



19 August 2013

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Dear George

### **CR2013/190LR Analysis of Orange Roughy Trawl Footprint 2007/08 – 2011/12 and 1989/90 – 2011/12, and Underwater Topographic Feature Trawl Effort Analysis**

The Deepwater Group Ltd (DWG) requested GNS Science to analyse trawl catch effort processing return (TCEPR) data obtained from the Ministry for Primary Industries database to examine the extent of trawling for orange roughy in New Zealand's Exclusive Economic Zone (EEZ) in four selected areas. These are ORH3B East and South Chatham Rise (ORH3B E&SCR), ORH3B Northwest Chatham Rise (ORH3B NWCR), ORH2A South, ORH2B and ORH3A (ORHMEC) and ORH7A Southwest Challenger Plateau, incorporating Westpac Bank (ORH7A). Westpac Bank is outside New Zealand's EEZ, but was included in this study as requested by DWG as orange roughy here and in adjacent ORH7A are assessed and managed as a straddling stock. Trawls were analysed in relation to a series of depth ranges between 400 - 1,600 m, and in relation to closed areas within the four fishery areas under consideration. The analyses were carried out for the most recent five-year period (i.e. fishing years 2007/08 to 2011/12), and for the twenty three-year period for which TCEPR data are available (i.e. 1989/90 to 2011/12).

DWG also requested an analysis of TCEPR data with respect to orange roughy targeted trawl effort on Underwater Topographic Features (UTFs) in each of the above fishery areas. UTF location data identifying 236 UTFs was provided by the client, DWG. The UTF trawl effort analysis was determined for the most recent five-year period (i.e. fishing years 2007/08 to 2011/12) as well as for the most recent 10-year period (i.e. fishing years 2002/03 to 2011/12).

DWG requested UTFs to be characterised as hills, knolls or seamounts, based on depth parameters provided by DWG. UTFs were identified either as having been trawled, not trawled or as falling within legislated fishery closures for the most recent five-year and ten-year periods (i.e. for fishing years 2007/08 to 2011/12, and 2002/03 to 2011/12 inclusive).

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## METHOD

Bottom trawls, and mid-water trawls for which the ground rope depth equalled the water depth, and which targeted orange roughy, were used in this analysis. Trawls in which orange roughy were caught as bycatch were not considered.

TCEPR data were sourced from the Ministry for Primary Industries, edited and corrected using methods approved by the Aquatic Environment Working Group (AEWG) in March 2012 and described in Black et al (2013), with two exceptions:

- The 'jitter' step on point locations was omitted as it is not applicable for the purposes of the analysis and start locations as recorded on the TCEPR forms were used instead. The 'jitter' step was not applied as the random offset for this method is +/-0.5 minutes, a range as large as the target area around the UTFs.
- Trawls of zero length (i.e. identical start and end position) are included in the analysis for determination of trawl effort on UTFs.

Datasets comprising orange roughy-targeted bottom trawls were created for each depth class (i.e. 400 - 800 m, 800 - 1200 m and 1200 – 1600 m). Bathymetry contours at 400, 800, 1200 and 1600 m were calculated from the Global Bathymetric Chart of the Oceans 30 arc-second grid (GEBCO, 2010). The relevant polygons were created from these contour lines, the coastline, and the outer EEZ boundary. These files were added to the GIS, and trawl statistics calculated. The results of those analyses are provided in the appendix.

A UTF was counted as having been trawled if there was at least one trawl starting within +/- 1.0 nautical mile of the UTF location and with a recorded start depth within +/- 20 m of the height of the UTF. For this study, DWG requested to include UTFs with an elevation >100m and those with summit depths between 600 – 1600m.

The characterisation of UTFs was guided by elevation parameters specified by DWG (Table 1). The results of these analyses are tabulated in the appendix.

**Table 1** DWG seafloor feature definitions.

Feature	Definition
Seamount	An elevation greater than 1000 m.
Knoll(s)	An elevation between 500 – 1000 m.
Hill(s)	An elevation less than 500 m.

## RESULTS

Analysis of swept area by depth range for the four orange roughy fishery areas shows that the 800 – 1200 m depth range is where most targeted fishing occurs. In the most recent five-year period (i.e. 2007/08 – 2011/12), the percentage swept area here has ranged between 0.3% in ORH7A to 13.4% in MEC. For the full 23-year period (i.e. 1989/90 – 2011/12), the percentage swept area has ranged between 11.0% in ORH7A to 50.1% in each of MEC and NWCR. In total, 236 UTFs were identified within the four fishery areas. Of those, 12 were closed to fishing.

For the most recent five-year period (2007/08 – 2011/12), 71 UTFs were identified as having been contacted by orange roughly-targeted tows. The numbers of tows on individual UTFs ranged between 1 and 159 (Icecube in fishery ORH3B E&SCR).

For the most recent 10-year period (2002/03 – 2011/12), 85 UTFs were identified as being contacted by orange roughly-targeted tows in the four fishery areas. The numbers of tows on individual UTFs ranged between 1 and 540 (Possum East in fishery ORH3B E&SCR).

A total of 197 hills, 24 knolls and 15 seamounts were characterised.

## REFERENCES

Black, J., Wood, R., Berthelsen, T., Tilney, R. 2013. Monitoring New Zealand's trawl footprint for deepwater fisheries: 1989-90 to 2009-10, New Zealand Aquatic Environment and Biodiversity Report No. 110. 57 p.

Black, J., Wood, R., 2012. DAE2010/04 Monitoring the trawl footprint for deepwater fisheries. Presented to the Aquatic Environment Working Group, Wellington, 5th March 2012.

GEBCO, 2010. General Bathymetric Chart of the Oceans: The GEBCO\_08 global 30 arc-second grid. Available online at [http://www.gebco.net/data\\_and\\_products/gridded\\_bathymetry\\_data/](http://www.gebco.net/data_and_products/gridded_bathymetry_data/)

Yours sincerely



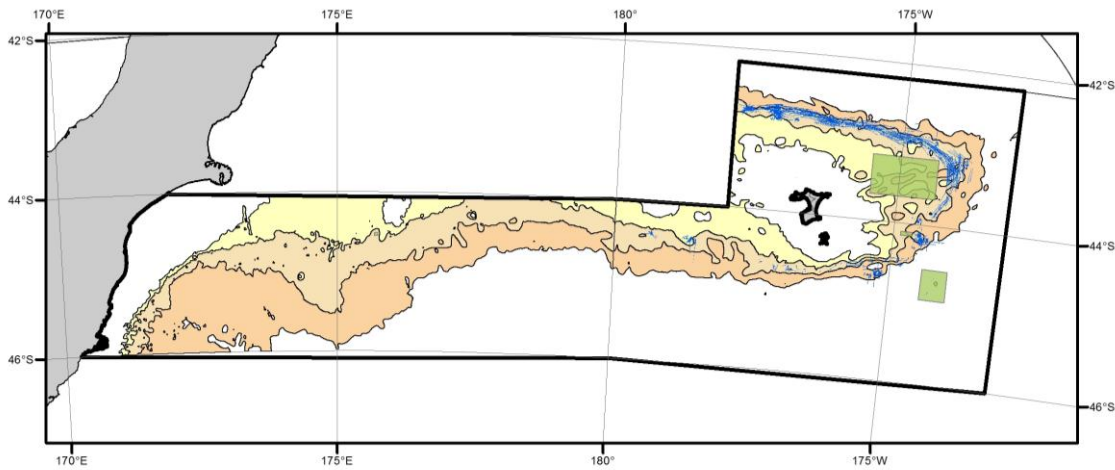
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## Appendix 1

## ORH3B East &amp; South Chatham Rise, 2007/08 to 2011/12



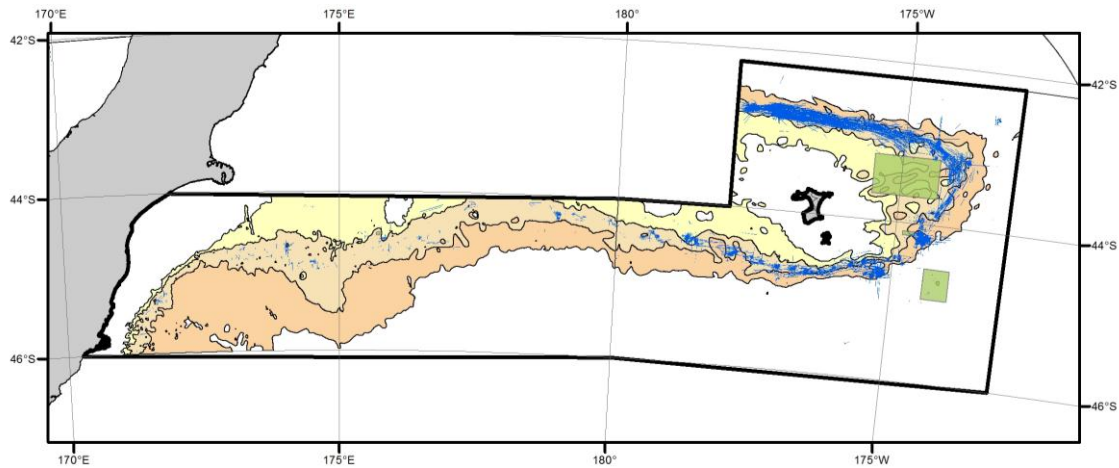
## Legend

- Swept Area 07/08 to 11/12
- Closures
- 1200m to 1600m
- 800m to 1200m
- 400m to 800m

## 2007/08 to 2011/12

Bottom Depth Range	Area (km <sup>2</sup> )	No. of Tows	Swept Area (%)	Total Closed Area (%)	Area Closed and/or not Trawled (%)
400 - 800m	42,172	483	0.30%	5.31%	99.70%
800 - 1200m	51,254	4,051	5.15%	5.03%	94.85%
1200 - 1600m	62,838	2,082	1.30%	0.78%	98.70%

## ORH3B East & South Chatham Rise, 1989/90 to 2011/12



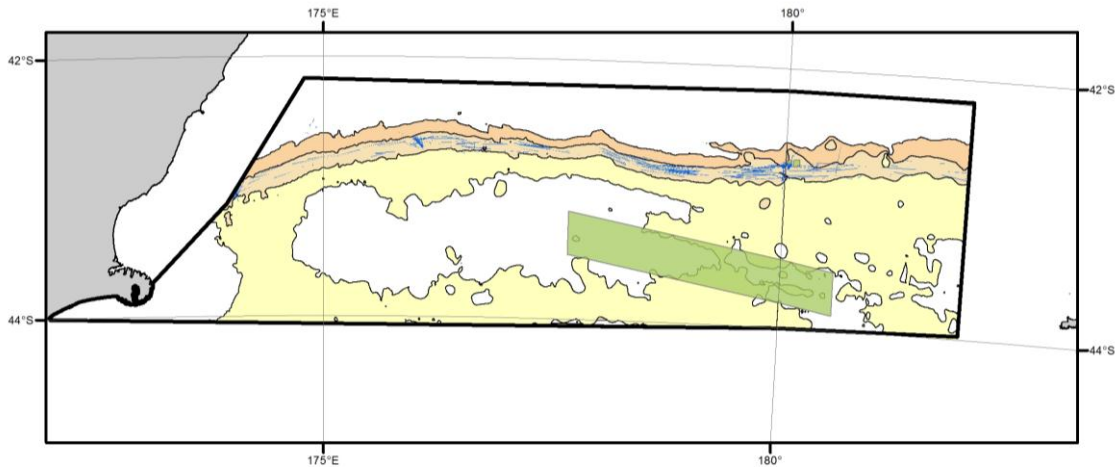
### Legend

- Swept Area 89/90 to 11/12
- Closures
- 1200m to 1600m
- 800m to 1200m
- 400m to 800m

### 1989/90 to 2011/12

Bottom Depth Range	Area (km <sup>2</sup> )	No. of Tows	Swept Area (%)	Total Closed Area (%)	Area Closed and/or not Trawled (%)
400 - 800m	42,172	1,794	1.40%	5.31%	98.60%
800 - 1200m	51,254	26,707	13.52%	5.03%	86.52%
1200 - 1600m	62,838	11,827	4.02%	0.78%	95.99%

### ORH3B Northwest Chatham Rise, 2007/08 to 2011/12



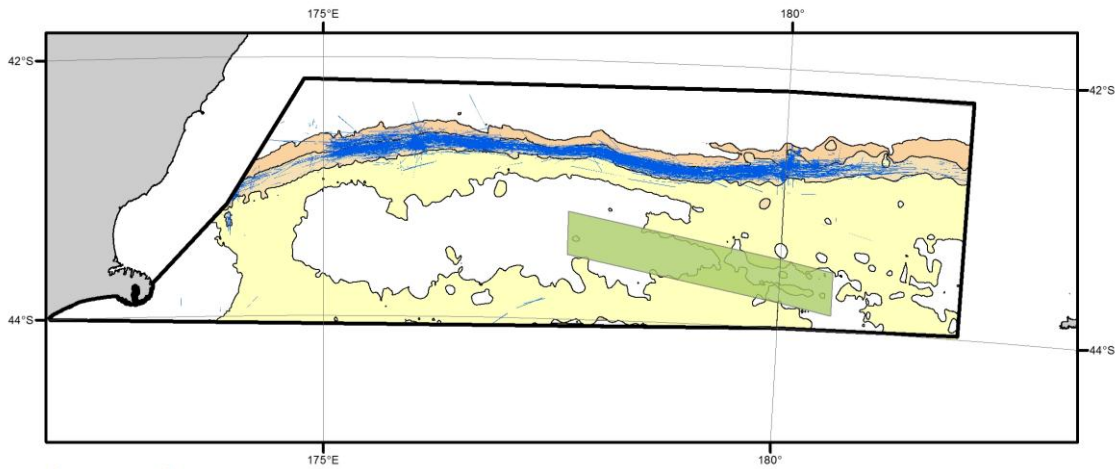
#### Legend

- Swept Area 07/08 to 11/12
- Closures
- 1200m to 1600m
- 800m to 1200m
- 400m to 800m

#### 2007/08 to 2011/12

Bottom Depth Range	Area (km <sup>2</sup> )	No. of Tows	Swept Area (%)	Total Closed Area (%)	Area Closed and/or not Trawled (%)
400 - 800m	51,144	35	0.04%	4.44%	99.96%
800 -1200m	9,676	598	8.37%	0.44%	91.65%
1200 - 1600m	7,253	225	0.82%	0.04%	99.18%

### ORH3B Northwest Chatham Rise, 1989/90 to 2011/12



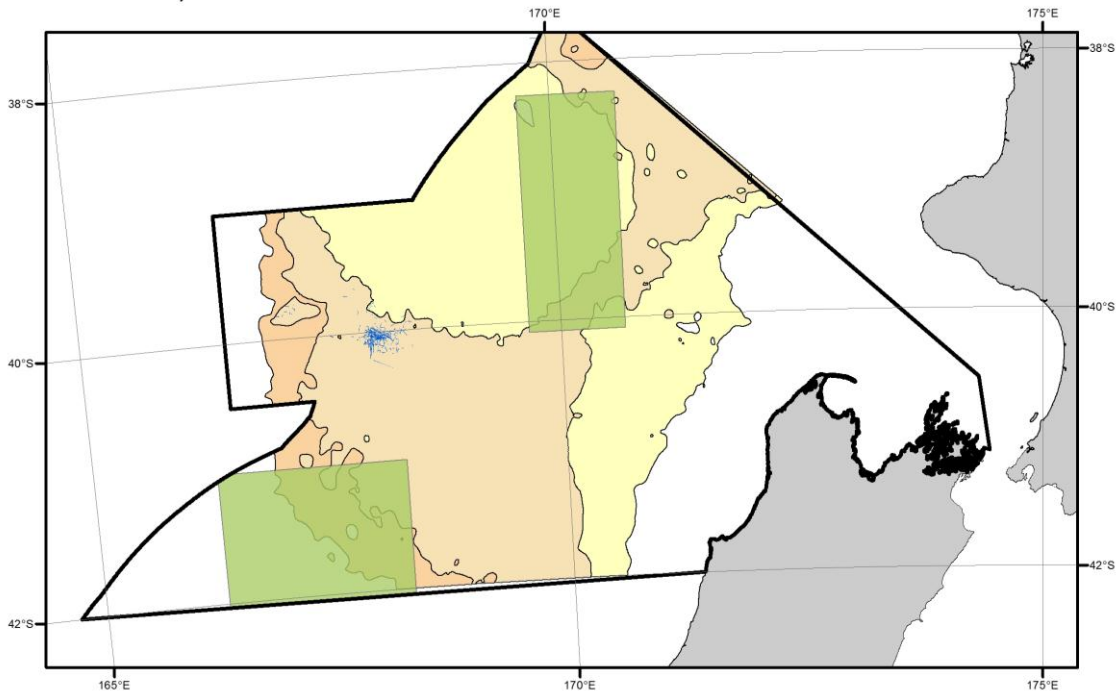
#### Legend

- Swept Area 89/90 to 11/12
- Closures
- 1200m to 1600m
- 800m to 1200m
- 400m to 800m

#### 1989/90 to 2011/12

Bottom Depth Range	Area (km <sup>2</sup> )	No. of Tows	Swept Area (%)	Total Closed Area (%)	Area Closed and/or not Trawled (%)
400 - 800m	51,144	424	0.62%	4.44%	99.38%
800 -1200m	9,676	8,075	50.10%	0.44%	50.25%
1200 - 1600m	7,253	2,629	14.54%	0.04%	85.50%

ORH7A, 2007/08 to 2011/12



**Legend**

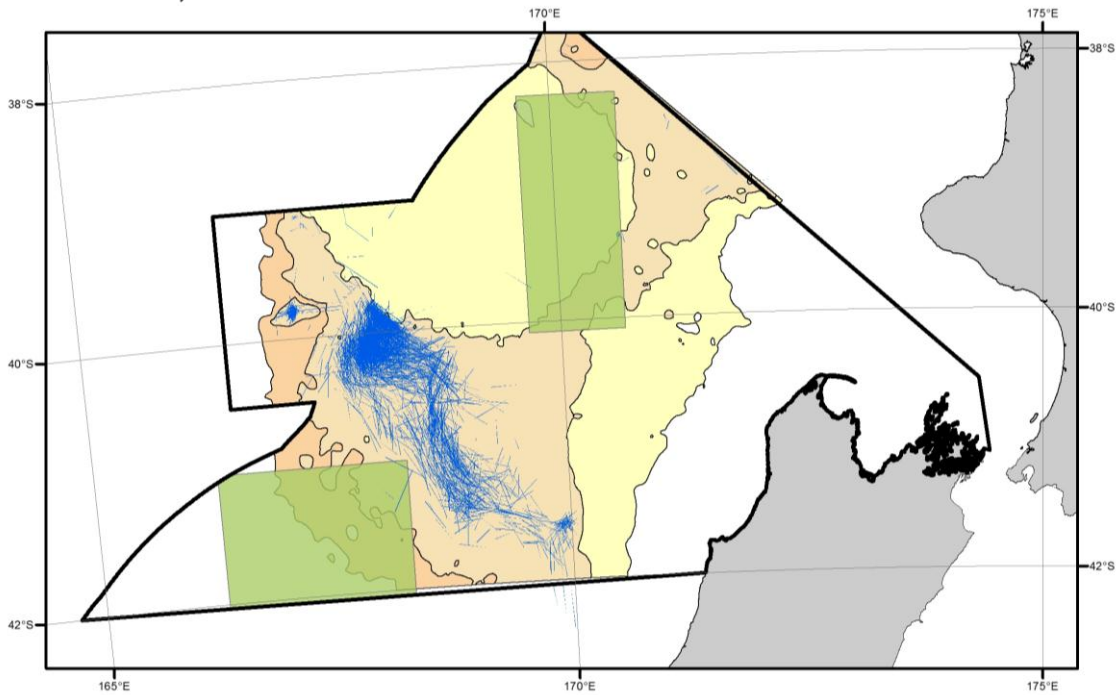
- Swept Area 07/08 to 11/12
- Closures
- 1200m to 1600m
- 800m to 1200m
- 400m to 800m

**2007/08 to 2011/12**

Bottom Depth Range	Area (km <sup>2</sup> )	No. of Tows	Swept Area (%)	Total Closed Area (%)	Area Closed and/or not Trawled (%)
400 - 800m	62,272	20	0.01%	22.59%	99.99%
800 - 1200m	66,195	343	0.31%	8.80%	99.69%
1200 - 1600m	14,536	1	0.00%	43.45%	99.99%



ORH7A, 1989/90 to 2011/12



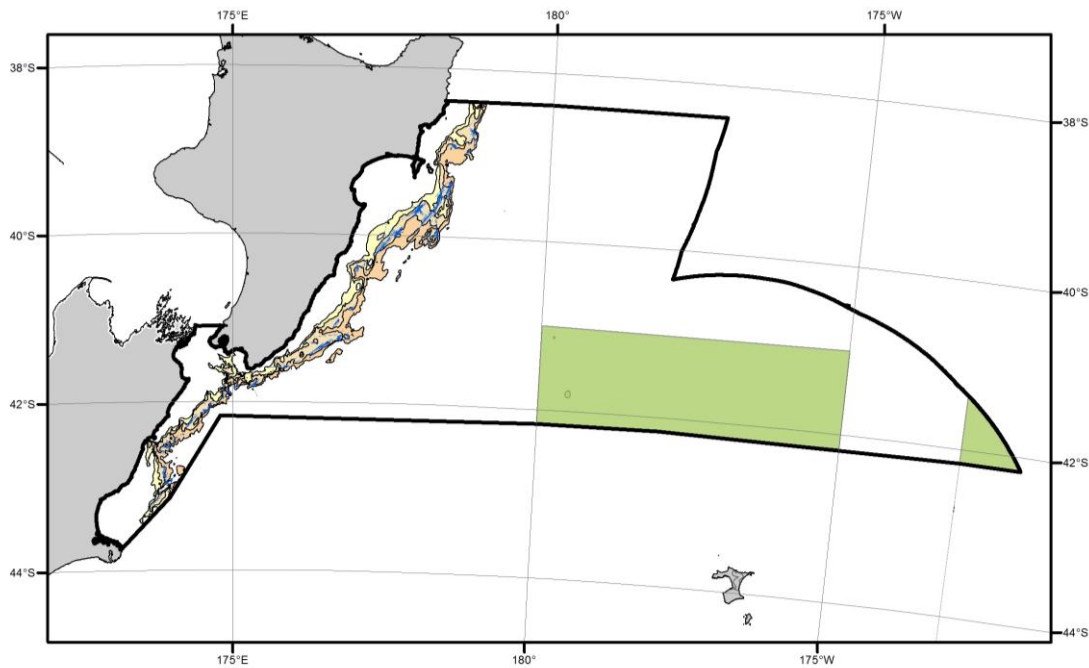
**Legend**

- Swept Area 89/90 to 11/12
- Closures
- 1200m to 1600m
- 800m to 1200m
- 400m to 800m

**1989/90 to 2011/12**

Bottom Depth Range	Area (km <sup>2</sup> )	No. of Tows	Swept Area (%)	Total Closed Area (%)	Area Closed and/or not Trawled (%)
400 - 800m	62,272	621	0.37%	22.59%	99.63%
800 - 1200m	66,195	6,428	10.98%	8.80%	89.04%
1200 - 1600m	14,536	48	0.19%	43.45%	99.81%

### ORHMEC 2007/08 to 2011/12



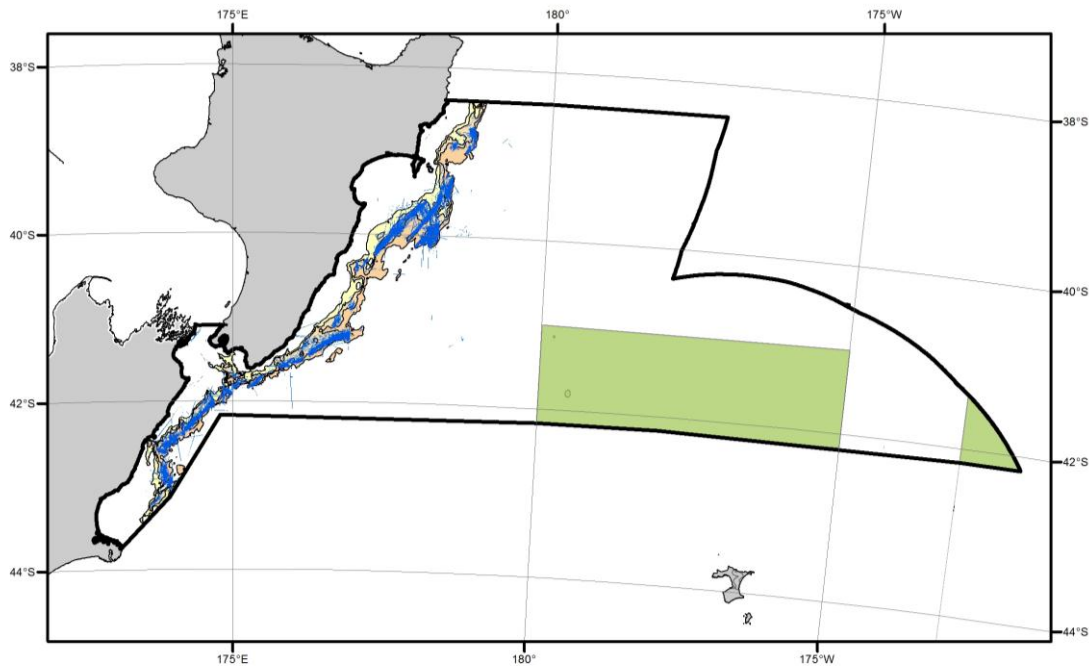
#### Legend

- Swept Area 07/08 to 11/12
- Closures
- 1200m to 1600m
- 800m to 1200m
- 400m to 800m

#### 2007/08 to 2011/12

Bottom Depth Range	Area (km <sup>2</sup> )	No. of Tows	Swept Area (%)	Total Closed Area (%)	Area Closed and/or not Trawled (%)
400 - 800m	6,057	245	1.37%	0.00%	98.63%
800 - 1200m	7,978	1,965	13.42%	0.00%	86.58%
1200 - 1600m	7,285	1,353	4.40%	0.79%	95.60%

### ORHMEC 1989/90 to 2011/12



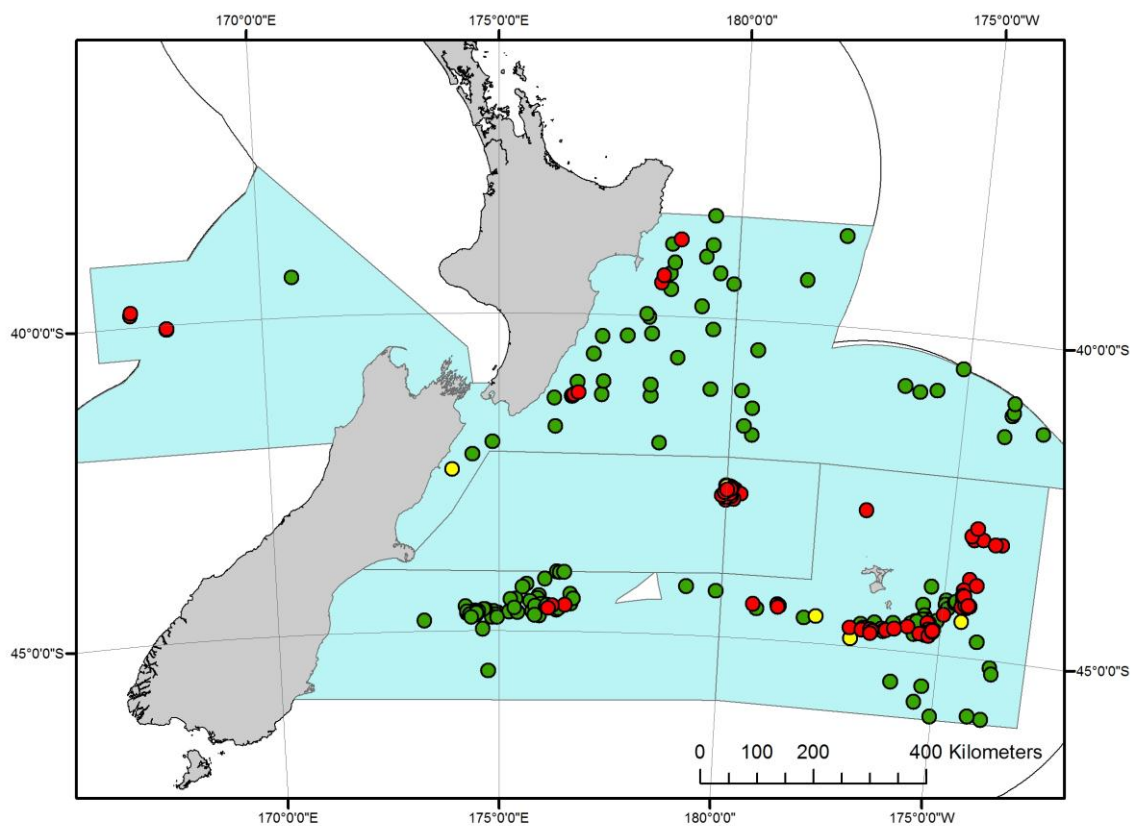
#### Legend

- Swept Area 89/90 to 11/12
- Closures
- 1200m to 1600m
- 800m to 1200m
- 400m to 800m

#### 1989/90 to 2011/12

Bottom Depth Range	Area (km <sup>2</sup> )	No. of Tows	Swept Area (%)	Total Closed Area (%)	Area Closed and/or not Trawled (%)
400 - 800m	6,057	4,895	10.39%	0.00%	89.61%
800 -1200m	7,978	24,657	50.13%	0.00%	49.87%
1200 - 1600m	7,285	13,145	24.41%	0.79%	75.59%

## UTF location and trawl status



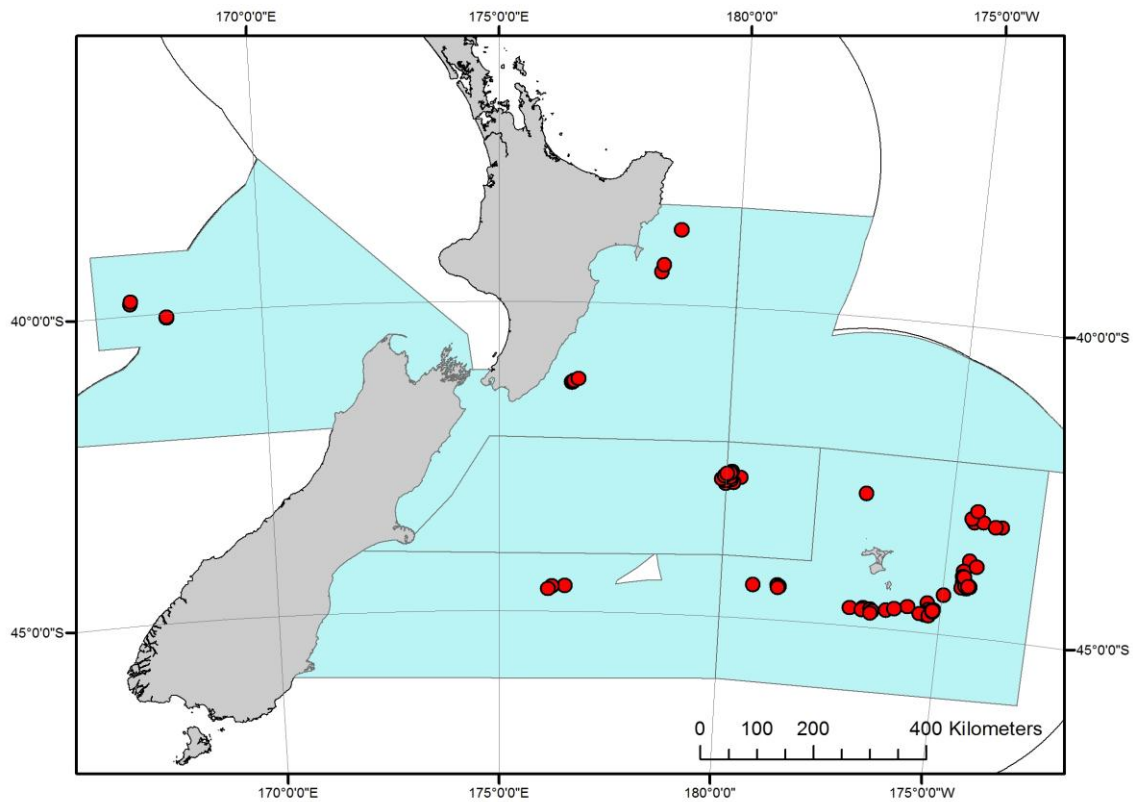
### Legend

- UTF trawled in last 5 years
- UTF trawled last 10 years
- UTF not trawled in last 5 or 10 years

### Characterisation and numbers of UTFs

UTF characterisation	UTFs Trawled 2007/08 - 2011/12	UTFs Trawled 2002/03 - 2011/12	Number of known UTFs
Hill	67	81	197
Knoll	4	4	24
Seamount	0	0	15
<b>Total</b>	<b>71</b>	<b>85</b>	<b>236</b>

## UTF location and trawl status



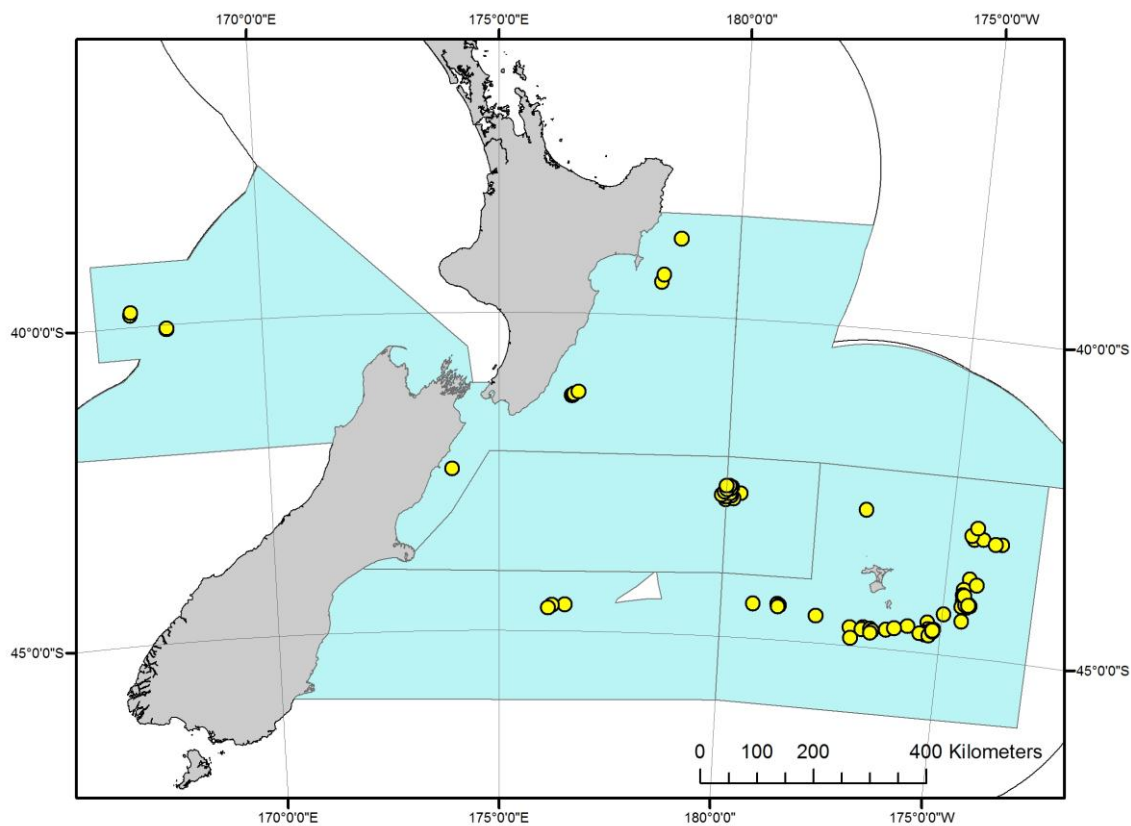
## Legend

- UTF trawled in last 5 years

## UTF Trawl activity last 5 years 2007/08 - 2011/12

ORH Fishery	UTFs total	UTFs closed to fishing	UTFs trawled	% UTFs trawled (including closed areas)	UTFs untrawled	% UTFs untrawled (including closed areas)
ORH3B E&SCR	149	5	48	32	98	66
ORH3B NWCR	29	3	12	41	13	45
ORHMEC	53	4	7	13	46	87
ORH-7A	5	0	4	80	1	20
<b>Total</b>	<b>236</b>	<b>12</b>	<b>71</b>		<b>158</b>	

## UTF location and trawl status



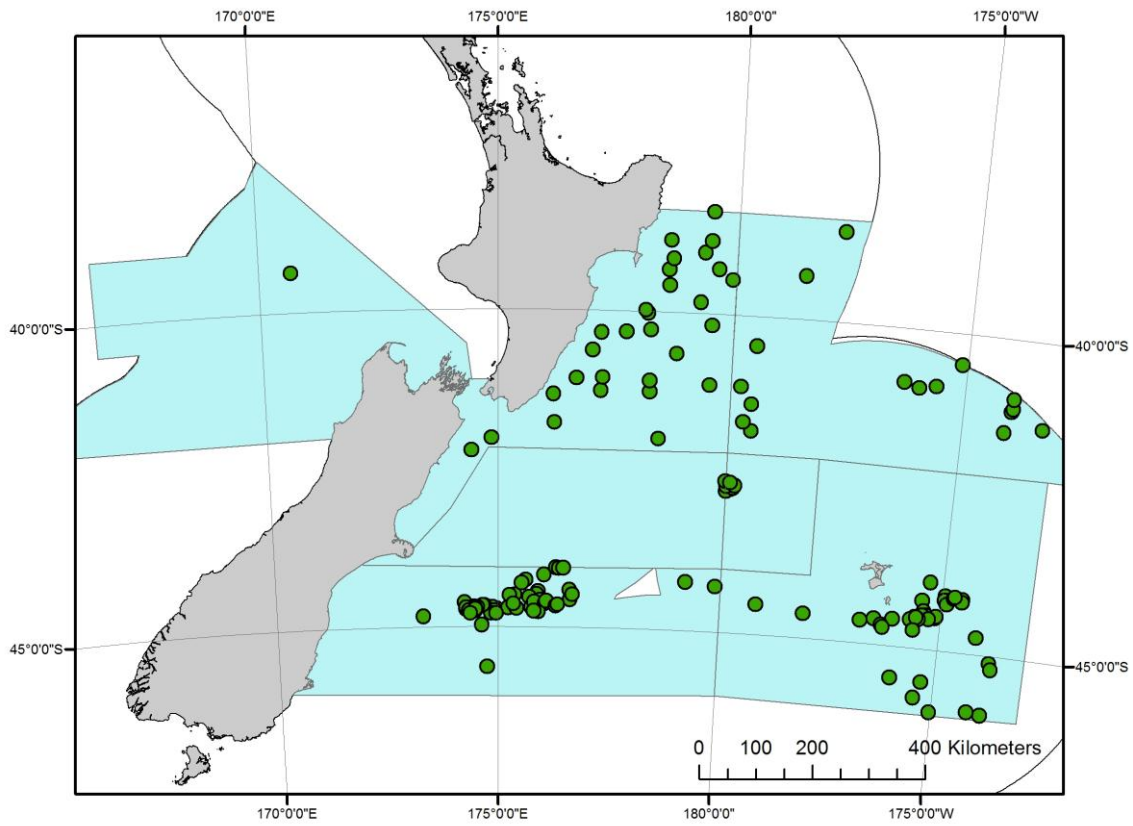
## Legend

- UTF trawled last 10 years

## UTF Trawl activity last 10 years 2002/03 - 2011/12

ORH Fishery	UTFs total	UTFs closed to fishing	UTFs trawled	% UTFs trawled (including closed areas)	UTFs untrawled	% UTFs untrawled (including closed areas)
ORH3B E&SCR	149	5	54	36	95	64
ORH3B NWCR	29	3	19	66	10	34
ORHMEC	53	4	8	15	45	85
ORH-7A	5	0	4	80	1	20
<b>Total</b>	<b>236</b>	<b>12</b>	<b>85</b>		<b>151</b>	

### UTF location and trawl status



#### Legend

- UTF not trawled in last 5 or 10 years and/or closed area

UTFs trawled last 5 years 2007/08 - 2011/12

Name	Latitude	Longitude	Peak depth (m)	Depth base (m)	Elevation (m)	No of trawls in last 5 years	Fishery
MegaBrick	-40.068	167.98	833	950	117	13	ORH7A
TwinTits	-40.055	167.982	790	950	160	9	ORH7A
Volcano	-39.807	167.247	933	1050	117	2	ORH7A
The Dork	-39.767	167.258	810	1000	190	3	ORH7A
S.Castlepoint hill	-41.293	176.568	732	900	168	4	ORHMEC
S.Castlepoint hill	-41.29	176.588	739	900	161	10	ORHMEC
	-41.263439	176.614175	750	1000	250	3	ORHMEC
Outer Castlepoint	-41.238	176.705	764	900	136	10	ORHMEC
Ritchie Hill	-39.469	178.413	709	950	241	2	ORHMEC
North Hill	-39.358	178.452	833	1200	367	31	ORHMEC
Tolaga Knoll	-38.783	178.783	680	1000	320	4	ORHMEC
Graveyard	-42.7607	180.0107	748	1100	352	45	ORH3B NWCR
Casket	-42.8349	179.9865	792	1000	208	7	ORH3B NWCR
Dead Ringer	-42.737	180.31	820	1150	330	13	ORH3B NWCR
Wecnec	-42.8167	180.1685	850	1000	150	2	ORH3B NWCR
Scroll	-42.7865	179.9971	888	1080	192	7	ORH3B NWCR
Morgue	-42.717	180.04	890	1200	310	2	ORH3B NWCR
Diabolical	-42.7898	180.0127	894	1050	156	2	ORH3B NWCR
Ghoul	-42.7984	179.9874	935	1040	105	4	ORH3B NWCR
Coffin	-42.7718	179.9015	1007	1110	103	2	ORH3B NWCR
Voodoo	-42.7454	180.0766	1019	1125	106	3	ORH3B NWCR
Hartless	-42.6692	180.077	1071	1360	289	9	ORH3B NWCR
Soul Destroyer	-42.679	180.01103	1126	1340	214	1	ORH3B NWCR
Unlucky	-44.36	185.03	600	829	229	1	ORH3B E&SCR
Birthday	-43.77	185.532	602	900	298	1	ORH3B E&SCR
Kenwood	-43.942	185.419	625	1050	425	47	ORH3B E&SCR
Mt Kiso	-44.432	181.28	630	850	220	27	ORH3B E&SCR
Dickies	-44.125	185.43	643	1250	607	59	ORH3B E&SCR
Hegerville	-44.709	182.942	648	1050	402	32	ORH3B E&SCR
Jumbo Jim	-44.581	176.48	654	1070	416	1	ORH3B E&SCR
Nielson	-44.725	183.216	658	1050	388	2	ORH3B E&SCR
Hooks hump	-44.59	176.197	658	1000	342	1	ORH3B E&SCR
Easter	-43.145	185.533	668	1000	332	5	ORH3B E&SCR
Crack	-42.844	183.094	700	900	200	133	ORH3B E&SCR
Hicks	-44.517	184.694	709	950	241	21	ORH3B E&SCR
Ritchie Hill (Andes)	-44.175	185.447	710	1200	490	9	ORH3B E&SCR



Name	Latitude	Longitude	Peak depth (m)	Depth base (m)	Elevation (m)	No of trawls in last 5 years	Fishery
Coff Drop ( aka Arrows jaws)	-44.4505	181.322	718	910	192	13	ORH3B E&SCR
Possum East (aka Chapmans)	-44.219	185.519	725	1350	625	151	ORH3B E&SCR
Icecube	-44.147	185.468	735	1200	465	159	ORH3B E&SCR
Little Chief	-44.674	184.788	738	1200	462	125	ORH3B E&SCR
Not Till Sunday (Mushy Pea, Central Park)	-43.854	185.7	742	1200	458	4	ORH3B E&SCR
Hideaway Hill	-44.702	183.411	753	1000	247	1	ORH3B E&SCR
Jimmy (Andes)	-44.218	185.413	755	1220	465	18	ORH3B E&SCR
Cooks	-44.717	184.651	770	1280	510	21	ORH3B E&SCR
Camerons	-43.133	185.737	784	1060	276	15	ORH3B E&SCR
Paranoia (aka Mt Pleasant)	-44.733186	183.459508	786	1150	364	10	ORH3B E&SCR
Aloha (aka Throbin)	-44.025	185.41	787	1150	363	1	ORH3B E&SCR
Big Chief	-44.662	184.785	795	1200	405	10	ORH3B E&SCR
Flintstone	-44.62	184.717	816	1300	484	4	ORH3B E&SCR
Dickman	-44.037667	185.439	818	1150	332	6	ORH3B E&SCR
Hill820	-43.083	185.472	820	1000	180	11	ORH3B E&SCR
Condoms (aka Sid Viscous, Mt Explorer)	-44.606	184.245	860	1100	240	28	ORH3B E&SCR
Trevs Pinni (aka North Arrow)	-44.45	180.728	876	1000	124	1	ORH3B E&SCR
Sir Michael (Andes)	-44.185	185.598	881	1500	619	49	ORH3B E&SCR
Grahams Pinnie	-44.4755	181.291	890	1000	110	3	ORH3B E&SCR
Smiths City	-42.96	185.58	894	1200	306	77	ORH3B E&SCR
Cathy (aka Fickle Finger of Fate)	-44.178	185.493	911	1200	289	4	ORH3B E&SCR
Steep Wee F..	-44.690667	183.768	913	1050	137	1	ORH3B E&SCR
Charlie Horsecock	-44.678	184.658	923	1200	277	5	ORH3B E&SCR
Dolly Parton	-44.773	183.423	923	1250	327	1	ORH3B E&SCR
Cotopaxi (aka Coral Kingdom, Patsi)	-44.165	185.555	937	1360	423	21	ORH3B E&SCR
	-44.038	185.441	940	1120	180	5	ORH3B E&SCR
Lucky (aka Marksville)	-44.642	184.772	953	1350	397	14	ORH3B E&SCR

Name	Latitude	Longitude	Peak depth (m)	Depth base (m)	Elevation (m)	No of trawls in last 5 years	Fishery
Mangrove (aka Riwaka Rock)	-44.697	184.528	964	1300	336	4	ORH3B E&SCR
Hiawatha	-44.722	184.745	974	1300	326	4	ORH3B E&SCR
Erebus	-43.178	186.16	979	1337	358	53	ORH3B E&SCR
Teepee	-44.615	184.837	982	1400	418	12	ORH3B E&SCR
Tomahawk	-44.645	184.823	993	1320	327	62	ORH3B E&SCR
Bretts	-43.184	186.005	1032	1160	128	8	ORH3B E&SCR
Ladies Night	-44.1835	185.552	1078	1350	272	19	ORH3B E&SCR
S. of Teepee	-44.63	184.8185	1140	1385	245	4	ORH3B E&SCR

#### UTFs trawled last 10 years 2002/03 - 2011/12

Name	Latitude	Longitude	Peak depth (m)	Depth base (m)	Elevation (m)	No of trawls in the last 10 years	Fishery	
MegaBrick	-40.068	167.98	833	950	117	23	ORH7A	
TwinTits	-40.055	167.982	790	950	160	13	ORH7A	
Volcano	-39.807	167.247	933	1050	117	25	ORH7A	
The Dork	-39.767	167.258	810	1000	190	8	ORH7A	
Kaikoura	-42.45	173.983	663	850	187	1	ORHMEC	
S.Castlepoint hill	-41.293	176.568	732	900	168	11	ORHMEC	
S.Castlepoint hill	-41.29	176.588	739	900	161	32	ORHMEC	
	-	41.2634	176.6142	750	1000	250	3	ORHMEC
Outer Castlepoint	-41.238	176.705	764	900	136	17	ORHMEC	
Ritchie Hill	-39.469	178.413	709	950	241	19	ORHMEC	
North Hill	-39.358	178.452	833	1200	367	57	ORHMEC	
Tolaga Knoll	-38.783	178.783	680	1000	320	23	ORHMEC	
Graveyard	-	42.7607	180.0107	748	1100	352	310	ORH3B NWCR
Casket	-	42.8349	179.9865	792	1000	208	55	ORH3B NWCR
Dead Ringer	-42.737	180.31	820	1150	330	53	ORH3B NWCR	
Wecnec	-	42.8167	180.1685	850	1000	150	7	ORH3B NWCR
Scroll	-	179.9971	888	1080	192	28	ORH3B NWCR	

Name	Latitude	Longitude	Peak depth (m)	Depth base (m)	Elevation (m)	No of trawls in the last 10 years	Fishery
	42.7865						
Morgue	-42.717	180.04	890	1200	310	3	ORH3B NWCR
Zombie	-42.766	180.0737	891	1080	189	3	ORH3B NWCR
Diabolical	-	180.0127	894	1050	156	6	ORH3B NWCR
RIP	-42.78	180.0963	905	1050	145	1	ORH3B NWCR
Ghoul	-	179.9874	935	1040	105	12	ORH3B NWCR
Headstone	-	180.0435	1000	1200	200	8	ORH3B NWCR
Coffin	-	179.9015	1007	1110	103	5	ORH3B NWCR
Voodoo	-	180.0766	1019	1125	106	15	ORH3B NWCR
Mummy	-	180.1163	1040	1350	310	20	ORH3B NWCR
Hartless	-	180.077	1071	1360	289	90	ORH3B NWCR
Vampire	-	179.9544	1100	1250	150	1	ORH3B NWCR
Soul Destroyer	-42.679	180.011	1126	1340	214	1	ORH3B NWCR
Crypt	-42.627	180.06	1145	1550	405	1	ORH3B NWCR
Mt Doom	-42.63	179.9933	1265	1650	385	1	ORH3B NWCR
Unlucky	-44.36	185.03	600	829	229	1	ORH3B E&SCR
Birthday	-43.77	185.532	602	900	298	3	ORH3B E&SCR
Kenwood	-43.942	185.419	625	1050	425	88	ORH3B E&SCR
Mt Kiso	-44.432	181.28	630	850	220	64	ORH3B E&SCR
Der Spriggs (aka The Rabbit)	-44.693	183.25	631	1000	369	20	ORH3B E&SCR
Dickies	-44.125	185.43	643	1250	607	524	ORH3B E&SCR
Hegerville	-44.709	182.942	648	1050	402	136	ORH3B E&SCR
Jumbo Jim	-44.581	176.48	654	1070	416	2	ORH3B E&SCR
Nielson	-44.725	183.216	658	1050	388	105	ORH3B E&SCR
Hooks hump	-44.59	176.197	658	1000	342	1	ORH3B E&SCR
Easter	-43.145	185.533	668	1000	332	10	ORH3B E&SCR
Crack	-42.844	183.094	700	900	200	365	ORH3B E&SCR
Hicks	-44.517	184.694	709	950	241	89	ORH3B E&SCR
Ritchie Hill (Andes)	-44.175	185.447	710	1200	490	455	ORH3B E&SCR

Name	Latitude	Longitude	Peak depth (m)	Depth base (m)	Elevation (m)	No of trawls in the last 10 years	Fishery
Coff Drop (aka Arrows jaws)	-44.4505	181.322	718	910	192	42	ORH3B E&SCR
Possum East (aka Chapmans)	-44.219	185.519	725	1350	625	540	ORH3B E&SCR
Icecube	-44.147	185.468	735	1200	465	510	ORH3B E&SCR
Little Chief	-44.674	184.788	738	1200	462	287	ORH3B E&SCR
Not Till Sunday (Mushy Pea, Central Park)	-43.854	185.7	742	1200	458	221	ORH3B E&SCR
Hideaway Hill	-44.702	183.411	753	1000	247	14	ORH3B E&SCR
Jimmy (Andes)	-44.218	185.413	755	1220	465	128	ORH3B E&SCR
Cooks	-44.717	184.651	770	1280	510	124	ORH3B E&SCR
Camerons	-43.133	185.737	784	1060	276	68	ORH3B E&SCR
Paranoia (aka Mt Pleasant)	-44.7332	183.4595	786	1150	364	50	ORH3B E&SCR
Aloha (aka Throbin)	-44.025	185.41	787	1150	363	8	ORH3B E&SCR
Big Chief	-44.662	184.785	795	1200	405	123	ORH3B E&SCR
Mt Sally	-44.638	176.102	813	1050	237	1	ORH3B E&SCR
Flintstone	-44.62	184.717	816	1300	484	91	ORH3B E&SCR
Dickman	-44.0377	185.439	818	1150	332	23	ORH3B E&SCR
Hill820	-43.083	185.472	820	1000	180	23	ORH3B E&SCR
Condoms (aka Sid Viscous, Mt Explorer)	-44.606	184.245	860	1100	240	103	ORH3B E&SCR
Trevs Pinni (aka North Arrow)	-44.45	180.728	876	1000	124	6	ORH3B E&SCR
Sir Michael (Andes)	-44.185	185.598	881	1500	619	296	ORH3B E&SCR
Grahams Pinnie	-44.4755	181.291	890	1000	110	10	ORH3B E&SCR
Smiths City	-42.96	185.58	894	1200	306	211	ORH3B E&SCR
Cathy (aka Fickle Finger of Fate)	-44.178	185.493	911	1200	289	114	ORH3B E&SCR
Steep Wee F..	-44.6907	183.768	913	1050	137	39	ORH3B E&SCR

Name	Latitude	Longitude	Peak depth (m)	Depth base (m)	Elevation (m)	No of trawls in the last 10 years	Fishery
Charlie Horsecock	-44.678	184.658	923	1200	277	38	ORH3B E&SCR
Dolly Parton	-44.773	183.423	923	1250	327	12	ORH3B E&SCR
Cotopaxi (aka Coral Kingdom, Patsi)	-44.165	185.555	937	1360	423	197	ORH3B E&SCR
	-44.038	185.441	940	1120	180	44	ORH3B E&SCR
The Pimple	-44.577	182.159	942	1050	108	2	ORH3B E&SCR
Featherlite	-44.662	183.948	945	1075	130	10	ORH3B E&SCR
Lucky (aka Marksville)	-44.642	184.772	953	1350	397	46	ORH3B E&SCR
Mangrove (aka Riwaka Rock)	-44.697	184.528	964	1300	336	50	ORH3B E&SCR
Hiawatha	-44.722	184.745	974	1300	326	17	ORH3B E&SCR
Erebus	-43.178	186.16	979	1337	358	155	ORH3B E&SCR
Teepee	-44.615	184.837	982	1400	418	54	ORH3B E&SCR
Tomahawk	-44.645	184.823	993	1320	327	176	ORH3B E&SCR
Bretts	-43.184	186.005	1032	1160	128	19	ORH3B E&SCR
Ladies Night	-	185.552	1078	1350	272	85	ORH3B E&SCR
Chucky's (aka HellBag hill)	-44.87	182.973	1123	1450	327	4	ORH3B E&SCR
S. of Teepee	-44.63	184.8185	1140	1385	245	62	ORH3B E&SCR
Death Star	-44.437	185.45	1566	1700	134	1	ORH3B E&SCR

## UTF unswept and/or closed fishery

Name	Latitude	Longitude	Fishery
E Pinnie	-39.363	170.672	ORH-7A
Clarence Ridge	-42.217	174.417	ORMEC
Kaikoura	-42.017	174.858	ORMEC
	-41.992127	178.48422	ORMEC
Shipley	-41.8	180.48	ORMEC
	-41.774	176.221795	ORMEC
	-41.669	180.29	ORMEC
Polar Bear	-41.476197	185.915237	ORMEC
	-41.383	180.451	ORMEC
	-41.37	186.74	ORMEC
	-41.325179	176.191366	ORMEC
	-41.256	178.256	ORMEC
	-41.255129	177.207907	ORMEC
	-41.14	186.03	ORMEC
Mobil	-41.115471	180.203126	ORMEC
Lee	-41.114879	179.531518	ORMEC
Hoiho	-41.09	186.06	ORMEC
Bennett Knoll	-41.083	178.25	ORMEC
Wairarapa Hill 5	-41.069349	176.68176	ORMEC
	-41.055476	177.244402	ORMEC
	-40.94	186.06	ORMEC
	-40.92	184.01	ORMEC
	-40.870964	184.371757	ORMEC
	-40.839229	183.685589	ORMEC
	-40.646	178.811	ORMEC
	-40.619213	177.019731	ORMEC
	-40.49055	184.875846	ORMEC
Moore	-40.46	180.5	ORMEC
	-40.337475	177.202875	ORMEC
	-40.321219	177.723611	ORMEC
	-40.27804	178.242756	ORMEC
	-40.181	179.525	ORMEC
	-40.02	178.18	ORMEC
	-39.972629	178.126153	ORMEC
Mahia Knoll	-39.822992	179.273676	ORMEC
	-39.571436	178.605146	ORMEC
Young Nicks	-39.451	179.9225	ORMEC

<b>Name</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Fishery</b>
	-39.321314	178.585969	ORMEC
Palmer	-39.312217	181.449291	ORMEC
	-39.288	179.633	ORMEC
	-39.150742	178.673728	ORMEC
Gisborne Knolls	-39.0363	179.3255	ORMEC
	-38.860147	178.609748	ORMEC
	-38.85	179.45	ORMEC
	-38.569866	182.196822	ORMEC
	-38.387	179.465	ORMEC
Gothic	-42.7271	180.1019	ORH3BNWCR
Pyre	-42.7165	180.0945	ORH3BNWCR
Phantom	-42.772	180.006	ORH3BNWCR
Grendel	-42.7095	180.1595	ORH3BNWCR
Solless	-42.6889	180.0052	ORH3BNWCR
Mt Gloom	-42.6093	179.9831	ORH3BNWCR
Gargoyle	-42.674	180.1967	ORH3BNWCR
	-42.629	180.086	ORH3BNWCR
	-44.171316	176.034353	ORH3B E&SCR
Charlton	-44.24	184.55	ORH3B E&SCR
Howson	-43.94	184.7	ORH3B E&SCR
	-44.4	184.61	ORH3B E&SCR
Hicks	-44.462	184.671	ORH3B E&SCR
	-44.06	176.3	ORH3BNWCR
	-44.572	183.921	ORH3B E&SCR
	-44.13	185.06	ORH3B E&SCR
Jones	-44.59	183.5	ORH3B E&SCR
	-44.257	175.625	ORH3B E&SCR
	-44.07	176.37	ORH3B E&SCR
	-44.505	184.414	ORH3B E&SCR
	-44.469	184.578	ORH3B E&SCR
	-44.06	176.46	ORH3BNWCR
Litehouse 3 (aka Mt Nick)	-44.478	184.895	ORH3B E&SCR
	-44.492	175.383	ORH3B E&SCR
Perry	-44.63	183.19	ORH3B E&SCR
	-44.433	175.9	ORH3B E&SCR
Disappointment Hill	-44.495	184.875	ORH3B E&SCR
	-44.5	175.26	ORH3B E&SCR
Litehouse 1	-44.496	184.874	ORH3B E&SCR
Litehouse 2	-44.471	184.892	ORH3B E&SCR
Tina Turner	-44.5475	184.3172	ORH3B E&SCR

<b>Name</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Fishery</b>
Diamond Head C	-44.15	185.31	ORH3B E&SCR
hrmg7	-44.2	185.05	ORH3B E&SCR
Iceberg (aka hrmg11,Iceblock)	-44.158	185.445	ORH3B E&SCR
	-44.304	175.536	ORH3B E&SCR
	-44.71	174.847	ORH3B E&SCR
	-44.723	174.927	ORH3B E&SCR
Pinnie	-44.51	175.842	ORH3B E&SCR
Pinnie	-44.484	175.871	ORH3B E&SCR
	-44.77	174.89	ORH3B E&SCR
	-44.707	174.973	ORH3B E&SCR
	-44.69	174.878	ORH3B E&SCR
	-44.744	174.916	ORH3B E&SCR
	-44.698	175.229	ORH3B E&SCR
hrmg8	-44.265	185.102	ORH3B E&SCR
	-44.657	174.695	ORH3B E&SCR
	-44.7383	174.48	ORH3B E&SCR
	-44.741	174.482	ORH3B E&SCR
Urry Knolls	-44.723	174.377	ORH3B E&SCR
Manston Boyz	-44.5155	184.737	ORH3B E&SCR
Diamond Head B	-44.15	185.25	ORH3B E&SCR
Big Pinnie	-44.677	175.835	ORH3B E&SCR
Hill94	-44.537	184.497	ORH3B E&SCR
	-44.511	184.45	ORH3B E&SCR
Rachael (Andes)	-44.203	185.442	ORH3B E&SCR
	-44.77	174.4	ORH3B E&SCR
Neils condom	-44.634	175.844	ORH3B E&SCR
Pinnie	-44.528	175.71	ORH3B E&SCR
	-44.61	174.25	ORH3B E&SCR
	-44.57	175.96	ORH3B E&SCR
Mt Muzza (+ Muzzas Brudda)	-44.677	183.668	ORH3B E&SCR
	-44.786	174.842	ORH3B E&SCR
	-44.658	174.659	ORH3B E&SCR
	-44.789	174.962	ORH3B E&SCR
VHF Pinnie	-44.406833	176.608	ORH3B E&SCR
	-44.718	174.277	ORH3B E&SCR
Diamond Head	-44.133	185.283	ORH3B E&SCR
Neils pinnacle	-44.967	174.635	ORH3B E&SCR
	-44.7	175.419	ORH3B E&SCR
	-44.714	174.429	ORH3B E&SCR



Name	Latitude	Longitude	Fishery
	-44.683	174.458	ORH3B E&SCR
	-44.6898	174.5317	ORH3B E&SCR
Hill A	-44.688	175.746	ORH3B E&SCR
	-44.637	175.349	ORH3B E&SCR
	-44.695	174.477	ORH3B E&SCR
	-44.696	174.279	ORH3B E&SCR
	-44.74	174.342	ORH3B E&SCR
Nasty Pinnie	-44.604	175.819	ORH3B E&SCR
	-44.717	174.483	ORH3B E&SCR
	-44.785	174.373	ORH3B E&SCR
Big Willie/Rodgerer	-44.557	176.624	ORH3B E&SCR
U2-Two	-44.632	176.048	ORH3B E&SCR
Mt Nelson	-44.282	179.871	ORH3B E&SCR
Willies	-44.751	175.913	ORH3B E&SCR
	-44.583	176.083	ORH3B E&SCR
Searles summit	-44.480667	176.673833	ORH3B E&SCR
Pinnie	-44.744	175.805	ORH3B E&SCR
Fletchers Pinnie (aka Bluebottle Pinnie)	-44.229	179.204	ORH3B E&SCR
The Zuge	-44.667	176.307	ORH3B E&SCR
Hydroslide	-44.641	176.341667	ORH3B E&SCR
	-45.627622	174.74872	ORH3B E&SCR
Dory Pimp	-44.613	181.898	ORH3B E&SCR
Rigid digit (Mothers best friend)	-44.713333	183.707	ORH3B E&SCR
Petes Pinnie	-44.828	173.3086	ORH3B E&SCR
South Arrow Pinnie	-44.518833	180.813	ORH3B E&SCR
EA5 pinnie	-44.721	184.405	ORH3B E&SCR
Munchen	-44.733553	185.848887	ORH3B E&SCR
	-45.498616	183.983621	ORH3B E&SCR
	-45.773	184.565	ORH3B E&SCR
Griefswald	-45.11	186.21	ORH3B E&SCR
	-45.94	186.14	ORH3B E&SCR
	-45.52123	184.704859	ORH3B E&SCR
	-45.91	185.82	ORH3B E&SCR
	-45.979	184.961	ORH3B E&SCR
Bremen	-45.21	186.26	ORH3B E&SCR

## UTF Characterisation 1989/90 - 2011/12

Name	Classification	Latitude	Longitude	Fishery
E Pinnie	Hill	-39.363	170.672	ORH-7A
MegaBrick	Hill	-40.068	167.98	ORH-7A
TwinTits	Hill	-40.055	167.982	ORH-7A
Volcano	Hill	-39.807	167.247	ORH-7A
The Dork	Hill	-39.767	167.258	ORH-7A
Kaikoura	Hill	-42.45	173.983	ORMEC
Clarence Ridge	Seamount	-42.217	174.417	ORMEC
Kaikoura	Hill	-42.017	174.858	ORMEC
	Knoll	-41.992127	178.48422	ORMEC
Shipley	Seamount	-41.8	180.48	ORMEC
	Hill	-41.774	176.221795	ORMEC
	Seamount	-41.669	180.29	ORMEC
Polar Bear	Seamount	-41.476197	185.915237	ORMEC
	Knoll	-41.383	180.451	ORMEC
	Hill	-41.37	186.74	ORMEC
	Knoll	-41.325179	176.191366	ORMEC
S.Castlepoint hill	Hill	-41.293	176.568	ORMEC
S.Castlepoint hill	Hill	-41.29	176.588	ORMEC
	Hill	-41.263439	176.614175	ORMEC
	Hill	-41.256	178.256	ORMEC
	Hill	-41.255129	177.207907	ORMEC
Outer Castlepoint	Hill	-41.238	176.705	ORMEC
	Knoll	-41.14	186.03	ORMEC
Mobil	Seamount	-41.115471	180.203126	ORMEC
Lee	Seamount	-41.114879	179.531518	ORMEC
Hoiho	Knoll	-41.09	186.06	ORMEC
Bennett Knoll	Hill	-41.083	178.25	ORMEC
Wairarapa Hill 5	Hill	-41.069349	176.68176	ORMEC
	Hill	-41.055476	177.244402	ORMEC
	Hill	-40.94	186.06	ORMEC
	Hill	-40.92	184.01	ORMEC
	Knoll	-40.870964	184.371757	ORMEC
	Hill	-40.839229	183.685589	ORMEC
	Knoll	-40.646	178.811	ORMEC
	Hill	-40.619213	177.019731	ORMEC
	Knoll	-40.49055	184.875846	ORMEC
Moore	Seamount	-40.46	180.5	ORMEC
	Hill	-40.337475	177.202875	ORMEC
	Hill	-40.321219	177.723611	ORMEC

Name	Classification	Latitude	Longitude	Fishery
	Knoll	-40.27804	178.242756	ORMEC
	Knoll	-40.181	179.525	ORMEC
	Hill	-40.02	178.18	ORMEC
	Hill	-39.972629	178.126153	ORMEC
Mahia Knoll	Seamount	-39.822992	179.273676	ORMEC
	Hill	-39.571436	178.605146	ORMEC
Ritchie Hill	Hill	-39.469	178.413	ORMEC
Young Nicks	Seamount	-39.451	179.9225	ORMEC
North Hill	Hill	-39.358	178.452	ORMEC
	Hill	-39.321314	178.585969	ORMEC
Palmer	Seamount	-39.312217	181.449291	ORMEC
	Knoll	-39.288	179.633	ORMEC
	Hill	-39.150742	178.673728	ORMEC
Gisborne Knolls	Knoll	-39.0363	179.3255	ORMEC
	Hill	-38.860147	178.609748	ORMEC
	Hill	-38.85	179.45	ORMEC
Tolaga Knoll	Hill	-38.783	178.783	ORMEC
	Hill	-38.569866	182.196822	ORMEC
	Knoll	-38.387	179.465	ORMEC
Graveyard	Hill	-42.7607	180.0107	ORH3BNWCR
Casket	Hill	-42.8349	179.9865	ORH3BNWCR
Dead Ringer	Hill	-42.737	180.31	ORH3BNWCR
Wecnec	Hill	-42.8167	180.1685	ORH3BNWCR
Scroll	Hill	-42.7865	179.9971	ORH3BNWCR
Morgue	Hill	-42.717	180.04	ORH3BNWCR
Zombie	Hill	-42.766	180.0737	ORH3BNWCR
Diabolical	Hill	-42.7898	180.0127	ORH3BNWCR
RIP	Hill	-42.78	180.0963	ORH3BNWCR
Ghoul	Hill	-42.7984	179.9874	ORH3BNWCR
Gothic	Hill	-42.7271	180.1019	ORH3BNWCR
Headstone	Hill	-42.6763	180.0435	ORH3BNWCR
Pyre	Hill	-42.7165	180.0945	ORH3BNWCR
Coffin	Hill	-42.7718	179.9015	ORH3BNWCR
Phantom	Hill	-42.772	180.006	ORH3BNWCR
Voodoo	Hill	-42.7454	180.0766	ORH3BNWCR
Mummy	Hill	-42.6449	180.1163	ORH3BNWCR
Hartless	Hill	-42.6692	180.077	ORH3BNWCR
Grendel	Hill	-42.7095	180.1595	ORH3BNWCR
Vampire	Hill	-42.7203	179.9544	ORH3BNWCR
Soul Destroyer	Hill	-42.679	180.01103	ORH3BNWCR
Crypt	Hill	-42.627	180.06	ORH3BNWCR

Name	Classification	Latitude	Longitude	Fishery
Solless	Hill	-42.6889	180.0052	ORH3BNWCR
Mt Gloom	Hill	-42.6093	179.9831	ORH3BNWCR
Gargoyle	Hill	-42.674	180.1967	ORH3BNWCR
Mt Doom	Hill	-42.63	179.9933	ORH3BNWCR
	Hill	-42.629	180.086	ORH3BNWCR
	Knoll	-44.171316	176.034353	ORH3B E&SCR
Charlton	Hill	-44.24	184.55	ORH3B E&SCR
Howson	Hill	-43.94	184.7	ORH3B E&SCR
	Hill	-44.4	184.61	ORH3B E&SCR
Hicks	Hill	-44.462	184.671	ORH3B E&SCR
	Hill	-44.06	176.3	ORH3BNWCR
	Hill	-44.572	183.921	ORH3B E&SCR
	Knoll	-44.13	185.06	ORH3B E&SCR
Jones	Hill	-44.59	183.5	ORH3B E&SCR
	Hill	-44.257	175.625	ORH3B E&SCR
	Hill	-44.07	176.37	ORH3B E&SCR
	Hill	-44.505	184.414	ORH3B E&SCR
	Hill	-44.469	184.578	ORH3B E&SCR
	Hill	-44.06	176.46	ORH3BNWCR
Litehouse 3 (aka Mt Nick)	Hill	-44.478	184.895	ORH3B E&SCR
	Hill	-44.492	175.383	ORH3B E&SCR
Perry	Hill	-44.63	183.19	ORH3B E&SCR
	Hill	-44.433	175.9	ORH3B E&SCR
Disappointment Hill	Knoll	-44.495	184.875	ORH3B E&SCR
	Hill	-44.5	175.26	ORH3B E&SCR
Litehouse 1	Hill	-44.496	184.874	ORH3B E&SCR
Litehouse 2	Hill	-44.471	184.892	ORH3B E&SCR
Tina Turner	Hill	-44.5475	184.3172	ORH3B E&SCR
Diamond Head C	Knoll	-44.15	185.31	ORH3B E&SCR
hrmg7	Hill	-44.2	185.05	ORH3B E&SCR
Iceberg (aka hrmg11, Iceblock)	Knoll	-44.158	185.445	ORH3B E&SCR
	Hill	-44.304	175.536	ORH3B E&SCR
	Hill	-44.71	174.847	ORH3B E&SCR
	Hill	-44.723	174.927	ORH3B E&SCR
Pinnie	Hill	-44.51	175.842	ORH3B E&SCR
Pinnie	Hill	-44.484	175.871	ORH3B E&SCR
	Hill	-44.77	174.89	ORH3B E&SCR
	Hill	-44.707	174.973	ORH3B E&SCR
	Hill	-44.69	174.878	ORH3B E&SCR

Name	Classification	Latitude	Longitude	Fishery
	Hill	-44.744	174.916	ORH3B E&SCR
	Hill	-44.698	175.229	ORH3B E&SCR
hrmg8	Hill	-44.265	185.102	ORH3B E&SCR
	Hill	-44.657	174.695	ORH3B E&SCR
	Hill	-44.7383	174.48	ORH3B E&SCR
	Hill	-44.741	174.482	ORH3B E&SCR
Urry Knolls	Hill	-44.723	174.377	ORH3B E&SCR
Manston Boyz	Hill	-44.5155	184.737	ORH3B E&SCR
Diamond Head B	Hill	-44.15	185.25	ORH3B E&SCR
Big Pinnie	Hill	-44.677	175.835	ORH3B E&SCR
Hill94	Hill	-44.537	184.497	ORH3B E&SCR
	Hill	-44.511	184.45	ORH3B E&SCR
Rachael (Andes)	Hill	-44.203	185.442	ORH3B E&SCR
	Hill	-44.77	174.4	ORH3B E&SCR
Neils condom	Hill	-44.634	175.844	ORH3B E&SCR
Pinnie	Hill	-44.528	175.71	ORH3B E&SCR
Unlucky	Hill	-44.36	185.03	ORH3B E&SCR
	Hill	-44.61	174.25	ORH3B E&SCR
Birthday	Hill	-43.77	185.532	ORH3B E&SCR
	Hill	-44.57	175.96	ORH3B E&SCR
Mt Muzza (+ Muzzas Brudda)	Hill	-44.677	183.668	ORH3B E&SCR
	Hill	-44.786	174.842	ORH3B E&SCR
Kenwood	Hill	-43.942	185.419	ORH3B E&SCR
Mt Kiso	Hill	-44.432	181.28	ORH3B E&SCR
Der Spriggs (aka The Rabbit)	Hill	-44.693	183.25	ORH3B E&SCR
	Hill	-44.658	174.659	ORH3B E&SCR
Dickies	Knoll	-44.125	185.43	ORH3B E&SCR
Hegerville	Hill	-44.709	182.942	ORH3B E&SCR
	Hill	-44.789	174.962	ORH3B E&SCR
VHF Pinnie	Hill	-44.406833	176.608	ORH3B E&SCR
Jumbo Jim	Hill	-44.581	176.48	ORH3B E&SCR
Nielson	Hill	-44.725	183.216	ORH3B E&SCR
Hooks hump	Hill	-44.59	176.197	ORH3B E&SCR
Easter	Hill	-43.145	185.533	ORH3B E&SCR
	Hill	-44.718	174.277	ORH3B E&SCR
Diamond Head	Hill	-44.133	185.283	ORH3B E&SCR
Neils pinnacle	Hill	-44.967	174.635	ORH3B E&SCR
	Hill	-44.7	175.419	ORH3B E&SCR
	Hill	-44.714	174.429	ORH3B E&SCR

Name	Classification	Latitude	Longitude	Fishery
	Hill	-44.683	174.458	ORH3B E&SCR
Crack	Hill	-42.844	183.094	ORH3B E&SCR
Hicks	Hill	-44.517	184.694	ORH3B E&SCR
Ritchie Hill (Andes)	Hill	-44.175	185.447	ORH3B E&SCR
Coff Drop (aka Arrows jaws)	Hill	-44.4505	181.322	ORH3B E&SCR
Possum East (aka Chapmans)	Knoll	-44.219	185.519	ORH3B E&SCR
	Hill	-44.6898	174.5317	ORH3B E&SCR
Hill A	Hill	-44.688	175.746	ORH3B E&SCR
	Hill	-44.637	175.349	ORH3B E&SCR
	Hill	-44.695	174.477	ORH3B E&SCR
Icecube	Hill	-44.147	185.468	ORH3B E&SCR
Little Chief	Hill	-44.674	184.788	ORH3B E&SCR
Not Till Sunday (Mushy Pea, Central Park)	Hill	-43.854	185.7	ORH3B E&SCR
	Hill	-44.696	174.279	ORH3B E&SCR
	Hill	-44.74	174.342	ORH3B E&SCR
Hideaway Hill	Hill	-44.702	183.411	ORH3B E&SCR
Jimmy (Andes)	Hill	-44.218	185.413	ORH3B E&SCR
Nasty Pinnie	Hill	-44.604	175.819	ORH3B E&SCR
	Hill	-44.717	174.483	ORH3B E&SCR
Cooks	Knoll	-44.717	184.651	ORH3B E&SCR
	Hill	-44.785	174.373	ORH3B E&SCR
Camerons	Hill	-43.133	185.737	ORH3B E&SCR
Paranoia (aka Mt Pleasant)	Hill	-44.733186	183.459508	ORH3B E&SCR
Aloha (aka Throbin)	Hill	-44.025	185.41	ORH3B E&SCR
Big Chief	Hill	-44.662	184.785	ORH3B E&SCR
Big Willie/Rodgerer	Hill	-44.557	176.624	ORH3B E&SCR
Mt Sally	Hill	-44.638	176.102	ORH3B E&SCR
Flintstone	Hill	-44.62	184.717	ORH3B E&SCR
Dickman	Hill	-44.037667	185.439	ORH3B E&SCR
Hill820	Hill	-43.083	185.472	ORH3B E&SCR
U2-Two	Hill	-44.632	176.048	ORH3B E&SCR
Mt Nelson	Hill	-44.282	179.871	ORH3B E&SCR
Condoms (aka Sid Viscous, Mt Explorer)	Hill	-44.606	184.245	ORH3B E&SCR
Willies	Hill	-44.751	175.913	ORH3B E&SCR
	Hill	-44.583	176.083	ORH3B E&SCR
Trevs Pinni (aka North Arrow)	Hill	-44.45	180.728	ORH3B E&SCR

Name	Classification	Latitude	Longitude	Fishery
Sir Michael (Andes)	Knoll	-44.185	185.598	ORH3B E&SCR
Searles summit	Hill	-44.480667	176.673833	ORH3B E&SCR
Grahams Pinnie	Hill	-44.4755	181.291	ORH3B E&SCR
Pinnie	Hill	-44.744	175.805	ORH3B E&SCR
Smiths City	Hill	-42.96	185.58	ORH3B E&SCR
Fletchers Pinnie (aka Bluebottle Pinnie)	Hill	-44.229	179.204	ORH3B E&SCR
Cathy (aka Fickle Finger of Fate)	Hill	-44.178	185.493	ORH3B E&SCR
Steep Wee F..	Hill	-44.690667	183.768	ORH3B E&SCR
Charlie Horsecock	Hill	-44.678	184.658	ORH3B E&SCR
Dolly Parton	Hill	-44.773	183.423	ORH3B E&SCR
The Zuge	Hill	-44.667	176.307	ORH3B E&SCR
Cotopaxi (aka Coral Kingdom, Patsi)	Hill	-44.165	185.555	ORH3B E&SCR
Hydroslide	Hill	-44.641	176.341667	ORH3B E&SCR
	Hill	-44.038	185.441	ORH3B E&SCR
The Pimple	Hill	-44.577	182.159	ORH3B E&SCR
Featherlite	Hill	-44.662	183.948	ORH3B E&SCR
Lucky (aka Marksville)	Hill	-44.642	184.772	ORH3B E&SCR
Mangrove (aka Riwaka Rock)	Hill	-44.697	184.528	ORH3B E&SCR
Hiawatha	Hill	-44.722	184.745	ORH3B E&SCR
Erebus	Hill	-43.178	186.16	ORH3B E&SCR
Teepee	Hill	-44.615	184.837	ORH3B E&SCR
Tomahawk	Hill	-44.645	184.823	ORH3B E&SCR
	Hill	-45.627622	174.74872	ORH3B E&SCR
Dory Pimp	Hill	-44.613	181.898	ORH3B E&SCR
Rigid digit (Mothers best friend)	Hill	-44.713333	183.707	ORH3B E&SCR
Petes Pinnie	Hill	-44.828	173.3086	ORH3B E&SCR
Bretts	Hill	-43.184	186.005	ORH3B E&SCR
Ladies Night	Hill	-44.1835	185.552	ORH3B E&SCR
South Arrow Pinnie	Hill	-44.518833	180.813	ORH3B E&SCR
Chucky's (aka HellBag hill)	Hill	-44.87	182.973	ORH3B E&SCR
S. of Teepee	Hill	-44.63	184.8185	ORH3B E&SCR
EA5 pinnie	Hill	-44.721	184.405	ORH3B E&SCR
Death Star	Hill	-44.437	185.45	ORH3B E&SCR
Munchen	Seamount	-44.733553	185.848887	ORH3B E&SCR
	Seamount	-45.498616	183.983621	ORH3B E&SCR
	Seamount	-45.773	184.565	ORH3B E&SCR

<b>Name</b>	<b>Classification</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Fishery</b>
Griefswald	Knoll	-45.11	186.21	ORH3B E&SCR
	Seamount	-45.94	186.14	ORH3B E&SCR
	Knoll	-45.52123	184.704859	ORH3B E&SCR
	Seamount	-45.91	185.82	ORH3B E&SCR
	Hill	-45.979	184.961	ORH3B E&SCR
Bremen	Hill	-45.21	186.26	ORH3B E&SCR