New project Identification of protected corals

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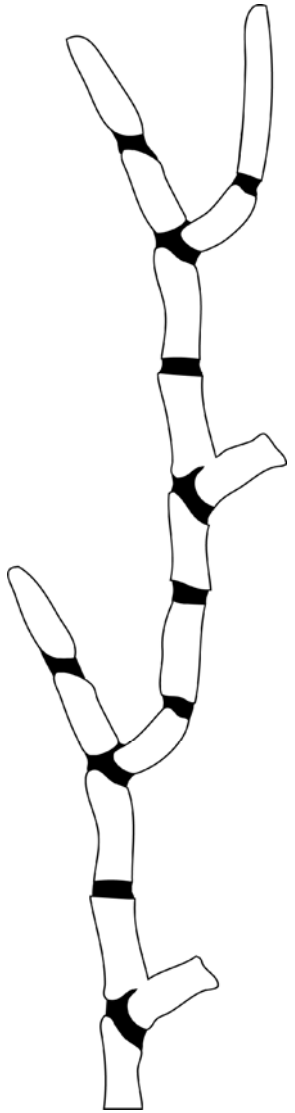
Overall Objective

To analyse the spatial distribution of coral sub-samples returned through the CSP observer programme in relation to fishing effort (2007/08 – 2009/10)

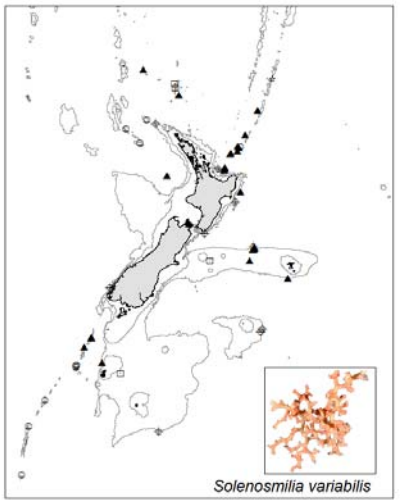
Specific Objectives:

1) To identify areas where deep sea corals are at highest risk of interactions with fishing gear

2) To assess the value of identifying sub-samples of corals returned by observers and, specifically, whether there is an ongoing need to monitor and quantify the level of interaction between fisheries and protected corals



Methods Obj 1.



Identify areas

identify target fisheries with coral bycatch

Data sources

COD data 2007 - 2010

- coral species catch weight
- target fisheries
- fishing area
- geographic occurrence (e.g. latitude, longitude, depth)
- catch effort data for the target fish species (orange roughy, oreos, etc).

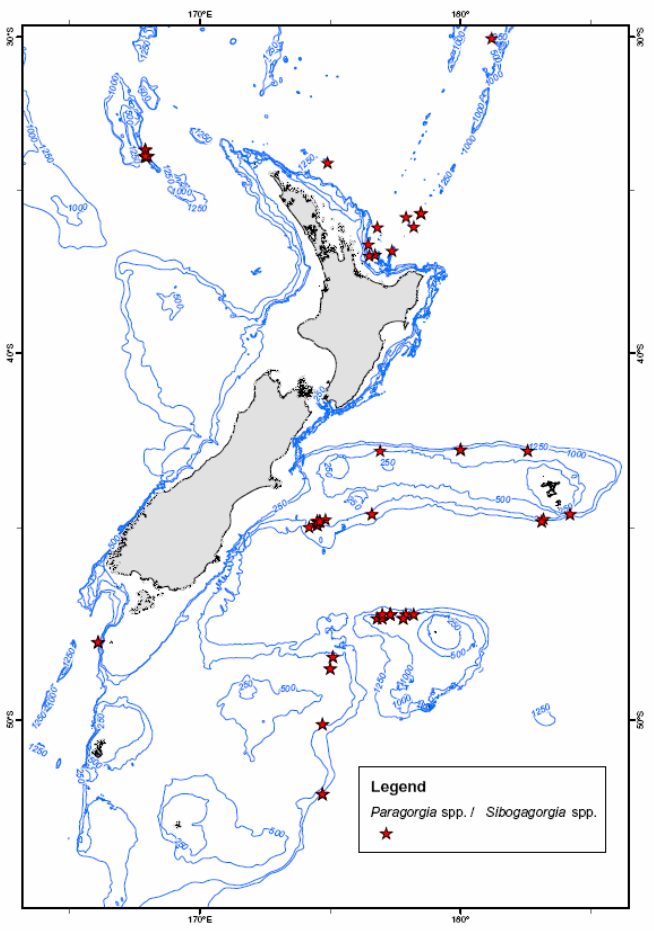
Spatial distribution

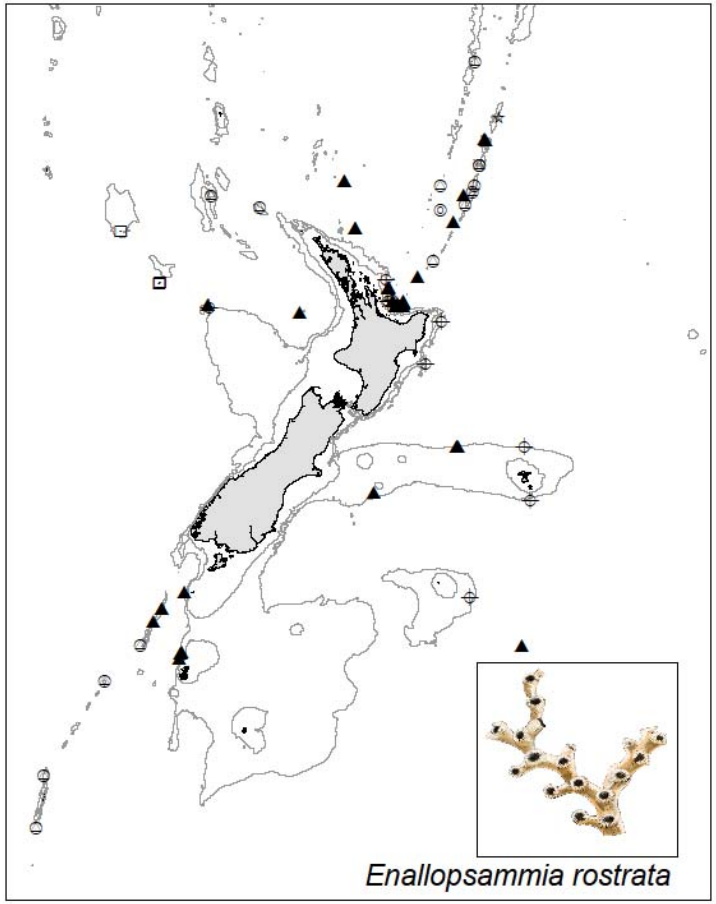
Plot distribution of bycatch of each coral taxon, or group of corals in relation to the observed fishing effort.

Grooming

grouping of certain codes to a higher level taxon (e.g., black coral, bamboo corals grouped)

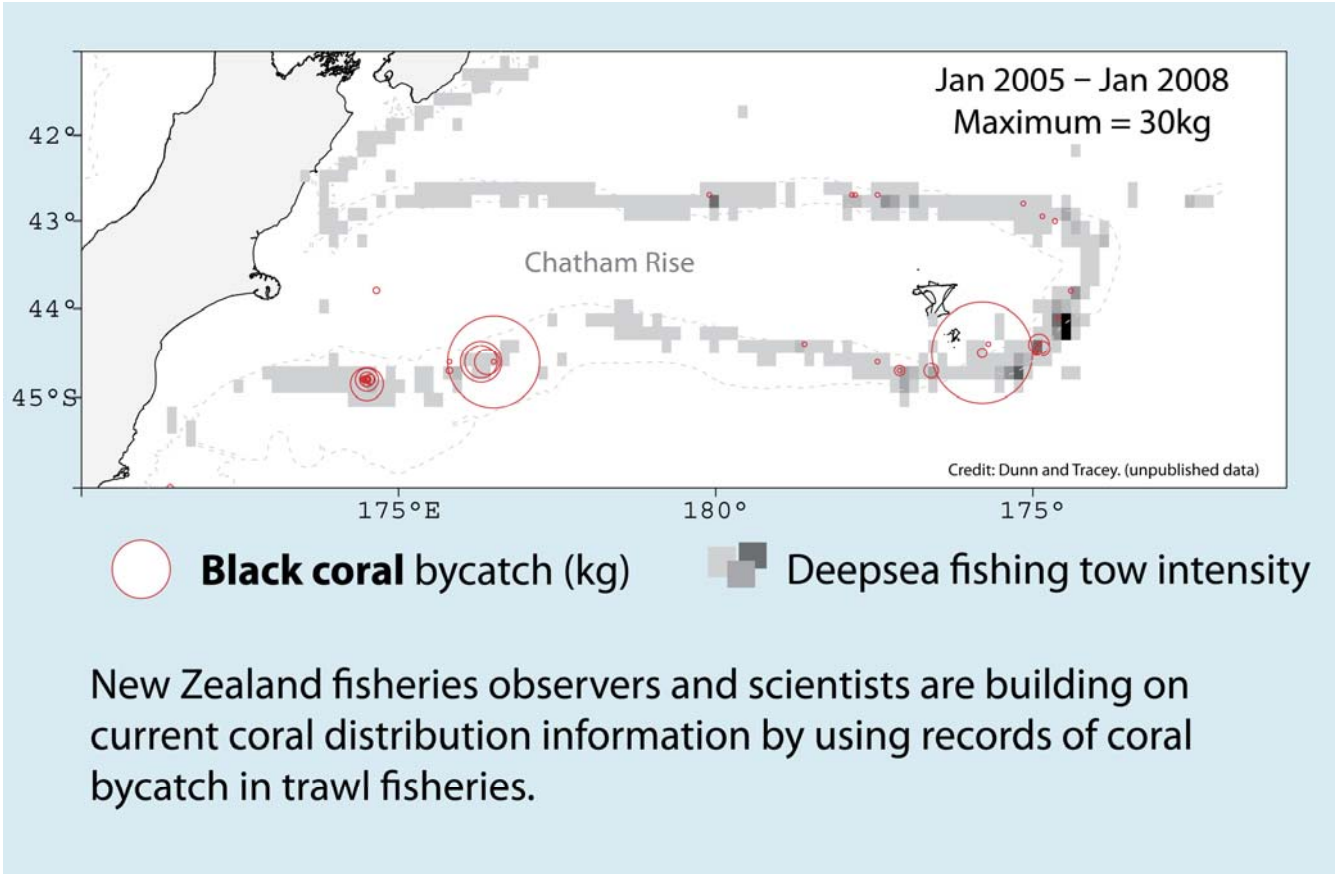
Distribution plots of stony corals





Note: numerous data sources, from Consalvey et al., 2006; from Tracey et al., in prep.

Example output



Observed coral bycatch overlaid on the deepsea trawl fishing effort in ½ degree squares on the Chatham Rise
(from Tracey et al 2008)

Methods Obj 2.

Assess value of carrying out ID's

Data grooming

verify observed codes,
level of taxon identified
(family or genus)

Data exclusion

multiple taxa in a bag
mismatch of number of corals
(> or < samples found by expert taxonomist)

Grooming exercise may highlight need for further training or additional descriptors in the coral guide

Quantitative analysis

compare allocated MFish species codes (Observers) with NIWA expert allocated code (follow method of (Parker et al., 2009; Tracey et al., 2010)

measure level of agreement & proportion of difficult-to-identify species

Example of comparison

Table 4: Comparison of NIWA versus scientific observer classification of VME bycatch in the 2009-10 Ross Sea longline fishery. For each specimen retained by an observer, the correct NIWA classification is provided. Shaded cells indicate agreement between observer and NIWA classifications. Columns describe how often the observer's classification was correct. Rows describe how often samples from a given group were correctly identified.

	Observer Classification																												
NIWA Classification	Actiniaria	*Adamussium colbecki*	Alcyonacea	Anthoathecatae	Antipatharia	Ascidiacea	Bathylasmatidae	Brachiopoda	Bryozoans	Chemosynthetic	Cidaroida	Cnidaria	Demospongiae	Euryalida	Gorgonacea	Hexactinellida	Holothurian	Pennatulacea	Polychaeta	Porifera	Scleractinia	Serpulidae	Stylasteridae	Zoanthidea	unidentified	not a code	omitted	nothing in log	Grand Total
Actiniaria	131					2											1	3					5				6	3	151
Adamussium colbecki		1																											1
Alcyonacea	1		5			4							1		5						1						5		22
Anthoathecatae				2											3												3	1	9
Antipatharia					3																								3
Ascidiacea	1					61											3				2			1			3	8	79
Bathylasmatidae							3																				1		4
Brachiopoda																													0
Bivalvia								1																					1
Bryozoans				1					3			1			3												5		13
Chemosynthetic																													0
Cidaroida											10										1						1		12
Demospongiae			1			17							60			16				3							3	4	104
Echinoidea											3																		3
Euryalida														31													6		37
Gorgonacea				10					2						109	1					6		9	6	1		10	10	164
Hexactinellida						2							44			58				1			1				3	6	115
Holothurian						1											1							5					7
Ophiuroidea														9															9
Pennatulacea																		42										4	46
Polychaeta													1						1										2
Scleractinia															2						127		2				3	1	135
Serpulidae																						1							1
Stalked crinoid										5																			5
Stylasteridae	2														7						71		70				5	6	161
Zoanthidea													6		3								1	7			2	1	20
Zoarcidae																										1			1
Jellyfish						1																						1	2
Unstalked crinoid										2																			2
Grand Total	135	1	6	13	3	88	3	1	5	7	13	1	112	40	132	75	5	45	1	4	208	1	88	19	1	1	56	45	1109
Percent correct	0.97	1.00	0.83	0.38	1.00	0.69	1.00	0.00	0.60	0.00	0.77	0.00	0.54	0.78	0.83	0.77	0.20	0.93	1.00	0.00	0.61	1.00	0.80	0.37					

Summary of key activities

Request *COD* data extract

Groom the data (observer catch effort & coral catch)

Map the coral species (or coral groups where appropriate) against the observed fishing effort by target species

Prepare Final Report for DOC which will show & discuss

- coral distribution relative to fishing
- provide an assessment of the value of at-sea sampling / sub-sampling of protected corals
- help assess the ongoing need to monitor and quantify the level of interaction between fisheries and protected corals