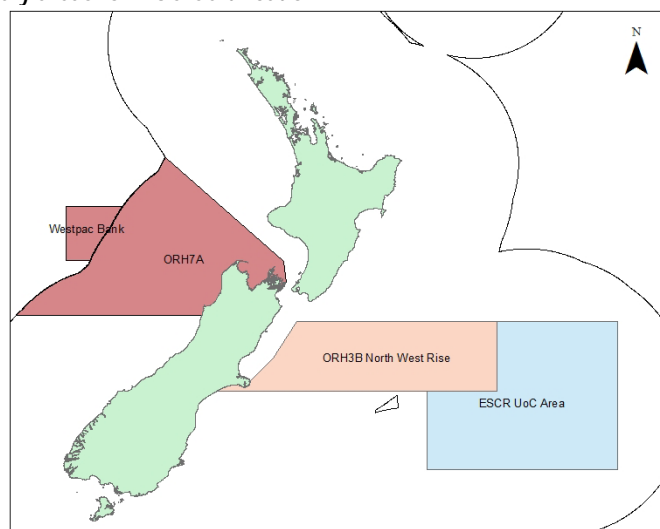




Analysis of retained and bycatch fish in New Zealand orange roughy fisheries Ministry for Primary Industries, 2015

Fish bycatch in each of the three fisheries under assessment for MSC certification was analysed to determine catch volume and identify any species that met the MSC criteria as 'main species' for the purposes of this assessment. The fisheries used to define catches match the agreed Unit of Certification - all fishing effort reported as targeting orange roughy (ORH), oreo (OEO), black oreo (BOE), and smooth oreo (SSO) within the designated area (See Figure 1 for fishery area).

Figure 1: Orange roughy fishery areas for MSC Certification



Catch levels were considered in light of the MSC criteria for 'main' retained and bycatch species of:

- Any species which makes up more than 5% of the total catch
- Any 'vulnerable' species (defined as any elasmobranch) that makes up more than 1% of the total catch

Method

These analyses used the observed catch in each fishery over the most recent four or five years, depending on the data available. Once the observed catch of each species was quantified it was then scaled up based on the proportion of total effort observed in each year. Total effort (observed and unobserved) was determined from reported target tows in the relevant areas from commercially reported data on statutory reporting forms (Trawl catch effort processing returns (TCEPR) and trawl catch effort returns (TCER). The scaled up total annual catch was used to calculate the proportion of the total catch made up by each species, and an average annual catch was calculated.

All non-fish catch and benthic organisms were removed from the dataset, although species such as squid are included. For each fishery, results are tabulated by QMS species, all non-QMS species, and elasmobranchs.

For any species where the criteria were met for the species to be assessed as a 'main' species, additional information is provided on the catch for that species within the wider 'stock' area (fisheries management area), and across the entire EEZ. These catch estimates are based on observed catches for each area, scaled up by

an estimate of the total effort observed in each area. The total effort for each area was calculated using reported tows (for all target species) from statutory reporting forms.

For these analyses, information is provided on overall catch reported under the two generic reporting codes, 'Other sharks and dogfish', and 'deepwater dogfish'. These codes have historically been used for non-QMS species which are not retained. Work has been underway to reduce the use of these codes to better inform actual catch of all elasmobranchs at the species level.

Northwest Chatham Rise

Available data for the Northwest Chatham Rise covers four years, the commercial fishery was not fished as the result of an agreement with industry from 2010 to 2013, therefore, effort was low in the most recent three years, with data from only two of the three years considered adequate to use in this analysis.

Reported catch from the Northwest Chatham Rise, was predominantly comprised of QMS species orange roughy and hoki (82% of total catch). The hoki fishery in this area is already MSC Certified and, therefore is not considered to require further attention.

None of the non-QMS (bycatch) species made up greater than 5% of the four-year annual catch, the largest was rattails which made up 4.7%. One elasmobranch species group (Deepwater dogfish) was calculated to have made up 1.1% of the total catch over the 4-year period.

For the Northwest Chatham Rise, only 'Deepwater dogfish' was considered to meet the criteria as a 'main' species. However, information is provided for the 'stock' area and the entire EEZ for the top three elasmobranch species or species groups, Deepwater dogfish, Other sharks and dogfish, and Baxter's lantern dogfish (*Etmopterus baxteri*).

East and South (E&S) Chatham Rise

Available data for the E&S Chatham Rise covers the most recent five years bar 2012/13, where observer coverage was not considered adequate to include in this analysis.

Reported catch from the E&S Chatham Rise is predominantly comprised of QMS species orange roughy and smooth oreo (90.1%). No other species comprise more than 5% of the total catch in this unit of certification. Information is provided on the spreadsheet on how reporting of catch using the generic 'oreos' (OEO) code was split into smooth and black oreo for this analysis. The most recent stock assessment for smooth oreo on the Chatham Rise was completed in 2012 and estimated B_{2010} to be at 41% B_0 . An updated assessment was undertaken in 2014 which is currently being finalised.

None of the non-QMS species made up more than 5% of the total catch from the Unit of Certification. One elasmobranch species, Baxter's lantern dogfish (*Etmopterus baxteri*), made up 1% of the total catch and additional information is provided for this species. In addition, a brief analysis is provided on the top three elasmobranch species, and a 'worst-case' scenario which assumes that all of the fish reported as 'Deepwater dogfish' and 'Other sharks and dogfish' were Baxter's lantern dogfish.

Challenger Plateau

Data for the Challenger fishery (ORH 7A+ Westpac Bank) includes all observed information for 2008/09 to 2012/13. The majority of this data is from research trips using commercial vessels, as the fishery only re-opened with a relatively small TACC in 2010/11.

No species other than orange roughy made up more than 5% or 1% of the total catch over the period of the analysis.

Northwest Chatham Rise ORH fishery: QMS (retained) species

All commercial tows	186	280	11	13
All obs tows	66	87	5	9
Percentage of tows observed	35.5%	31.1%	45.5%	69.2%

Species	2008/09			2009/10			2010/11			2012/13			Scaled up total 4 yr catch	% total catch	Average annual catch
	kg	%	tonnes	kg	%	tonnes	kg	%	tonnes	kg	%	tonnes			
Unit															
Orange roughy	330,650	80.4%	931.8	183,758	61.4%	591.4	13,971	92.1%	30.7	77,924	97.3%	112.6	1,666.5	73.4%	416.6
Hoki	21,364	5.2%	60.2	40,245	13.5%	129.5	8	0.1%	0.0	53	0.1%	0.1	189.8	8.4%	47.5
Smooth oreo	11,863	2.9%	33.4	5,431	1.8%	17.5	76	0.5%	0.2	586	0.7%	0.8	51.9	2.3%	13.0
Hake	2,394	0.6%	6.7	2,382	0.8%	7.7		0.0%	0.0	6	0.0%	0.0	14.4	0.6%	3.6
Pale ghost shark	254	0.1%	0.7	777	0.3%	2.5	6	0.0%	0.0		0.0%	0.0	3.2	0.1%	0.8
Ghost shark	551	0.1%	1.6	428	0.1%	1.4		0.0%	0.0		0.0%	0.0	2.9	0.1%	0.7
Ribaldo	414	0.1%	1.2	157	0.1%	0.5		0.0%	0.0		0.0%	0.0	1.7	0.1%	0.4
Cardinal fish	92	0.0%	0.3	120	0.0%	0.4	43	0.3%	0.1	33	0.0%	0.0	0.8	0.0%	0.2
Black oreo	39	0.0%	0.1	34	0.0%	0.1	1	0.0%	0.0	191	0.2%	0.3	0.5	0.0%	0.1
Ling	87	0.0%	0.2		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.2	0.0%	0.1
Spiky oreo	56	0.0%	0.2	10	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.2	0.0%	0.0
King crab	21	0.0%	0.1	30	0.0%	0.1		0.0%	0.0		0.0%	0.0	0.2	0.0%	0.0
Smooth skate		0.0%	0.0	22	0.0%	0.1		0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0
Lookdown dory	9	0.0%	0.0	1	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Flatfish	5	0.0%	0.0	2	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Sea perch	6	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Giant stargazer		0.0%	0.0	5	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Alfonsino	4	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Rough skate	3	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Spiny dogfish	2	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Arrow squid		0.0%	0.0	2	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
QMS Species total	367,814	89.5%	1,036.6	233,404	78.0%	751.2	14,105	92.9%	31.0	78,793	98.4%	113.8	1,932.6	85.1%	483.1
ALL SPECIES TOTAL	411,150	100.0%	1,158.7	299,080	100.0%	962.6	15,177	100.0%	33.4	80,108	100.0%	115.7	2,270.4	100.0%	567.6

Where 4-year annual %age catch exceeds 5% for the species

Northwest Chatham Rise ORH fishery: non-QMS (bycatch) species

All commercial tows	186	280	11	13
All obs tows	66	87	5	9
Percentage of tows observed	35.5%	31.1%	45.5%	69.2%

Species	2008/09			2009/10			2010/11			2012/13			Scaled up total 4 yr catch	% total catch	Average annual catch
	Units	kg	%	tonnes	kg	%	tonnes	kg	%	tonnes	kg	%			
Rattails	6,124	1.5%	17.3	28,112	9.4%	90.5	12	0.1%	0.0	12	0.0%	0.0	107.8	4.7%	26.9
Slickhead	10,771	2.6%	30.4	10,894	3.6%	35.1	1	0.0%	0.0		0.0%	0.0	65.4	2.9%	16.4
Morids	1,580	0.4%	4.5	8,971	3.0%	28.9	23	0.2%	0.1		0.0%	0.0	33.4	1.5%	8.3
Deepwater dogfish (Unspecified)	4,504	1.1%	12.7	3,531	1.2%	11.4		0.0%	0.0		0.0%	0.0	24.1	1.1%	6.0
Other Sharks and Dogfish*	2,903	0.7%	8.2	2,590	0.9%	8.3		0.0%	0.0	85	0.1%	0.1	16.6	0.7%	4.2
Baxter's lantern dogfish	1,713	0.4%	4.8	1,550	0.5%	5.0	794	5.2%	1.7	994	1.2%	1.4	13.0	0.6%	3.2
Johnson's cod	3,534	0.9%	10.0	1,231	0.4%	4.0	66	0.4%	0.1	33	0.0%	0.0	14.1	0.6%	3.5
Long-nosed chimaera	2,024	0.5%	5.7	2,758	0.9%	8.9		0.0%	0.0		0.0%	0.0	14.6	0.6%	3.6
Basketwork eel	2,204	0.5%	6.2	906	0.3%	2.9	15	0.1%	0.0	1	0.0%	0.0	9.2	0.4%	2.3
Four-rayed rattail	2,733	0.7%	7.7	4	0.0%	0.0		0.0%	0.0		0.0%	0.0	7.7	0.3%	1.9
Warty squid	1,191	0.3%	3.4	829	0.3%	2.7	2	0.0%	0.0		0.0%	0.0	6.0	0.3%	1.5
Shovelnose dogfish	1,171	0.3%	3.3	209	0.1%	0.7		0.0%	0.0		0.0%	0.0	4.0	0.2%	1.0
Seal shark	233	0.1%	0.7	987	0.3%	3.2	7	0.0%	0.0		0.0%	0.0	3.8	0.2%	1.0
Longnose velvet dogfish	310	0.1%	0.9	516	0.2%	1.7	1	0.0%	0.0	19	0.0%	0.0	2.6	0.1%	0.6
Plunket's shark	205	0.0%	0.6	167	0.1%	0.5	131	0.9%	0.3	150	0.2%	0.2	1.6	0.1%	0.4
Violet cod	445	0.1%	1.3	90	0.0%	0.3		0.0%	0.0		0.0%	0.0	1.5	0.1%	0.4
Smooth skin dogfish	395	0.1%	1.1	108	0.0%	0.3	7	0.0%	0.0		0.0%	0.0	1.5	0.1%	0.4
Leafscale gulper shark	90	0.0%	0.3	325	0.1%	1.0	10	0.1%	0.0	13	0.0%	0.0	1.3	0.1%	0.3
Deepsea skates		0.0%	0.0	383	0.1%	1.2	1	0.0%	0.0		0.0%	0.0	1.2	0.1%	0.3
Javelinfin	278	0.1%	0.8	72	0.0%	0.2		0.0%	0.0	1	0.0%	0.0	1.0	0.0%	0.3
Toadfish	249	0.1%	0.7	89	0.0%	0.3		0.0%	0.0		0.0%	0.0	1.0	0.0%	0.2
Skate, Other	333	0.1%	0.9	3	0.0%	0.0		0.0%	0.0	1	0.0%	0.0	0.9	0.0%	0.2
Roughskin dogfish	23	0.0%	0.1	288	0.1%	0.9		0.0%	0.0		0.0%	0.0	1.0	0.0%	0.2
Chimaera spp.		0.0%	0.0	258	0.1%	0.8	1	0.0%	0.0		0.0%	0.0	0.8	0.0%	0.2
Conger eel	125	0.0%	0.4	50	0.0%	0.2		0.0%	0.0		0.0%	0.0	0.5	0.0%	0.1
Longnosed deepsea skate	14	0.0%	0.0	151	0.1%	0.5		0.0%	0.0		0.0%	0.0	0.5	0.0%	0.1
Eels, Marine (Unspecified)		0.0%	0.0	160	0.1%	0.5		0.0%	0.0		0.0%	0.0	0.5	0.0%	0.1
Warty oreo		0.0%	0.0	84	0.0%	0.3		0.0%	0.0		0.0%	0.0	0.3	0.0%	0.1
Spineback	13	0.0%	0.0	64	0.0%	0.2		0.0%	0.0		0.0%	0.0	0.2	0.0%	0.1
Witch		0.0%	0.0	52	0.0%	0.2		0.0%	0.0		0.0%	0.0	0.2	0.0%	0.0
Deepwater octopus	50	0.0%	0.1		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0
Chimaera, purple	14	0.0%	0.0	34	0.0%	0.1		0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0
Deepwater spiny skate		0.0%	0.0	39	0.0%	0.1		0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0
Rays		0.0%	0.0	35	0.0%	0.1		0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0
Purple chimaera		0.0%	0.0	30	0.0%	0.1		0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0
Brodie's king crab	16	0.0%	0.0	5	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0
Cat shark	11	0.0%	0.0	5	0.0%	0.0	1	0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Bellowsfish	16	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Jellyfish (Unspecified)	14	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Oilfish		0.0%	0.0	10	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Frill shark		0.0%	0.0	10	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Violet squid		0.0%	0.0	8	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Prawn (Unspecified)	1	0.0%	0.0	7	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Prickly dogfish		0.0%	0.0	8	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Pholidoteuthis boschmai		0.0%	0.0	8	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Squid (Unspecified)	7	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Ommastrephes bartrami		0.0%	0.0	6	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Codheaded rattail	6	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Deep-sea blind lobster	6	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Cookiecutter shark		0.0%	0.0	5	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Gastropods		0.0%	0.0	5	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Unidentified fish	3	0.0%	0.0	1	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Cardinal fish, bigeye	1	0.0%	0.0	3	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Lancetfish		0.0%	0.0	3	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Dealfish		0.0%	0.0	3	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Pink frogmouth	1	0.0%	0.0	2	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Deepsea flathead	1	0.0%	0.0	2	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Electric ray	3	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Cardinal fish, robust		0.0%	0.0		0.0%	0.0		0.0%	0.0	3	0.0%	0.0	0.0	0.0%	0.0
Lighthouse fish		0.0%	0.0	3	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Crab (Unspecified)	2	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Hairy conger	2	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Benthooctopus spp.		0.0%	0.0	2	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Deep-sea spider crab	1	0.0%	0.0	1	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Swollenhead conger	2	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Serrulate rattail		0.0%	0.0	2	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Tubbia tasmanica		0.0%	0.0		0.0%	0.0		0.0%	0.0	2	0.0%	0.0	0.0	0.0%	0.0
Golden volute	2	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Spinyfin	2	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Spider crabs (Unspecified)		0.0%	0.0	2	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Fangtooth	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Common roughy	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Deepwater prawn	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Rudderfish	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Black slickhead		0.0%	0.0	1	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Blue cusk eel	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Cooks rattail		0.0%	0.0	1	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Grenadier cod		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0	0.0	0.0%	0.0

Mysid	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0	0.0%	0.0
Scarlet prawn	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0	0.0%	0.0
Viper fish	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0	0.0%	0.0
Mahia rattail		0.0%	0.0	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0	0.0%	0.0
Barracudinas		0.0%	0.0	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0	0.0%	0.0
Manefish	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0	0.0%	0.0
Small-headed cod		0.0%	0.0	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0	0.0%	0.0
Silver roughy	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0	0.0%	0.0
non-QMS species total	43,336	10.5%	122.1	65,676	22.0%	211.4	1,072	7.1%	2.4	1,315	1.6%	1.9	337.8	14.9%	84.4	
ALL SPECIES TOTAL	411,150	100.0%	1,158.7	299,080	100.0%	962.6	15,177	100.0%	33.4	80,108	100.0%	115.7	2,270.4	100.0%	567.6	

* Sharks & Dogfish not otherwise specified in Sch3, Part2 Reporting Regs 2001

Where 4-year annual %age catch exceeds 5% for the species

Where 4-year annual %age catch exceeds 1% for 'shark' species

Northwest Chatham Rise ORH fishery: elasmobranch (potentially vulnerable) species

All commercial tows	186	280	11	13
All observed tows	66	87	5	9
Percentage of tows observed	35.5%	31.1%	45.5%	69.2%

Species	2008/09			2009/10			2010/11			2012/13			Scaled up 4 yr catch	% total catch	Average annual catch	
	Unit	kg	% tonnes	kg	% tonnes	kg	% tonnes	kg	% tonnes	tonnes	%	tonnes				
Deepwater dogfish (Unspecified)		4,504	1.1%	12.7	3,531	1.2%	11.4		0.0%	0.0		0.0%	0.0	24.1	1.1%	6.0
Other sharks and dogfish*		2,903	0.7%	8.2	2,590	0.9%	8.3		0.0%	0.0	85	0.1%	0.1	16.6	0.7%	4.2
Baxter's lantern dogfish		1,713	0.4%	4.8	1,550	0.5%	5.0	794	5.2%	1.7	994	1.2%	1.4	13.0	0.6%	3.2
Long-nosed chimaera		2,024	0.5%	5.7	2,758	0.9%	8.9		0.0%	0.0		0.0%	0.0	14.6	0.6%	3.6
Shovelnose dogfish		1,171	0.3%	3.3	209	0.1%	0.7		0.0%	0.0		0.0%	0.0	4.0	0.2%	1.0
Seal shark		233	0.1%	0.7	987	0.3%	3.2	7	0.0%	0.0		0.0%	0.0	3.8	0.2%	1.0
Pale ghost shark		254	0.1%	0.7	777	0.3%	2.5	6	0.0%	0.0		0.0%	0.0	3.2	0.1%	0.8
Ghost shark		551	0.1%	1.6	428	0.1%	1.4		0.0%	0.0		0.0%	0.0	2.9	0.1%	0.7
Longnose velvet dogfish		310	0.1%	0.9	516	0.2%	1.7	1	0.0%	0.0	19	0.0%	0.0	2.6	0.1%	0.6
Plunket's shark		205	0.0%	0.6	167	0.1%	0.5	131	0.9%	0.3	150	0.2%	0.2	1.6	0.1%	0.4
Smooth skin dogfish		395	0.1%	1.1	108	0.0%	0.3	7	0.0%	0.0		0.0%	0.0	1.5	0.1%	0.4
Leafscale gulper shark		90	0.0%	0.3	325	0.1%	1.0	10	0.1%	0.0	13	0.0%	0.0	1.3	0.1%	0.3
Deepsea skates			0.0%	0.0	383	0.1%	1.2	1	0.0%	0.0		0.0%	0.0	1.2	0.1%	0.3
Roughskin dogfish		23	0.0%	0.1	288	0.1%	0.9		0.0%	0.0		0.0%	0.0	1.0	0.0%	0.2
Chimaera spp.			0.0%	0.0	258	0.1%	0.8	1	0.0%	0.0		0.0%	0.0	0.8	0.0%	0.2
Longnosed deepsea skate		14	0.0%	0.0	151	0.1%	0.5		0.0%	0.0		0.0%	0.0	0.5	0.0%	0.1
Chimaera, purple		14	0.0%	0.0	34	0.0%	0.1		0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0
Rays			0.0%	0.0	35	0.0%	0.1		0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0
Purple chimaera			0.0%	0.0	30	0.0%	0.1		0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0
Smooth skate			0.0%	0.0	22	0.0%	0.1		0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0
Cat shark		11	0.0%	0.0	5	0.0%	0.0	1	0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Frill shark			0.0%	0.0	10	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Prickly dogfish			0.0%	0.0	8	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Cookiecutter shark			0.0%	0.0	5	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Rough skate		3	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Electric ray		3	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Spiny dogfish		2	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Grand Total		14,423	3.5%	40.6	15,175	5.1%	48.8	959	6.3%	2.1	1,261	1.6%	1.8	93.4	4.1%	23.4
ALL SPECIES TOTAL		411,150	100.0%	1,158.7	299,080	100.0%	962.6	15,177	100.0%	33.4	80,108	100.0%	115.7	2,270.4	100.0%	567.6

Note that changes in reporting following the NPOA Sharks has led to a substantial reduction in the use of these codes since

Where 4-year annual %age catch exceeds 1% for 'shark' species

NWCR Comparison of UoC to EEZ

Species/species group	Scaled up		% total catch	Average annual catch in certified fishery tonnes	Avg annual Scaled FMA 4 catch (all methods) tonnes	Avg annual Scaled EEZ catch tonnes	% of FMA 4 catch in UoC %	% of EEZ catch from UoC %
	Unit	4 yr catch tonnes						
Deepwater dogfish (Unspecified)		24.1	1.1%	6.0	109.7	133.2	5.5%	4.5%
Other sharks and dogfish*		16.6	0.7%	4.2	104.9	239.7	4.0%	1.7%
Baxter's lantern dogfish		13.0	0.6%	3.2	205.2	431.6	1.6%	0.8%

* Sharks & Dogfish not otherwise specified in Sch3, Part2 Reporting Regs 2001

08/09 to 11/12 FMA 4 scaling

Total tows on Chatham Rise	23,284
Observed tows on Chatham Rise	4,884
Approximate observed %	21%

08/0 to 11/12 EEZ Scaling

Total tows by vessels >28m in EEZ	112,470
Observed tows by vessels >28m in EEZ	29,555
Approximate observed %	26%

East & South Chatham Rise ORH fishery (UoC): QMS (retained) species

All commercial tows	2,251	1,659	715	869	942
All obs tows	920	657	85	145	136
Percentage of tows observed	40.9%	39.6%	11.9%	16.7%	14.4%

Species	2008/09			2009/10			2010/11			2011/12			2013/14			Scaled up total 5 yr catch	% total catch	Average annual catch
	kg	%	tonnes	kg	%	tonnes	kg	%	tonnes	kg	%	tonnes	kg	%	tonnes			
Units																		
Smooth oreo	2,483,634	54.8%	6,076.8	2,320,203	52.1%	5,858.8	505,133	70.5%	4,249.1	1,024,644	84.0%	6,140.8	872,673	62.3%	6,044.5	28,370.0	62.5%	5,674.0
Orange roughly	1,466,474	32.4%	3,588.1	1,412,364	31.7%	3,566.4	170,826	23.8%	1,436.9	108,945	8.9%	652.9	471,983	33.7%	3,269.2	12,513.5	27.6%	2,502.7
Black oreo	257,535	5.7%	630.1	390,194	8.8%	985.3	13,373	1.9%	112.5	37,628	3.1%	225.5	24,505	1.7%	169.7	2,123.1	4.7%	424.6
Hoki	45,747	1.0%	111.9	63,331	1.4%	159.9	3,971	0.6%	33.4	9,046	0.7%	54.2	1,678	0.1%	11.6	371.1	0.8%	74.2
Ribaldo	510	0.0%	1.2	1,074	0.0%	2.7	18	0.0%	0.2	27	0.0%	0.2	6,459	0.5%	44.7	49.0	0.1%	9.8
Cardinal fish	8,604	0.2%	21.1	1,455	0.0%	3.7	65	0.0%	0.5	232	0.0%	1.4	1,818	0.1%	12.6	39.3	0.1%	7.9
Pale ghost shark	794	0.0%	1.9	1,614	0.0%	4.1	39	0.0%	0.3	86	0.0%	0.5	49	0.0%	0.3	7.2	0.0%	1.4
Hake	143	0.0%	0.3	483	0.0%	1.2	54	0.0%	0.5	51	0.0%	0.3	317	0.0%	2.2	4.5	0.0%	0.9
Alfonsino	554	0.0%	1.4	161	0.0%	0.4		0.0%	0.0	166	0.0%	1.0	5	0.0%	0.0	2.8	0.0%	0.6
Smooth skate	9	0.0%	0.0	768	0.0%	1.9		0.0%	0.0		0.0%	0.0	20	0.0%	0.1	2.1	0.0%	0.4
King crab		0.0%	0.0	335	0.0%	0.8		0.0%	0.0		0.0%	0.0	2	0.0%	0.0	0.9	0.0%	0.2
Sea perch	11	0.0%	0.0	233	0.0%	0.6	1	0.0%	0.0		0.0%	0.0	17	0.0%	0.1	0.7	0.0%	0.1
Moonfish	215	0.0%	0.5		0.0%	0.0		0.0%	0.0	30	0.0%	0.2		0.0%	0.0	0.7	0.0%	0.1
White warehou	15	0.0%	0.0	131	0.0%	0.3		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.4	0.0%	0.1
Spiky oreo		0.0%	0.0		0.0%	0.0		0.0%	0.0	60	0.0%	0.4		0.0%	0.0	0.4	0.0%	0.1
Ghost shark	78	0.0%	0.2	11	0.0%	0.0		0.0%	0.0	10	0.0%	0.1		0.0%	0.0	0.3	0.0%	0.1
Ling	3	0.0%	0.0	64	0.0%	0.2		0.0%	0.0		0.0%	0.0	4	0.0%	0.0	0.2	0.0%	0.0
Silver warehou		0.0%	0.0		0.0%	0.0		0.0%	0.0	28	0.0%	0.2		0.0%	0.0	0.2	0.0%	0.0
Bluenose	13	0.0%	0.0	25	0.0%	0.1		0.0%	0.0	4	0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0
Arrow squid	11	0.0%	0.0	28	0.0%	0.1		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0
Ray's bream	6	0.0%	0.0	7	0.0%	0.0	2	0.0%	0.0	3	0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0
Rough skate		0.0%	0.0	25	0.0%	0.1		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0
Lookdown dory	3	0.0%	0.0	10	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Spiny dogfish	13	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Flatfish		0.0%	0.0	3	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
NZ Southern arrow squid	3	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Grand Total	4,264,375	94.1%	10,433.8	4,192,519	94.1%	10,586.6	693,482	96.8%	5,833.4	1,180,960	96.9%	7,077.6	1,379,537	98.4%	9,555.3	43,486.7	95.8%	8,697.3
ALL SPECIES TOTAL	4,532,932	100.0%	11,090.9	4,455,394	100.0%	11,250.4	716,671	100.0%	6,028.5	1,219,241	100.0%	7,307.0	1,401,708	100.0%	9,708.9	45,385.7	100.0%	9,077.1

Smooth oreo (SSO)	2,479,744		2,227,679		505,133		1,024,644		872,670
Black oreo (BOE)	257,132		374,634		13,373		37,628		24,505
Proportion smooth	0.9060		0.8560		0.9742		0.9646		0.9727
Smooth & black combined (OEO)	4,293		108,084		0		0		3
SSO estimated	3,890		92,524		0.0		0.0		2.9
BOE assumption	403		15,560		0.0		0.0		0.1

Table ordered by 5-yr average annual catch
 x% = Where 5-year annual %age catch exceeds 5% for the species.

Prawn (Unspecified)	0	0.0%	0.0	1	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Gastroptychus spp.	0	0.0%	0.0	1	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Tubbia tasmanica	0	0.0%	0.0	1	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Barracudina	0	0.0%	0.0	1	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Viper fish	0	0.0%	0.0	1	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
False frostfish	0	0.0%	0.0	1	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Hatchetfish	0	0.0%	0.0	1	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Spider crabs (Unspecified)	0	0.0%	0.0	1	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Omosudid	1	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Deep-sea blind lobster	1	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Snipe eels	1	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Escolar	1	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Dell's spider crab	1	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Clingfish	1	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Warty king crab	1	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Big-scale Fish	1	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Lightfishes	1	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Red squid	1	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Giant red mysid	1	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Finless flounder	1	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Scyphozoa - Jellyfish	0	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Golden volute	0	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
Krill, squat lobsters	0	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0	0.0%	0.0		
non-QMS total	268,557	5.9%	657.1	262,875	5.9%	663.8	23,189	3.2%	195.1	38,281	3.1%	229.4	20,375	1.5%	141.1	1,886.5	4.2%	377.3
ALL SPECIES TOTAL	4,532,932	100.0%	11,090.9	4,455,394	100.0%	11,250.4	716,671	100.0%	6,028.5	1,219,241	100.0%	7,307.0	1,401,708	100.0%	9,708.9	45,385.7	100.0%	9,077.1

* Sharks & Dogfish not otherwise specified in Schedule 3, Part 2 of the Reporting Regulations 2001

Table ordered by 5-yr average annual catch

There are no bycatch species that exceed the 5% minor/major threshold

x% = Where 5-year annual %age catch exceeds 1% for the 'shark' species.

East & South Chatham Rise ORH fishery (UoC): elasmobranch (potentially vulnerable) species

		2,251			1,659			715			869			942					
		920			657			85			145			136					
		40.9%			39.6%			11.9%			16.7%			14.4%					
Species	2008/09			2009/10			2010/11			2011/12			2013/14			Scaled up total 5 yr catch (t)	% total catch	Average annual catch (t)	
	Units	kg	%	tonnes	kg	%	tonnes	kg	%	tonnes	kg	%	tonnes	kg	%				tonnes
Baxter's lantern dogfish	60,359	1.3%	147.7	56,258	1.3%	142.1	4,604	0.6%	38.7	15,840	1.3%	94.9	2,656	0.2%	18.4	441.8	1.0%	88.4	
Deepwater dogfish (Unspecified)	50,708	1.1%	124.1	15,773	0.4%	39.8		0.0%	0.0	2,336	0.2%	14.0	270	0.0%	1.9	179.8	0.4%	36.0	
Other sharks & dogfish*	570	0.0%	1.4	25,642	0.6%	64.7	9,900	1.4%	83.3	1,694	0.1%	10.2	1,940	0.1%	13.4	173.0	0.4%	34.6	
Shovelnose dogfish	14,638	0.3%	35.8	26,053	0.6%	65.8	303	0.0%	2.5	711	0.1%	4.3	2,153	0.2%	14.9	123.3	0.3%	24.7	
Seal shark	18,973	0.4%	46.4	2,590	0.1%	6.5	105	0.0%	0.9	5,143	0.4%	30.8	340	0.0%	2.4	87.0	0.2%	17.4	
Long-nosed chimaera	4,215	0.1%	10.3	8,167	0.2%	20.6	8	0.0%	0.1	150	0.0%	0.9	199	0.0%	1.4	33.3	0.1%	6.7	
Longnose velvet dogfish	4,300	0.1%	10.5	3,001	0.1%	7.6	219	0.0%	1.8	162	0.0%	1.0	88	0.0%	0.6	21.5	0.0%	4.3	
Cookiecutter shark		0.0%	0.0		0.0%	0.0	1,664	0.2%	14.0		0.0%	0.0		0.0%	0.0	14.0	0.0%	2.8	
Plunket's shark	3,621	0.1%	8.9	1,024	0.0%	2.6	12	0.0%	0.1	159	0.0%	1.0	12	0.0%	0.1	12.6	0.0%	2.5	
Leafscale gulper shark	692	0.0%	1.7	998	0.0%	2.5	72	0.0%	0.6	292	0.0%	1.7	477	0.0%	3.3	9.9	0.0%	2.0	
Pale ghost shark	794	0.0%	1.9	1,614	0.0%	4.1	39	0.0%	0.3	86	0.0%	0.5	49	0.0%	0.3	7.2	0.0%	1.4	
Cat shark	110	0.0%	0.3	1,743	0.0%	4.4		0.0%	0.0	28	0.0%	0.2		0.0%	0.0	4.8	0.0%	1.0	
Chimaera spp.	146	0.0%	0.4	28	0.0%	0.1	17	0.0%	0.1		0.0%	0.0	288	0.0%	2.0	2.6	0.0%	0.5	
Smooth skin dogfish	221	0.0%	0.5	543	0.0%	1.4	16	0.0%	0.1		0.0%	0.0	43	0.0%	0.3	2.3	0.0%	0.5	
Smooth skate	9	0.0%	0.0	768	0.0%	1.9		0.0%	0.0		0.0%	0.0	20	0.0%	0.1	2.1	0.0%	0.4	
Longnosed deepsea skate	67	0.0%	0.2	687	0.0%	1.7	2	0.0%	0.0		0.0%	0.0	6	0.0%	0.0	2.0	0.0%	0.4	
Roughskin dogfish		0.0%	0.0	595	0.0%	1.5	14	0.0%	0.1		0.0%	0.0		0.0%	0.0	1.6	0.0%	0.3	
Purple chimaera		0.0%	0.0	116	0.0%	0.3		0.0%	0.0	128	0.0%	0.8	64	0.0%	0.4	1.5	0.0%	0.3	
Deepwater spiny skate	12	0.0%	0.0	202	0.0%	0.5		0.0%	0.0	52	0.0%	0.3	34	0.0%	0.2	1.1	0.0%	0.2	
Chimaera, purple	102	0.0%	0.2	274	0.0%	0.7		0.0%	0.0	19	0.0%	0.1		0.0%	0.0	1.1	0.0%	0.2	
Potuguese dogfish	75	0.0%	0.2	265	0.0%	0.7		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.9	0.0%	0.2	
Rough shovelnose dogfish		0.0%	0.0	319	0.0%	0.8		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.8	0.0%	0.2	
Etmopterus spp.	250	0.0%	0.6		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.6	0.0%	0.1	
Lucifer dogfish	180	0.0%	0.4		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.4	0.0%	0.1	
Deepsea skates	161	0.0%	0.4	4	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.4	0.0%	0.1	
Ghost shark	78	0.0%	0.2	11	0.0%	0.0		0.0%	0.0	10	0.0%	0.1		0.0%	0.0	0.3	0.0%	0.1	
Widenosed chimaera		0.0%	0.0		0.0%	0.0		0.0%	0.0	5	0.0%	0.0	32	0.0%	0.2	0.3	0.0%	0.1	
Giant black ghost shark	34	0.0%	0.1		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0	
Velvet dogfish		0.0%	0.0	32	0.0%	0.1		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0	
Rough skate		0.0%	0.0	25	0.0%	0.1		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0	
Hydrolagus spp.	15	0.0%	0.0	10	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.1	0.0%	0.0	
Skate, Other	1	0.0%	0.0	9	0.0%	0.0	2	0.0%	0.0		0.0%	0.0	2	0.0%	0.0	0.1	0.0%	0.0	
Spiny dogfish	13	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0	
Prickly dogfish	5	0.0%	0.0	2	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0	
Slender smooth-hound		0.0%	0.0		0.0%	0.0	2	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0	
Electric ray		0.0%	0.0	6	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0	
Notoraja spinifera		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0	
Long-tailed skate	2	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0	
Elasmobranch total	160,351	3.5%	392.3	146,759	3.3%	370.6	16,979	2.4%	142.8	26,816	2.2%	160.7	8,681	0.6%	60.1	1,126.6	2.5%	225.3	
ALL SPECIES TOTAL	4,532,932	100.0%	11,090.9	4,455,394	100.0%	11,250.4	716,671	100.0%	6,028.5	1,219,241	100.0%	7,307.0	1,401,708	100.0%	9,708.9	45,385.7	100.0%	9,077.1	

*Sharks & Dogfish not otherwise specified in Schedule 3, Part 2 of the Reporting Regulations 2001

Table ordered by 5-yr average annual catch

There are no bycatch species that exceed the 5% minor/major threshold

x% = Where 5-year annual %age catch exceeds 1% for the 'shark' species.

ESCR Comparison of UoC to EEZ

Species	Scaled up 4 yr catch tonnes	% total catch in E&S Rise fishery %	Avg annual catch in certified fishery (t) tonnes	Avg annual Scaled FMA 4 catch (all methods) tonnes	Avg annual Scaled EEZ catch tonnes	% of FMA 4 catch in UoC %	% of EEZ catch from UoC %	% of EEZ catch of combined ETB, DWD, and OSD from UoC
Baxter's lantern dogfish	441.8	1.2%	105.8	205.2	431.6	51.6%	24.5%	23.6%
Deepwater dogfish (Unspecified)	179.8	0.5%	44.5	109.7	133.2	40.6%	33.4%	
Other sharks & dogfish (Unspecified)*	173.0	0.4%	39.9	104.9	239.7	38.0%	16.6%	

* Sharks & Dogfish not otherwise specified in Sch3, Part2 Reporting Regs 2001

08/09 to 11/12 FMA 4 scaling

Total tows on CR	23,284
Obs tows on CR	4,884
Approximate observed %	21%
BLL coverage on CR in 10/11	0.065

08/09-11/12 ETB is mostly caught by mid-water and DW trawling, and BLL so the overall obs % for those methods has been used

Total tows by vessels >28m in EEZ	112,470
Observed tows by vessels >28m in EEZ	29,555
Approximate observed %	26%

Challenger ORH fishery: QMS (retained) species

Total commercial tows	64	78	112	106	154
Total observed tows	67	80	73	70	84
% tows observed	104.7%	102.6%	65.2%	66.0%	54.5%

Species	2008/09			2009/10			2010/11			2011/12			2012/13			Scaled up total 5-year catch	% of total catch	Average annual catch
	Unit	kg	%	tonnes	kg	%	tonnes	kg	%	tonnes	kg	%	tonnes	kg	%			
Orange roughy	229,788	92.9%	229.8	332,083	98.6%	332.1	320,567	97.4%	491.8	238,623	94.6%	361.3	281,573	92.7%	516.2	1,931.3	95.2%	386.3
Spiky oreo	2,248	0.9%	2.2	488	0.1%	0.5	3,799	1.2%	5.8	6,401	2.5%	9.7	5,570	1.8%	10.2	28.5	1.4%	5.7
Ribaldo	838	0.3%	0.8	331	0.1%	0.3	767	0.2%	1.2	821	0.3%	1.2	2,134	0.7%	3.9	7.5	0.4%	1.5
Hake	270	0.1%	0.3	261	0.1%	0.3	284	0.1%	0.4	241	0.1%	0.4	418	0.1%	0.8	2.1	0.1%	0.4
Hoki	99	0.0%	0.1	138	0.0%	0.1	222	0.1%	0.3	325	0.1%	0.5	294	0.1%	0.5	1.6	0.1%	0.3
Cardinal fish	0.0%	0.0%	0.0	0.0%	0.0%	0.0	98	0.0%	0.2	163	0.1%	0.2	44	0.0%	0.1	0.5	0.0%	0.1
Pale ghost shark	35	0.0%	0.0	16	0.0%	0.0	36	0.0%	0.1	59	0.0%	0.1	111	0.0%	0.2	0.4	0.0%	0.1
Ray's bream	2	0.0%	0.0	1	0.0%	0.0	1	0.0%	0.0	0	0.0%	0.0	140	0.0%	0.3	0.3	0.0%	0.1
Sea perch	30	0.0%	0.0	17	0.0%	0.0	14	0.0%	0.0	9	0.0%	0.0	69	0.0%	0.1	0.2	0.0%	0.0
Smooth oreo	27	0.0%	0.0	13	0.0%	0.0	10	0.0%	0.0	16	0.0%	0.0	15	0.0%	0.0	0.1	0.0%	0.0
Silver warehou	0.0%	0.0%	0.0	0.0%	0.0%	0.0	27	0.0%	0.0	0	0.0%	0.0	2	0.0%	0.0	0.0	0.0%	0.0
Ghost shark	2	0.0%	0.0	0.0%	0.0%	0.0	1	0.0%	0.0	13	0.0%	0.0	0.0%	0.0	0.0	0.0	0.0%	0.0
Smooth skate	0.0%	0.0%	0.0	7	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	6	0.0%	0.0	0.0	0.0%	0.0
Blue shark	0.0%	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	11	0.0%	0.0	0.0%	0.0	0.0	0.0	0.0%	0.0
Black oreo	0.0%	0.0%	0.0	0.0%	0.0%	0.0	1	0.0%	0.0	1	0.0%	0.0	9	0.0%	0.0	0.0	0.0%	0.0
Alfonsino	0.0%	0.0%	0.0	2	0.0%	0.0	2	0.0%	0.0	0.0%	0.0%	0.0	3	0.0%	0.0	0.0	0.0%	0.0
Ling	0.0%	0.0%	0.0	6	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0	0.0	0.0	0.0%	0.0
Spiny dogfish	0.0%	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	3	0.0%	0.0	2	0.0%	0.0	0.0	0.0%	0.0
Giant stargazer	2	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	3	0.0%	0.0	0.0	0.0%	0.0
King crab	0.0%	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	5	0.0%	0.0	0.0	0.0%	0.0
Arrow squid	0.0%	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	5	0.0%	0.0	0.0	0.0%	0.0
Lookdown dory	0.0%	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	2	0.0%	0.0	0.0	0.0%	0.0
Frostfish	0.0%	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	1	0.0%	0.0	0.0	0.0%	0.0
NZ Southern arrow squid	0.0%	0.0%	0.0	1	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0	0.0	0.0	0.0%	0.0
Rough skate	1	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0	0.0	0.0	0.0%	0.0
Kingfish	1	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0%	0.0	0.0%	0.0	0.0	0.0	0.0%	0.0
QMS Total	233,343	94.3%	233.3	333,364	99.0%	333.4	325,829	99.0%	499.9	246,686	97.8%	373.6	290,406	95.6%	532.4	1,972.6	97.3%	394.5
ALL SPECIES	247,377	100.0%	247.4	336,694	100.0%	336.7	329,215	100.0%	505.1	252,224	100.0%	381.9	303,822	100.0%	557.0	2,028.1	100.0%	405.6

Where 5-year annual percentage catch exceeds 5%

Deep-sea spider crab	1	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	3	0.0%	0.0	0.0	0.0%	0.0	
Conger eel		0.0%	0.0	0.0%	0.0	1	0.0%	0.0	3	0.0%	0.0	0.0	0.0%	0.0	0.0	
Dark banded rattail	2	0.0%	0.0	0.0%	0.0		0.0%	0.0		2	0.0%	0.0	0.0	0.0%	0.0	
Silver roughy		0.0%	0.0	0.0%	0.0	1	0.0%	0.0		2	0.0%	0.0	0.0	0.0%	0.0	
Scarlet prawn		0.0%	0.0	0.0%	0.0		0.0%	0.0	1	0.0%	0.0	2	0.0%	0.0	0.0	
Sawtooth eels		0.0%	0.0	0.0%	0.0		0.0%	0.0	1	0.0%	0.0	2	0.0%	0.0	0.0	
Notoraja asperula	1	0.0%	0.0	0.0%	0.0		0.0%	0.0		2	0.0%	0.0	0.0	0.0%	0.0	
Red scorpion fish		0.0%	0.0	0.0%	0.0	3	0.0%	0.0			0.0%	0.0	0.0	0.0%	0.0	
Loosejaws	1	0.0%	0.0	0.0%	0.0		0.0%	0.0	2	0.0%	0.0		0.0%	0.0	0.0	
Shortsnouted lancetfish		0.0%	0.0	4	0.0%	0.0	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	
Dark toadfish		0.0%	0.0		0.0%	0.0	0.0%	0.0		0.0%	0.0	2	0.0%	0.0	0.0	
Spider prawns		0.0%	0.0		0.0%	0.0	0.0%	0.0		0.0%	0.0	2	0.0%	0.0	0.0	
Southern loosejaw		0.0%	0.0		0.0%	0.0	0.0%	0.0		0.0%	0.0	2	0.0%	0.0	0.0	
Kuronezumia leonis		0.0%	0.0		0.0%	0.0	0.0%	0.0	1	0.0%	0.0	1	0.0%	0.0	0.0	
Prawn (Unspecified)		0.0%	0.0		0.0%	0.0	1	0.0%	0.0	1	0.0%	0.0	0.0%	0.0	0.0	
Dwarf cod		0.0%	0.0		0.0%	0.0		0.0%	0.0	2	0.0%	0.0		0.0%	0.0	
Octopod		0.0%	0.0		0.0%	0.0		0.0%	0.0	2	0.0%	0.0		0.0%	0.0	
Frill shark		0.0%	0.0		0.0%	0.0		0.0%	0.0	2	0.0%	0.0		0.0%	0.0	
Brodie's king crab		0.0%	0.0		0.0%	0.0		0.0%	0.0	2	0.0%	0.0		0.0%	0.0	
Murray's king crab		0.0%	0.0	3	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	
Deepsea skates	3	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	
Rough pomfret		0.0%	0.0	1	0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0	
Ragfish		0.0%	0.0	1	0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0	
Giant hatchetfish	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0	
Lyconus sp.		0.0%	0.0	1	0.0%	0.0	1	0.0%	0.0		0.0%	0.0		0.0%	0.0	
Deepsea flathead	1	0.0%	0.0		0.0%	0.0	1	0.0%	0.0		0.0%	0.0		0.0%	0.0	
Lanternfish	1	0.0%	0.0		0.0%	0.0	1	0.0%	0.0		0.0%	0.0		0.0%	0.0	
Notoraja spinifera	1	0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0		0.0%	0.0	
Chimaera, purple		0.0%	0.0	2	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	
Schedophilus sp.		0.0%	0.0	2	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	
Black javelinfinch	2	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	
Benthoctopus clyderoperi		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0	
Deepwater prawn		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0	
Crab (Unspecified)		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0	
Large scaled blackchin		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0	
Cardinal fish, robust		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0	
Subnosed eel		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0	
Manefish		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0	
Scabbardfish		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0	
Deepsea lightfish		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0	
Nemichthys curvirostris		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0	
Olivers rattail		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0	
Borostomias antarcticus		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0		0.0%	0.0	
Duckbill eel		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0		0.0%	0.0	
Opostomias micripnus		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0		0.0%	0.0	
Deepsea lizardfish		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0		0.0%	0.0	
Cranchiid squid		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0		0.0%	0.0	
Deep-sea blind lobster		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0		0.0%	0.0	
Snaggleteooths		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0		0.0%	0.0	
Barracudina		0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0		0.0%	0.0	
Crested oarfish, Crestfish	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	
Globosehead rattail	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	
Kaiyomaru rattail	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	
Horrible rattail	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	
Gastropods	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	
Melanonus gracilis		0.0%	0.0	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	
Cutthroat eels (except Basketwork eels)	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	
Black snipe eel	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	
Ommastrephes bartrami	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	
Fanfish		0.0%	0.0	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	
Two-spined crab		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0	0.0%	0.0	
Brine shrimp		0.0%	0.0	0	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	
Deepwater octopod		0.0%	0.0		0.0%	0.0		0.0%	0.0	0	0.0%	0.0		0.0%	0.0	
NON-QMS TOTAL	14,034	5.7%	14.0	3,330	1.0%	3.3	3,385	1.0%	5.2	5,534	2.2%	8.4	13,415	4.4%	24.6	
ALL SPECIES	247,377	100.0%	247.4	336,694	100.0%	336.7	329,215	100.0%	505.1	252,224	100.0%	381.9	303,822	100.0%	557.0	
														2,028.1	100.0%	405.6

Where 5-year annual percentage catch exceeds 5%

Challenger ORH fishery: elasmobranch (potentially vulnerable) species

All commercial tows	64	78	112	106	154
All observed tows	67	80	73	70	84
Percentage of tows observed	104.7%	102.6%	65.2%	66.0%	54.5%

Species	2008/09			2009/10			2010/11			2011/12			2012/13			Scaled up total 5 yr catch	% of total catch	Average annual catch
	Unit	kg	%	tonnes	kg	%	tonnes	kg	%	tonnes	kg	%	tonnes	kg	%			
Leafscale gulper shark	1,072	0.4%	1.1	949	0.3%	0.9	1,197	0.4%	1.8	1,441	0.6%	2.2	2,412	0.8%	4.4	10.5	0.5%	2.1
Other sharks and dogfish	9,051	3.7%	9.1		0.0%	0.0	8	0.0%	0.0		0.0%	0.0		0.0%	0.0	9.1	0.4%	1.8
Shovelnose dogfish	634	0.3%	0.6	191	0.1%	0.2	411	0.1%	0.6	525	0.2%	0.8	726	0.2%	1.3	3.6	0.2%	0.7
Smooth skin dogfish	581	0.2%	0.6	409	0.1%	0.4	139	0.0%	0.2	527	0.2%	0.8	781	0.3%	1.4	3.4	0.2%	0.7
Plunket's shark	314	0.1%	0.3		0.0%	0.0	301	0.1%	0.5	494	0.2%	0.7	358	0.1%	0.7	2.2	0.1%	0.4
Seal shark	197	0.1%	0.2	134	0.0%	0.1	283	0.1%	0.4	370	0.1%	0.6	172	0.1%	0.3	1.6	0.1%	0.3
Longnose velvet dogfish	190	0.1%	0.2	244	0.1%	0.2	31	0.0%	0.0	129	0.1%	0.2	197	0.1%	0.4	1.0	0.1%	0.2
Potuguese dogfish	111	0.0%	0.1	16	0.0%	0.0	4	0.0%	0.0	130	0.1%	0.2	325	0.1%	0.6	0.9	0.0%	0.2
Widenosed chimaera	158	0.1%	0.2	241	0.1%	0.2	34	0.0%	0.1	88	0.0%	0.1	126	0.0%	0.2	0.8	0.0%	0.2
Baxter's lantern dogfish	82	0.0%	0.1	62	0.0%	0.1	22	0.0%	0.0	97	0.0%	0.1	210	0.1%	0.4	0.7	0.0%	0.1
Pale ghost shark	35	0.0%	0.0	16	0.0%	0.0	36	0.0%	0.1	59	0.0%	0.1	111	0.0%	0.2	0.4	0.0%	0.1
Long-nosed chimaera	23	0.0%	0.0	11	0.0%	0.0	33	0.0%	0.1	14	0.0%	0.0	76	0.0%	0.1	0.2	0.0%	0.0
Deepwater spiny skate		0.0%	0.0		0.0%	0.0		0.0%	0.0	30	0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Slender smooth-hound		0.0%	0.0		0.0%	0.0	22	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Ghost shark	2	0.0%	0.0		0.0%	0.0	1	0.0%	0.0	13	0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Longnosed deepsea skate		0.0%	0.0		0.0%	0.0	11	0.0%	0.0		0.0%	0.0	2	0.0%	0.0	0.0	0.0%	0.0
Lucifer dogfish	3	0.0%	0.0	3	0.0%	0.0		0.0%	0.0	4	0.0%	0.0	4	0.0%	0.0	0.0	0.0%	0.0
Cat shark	2	0.0%	0.0	2	0.0%	0.0		0.0%	0.0	5	0.0%	0.0	4	0.0%	0.0	0.0	0.0%	0.0
Smooth skate		0.0%	0.0	7	0.0%	0.0		0.0%	0.0		0.0%	0.0	6	0.0%	0.0	0.0	0.0%	0.0
Electric ray		0.0%	0.0		0.0%	0.0	5	0.0%	0.0		0.0%	0.0	5	0.0%	0.0	0.0	0.0%	0.0
Blue shark		0.0%	0.0		0.0%	0.0		0.0%	0.0	11	0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Prickly dogfish		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	8	0.0%	0.0	0.0	0.0%	0.0
Etmopterus pusillus		0.0%	0.0		0.0%	0.0		0.0%	0.0	4	0.0%	0.0	2	0.0%	0.0	0.0	0.0%	0.0
Spiny dogfish		0.0%	0.0		0.0%	0.0		0.0%	0.0	3	0.0%	0.0	2	0.0%	0.0	0.0	0.0%	0.0
Chimaera spp.		0.0%	0.0		0.0%	0.0	5	0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Notoraja asperula	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	2	0.0%	0.0	0.0	0.0%	0.0
Frill shark		0.0%	0.0		0.0%	0.0		0.0%	0.0	2	0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Deepsea skates	3	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Notoraja spinifera	1	0.0%	0.0		0.0%	0.0		0.0%	0.0	1	0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Chimaera, purple		0.0%	0.0	2	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Rough skate	1	0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0		0.0%	0.0	0.0	0.0%	0.0
Elasmobranch total catch	12,461	5.0%	12.5	2,287	0.7%	2.3	2,543	0.8%	3.9	3,947	1.6%	6.0	5,529	1.8%	10.1	34.8	1.7%	7.0
ALL SPECIES	247,377	100.0%	247.4	336,694	100.0%	336.7	329,215	100.0%	505.1	252,224	100.0%	381.9	303,822	100.0%	557.0	2,028.1	100.0%	405.6

Challenger Plateau Comparison of UoC to EEZ

No additional information is provided as no species other than orange roughy made up more than 5% or 1% of the total catch.