	BLL	LIN	23/08/2020	SOU	-45.8	166.3	322	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Conopora</i>	<i>verrucosa</i>	132000	5231	0	COR	COO
6112	54	BT	ORH	22/10/2020	AKW	-34.7	171.6		Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Isidella</i>				1	BOO	ISP
6112	54	BT	ORH	22/10/2020	AKW	-34.7	171.6		Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Keratoisis</i>				1	GOC	BOO
6112	54	BT	ORH	22/10/2020	AKW	-34.7	171.6		Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>			1	GOC	AHL
6112	54	BT	ORH	22/10/2020	AKW	-34.7	171.6		Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Keratoisis</i>				1	GOC	BOO
6122	6	TWL	HOK	19/10/2020	SEC	-43.6	174.3	554	Cnidaria	Anthozoa	Scleractinia	Flabellidae	<i>Flabellum</i>				1	COF	COF
6135	22	TWL	ORH	3/11/2020	SOE	-44.5	-175.4	675	Cnidaria	Anthozoa	Antipatharia	Leiopathidae	<i>Leiopathes</i>		146479	5297	1	COB	LEI
6135	22	TWL	ORH	3/11/2020	SOE	-44.5	-175.4	675	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Bathypathes</i>		146537	5380	1	COB	BTP
6135	23	TWL	ORH	3/11/2020	SOE	-44.6	-175.3	990	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia</i>	<i>variabilis</i>	146482	5301	1	SIA	SVA
6135	23	TWL	ORH	3/11/2020	SOE	-44.6	-175.3	990	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia</i>	<i>variabilis</i>	146482	5301	0	SIA	SVA
6135	23	TWL	ORH	3/11/2020	SOE	-44.6	-175.3	990	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia</i>	<i>variabilis</i>	146482	5301	0	SIA	SVA
6135	23	TWL	ORH	3/11/2020	SOE	-44.6	-175.3	990	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia</i>	<i>variabilis</i>	146482	5301	0	SIA	SVA
6135	23	TWL	ORH	3/11/2020	SOE	-44.6	-175.3	990	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia</i>	<i>variabilis</i>	146482	5301	0	SIA	SVA
6135	42	TWL	ORH	5/11/2020	SOE	-44.2	-174.5	830	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Thouarella</i>				1	GOC	THO
6135	51	TWL	ORH	6/11/2020	SOE	-44.4	-175.0	880	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Bathypathes</i>		146536	5379	1	LEI	BTP
6135	101	TWL	ORH	24/11/2020	SOE	-44.2	-174.6	850	Cnidaria	Anthozoa	Antipatharia	Stylopathidae		<i>indet.</i>	146468	5285	1	COB	COB
6135	129	TWL	ORH	27/11/2020	SOE	-44.4	-175.0	880	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Acanella</i>		146461	5277	1	ACN	ACN

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.	Specimen count	Initial OBS ID Code	Expert ID Code
6135	151	TWL	SSO	30/11/2020	SOE	-44.8	-177.1	1124	Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>		146463	5279	1	PAB	PAB
6151	58	TWL	ORH	26/11/2020	SOE	-42.6	-177.4	1458	Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>				1	PAB	PAB
6151	58	TWL	ORH	26/11/2020	SOE	-42.6	-177.4	1458	Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>				1	PAB	PAB
6151	89	TWL	ORH	1/12/2020	SOE	-44.6	-175.5	1435	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Bathypathes</i>				1	COB	BTP
6155	5	TWL	HOK	12/11/2020	SEC	-43.5	174.5	538	Cnidaria	Anthozoa	Scleractinia	Flabellidae	<i>Truncatoflabellum angiosomum</i>				3		CUP
6155	5	TWL	HOK	12/11/2020	SEC	-43.5	174.5	538	Cnidaria	Anthozoa	Scleractinia	Flabellidae	<i>Truncatoflabellum angiosomum</i>				0		CUP
6155	5	TWL	HOK	12/11/2020	SEC	-43.5	174.5	538	Cnidaria	Anthozoa	Scleractinia	Flabellidae	<i>Truncatoflabellum angiosomum</i>				0		CUP
6159	3	BLL	LIN	14/12/2020	CHA	-42.6	170.3	254	Rock								1		ROK
6159	3	BLL	LIN	14/12/2020	CHA	-42.6	170.3	254	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	<i>Eguchipsammia japonica</i>		146471	5288	0		EJA
6159	3	BLL	LIN	14/12/2020	CHA	-42.6	170.3	254	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Caryophyllia</i>				1		CAY
6159	3	BLL	LIN	14/12/2020	CHA	-42.6	170.3	254	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	<i>Eguchipsammia japonica</i>		146471	5288	1		EJA
6182	23	TWL	SSO	1/01/2021	SOU	-46.8	165.3		Cnidaria	Anthozoa	Alcyonacea	Coralliidae	<i>Hemicorallium</i>				1	CLL	CLL
6182	37	TWL	BOE	3/01/2021	SOU	-47.3	165.8		Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Goniocorella dumosa</i>				1	GDU	GDU
6182	37	TWL	BOE	3/01/2021	SOU	-47.3	165.8		Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Goniocorella dumosa</i>				0	GDU	GDU
6182	45	TWL	BOE	4/01/2021	SOU	-47.3	165.8		Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>				1	PAB	PAB
6182	45	TWL	BOE	4/01/2021	SOU	-47.3	165.8		Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>				0	PAB	PAB
6182	45	TWL	BOE	4/01/2021	SOU	-47.3	165.8		Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia variabilis</i>				1	GDU	SVA
6182	45	TWL	BOE	4/01/2021	SOU	-47.3	165.8		Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia variabilis</i>				0	GDU	SVA
5600	15	BT	ORH	17/03/2019	SOI	-50.0	165.9	991	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Keratoisis</i>				1		BOO
5600	15	BT	ORH	17/03/2019	SOI	-50.0	165.9	991	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Keratoisis</i>				1		BOO
5600	15	BT	ORH	17/03/2019	SOI	-50.0	165.9	991	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Keratoisis</i>				1		BOO
5600	15	BT	ORH	17/03/2019	SOI	-50.0	165.9	991	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Keratoisis</i>				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.	Specimen count	Initial OBS ID Code	Expert ID Code		
5600	17	BT	ORH	18/03/2019	SOI	-50.0	165.8	1238	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae					1		ISI		
5600	17	BT	ORH	18/03/2019	SOI	-50.0	165.8	1238	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Keratois</i>				1		BOO		
5600	21	BT	ORH	19/03/2019	SOI	-50.0	165.8	1030	Unidentifiable										1		UNI
5600	21	BT	ORH	19/03/2019	SOI	-50.0	165.8	1030	Unidentifiable										0		UNI
5600	21	BT	ORH	19/03/2019	SOI	-50.0	165.8	1030	Unidentifiable										0		UNI
5600	21	BT	ORH	19/03/2019	SOI	-50.0	165.8	1030	Cnidaria	Anthozoa	Antipatharia	Antipathidae	<i>Antipathes</i>				1		ATP		
5625	5	BLL	SNA	14/04/2019	AKE	-35.4	174.5		Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>			1	COU	AHL		
5625	5	BLL	SNA	14/04/2019	AKE	-35.4	174.5		Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>			0	COU	AHL		
5664	1	SN	SCH	25/05/2019	SEC	-46.3	170.3		Bryozoa	Stenolaemata	Cyclostomatida	Cinctiporidae	<i>Cinctipora</i>	<i>elegans</i>			1		COZ		
5876	1	BT	ORH	6/01/2020	WAN B	-34.0	167.5	698	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia</i>	<i>variabilis</i>			1	GDU	SVA		
5876	13	BT	ORH	9/01/2020	CET	-37.3	167.3	807	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Bathypathes</i>				1	COB	BTP		
5876	13	BT	ORH	9/01/2020	CET	-37.3	167.3	807	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Lillipathes</i>				1	COB	LIL		
5876	15	BT	ORH	9/01/2020	CET	-37.1	167.2	966	Cnidaria	Anthozoa	Alcyonacea	Primnoidae					1	SOC	PRI		
5876	15	BT	ORH	9/01/2020	CET	-37.1	167.2	966	Cnidaria	Anthozoa	Alcyonacea						1	COR	GOC		
5876	34	BT	CDL	16/01/2020	CEE	-41.3	176.1	564	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Bathypathes</i>				1	COB	BTP		
5876	44	BT	CDL	18/01/2020	CEE	-40.4	177.1	628	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Goniocorella</i>	<i>dumosa</i>			1	GDU	GDU		
5876	44	BT	CDL	18/01/2020	CEE	-40.4	177.1	628	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Goniocorella</i>	<i>dumosa</i>			1	GDU	GDU		
5876	75	BT	CDL	26/01/2020	CEE	-41.3	176.1	650	Cnidaria	Anthozoa	Antipatharia	Leiopathidae	<i>Leiopathes</i>				1	LSE	LEI		
5876	75	BT	CDL	26/01/2020	CEE	-41.3	176.1	650	Cnidaria	Anthozoa	Antipatharia	Stylopathidae	<i>Tylopathes</i>				1	COB	TYL		
6263	17	BLL	SNA	3/05/2021	AKE	-37.6	176.5	61	Cnidaria	Anthozoa	Scleractinia	Flabellidae	<i>Monomyces</i>				1	COF	CUP		
6263	17	BLL	SNA	3/05/2021	AKE	-37.6	176.5	61	Cnidaria	Anthozoa	Scleractinia	Flabellidae	<i>Monomyces</i>				0	COF	CUP		

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6263	17	BLL	SNA	3/05/2021	AKE	-37.6	176.5	61	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>			1	DEN	AHL
6263	17	BLL	SNA	3/05/2021	AKE	-37.6	176.5	61	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>			0	DEN	AHL
6263	17	BLL	SNA	3/05/2021	AKE	-37.6	176.5	61	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>			0	DEN	AHL
5971	28	BT	ORH	24/05/2020	SOE	-42.6	-177.4	1276	Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>			1	PAB	PAB	
6003	1	BT	ORH	24/06/2020	CET	-37.6	169.3	965	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Stephanocyathus</i>	<i>platypus</i>			1	STP	STP
5980	28	POT	LIN	23/06/2020	SEC	-44	174.7		Cnidaria	Anthozoa	Scleractinia	Flabellidae	<i>Flabellum</i>	<i>knoxii</i>	146420	5217	4	COF	COF
5980	28	POT	LIN	23/06/2020	SEC	-44	174.7		Cnidaria	Anthozoa	Scleractinia	Flabellidae	<i>Flabellum</i>	<i>knoxii</i>	146420	5217	0	COF	COF
5980	28	POT	LIN	23/06/2020	SEC	-44	174.7		Cnidaria	Anthozoa	Scleractinia	Flabellidae	<i>Flabellum</i>	<i>knoxii</i>	146420	5217	0	COF	COF
5980	30	POT	LIN	23/06/2020	SEC	-44	174.7		Cnidaria	Anthozoa	Scleractinia	Flabellidae	<i>Flabellum</i>	<i>knoxii</i>	146422	5219	1	COF	COF
5980	30	POT	LIN	23/06/2020	SEC	-44	174.7		Cnidaria	Anthozoa	Scleractinia	Flabellidae	<i>Flabellum</i>	<i>knoxii</i>	146422	5219	0	COF	COF
6003	4	BT	ORH	25/06/2020	CET	-37.4	167.5	914	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Stephanocyathus</i>	<i>platypus</i>			1	STP, ASC	STP
6003	8	BT	ORH	26/06/2020	CET	-37.4	167.6	888	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Stephanocyathus</i>	<i>platypus</i>			1	STP	STP
6003	11	BT	ORH	27/06/2020	CET	-37.4	167.5	893	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Stephanocyathus</i>	<i>platypus</i>			1		STP
5980	41	POT	LIN	27/06/2020	SEC	-44.0	174.6		Cnidaria	Anthozoa	Scleractinia	Flabellidae	<i>Flabellum</i>	<i>knoxii</i>	146419	5216	4	COF	COF
6003	20	BT	ORH	2/07/2020	CET	-37.2	167.3	1049	Cnidaria	Anthozoa	Alcyonacea	Primnoidae					1	HDF	PRI
6024	20	BT	ORH	14/07/2020	AKW	-36.0	172.8		Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Stephanocyathus</i>	<i>platypus</i>			1	DDI	STP
6024	20	BT	ORH	14/07/2020	AKW	-36.0	172.8		Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Stephanocyathus</i>	<i>platypus</i>			1	DDI	STP
6024	20	BT	ORH	14/07/2020	AKW	-36.0	172.8		Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Stephanocyathus</i>	<i>platypus</i>			1	DDI	STP
6030	8	BT	ORH	14/07/2020	CEE	-40.0	178.1	1053	Cnidaria	Anthozoa	Alcyonacea	Plexauridae					1		PLE
6024	26	BT	ORH	15/07/2020	AKW	-35.9	173		Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Stephanocyathus</i>	<i>platypus</i>			1	STP	STP
6030	33	BT	ORH	28/07/2020	SOE	-42.7	-179.7	1062	Cnidaria	Anthozoa	Alcyonacea	Primnoidae					1		PRI
6030	33	BT	ORH	28/07/2020	SOE	-42.7	-179.7	1062	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Acanella</i>				1		ACN

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.	Specimen count	Initial OBS ID Code	Expert ID Code
6030	33	BT	ORH	28/07/2020	SOE	-42.7	-179.7	1062	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Acanella</i>			0		ACN	
6030	43	BT	ORH	31/07/2020	SOE	-42.6	-179.3	1052	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae			146424	5221	1	LLE	ISI
6030	43	BT	ORH	31/07/2020	SOE	-42.6	-179.3	1052	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae			146424	5221	0	LLE	ISI
6030	43	BT	ORH	31/07/2020	SOE	-42.6	-179.3	1052	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae					1	LLE	ISI
6056	5	MW	ORH	9/08/2020	CET	-39.8	167.2	985	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Dendropathes</i>	<i>intermedia</i>			1	DEN	DDP
6056	16	BT	ORH	11/08/2020	CET	-39.8	167.2	938	Cnidaria	Anthozoa	Antipatharia						1	COB	COB
6056	16	BT	ORH	11/08/2020	CET	-39.8	167.2	938	Cnidaria	Anthozoa	Antipatharia						1	COB	COB
6056	16	BT	ORH	11/08/2020	CET	-39.8	167.2	938	Cnidaria	Anthozoa	Antipatharia	Schizopathidae					1	COB	COB
6056	16	BT	ORH	11/08/2020	CET	-39.8	167.2	938	Cnidaria	Anthozoa	Antipatharia	Schizopathidae					1	COB	COB
6056	17	BT	ORH	11/08/2020	CET	-39.8	167.2	942	Cnidaria	Anthozoa	Antipatharia						1	COB	COB
6056	17	BT	ORH	11/08/2020	CET	-39.8	167.2	942	Cnidaria	Anthozoa	Antipatharia						1	COB	COB
6056	17	BT	ORH	11/08/2020	CET	-39.8	167.2	942	Cnidaria	Anthozoa	Antipatharia						1	COB	COB
6057	12	BLL	LIN	11/08/2020	SEC	-43.4	174.4	526	Cnidaria	Anthozoa	Alcyonacea	Acanthogorgiidae	<i>Acanthogorgia</i>				1		ACC
6057	12	BLL	LIN	11/08/2020	SEC	-43.4	174.4	526	Cnidaria	Anthozoa	Alcyonacea	Acanthogorgiidae	<i>Acanthogorgia</i>				1		ACC
6063	22	BT	SCI	22/08/2020	SOI	-51.0	167.1	487	Ochrophyta	Phaeophyceae	Laminariales						1	GOC	SEO
6063	23	BT	SCI	23/08/2020	SOI	-51.1	166.8	476	Ochrophyta	Phaeophyceae	Laminariales						0	GOC	SEO
6109	4	BT	TAR	22/09/2020	AKW	-34.5	172.2		Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Metafannyella</i>				1	GOC	MEF
6109	4	BT	TAR	22/09/2020	AKW	-34.5	172.2		Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Metafannyella</i>				1	GOC	MEF
6071	70	BLL	HPB	5/10/2020	WAN B	-32.7	167.6	311	Cnidaria	Anthozoa	Alcyonacea	Nephtheidae					1		SOC
6113	14	BT	ORH	6/10/2020	SOU	-47.0	165.8	970	Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>				1		PAB
6113	49	BT	ORH	14/10/2020	SUB	-47.3	178.8	819	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Keratois</i>				1	BOO	BOO



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6112	42	BT	TRE	17/10/2020	AKW	-34.6	172.5		Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Acanella</i>				1	BOO	ACN
6113	69	BT	SSO	17/10/2020	SUB	-47.3	178.1	950	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Primnoa</i>				1	PMN	PMN
6113	69	BT	SSO	17/10/2020	SUB	-47.3	178.1	950	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Primnoa</i>				3	PMN	PMN
6113	69	BT	SSO	17/10/2020	SUB	-47.3	178.1	950	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Primnoa</i>				0	PMN	PMN
6113	120	BT	ORH	29/10/2020	SOE	-44.1	-174.5	1110	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Solenosmilia</i>	<i>variabilis</i>			1	GDU	SVA
6144	11	BT	ORH	2/11/2020	AKW	-34.7	171.7		Cnidaria	Anthozoa	Alcyonacea	Keratoisididae	<i>Keratoisis</i>				1	GOC	BOO
6135	22	BT	ORH	3/11/2020	SOE	-44.5	-175.4	675	Cnidaria	Anthozoa	Antipatharia						1		COB
6135	69	BT	ORH	10/11/2020	SOE	-44.5	-175.4	672	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Lillipathes</i>	<i>lillei</i>			1	BTP	LIL
6135	70	BT	SSO	11/11/2020	SOE	-44.8	-177.1	1125	Cnidaria	Anthozoa	Scleractinia	Oculinidae	<i>Madrepora</i>	<i>oculata</i>			6	SIA	MOC
6135	78	BT	BOE	14/11/2020	SOE	-44.4	-178.8	680	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae					1	SED	CAY
6135	78	BT	BOE	14/11/2020	SOE	-44.4	-178.8	680	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae					0	SED	CAY
6165	1	BT	LIN	29/11/2020	SOU	-48.7	166.3	608	Cnidaria	Anthozoa	Alcyonacea	Primnoidae					1	GOC	PRI
6165	1	BT	LIN	29/11/2020	SOU	-48.7	166.3	608	Cnidaria	Hydrozoa	Leptothecata						1	GOC	HDF
6165	1	BT	LIN	29/11/2020	SOU	-48.7	166.3	608	Cnidaria	Anthozoa	Alcyonacea	Plexauridae					1	GOC	PLE
6165	3	BT	WWA	30/11/2020	SUB	-49.0	166.6	611	Cnidaria	Anthozoa	Alcyonacea	Plexauridae					1	GOC	PLE
6165	3	BT	WWA	30/11/2020	SUB	-49.0	166.6	611	Cnidaria	Hydrozoa	Leptothecata	Zygophylacidae	<i>Cryptolaria</i>				1	DEN	CRT
6135	151	BT	SSO	30/11/2020	SOE	-44.8	-177.1	1124	Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>	<i>arborea</i>	146463	5279	1	PAB	PAB
6165	4	BT	HAK	30/11/2020	SUB	-49.0	166.7	540	Cnidaria	Anthozoa	Alcyonacea	Plexauridae					1	GOC	PLE
6165	4	BT	HAK	30/11/2020	SUB	-49.0	166.7	540	Cnidaria	Anthozoa	Alcyonacea	Primnoidae					1	THO	PRI
6165	15	BT	WWA	8/12/2020	SOU	-48.6	166.3	354	Cnidaria	Anthozoa	Alcyonacea	Primnoidae					1	COU	PRI
6165	15	BT	WWA	8/12/2020	SOU	-48.6	166.3	354	Cnidaria	Anthozoa	Alcyonacea	Plexauridae					2	COU	PLE
6165	15	BT	WWA	8/12/2020	SOU	-48.6	166.3	354	Cnidaria	Hydrozoa	Leptothecata						4	COU	HDR

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6164	28	BT	SWA	21/12/2020	SEC	-44.5	172.8	451	Cnidaria	Anthozoa	Scleractinia	Flabellidae	<i>Flabellum</i>	<i>knoxii</i>			1		COF
6184	5	BLL	SNA	5/01/2021	AKE	-35.5	174.5	60	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>	146472 or 146474 not sure which	5289 or 5291	1	COB	AHL
6184	5	BLL	SNA	5/01/2021	AKE	-35.5	174.5	60	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>	146472 or 146474 not sure which	5289 or 5291	0	COB	AHL
6184	5	BLL	SNA	5/01/2021	AKE	-35.5	174.5	60	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>	146472 or 146474 not sure which	5289 or 5291	0	COB	AHL
6184	5	BLL	SNA	5/01/2021	AKE	-35.5	174.5	60	Cnidaria	Hydrozoa	Leptothecata	Plumulariidae	<i>Nemertesia</i>	<i>elongata</i>	146473	5290	1		NEE
6184	5	BLL	SNA	5/01/2021	AKE	-35.5	174.5	60	Cnidaria	Hydrozoa	Leptothecata	Plumulariidae	<i>Nemertesia</i>	<i>elongata</i>	146473	5290	0		NEE
6194	70	BT	BAR	27/01/2021	SOE	-43.5	-177.4	227	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>				1	ATP	AHL
6194	70	BT	BAR	27/01/2021	SOE	-43.5	-177.4	227	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>				1	ATP	AHL
6194	70	BT	BAR	27/01/2021	SOE	-43.5	-177.4	227	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>				1	ATP	AHL
6194	70	BT	BAR	27/01/2021	SOE	-43.5	-177.4	227	Cnidaria	Hydrozoa	indet.				146494	5323	1	ATP	HDR
6194	70	BT	BAR	27/01/2021	SOE	-43.5	-177.4	227	Cnidaria	Anthozoa	Alcyonacea	Clavulariidae			146495	5324	1	ATP	SOC
6194	70	BT	BAR	27/01/2021	SOE	-43.5	-177.4	227	Arthropoda	Maxillopoda	Cirripedia			146496	5325	1	ATP	SBN	
6229	8	BT	SQU	8/02/2021	SOU	-48.7	167.5	145	Bryozoa	Gymnolaemata	Cheilostomatida	Catenicellidae					1	DEN	COZ
6196	107	MW	SQU	12/02/2021	SOU	-48.8	166.8	185	Cnidaria	Hydrozoa	Leptothecata	Zygophylacidae	<i>Cryptolaria</i>				1	THO	CRT
6196	107	MW	SQU	12/02/2021	SOU	-48.8	166.8	185	Cnidaria	Hydrozoa	Leptothecata	Zygophylacidae	<i>Cryptolaria</i>				0	THO	CRT
6196	107	MW	SQU	12/02/2021	SOU	-48.8	166.8	185	Bryozoa	Gymnolaemata	Cheilostomatida	Catenicellidae					1	DEN	COZ
6196	107	MW	SQU	12/02/2021	SOU	-48.8	166.8	185	Bryozoa	Gymnolaemata	Cheilostomatida	Catenicellidae					0	DEN	COZ
6196	107	MW	SQU	12/02/2021	SOU	-48.8	166.8	185	Bryozoa	Gymnolaemata	Cheilostomatida	Catenicellidae					0	DEN	COZ

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6196118	MW	SQU		15/02/2021	SOU	-48.8	167.2	243	Cnidaria	Anthozoa	Alcyonacea						1		GOC
6196118	MW	SQU		15/02/2021	SOU	-48.8	167.2	243	Cnidaria	Anthozoa	Alcyonacea						0		GOC
6196118	MW	SQU		15/02/2021	SOU	-48.8	167.2	243	Cnidaria	Anthozoa	Alcyonacea						0		GOC
6197 19	BLL	HPB		17/02/2021	SOU	-45.2	166.8	80	Cnidaria	Anthozoa	Alcyonacea	Plexauridae					1	COU	PLE
6197 19	BLL	HPB		17/02/2021	SOU	-45.2	166.8	80	Cnidaria	Anthozoa	Alcyonacea	Plexauridae					0	COU	PLE
6197 19	BLL	HPB		17/02/2021	SOU	-45.2	166.8	80	Cnidaria	Anthozoa	Alcyonacea	Plexauridae					0	COU, BRZ, HDR, SIA, ONG	PLE
6197 19	BLL	HPB		17/02/2021	SOU	-45.2	166.8	80	Cnidaria	Anthozoa	Alcyonacea	Plexauridae					3	COU, BRZ, HDR, SIA, ONG	PLE
6197 19	BLL	HPB		17/02/2021	SOU	-45.2	166.8	80	Cnidaria	Anthozoa	Alcyonacea	Plexauridae					1	COU, BRZ, HDR, SIA, ONG	PLE
6197 19	BLL	HPB		17/02/2021	SOU	-45.2	166.8	80	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Desmophyllum</i>	<i>dianthus</i>			2	COU, BRZ, HDR, SIA, ONG	DDI
6197 19	BLL	HPB		17/02/2021	SOU	-45.2	166.8	80	Cnidaria	Anthozoa	Alcyonacea	Plexauridae					0	COU, BRZ, HDR, SIA, ONG	PLE
6197 19	BLL	HPB		17/02/2021	SOU	-45.2	166.8	80	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Desmophyllum</i>	<i>dianthus</i>			0	COU, BRZ, HDR, SIA, ONG	DDI
6197 19	BLL	HPB		17/02/2021	SOU	-45.2	166.8	80	Cnidaria	Anthozoa	Alcyonacea	Plexauridae					0	COU, BRZ, HDR, SIA, ONG	PLE

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6197	19	BLL	HPB	17/02/2021	SOU	-45.2	166.8	80	Cnidaria	Anthozoa	Alcyonacea	Plexauridae					0	COU, BRZ, HDR, SIA, ONG	PLE
6197	19	BLL	HPB	17/02/2021	SOU	-45.2	166.8	80	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Desmophyllum</i>	<i>dianthus</i>			0	COU, BRZ, HDR, SIA, ONG	DDI
6197	19	BLL	HPB	17/02/2021	SOU	-45.2	166.8	80	Cnidaria	Anthozoa	Alcyonacea	Plexauridae					0	COU, BRZ, HDR, SIA, ONG	PLE
6197	26	BLL	SCH	19/02/2021	SOU	-44.7	167.4	312	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>			1	ROK, AHL	AHL
6197	26	BLL	SCH	19/02/2021	SOU	-44.7	167.4	312	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>			1	ROK, AHL	AHL
6197	26	BLL	SCH	19/02/2021	SOU	-44.7	167.4	312	Echinodermata	Ophiuroidea	Euryalida	Euryalidae	<i>Astrobrachion</i>	<i>constrictum</i>			1	AHL, SFI	ABC
6197	26	BLL	SCH	19/02/2021	SOU	-44.7	167.4	312	Echinodermata	Ophiuroidea	Euryalida	Euryalidae	<i>Astrobrachion</i>	<i>constrictum</i>			1	AHL, SFI	ABC
6197	26	BLL	SCH	19/02/2021	SOU	-44.7	167.4	312	Echinodermata	Ophiuroidea	Euryalida	Euryalidae	<i>Astrobrachion</i>	<i>constrictum</i>			1	AHL, SFI	ABC
6197	26	BLL	SCH	19/02/2021	SOU	-44.7	167.4	312	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>			1	ROK, AHL	AHL
6235	9	BT	TAR	26/02/2021	SEC	-42.8	173.6	116	Annelida	Polychaeta							2	SIA	POL
6197	60	BLL	HPB	2/03/2021	CHA	-43.9	168.3	146	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Desmophyllum</i>	<i>dianthus</i>			1	SIA	DDI
6197	60	BLL	HPB	2/03/2021	CHA	-43.9	168.3	146	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae					1	SIA, HDR, COU, MUD	COR
6197	60	BLL	HPB	2/03/2021	CHA	-43.9	168.3	146	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Desmophyllum</i>	<i>dianthus</i>			1	SIA, HDR, COU, MUD	DDI
6197	60	BLL	HPB	2/03/2021	CHA	-43.9	168.3	146	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae					0	HDR, COU	COR
6197	60	BLL	HPB	2/03/2021	CHA	-43.9	168.3	146	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae					0	COU	COR
6197	61	BLL	HPB	2/03/2021	CHA	-43.9	168.3	124	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Caryophyllia</i>				1	ROK	CAY

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6197	61	BLL	HPB	2/03/2021	CHA	-43.9	168.3	124	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Caryophyllia</i>			1	SIA, COU, ROK	CAY	
6197	61	BLL	HPB	2/03/2021	CHA	-43.9	168.3	124	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Caryophyllia</i>			1	SIA, ROK	CAY	
6197	61	BLL	HPB	2/03/2021	CHA	-43.9	168.3	124	Cnidaria	Anthozoa	Alcyonacea					1	SOC, ROK	SOC	
6197	61	BLL	HPB	2/03/2021	CHA	-43.9	168.3	124	Porifera							1	ONG, ROK	ONG	
6197	61	BLL	HPB	2/03/2021	CHA	-43.9	168.3	124	Rock							0	ROK	ROK	
6197	61	BLL	HPB	2/03/2021	CHA	-43.9	168.3	124	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Desmophyllum</i>	<i>dianthus</i>		1	SIA, ZFM	DDI	
6197	61	BLL	HPB	2/03/2021	CHA	-43.9	168.3	124	Annelida	Polychaeta						2	COU, ZFP	POL	
6197	61	BLL	HPB	2/03/2021	CHA	-43.9	168.3	124	Porifera							2	COU, ZFP	ONG	
6250	12	BT	SQU	2/03/2021	SOU	-46.6	165.8	230	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae				1		COR	
6250	12	BT	SQU	2/03/2021	SOU	-46.6	165.8	230	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae				1		COR	
6197	66	BLL	HPB	3/03/2021	CHA	-43.9	168.2	150	Cnidaria	Anthozoa	Alcyonacea	Plexauridae				1	GOC	PLE	
6197	66	BLL	HPB	3/03/2021	CHA	-43.9	168.2	150	Cnidaria	Anthozoa	Alcyonacea	Plexauridae				0	GOC	PLE	
6197	67	BLL	HPB	3/03/2021	CHA	-43.9	168.2	152	Cnidaria	Anthozoa	Alcyonacea	Plexauridae				1	GOC	PLE	
6246	9	BT	SQU	3/03/2021	SOU	-46.7	165.9	224	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>		1	COB	AHL	
6233	37	SN	SCH	5/03/2021	SOU	-45.5	166.6		Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Errina</i>	<i>novaezelandiae</i>		2	ERR	ERR	
6233	39	SN	SCH	5/03/2021	SOU	-45.5	166.6		Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>		1	COB	AHL	
6233	39	SN	SCH	5/03/2021	SOU	-45.5	166.6		Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Errina</i>	<i>novaezelandiae</i>		4	ERR	ERR	
6233	38	SN	SCH	5/03/2021	SOU	-45.5	166.6		Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Errina</i>	<i>novaezelandiae</i>		1	ERR	ERR	
6233	44	SN	SCH	7/03/2021	SOU	-45.4	166.7		Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Errina</i>	<i>novaezelandiae</i>		4	ERR	ERR	
6233	43	SN	SCH	7/03/2021	SOU	-45.4	166.6		Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Errina</i>	<i>novaezelandiae</i>		1	ERR	ERR	
6233	47	SN	SCH	8/03/2021	SOU	-45.3	166.7		Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Errina</i>	<i>novaezelandiae</i>		2	ERR	ERR	

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.	Specimen count	Initial OBS ID Code	Expert ID Code
6233	48	SN	SCH	8/03/2021	SOU	-45.3	166.7		Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Errina</i>	<i>novaezelandiae</i>			6	ERR	ERR
6233	64	SN	SCH	19/03/2021	SOU	-44.8	167.3		Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Errina</i>	<i>novaezelandiae</i>			1	ERR	ERR
6233	67	SN	SCH	20/03/2021	SOU	-44.9	167.1		Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Errina</i>	<i>novaezelandiae</i>			1	ERR	ERR
6233	72	SN	SCH	1/04/2021	SOU	-44.3	167.9		Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Errina</i>	<i>novaezelandiae</i>			1	ERR	ERR
6272	2	BLL	SNA	30/03/2021	AKE	-35.8	174.6	55	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>			1		AHL
6272	2	BLL	SNA	30/03/2021	AKE	-35.8	174.6	55	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>			1		AHL
6272	4	BLL	SNA	4/04/2021	AKE	-35.8	174.6	70	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>			1		AHL
6272	4	BLL	SNA	4/04/2021	AKE	-35.8	174.6	70	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>	<i>fiordensis</i>			1		AHL
6272	5	BLL	SNA	5/04/2021	AKE	-35.7	174.5	35	Cnidaria	Anthozoa	Zoantharia						1		ZAH
6233	80	SN	SCH	6/04/2021	SOU	-44.5	167.7		Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Errina</i>	<i>novaezelandiae</i>			1	ERR	ERR
6258	93	BT	HOK	8/04/2021	SOU	-48.6	167.7	520	Rock								1	COU	ROK, SEO
6258	93	BT	HOK	8/04/2021	SOU	-48.6	167.7	520	Rock								1	COU	ROK, SEO
6258	93	BT	HOK	8/04/2021	SOU	-48.6	167.7	520	Rock								1	COU	ROK, SEO
6258	93	BT	HOK	8/04/2021	SOU	-48.6	167.7	520	Rock								1	COU	ROK, SEO
6258	93	BT	HOK	8/04/2021	SOU	-48.6	167.7	520	Rock								1	COU	ROK, SEO
6258	93	BT	HOK	8/04/2021	SOU	-48.6	167.7	520	Rock								1	COU	ROK, SEO
6233	85	SN	SCH	8/04/2021	SOU	-44.6	167.5		Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Errina</i>	<i>novaezelandiae</i>			1	ERR	ERR
6233	89	SN	SCH	9/04/2021	SOU	-44.9	167.2		Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Errina</i>	<i>novaezelandiae</i>			2	ERR	ERR
6233	87	SN	SCH	9/04/2021	SOU	-44.8	167.2		Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Errina</i>	<i>novaezelandiae</i>			1	ERR	ERR
6281	37	BT	HOK	20/04/2021	SOE	-44.1	176.3	397	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Desmophyllum</i>	<i>dianthus</i>	146519	5357	1	UNI, COU	DDI
6281	37	BT	HOK	20/04/2021	SOE	-44.1	176.3	397	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Goniocorella</i>	<i>dumosa</i>	146518	5356	1	UNI, COU	GDU
6272	15	BLL	SNA	21/04/2021	AKE	-35.9	174.5	35	Cnidaria	Anthozoa	Zoantharia						1		ZAH

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.	Specimen count	Initial OBS ID Code	Expert ID Code
6267	48	BT	SQU	22/04/2021	SOE	-44.1	176.1	260	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Errina</i>	<i>gracilis</i>	146522	5362	1	LPT	ERR
6267	48	BT	SQU	22/04/2021	SOE	-44.1	176.1	260	Cnidaria	Hydrozoa	Anthoathecata	Stylasteridae	<i>Errina</i>	<i>gracilis</i>	146522	5362	0	LPT	ERR
6288	22	BT	ORH	3/05/2021	SOE	-42.6	-179.3	1116	Cnidaria	Anthozoa	Alcyonacea	Keratoisididae					1	ACN	ISI
6288	39	BT	ORH	8/05/2021	CEE	-38.8	178.7	880	Cnidaria	Anthozoa	Alcyonacea	Plexauridae					1		PLE
6288	39	BT	ORH	8/05/2021	CEE	-38.8	178.7	880	Cnidaria	Anthozoa	Alcyonacea	Plexauridae					1		PLE
6287	41	BT	SQU	10/05/2021	SOU	-47.8	168.7	329	Bryozoa	Stenolaemata	Cyclostomatida	Ceriporidae	<i>Tetrocycloecia</i>	<i>neozelanica</i>	146555	5404	1	SIA	TNE
6312	32	BT	ORH	15/05/2021	SOE	-42.9	-174.6	1035	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Stephanocyathus</i>	<i>platypus</i>			1	STP	STP
6312	32	BT	ORH	15/05/2021	SOE	-42.9	-174.6	1035	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Stephanocyathus</i>	<i>platypus</i>			0	STP	STP
6312	38	BT	ORH	16/05/2021	SOE	-43	-174.3	1082	Cnidaria	Hydrozoa	Anthoathecata	Solanderiidae	<i>Solanderia</i>				1	PLE	HDR
6294	60	BLL	LIN	17/05/2021	CHA	-42.5	170.2	627	Cnidaria	Anthozoa	Alcyonacea	Acanthogorgiidae	<i>Acanthogorgia</i>				1	PRI	ACC
6294	60	BLL	LIN	17/05/2021	CHA	-42.5	170.2	627	Cnidaria	Anthozoa	Alcyonacea	Acanthogorgiidae	<i>Acanthogorgia</i>				0	PRI	ACC
6312	55	BT	ORH	22/05/2021	SOE	-42.7	-177.9	905	Cnidaria	Anthozoa	Antipatharia	Cladopathidae	<i>Trissopathes</i>				1	PTP	TPT
6312	55	BT	ORH	22/05/2021	SOE	-42.7	-177.9	905	Cnidaria	Anthozoa	Antipatharia	Cladopathidae	<i>Trissopathes</i>				1	PTP	TPT
6312	55	BT	ORH	22/05/2021	SOE	-42.7	-177.9	905	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Calyptrophora</i>				1	CHR	CTP
6312	55	BT	ORH	22/05/2021	SOE	-42.7	-177.9	905	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Calyptrophora</i>				1	CHR	CTP
6312	59	BT	ORH	23/05/2021	SOE	-42.7	-177.6	1070	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	<i>Enallopsammia</i>	<i>rostrata</i>			1	CBB	ERO
6312	59	BT	ORH	23/05/2021	SOE	-42.7	-177.6	1070	Cnidaria	Anthozoa	Scleractinia	Oculinidae	<i>Madrepora</i>	<i>oculata</i>			1	CBB	MOC
6312	59	BT	ORH	23/05/2021	SOE	-42.7	-177.6	1070	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae	<i>Enallopsammia</i>	<i>rostrata</i>			1	CBB	ERO
6312	59	BT	ORH	23/05/2021	SOE	-42.7	-177.6	1070	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Calyptrophora</i>				1	CHR	CTP
6312	59	BT	ORH	23/05/2021	SOE	-42.7	-177.6	1070	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Calyptrophora</i>				1	CHR	CTP
6312	60	BT	ORH	23/05/2021	SOE	-42.7	-177.9		Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Parantipathes</i>				1		PTP
6312	60	BT	ORH	23/05/2021	SOE	-42.7	-177.9		Echinodermata	Crinoidea							1		CRN



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.	Specimen count	Initial OBS ID Code	Expert ID Code
6312	60	BT	ORH	23/05/2021	SOE	-42.7	-177.9		Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>			1		PAB	
6312	60	BT	ORH	23/05/2021	SOE	-42.7	-177.9		Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Parantipathes</i>			0		PTP	
6312	60	BT	ORH	23/05/2021	SOE	-42.7	-177.9		Echinodermata	Crinoidea						0		CRN	
6312	60	BT	ORH	23/05/2021	SOE	-42.7	-177.9		Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>			0		PAB	
6312	60	BT	ORH	23/05/2021	SOE	-42.7	-177.9		Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>			1	PAB	PAB	
6312	60	BT	ORH	23/05/2021	SOE	-42.7	-177.9		Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>			1	PAB	PAB	
6312	60	BT	ORH	23/05/2021	SOE	-42.7	-177.9		Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>			1	PAB	PAB	
6312	60	BT	ORH	23/05/2021	SOE	-42.7	-177.9		Cnidaria	Anthozoa	Alcyonacea	Paragorgiidae	<i>Paragorgia</i>			1	PAB	PAB	
6312	60	BT	ORH	23/05/2021	SOE	-42.7	-177.9		Cnidaria	Anthozoa	Alcyonacea	Plexauridae				1	GOC	PLE	
6312	60	BT	ORH	23/05/2021	SOE	-42.7	-177.9		Cnidaria	Anthozoa	Alcyonacea	Plexauridae				0	GOC	PLE	
6312	60	BT	ORH	23/05/2021	SOE	-42.7	-177.9		Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>Parantipathes</i>			3	PTP	PTP	
6312	60	BT	ORH	23/05/2021	SOE	-42.7	-177.9		Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Collozostron</i>			1	CHR	PRI	
6301	23	BT	TRE	30/05/2021	AKE	-36.2	175.1	47	Cnidaria	Anthozoa	Alcyonacea					1	SIA	GOC	
6288	70	BT	ORH	30/05/2021	CEE	-38.7	178.7	939	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Desmophyllum</i>	<i>dianthus</i>	146550	5399	1	CUP	DDI
6266	151	BT	ORH	31/05/2021	SOE	-42.8	-177.3	819	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Goniocorella</i>	<i>dumosa</i>			3		GDU
6266	151	BT	ORH	31/05/2021	SOE	-42.8	-177.3	819	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Goniocorella</i>	<i>dumosa</i>			0		GDU
6266	190	BT	ORH	7/06/2021	SOE	-42.6	-177.5	1284	Cnidaria	Anthozoa	Scleractinia	Oculinidae	<i>Madrepora</i>	<i>oculata</i>			1		MOC
6266	190	BT	ORH	7/06/2021	SOE	-42.6	-177.5	1284	Cnidaria	Anthozoa	Scleractinia	Oculinidae	<i>Madrepora</i>	<i>oculata</i>			1		MOC
6266	190	BT	ORH	7/06/2021	SOE	-42.6	-177.5	1284	Cnidaria	Anthozoa	Scleractinia	Oculinidae	<i>Madrepora</i>	<i>oculata</i>			0		MOC
6322	41	BLL	LIN	9/06/2021	SEC	-43.3	173.5	377	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Goniocorella</i>	<i>dumosa</i>			1	COU	GDU
6322	41	BLL	LIN	9/06/2021	SEC	-43.3	173.5	377	Cnidaria	Anthozoa	Scleractinia	Caryophylliidae	<i>Goniocorella</i>	<i>dumosa</i>			0	COU	GDU
6320	29	BT	SQU	11/06/2021	SOU	-48.7	166.4	335	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Thouarella</i>			1	UNI	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.	Specimen count	Initial OBS ID Code	Expert ID Code
6320	29	BT	SQU	11/06/2021	SOU	-48.7	166.4	335	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Thouarella</i>			0	UNI	THO	
6301	27	PRB	TAR	17/06/2021	AKE	-34.6	173.4	188	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>			0	COB	AHL	
6301	27	PRB	TAR	17/06/2021	AKE	-34.6	173.4	188	Cnidaria	Anthozoa	Antipatharia	Myriopathidae	<i>Antipathella</i>			1	COB	AHL	
6333	28	PRB	HOK	19/06/2021	SOE	-42.7	177.8	683	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Callogorgia</i>	146539	5387	1	COU	CLG	
6333	28	PRB	HOK	19/06/2021	SOE	-42.7	177.8	683	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Callogorgia</i>	146539	5387	0	COU	CLG	
6333	28	PRB	HOK	19/06/2021	SOE	-42.7	177.8	683	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Callogorgia</i>	146539	5387	0	COU	CLG	
6333	28	PRB	HOK	19/06/2021	SOE	-42.7	177.8	683	Cnidaria	Anthozoa	Alcyonacea	Primnoidae	<i>Callogorgia</i>	146539	5387	0	COU	CLG	
6333	104	BT	HOK	15/07/2021	SEC	-42.9	175.8	587	Cnidaria	Anthozoa	Antipatharia	Schizopathidae	<i>cf. Dendropathes</i>	146541	5389	1	COU	DDP	