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Fish and invertebrate bycatch in New Zealand deepwater fisheries from 1990–91 until 2012–13

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TABLE OF CONTENTS

EXECUTIVE SUMMARY **1**

1. INTRODUCTION **2**

2. METHODS **2**

3. RESULTS **3**

4. ACKNOWLEDGMENTS **25**

5. REFERENCES **25**

EXECUTIVE SUMMARY

Ballara, S.L. (2015). Fish and invertebrate bycatch in New Zealand deepwater fisheries from 1990–91 until 2012–13.
***New Zealand Aquatic Environment and Biodiversity Report No. 158.* 79 p.**

Commercial catch-effort data and fisheries observer records of catch by species provided by the Ministry for Primary Industries (MPI) were used to estimate the level of individual fish and invertebrate species bycatch in each fishing year from 1990–91 to 2012–13 for the following Tier-1 deepwater fisheries: which included the arrow squid (SQU); hoki/hake ling (HOK/HAK/LIN); southern blue whiting (SBW); jack mackerel (JMA); orange roughy (ORH); oreo (OEO); and scampi (SCI) trawl fisheries, and the Ling (LIN) longline fishery.

The estimation process for the hoki, hake and ling trawl fishery were stratified according to fishery area, and estimates of precision were calculated using bootstrap methods. Bootstrap-based precision estimates were also calculated for the ling longline fishery to 2011–12, and the arrow squid fishery to 2010–11. For the remaining fisheries no stratification was used and no estimates of precision were calculated.

Summary tables were made for each fishery, and for all fisheries combined, to provide an easy reference for the bycatch trend of each species or species group caught in these fisheries. Improvements in species identification, introduction of new codes, and changes in observer recording practices can have an effect on the apparent increase or decrease in the bycatch of certain taxa and should be considered when interpreting trends.

All of the fisheries examined showed measurable declines or increases in bycatch of certain species over time, and consistent declines or increases were seen for a few species across six or more of the eight fisheries. Those increasing were; deepsea skates (*Notoraja* spp.), Baxters lantern dogfish (*Etmopterus baxteri*), pale ghost shark (*Hydrolagus bemisi*), and javelinfish (*Lepidorhynchus denticulatus*). Those declining were; bluenose (*Hyperoglyphe Antarctica*), ghost shark (*Hydrolagus novaezealandiae*), and skates (Rajidae and Arhynchobatidae). Future analyses may include a breakdown of trends by area and fishery within these New Zealand deepwater fisheries. Care in interpretation of slope needs to be taken into account, especially for species with few instances of catch, and some trends are driven by greater specificity in observer reporting over time. Overall fishery bycatch shows different levels of bycatch in different fisheries. The hoki, hake or ling trawl target fishery had the highest bycatch levels, while fisheries with low bycatch levels included the orange roughy, oreo, and southern blue whiting trawl fisheries, and the ling longline fishery. Coarse estimates and precision estimates (those generated from more detailed information) were similar for most fisheries, but were much higher for the hoki, hake or ling trawl fishery.

1. INTRODUCTION

This report was prepared as an output from the Ministry for Primary Industries project DAE2010-02 "Bycatch monitoring and quantification of deepwater stocks" and addresses the following Specific objective for year-4.

4. To provide annual estimates of bycatch for nine Tier-1 species fisheries (SQU, SCI, HAK, HOK, JMA, ORH, OEO, LIN, SBW).

The purpose of this research was to compile a list of all fish and invertebrate bycatch species in New Zealand deepwater fisheries, with estimates of annual catch levels, which could be relatively rapidly produced and regularly updated. This would allow early detection of any downward (or upward) trends in bycatch of individual species in all Tier-1 deepwater fisheries, not just in the single fishery typically examined in any one year. By fine-tuning these estimates for the fishery under closer examination in each year (in this year the hoki, hake, and ling trawl fishery) and providing estimates of precision, an overall picture of the annual bycatch of a large number of species, across each fishery, can be built up over multiple years—with increasing precision in each year.

This report provides the third iteration of this plan, the first two provided fine-tuned estimates for only the arrow squid trawl fishery (Anderson 2013b) and only the arrow squid trawl fishery and ling longline fishery (Anderson 2014a).

2. METHODS

Observer bycatch data were extracted from the MPI ***cod*** database for each of the Tier-1 species target deepwater fisheries (hoki/hake/ling trawl, jack mackerel trawl, orange roughy trawl, oreo trawl, southern blue whiting trawl, scampi trawl, arrow squid trawl, and ling longline) for the period 1990–91 to 2012–13. These data were subjected to the same error-checking procedures as used for the hoki, hake, and ling trawl fishery by Ballara & O'Driscoll (in press).

The total catch and frequency of capture of each bycatch species was examined in each fishery, and those species for which there was a total of less than 10 kg of observed catch over the entire 23-year period, or which were observed caught on five or fewer occasions, were disregarded. It was considered that either the capture of such species was so rare as to be irrelevant, or the likelihood was high that such records were the result of the species code being incorrectly recorded by the observer. Annual bycatch ratios for the remaining individual QMS and non-QMS species (fish and invertebrates) were then calculated for each fishery.

Commercial catch records were also obtained from the Ministry for Primary Industries for each fishery, groomed according to the procedures described in Ballara & O'Driscoll (in press), then used to calculate annual effort (number of tows or longline sets) for each fishery.

For each fishery the annual species specific bycatch ratios were multiplied by the annual effort in the fishery, without stratification, to produce simple estimates of total annual bycatch without any estimates of precision. An indication of whether the bycatch of each species increased, decreased, or stayed relatively unchanged over time was calculated in the form of a slope coefficient for a loglinear regression fitted to the data, with a significant trend where the absolute value of the slope was less than 0.01. The number of species showing increases or

decreases in catch over time for each fishery were noted, as were the number of species showing significant increases or decreases in catch.

For the hoki, hake and ling trawl fishery, the procedure was similar but was extended to include an estimate of precision derived from an area-stratified bootstrapping procedure used for the combined species groups (QMS, non-QMS, and invertebrates) in Ballara & O'Driscoll (in press). This procedure rounds the estimates of total annual catch to the nearest 0.1 t and so species with less than this level of catch in at least one year were excluded. See Ballara & O'Driscoll (in press) for a more detailed description of the general methodology used to extract and groom observer and commercial fishing return data, calculate bycatch ratios and annual levels, and estimate precision. A comparison of coarse and precision slopes for a few selected species in the hoki, hake, and ling trawl fishery were produced for comparison between these methods. The arrow squid trawl fishery precision estimates to 2010–11 Anderson (2013b) and ling longline precision estimates to 2011–12 from Anderson (2014a) were also included.

Tables were constructed for each fishery showing the annual estimated bycatch for each species and the slope coefficient. For all years in the hoki, hake, and ling trawl fishery the CV for each estimate was also provided. A colour-coded summary table is also provided, in order to clearly indicate the species in each fishery with declining or increasing catch levels.

A summary of bycatch in all the reported fisheries by time, and comparison of total bycatch rates across all fisheries was produced.

3. RESULTS

Annual bycatch estimates for individual species in each of the nine Tier-1 deepwater fisheries are given in Tables 1 to 8. The following is a brief summary of these tables, including figures showing the annual bycatch of the main bycatch species and those with the greatest increase and decrease over time.

Note that in some cases the apparent increase or decrease in bycatch of a species is likely to be due to improvements in species identification, or changes in observer recording practices, over time. For example, in the arrow squid fishery, the increase in bycatch of smooth red swimming crabs (*Nectocarcinus bennetti*) appears to be at the expense of bycatch of the similar-looking paddle crabs (*Ovalipes catharus*), and the increase in bycatch of floppy tubular sponges in the hoki/hake/ling trawl fishery actually reflects the improved identification of sponges in more recent years. Where the possibility of this was strongly suspected in the species figured, it has been noted in the figure captions; for other species, e.g., slender jack mackerel, the changes in bycatch may reflect real changes in species abundance.

Arrow squid trawl fishery

- Of the 185 bycatch species examined, 47 have shown a decrease in catch over time and 138 an increase in catch; with 13 having shown a significant decrease and 18 a significant increase in catch.
- The species showing the greatest decline were paddle crabs (PAD), combined jack mackerel species (JMA, JMM, and JMN) and barracouta (BAR) (Figure 1a).
- The species showing the greatest increase were silver dory (*Cyttus novaezealandiae*, SDO), giant spider crab (*Jacquinotia edwardsii*, GSC), and the smooth red swimming crab (NCB) (Figure 1a).
- The most commonly caught bycatch species were barracouta (*Thyrsites atun*, BAR), silver warehou (*Seriolella punctata*, SWA), and combined jack mackerel species: greenback jack mackerel (*Trachurus declivis*, JMA); slender jack mackerel (*Trachurus murphyi*, JMM) and yellowtail jack mackerel (*Trachurus novaezelandiae,* MN), (Figure 1b). The twelve most common bycatch species are also shown in Figure 1b.

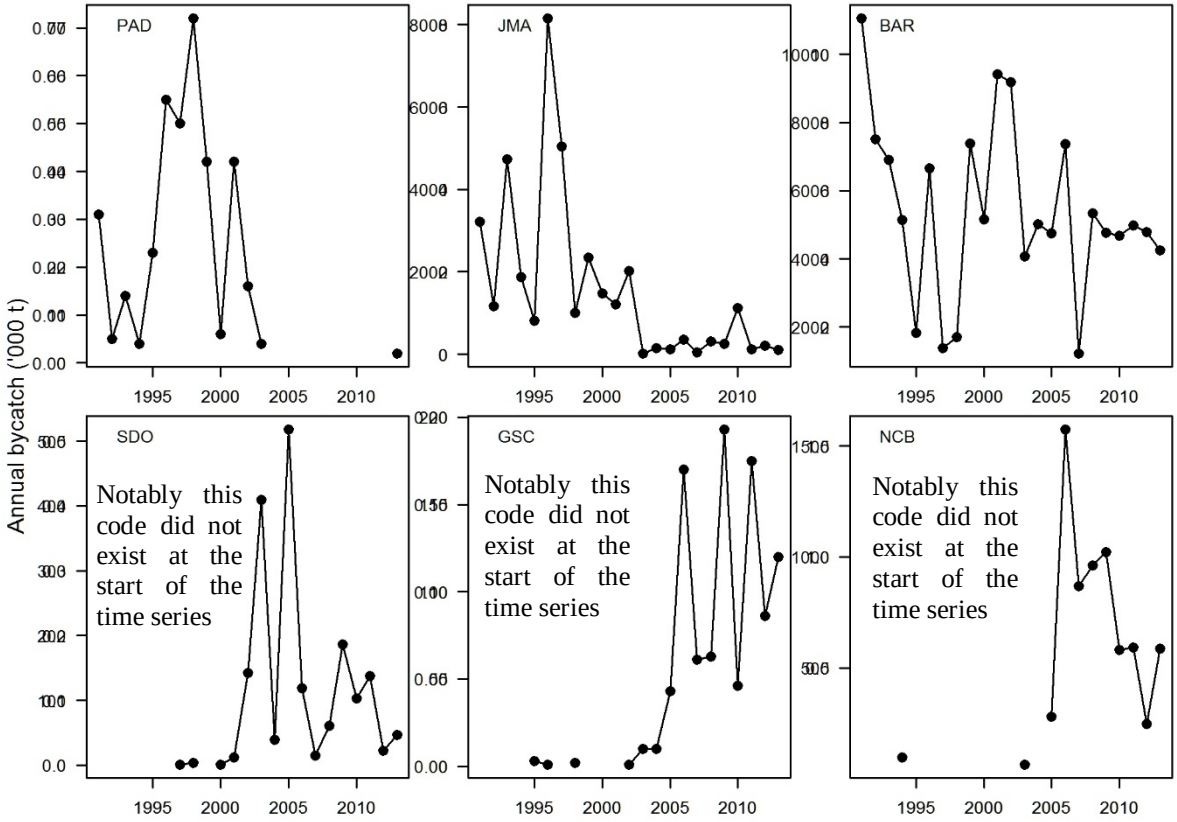


Figure 1a: Annual bycatch estimates in the arrow squid trawl fishery for the species which have shown the greatest decrease (top) and greatest increase (bottom) between 1990–91 and 2012–13. See text above for explanation of the species codes. Note: the scale changes on the y-axis between plots and the increase in PAD and decrease in NCB may be due to NCB being erroneously recorded as PAD before 2003–04. Trends implied by codes which did not exist at the start of the time series are indicated on the graphs.

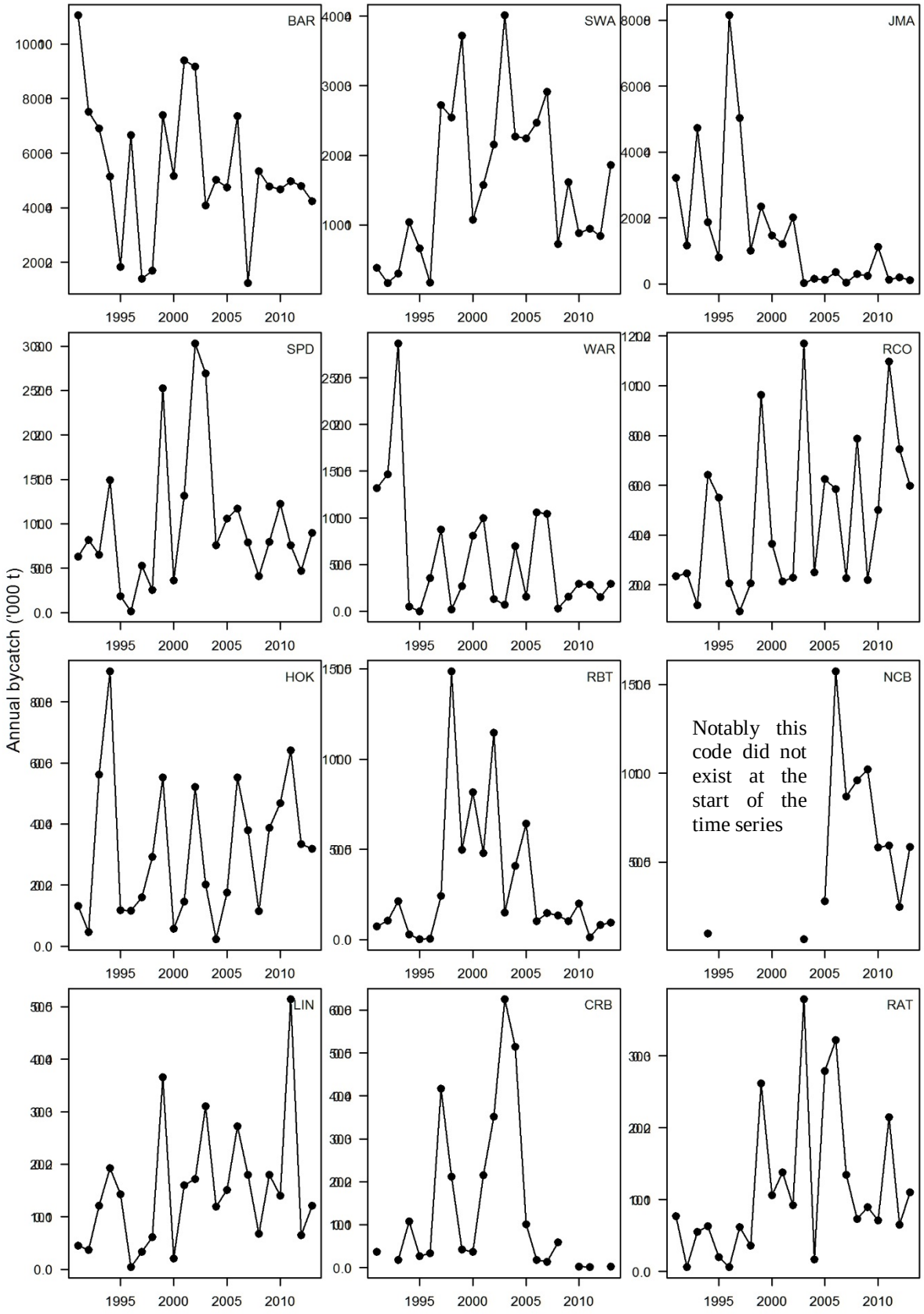


Figure 1b: Annual bycatch estimates for key arrow squid fishery bycatch species between 1990–91 and 2012–13. See http://marlin.niwa.co.nz for species code definitions. Note: the scale changes on the y-axis between plots. Trends implied by codes which did not exist at the start of the time series are indicated on the graphs.

Hoki, hake, ling trawl fishery

- Of the 340 bycatch species examined, 143 have shown a decrease in catch over time and 197 an increase in catch; with 40 having shown a significant decrease and 19 an increase in catch.
- The species showing the greatest decline were skates (SKA), combined jack mackerel species (JMA, JMM, and JMN), and dogfishes (*Etmopterus* spp., ETM) (Figure 2a).
- The species showing the greatest increase were Tam O shanter urchins (Echinothurioida, TAM), umbrella octopus (*Opisthoteuthis* spp., OPI), and floppy tubular sponge (*Hyalascus* sp., HYA), (Figure 2a).
- The most commonly caught bycatch species were silver warehou (SWA), javelinfish (JAV), unspecified rattails (Macrouridae, RAT) (Figure 2b). The other twelve next most common bycatch species are also shown in Figure 2b.
- Annual catch was often higher for the precision based estimates than for coarse estimates, but the overall trend was often similar (Figure2c).

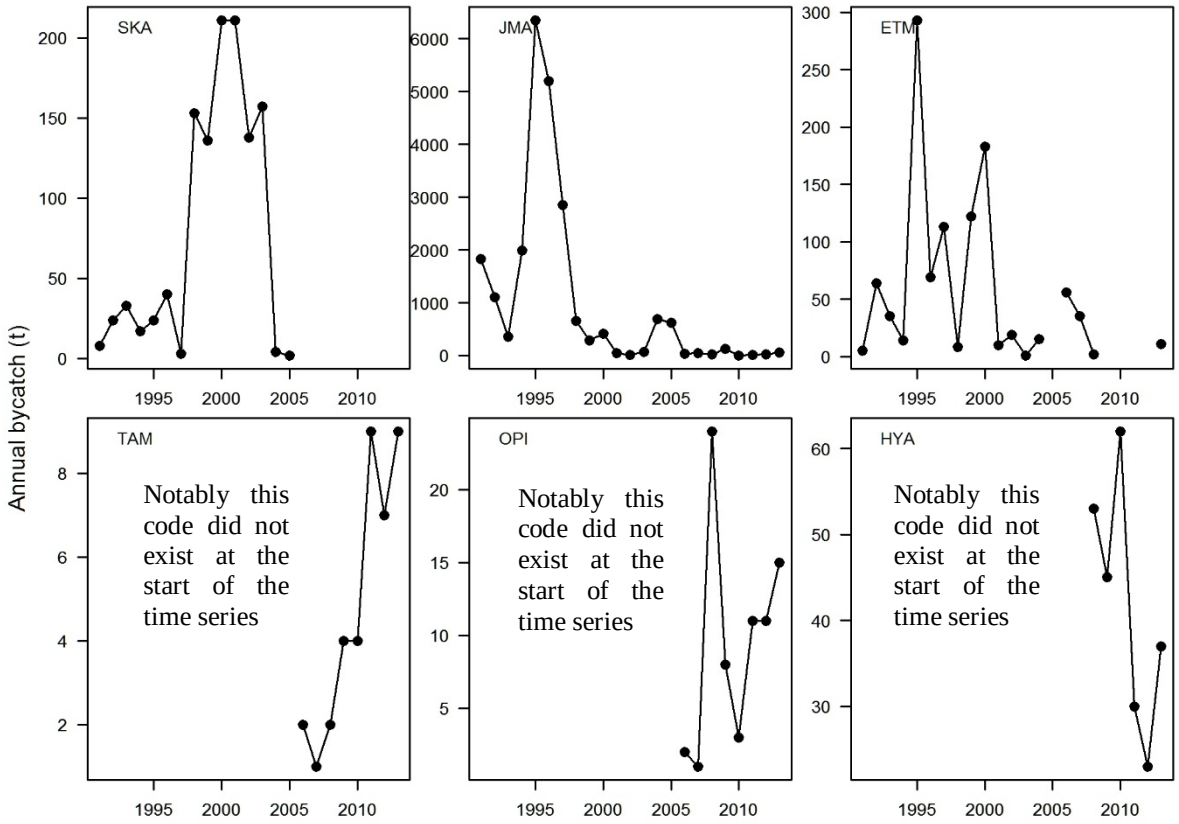


Figure 2a: Annual bycatch estimates in the hoki, hake, and ling trawl fishery for the species which have shown the greatest decrease (top) and greatest increase (bottom) between 1990–91 and 2012–13. See text above for explanation of the species codes. Note: skates (SKA) were mainly recorded as rough skate (RSK) or smooth skate (SSK) after 2002–03; some species (e.g., the sponge HYA and the octopus OPI) may not have been well identified in earlier years. Note: the scale changes on the y-axis between plots. Lines are joined where there are data points for consecutive years. Trends implied by codes which did not exist at the start of the time series are indicated on the graphs.

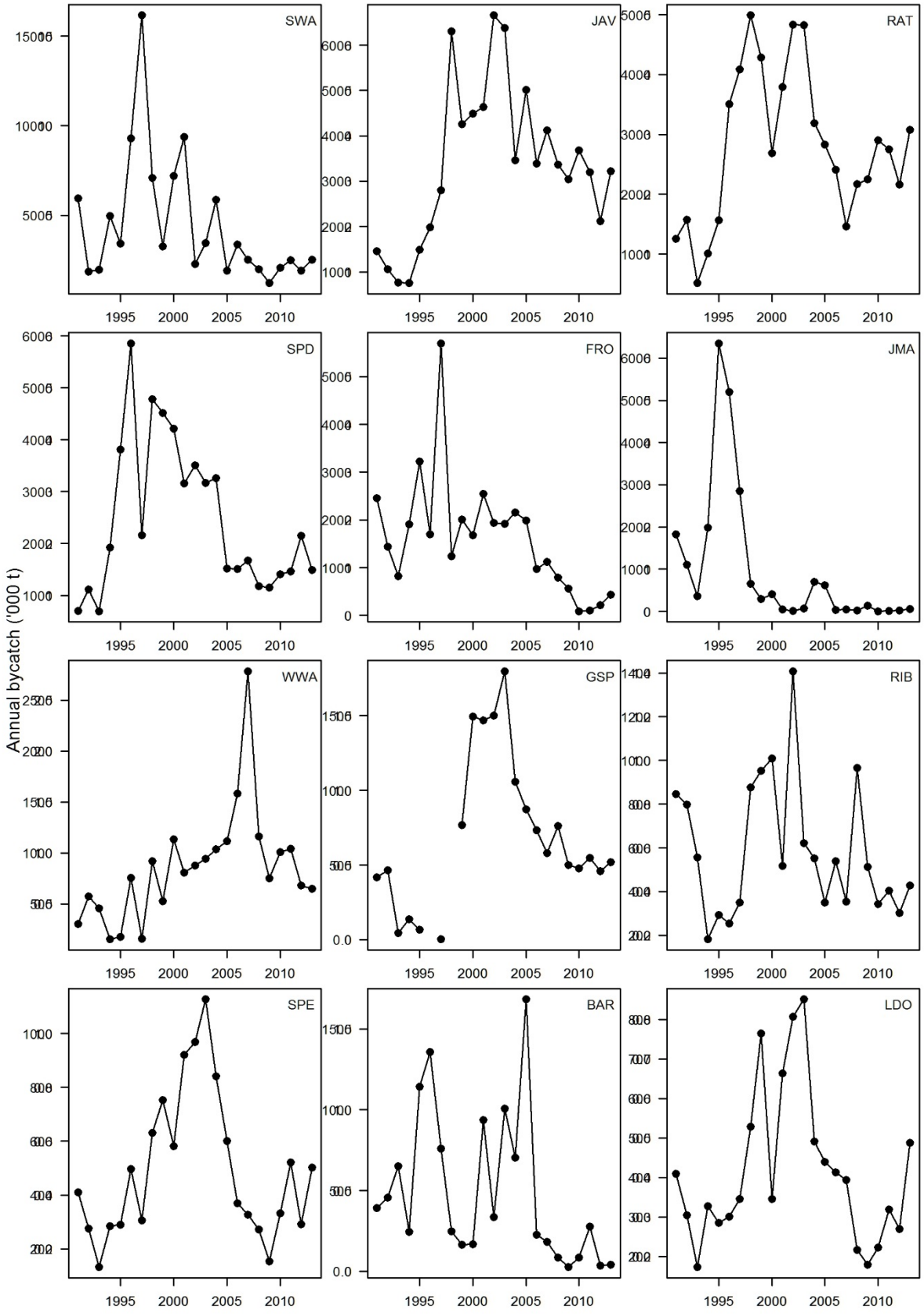


Figure 2b: Annual bycatch estimates for key hoki, hake, and ling fishery bycatch species between 1990–91 and 2012–13. See http://marlin.niwa.co.nz for species code definitions. Note: the scale changes on the y-axis between plots. Lines are joined where there are data points for consecutive years.

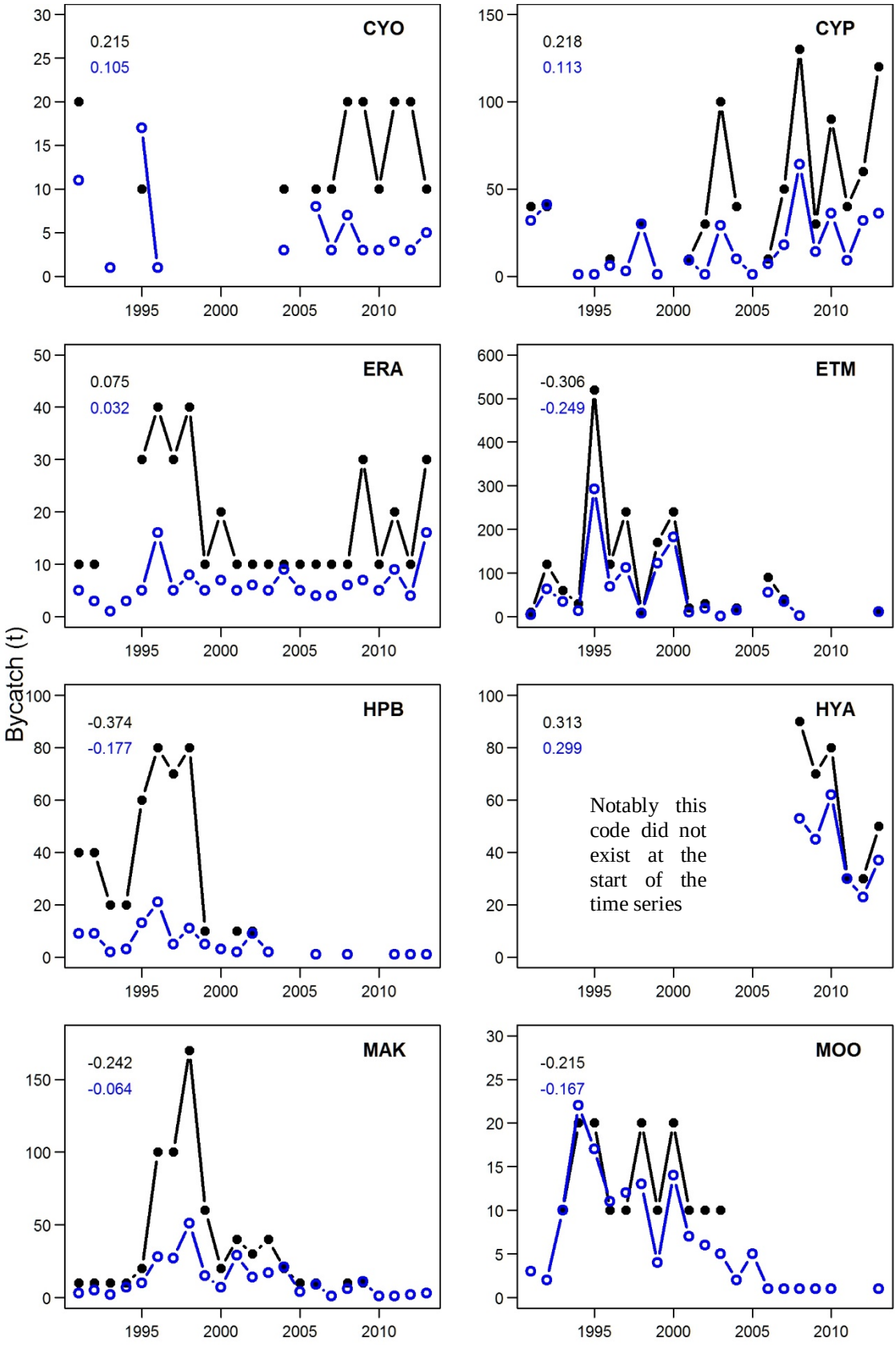


Figure 2c: Annual bycatch estimates for key hoki, hake, and ling fishery bycatch species between 1990–91 and 2012–13 for coarse (blue) and precision (black) based estimates of selected species. Numbers are the slope coefficient for a loglinear regression fitted to the data. See http://marlin.niwa.co.nz for species code definitions. Lines are joined where there are data points for consecutive years. Trends implied by codes which did not exist at the start of the time series are indicated on the graphs.

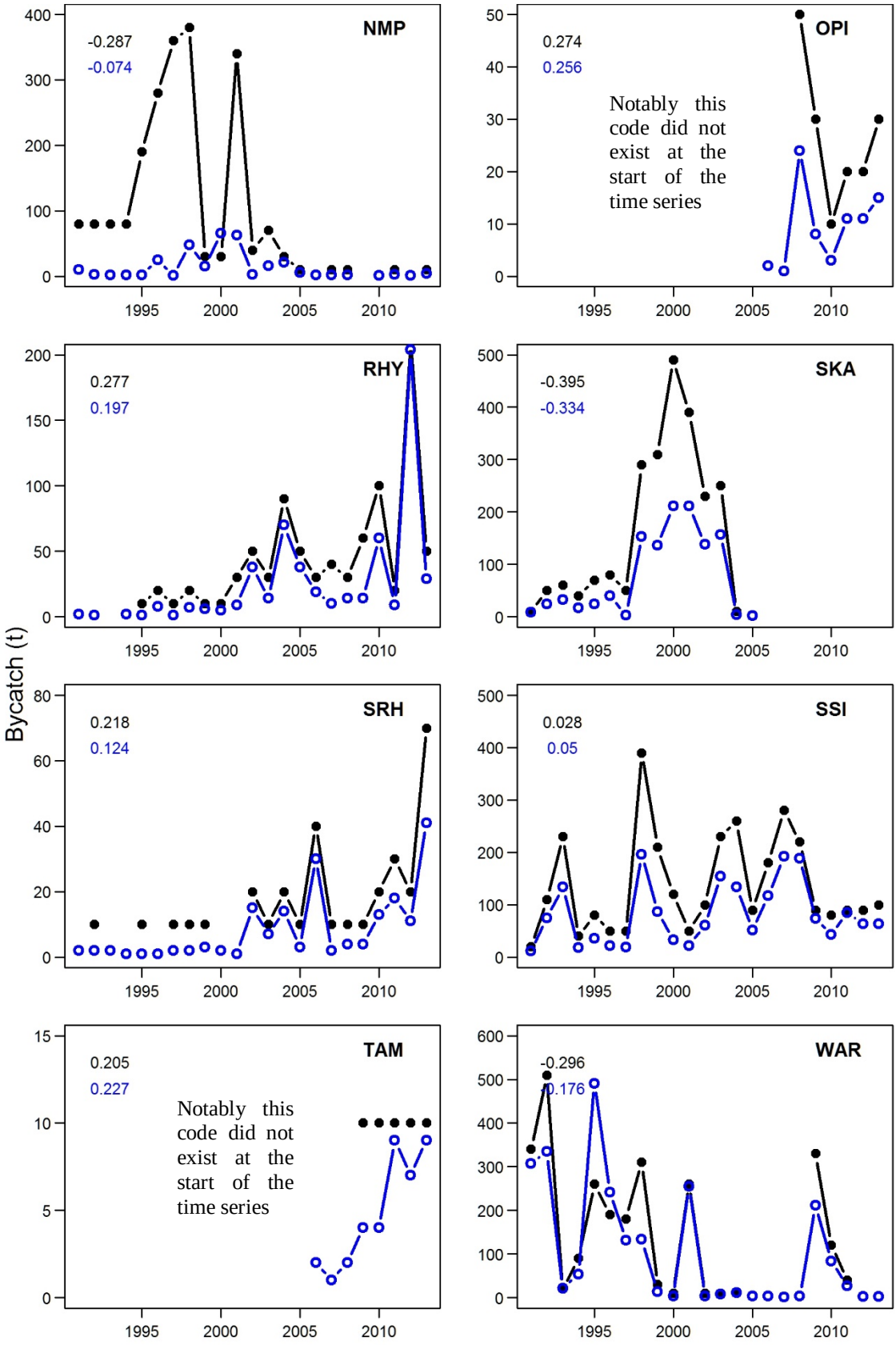


Figure 2c: continued.

Jack mackerel trawl fishery

- Of the 110 bycatch species examined, 65 have shown a decrease in catch over time and 45 an increase in catch; with 11 having shown a significant decrease and 10 a significant increase in catch.
- The species showing the greatest decline were dark ghost shark (GSH), sea perch (*Helicolenus* spp., SPE), and carpet shark (*Cephaloscyllium isabellum*, CAR) (Figure 3a).
- The species showing the greatest increase were silver dory (*Cyttus novaezealandiae*), kingfish (*Seriola lalandi*), and pilchard (*Sardinops sagax*) (Figure 3a).

The most commonly caught bycatch species were barracouta (BAR), blue mackerel (*Scomber australasicus*, EMA), and frostfish (*Lepidopus caudatus*, FRO). The other twelve next most common bycatch species are also shown in Figure 3b.

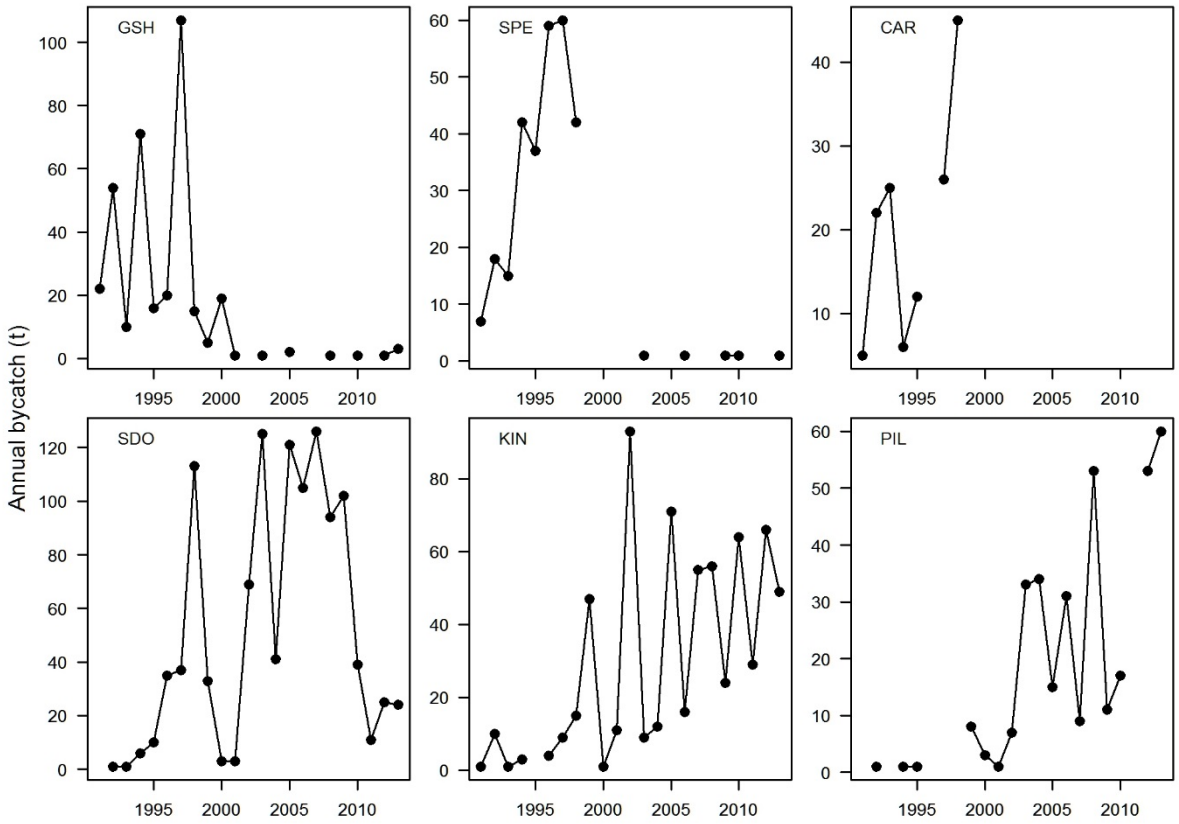


Figure 3a: Annual bycatch estimates in the jack mackerel trawl fishery for the species which have shown the greatest decrease (top) and greatest increase (bottom) between 1990–91 and 2012–13. See text above for explanation of the species codes. Note: the scale changes on the y-axis between plots. Lines are joined where there are data points for consecutive years.

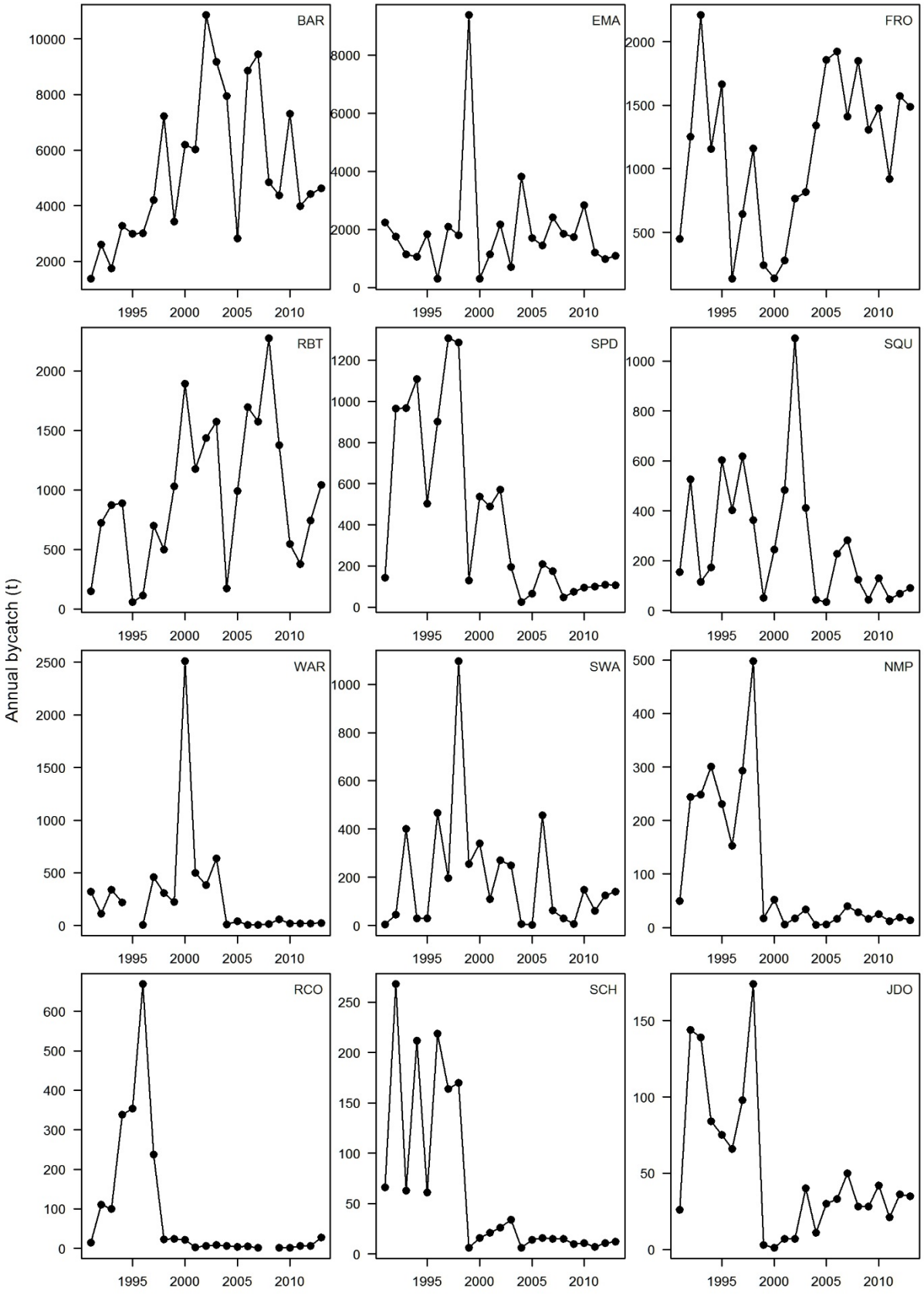


Figure 3b: Annual bycatch estimates for key jack mackerel fishery bycatch species between 1990–91 and 2012–13. See http://marlin.niwa.co.nz for species code definitions. Note: the scale changes on the y-axis between plots. Lines are joined where there are data points for consecutive years.

Ling longline fishery

- Observers began monitoring this fishery in 1992–93, therefore bycatch estimates are not available for 1990–91 and 1991–92.
- Of the 104 bycatch species examined, 31 have shown a decrease in catch over time and 73 an increase in catch; with 5 having shown a significant decrease and 9 a significant increase in catch.
- Among the species showing the greatest decline were bluenose (*Hyperoglyphe antarctica*, BNS), Ray's bream (*Brama brama*, RBM), and hapuku (*Polyprion oxygeneios*, HAP) (Figure 4a). The pattern of decline in BNS is driven by a single outlier and therefore should be treated more cautiously.
- The species showing the greatest increase were the hairy conger (HCO), hagfish (*Eptratretus cirrhatus*, HAG), and pale ghost shark (*Hydrolagus bemisi*, GSP) (Figure 4a).
- The most commonly caught bycatch species were spiny dogfish (SPD), ribaldo (*Mora moro*, RIB), and smooth skate (*Dipturus innominatus*, SSK). The other twelve next most common bycatch species are also shown in Figure 4b.

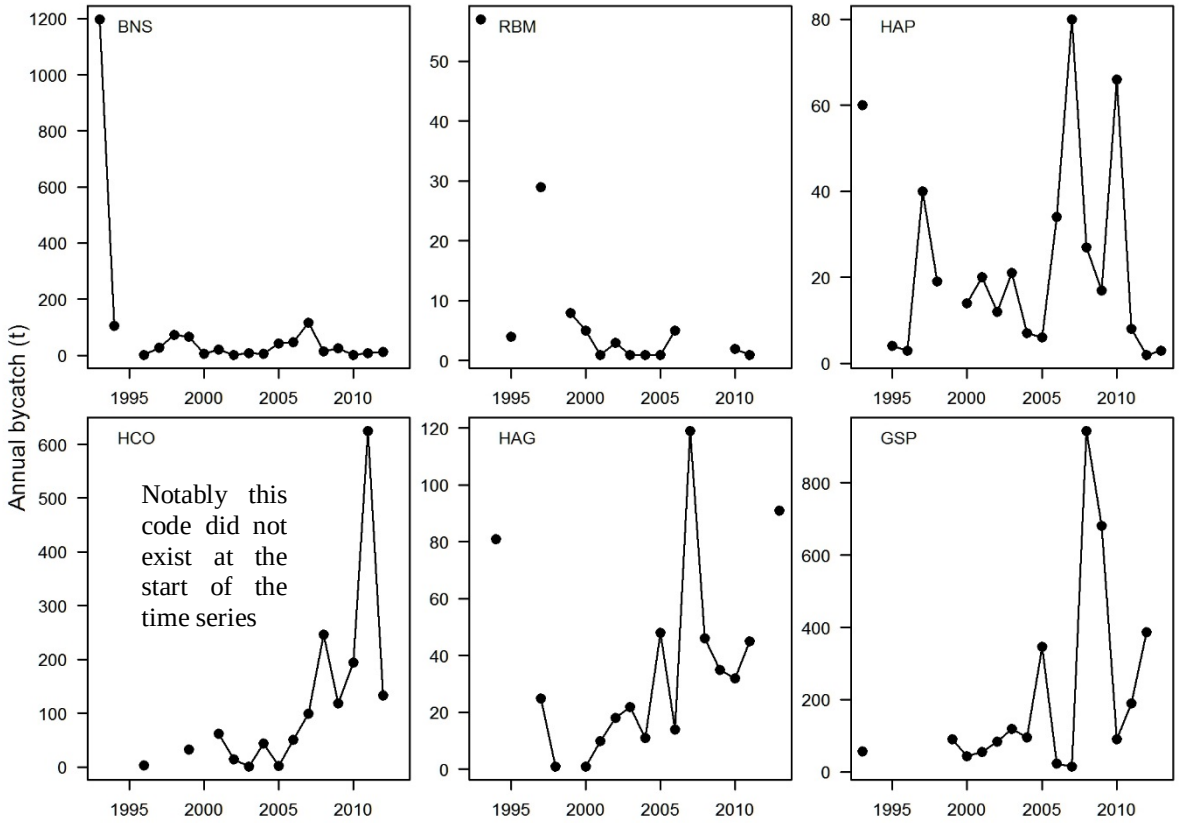


Figure 4a: Annual bycatch estimates in the ling longline fishery for the species which have shown the greatest decrease (top) and greatest increase (bottom) between 1990–91 and 2010–11. See text above for explanation of the species codes. Note: the scale changes on the y-axis between plots. Lines are joined where there are data points for consecutive years. Trends implied by codes which did not exist at the start of the time series are indicated on the graphs.

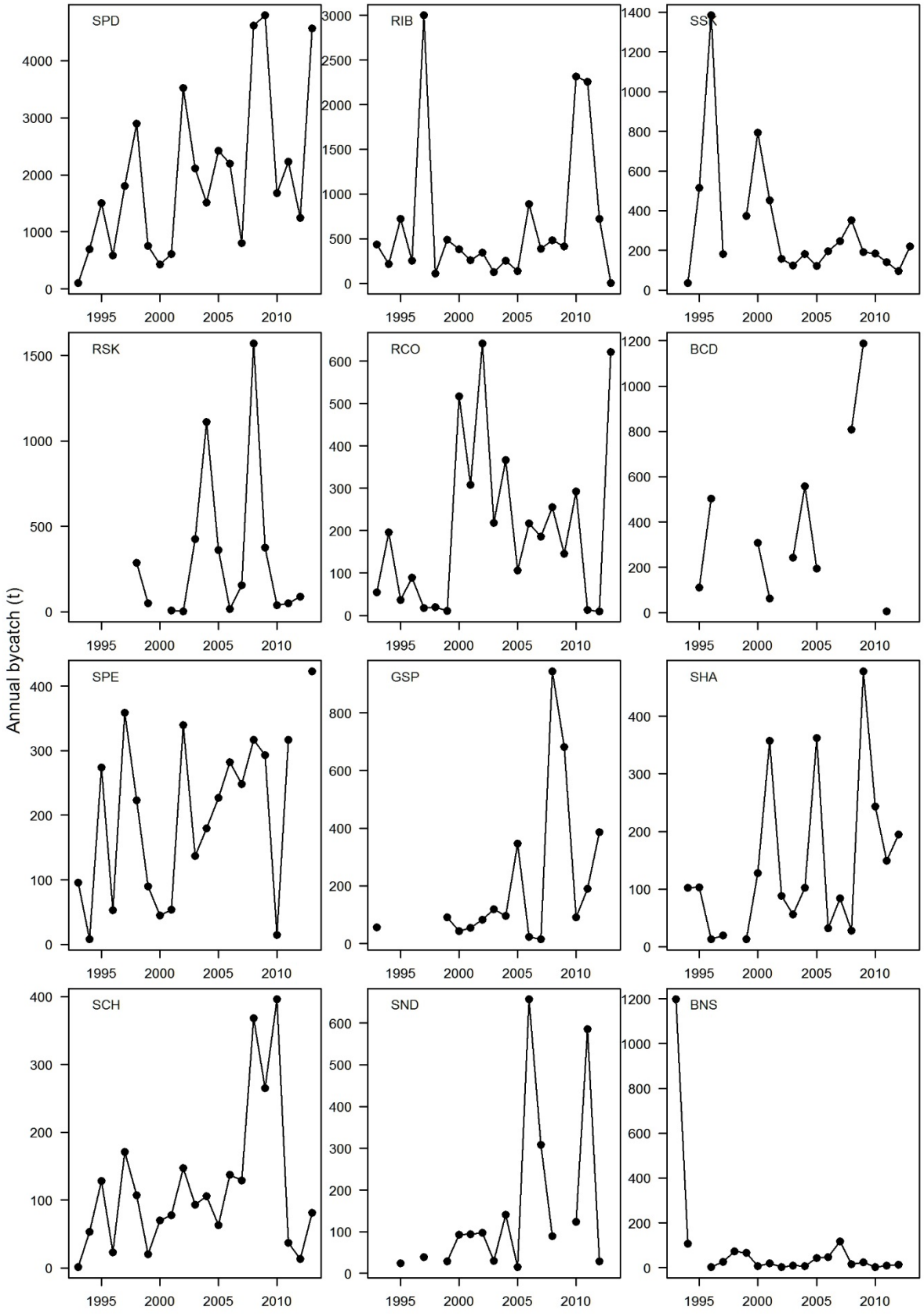


Figure 4b: Annual bycatch estimates for key ling longline fishery bycatch species between 1990–91 and 2012–13. See http://marlin.niwa.co.nz for species code definitions. Note: the scale changes on the y-axis between plots. Lines are joined where there are data points for consecutive years.

Orange roughy trawl fishery

- Of the 201 bycatch species examined, 101 have shown a decrease in catch over time and 100 an increase in catch; with 16 having shown a significant decrease and 26 a significant increase in catch.
- The species showing the greatest decline were spiny dogfish (SPD), black oreo (*Allocyttus niger*, BOE), and cardinalfishes (Epigonidae, CDL) (Figure 5a). The pattern of decline in SPD is driven by a single outlier and therefore should be treated more cautiously.
- The species showing the greatest increase were morid cods (Moridae, MOD), longnose velvet dogfish (*Centroscymnus crepidater*, CYP), and bushy hard coral (*Goniocorella dumosa*, GDU) (Figure 5a).
- The most commonly caught bycatch species were smooth oreo (*Pseudocyttus maculatus*, SSO), black oreo (*Allocyttus niger*, BOE), and black cardinalfish (*Epigonus telescopus*, CDL). The other twelve next most common bycatch species are also shown in Figure 5b.

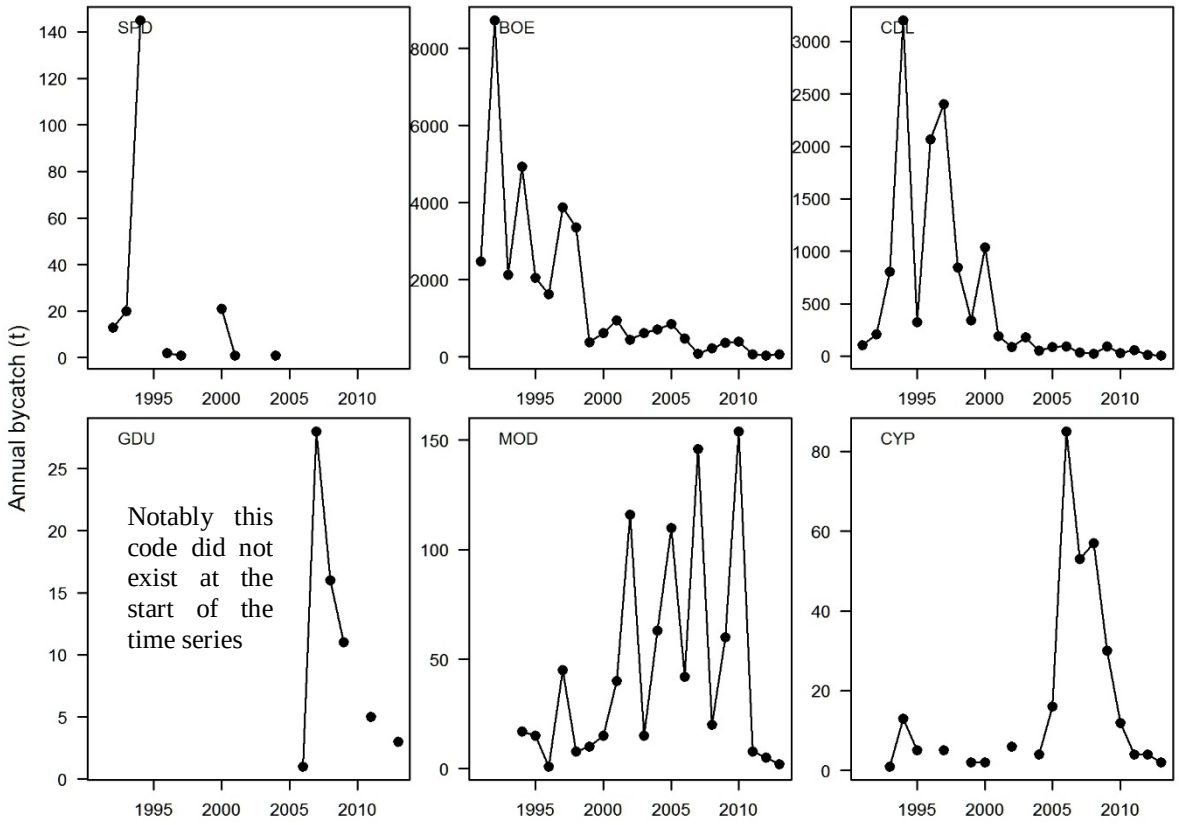


Figure 5a: Annual bycatch estimates in the orange roughy trawl fishery for the species which have shown the greatest decrease (top) and greatest increase (bottom) between 1990–91 and 2012–13. See text above for explanation of the species codes. Note: *Goniocorella dumosa* may not have been well identified before 2005–06. Note: the scale changes on the y-axis between plots. Lines are joined where there are data points for consecutive years. Trends implied by codes which did not exist at the start of the time series are indicated on the graphs.

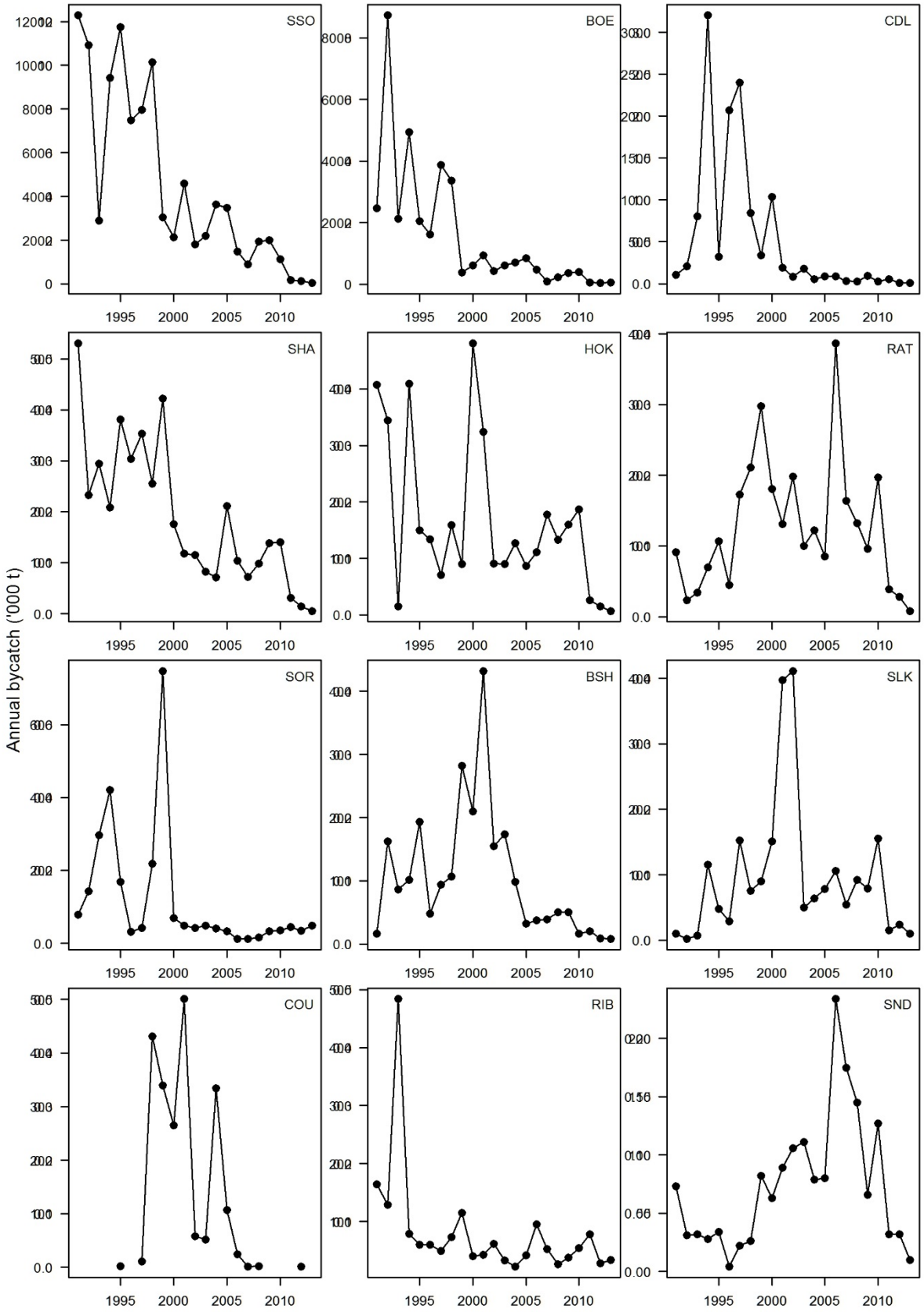


Figure 5b: Annual bycatch estimates for key orange roughy trawl fishery bycatch species between 1990–91 and 2012–13. See http://marlin.niwa.co.nz for species code definitions. Note: the scale changes on the y-axis between plots. Lines are joined where there are data points for consecutive years.

Oreo trawl fishery

- Of the 116 bycatch species examined, 46 have shown a decrease in catch over time and 70 an increase in catch; with 19 having shown a significant decrease and 8 a significant increase in catch.
- The species showing the greatest decline were dark ghost shark (GSH), unspecified shark (SHA), and ling (LIN) (Figure 6a). The pattern of decline in GSH is driven by a single outlier and therefore should be treated more cautiously.
- The species showing the greatest increase were ridge-scaled rattail (*Macrourus carinatus*, MCA), Baxter's lantern dogfish (*Etmopterus baxteri*, ETB), and pale ghost shark (GSP) (Figure 6a).
- The most commonly caught bycatch species were orange roughy (*Hoplostethus atlanticus*, ORH), unspecified shark (SHA), and hoki (HOK). The other twelve next most common bycatch species are also shown in Figure 6b.

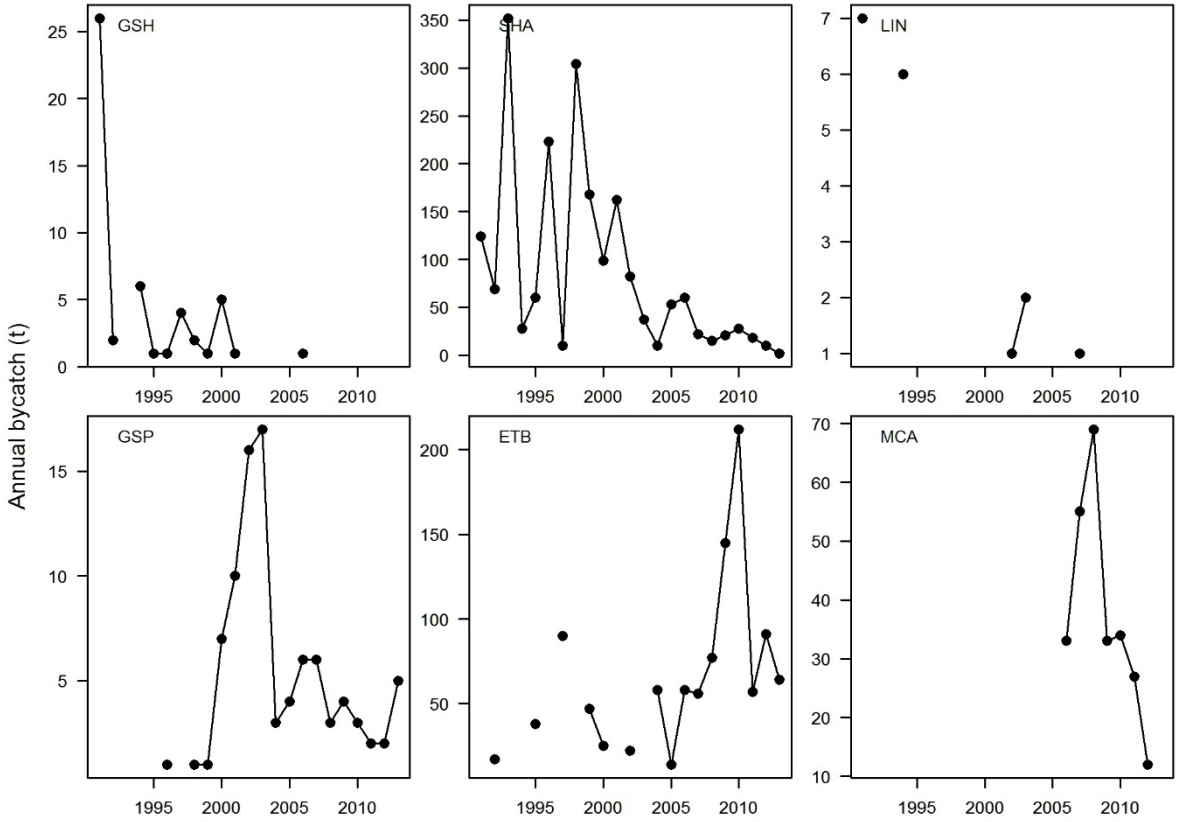


Figure 6a: Annual bycatch estimates in the oreo trawl fishery for the species which have shown the greatest decrease (top) and greatest increase (bottom) between 1990–91 and 2012–13. See text above for explanation of the species codes. Note: sharks (SHA) may have been identified to an increasingly higher taxonomic level over time; rattails such as MCA may not have been well identified in earlier years. Note: the scale changes on the y-axis between plots. Lines are joined where there are data points for consecutive years.

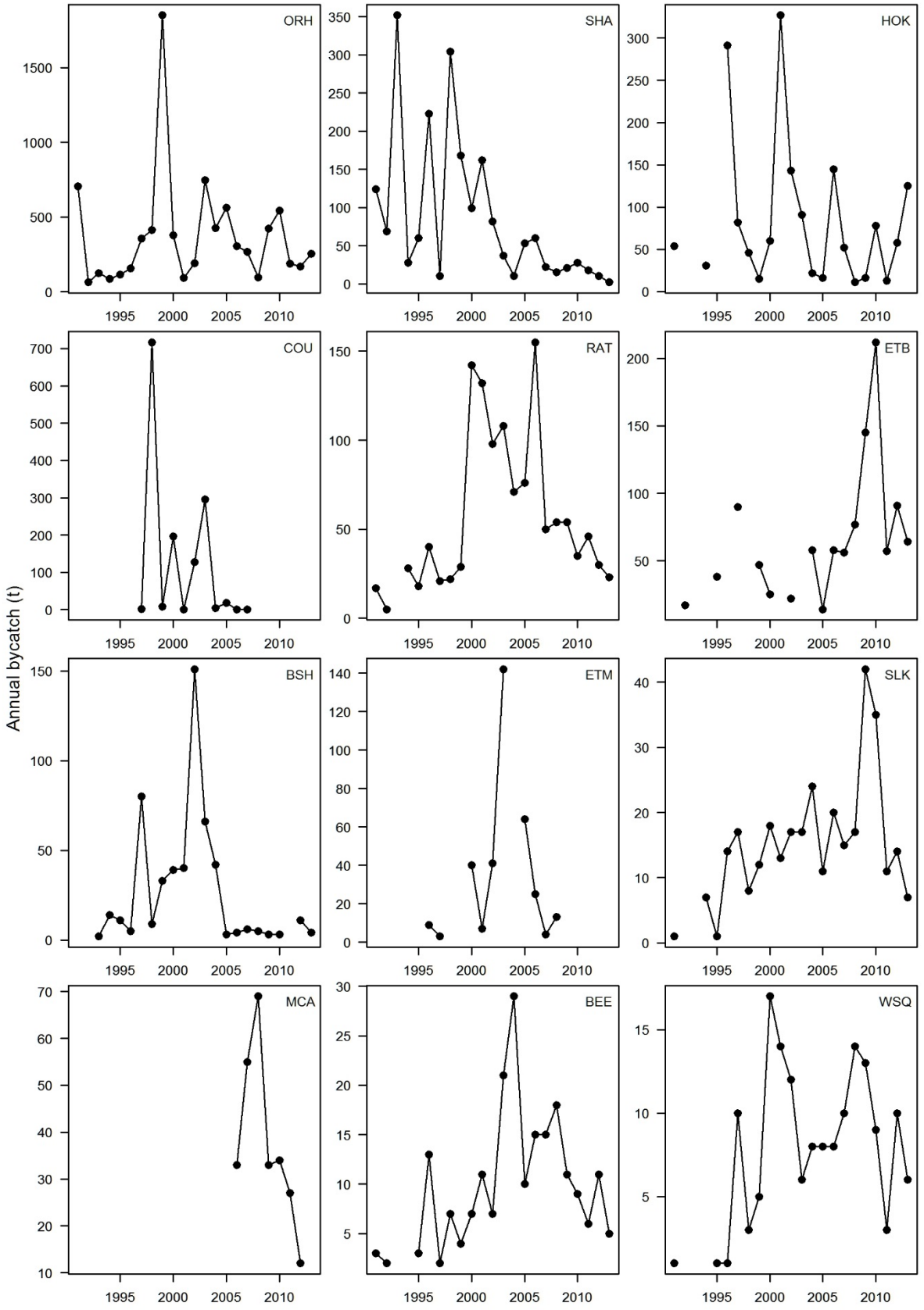


Figure 6b: Annual bycatch estimates for key oreo fishery bycatch species between 1990–91 and 2012–13. See http://marlin.niwa.co.nz for species code definitions. Note: the scale changes on the y-axis between plots. Lines are joined where there are data points for consecutive years.

Scampi trawl fishery

- Of the 267 bycatch species examined, 115 have shown a decrease in catch over time and 152 an increase in catch; with 16 having shown a significant decrease and 12 a significant increase in catch.
- The species showing the greatest decline were skates (Rajidae and Arhynchobatidae, SKA), bluenose (*Hyperoglyphe antarctica*, BNS) and alfonsino (*Beryx* spp., BYX) (Figure 7a).
- The species showing the greatest increase were Geometric star (*Psilaster acuminatus*, PSI), frilled crab (*Trichopeltarion fantasticum*, TFA), and spiny masking crab (*Teratomaia richardsoni*, SMK) (Figure 7a).
- The most commonly caught bycatch species were javelinfish (*Lepidorhynchus denticulatus*, JAV), unspecified rattails (Macrouridae, RAT), and sea perch (*Helicolenus* spp., SPE). The other twelve next most common bycatch species are also shown in Figure 7b.

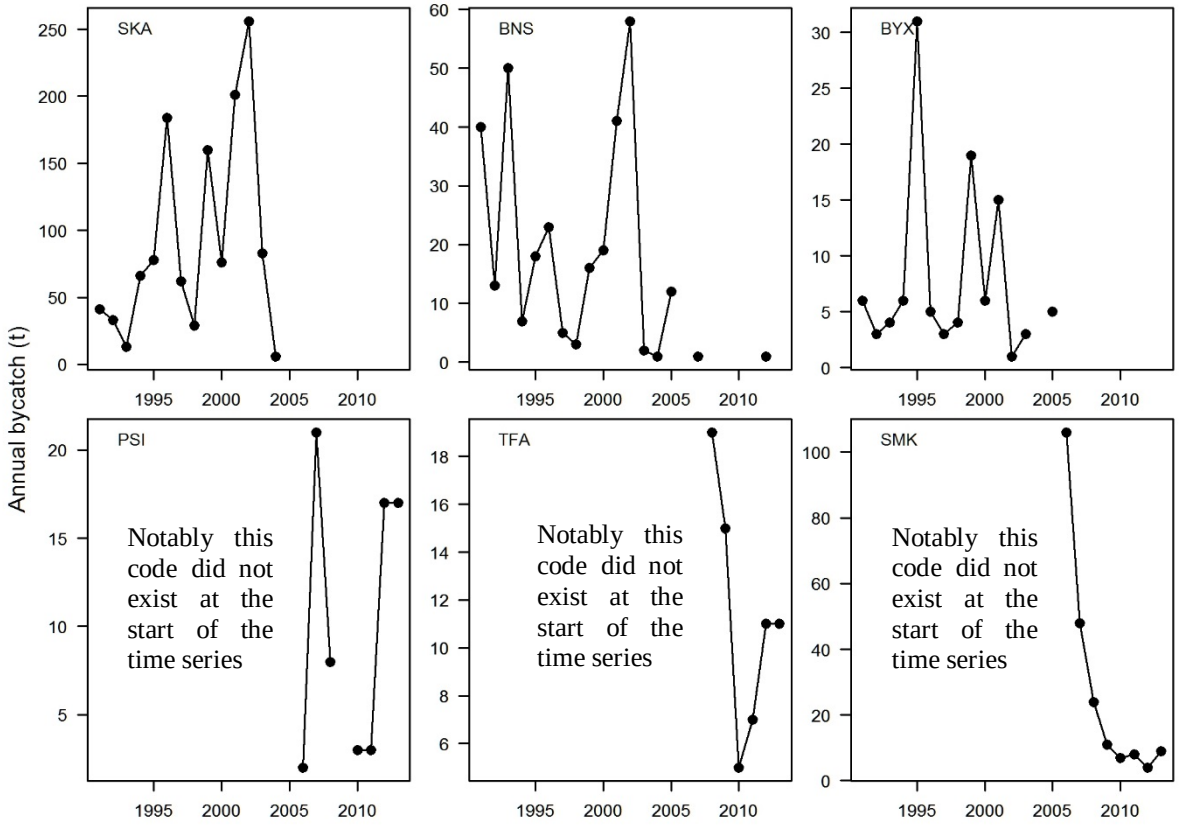


Figure 7a: Annual bycatch estimates in the scampi trawl fishery for the species which have shown the greatest decrease (top) and greatest increase (bottom) between 1990–91 and 2012–13. See text above for explanation of the species codes. Note: skates (SKA) were mainly recorded as rough skate (RSK) or smooth skate (SSK) after 2002–03; spiny masking crabs may not have been well identified before 2004–05. Note: the scale changes on the y-axis between plots. Lines are joined where there are data points for consecutive years. Trends implied by codes which did not exist at the start of the time series are indicated on the graphs.

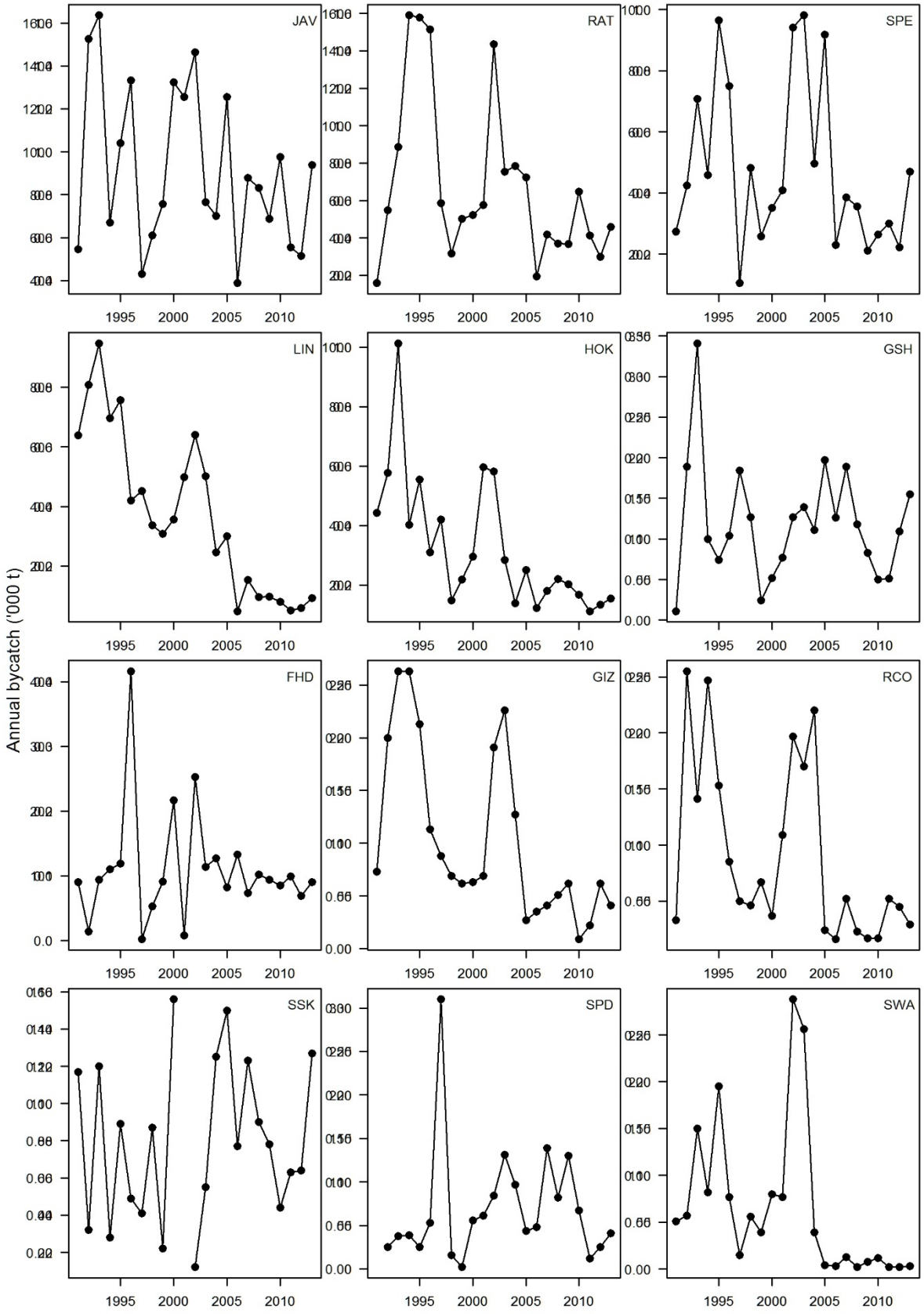
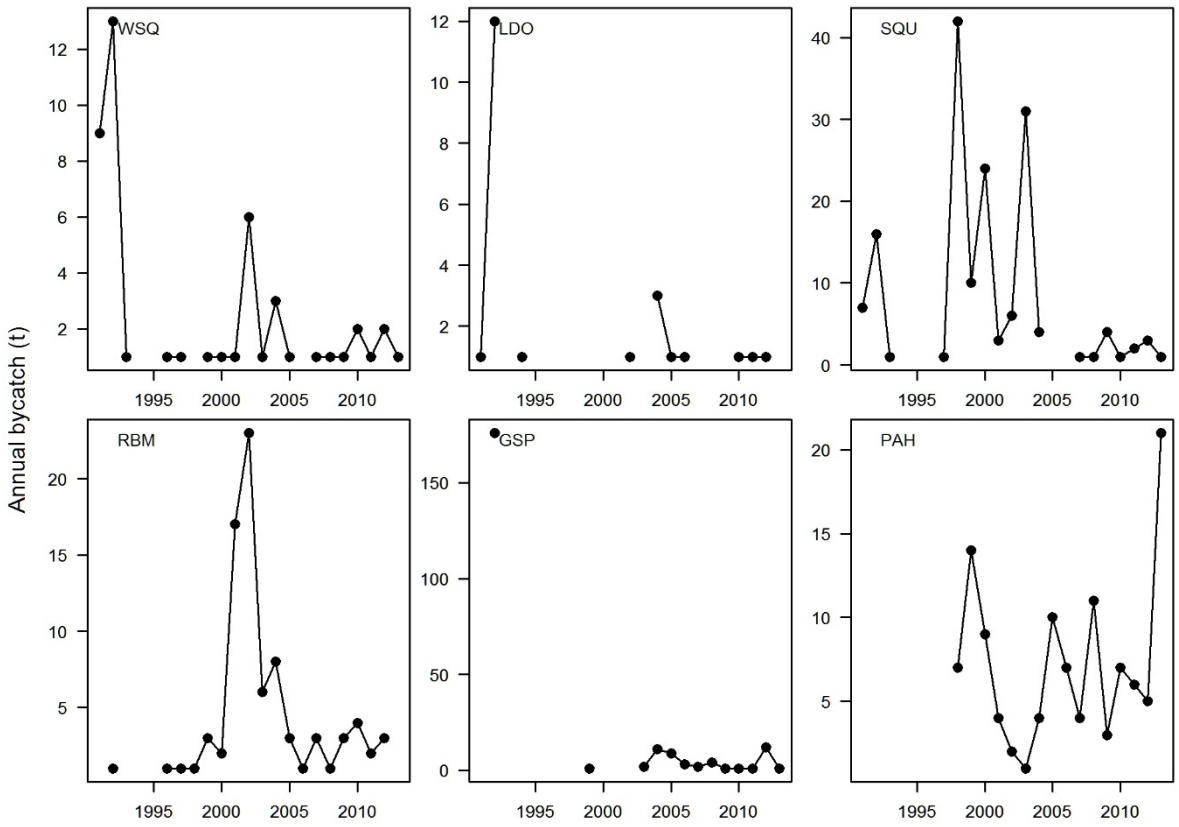


Figure 7b: Annual bycatch estimates for key scampi fishery bycatch species between 1990–91 and 2012–13. See http://marlin.niwa.co.nz for species code definitions. Note: the scale changes on the y-axis between plots. Lines are joined where there are data points for consecutive years.

Southern blue whiting trawl fishery

- Of the 65 bycatch species examined, 36 have shown a decrease in catch over time and 29 an increase in catch; with 4 having shown a significant decrease and 11 a significant increase in catch.
- The species showing the greatest decline were warty squid (*Onykia* spp., WSQ), lookdown dory (*Cyttus traversi*, LDO) and arrow squid (*Nototodarus sloanii and N. gouldi*, SQU) (Figure 8a). The pattern of decline in LDO is driven by a single outlier and therefore should be treated more cautiously.
- The species showing the greatest increase were ray's bream (*Brama brama*, RBM), pale ghost shark (*Hydrolagus bemisi*, GSP), and opah (*Lampris immaculatus*, PAH) (Figure 8a). The patterns of increase in PAH is driven by a single outlier and therefore should be treated more cautiously.

The most commonly caught bycatch species were ling (*Genypterus blacodes*, LIN), hoki (*Macruronus novaezelandiae*, HOK), and hake (*Merluccius australis*, HAK). The other twelve next most common bycatch species are also shown in Figure 8b. The pattern of decline in GSP, LIN, HOK, SSI and SPD is driven by a single outlier and therefore should be treated more cautiously.



REDO Figure 8a: Annual bycatch estimates in the southern blue whiting trawl fishery for the species which have shown the greatest decrease (top) and greatest increase (bottom) between 1990–91 and 2012–13. See text above for explanation of the species codes. Note: the scale changes on the y-axis between plots. Lines are joined where there are data points for consecutive years.

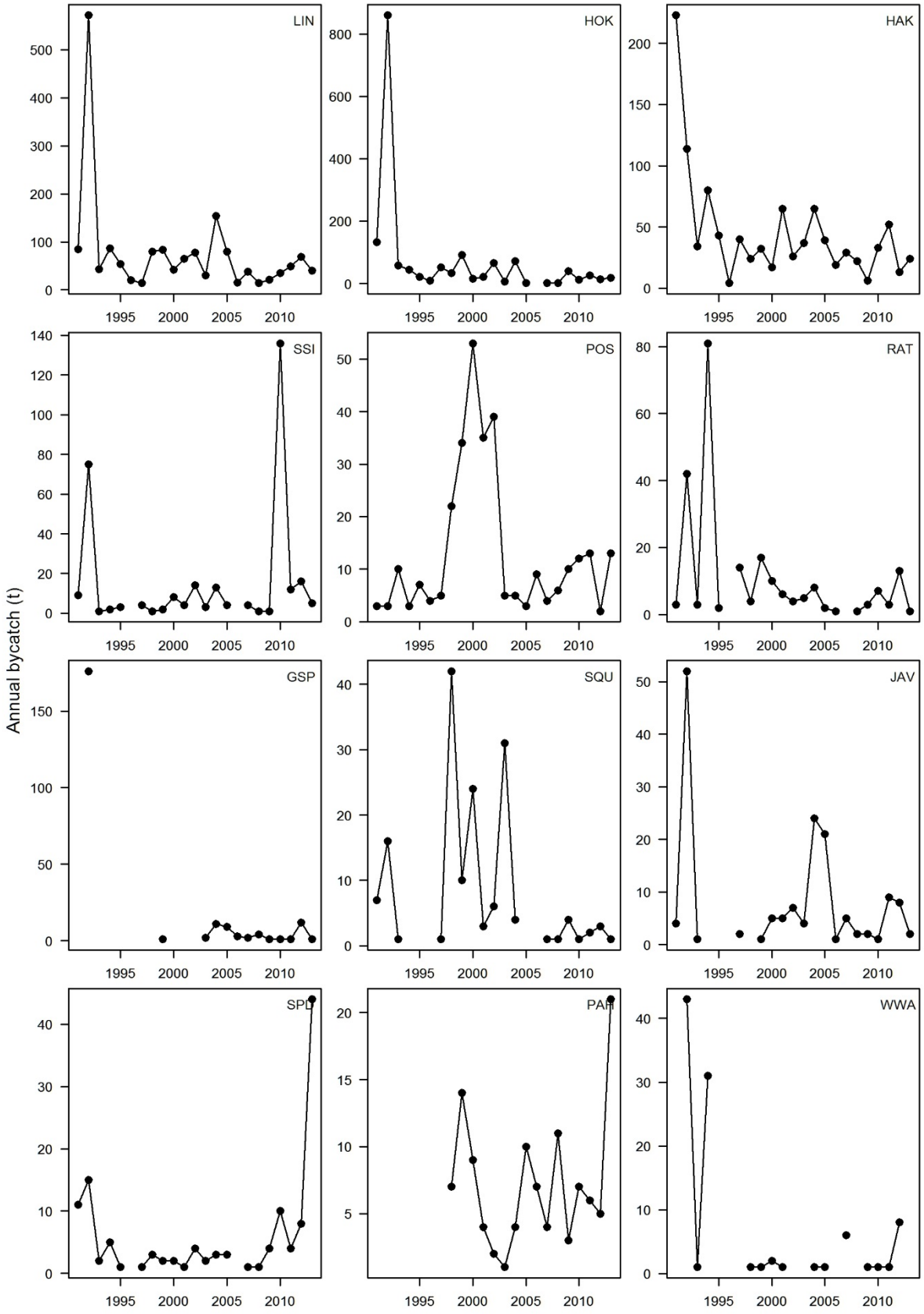


Figure 8b: Annual bycatch estimates for key southern blue whiting fishery bycatch species between 1990–91 and 2012–13. See http://marlin.niwa.co.nz for species code definitions. Note: the scale changes on the y-axis between plots. Lines are joined where there are data points for consecutive years.

In order to examine temporal trends for individual species or species groups across all eight fisheries, a summary of the slope coefficients for each species and fishery is provided in graphical form in Table 9. This shows a consistent increase (in six or more of the eight fisheries) for deepsea skates (*Notoraja* spp.), Baxters lantern dogfish (*Etmopterus baxteri*), pale ghost shark (*Hydrolagus bemisi*), and javelinfish (*Lepidorhynchus denticulatus*); and consistent declines for bluenose (*Hyperoglyphe antarctica*), ghost shark (*Hydrolagus novaezealandiae*), and skates (Rajidae and Arhynchobatidae). Care in interpretation of slope needs to be taken into account, especially for data poor species (see Figure 2c).

Overall fishery bycatch shows different levels of bycatch in different fisheries (Figure 9a). The hoki, hake or ling trawl target had the highest bycatch levels, but these dropped substantially from 1999–2000 to 2011–12. Overall bycatch levels were the lowest in the orange roughy, oreo, and southern blue whiting trawl fisheries, and the ling longline fishery. Coarse and precision based estimates were similar for most fisheries, but were much higher for the hoki, hake or ling trawl fishery (Figure 9b). There was a good match for the scampi, orange roughy, southern blue whiting and oreo fishery estimates, but low correlation for estimates for the ling longline fishery (Figure 9b). No obvious reasons for these differences were apparent.

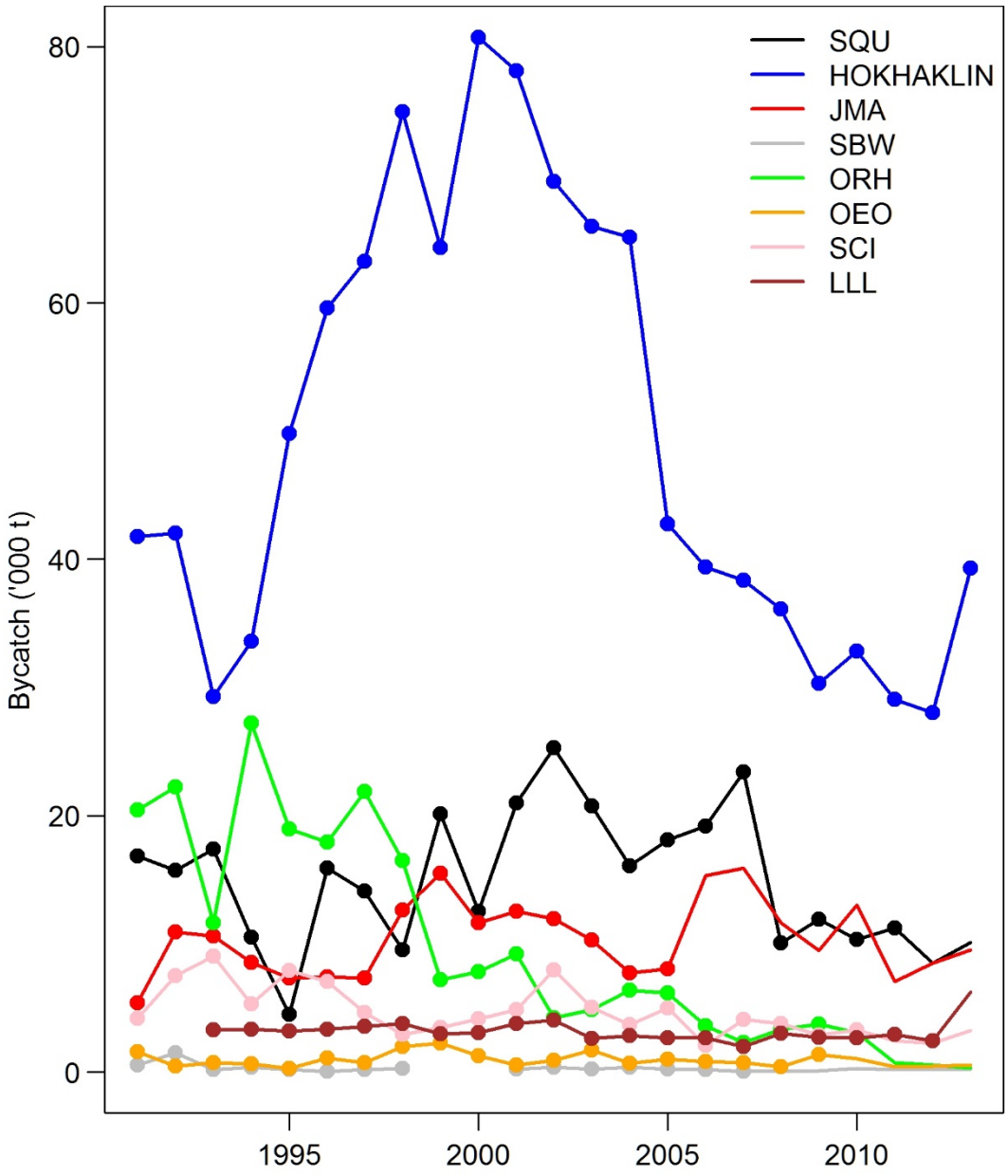


Figure 9a: Bycatch in all reported fisheries. (Dots are precision based estimates; no dots are coarse based estimates).

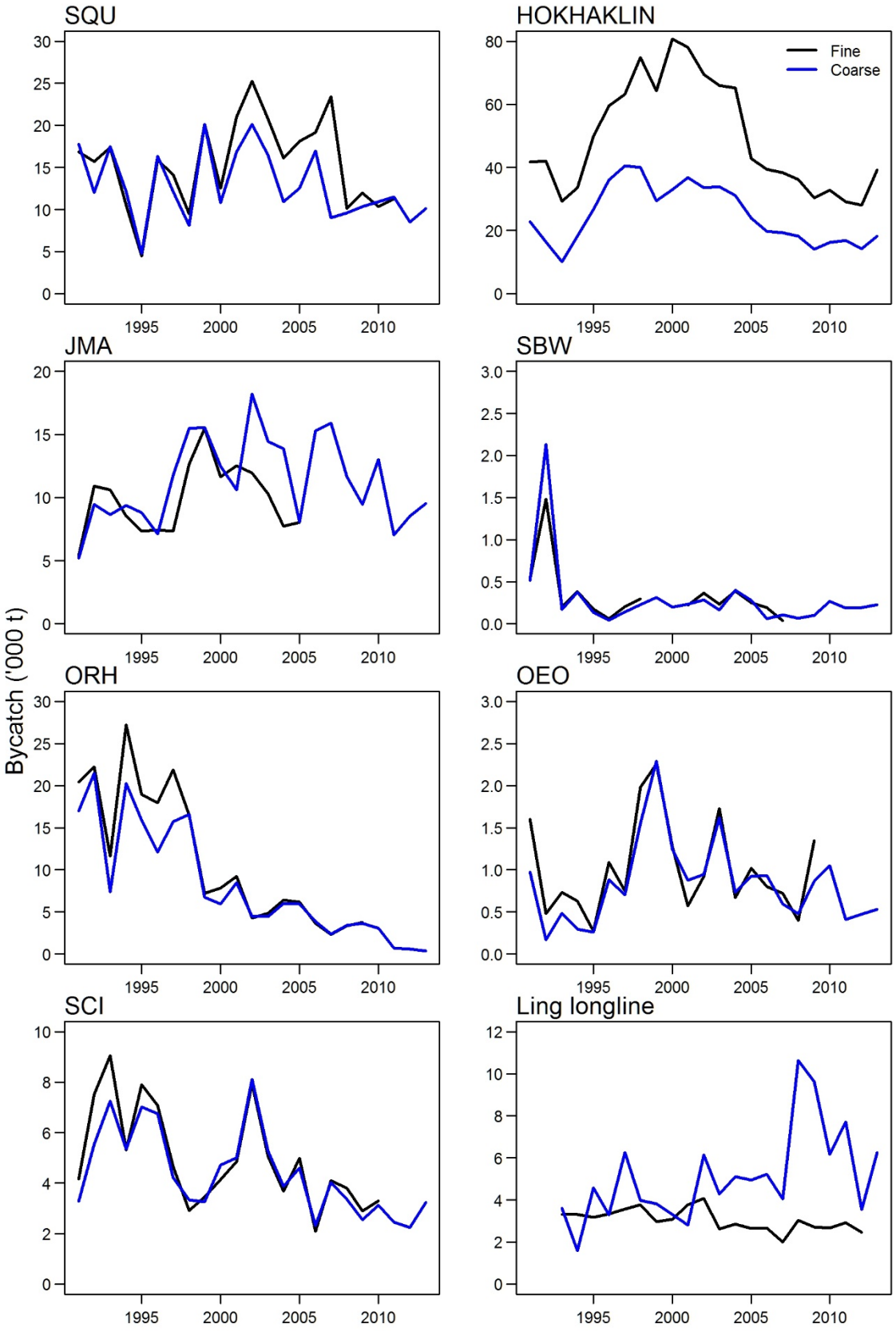


Figure 9b: A comparison of precision (black) and coarse (blue) based total bycatch estimates by fishing year in the main tier-1 deepwater fisheries.

4. ACKNOWLEDGMENTS

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5. REFERENCES

Anderson, O.F. (2013a). Fish and invertebrate bycatch in New Zealand deepwater fisheries from 1990–91 until 2010–11. *New Zealand Aquatic Environment and Biodiversity Report 113*. 57 p.

Anderson, O.F. (2013b). Fish and invertebrate bycatch and discards in New Zealand arrow squid fisheries from 1990–91 until 2010–11. *New Zealand Aquatic Environment and Biodiversity Report 112*. 62 p.

Anderson, O.F. (2014a). Fish and invertebrate bycatch and discards in New Zealand ling longline fisheries from 1992–93 until 2011–12. *New Zealand Aquatic Environment and Biodiversity Report 138*.

Anderson, O.F. (2014b). Fish and invertebrate bycatch in New Zealand deepwater fisheries from 1990–91 until 2011–12. *New Zealand Aquatic Environment and Biodiversity Report 139*.

Ballara, S.L.; O'Driscoll, R.L. (in press). Fish and invertebrate bycatch and discards in New Zealand hoki, hake and ling trawl fisheries from 1990–91 until 2012–13. *New Zealand Aquatic Environment and Biodiversity Report*.

Table 1a: Arrow squid trawl fishery. Total annual bycatch estimates (t) (with estimated CVs in parentheses where available—see text) for individual species, based on observer catch rates. Species are ordered by decreasing total catch. The slope of a regression through the data points is shown in parentheses alongside each species code. See http://marlin.niwa.co.nz **for species code definitions). From Anderson (2014b).**

	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11
BAR$^{(0)}$	8220(16)	7010(31)	6220(11)	2650(21)	1250(17)	6380(12)	990(22)	1420(14)	6960(16)	3880(11)	10200(12)	7930(16)	3740(23)	5250(26)	3480(19)	5700(20)	850(30)	3750(18)	2410(23)	3220(20)	2880(19)
SWA$^{(0.1)}$	250(28)	150(45)	780(49)	640(130)	360(68)	100(47)	1780(29)	2090(23)	3350(23)	970(14)	2150(12)	2390(24)	5280(25)	3190(14)	3170(40)	2020(19)	11280(31)	570(13)	1000(22)	790(13)	710(24)
SPD$^{(0)}$	420(39)	710(36)	570(39)	1600(16)	120(41)	10(39)	340(41)	210(29)	2230(43)	430(47)	1850(16)	3170(21)	2660(18)	800(20)	2220(39)	860(24)	3410(28)	290(20)	530(27)	840(29)	510(27)
JMA$^{(-0.2)}$	1530(46)	420(34)	1680(27)	560(47)	350(35)	3520(19)	4190(20)	610(30)	670(44)	970(26)	500(29)	2240(21)	10(22)	140(39)	190(48)	170(33)	20(82)	110(64)	110(41)	410(35)	60(91)
RCO$^{(0)}$	360(40)	310(33)	280(46)	820(35)	480(29)	160(41)	80(23)	140(82)	980(29)	530(32)	600(23)	480(14)	1890(15)	470(26)	1190(20)	610(24)	370(17)	950(21)	230(30)	660(27)	1160(20)
JMM$^{(-0.3)}$	130(100)	540(49)	2050(53)	160(59)	100(36)	4560(26)	260(52)	190(47)	1280(66)	60(63)	230(31)	90(44)	10(69)	20(41)	20(71)	70(91)	0(–)	80(92)	10(87)	310(55)	0(–)
WAR$^{(0)}$	900(48)	1280(46)	2260(24)	40(56)	0(–)	150(102)	460(82)	10(104)	230(59)	560(32)	610(20)	80(36)	60(63)	710(37)	100(50)	690(57)	640(30)	20(53)	90(42)	180(60)	170(61)
NCB$^{(0.5)}$	0(–)	0(–)	0(–)	110(92)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	50(98)	0(–)	410(21)	1970(21)	950(26)	1380(22)	1360(21)	1010(16)	620(23)
HOK$^{(0)}$	120(25)	40(58)	740(39)	700(114)	100(29)	110(14)	170(20)	260(34)	490(55)	40(36)	370(82)	560(20)	200(20)	30(28)	370(72)	380(47)	1260(31)	120(19)	250(28)	310(28)	500(21)
RBT$^{(0.1)}$	40(112)	90(64)	150(59)	10(62)	0(–)	0(–)	150(54)	1210(39)	400(73)	570(42)	290(27)	750(39)	100(18)	410(44)	430(47)	70(42)	70(82)	80(83)	40(122)	130(61)	10(51)
RAT$^{(0.1)}$	110(47)	10(30)	100(50)	60(42)	20(51)	10(17)	70(29)	30(46)	230(43)	130(37)	510(18)	410(24)	500(13)	30(40)	960(29)	340(19)	380(25)	90(25)	110(24)	70(19)	220(16)
CRB$^{(-0.2)}$	50(63)	0(–)	30(79)	40(60)	40(26)	40(25)	410(39)	260(37)	40(53)	40(32)	200(29)	360(23)	630(18)	1180(34)	130(55)	20(38)	20(37)	80(63)	0(–)	0(–)	0(–)
LIN$^{(0.1)}$	30(72)	30(57)	150(47)	90(29)	90(53)	0(–)	20(47)	40(57)	320(58)	20(29)	120(29)	210(20)	290(18)	110(58)	190(27)	200(24)	290(20)	50(41)	90(40)	90(38)	340(23)
GSH$^{(0.1)}$	10(63)	0(–)	30(64)	20(53)	10(73)	0(–)	10(54)	10(57)	70(44)	30(52)	360(45)	420(34)	330(18)	20(49)	300(38)	40(44)	630(29)	10(57)	10(42)	40(59)	80(27)
STU$^{(-0.1)}$	30(23)	80(26)	120(34)	190(47)	70(63)	240(10)	170(48)	10(26)	60(90)	50(15)	40(28)	20(19)	10(26)	10(22)	680(35)	40(24)	10(28)	40(33)	30(41)	20(62)	20(34)
RBM$^{(-0.2)}$	160(20)	30(92)	410(29)	10(17)	30(23)	140(28)	150(25)	20(60)	20(27)	20(59)	270(14)	180(31)	70(38)	10(17)	80(36)	70(38)	40(37)	10(22)	0(–)	0(–)	10(24)
SDO$^{(0.4)}$	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	20(19)	90(42)	420(19)	30(63)	440(48)	80(46)	20(42)	40(35)	90(94)	70(40)	90(40)
TAR$^{(0.1)}$	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(52)	10(88)	0(–)	280(30)	750(33)	0(–)	160(38)	0(–)	40(50)	0(–)	0(–)	0(–)	0(–)
SPE$^{(0.1)}$	10(53)	20(67)	20(75)	0(–)	10(45)	0(–)	0(–)	10(45)	30(40)	0(–)	300(101)	60(30)	180(19)	20(35)	180(42)	10(60)	70(48)	0(–)	0(–)	20(64)	40(31)
STA$^{(0.1)}$	20(30)	20(42)	40(66)	20(24)	20(48)	0(–)	10(30)	10(14)	60(50)	20(23)	30(18)	90(21)	140(14)	20(30)	60(25)	50(21)	180(14)	20(17)	20(25)	50(16)	50(23)
JAV$^{(0.3)}$	0(–)	0(–)	20(58)	0(–)	0(–)	0(–)	0(–)	0(–)	60(52)	0(–)	50(115)	120(54)	30(27)	10(110)	50(59)	120(40)	410(54)	10(28)	10(69)	10(73)	20(51)
JMD$^{(-0.2)}$	500(86)	70(59)	0(–)	0(–)	40(122)	10(50)	40(66)	0(–)	80(74)	0(–)	50(74)	20(66)	0(–)	0(–)	30(95)	20(75)	0(–)	0(–)	0(–)	20(53)	0(–)
HAP$^{(0.1)}$	10(67)	0(–)	20(48)	10(64)	60(29)	10(41)	0(–)	20(21)	30(25)	30(18)	60(12)	90(19)	110(11)	60(20)	150(17)	40(23)	40(13)	20(31)	30(61)	50(21)	20(25)
GSC$^{(0.4)}$	0(–)	0(–)	0(–)	0(–)	10(32)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	20(61)	50(20)	180(29)	60(21)	70(22)	140(30)	70(20)	210(17)
SKI$^{(-0.2)}$	100(14)	120(76)	70(42)	20(39)	30(49)	0(–)	10(30)	10(22)	10(24)	0(–)	0(–)	120(25)	240(12)	10(20)	40(31)	10(47)	10(24)	0(–)	0(–)	0(–)	10(94)
BSK$^{(0.2)}$	0(–)	0(–)	0(–)	30(144)	0(–)	0(–)	0(–)	0(–)	80(80)	90(36)	290(104)	10(122)	120(37)	30(125)	0(–)	0(–)	100(35)	20(91)	10(155)	0(–)	20(114)
SSK$^{(0)}$	10(57)	10(35)	30(77)	10(41)	10(52)	0(–)	10(49)	0(–)	140(49)	20(41)	50(21)	70(29)	160(21)	30(51)	40(22)	20(37)	110(33)	10(51)	0(–)	0(–)	10(24)
WWA$^{(0.1)}$	0(–)	20(86)	10(108)	10(82)	0(–)	0(–)	0(–)	10(73)	20(58)	70(52)	90(52)	50(23)	150(29)	50(51)	10(57)	10(30)	190(50)	0(–)	10(91)	20(98)	20(48)
SCH$^{(0.3)}$	0(–)	10(33)	0(–)	0(–)	0(–)	0(–)	10(42)	0(–)	20(28)	10(52)	30(16)	50(23)	90(20)	10(40)	70(37)	30(19)	20(20)	20(22)	10(30)	20(25)	40(32)
FRO$^{(0.1)}$	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	20(86)	0(–)	30(110)	90(34)	100(42)	0(–)	80(65)	10(74)	100(72)	0(–)	0(–)	0(–)	0(–)
PAD$^{(-0.3)}$	50(37)	10(73)	20(77)	0(–)	40(62)	60(42)	50(76)	90(41)	40(84)	10(32)	40(48)	10(81)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
RSK$^{(0.3)}$	0(–)	0(–)	20(80)	0(–)	10(55)	0(–)	0(–)	0(–)	20(148)	0(–)	0(–)	0(–)	0(–)	80(86)	50(27)	30(22)	60(28)	20(31)	20(24)	40(19)	70(18)
NCA$^{(0)}$	0(–)	0(–)	0(–)	0(–)	0(–)	20(63)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	80(42)	90(87)	0(–)	0(–)	150(79)	0(–)	0(–)	0(–)	0(–)
SSI$^{(0.2)}$	0(–)	0(–)	0(–)	0(–)	20(106)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	20(19)	0(–)	30(26)	20(49)	150(28)	50(65)	10(30)	0(–)	10(14)

Table 1a: Arrow squid trawl fishery—*continued*

	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11
POS(0)	0(–)	10(42)	10(28)	0(–)	0(–)	10(33)	10(26)	20(25)	30(20)	20(13)	30(24)	50(23)	20(17)	10(28)	10(32)	10(35)	20(37)	0(–)	0(–)	10(22)	10(24)
WIT(0.2)	10(20)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(32)	0(–)	10(22)	0(–)	20(22)	10(33)	40(26)	10(10)	40(26)	0(–)	10(14)	10(10)	10(17)
CAR(0.3)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	30(29)	0(–)	30(18)	10(75)	10(22)	10(40)	50(17)	0(–)	10(24)	10(32)	40(35)
SBW(0.1)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	100(97)	0(–)	0(–)	0(–)	0(–)	30(139)	0(–)	0(–)	0(–)	10(45)	0(–)	0(–)	10(37)
SPI(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(41)	10(93)	0(–)	20(41)	0(–)	10(32)	80(62)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
SPO(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	30(131)	0(–)	0(–)	0(–)	0(–)	0(–)	100(85)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
MAK(-0.1)	0(–)	0(–)	0(–)	0(–)	0(–)	10(37)	10(77)	20(39)	20(36)	10(55)	40(86)	0(–)	10(47)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
BWS(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	90(31)	10(14)	0(–)	0(–)	0(–)	10(14)	0(–)	0(–)	0(–)	0(–)	0(–)
FHD(0.1)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(17)	0(–)	100(28)	0(–)	0(–)	0(–)	0(–)
JMN(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	110(93)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
PIG(0.3)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(14)	0(–)	20(43)	10(28)	10(28)	10(24)	10(33)	10(14)	30(20)
BCO(0.1)	0(–)	0(–)	10(73)	0(–)	0(–)	0(–)	10(47)	0(–)	0(–)	0(–)	10(41)	0(–)	10(50)	10(54)	0(–)	0(–)	20(40)	0(–)	0(–)	0(–)	30(53)
HPB(-0.1)	20(38)	30(39)	30(31)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(68)	0(–)	10(65)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
BCD(0.2)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(44)	0(–)	0(–)	60(37)	10(32)	0(–)	10(14)
GON(0.3)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(14)	10(17)	10(17)	10(24)	10(24)	10(20)	10(22)	10(28)	10(20)
HAK(0)	0(–)	0(–)	10(58)	0(–)	0(–)	0(–)	0(–)	0(–)	70(67)	0(–)	0(–)	0(–)	10(17)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
LDO(0.1)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(56)	10(30)	0(–)	0(–)	0(–)	10(17)	0(–)	60(26)	0(–)	0(–)	0(–)	0(–)
SSC(-0.1)	0(–)	0(–)	30(92)	50(88)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
CBE(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	50(96)	0(–)	0(–)	0(–)	20(93)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
CDO(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	30(66)	40(68)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
RDO(0.1)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(97)	0(–)	0(–)	0(–)	0(–)	0(–)	50(92)	10(59)
BEL(0.1)	0(–)	0(–)	0(–)	10(160)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(104)	10(37)	0(–)	0(–)	0(–)	0(–)	0(–)	10(89)	0(–)	0(–)	20(57)
OCT(0.1)	0(–)	0(–)	0(–)	10(24)	0(–)	0(–)	0(–)	0(–)	20(49)	0(–)	0(–)	0(–)	10(17)	0(–)	10(33)	0(–)	0(–)	0(–)	0(–)	0(–)	10(10)
TOA(0.2)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(14)	0(–)	0(–)	10(22)	20(18)	0(–)	10(10)	0(–)	10(20)
GUR(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	40(49)	10(36)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
BSH(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	40(85)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
COF(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	40(87)	0(–)	0(–)	0(–)	0(–)
SQI(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	20(160)	0(–)	0(–)	20(86)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
LAN(0.2)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(75)	10(85)	0(–)	0(–)	10(59)
STN(-0.1)	0(–)	10(28)	0(–)	0(–)	0(–)	10(36)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(28)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
BAS(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	20(32)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
BBE(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	20(50)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
BYS(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	20(82)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
GFL(0.1)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(106)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(10)
MDO(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(26)	0(–)	0(–)	0(–)	0(–)	10(66)	0(–)	0(–)	0(–)	0(–)
ONG(0.1)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(86)	0(–)	10(56)	0(–)

Table 1a: Arrow squid trawl fishery—*continued*

	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11
OPE[0.1]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(212)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(126)	0(–)
QSC[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(89)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(41)
SKA[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(37)	0(–)	0(–)	0(–)	0(–)	10(44)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
SNA[0]	0(–)	0(–)	0(–)	10(97)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(183)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
THR[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(24)	10(66)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
YCO[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(17)	0(–)	10(17)	0(–)	0(–)	0(–)	0(–)
ASR[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(22)	0(–)	0(–)	0(–)	0(–)
BGZ[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(46)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
BRA[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(95)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
BTH[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(58)	0(–)	0(–)	0(–)	0(–)
BYX[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(51)	0(–)	0(–)	0(–)	0(–)
CON[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(122)
CRA[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(99)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
CRU[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(68)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
DSK[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(40)	0(–)	0(–)	0(–)	0(–)
DSP[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(46)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
EEX[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(69)
FLA[0.1]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(40)	0(–)	0(–)	0(–)	0(–)	0(–)
GMU[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(147)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
GSP[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(53)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
JFI[-0.1]	10(58)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
JGU[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(52)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
LSK[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(22)	0(–)	0(–)	0(–)	0(–)
MOK[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(39)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
SCD[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(87)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
SHA[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(75)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
SNI[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(82)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
WPS[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(86)	0(–)	0(–)	0(–)	0(–)	0(–)
WSQ[0]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	10(30)	0(–)	0(–)	0(–)	0(–)

Table 1b: Arrow squid trawl fishery. Total annual bycatch estimates (t) for individual species with at least 1 t of bycatch in at least one year for the 2011–12 and 2012–13 fishing years, based on observer catch rates; - means less than 1 t. (see http://marlin.niwa.co.nz **for species code definitions).**

Fishing	Species																		
year	SCH	ASR	GON	OPA	BAR	POS	GSC	WSQ	BEL	NCB	HTH	BBE	LLC	FMA	QSC	NCA	ACS	URP	
2012	23	-	4	1	4 793	3	86	-	-	247	-	-	-	-	1	-	-	-	
2013	35	1	12	4	4 246	2	120	1	-	586	-	-	5	-	3	-	-	-	

Fishing	Species																		
year	SFL	PSK	COU	ETB	GUR	HPB	SHA	THR	JMA	BSK	RIB	ALB	EPL	SKJ	APR	LSK	SMK	GSQ	
2012	-	-	-	-	-	2	1	1	202	21	-	-	-	-	-	-	-	-	
2013	-	-	-	1	-	1	-	1	110	72	-	-	2	-	-	-	1	-	

Fishing	Species																		
year	MOO	PAD	CHC	CHQ	CSQ	BFL	COF	BYS	YFN	CBB	BCA	POR	YEM	GMU	CSP	GIZ	MUU	SPE	
2012	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	34	-	18	
2013	-	2	-	4	3	-	-	-	-	-	-	-	-	-	-	49	-	22	

Fishing	Species																		
year	SPD	FLA	BCO	LIN	ERA	FRO	SDO	WIT	RSO	SSK	SBW	JAV	TOA	LSO	HAK	SSH	SEV	SMO	
2012	472	6	3	65	-	1	22	1	3	6	18	9	1	-	10	-	-	-	
2013	896	-	3	121	-	2	47	5	7	15	14	52	1	-	3	1	1	1	

Fishing	Species																		
year	GFL	JFI	EZE	TOD	CRM	GMC	CBE	SBO	CRA	CSH	BIG	BWS	FLO	STN	CDO	SMA	CMT	SND	
2012	5	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	1	-	
2013	5	19	1	-	1	1	1	-	-	-	-	2	-	1	-	-	-	-	

Fishing	Species																		
year	MDO	API	BSH	ANZ	RBY	TUR	JGU	SNA	BTH	ROC	SCM	STR	LEA	CCR	RCO	SWA	CAR	YCO	
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	746	840	6	-	
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	598	1 863	15	1	

Fishing	Species																		
year	HAP	NMP	BNS	PDG	STU	SPI	WAR	FHD	ANT	BCD	HYA	TRU	GSP	HCO	SSC	MAK	RDO	SUN	
2012	21	3	1	-	39	-	154	-	-	13	-	-	-	-	-	2	-	1	
2013	30	2	-	-	37	-	296	-	-	1	-	-	4	-	-	1	-	10	

Fishing	Species																		
year	PLS	CRN	DSP	SNI	DSK	TOR	PHO	BOT	FTU	BYX	CBD	NSD	HEX	OPL	WPS	STG	JDO	BAT	
2012	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	
2013	-	-	-	-	-	1	-	-	-	-	3	-	-	-	-	-	-	-	

Fishing	Species																		
year	CRU	SKA	CRB	OCT	RAT	GSH	RBM	RSK	PIG	RBT	SSI	HOK	WWA	SCD	ONG	SPO	ETL	PHW	
2012	-	-	-	6	65	18	14	20	2	82	2	335	28	2	1	2	-	-	
2013	-	-	2	2	110	46	49	64	4	94	10	319	33	2	2	3	1	-	

Fishing	Species																		
year	CAS	BAS	LDO	OPE	LAN	BGZ	SCA	CON	ETM	MAN	BOC	CUC	NOT	CBO	SMI	MOK	BRA	EEX	
2012	-	-	9	12	5	-	-	-	-	-	-	-	1	-	-	-	-	-	
2013	4	-	-	7	-	1	-	1	-	-	-	-	-	2	-	-	-	-	

Fishing	Species			
year	RSQ	SQI	ODO	NTO
2012	-	-	-	-
2013	-	-	-	-

Table 2: Hoki, hake, and ling trawl fishery. Total annual bycatch estimates (t) (with estimated CVs in parentheses where available—see text) for individual species, based on observer catch rates. Species are ordered by decreasing total catch. The slope of a regression through the data points is shown in parentheses alongside each species code. See http://marlin.niwa.co.nz **for species code definitions).**

Fishing	Species									
year	SWA	JAV	RAT	SPD	FRO	WWA	GSP	JMA	RIB	SPE
1991	8 190 (20)	1 970 (14)	2 310 (22)	1 430 (18)	2 750 (25)	430 (33)	580 (36)	2 100 (26)	1 360 (9)	640 (21)
1992	3 710 (21)	2 150 (24)	4 090 (34)	2 050 (22)	2 420 (36)	1 010 (27)	810 (53)	1 830 (30)	1 360 (9)	900 (20)
1993	4 010 (25)	2 290 (17)	1 680 (32)	1 410 (16)	890 (14)	690 (42)	60 (36)	940 (85)	1 160 (37)	570 (31)
1994	6 240 (18)	1 220 (19)	2 140 (27)	3 180 (18)	2 040 (15)	430 (45)	270 (29)	2 100 (37)	410 (17)	600 (21)
1995	5 160 (11)	2 940 (18)	3 910 (20)	6 550 (18)	3 640 (23)	530 (48)	130 (63)	6 240 (37)	730 (13)	1 050 (13)
1996	10 370 (15)	3 440 (32)	6 690 (23)	10 090 (16)	2 390 (16)	1 780 (29)	- (-)	3 690 (72)	520 (21)	1 260 (26)
1997	15 030 (20)	5 000 (23)	7 980 (17)	7 540 (15)	4 890 (24)	690 (57)	- (-)	1 770 (46)	840 (25)	1 250 (17)
1998	11 370 (17)	9 160 (12)	8 770 (13)	10 910 (17)	3 200 (16)	1 920 (37)	- (-)	870 (57)	1 600 (19)	1 520 (13)
1999	8 940 (18)	8 340 (14)	8 950 (12)	11 220 (14)	3 080 (33)	1 070 (21)	1 440 (21)	500 (39)	1 540 (11)	1 400 (9)
2000	19 630 (26)	9 260 (13)	7 270 (11)	13 840 (14)	2 080 (19)	2 200 (33)	2 740 (19)	490 (51)	1 860 (20)	1 530 (24)
2001	24 650 (32)	8 650 (15)	7 270 (11)	7 870 (13)	3 480 (21)	1 470 (19)	2 530 (13)	70 (57)	1 150 (15)	1 540 (17)
2002	10 960 (31)	11 910 (18)	8 930 (18)	7 740 (18)	2 910 (27)	1 780 (23)	2 600 (12)	30 (41)	2 250 (20)	1 700 (16)
2003	8 140 (23)	10 870 (12)	8 590 (16)	9 530 (22)	2 810 (19)	2 050 (24)	2 900 (10)	110 (50)	1 110 (15)	1 980 (16)
2004	11 850 (14)	7 940 (11)	7 780 (26)	9 070 (36)	2 010 (25)	2 910 (20)	2 620 (10)	530 (88)	1 130 (10)	1 840 (32)
2005	4 470 (17)	8 840 (18)	4 870 (26)	3 920 (17)	1 740 (15)	2 790 (13)	1 530 (15)	1 350 (136)	790 (11)	960 (9)
2006	8 090 (18)	6 300 (14)	4 660 (14)	3 620 (16)	1 090 (18)	3 310 (21)	1 350 (14)	40 (32)	920 (22)	690 (18)
2007	6 380 (16)	6 660 (15)	3 110 (10)	3 310 (27)	1 290 (26)	5 000 (31)	900 (12)	40 (105)	830 (22)	630 (15)
2008	4 670 (25)	6 030 (9)	4 580 (18)	2 690 (14)	1 080 (36)	2 170 (18)	1 120 (13)	40 (44)	1 800 (18)	650 (12)
2009	2 570 (17)	6 310 (11)	4 980 (19)	2 170 (12)	590 (26)	1 500 (17)	730 (11)	200 (128)	1 800 (19)	480 (12)
2010	4 200 (22)	7 250 (15)	6 170 (14)	2 320 (10)	170 (21)	1 680 (24)	710 (25)	10 (26)	550 (25)	700 (27)
2011	4 100 (16)	4 830 (11)	5 180 (14)	2 480 (12)	190 (26)	1 720 (27)	730 (15)	20 (81)	680 (38)	780 (27)
2012	5 140 (18)	3 520 (13)	4 280 (13)	3 820 (10)	290 (25)	1 200 (18)	700 (13)	90 (37)	510 (34)	510 (14)
2013	8 420 (21)	5 910 (9)	6 170 (10)	2 750 (9)	520 (37)	1 320 (20)	800 (13)	140 (56)	780 (11)	820 (28)
slope	-0.02	0.05	0.02	-0.01	-0.10	0.06	0.18	-0.21	-0.01	-0.02

Fishing	Species									
year	LDO	BAR	SQU	BOE	GSH	SND	SHA	GIZ	SBW	RBM
1991	640 (23)	750 (47)	730 (22)	210 (62)	1 240 (23)	840 (24)	- (-)	630 (28)	10 (72)	100 (21)
1992	990 (13)	900 (44)	1 200 (19)	810 (41)	1 520 (22)	860 (28)	- (-)	610 (21)	60 (60)	70 (30)
1993	430 (26)	900 (61)	540 (40)	40 (54)	1 170 (32)	640 (50)	10 (372)	290 (35)	- (-)	460 (25)
1994	610 (13)	510 (63)	820 (26)	260 (36)	1 070 (27)	640 (45)	- (-)	140 (19)	- (-)	420 (33)
1995	830 (11)	1 690 (47)	1 200 (11)	220 (76)	1 160 (27)	410 (31)	20 (73)	410 (18)	110 (85)	390 (29)
1996	500 (23)	1 430 (30)	400 (25)	180 (103)	1 130 (21)	270 (46)	- (-)	600 (32)	- (-)	970 (25)
1997	580 (28)	1 340 (62)	270 (15)	10 (48)	1 010 (26)	260 (29)	- (-)	430 (26)	- (-)	1 280 (34)
1998	820 (16)	1 010 (46)	350 (16)	1 220 (61)	2 270 (17)	600 (24)	10 (63)	660 (13)	50 (70)	1 030 (27)
1999	1 340 (15)	330 (41)	500 (20)	350 (40)	1 060 (26)	630 (30)	30 (99)	660 (13)	30 (69)	1 070 (37)
2000	910 (14)	300 (39)	700 (23)	170 (59)	910 (34)	1 790 (30)	20 (113)	530 (13)	80 (48)	1 110 (23)
2001	1 340 (14)	1 140 (81)	1 350 (26)	440 (89)	1 040 (44)	790 (29)	110 (55)	860 (16)	140 (44)	1 100 (21)
2002	1 290 (14)	970 (66)	1 130 (22)	500 (91)	480 (43)	1 660 (36)	- (-)	670 (19)	70 (81)	430 (24)
2003	1 410 (14)	1 920 (63)	970 (38)	430 (58)	360 (29)	740 (27)	- (-)	600 (14)	510 (49)	890 (25)
2004	970 (7)	660 (37)	860 (21)	1 100 (47)	350 (20)	710 (22)	10 (154)	670 (12)	440 (62)	520 (26)
2005	730 (14)	1 430 (47)	610 (18)	140 (49)	260 (27)	500 (16)	- (-)	480 (13)	40 (155)	210 (19)
2006	710 (9)	260 (35)	630 (12)	490 (60)	150 (25)	890 (23)	- (-)	530 (12)	- (-)	110 (23)
2007	680 (25)	240 (51)	680 (13)	450 (54)	160 (37)	870 (19)	- (-)	480 (13)	20 (48)	70 (18)
2008	430 (8)	140 (58)	410 (13)	710 (37)	180 (33)	1 230 (13)	- (-)	420 (13)	720 (60)	140 (24)
2009	440 (14)	70 (69)	250 (12)	110 (100)	170 (30)	920 (19)	- (-)	310 (19)	760 (67)	120 (35)
2010	440 (14)	160 (99)	430 (15)	570 (28)	390 (54)	570 (13)	- (-)	400 (22)	40 (70)	130 (18)
2011	540 (15)	410 (52)	600 (19)	30 (51)	240 (38)	570 (22)	- (-)	350 (15)	310 (42)	150 (21)
2012	440 (12)	60 (37)	480 (13)	790 (42)	420 (68)	350 (23)	- (-)	300 (31)	100 (57)	130 (17)
2013	840 (11)	100 (37)	800 (16)	810 (53)	490 (27)	750 (29)	- (-)	420 (14)	80 (54)	150 (14)
slope	-0.01	-0.11	-0.02	0.04	-0.10	0.01	-0.12	-0.01	0.22	-0.06

Table 2: Hoki, hake, and ling trawl fishery. — *continued.*

Fishing										Species
year	RSO	SSK	BSH	RCO	WSQ	ETB	BYS	ONG	BSK	ORH
1991	350 (53)	320 (19)	130 (18)	530 (26)	260 (11)	310 (19)	- (-)	10 (92)	200 (104)	6 700 (96)
1992	250 (22)	400 (26)	150 (40)	600 (15)	270 (28)	130 (56)	- (-)	310 (75)	140 (187)	6 080 (107)
1993	240 (30)	120 (19)	200 (42)	280 (21)	180 (56)	10 (139)	- (-)	- (-)	- (-)	6 320 (104)
1994	320 (20)	310 (45)	100 (38)	460 (50)	160 (21)	- (-)	10 (75)	60 (96)	190 (102)	6 130 (106)
1995	650 (31)	670 (11)	60 (25)	710 (27)	270 (13)	- (-)	180 (412)	- (-)	60 (176)	2 990 (109)
1996	960 (30)	360 (24)	60 (26)	850 (26)	190 (19)	- (-)	10 (67)	- (-)	- (-)	3 960 (114)
1997	1 240 (30)	320 (24)	90 (29)	490 (32)	110 (32)	- (-)	- (-)	80 (95)	230 (102)	50 (90)
1998	1 560 (33)	510 (23)	410 (36)	810 (57)	430 (15)	160 (74)	- (-)	120 (49)	850 (68)	30 (52)
1999	20 (59)	230 (30)	990 (33)	910 (47)	370 (13)	80 (68)	60 (60)	550 (36)	410 (58)	300 (112)
2000	160 (48)	210 (49)	560 (31)	450 (45)	410 (22)	20 (73)	110 (52)	1 220 (58)	120 (102)	770 (66)
2001	130 (27)	370 (29)	460 (20)	330 (34)	350 (22)	- (-)	370 (33)	280 (36)	270 (82)	130 (80)
2002	140 (27)	370 (31)	1 790 (31)	280 (24)	630 (25)	- (-)	20 (23)	1 280 (28)	80 (129)	110 (51)
2003	480 (14)	430 (24)	460 (48)	250 (17)	310 (19)	50 (56)	350 (81)	180 (38)	290 (107)	660 (77)
2004	1 150 (12)	440 (20)	310 (51)	560 (26)	360 (15)	90 (38)	60 (27)	30 (176)	430 (74)	210 (57)
2005	810 (23)	250 (12)	360 (42)	460 (23)	180 (20)	30 (81)	330 (107)	110 (98)	510 (112)	120 (72)
2006	290 (31)	390 (19)	180 (27)	260 (21)	130 (15)	30 (55)	40 (31)	100 (92)	- (-)	40 (92)
2007	100 (54)	260 (19)	200 (18)	480 (21)	90 (16)	60 (55)	530 (259)	20 (55)	- (-)	100 (65)
2008	20 (36)	260 (13)	300 (15)	230 (27)	130 (10)	490 (52)	190 (40)	40 (69)	- (-)	140 (55)
2009	70 (31)	250 (19)	200 (24)	210 (34)	80 (12)	140 (26)	40 (29)	60 (101)	- (-)	260 (65)
2010	60 (29)	280 (12)	100 (23)	260 (41)	130 (11)	370 (46)	590 (32)	20 (65)	30 (125)	70 (59)
2011	290 (52)	350 (14)	150 (22)	350 (37)	80 (13)	160 (24)	60 (65)	50 (122)	40 (126)	10 (133)
2012	60 (26)	240 (15)	50 (21)	410 (29)	90 (21)	210 (24)	30 (23)	10 (66)	10 (66)	160 (136)
2013	290 (20)	450 (11)	110 (29)	490 (37)	140 (10)	370 (17)	170 (69)	80 (52)	20 (252)	340 (103)
slope	-0.07	0.00	0.00	-0.03	-0.04	0.23	0.30	0.10	-0.13	-0.20

Fishing										Species
year	SOR	SSI	BNS	LCH	RBT	POS	WAR	RUD	BBE	CSQ
1991	310 (23)	20 (40)	240 (22)	110 (18)	- (-)	80 (21)	340 (40)	80 (34)	40 (48)	30 (128)
1992	170 (43)	110 (29)	200 (14)	180 (20)	10 (165)	50 (27)	510 (61)	60 (44)	40 (40)	160 (66)
1993	190 (44)	230 (28)	200 (19)	40 (38)	200 (95)	100 (23)	20 (73)	170 (22)	70 (49)	90 (115)
1994	90 (43)	40 (72)	110 (30)	80 (25)	170 (84)	100 (29)	90 (38)	80 (28)	20 (19)	10 (50)
1995	40 (31)	80 (31)	590 (43)	100 (23)	20 (34)	140 (20)	260 (181)	190 (15)	70 (34)	30 (32)
1996	60 (60)	50 (63)	1 160 (31)	80 (40)	40 (52)	220 (20)	190 (39)	190 (36)	120 (63)	50 (59)
1997	30 (59)	50 (75)	1 210 (39)	70 (43)	30 (187)	310 (16)	180 (70)	150 (19)	30 (76)	80 (84)
1998	190 (37)	390 (43)	1 770 (37)	130 (25)	360 (147)	530 (16)	310 (86)	150 (22)	70 (50)	110 (98)
1999	260 (52)	210 (34)	220 (15)	150 (22)	10 (22)	310 (22)	30 (44)	200 (18)	110 (33)	20 (115)
2000	500 (36)	120 (21)	290 (37)	260 (21)	40 (31)	410 (15)	10 (53)	350 (22)	80 (38)	30 (62)
2001	270 (24)	50 (31)	190 (26)	110 (28)	170 (35)	310 (18)	260 (125)	380 (27)	140 (38)	20 (74)
2002	270 (43)	100 (33)	140 (29)	230 (24)	100 (62)	220 (20)	10 (41)	150 (30)	160 (36)	30 (152)
2003	100 (39)	230 (22)	130 (38)	320 (16)	180 (125)	170 (24)	10 (55)	170 (15)	250 (37)	110 (149)
2004	120 (28)	260 (47)	130 (16)	380 (13)	180 (94)	90 (23)	10 (48)	130 (20)	510 (63)	40 (127)
2005	220 (59)	90 (40)	130 (20)	290 (28)	100 (37)	80 (26)	- (-)	110 (26)	130 (28)	60 (56)
2006	70 (65)	180 (64)	160 (18)	160 (23)	100 (20)	60 (41)	- (-)	70 (18)	70 (40)	200 (43)
2007	150 (31)	280 (73)	160 (20)	100 (19)	70 (47)	20 (32)	- (-)	60 (19)	190 (61)	240 (27)
2008	280 (37)	220 (43)	90 (28)	150 (15)	90 (55)	30 (24)	- (-)	60 (21)	20 (35)	370 (16)
2009	100 (25)	90 (18)	80 (23)	90 (14)	170 (91)	50 (28)	330 (133)	60 (25)	40 (43)	340 (15)
2010	90 (20)	80 (54)	140 (36)	100 (18)	80 (21)	40 (26)	120 (174)	110 (19)	100 (47)	230 (16)
2011	130 (23)	90 (60)	110 (52)	100 (19)	40 (34)	30 (24)	40 (114)	70 (13)	120 (53)	280 (13)
2012	130 (19)	90 (39)	50 (22)	160 (13)	70 (16)	40 (30)	- (-)	70 (19)	20 (34)	340 (12)
2013	80 (29)	100 (28)	60 (26)	130 (12)	200 (19)	60 (20)	- (-)	100 (14)	120 (37)	620 (18)
slope	-0.01	0.03	-0.08	0.02	0.11	-0.07	-0.30	-0.03	0.02	0.12

Table 2: Hoki, hake, and ling trawl fishery. — *continued.*

Fishing	Species									
year	CON	BYX	BEN	FHD	DEA	SSO	SKA	SCH	RHY	ETM
1991	20 (38)	100 (102)	10 (35)	20 (19)	50 (23)	110 (44)	10 (69)	70 (28)	- (-)	10 (97)
1992	30 (51)	80 (48)	- (-)	70 (32)	40 (31)	90 (33)	50 (61)	70 (19)	- (-)	120 (69)
1993	30 (55)	80 (41)	- (-)	10 (45)	450 (38)	10 (73)	60 (59)	50 (43)	- (-)	60 (33)
1994	20 (22)	190 (48)	- (-)	10 (37)	110 (53)	40 (120)	40 (36)	20 (30)	- (-)	30 (33)
1995	10 (24)	170 (34)	40 (197)	110 (12)	120 (31)	20 (51)	70 (56)	130 (14)	10 (36)	520 (20)
1996	30 (34)	320 (61)	20 (94)	70 (55)	100 (31)	- (-)	80 (53)	170 (15)	20 (33)	120 (57)
1997	50 (35)	380 (54)	- (-)	50 (55)	90 (16)	140 (83)	50 (51)	220 (16)	10 (67)	240 (55)
1998	90 (29)	1 240 (60)	- (-)	90 (43)	420 (51)	10 (37)	290 (30)	280 (25)	20 (50)	10 (61)
1999	30 (38)	30 (94)	50 (77)	60 (26)	140 (50)	20 (111)	310 (22)	250 (38)	10 (54)	170 (56)
2000	30 (58)	30 (47)	160 (43)	50 (37)	200 (28)	170 (42)	490 (21)	260 (39)	10 (73)	240 (55)
2001	40 (29)	60 (88)	130 (71)	90 (31)	340 (29)	70 (73)	390 (20)	190 (55)	30 (81)	20 (42)
2002	220 (48)	30 (104)	60 (88)	180 (40)	50 (30)	160 (81)	230 (17)	130 (42)	50 (72)	30 (85)
2003	150 (37)	60 (77)	260 (63)	190 (16)	60 (22)	180 (62)	250 (19)	80 (28)	30 (22)	- (-)
2004	120 (27)	- (-)	220 (31)	220 (20)	50 (65)	60 (89)	10 (46)	110 (26)	90 (89)	20 (66)
2005	70 (28)	- (-)	90 (43)	130 (24)	20 (64)	30 (80)	- (-)	80 (26)	50 (63)	- (-)
2006	50 (31)	- (-)	170 (34)	100 (23)	30 (18)	20 (55)	- (-)	80 (16)	30 (26)	90 (89)
2007	100 (54)	10 (101)	30 (30)	90 (26)	20 (26)	130 (82)	- (-)	100 (30)	40 (38)	40 (96)
2008	320 (20)	10 (114)	30 (27)	100 (32)	30 (32)	60 (52)	- (-)	70 (24)	30 (22)	- (-)
2009	260 (22)	20 (185)	40 (31)	110 (17)	50 (43)	10 (40)	- (-)	50 (25)	60 (14)	- (-)
2010	100 (29)	30 (78)	80 (18)	80 (26)	60 (20)	20 (77)	- (-)	80 (28)	100 (82)	- (-)
2011	160 (61)	10 (45)	30 (38)	90 (21)	80 (19)	- (-)	- (-)	70 (25)	20 (35)	- (-)
2012	70 (45)	90 (93)	30 (21)	60 (20)	100 (17)	20 (144)	- (-)	70 (18)	210 (125)	- (-)
2013	200 (33)	30 (28)	50 (12)	140 (15)	100 (30)	170 (69)	- (-)	110 (26)	50 (30)	10 (175)
slope	0.10	-0.16	0.24	0.07	-0.04	-0.02	-0.40	-0.01	0.28	-0.31

Fishing	Species									
year	SDO	RSK	TOA	ETL	ASR	CYP	CDL	SWO	HYA	SSH
1991	40 (52)	20 (40)	10 (20)	10 (36)	- (-)	40 (92)	20 (41)	30 (45)	- (-)	10 (79)
1992	10 (94)	20 (42)	10 (35)	70 (75)	- (-)	40 (10)	10 (32)	20 (67)	- (-)	30 (57)
1993	10 (95)	10 (86)	- (-)	10 (36)	- (-)	- (-)	30 (51)	30 (59)	- (-)	10 (79)
1994	20 (66)	10 (61)	- (-)	- (-)	- (-)	- (-)	10 (96)	10 (120)	- (-)	10 (80)
1995	40 (55)	20 (25)	20 (19)	20 (22)	- (-)	- (-)	- (-)	10 (61)	- (-)	10 (48)
1996	40 (25)	- (-)	30 (31)	50 (54)	- (-)	10 (78)	- (-)	10 (79)	- (-)	10 (41)
1997	60 (25)	- (-)	50 (30)	50 (70)	- (-)	- (-)	- (-)	30 (64)	- (-)	- (-)
1998	120 (24)	30 (80)	70 (17)	30 (29)	- (-)	30 (69)	30 (76)	50 (49)	- (-)	- (-)
1999	140 (60)	80 (135)	70 (19)	30 (48)	- (-)	- (-)	10 (30)	80 (29)	- (-)	- (-)
2000	30 (49)	10 (49)	80 (17)	30 (30)	- (-)	- (-)	60 (41)	90 (26)	- (-)	30 (55)
2001	50 (51)	10 (28)	90 (19)	30 (37)	- (-)	10 (84)	100 (151)	100 (27)	- (-)	20 (61)
2002	50 (49)	- (-)	70 (36)	70 (46)	- (-)	30 (75)	40 (23)	10 (70)	- (-)	40 (92)
2003	90 (42)	10 (49)	160 (21)	80 (39)	- (-)	100 (74)	50 (47)	30 (52)	- (-)	60 (48)
2004	50 (34)	190 (32)	170 (22)	20 (32)	- (-)	40 (65)	10 (70)	10 (75)	- (-)	40 (94)
2005	60 (28)	70 (31)	150 (31)	20 (49)	- (-)	- (-)	10 (37)	10 (48)	- (-)	90 (27)
2006	20 (34)	80 (36)	90 (27)	70 (55)	- (-)	10 (56)	20 (39)	- (-)	- (-)	- (-)
2007	30 (45)	50 (19)	30 (34)	110 (26)	- (-)	50 (37)	30 (27)	10 (39)	- (-)	10 (45)
2008	70 (106)	110 (60)	30 (22)	90 (26)	- (-)	130 (42)	30 (20)	20 (37)	90 (34)	20 (42)
2009	20 (64)	40 (17)	30 (18)	80 (31)	10 (100)	30 (35)	20 (34)	10 (45)	70 (92)	10 (22)
2010	90 (99)	60 (20)	30 (32)	60 (27)	- (-)	90 (26)	30 (42)	10 (56)	80 (146)	10 (101)
2011	40 (47)	60 (27)	30 (28)	50 (21)	- (-)	40 (43)	40 (79)	20 (46)	30 (90)	40 (37)
2012	40 (50)	40 (28)	20 (29)	30 (14)	- (-)	60 (37)	20 (75)	20 (34)	30 (45)	40 (32)
2013	40 (48)	60 (19)	30 (19)	90 (17)	- (-)	120 (22)	30 (192)	40 (18)	50 (43)	100 (35)
slope	0.02	0.14	0.12	0.10	0.03	0.22	0.12	-0.04	0.31	0.09

Table 2: Hoki, hake, and ling trawl fishery. — *continued.*

Fishing	Species									
year	MIQ	SCO	HAP	GLS	SNA	NSD	SRH	SCI	BEL	SLK
1991	30 (63)	10 (57)	30 (48)	- (-)	- (-)	10 (66)	- (-)	10 (71)	- (-)	- (-)
1992	50 (46)	- (-)	10 (55)	- (-)	- (-)	- (-)	10 (61)	10 (83)	10 (51)	- (-)
1993	80 (58)	20 (47)	20 (51)	- (-)	- (-)	- (-)	- (-)	20 (57)	- (-)	- (-)
1994	10 (46)	- (-)	10 (37)	- (-)	- (-)	- (-)	- (-)	10 (73)	- (-)	- (-)
1995	- (-)	30 (24)	10 (62)	- (-)	10 (56)	50 (54)	10 (26)	- (-)	10 (32)	- (-)
1996	- (-)	- (-)	20 (48)	- (-)	20 (85)	- (-)	- (-)	70 (67)	20 (19)	- (-)
1997	- (-)	- (-)	20 (56)	- (-)	20 (119)	- (-)	10 (20)	20 (57)	40 (32)	- (-)
1998	- (-)	- (-)	20 (62)	- (-)	300 (110)	- (-)	10 (17)	30 (35)	50 (26)	- (-)
1999	- (-)	- (-)	30 (38)	- (-)	10 (83)	- (-)	10 (32)	30 (29)	70 (95)	10 (47)
2000	- (-)	- (-)	50 (37)	- (-)	30 (90)	- (-)	- (-)	30 (36)	20 (63)	20 (43)
2001	10 (148)	- (-)	80 (29)	- (-)	230 (114)	10 (138)	- (-)	50 (28)	20 (45)	- (-)
2002	- (-)	- (-)	70 (36)	- (-)	- (-)	70 (122)	20 (79)	40 (17)	- (-)	60 (72)
2003	- (-)	10 (57)	50 (19)	- (-)	- (-)	60 (57)	10 (77)	40 (25)	10 (33)	90 (79)
2004	- (-)	10 (125)	130 (27)	100 (67)	- (-)	30 (43)	20 (26)	40 (18)	30 (73)	240 (78)
2005	10 (108)	- (-)	40 (22)	- (-)	- (-)	70 (27)	10 (24)	20 (18)	10 (71)	50 (68)
2006	- (-)	90 (80)	10 (20)	270 (103)	- (-)	20 (78)	40 (60)	10 (46)	10 (101)	10 (73)
2007	- (-)	10 (41)	20 (44)	20 (96)	- (-)	40 (46)	10 (52)	10 (17)	10 (44)	20 (41)
2008	30 (69)	10 (46)	10 (22)	- (-)	- (-)	- (-)	10 (22)	10 (14)	50 (64)	70 (21)
2009	50 (33)	20 (72)	- (-)	- (-)	- (-)	10 (60)	10 (42)	10 (20)	20 (25)	50 (30)
2010	70 (66)	- (-)	20 (32)	- (-)	- (-)	30 (48)	20 (53)	10 (36)	20 (44)	20 (36)
2011	20 (41)	70 (92)	10 (47)	- (-)	- (-)	40 (39)	30 (30)	10 (39)	20 (309)	10 (54)
2012	20 (31)	10 (14)	10 (32)	40 (50)	- (-)	20 (26)	20 (35)	10 (30)	10 (48)	10 (62)
2013	20 (37)	120 (33)	20 (42)	- (-)	- (-)	30 (39)	70 (33)	20 (22)	10 (37)	10 (28)
slope	0.08	0.17	-0.04	0.13	-0.15	0.24	0.22	0.01	0.13	0.32

Fishing	Species									
year	NMP	THR	RBY	SBK	CBO	MAK	HJO	STN	WHX	SCM
1991	80 (82)	10 (49)	60 (123)	10 (49)	30 (34)	10 (84)	10 (54)	- (-)	- (-)	- (-)
1992	80 (81)	10 (118)	40 (86)	20 (76)	110 (90)	10 (79)	20 (29)	- (-)	- (-)	- (-)
1993	80 (84)	- (-)	40 (100)	50 (39)	10 (46)	10 (50)	- (-)	- (-)	- (-)	- (-)
1994	80 (87)	- (-)	30 (113)	- (-)	- (-)	10 (54)	- (-)	- (-)	- (-)	- (-)
1995	190 (30)	50 (34)	70 (36)	- (-)	- (-)	20 (48)	- (-)	10 (44)	- (-)	- (-)
1996	280 (29)	70 (38)	90 (37)	10 (40)	- (-)	100 (79)	- (-)	- (-)	- (-)	10 (102)
1997	360 (30)	90 (38)	150 (35)	- (-)	- (-)	100 (87)	- (-)	- (-)	- (-)	- (-)
1998	380 (26)	60 (55)	190 (37)	10 (48)	- (-)	170 (55)	10 (95)	10 (37)	- (-)	80 (90)
1999	30 (39)	100 (35)	10 (60)	10 (42)	- (-)	60 (62)	10 (147)	10 (61)	- (-)	- (-)
2000	30 (245)	10 (57)	20 (77)	10 (54)	- (-)	20 (80)	- (-)	20 (46)	10 (124)	30 (173)
2001	340 (112)	50 (44)	10 (119)	10 (32)	- (-)	40 (37)	- (-)	30 (48)	20 (123)	100 (83)
2002	40 (85)	40 (34)	20 (123)	20 (87)	- (-)	30 (40)	120 (116)	30 (51)	70 (104)	30 (115)
2003	70 (74)	10 (62)	20 (110)	20 (32)	- (-)	40 (48)	40 (61)	20 (80)	- (-)	- (-)
2004	30 (40)	- (-)	40 (50)	20 (24)	- (-)	20 (59)	40 (36)	40 (42)	30 (43)	10 (85)
2005	10 (105)	- (-)	50 (54)	20 (33)	- (-)	10 (89)	10 (30)	10 (71)	10 (32)	40 (48)
2006	- (-)	- (-)	- (-)	20 (37)	- (-)	10 (49)	- (-)	- (-)	30 (56)	30 (59)
2007	10 (71)	10 (30)	- (-)	10 (35)	- (-)	- (-)	- (-)	10 (44)	- (-)	30 (64)
2008	10 (49)	- (-)	- (-)	20 (28)	60 (96)	10 (54)	20 (66)	- (-)	100 (86)	40 (43)
2009	- (-)	- (-)	- (-)	30 (34)	- (-)	10 (77)	10 (114)	- (-)	- (-)	10 (79)
2010	- (-)	- (-)	- (-)	10 (46)	- (-)	- (-)	- (-)	- (-)	- (-)	20 (44)
2011	10 (35)	- (-)	- (-)	10 (58)	- (-)	- (-)	- (-)	10 (39)	10 (120)	10 (92)
2012	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (93)	- (-)
2013	10 (37)	10 (20)	- (-)	30 (25)	60 (63)	- (-)	10 (32)	40 (37)	- (-)	- (-)
slope	-0.29	-0.20	-0.37	0.06	-0.06	-0.24	0.01	0.08	0.16	0.16

Table 2: Hoki, hake, and ling trawl fishery. — *continued.*

Fishing year	ERA	COL	PLS	SPO	OPI	HOR	PDG	BEE	HCO	SQX
	Species									
1991	10 (22)	- (-)	10 (36)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1992	10 (28)	40 (90)	10 (55)	110 (163)	- (-)	- (-)	10 (26)	10 (32)	10 (84)	- (-)
1993	- (-)	- (-)	30 (36)	- (-)	- (-)	- (-)	- (-)	10 (39)	10 (40)	- (-)
1994	- (-)	- (-)	10 (49)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (30)	- (-)
1995	30 (14)	- (-)	- (-)	10 (53)	- (-)	- (-)	- (-)	20 (47)	- (-)	- (-)
1996	40 (32)	- (-)	10 (67)	250 (163)	- (-)	- (-)	20 (61)	- (-)	10 (14)	- (-)
1997	30 (25)	- (-)	10 (60)	390 (116)	- (-)	- (-)	- (-)	10 (50)	- (-)	- (-)
1998	40 (23)	- (-)	- (-)	340 (129)	- (-)	10 (109)	10 (26)	- (-)	10 (58)	20 (56)
1999	10 (44)	- (-)	10 (47)	30 (66)	- (-)	- (-)	- (-)	- (-)	10 (24)	20 (61)
2000	20 (35)	- (-)	10 (40)	- (-)	- (-)	- (-)	10 (142)	10 (56)	60 (39)	10 (111)
2001	10 (57)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (212)	- (-)	10 (88)	- (-)
2002	10 (68)	- (-)	10 (95)	- (-)	- (-)	- (-)	10 (91)	20 (49)	10 (54)	10 (64)
2003	10 (26)	- (-)	- (-)	- (-)	- (-)	- (-)	50 (101)	10 (77)	- (-)	- (-)
2004	10 (36)	- (-)	- (-)	- (-)	- (-)	230 (138)	10 (26)	10 (30)	10 (42)	40 (25)
2005	10 (22)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2006	10 (20)	- (-)	10 (36)	- (-)	- (-)	- (-)	- (-)	- (-)	40 (58)	- (-)
2007	10 (28)	- (-)	10 (49)	10 (62)	- (-)	- (-)	- (-)	- (-)	10 (93)	- (-)
2008	10 (22)	40 (97)	10 (36)	- (-)	50 (23)	- (-)	- (-)	20 (31)	- (-)	- (-)
2009	30 (12)	50 (146)	20 (37)	- (-)	30 (84)	- (-)	10 (32)	40 (35)	10 (32)	10 (36)
2010	10 (39)	- (-)	20 (31)	- (-)	10 (33)	- (-)	20 (59)	10 (30)	- (-)	- (-)
2011	20 (40)	- (-)	30 (45)	- (-)	20 (46)	- (-)	10 (59)	20 (68)	- (-)	10 (55)
2012	10 (44)	20 (107)	20 (29)	- (-)	20 (67)	- (-)	10 (109)	- (-)	- (-)	- (-)
2013	30 (16)	10 (125)	20 (22)	- (-)	30 (21)	- (-)	10 (24)	- (-)	- (-)	10 (62)
slope	0.08	0.12	0.05	-0.22	0.27	0.00	0.12	0.02	-0.11	0.09

Fishing year	DSK	MOO	EPL	RSQ	GSQ	TOP	MCA	WHR	WIT	MOD
	Species									
1991	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	60 (105)	- (-)	- (-)
1992	10 (36)	- (-)	- (-)	- (-)	- (-)	- (-)	30 (58)	- (-)	- (-)	- (-)
1993	- (-)	10 (36)	- (-)	- (-)	10 (37)	- (-)	- (-)	- (-)	- (-)	- (-)
1994	- (-)	20 (36)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1995	20 (21)	20 (30)	- (-)	- (-)	- (-)	- (-)	80 (72)	- (-)	- (-)	- (-)
1996	20 (22)	10 (57)	- (-)	- (-)	20 (66)	- (-)	- (-)	- (-)	- (-)	- (-)
1997	30 (24)	10 (45)	- (-)	- (-)	20 (69)	- (-)	- (-)	- (-)	- (-)	- (-)
1998	30 (27)	20 (43)	- (-)	- (-)	10 (60)	- (-)	- (-)	- (-)	- (-)	- (-)
1999	- (-)	10 (26)	- (-)	10 (52)	10 (91)	20 (50)	- (-)	- (-)	- (-)	- (-)
2000	10 (36)	20 (27)	- (-)	30 (58)	10 (51)	20 (37)	- (-)	60 (93)	10 (57)	20 (48)
2001	- (-)	10 (44)	- (-)	10 (37)	10 (81)	20 (46)	- (-)	- (-)	10 (33)	- (-)
2002	- (-)	10 (33)	20 (68)	- (-)	- (-)	20 (42)	- (-)	- (-)	10 (48)	10 (33)
2003	- (-)	10 (30)	- (-)	10 (690)	10 (67)	20 (60)	- (-)	- (-)	10 (37)	- (-)
2004	10 (68)	- (-)	- (-)	- (-)	10 (73)	10 (48)	- (-)	- (-)	30 (60)	20 (97)
2005	- (-)	- (-)	- (-)	- (-)	10 (80)	- (-)	- (-)	- (-)	10 (174)	10 (48)
2006	- (-)	- (-)	10 (71)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (69)
2007	10 (53)	- (-)	10 (85)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2008	10 (53)	- (-)	10 (65)	- (-)	- (-)	- (-)	10 (125)	10 (73)	10 (69)	20 (35)
2009	40 (21)	- (-)	10 (40)	- (-)	- (-)	10 (24)	10 (72)	20 (48)	- (-)	20 (23)
2010	20 (31)	- (-)	10 (24)	10 (68)	- (-)	10 (86)	- (-)	- (-)	10 (41)	10 (22)
2011	10 (36)	- (-)	30 (39)	20 (40)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2012	10 (24)	- (-)	10 (24)	- (-)	10 (44)	- (-)	- (-)	- (-)	20 (55)	- (-)
2013	20 (36)	- (-)	20 (22)	- (-)	20 (40)	20 (27)	- (-)	- (-)	- (-)	10 (51)
slope	0.11	-0.22	0.29	0.06	-0.01	0.11	-0.04	-0.02	0.13	0.19

Table 2: Hoki, hake, and ling trawl fishery. — *continued.*

Fishing year	DWE	RDO	EEL	HAG	EMA	CYO	APR	WHE	OCT	LAN
						Species				
1991	- (-)	- (-)	- (-)	- (-)	10 (42)	20 (53)	10 (85)	- (-)	10 (10)	- (-)
1992	- (-)	- (-)	10 (63)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1993	- (-)	- (-)	- (-)	- (-)	10 (130)	- (-)	- (-)	- (-)	- (-)	30 (98)
1994	- (-)	- (-)	- (-)	- (-)	20 (117)	- (-)	- (-)	- (-)	- (-)	- (-)
1995	10 (51)	- (-)	10 (46)	- (-)	- (-)	10 (162)	- (-)	- (-)	- (-)	- (-)
1996	- (-)	- (-)	- (-)	- (-)	10 (107)	- (-)	- (-)	- (-)	10 (24)	- (-)
1997	- (-)	10 (54)	- (-)	- (-)	20 (153)	- (-)	- (-)	- (-)	- (-)	- (-)
1998	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	20 (108)	- (-)	10 (24)	- (-)
1999	- (-)	20 (92)	10 (113)	- (-)	20 (86)	- (-)	- (-)	- (-)	10 (44)	- (-)
2000	- (-)	10 (160)	40 (69)	- (-)	- (-)	- (-)	- (-)	- (-)	30 (39)	50 (89)
2001	- (-)	- (-)	40 (61)	- (-)	- (-)	- (-)	- (-)	120 (86)	10 (24)	10 (93)
2002	20 (111)	10 (106)	40 (65)	- (-)	- (-)	- (-)	- (-)	- (-)	20 (53)	- (-)
2003	50 (28)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (22)	10 (55)
2004	- (-)	20 (78)	- (-)	- (-)	- (-)	10 (181)	10 (117)	- (-)	- (-)	- (-)
2005	20 (59)	- (-)	10 (77)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2006	- (-)	10 (80)	- (-)	- (-)	- (-)	10 (80)	- (-)	- (-)	- (-)	- (-)
2007	10 (50)	- (-)	10 (132)	- (-)	- (-)	10 (60)	- (-)	- (-)	- (-)	10 (57)
2008	- (-)	10 (54)	- (-)	10 (24)	- (-)	20 (37)	- (-)	- (-)	- (-)	- (-)
2009	10 (93)	- (-)	- (-)	10 (1 805)	- (-)	20 (41)	- (-)	- (-)	- (-)	- (-)
2010	10 (48)	20 (83)	- (-)	- (-)	- (-)	10 (46)	30 (75)	- (-)	- (-)	- (-)
2011	- (-)	10 (80)	- (-)	10 (412)	- (-)	20 (31)	- (-)	- (-)	- (-)	- (-)
2012	20 (41)	- (-)	- (-)	- (-)	- (-)	20 (33)	10 (67)	- (-)	- (-)	- (-)
2013	- (-)	- (-)	- (-)	20 (117)	- (-)	10 (26)	- (-)	- (-)	- (-)	- (-)
slope	0.13	0.09	-0.07	0.16	-0.20	0.22	0.03	-0.01	-0.12	-0.04

Fishing year	TSQ	HPB	TAM	RAG	PHO	BSQ	HEX	PSK	CDO	CYL
						Species				
1991	10 (24)	40 (45)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1992	10 (64)	40 (27)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1993	- (-)	20 (55)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1994	- (-)	20 (51)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1995	- (-)	60 (16)	- (-)	10 (81)	- (-)	- (-)	10 (88)	- (-)	- (-)	- (-)
1996	- (-)	80 (20)	- (-)	10 (41)	- (-)	- (-)	10 (122)	- (-)	- (-)	- (-)
1997	- (-)	70 (18)	- (-)	- (-)	180 (161)	- (-)	20 (84)	- (-)	- (-)	- (-)
1998	- (-)	80 (22)	- (-)	20 (95)	- (-)	- (-)	20 (113)	- (-)	- (-)	- (-)
1999	- (-)	10 (42)	- (-)	10 (35)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2000	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2001	- (-)	10 (69)	- (-)	- (-)	10 (110)	- (-)	- (-)	20 (34)	- (-)	- (-)
2002	- (-)	10 (62)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (142)	- (-)
2003	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (82)
2004	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (165)	- (-)
2005	- (-)	- (-)	- (-)	10 (64)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2006	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	30 (43)
2007	- (-)	- (-)	- (-)	- (-)	10 (26)	- (-)	- (-)	20 (71)	10 (30)	10 (72)
2008	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (37)	- (-)	10 (102)
2009	20 (35)	- (-)	10 (26)	- (-)	- (-)	- (-)	10 (20)	10 (103)	- (-)	- (-)
2010	- (-)	- (-)	10 (24)	- (-)	- (-)	- (-)	10 (33)	10 (92)	10 (63)	10 (242)
2011	- (-)	- (-)	10 (44)	- (-)	- (-)	- (-)	10 (49)	10 (130)	10 (78)	20 (159)
2012	10 (28)	- (-)	10 (24)	20 (185)	- (-)	- (-)	10 (32)	- (-)	10 (70)	30 (142)
2013	10 (26)	- (-)	10 (57)	70 (108)	- (-)	- (-)	20 (41)	- (-)	- (-)	- (-)
slope	0.04	-0.37	0.20	0.04	-0.02	0.00	0.11	0.16	0.16	0.22

Table 2: Hoki, hake, and ling trawl fishery. — *continued.*

Fishing year	OAR	FMA	STU	OPE	CRB	CSH	DWO	BNE	STG	VSQ
						Species				
1991	- (-)	- (-)	10 (104)	- (-)	- (-)	- (-)	- (-)	- (-)	70 (39)	- (-)
1992	- (-)	- (-)	- (-)	10 (183)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1993	10 (67)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (20)	- (-)
1994	- (-)	- (-)	10 (17)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1995	- (-)	- (-)	10 (50)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1996	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1997	20 (62)	- (-)	- (-)	10 (196)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1998	- (-)	- (-)	10 (32)	- (-)	10 (46)	- (-)	- (-)	- (-)	- (-)	- (-)
1999	10 (115)	- (-)	10 (44)	- (-)	10 (54)	- (-)	- (-)	- (-)	- (-)	- (-)
2000	10 (84)	- (-)	10 (66)	- (-)	10 (48)	- (-)	- (-)	- (-)	- (-)	- (-)
2001	30 (61)	- (-)	10 (35)	10 (67)	10 (52)	- (-)	- (-)	40 (84)	- (-)	10 (125)
2002	- (-)	- (-)	- (-)	- (-)	10 (160)	10 (118)	- (-)	20 (104)	- (-)	- (-)
2003	- (-)	- (-)	- (-)	10 (86)	20 (109)	- (-)	- (-)	- (-)	- (-)	- (-)
2004	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (91)
2005	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2006	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2007	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2008	- (-)	30 (51)	- (-)	20 (162)	- (-)	- (-)	10 (82)	- (-)	- (-)	10 (40)
2009	- (-)	- (-)	- (-)	- (-)	- (-)	10 (46)	- (-)	- (-)	- (-)	10 (26)
2010	- (-)	10 (17)	- (-)	- (-)	- (-)	20 (34)	- (-)	- (-)	- (-)	- (-)
2011	- (-)	10 (28)	- (-)	- (-)	- (-)	- (-)	40 (56)	- (-)	- (-)	10 (100)
2012	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2013	10 (191)	- (-)	- (-)	- (-)	- (-)	10 (65)	10 (49)	- (-)	- (-)	- (-)
slope	-0.04	0.11	-0.16	-0.04	-0.04	0.12	0.13	-0.01	-0.11	0.10

Fishing year	ACS	YBO	CAR	MAN	AGR	OEO	BAS	POR	TOR	SRI
						Species				
1991	- (-)	10 (127)	- (-)	10 (20)	10 (50)	- (-)	- (-)	- (-)	- (-)	- (-)
1992	- (-)	10 (122)	- (-)	10 (20)	- (-)	- (-)	- (-)	10 (89)	- (-)	- (-)
1993	- (-)	10 (122)	- (-)	- (-)	- (-)	40 (95)	- (-)	- (-)	- (-)	- (-)
1994	- (-)	10 (124)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1995	- (-)	20 (37)	10 (54)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1996	- (-)	- (-)	20 (39)	- (-)	- (-)	60 (144)	- (-)	- (-)	- (-)	- (-)
1997	- (-)	- (-)	30 (38)	10 (44)	50 (125)	- (-)	- (-)	- (-)	- (-)	- (-)
1998	- (-)	- (-)	40 (36)	- (-)	20 (71)	- (-)	10 (44)	- (-)	- (-)	- (-)
1999	- (-)	- (-)	- (-)	- (-)	20 (61)	- (-)	10 (88)	30 (57)	- (-)	- (-)
2000	- (-)	- (-)	- (-)	10 (78)	10 (49)	- (-)	10 (30)	- (-)	- (-)	- (-)
2001	- (-)	- (-)	10 (73)	- (-)	- (-)	- (-)	- (-)	10 (102)	- (-)	- (-)
2002	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (30)	- (-)	- (-)	- (-)
2003	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (60)	- (-)	- (-)	- (-)
2004	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (45)	- (-)	10 (55)	- (-)
2005	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (79)	140 (31)
2006	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2007	- (-)	- (-)	10 (30)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2008	10 (10)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2009	20 (25)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2010	10 (66)	- (-)	10 (24)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (47)	- (-)
2011	10 (35)	10 (22)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2012	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2013	10 (26)	10 (37)	10 (30)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
slope	0.19	-0.12	-0.01	-0.13	-0.13	-0.09	-0.03	-0.07	0.06	0.02

Table 2: Hoki, hake, and ling trawl fishery. — *continued.*

Fishing	Species									
year	BSL	SEE	SQA	OSK	MOK	MDO	EUC	ECH	PDS	GSC
1991	- (-)	10 (17)	- (-)	- (-)	- (-)	20 (100)	- (-)	- (-)	- (-)	- (-)
1992	- (-)	10 (32)	- (-)	- (-)	- (-)	20 (97)	- (-)	- (-)	- (-)	- (-)
1993	- (-)	- (-)	- (-)	- (-)	- (-)	20 (99)	- (-)	- (-)	- (-)	- (-)
1994	- (-)	- (-)	- (-)	- (-)	- (-)	20 (108)	- (-)	- (-)	- (-)	- (-)
1995	- (-)	- (-)	- (-)	- (-)	- (-)	60 (28)	- (-)	- (-)	- (-)	10 (58)
1996	- (-)	- (-)	- (-)	- (-)	40 (210)	90 (27)	- (-)	- (-)	- (-)	- (-)
1997	- (-)	- (-)	- (-)	- (-)	10 (182)	120 (29)	- (-)	- (-)	- (-)	- (-)
1998	- (-)	- (-)	- (-)	- (-)	10 (175)	130 (28)	- (-)	- (-)	- (-)	- (-)
1999	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2000	10 (89)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	20 (100)	- (-)	- (-)
2001	- (-)	- (-)	- (-)	- (-)	- (-)	10 (72)	- (-)	- (-)	- (-)	- (-)
2002	10 (129)	- (-)	- (-)	- (-)	- (-)	10 (60)	- (-)	10 (89)	- (-)	- (-)
2003	- (-)	10 (131)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	20 (88)	- (-)
2004	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2005	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2006	10 (57)	10 (52)	50 (62)	- (-)	- (-)	- (-)	10 (115)	- (-)	- (-)	- (-)
2007	- (-)	- (-)	50 (50)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2008	- (-)	- (-)	40 (52)	- (-)	- (-)	- (-)	10 (93)	- (-)	- (-)	10 (77)
2009	10 (73)	- (-)	20 (80)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (101)	- (-)
2010	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2011	- (-)	- (-)	- (-)	- (-)	- (-)	10 (154)	- (-)	- (-)	- (-)	- (-)
2012	- (-)	- (-)	- (-)	- (-)	- (-)	10 (147)	- (-)	- (-)	- (-)	- (-)
2013	- (-)	- (-)	- (-)	10 (26)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
slope	0.04	-0.07	0.13	0.05	-0.08	-0.26	0.05	-0.01	0.04	0.00

Fishing	Species									
year	SUN	SPI	ANT	BSP	CCX	BPI	HEP	PIG	BTS	BTH
1991	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1992	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (66)	- (-)	- (-)	- (-)
1993	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1994	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1995	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (39)	10 (106)	- (-)	- (-)
1996	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (148)	- (-)	- (-)
1997	- (-)	20 (45)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (207)	- (-)	- (-)
1998	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	20 (122)	- (-)	- (-)
1999	- (-)	- (-)	10 (101)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2000	- (-)	- (-)	- (-)	10 (24)	- (-)	- (-)	- (-)	10 (111)	- (-)	- (-)
2001	10 (113)	10 (56)	- (-)	10 (33)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2002	- (-)	20 (39)	10 (96)	10 (20)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2003	- (-)	- (-)	- (-)	10 (26)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2004	- (-)	- (-)	10 (133)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2005	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2006	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2007	- (-)	- (-)	- (-)	- (-)	- (-)	30 (92)	10 (65)	- (-)	- (-)	- (-)
2008	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (24)
2009	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2010	- (-)	- (-)	- (-)	10 (17)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2011	- (-)	- (-)	- (-)	10 (24)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2012	- (-)	- (-)	- (-)	10 (30)	20 (105)	- (-)	- (-)	- (-)	- (-)	- (-)
2013	- (-)	- (-)	- (-)	10 (33)	- (-)	- (-)	- (-)	- (-)	10 (85)	- (-)
slope	0.00	-0.03	0.00	0.16	0.05	0.03	-0.06	-0.11	0.05	0.03

Table 2: Hoki, hake, and ling trawl fishery. — *continued.*

Fishing year	RAY	SLB	BWS	SNR	BER	LSK	FOR	GAS	EPR	SEV
	Species									
1991	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1992	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1993	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1994	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1995	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1996	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1997	- (-)	- (-)	10 (61)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (60)
1998	- (-)	- (-)	10 (79)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (77)
1999	- (-)	- (-)	10 (36)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2000	- (-)	- (-)	- (-)	20 (110)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2001	- (-)	- (-)	- (-)	30 (107)	- (-)	- (-)	10 (95)	- (-)	- (-)	- (-)
2002	- (-)	- (-)	- (-)	20 (75)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2003	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2004	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2005	- (-)	30 (80)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2006	- (-)	- (-)	- (-)	10 (66)	- (-)	- (-)	- (-)	10 (64)	- (-)	- (-)
2007	- (-)	- (-)	- (-)	10 (73)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2008	- (-)	- (-)	- (-)	10 (61)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2009	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (39)	20 (26)	- (-)
2010	- (-)	- (-)	- (-)	- (-)	- (-)	10 (67)	- (-)	- (-)	10 (48)	- (-)
2011	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (50)	- (-)
2012	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2013	10 (95)	- (-)	- (-)	- (-)	10 (28)	- (-)	- (-)	- (-)	- (-)	- (-)
slope	0.05	0.02	-0.06	0.05	0.05	0.04	0.00	0.05	0.11	-0.04

Fishing year	MOL	FLA	BCA	SNI	HYD	PSI	EMO	PKN	RSN	NEX
	Species									
1991	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (14)	- (-)	- (-)	- (-)
1992	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1993	- (-)	- (-)	10 (100)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1994	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1995	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1996	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1997	10 (67)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1998	- (-)	- (-)	10 (48)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1999	- (-)	- (-)	- (-)	- (-)	10 (37)	- (-)	- (-)	- (-)	- (-)	- (-)
2000	- (-)	- (-)	10 (61)	- (-)	10 (52)	- (-)	- (-)	- (-)	- (-)	- (-)
2001	- (-)	20 (52)	- (-)	20 (61)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2002	20 (111)	- (-)	- (-)	- (-)	10 (63)	- (-)	- (-)	- (-)	- (-)	- (-)
2003	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2004	10 (94)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	20 (71)
2005	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2006	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2007	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2008	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (118)	- (-)	- (-)
2009	- (-)	- (-)	- (-)	- (-)	- (-)	10 (63)	- (-)	- (-)	- (-)	- (-)
2010	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2011	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2012	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2013	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
slope	-0.01	0.00	-0.07	0.00	-0.02	0.03	-0.05	0.03	0.00	0.01

Table 2: Hoki, hake, and ling trawl fishery. — *continued.*

Fishing year	SOP	TVI	CPA	CUB	OFH	BYD	CHG	ECN	SMI	ZOR
						Species				
1991	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1992	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1993	- (-)	- (-)	- (-)	20 (139)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1994	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1995	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1996	- (-)	- (-)	- (-)	- (-)	10 (36)	- (-)	- (-)	- (-)	- (-)	- (-)
1997	- (-)	- (-)	- (-)	- (-)	10 (51)	- (-)	- (-)	- (-)	- (-)	- (-)
1998	- (-)	- (-)	- (-)	- (-)	10 (63)	- (-)	- (-)	- (-)	- (-)	- (-)
1999	- (-)	- (-)	- (-)	- (-)	10 (63)	- (-)	- (-)	- (-)	- (-)	- (-)
2000	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2001	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2002	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (52)	- (-)	- (-)	- (-)
2003	- (-)	- (-)	- (-)	110 (145)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2004	- (-)	- (-)	- (-)	10 (494)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2005	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2006	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2007	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2008	- (-)	10 (104)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2009	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2010	- (-)	- (-)	10 (36)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2011	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2012	- (-)	- (-)	- (-)	- (-)	- (-)	10 (40)	- (-)	- (-)	- (-)	- (-)
2013	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (123)	- (-)
slope	0.00	0.03	0.04	-0.03	-0.08	0.05	0.00	0.00	0.05	0.00

Fishing year	CCA	RCH	SBR	SHE	BTA	LHO	TOD	YFN	CHI	CPD
						Species				
1991	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1992	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1993	- (-)	- (-)	- (-)	10 (51)	- (-)	- (-)	- (-)	- (-)	10 (66)	- (-)
1994	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1995	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (53)	- (-)
1996	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1997	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1998	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1999	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	20 (43)
2000	- (-)	- (-)	- (-)	20 (75)	- (-)	- (-)	- (-)	10 (73)	- (-)	- (-)
2001	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2002	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2003	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2004	- (-)	30 (92)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2005	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2006	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2007	- (-)	- (-)	10 (59)	- (-)	- (-)	40 (92)	- (-)	- (-)	- (-)	- (-)
2008	- (-)	- (-)	- (-)	- (-)	- (-)	30 (106)	- (-)	- (-)	- (-)	- (-)
2009	- (-)	- (-)	- (-)	- (-)	- (-)	20 (92)	- (-)	- (-)	- (-)	- (-)
2010	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (64)	- (-)	- (-)	- (-)
2011	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2012	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2013	- (-)	- (-)	- (-)	- (-)	10 (26)	- (-)	- (-)	- (-)	- (-)	- (-)
slope	0.00	0.01	0.02	-0.05	0.05	0.10	0.04	-0.01	-0.07	-0.02

Table 2: Hoki, hake, and ling trawl fishery. — *continued.*

Fishing year	PAL	GON	CAS	CCO	LNV	CJA	GRM	SUR	HTR	KIC
										Species
1991	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1992	- (-)	- (-)	20 (79)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1993	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1994	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1995	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1996	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1997	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1998	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (109)	- (-)	- (-)
1999	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2000	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2001	10 (113)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2002	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2003	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2004	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2005	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2006	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2007	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2008	- (-)	- (-)	- (-)	10 (67)	- (-)	- (-)	10 (56)	- (-)	- (-)	- (-)
2009	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2010	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2011	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2012	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2013	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
slope	0.00	0.00	-0.05	0.03	0.00	0.00	0.03	-0.02	0.00	0.00

Fishing year	LMU	HTH	HMT	JFI	SBO	RIS	BCO	BCR	BDA	CTU
										Species
1991	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1992	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1993	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1994	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1995	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1996	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (112)	- (-)	- (-)
1997	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1998	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
1999	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (107)
2000	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2001	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	10 (136)	- (-)
2002	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2003	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2004	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2005	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2006	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2007	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2008	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2009	- (-)	- (-)	- (-)	10 (28)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2010	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2011	- (-)	- (-)	- (-)	- (-)	- (-)	10 (49)	- (-)	- (-)	- (-)	- (-)
2012	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
2013	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
slope	0.00	0.00	0.00	0.03	0.00	0.04	0.00	-0.03	0.00	-0.01

Table 2: Hoki, hake, and ling trawl fishery. — *continued.*

Fishing	Species				
year	DMG	MRL	SNE	BFI	COD
1991	- (-)	- (-)	- (-)	- (-)	- (-)
1992	- (-)	- (-)	- (-)	- (-)	- (-)
1993	- (-)	- (-)	- (-)	- (-)	- (-)
1994	- (-)	- (-)	- (-)	- (-)	- (-)
1995	- (-)	- (-)	- (-)	- (-)	- (-)
1996	- (-)	- (-)	- (-)	- (-)	- (-)
1997	- (-)	- (-)	- (-)	- (-)	- (-)
1998	- (-)	- (-)	- (-)	- (-)	10 (178)
1999	- (-)	- (-)	- (-)	- (-)	- (-)
2000	- (-)	- (-)	- (-)	- (-)	- (-)
2001	- (-)	- (-)	- (-)	- (-)	- (-)
2002	- (-)	10 (147)	- (-)	10 (107)	- (-)
2003	- (-)	- (-)	- (-)	- (-)	- (-)
2004	- (-)	- (-)	- (-)	- (-)	- (-)
2005	- (-)	- (-)	- (-)	- (-)	- (-)
2006	- (-)	- (-)	- (-)	- (-)	- (-)
2007	- (-)	- (-)	- (-)	- (-)	- (-)
2008	- (-)	- (-)	- (-)	- (-)	- (-)
2009	- (-)	- (-)	- (-)	- (-)	- (-)
2010	- (-)	- (-)	- (-)	- (-)	- (-)
2011	- (-)	- (-)	- (-)	- (-)	- (-)
2012	- (-)	- (-)	- (-)	- (-)	- (-)
2013	- (-)	- (-)	- (-)	- (-)	- (-)
slope	0.00	0.00	0.00	0.00	-0.02

Table 3: Jack mackerel trawl fishery. Total annual bycatch estimates (t) for individual species with at least 1 t of bycatch in at least one year, based on observer catch rates; - means less than 1 t. The slope of a regression through the data points is shown after fishing year (see http://marlin.niwa.co.nz for species code definitions).

Fishing	Species																	
year	EMA	SQU	BAR	GUR	TRE	ALB	SCH	THR	POS	EGR	MOO	RHY	BEN	WRA	HPB	ANC	WSE	BWH
1991	2 234	154	1 363	10	-	-	66	69	2	-	-	-	-	-	1	-	-	-
1992	1 751	527	2 596	95	46	-	268	26	2	4	-	1	-	-	9	-	-	-
1993	1 143	115	1 732	18	11	-	63	6	3	-	-	-	-	-	6	-	-	-
1994	1 060	174	3 268	35	1	-	212	3	4	1	-	3	-	-	5	-	-	-
1995	1 842	604	2 988	30	1	-	61	28	1	-	1	1	-	1	6	-	-	4
1996	300	402	3 008	32	2	4	219	11	5	-	-	1	-	-	7	-	-	-
1997	2 086	618	4 208	47	-	-	164	38	6	-	2	-	2	-	1	-	-	-
1998	1 809	362	7 223	55	2	-	170	43	20	3	2	40	-	-	-	-	1	-
1999	9 378	51	3 420	6	1	-	6	33	18	-	2	-	-	-	-	-	-	-
2000	296	244	6 194	7	-	-	16	39	13	-	-	-	1	-	1	-	-	-
2001	1 141	483	6 031	21	-	-	21	24	11	-	-	-	-	-	-	-	-	-
2002	2 170	1 092	10 863	30	164	-	26	18	10	-	2	2	-	-	-	-	-	-
2003	699	412	9 174	94	-	-	34	21	5	-	-	-	3	-	1	-	-	1
2004	3 820	43	7 942	5	101	5	6	15	1	1	-	4	7	-	-	-	-	-
2005	1 703	35	2 826	15	4	-	14	33	1	-	-	-	5	-	1	6	-	1
2006	1 446	227	8 860	27	9	1	16	5	1	3	-	2	-	1	-	-	-	1
2007	2 416	283	9 446	29	1	1	15	11	2	1	-	2	-	-	-	-	-	-
2008	1 850	125	4 842	21	1	-	15	16	1	5	-	1	14	-	-	-	-	-
2009	1 737	44	4 367	9	2	1	10	11	1	2	-	-	1	-	-	-	-	1
2010	2 838	131	7 300	26	3	-	11	12	2	3	-	2	-	-	-	-	-	1
2011	1 207	45	3 978	12	1	5	7	22	2	1	-	1	-	-	-	-	-	-
2012	973	69	4 422	17	8	2	11	9	1	1	-	-	-	-	1	-	-	1
2013	1 090	91	4 624	14	9	9	12	11	2	1	-	-	1	-	-	-	-	-
slope	0.00	-0.07	0.04	-0.03	0.06	0.14	-0.14	-0.03	-0.06	0.10	-0.05	-0.01	0.07	-0.01	-0.17	0.01	-0.01	0.05

Fishing	Species																	
year	BKM	SHA	POR	FOR	HAT	BSK	SPD	LEA	SNA	FRO	SDO	SSK	BWS	SCG	ATT	LIN	JAV	GIZ
1991	-	1	-	-	-	-	143	6	13	449	-	9	-	1	6	2	-	8
1992	-	-	-	-	-	-	966	39	18	1 252	1	29	-	1	1	12	-	38
1993	-	-	-	-	-	-	968	51	8	2 210	1	14	3	-	2	2	-	5
1994	-	1	-	-	-	1	1 108	2	25	1 157	6	23	2	2	-	16	-	23
1995	-	-	-	-	1	-	503	5	1	1 665	10	6	4	-	-	3	-	5
1996	-	1	-	-	-	-	901	11	1	134	35	29	3	-	17	4	-	8
1997	-	1	-	-	-	-	1 308	10	3	644	37	1	1	5	20	4	-	28
1998	-	-	-	-	-	-	1 287	21	8	1 160	113	21	5	1	-	10	-	41
1999	-	1	3	-	-	1	130	-	-	244	33	15	3	-	-	1	-	-
2000	-	2	-	1	-	-	538	-	1	140	3	4	2	-	-	4	-	37
2001	-	-	-	-	-	-	490	1	1	279	3	1	1	-	-	3	-	3
2002	-	-	-	-	-	-	571	-	57	764	69	-	3	-	-	5	1	1
2003	-	-	-	4	-	-	195	19	13	818	125	2	1	3	4	2	-	4
2004	-	-	-	-	-	-	25	-	86	1 342	41	-	-	-	-	2	-	-
2005	-	-	-	-	-	-	66	1	96	1 857	121	2	2	9	1	1	1	-
2006	-	-	-	-	-	-	209	7	43	1 924	105	1	3	3	6	-	-	-
2007	-	-	-	-	-	-	174	9	28	1 411	126	1	1	5	14	-	-	1
2008	-	-	-	-	-	-	47	2	87	1 851	94	1	4	2	-	4	-	1
2009	-	-	-	-	-	-	75	-	50	1 309	102	-	2	3	-	1	4	1
2010	-	1	-	-	-	-	96	1	73	1 478	39	1	1	4	2	1	-	-
2011	1	-	-	-	-	-	99	1	54	920	11	1	1	2	27	-	-	-
2012	-	-	-	-	-	-	108	1	103	1 573	25	1	3	5	15	-	-	-
2013	-	-	-	-	-	-	106	1	53	1 489	24	1	6	2	20	2	36	1
slope	0.02	-0.06	-0.01	0.00	-0.02	-0.02	-0.12	-0.13	0.16	0.04	0.17	-0.18	0.05	0.12	0.08	-0.14	0.10	-0.23

Table 3: Jack mackerel trawl fishery —*continued*

Fishing	Species																	
year	JFI	RSO	STR	SPE	TOA	SWO	HAK	CSH	BPE	CDO	JGU	RUD	RBY	SEV	CBE	STN	SPP	BCO
1991	-	5	1	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1992	-	16	3	18	-	1	-	-	2	-	1	-	15	-	-	-	-	1
1993	-	3	1	15	-	1	-	-	-	-	-	-	-	1	-	-	-	-
1994	-	10	1	42	-	-	1	12	1	-	2	-	-	-	-	-	-	1
1995	-	5	-	37	-	1	-	-	18	-	7	-	-	-	-	-	-	-
1996	-	1	2	59	-	-	1	14	-	-	-	1	-	-	-	-	-	-
1997	-	5	3	60	-	4	11	-	4	-	3	-	1	1	-	-	-	1
1998	-	6	-	42	1	2	6	-	33	-	17	1	4	1	-	-	-	-
1999	-	57	-	-	-	8	1	-	-	1	-	-	-	-	-	-	-	-
2000	-	12	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-
2001	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
2002	-	5	-	-	-	-	10	-	-	-	-	-	-	-	-	4	-	-
2003	-	5	1	1	-	-	-	-	-	7	-	-	-	1	-	2	-	-
2004	72	3	2	-	-	-	11	-	-	22	1	2	-	-	-	-	-	-
2005	-	-	1	-	-	2	-	-	-	-	-	1	-	-	-	-	-	-
2006	-	1	1	1	-	1	-	-	-	-	-	-	3	1	1	-	-	-
2007	-	-	1	-	-	2	2	-	-	23	1	-	1	-	-	-	1	-
2008	1	2	3	-	-	4	-	-	1	-	-	-	1	-	-	-	-	-
2009	-	3	2	1	-	1	-	-	1	-	-	-	-	-	-	-	-	-
2010	-	2	1	1	-	2	-	-	-	1	-	-	12	1	-	-	-	-
2011	-	1	1	-	-	3	-	-	-	-	-	-	-	1	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
2013	4	1	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
slope	0.07	-0.13	0.01	-0.25	-0.01	0.04	-0.05	-0.07	-0.10	0.05	-0.07	-0.01	0.00	0.00	0.01	0.00	0.01	-0.05

Fishing	Species																	
year	SND	NEX	SMA	NTU	POP	JDO	NMP	SUN	SWA	STU	MAK	PIL	HAP	WAR	RCO	CAR	ELE	SNI
1991	-	-	-	-	9	26	50	2	4	1	1	-	-	323	15	5	-	-
1992	-	-	-	-	66	144	244	4	45	4	-	1	5	112	111	22	-	-
1993	-	-	-	-	59	139	248	3	400	5	-	-	1	338	100	25	-	-
1994	-	-	-	-	28	84	301	1	30	4	2	1	3	221	338	6	-	-
1995	-	-	-	-	39	75	231	19	30	-	5	1	4	-	354	12	-	-
1996	-	-	-	-	19	66	153	1	467	87	11	-	-	6	669	-	-	-
1997	-	-	-	-	21	98	293	2	196	8	6	-	8	461	237	26	-	-
1998	-	-	-	-	93	174	498	1	1 097	34	4	-	41	309	23	45	-	-
1999	1	-	-	-	1	3	17	5	255	303	8	8	7	223	24	-	2	92
2000	-	-	-	-	-	1	52	-	341	38	3	3	15	2 511	22	-	-	-
2001	-	-	-	1	2	7	6	-	109	22	2	1	4	500	2	-	1	-
2002	-	-	-	-	13	7	17	1	271	19	3	7	19	386	6	-	-	-
2003	-	-	-	-	41	40	34	2	248	36	2	33	14	638	8	-	4	-
2004	-	1	-	-	8	11	5	6	6	-	8	34	1	10	6	-	-	-
2005	-	-	1	-	8	30	6	13	2	1	8	15	1	43	4	-	-	-
2006	-	-	-	-	31	33	16	18	458	10	7	31	6	7	5	-	-	-
2007	-	-	-	-	32	50	40	15	62	2	3	9	3	6	1	-	1	-
2008	-	-	-	-	33	28	29	31	30	4	11	53	2	15	-	-	-	-
2009	-	-	-	-	17	28	16	8	6	2	12	11	3	58	1	-	-	-
2010	-	-	-	-	51	42	25	10	148	11	4	17	5	18	1	-	1	-
2011	-	-	-	-	18	21	12	14	61	64	5	-	1	20	6	-	-	-
2012	-	-	-	-	37	36	19	14	125	18	9	53	2	21	6	-	-	-
2013	-	-	-	-	31	35	14	9	141	166	37	60	3	25	27	-	1	-
slope	-0.01	0.00	0.01	0.00	0.02	-0.04	-0.14	0.11	-0.01	0.06	0.13	0.24	0.02	-0.09	-0.23	-0.26	0.05	-0.02

Table 3: Jack mackerel trawl fishery —*continued*

Fishing	Species																	
year	NSD	RDO	BYX	BNS	SKA	CDL	WPS	SPF	TRA	BNE	STG	RBT	RSK	KIN	OCT	SSI	RBM	LDO
1991	2	-	-	1	1	-	-	-	-	-	-	149	1	1	-	-	5	-
1992	39	-	-	-	33	-	-	-	-	-	-	725	13	10	-	-	45	-
1993	-	-	-	1	-	-	-	-	-	-	-	874	27	1	-	-	41	-
1994	6	-	1	-	5	-	-	-	-	-	-	888	4	3	-	1	7	-
1995	-	-	-	-	1	-	-	-	-	-	-	59	15	-	1	5	5	-
1996	-	-	-	-	-	-	-	-	-	-	-	114	-	4	-	2	52	-
1997	-	12	-	1	70	-	-	-	-	-	-	700	-	9	-	7	12	-
1998	-	-	-	-	47	-	-	-	-	-	-	499	-	15	-	6	1	-
1999	-	3	-	1	-	3	-	-	1	-	4	1 031	-	47	-	-	4	9
2000	-	1	-	-	-	-	-	1	-	-	-	1 893	-	1	-	3	15	-
2001	-	-	-	-	1	-	3	-	-	-	-	1 175	-	11	-	-	257	-
2002	-	8	-	-	1	-	-	-	-	-	-	1 437	-	93	-	-	14	2
2003	-	-	-	-	4	-	-	-	-	-	-	1 574	-	9	-	-	39	-
2004	-	-	3	-	-	-	-	-	-	-	-	170	-	12	-	-	6	1
2005	-	-	-	-	-	-	-	-	-	2	-	990	-	71	-	1	43	3
2006	-	-	-	-	-	-	-	-	-	-	-	1 698	1	16	-	1	34	1
2007	-	-	-	-	-	-	1	-	-	-	-	1 574	2	55	-	1	46	-
2008	-	2	-	-	-	-	-	-	-	-	-	2 277	-	56	-	1	12	21
2009	-	65	-	-	-	-	-	-	-	-	-	1 378	1	24	-	-	75	1
2010	-	-	-	-	-	-	-	-	-	-	-	548	1	64	-	-	10	-
2011	-	-	-	-	-	-	-	-	-	-	-	375	1	29	-	-	13	-
2012	-	1	-	-	-	-	-	-	-	-	-	742	1	66	-	1	4	-
2013	-	-	-	-	-	-	-	-	-	-	-	1 041	2	49	-	1	272	-
slope	-0.12	0.05	-0.01	-0.06	-0.18	-0.01	0.01	0.00	-0.01	0.01	-0.01	0.05	-0.05	0.18	-0.02	-0.02	0.05	0.06

Fishing	Species																			
year	RAT	HOK	DEA	GSH	WWA	OPE	CON	BRA	LAN	SPO	HEP	RAY	CUC	SQX	RPI	RSN	ODO	PRO	SPT	
1991	1	4	-	22	-	-	-	1	-	7	-	-	2	-	-	-	-	-	-	
1992	-	5	-	54	-	-	2	3	-	26	1	1	-	-	-	1	3	-	-	
1993	-	9	-	10	-	1	-	3	-	2	-	-	-	-	-	-	-	-	-	
1994	32	121	-	71	-	3	1	-	-	10	-	1	-	-	-	-	-	-	-	
1995	10	68	-	16	-	4	-	-	-	2	-	1	1	-	1	3	-	-	-	
1996	5	214	-	20	-	1	-	-	-	29	-	-	-	-	-	1	-	-	-	
1997	14	102	-	107	-	-	-	-	-	46	-	-	-	-	-	2	-	-	-	
1998	2	55	-	15	-	15	-	2	-	3	-	2	-	-	-	1	-	1	-	
1999	77	7	-	5	-	-	-	-	-	2	-	-	-	-	-	-	-	-	1	
2000	2	7	-	19	-	-	-	3	-	-	-	-	-	-	-	-	1	-	-	
2001	2	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2002	1	18	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	
2003	-	76	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	
2004	-	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2005	2	-	-	2	-	-	-	-	-	-	-	-	-	28	-	-	-	6	-	
2006	-	20	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	
2007	-	3	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	
2008	-	45	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2009	1	18	-	-	-	-	-	-	-	2	-	-	1	-	-	-	-	-	-	
2010	1	4	-	1	-	3	-	-	-	-	-	1	-	-	-	-	-	-	-	
2011	1	-	-	-	-	2	-	-	2	-	-	-	-	-	-	-	-	-	-	
2012	6	6	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2013	1	1	5	3	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	
slope	-0.06	-0.12	0.04	-0.26	0.00	-0.01	-0.05	-0.08	0.03	-0.25	-0.02	-0.05	-0.02	0.02	-0.02	-0.08	-0.04	0.00	-0.01	

Table 4a: Ling longline fishery. Total annual bycatch estimates (t) (with estimated CVs in parentheses) for individual species with at least 0.1 t of bycatch in at least one year, based on observer catch rates. Species are ordered by decreasing total catch. The slope of a regression through the data points is shown in parentheses alongside each species code. See http://marlin.niwa.co.nz for species code definitions). Data from Anderson (2014a).

	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
SPD(0)	480(11)	723(9)	1285(7)	938(16)	1030(20)	1808(12)	855(25)	978(26)	1446(14)	1783(15)	1178(14)	923(12)	1117(9)	1125(8)	714(12)	1204(7)	983(6)	947(18)	526(11)	436(14)
RIB(0)	466(9)	409(7)	383(8)	520(8)	935(7)	205(10)	416(9)	578(10)	397(13)	373(13)	181(11)	354(10)	216(11)	313(8)	90(13)	247(10)	222(12)	422(16)	636(7)	589(6)
SND(0)	97(14)	142(14)	152(14)	132(17)	148(16)	201(14)	156(15)	183(16)	350(13)	306(12)	190(13)	317(13)	267(13)	307(11)	106(23)	122(21)	97(23)	134(24)	270(12)	224(11)
SSK(0)	54(6)	173(30)	171(6)	530(8)	272(16)	132(6)	240(29)	227(6)	355(6)	113(10)	70(16)	130(23)	92(11)	73(7)	72(11)	133(9)	132(13)	126(16)	108(18)	89(16)
SPE(0)	76(7)	144(5)	202(5)	117(7)	137(10)	124(10)	132(11)	159(12)	156(7)	180(7)	76(18)	111(7)	161(9)	149(6)	104(11)	80(7)	81(7)	98(11)	119(7)	90(6)
BNS(-0.1)	755(17)	328(17)	66(26)	64(23)	105(25)	99(23)	63(24)	64(30)	64(33)	41(33)	39(29)	36(32)	53(22)	49(22)	55(20)	60(20)	60(24)	60(22)	66(20)	51(20)
RCO(0)	20(15)	38(18)	30(13)	106(33)	74(7)	137(8)	113(9)	108(8)	182(11)	299(7)	95(18)	91(22)	66(18)	96(13)	57(20)	104(20)	65(11)	37(15)	17(13)	20(11)
SCH(0)	44(18)	112(16)	151(17)	94(14)	133(16)	155(11)	68(14)	61(22)	111(13)	93(12)	72(12)	79(12)	70(12)	67(12)	41(15)	115(11)	89(10)	79(14)	48(12)	47(11)
RSK(0.2)	0.7(0)	0.8(0)	1.2(0)	1.7(61)	61(51)	130(18)	45(53)	45(71)	2.8(36)	98(5)	145(4)	314(9)	41(24)	52(10)	118(6)	149(6)	55(10)	8.7(50)	23(26)	12(29)
CON(-0.1)	299(6)	161(7)	85(10)	118(10)	70(11)	8.5(17)	30(14)	25(17)	68(12)	97(11)	36(17)	20(18)	15(23)	9.2(11)	45(15)	43(10)	22(8)	16(47)	4.8(72)	3.7(47)
HAK(0.2)	3.4(30)	3.7(27)	4.4(32)	5.9(38)	7(35)	6(37)	5.8(35)	4.1(34)	5.2(27)	5(28)	3.7(27)	3.9(36)	4(36)	3.8(38)	6.7(26)	112(34)	199(25)	246(25)	283(24)	251(23)
SKA(-0.4)	196(13)	187(45)	131(14)	82(16)	51(34)	202(10)	38(49)	49(52)	34(20)	65(10)	32(14)	21(31)	5.7(93)	0.4(0)	0.3(0)	0.5(0)	0.3(0)	0.4(0)	0.6(0)	0.4(0)
BCD(0.1)	0(–)	32(75)	12(20)	120(9)	78(10)	49(7)	42(7)	74(7)	44(11)	60(5)	82(5)	103(6)	8.2(17)	5.1(20)	35(9)	69(10)	189(12)	4.1(0)	40(12)	4.7(0)
BSH(0)	25(20)	41(16)	51(16)	65(20)	54(26)	53(21)	48(20)	45(18)	76(16)	73(13)	96(12)	51(16)	58(15)	76(12)	50(18)	36(23)	27(18)	48(13)	36(17)	32(15)
NOT(-0.5)	518(13)	446(32)	53(7)	3(101)	2.5(143)	0(–)	0(–)	0(–)	2.9(34)	7.6(32)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
GSH(-0.1)	47(12)	87(11)	124(14)	125(13)	47(10)	64(8)	16(17)	23(19)	39(9)	55(10)	31(30)	14(10)	80(9)	36(15)	62(18)	30(11)	33(13)	29(19)	9.5(21)	5.5(18)
HCO(0.2)	3.9(0)	5.5(18)	5.6(18)	6.2(16)	5.2(19)	7.2(14)	5.3(19)	6.1(16)	25(19)	16(11)	7(14)	28(20)	19(26)	42(9)	44(21)	74(14)	36(25)	75(30)	179(9)	160(8)
BAS(0)	41(20)	58(21)	51(20)	43(20)	78(20)	75(19)	38(17)	29(17)	34(17)	15(16)	18(18)	17(16)	26(18)	19(14)	18(19)	26(17)	21(24)	30(26)	46(30)	32(27)
DWD(-0.3)	20(52)	24(54)	28(56)	37(77)	58(49)	65(44)	66(37)	52(34)	112(32)	48(31)	34(42)	20(78)	68(25)	33(48)	23(67)	16(90)	0.2(0)	0.4(0)	0(–)	0.4(0)
ETM(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	373(53)	155(18)	59(15)	34(27)	5.7(49)	0.4(0)	6.3(71)	17(50)	22(54)	0(0)	0(0)	0(–)	0(–)	0(–)
GSP(0.2)	13(49)	7.8(97)	0.4(0)	0.3(0)	0.3(0)	0.5(0)	28(76)	30(9)	48(14)	63(9)	46(13)	26(9)	32(11)	19(5)	55(8)	124(6)	83(16)	18(14)	39(9)	34(6)
NSD(0.1)	12(23)	16(23)	14(23)	11(22)	28(21)	17(23)	5.6(25)	3.9(25)	14(37)	12(62)	8(33)	27(50)	52(15)	24(26)	26(37)	63(30)	64(23)	69(25)	83(24)	73(25)
OSD(0.1)	31(10)	33(9)	35(11)	50(11)	2.3(0)	0(–)	1.1(89)	0.2(0)	2.6(39)	23(23)	5.7(18)	24(30)	6.8(64)	23(22)	26(25)	53(15)	69(14)	38(21)	60(23)	55(17)
DWE(-0.1)	9.7(51)	13(53)	16(49)	27(49)	37(41)	107(14)	30(42)	27(39)	17(49)	13(51)	14(48)	15(49)	16(50)	16(48)	29(35)	21(52)	8.3(75)	7.1(76)	8.1(76)	5(80)
CSQ(0.4)	0(–)	0(–)	0(–)	0.1(0)	6.2(23)	13(26)	11(25)	9.7(25)	0(–)	0(–)	0(–)	7(53)	0(–)	0(–)	58(18)	21(31)	16(42)	40(43)	100(20)	89(18)
CAR(0)	6.2(49)	8.7(46)	9.9(50)	16(51)	18(49)	19(43)	15(49)	10(44)	21(27)	19(23)	17(26)	16(29)	29(21)	35(26)	42(27)	15(17)	7(32)	15(41)	25(26)	15(25)
HAP(0)	40(24)	25(19)	13(20)	14(36)	27(24)	30(13)	12(16)	11(20)	18(16)	14(12)	14(27)	11(19)	12(19)	16(16)	16(18)	16(18)	13(15)	11(20)	12(21)	10(20)
HAG(0.1)	7.4(14)	10(14)	8.2(12)	4.4(0)	12(20)	7(20)	4.7(30)	5.7(30)	21(13)	21(9)	17(28)	14(12)	30(12)	7.9(13)	26(12)	20(11)	15(13)	20(24)	27(12)	17(12)
SCO(0.2)	0(–)	27(15)	47(14)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	8.9(91)	0(–)	0(0)	0(0)	0(–)	11(40)	23(24)	23(26)	20(30)	21(29)
RAT(0)	4.8(59)	7.5(35)	3.1(45)	5.6(47)	4.6(54)	6.1(40)	9.8(23)	8.9(16)	16(12)	16(13)	13(17)	12(11)	6.2(28)	7.9(22)	11(19)	7.2(20)	16(12)	2.7(0)	5(0)	2.9(0)
PLS(0.4)	0(–)	0(–)	0(–)	0(–)	4.6(22)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	9.9(44)	2.3(88)	5.9(61)	8.1(63)	0.4(0)	0.8(0)	18(73)	53(37)	26(38)
ETL(0)	0(0)	6.5(15)	12(12)	52(43)	6.1(16)	8.7(11)	2.9(0)	2.3(0)	2.1(0)	3.5(29)	3.3(31)	1.1(0)	4.2(0)	1.4(0)	1.8(0)	1.8(0)	1.9(0)	2.5(0)	5.6(0)	3.7(0)
SFI(0.1)	0.1(0)	0.1(0)	0.2(0)	0.1(0)	0.3(0)	0.7(0)	5.5(26)	3.5(29)	14(52)	22(44)	25(29)	18(21)	0.2(0)	2.5(0)	1.8(56)	0.1(0)	1(0)	0.7(0)	1.6(0)	1.6(0)
RBM(-0.2)	35(16)	14(18)	1.6(0)	2.5(40)	8.7(16)	1.6(0)	7.4(19)	6.7(15)	2.9(0)	3.2(0)	1.5(0)	1.4(0)	1(0)	2.1(0)	0.4(0)	0.2(0)	0.5(0)	0.6(0)	0.6(0)	0.4(0)

Table 4a: Ling longline fishery .—*continued*

	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
ETB(0.3)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.2(0)	48(19)	1.2(115)	15(42)	0(0)	0(–)	0(–)	4.4(68)	0.7(0)	0.8(0)	1.7(0)	4.3(33)
POS(-0.1)	3(68)	4.3(70)	3.6(67)	4(56)	6.3(58)	6(53)	3.4(42)	5.5(41)	4.6(38)	2.9(35)	3.6(28)	1.7(0)	1.5(66)	0.4(0)	1.3(0)	1.1(0)	2(51)	1.3(76)	1.5(0)	0.7(0)
CHI(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	19(60)	0(–)	0.6(0)	9.6(39)	12(39)	1.5(66)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	2.3(99)	0(–)
SKI(0)	2.1(0)	2.9(34)	2.9(34)	3.2(31)	4.6(31)	4(36)	2.3(43)	1.6(0)	2.3(44)	1.4(0)	1.5(0)	1.5(0)	2(0)	1.7(0)	1.7(0)	1.6(0)	1.6(0)	1.7(0)	2(0)	1.8(0)
BWS(-0.1)	2.4(60)	1.5(66)	1(140)	2.7(91)	4.2(63)	3.2(76)	5.1(44)	4.2(41)	3.4(42)	2.2(46)	1.6(90)	1.3(76)	2.2(64)	1.7(85)	1.8(80)	2(71)	0.9(0)	0.9(0)	1.1(0)	0.8(0)
HPB(-0.1)	1.8(0)	5.7(25)	6.3(22)	4.9(54)	4.1(24)	3(34)	0.1(0)	0.2(0)	0.2(0)	0.6(0)	0(0)	0.2(0)	0.9(108)	2.5(69)	5.7(43)	4.8(36)	0.4(0)	0.2(0)	0.3(0)	0.2(0)
SSH(0.2)	0.2(0)	0.2(0)	0.2(0)	0.2(0)	0.2(0)	0.3(0)	0.2(0)	0.2(0)	0.4(0)	0.3(0)	0.6(0)	0.2(0)	0.3(0)	0.2(0)	0.3(0)	3.2(55)	5.4(56)	5.7(56)	5.7(58)	5.7(58)
HEX(0.2)	0(–)	0(–)	0(–)	0(–)	0(0)	0.1(0)	0(–)	0(–)	1.7(0)	2.5(40)	0.7(0)	0.5(0)	15(16)	0.2(0)	0(–)	1.5(0)	3.7(38)	2.7(52)	0.1(0)	0.1(0)
CHP(0.1)	6.7(74)	3(121)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(0)	0(–)	0(–)	0(–)	0(–)	0(–)	14(77)	0.3(0)	3.1(73)	0.3(0)
CSH(0.4)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.6(182)	0.7(0)	0.5(0)	0.6(0)	0.1(0)	0(–)	1.5(115)	3.4(66)	4.8(55)	4.8(55)	4.9(57)	4.8(72)
HOK(0.2)	0.5(0)	0.2(0)	0(0)	0(0)	0.1(0)	0.2(0)	0.2(0)	0.2(0)	0.2(0)	0.2(0)	0.1(0)	0.8(0)	0.5(0)	0.5(0)	0.6(0)	1.2(0)	3.5(41)	5.3(54)	7.4(48)	4.6(44)
SCM(-0.1)	0(–)	0(–)	0(–)	0(–)	0.1(0)	0(–)	0.5(0)	20(22)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
MAK(-0.1)	1.3(78)	1.1(92)	1.1(95)	1.7(118)	1.9(108)	1.7(118)	1.5(117)	1(101)	1.1(124)	1(105)	1.4(74)	1.2(87)	1.2(85)	1.1(92)	1(98)	0(–)	0(–)	0.2(0)	0.7(143)	0.4(0)
CYO(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	16(77)	0(–)	0(–)	0(–)	0(–)	0(0)	0(–)	0(0)	0(–)	0(–)	0(–)	0(0)	0(0)	0.1(0)
SEV(-0.1)	0.4(0)	0.5(0)	0.7(0)	1.1(93)	1.3(108)	1.1(88)	1(99)	0.8(127)	1.5(66)	1.6(65)	1.1(92)	1.2(82)	0.9(118)	0.6(0)	0.7(152)	0.2(0)	0.2(0)	0.2(0)	0.2(0)	0.2(0)
BYS(0.2)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	0.2(0)	0.2(0)	0.1(0)	0.1(0)	0.1(0)	1.1(0)	1.5(0)	2.2(47)	1.5(0)	1.7(0)	2.4(42)	1.7(0)
ANT(-0.1)	0(–)	0(–)	0(–)	0(–)	0.3(0)	0.5(0)	0.5(0)	0.4(0)	0.5(0)	2.5(0)	3.8(0)	4(25)	0(0)	0.2(0)	0(0)	0(–)	0(0)	0(–)	0(0)	0(–)
UNI(0.2)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.1(0)	0.8(0)	1.5(0)	0.2(0)	1.4(74)	0.9(0)	1.6(0)	0(–)	3.5(41)	2(72)	0(–)	0(–)
CHG(0.2)	0(0)	0(0)	0(0)	0(0)	0(0)	0.1(0)	0.3(0)	0(0)	0.1(0)	0.9(0)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	1.2(0)	2.4(43)	4.7(70)	0.1(0)	1(0)	0.1(0)
DSK(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.2(0)	3(0)	4.1(0)	3.7(27)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
TAR(0)	0.6(0)	0.7(0)	0.6(0)	0.5(0)	0.9(0)	0.7(0)	0.3(0)	0.2(0)	0.4(0)	0.1(0)	0.2(0)	0.1(0)	0.2(0)	0.3(0)	0.5(0)	0.7(0)	0.5(0)	0.5(0)	0.8(0)	0.6(0)
CYP(0)	0(–)	0(–)	0(–)	0(–)	0.3(0)	0.6(0)	0.5(0)	0.4(0)	0.1(0)	0(–)	0(–)	0.3(0)	0(–)	0(–)	0(–)	5.9(61)	1.1(0)	0(–)	0(–)	0(–)
JAV(0.2)	0(0)	0(0)	0(0)	0(0)	0.2(0)	0.3(0)	0.3(0)	0.4(0)	0.7(0)	1(0)	0.3(0)	0.2(0)	0.8(0)	0.4(0)	0.4(0)	0.2(0)	0.3(0)	0.4(0)	0.8(0)	0.7(0)
ASR(0.1)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	1(144)	1.1(130)	1.6(86)	0(–)	0(–)	0.1(0)	0.4(0)	0.5(0)	0(–)	1.2(0)	0.8(0)	0(–)	0(0)
OFH(0.2)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	0.3(0)	0.3(0)	0.2(0)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	0.5(0)	0.5(0)	0.8(122)	0.6(0)	0.6(0)	0.9(108)	0.7(0)
SQA(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	5.4(19)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
SPO(0)	0(–)	0(–)	0(–)	0(–)	4.2(106)	0(0)	0(0)	0(0)	0.2(0)	0.4(0)	0(–)	0.2(0)	0(0)	0.1(0)	0.1(0)	0(0)	0(–)	0(–)	0(–)	0(–)
BCO(0)	0(–)	0(0)	0(0)	1.3(113)	0.8(122)	0.3(0)	0(–)	0.1(0)	0(–)	0(–)	0.5(204)	0(0)	0.1(0)	0.1(0)	0.4(0)	0.5(0)	0(0)	0(0)	0(0)	0(0)
STA(-0.1)	0(0)	0.1(0)	0(0)	0.1(0)	0.1(0)	0.2(0)	0.2(0)	0.1(0)	0.2(0)	1.2(0)	0.4(0)	0.6(0)	0.2(0)	0.5(0)	0(0)	0.1(0)	0(0)	0(0)	0(–)	0(–)
EEL(-0.2)	0.2(0)	0.3(0)	0.2(0)	0.2(0)	0.3(0)	0.3(0)	0.1(0)	0.1(0)	1.7(0)	0.1(0)	0.1(0)	0.3(0)	0.2(0)	0(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
CEN(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	1.4(69)	2.4(60)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
COU(-0.2)	0.2(0)	0.3(0)	0.3(0)	0.2(0)	0.2(0)	0.3(0)	0.2(0)	0.3(0)	0.5(0)	0.4(0)	0.3(0)	0.3(0)	0(0)	0(0)	0(0)	0(–)	0(–)	0(–)	0(–)	0(–)
BRC(0.2)	0(–)	0(–)	0(–)	0(–)	0(0)	0.1(0)	0.1(0)	0.1(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0.1(0)	0.9(0)	0.7(0)	0.5(0)	0.3(0)	0.5(0)	0.3(0)
WWA(0)	1.8(56)	0.7(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(0)	0(–)	0.1(0)	0.2(0)	0.3(0)	0.3(0)	0.2(0)
HEP(0.2)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(0)	0(0)	0.2(0)	0(–)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	0.7(154)	1.3(107)	0.7(0)
TOA(0.1)	0(–)	0(–)	0(–)	0(0)	0(–)	0(–)	0.6(0)	0.4(0)	0.5(0)	0.4(0)	0.2(0)	0.2(0)	0.1(0)	0.1(0)	0(–)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	0.1(0)
PTO(0)	0(–)	0(–)	0(–)	0(–)	0(0)	0(0)	0.8(132)	0(–)	0(–)	0(–)	0(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	2(101)	0(0)

Table 4a: Ling longline fishery .—*continued*

	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
DCS(0.1)	0(–)	0.1(0)	0.1(0)	0(–)	0(0)	0(–)	0(–)	0(–)	0(0)	0(0)	0(0)	0(–)	1(0)	0(0)	0(–)	0.3(0)	0.1(0)	0(0)	0.8(0)	0.2(0)
CRB(0)	0(–)	0(–)	0(–)	0(–)	0(0)	0(0)	0(0)	0(0)	0.2(0)	0.4(0)	0.6(0)	1.2(0)	0(0)	0.1(0)	0(0)	0(–)	0(–)	0(–)	0(–)	0(0)
AST(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	1.1(0)	0.9(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.2(0)	0.1(0)	0(0)	0(0)	0(0)	0(0)
THR(-0.1)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	0.1(0)	0.2(0)	0.2(0)	0.1(0)	0.2(0)	0.2(0)	0.2(0)	0(–)	0.3(0)	0(–)	0(–)	0(–)	0(–)
SHA(0.2)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.2(0)	0.2(0)	0.1(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0.3(0)	0.3(0)	0.1(0)	0.8(0)
HYD(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(0)	0.5(0)	0.7(0)	0.2(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
SOT(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	1.5(0)	0(–)	0(–)	0(–)	0(0)	0(–)
SBR(0)	0(–)	0(–)	0(–)	0(–)	0(0)	0(–)	0(–)	0(–)	0(–)	0(0)	0.3(0)	0.5(0)	0.5(0)	0(0)	0(0)	0(–)	0(–)	0(–)	0(–)	0(–)
APR(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.4(0)	0.6(0)	0.1(0)	0.1(0)	0(0)	0(–)	0.1(0)	0.1(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
BYX(-0.1)	0.8(0)	0.3(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(0)	0(0)	0(–)	0(–)
ONG(0.1)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(0)	0(–)	0(0)	0.3(0)	0.4(0)	0.3(0)	0(–)	0(–)	0(–)	0(–)	0(0)	0(0)	0(0)	0(0)
FHD(0)	0(–)	0(0)	0(0)	0(–)	0(0)	0(0)	0(0)	0(0)	0.2(0)	0.2(0)	0.1(0)	0(0)	0.2(0)	0(0)	0.1(0)	0(–)	0(–)	0(–)	0(0)	0(0)
HYB(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.3(0)	0.4(0)	0(–)	0.2(0)	0.1(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
ELT(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(0)	0.1(0)	0(0)	0(–)	0(–)	0(–)	0(–)	0.7(0)	0(–)	0(–)	0(–)	0(–)
OCT(0)	0.1(0)	0(0)	0(–)	0(0)	0(0)	0(–)	0(–)	0(0)	0.1(0)	0.1(0)	0(0)	0.1(0)	0(0)	0.1(0)	0.2(0)	0(0)	0(–)	0(–)	0(–)	0(–)
PSK(0.1)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.1(0)	0.2(0)	0.1(0)	0.1(0)	0(0)	0(–)	0.1(0)	0(0)	0(0)	0.1(0)	0.1(0)
ETP(0.1)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.4(0)	0.3(0)	0(–)	0(–)
GSC(0)	0(–)	0(–)	0(–)	0.2(0)	0.1(0)	0(0)	0(–)	0(–)	0(0)	0(0)	0(0)	0(–)	0(–)	0(–)	0(0)	0.1(0)	0.1(0)	0(–)	0(0)	0(–)
SPI(0)	0(–)	0(0)	0(0)	0(–)	0(–)	0(–)	0(0)	0(–)	0(0)	0.6(0)	0.1(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
TOP(0)	0(–)	0(–)	0(–)	0(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0.4(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.1(0)	0.1(0)
BTH(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.3(0)	0.2(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
PNE(0.1)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.5(0)	0(0)	0(0)	0(–)	0(–)
PSI(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.5(0)	0(–)	0(–)	0(–)	0(–)
PKN(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.5(0)	0(–)	0(–)	0(–)	0(–)
BSP(-0.1)	0(–)	0(–)	0(–)	0.1(0)	0.2(0)	0(–)	0.1(0)	0.1(0)	0(–)	0(–)	0(–)	0(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
SNR(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.1(0)	0(0)	0.4(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
GAS(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(0)	0(0)	0.2(0)	0(–)	0.1(0)	0(–)	0(–)	0(0)	0(0)	0(0)	0(0)
TRU(0)	0.1(0)	0.1(0)	0(–)	0(–)	0(–)	0(–)	0(0)	0(–)	0(0)	0(–)	0.2(707)	0(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
MOL(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.2(0)	0(–)	0(–)	0(–)	0.1(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
ODO(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.3(0)	0(–)	0(–)	0(–)	0(–)
ECN(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.2(0)	0(–)	0(–)	0(–)	0(–)	0.1(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(0)
HMT(0.1)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.2(0)	0(–)	0.1(0)	0(0)
ACS(0.1)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.1(0)	0.1(0)	0.1(0)
ECH(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.2(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
ROC(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.1(0)	0(0)	0(0)	0.1(0)	0(–)	0(–)	0(–)	0(–)	0(–)
TOD(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.1(0)	0.1(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)
LCH(0)	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(–)	0(–)

Table 4a: Ling longline fishery .—*continued*

	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
MOD[(0)]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.1(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(0)	0(–)	0(–)	0.1(0)	0(–)
DMG[(0.1)]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.1(0)	0(–)	0(–)	0(0)	0(0)
QSC[(0)]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(0)	0.1(0)	0.1(0)	0(–)	0(–)	0(–)	0(–)	0(0)	0(–)	0(–)	0(–)
CPA[(0.1)]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.1(0)	0.1(0)
MSL[(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(–)
WHE[(0)]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.1(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0.1(0)	0(–)	0(–)	0(0)	0(0)	0(0)
WIT[(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(–)
MOR[(0)]	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)	0(0)	0.1(0)	0(–)	0(–)	0(–)	0(–)	0(–)	0(–)

Table 4b: Ling longline fishery. Total annual bycatch estimates (t) for individual species with at least 1 t of bycatch in at least one year, based on observer catch rates, for the 2012–13 fishing year; - 1 t. (see http://marlin.niwa.co.nz for species code definitions).

Fishing	Species																		
year	RIB	SCH	ETB	CSQ	ASR	HPB	POS	SHA	COU	GSC	CHI	GAS	PSI	CHG	CHP	PSK	BYS	CYP
2013	1	81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Fishing	Species																	
year	THR	PKN	PNE	APR	CEN	ETP	SNR	SPD	SPE	SSK	BSH	SND	JAV	HAK	TOA	BWS	BCO	SSH
2013	-	-	-	-	-	-	-	4 562	423	220	4	-	1	2	-	-	-	-

Fishing	Species																	
year	CSH	GIZ	ROC	PTO	CPA	ZOR	ECN	SEV	RSO	SCO	SEE	DWE	BSP	SCM	BTH	GSP	HCO	CAR
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3

Fishing	Species																	
year	HAG	PLS	BNS	HAP	HEX	NSD	RCO	NMP	SBR	ANT	BCD	MOD	TOP	HMT	DMG	SOT	BYX	OFH
2013	91	-	-	3	2	6	621	-	-	-	-	-	-	-	14	-	-	-

Fishing	Species																	
year	SKA	MAK	DSK	SPI	HYD	SQA	GSH	RAT	ETL	RSK	BAS	ONG	CYO	ETM	CRB	HOK	OCT	AST
2013	-	-	-	-	-	-	67	-	1	-	-	-	-	-	-	-	-	-

Fishing	Species												
year	RBM	CON	BRC	SPO	DCS	WWA	HEP	ODO	ELT	NOT	HYB	EEL	ECH
2013	-	154	-	-	-	-	-	-	-	-	-	-	-

Table 5: Orange roughy trawl fishery. Total annual bycatch estimates (t) for individual species with at least 1 t of bycatch in at least one year, based on observer catch rates; - means less than 1 t. The slope of a regression through the data points is shown after fishing year (see http://marlin.niwa.co.nz for species code definitions).

Fishing	Species																	
year	ETB	APR	ORH	RIB	SOR	CYP	BYS	RSC	LEG	EPL	CSQ	PAB	WOE	SRH	HTH	GSQ	PSQ	BOE
1991	233	-	56 050	164	78	-	-	-	1	4	-	-	-	-	-	-	-	2 476
1992	83	-	44 679	129	142	-	-	-	1	2	-	-	5	-	-	-	-	8 734
1993	-	-	25 878	484	297	1	2	-	-	-	4	-	1	-	-	1	-	2 134
1994	24	1	31 646	79	421	13	297	-	4	4	4	-	14	-	-	-	-	4 938
1995	56	3	36 989	60	168	5	101	-	1	33	25	-	10	-	-	-	-	2 055
1996	-	-	44 037	60	32	-	-	-	-	4	6	-	-	-	-	-	-	1 628
1997	123	1	18 044	49	42	5	19	-	-	1	5	-	7	-	-	-	-	3 879
1998	32	-	27 040	73	218	-	3	-	1	-	-	-	-	-	-	-	-	3 361
1999	9	1	22 539	115	747	2	91	-	3	-	-	-	7	10	1	-	-	380
2000	1	-	11 507	40	69	2	118	-	1	-	-	-	11	-	-	1	-	615
2001	-	-	14 211	43	49	-	97	2	2	-	-	-	4	-	-	-	-	948
2002	56	-	23 287	62	42	6	4	1	3	-	-	-	10	-	-	1	-	439
2003	-	-	23 561	33	49	-	164	-	1	2	-	-	2	1	-	-	-	621
2004	196	-	13 589	22	41	4	35	-	2	19	-	-	1	-	-	-	-	707
2005	43	-	28 922	42	33	16	22	-	1	-	2	3	-	-	-	1	-	855
2006	57	7	26 439	95	12	85	5	1	1	-	8	-	1	-	4	-	-	474
2007	76	3	24 074	53	12	53	6	-	-	-	13	2	4	-	2	-	-	86
2008	82	2	14 353	26	16	57	7	-	-	-	1	-	2	-	3	-	-	231
2009	112	1	12 467	38	33	30	16	-	-	1	6	1	2	-	1	-	-	368
2010	73	3	11 041	54	36	12	35	-	1	1	7	-	3	-	3	1	1	395
2011	31	-	7 200	78	45	4	10	-	-	-	6	-	1	-	-	-	-	66
2012	32	-	5 723	28	34	4	70	-	-	1	6	-	-	-	-	1	-	40
2013	20	-	5 320	34	49	2	4	-	1	-	8	-	1	-	-	-	-	60
slope	0.08	0.03	-0.08	-0.06	-0.10	0.18	0.10	0.01	-0.05	-0.10	0.11	0.04	-0.03	-0.01	0.09	0.02	0.02	-0.19

Fishing	Species																	
year	EPR	WSQ	COU	SHA	SBK	TSQ	CHP	SQU	GLS	GDU	CHI	ACS	CHG	BBE	PSK	SBI	KIC	PSY
1991	-	2	-	531	2	-	-	-	-	-	-	-	-	-	-	54	-	-
1992	-	1	-	233	-	-	-	1	-	-	-	-	-	1	-	-	-	-
1993	-	1	-	294	-	-	-	-	-	-	-	-	-	-	-	8	-	-
1994	-	8	-	208	-	-	1	3	-	-	-	-	-	-	-	1	-	-
1995	-	11	2	381	-	-	1	3	-	-	-	-	1	-	-	-	-	-
1996	-	7	-	304	-	-	-	1	-	-	1	-	-	-	-	3	-	-
1997	-	31	11	353	-	-	-	2	-	-	22	-	-	-	-	-	-	-
1998	-	24	431	255	-	-	-	4	-	-	-	-	-	1	-	-	-	-
1999	-	16	340	422	-	-	-	-	-	-	21	-	2	-	-	2	-	-
2000	-	14	265	176	-	-	-	2	-	-	2	-	-	-	-	3	-	-
2001	-	42	501	118	-	-	-	1	-	-	1	-	-	7	-	1	-	-
2002	-	15	58	115	-	-	2	2	-	-	1	-	1	-	1	1	-	-
2003	22	20	52	82	-	-	-	1	-	-	2	-	-	-	-	1	-	-
2004	1	24	334	71	-	-	1	1	-	-	1	-	-	-	-	3	-	-
2005	3	168	107	211	-	-	1	-	-	-	2	-	2	-	1	-	1	-
2006	-	79	24	104	-	-	-	-	-	1	2	2	-	-	-	-	2	-
2007	-	50	1	72	-	-	-	1	-	28	1	1	2	-	1	-	1	1
2008	-	22	2	98	-	-	-	-	1	16	1	1	-	-	3	-	-	-
2009	-	42	-	138	-	1	-	-	2	11	1	1	-	-	1	-	-	1
2010	1	15	-	140	-	1	1	-	-	-	1	1	-	-	5	-	2	-
2011	-	2	-	31	-	-	1	-	-	5	1	-	-	-	-	-	-	-
2012	-	2	1	14	-	-	-	-	-	-	1	-	-	-	-	1	-	-
2013	-	2	-	5	-	-	-	-	-	3	-	-	-	-	-	-	-	-
slope	0.04	0.05	-0.01	-0.13	-0.03	0.03	0.02	-0.11	0.03	0.17	0.07	0.07	0.00	-0.04	0.08	-0.13	0.05	0.03

Table 5: Orange roughy trawl fishery. —*continued*

Fishing																			Species
year	BEL	OPH	LSK	ASR	SCH	HYP	IBR	CBB	SNR	OSK	WHR	COR	RHY	ETP	GSC	SYN	SDL	ZAS	
1991	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	
1992	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	
1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1994	-	-	-	-	-	-	-	-	-	-	1	-	-	6	-	-	-	-	
1995	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	1	-	-	
1996	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1998	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	
1999	2	20	-	25	-	-	-	-	5	-	-	-	1	-	-	-	-	-	
2000	1	-	-	65	-	-	-	-	2	-	-	-	2	5	-	-	-	-	
2001	-	-	-	3	-	-	-	-	-	-	61	-	-	-	1	-	-	-	
2002	-	-	-	5	-	-	-	-	15	-	10	25	-	1	-	-	-	-	
2003	1	-	-	5	-	2	-	100	24	-	-	-	-	-	-	3	-	-	
2004	-	-	-	-	-	-	-	34	4	-	12	-	-	-	-	-	-	-	
2005	-	-	-	-	-	-	-	-	2	-	-	14	-	-	-	1	-	-	
2006	-	-	-	-	-	-	2	-	-	1	-	-	-	-	-	-	1	-	
2007	-	-	-	1	-	-	2	42	-	-	-	-	-	-	-	-	-	-	
2008	-	-	-	-	-	-	-	26	-	-	-	-	-	-	-	-	-	-	
2009	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	
2010	-	-	-	2	-	-	-	-	-	1	4	-	4	-	-	-	-	-	
2011	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	
2012	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2	
2013	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	
slope	-0.01	-0.02	-0.02	0.00	0.03	0.00	0.06	0.08	-0.02	0.04	-0.04	0.01	0.07	-0.04	0.00	-0.03	0.01	0.03	

Fishing																			Species
year	BSQ	OEO	SOM	BYX	EUC	BAC	MUR	DEQ	CEN	PSL	BWH	BSK	JMA	PIN	EMO	CRS	SIA	TAM	
1991	-	82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1992	-	12	-	235	-	-	-	-	-	-	-	-	2	-	-	-	-	-	
1993	1	4	-	134	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1994	-	215	-	119	1	1	-	-	4	-	-	-	-	-	-	-	-	-	
1995	-	-	-	24	-	1	-	1	1	-	-	-	-	-	-	-	-	-	
1996	1	5	-	7	-	-	5	-	-	-	-	-	-	-	-	-	-	-	
1997	-	1	-	22	-	-	-	-	-	2	-	-	-	-	-	-	-	-	
1998	-	8	-	269	-	-	-	-	-	-	-	1	-	-	-	1	-	-	
1999	-	-	-	27	-	-	-	-	-	-	-	21	-	-	-	-	-	-	
2000	-	-	-	2	-	-	-	-	-	-	-	-	-	1	1	-	-	-	
2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2002	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	
2003	-	-	1	2	-	-	-	-	-	-	3	-	2	-	-	-	-	-	
2004	-	-	-	4	-	-	-	-	-	-	-	8	-	-	-	-	-	-	
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2006	-	1	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	2	
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
2008	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	9	1	
2009	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	
2010	-	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	1	
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	
2012	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2013	-	12	-	6	-	-	-	-	-	-	-	-	-	-	-	-	1	-	
slope	-0.03	-0.13	0.02	-0.23	-0.02	-0.03	-0.02	-0.02	-0.04	-0.02	0.00	-0.02	-0.03	0.00	0.00	-0.01	0.15	0.06	

Table 5: Orange roughy trawl fishery. —*continued*

Fishing	Species																	
year	SND	BRG	NEB	WIT	SLK	BSH	COB	SPE	HAK	SCM	JAV	TOA	RUD	ROC	HGB	LIN	ERO	SBO
1991	73	-	-	-	10	16	-	2	113	-	8	-	-	-	-	4	-	-
1992	31	-	-	-	2	162	-	-	2	-	-	-	-	-	-	2	-	-
1993	32	-	-	-	7	86	-	1	-	-	1	-	-	-	-	-	-	-
1994	28	-	-	-	115	101	-	4	20	-	11	-	1	-	-	5	-	-
1995	34	-	-	-	48	193	-	1	2	1	3	-	-	-	-	-	-	-
1996	4	-	-	-	29	48	-	-	18	-	61	-	1	-	-	-	-	-
1997	22	-	-	-	152	94	-	4	22	-	4	-	4	-	-	-	-	-
1998	26	-	-	-	75	107	-	1	44	-	49	-	4	-	-	2	-	-
1999	82	-	-	-	90	282	-	12	19	-	54	4	5	1	-	2	-	-
2000	63	-	-	-	151	210	-	3	27	12	16	1	3	-	-	2	-	-
2001	89	-	-	-	397	432	-	2	143	7	23	-	1	-	-	11	-	-
2002	106	-	-	-	411	155	-	6	25	1	96	1	-	-	-	2	-	1
2003	111	-	-	-	50	174	3	-	15	-	39	1	-	-	-	2	-	-
2004	79	-	-	-	64	98	-	-	25	4	5	1	1	2	-	1	-	3
2005	80	-	-	-	78	32	1	1	7	7	56	-	-	-	-	1	-	-
2006	234	5	-	1	106	37	-	1	10	1	23	3	1	6	1	1	-	-
2007	175	1	4	-	54	39	-	-	9	-	33	1	-	1	-	1	-	-
2008	145	1	2	1	92	50	-	-	8	-	31	1	-	-	-	-	-	-
2009	66	1	2	-	79	50	-	-	9	-	9	1	-	-	-	-	5	-
2010	127	1	2	2	155	16	-	2	8	2	8	4	1	-	-	-	1	-
2011	32	-	-	-	15	20	-	2	4	3	2	-	-	-	-	-	-	-
2012	32	1	-	-	24	9	-	-	2	-	13	-	-	-	-	1	-	-
2013	10	-	-	-	10	8	-	-	2	-	-	-	-	-	-	-	-	-
slope	0.04	0.10	0.08	0.05	0.04	-0.09	0.01	-0.08	-0.03	0.05	0.01	0.08	-0.05	0.03	0.01	-0.07	0.04	0.01

Fishing	Species																	
year	SSK	GIZ	MIQ	SCO	SWO	LAE	JFI	SPD	CSH	DWE	ECN	LMU	TRS	SAF	BTH	COD	FRO	MDO
1991	-	1	10	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1992	-	-	-	-	5	1	-	13	-	-	-	-	-	-	-	-	3	-
1993	-	-	1	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-
1994	-	-	4	-	-	-	-	145	1	20	-	-	-	-	-	1	-	-
1995	3	-	7	-	-	-	-	-	2	1	-	-	1	-	-	-	-	-
1996	1	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	10
1997	2	-	-	-	-	-	-	1	-	8	-	-	-	-	-	-	-	-
1998	3	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-
1999	-	1	-	-	-	-	1	-	-	1	4	-	-	-	-	-	-	-
2000	-	-	-	-	-	1	-	21	1	1	1	-	-	-	-	1	-	-
2001	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
2002	3	1	-	-	-	-	-	-	-	8	2	-	-	-	-	-	-	-
2003	-	-	-	-	-	-	1	-	-	-	4	-	-	-	-	-	-	-
2004	2	-	-	-	-	-	-	1	-	4	-	-	-	4	-	-	-	-
2005	1	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-
2006	2	-	-	1	-	-	1	-	-	-	-	1	-	-	4	-	-	-
2007	1	-	-	-	-	-	-	-	-	2	-	-	-	-	1	2	-	-
2008	-	-	3	-	-	-	3	-	1	1	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
2011	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
slope	-0.03	-0.03	-0.09	0.01	-0.04	-0.03	0.02	-0.19	-0.04	-0.06	0.00	0.01	-0.02	0.01	0.04	0.01	-0.03	-0.03

Table 5: Orange roughy trawl fishery. —*continued*

Fishing	Species																	
year	SNA	LUC	SUR	SWR	PLS	BEE	PHO	CHX	LCH	CDL	DSK	VSQ	GSP	MOD	HYA	CBD	MST	SMC
1991	-	-	-	-	-	106	-	-	21	103	-	-	10	-	-	-	-	-
1992	-	-	-	-	6	25	-	-	2	208	-	-	-	-	-	-	-	-
1993	2	-	-	-	21	11	-	-	6	806	-	-	1	-	-	-	-	1
1994	-	-	-	-	45	50	-	-	8	3 203	1	-	2	17	-	-	-	1
1995	-	-	-	-	8	130	-	-	6	322	-	-	1	15	-	-	-	6
1996	-	-	-	-	4	19	1	-	8	2 067	-	-	-	1	-	-	-	-
1997	1	-	-	-	11	29	-	-	13	2 400	-	-	-	45	-	-	-	-
1998	-	5	-	-	-	25	-	-	32	845	-	-	-	8	-	-	-	-
1999	-	1	-	2	2	29	-	-	9	340	-	-	1	10	-	-	-	-
2000	-	-	-	3	-	18	-	-	36	1 034	-	-	9	15	-	-	-	1
2001	-	-	2	-	-	30	-	1	62	190	1	-	17	40	-	-	-	25
2002	-	-	-	-	-	44	-	1	108	84	1	-	18	116	-	-	-	-
2003	-	-	-	-	-	37	-	-	17	177	-	-	7	15	-	-	-	-
2004	-	-	-	-	7	47	-	-	25	54	-	-	4	63	-	-	-	-
2005	-	-	-	-	2	62	-	-	14	86	1	-	10	110	-	-	-	-
2006	-	-	-	-	5	34	-	-	56	91	-	-	6	42	-	3	-	-
2007	-	-	-	-	1	35	-	-	14	31	1	-	6	146	1	-	2	-
2008	-	-	-	-	8	25	-	-	32	24	-	-	7	20	1	-	-	-
2009	-	-	-	-	17	26	-	-	25	94	-	-	5	60	-	-	-	-
2010	-	-	-	-	7	27	-	-	39	26	2	1	12	154	-	-	1	-
2011	-	-	-	-	2	3	-	-	7	55	-	1	3	8	-	-	-	-
2012	-	-	-	-	8	4	-	-	4	10	-	-	2	5	-	-	-	1
2013	-	-	-	-	3	2	-	-	1	7	-	-	1	2	-	-	-	1
slope	-0.04	-0.02	0.00	-0.02	0.03	-0.08	-0.01	0.00	0.01	-0.20	0.02	0.04	0.11	0.18	0.02	0.01	0.03	-0.03

Fishing	Species																	
year	HCO	SSM	TOP	BNS	PDG	SVA	FRS	RCH	MOC	CSU	SWA	OFH	SBR	SQA	ANT	GOU	SUN	SPI
1991	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1992	-	-	-	144	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1993	-	1	-	26	1	-	1	1	-	-	-	-	-	-	-	-	-	-
1994	-	-	-	4	2	-	-	2	-	-	2	-	1	-	-	-	-	-
1995	1	-	-	2	-	-	-	-	-	-	-	2	2	-	-	-	-	-
1996	-	-	-	1	1	-	-	2	-	-	-	-	-	-	-	-	-	-
1997	-	-	-	34	-	-	-	-	-	-	1	-	-	-	-	-	-	1
1998	-	-	-	6	-	-	-	1	-	-	-	-	-	-	-	-	-	-
1999	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	1
2000	-	-	-	10	1	-	1	6	-	-	-	4	-	-	-	-	-	1
2001	-	-	1	3	-	-	-	-	-	1	-	-	-	-	-	-	-	2
2002	-	-	-	4	-	-	-	-	-	-	-	1	-	-	-	-	-	1
2003	-	-	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
2004	-	4	-	9	-	-	-	-	-	-	-	1	-	-	1	-	-	-
2005	1	-	-	5	-	-	-	1	-	-	-	-	1	1	1	-	-	-
2006	-	-	1	-	-	-	-	-	-	-	-	-	-	7	4	-	1	-
2007	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	1	-	4	-	1	5	6	-	-	-	-	-	-	-	-
2010	-	-	-	1	-	1	-	2	2	-	-	-	-	-	1	-	-	-
2011	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-
2013	-	1	-	-	-	-	-	1	-	-	-	1	-	-	-	2	-	-
slope	-0.01	-0.03	0.01	-0.18	-0.06	0.06	-0.05	0.05	0.07	0.03	-0.04	0.02	-0.03	0.02	0.04	0.03	0.01	-0.03

Table 5: Orange roughy trawl fishery. —*continued*

Fishing																	Species		
year	BAT	MOR	SRI	SNO	CAR	SKA	SHE	SAR	WAR	MAK	SLC	WPS	RAT	HJO	ONG	SSO	RAG	CON	
1991	-	-	-	-	-	1	-	-	-	13	-	-	91	51	-	12 289	-	1	
1992	-	-	-	-	2	-	-	-	-	-	-	-	23	6	-	10 916	-	-	
1993	-	-	-	-	-	-	-	-	-	-	-	-	34	9	-	2 886	-	-	
1994	-	-	-	-	-	-	-	-	-	-	-	-	70	10	-	9 432	-	-	
1995	-	-	-	-	-	-	-	-	-	-	-	-	107	33	-	11 753	-	-	
1996	-	-	-	-	-	-	-	-	-	-	-	-	45	10	-	7 480	-	3	
1997	-	-	-	-	-	4	-	-	-	-	7	-	173	1	-	7 956	-	-	
1998	-	1	-	-	-	3	-	-	-	-	-	-	211	14	-	10 142	-	-	
1999	-	-	-	-	-	10	-	-	-	-	-	-	298	-	-	3 042	-	-	
2000	-	-	-	-	-	1	6	-	-	-	-	-	181	14	5	2 133	-	1	
2001	-	-	-	-	-	1	12	-	2	-	-	-	131	8	-	4 587	-	2	
2002	-	-	8	-	-	8	-	-	-	-	-	-	198	46	1	1 813	-	-	
2003	-	-	-	-	-	2	1	-	-	-	-	-	100	17	1	2 187	-	-	
2004	1	-	-	-	-	-	-	1	-	-	-	6	122	20	1	3 631	1	-	
2005	-	1	-	-	1	-	-	-	-	-	-	-	85	22	1	3 477	1	-	
2006	-	-	1	-	-	-	-	-	-	-	-	-	387	158	1	1 485	1	1	
2007	-	-	-	-	-	-	-	-	-	-	-	-	164	6	-	892	-	-	
2008	-	-	-	1	-	-	-	-	-	-	-	-	132	106	-	1 928	1	-	
2009	-	-	-	-	-	-	-	-	-	-	-	-	96	52	3	2 005	-	-	
2010	-	-	-	-	-	-	-	-	-	-	-	-	197	71	-	1 136	-	-	
2011	-	-	-	-	-	-	-	-	-	-	-	-	39	14	-	172	-	-	
2012	-	-	-	-	-	-	-	-	-	-	-	-	28	11	1	138	-	-	
2013	-	-	-	-	-	-	-	-	-	-	-	-	8	6	1	35	-	-	
slope	0.00	0.00	0.01	0.01	-0.02	-0.07	-0.01	0.00	0.00	-0.05	-0.02	0.01	-0.01	0.06	0.09	-0.19	0.03	-0.04	

Fishing																	Species	
year	HOK	BOO	SQX	DDI	RBM	RSQ	MCA	VCO	CYL	LDO	CYO	WHX	BSL	SDR	GRC	GSH	LAN	ETM
1991	407	-	-	-	-	9	-	-	-	1	1	-	-	-	-	8	-	-
1992	344	-	-	-	-	1	-	-	-	-	3	-	3	-	-	5	-	3
1993	15	-	-	-	-	-	-	4	-	-	2	1	1	-	-	6	-	-
1994	409	-	1	-	-	1	-	-	-	1	-	1	28	-	-	8	1	85
1995	150	-	-	-	-	-	-	2	-	-	-	-	-	-	-	7	-	99
1996	134	-	2	-	-	-	-	2	-	-	-	18	-	-	-	5	-	27
1997	71	-	4	-	-	-	-	4	-	-	1	-	1	-	-	4	-	55
1998	159	-	2	-	1	-	-	5	-	1	-	4	8	-	-	31	-	-
1999	90	-	-	-	-	-	-	-	-	-	-	-	42	1	-	6	-	-
2000	481	-	1	-	-	-	-	-	1	-	-	6	13	-	-	5	-	24
2001	324	-	4	-	1	-	-	-	-	1	-	-	-	-	-	1	-	26
2002	91	-	2	-	-	-	-	-	5	-	2	101	2	-	-	1	-	80
2003	90	-	-	-	-	-	-	-	-	-	3	7	5	-	-	2	-	133
2004	127	-	2	-	-	-	-	-	1	-	1	-	-	-	-	-	-	14
2005	87	-	2	-	-	-	1	-	-	-	-	5	-	-	8	3	-	164
2006	111	-	3	-	-	-	13	2	-	-	12	1	-	-	-	-	2	11
2007	178	-	-	-	-	-	4	1	-	-	6	25	2	-	-	1	1	16
2008	133	-	-	7	-	-	3	30	1	-	5	-	-	-	-	1	-	2
2009	160	1	-	-	-	-	1	20	1	-	5	2	-	-	-	2	-	1
2010	187	-	1	-	-	1	4	3	5	-	9	-	-	-	-	1	-	-
2011	26	-	1	-	-	-	1	2	-	-	5	1	-	-	-	-	-	1
2012	15	-	-	-	-	-	-	-	3	-	4	2	-	-	-	1	-	-
2013	7	-	1	-	-	-	-	1	3	-	3	2	1	-	-	-	-	-
slope	-0.08	0.02	0.02	0.02	-0.01	-0.07	0.13	0.07	0.13	-0.06	0.14	0.06	-0.11	-0.01	0.01	-0.17	0.00	-0.08

Table 5: Orange roughy trawl fishery. —*continued*

Fishing	Species																		
year	CRB	OCT	MAN	ETL	CBO	GAO	EEL	DCS	COL	RSK	LPI	BJA	MOK	ECH	BRC	SOP	SSI	OPE	NOT
1991	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	--	
1992	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	--	
1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	--	
1994	1	-	-	71	-	-	-	-	-	-	-	-	-	-	-	1	-	--	
1995	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	11	-	--	
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	--	
1997	-	1	-	-	-	-	-	-	2	-	-	-	-	1	-	7	-	--	
1998	-	-	-	65	-	-	-	-	-	-	-	-	12	-	-	3	-	--	
1999	2	-	-	3	-	-	2	-	-	-	-	-	-	-	-	-	-	3-	
2000	1	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	--	
2001	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	--	
2002	6	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	9	--	
2003	1	-	-	14	-	-	-	-	-	-	-	-	-	-	-	6	-	-1	
2004	1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	--	
2005	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	--	
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	1	--	
2007	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	--	
2008	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	2	-	--	
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	--	
2010	-	-	1	1	-	-	1	-	-	-	-	-	-	-	-	4	-	--	
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	--	
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	--	
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	--	
slope	-0.02	-0.01	0.02	-0.14	0.00	0.00	0.01	-0.02	-0.02	0.01	0.00	-0.02	-0.02	-0.01	-0.02	0.01	0.01	-0.01	0.00

Fishing	Species	
year	BFI	SMI
1991	-	-
1992	-	-
1993	-	-
1994	-	-
1995	-	-
1996	-	-
1997	-	-
1998	-	-
1999	-	-
2000	-	-
2001	-	-
2002	-	-
2003	1	2
2004	-	-
2005	-	-
2006	-	-
2007	-	-
2008	-	-
2009	-	-
2010	-	-
2011	-	-
2012	-	-
2013	-	-
slope	0.00	0.00

Table 6: Oreo trawl fishery. Total annual bycatch estimates (t) for individual species with at least 1 t of bycatch in at least one year, based on observer catch rates; - means less than 1 t. The slope of a regression through the data points is shown after fishing year (see http://marlin.niwa.co.nz for species code definitions).

Fishing	Species																	
year	ETB	WSQ	ORH	SHA	COU	ASR	PAB	CYP	CHP	KIC	HTH	CHG	EPL	RIB	LEG	SQU	WOE	APR
1991	-	1	704	124	-	-	-	-	-	-	-	-	1	3	-	-	-	-
1992	17	-	63	69	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1993	-	-	126	352	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1994	-	-	85	28	-	-	-	-	-	1	-	-	-	-	-	1	-	-
1995	38	1	116	60	-	-	-	-	-	-	-	-	2	1	-	-	-	-
1996	-	1	155	223	-	-	-	-	-	-	-	-	-	10	-	-	-	-
1997	90	10	355	10	2	-	-	-	-	-	-	-	-	1	-	1	-	-
1998	-	3	413	304	717	-	-	-	-	-	-	-	-	-	-	-	-	-
1999	47	5	1 850	168	8	20	-	-	-	-	21	-	-	-	-	-	55	1
2000	25	17	378	99	197	1	-	2	1	-	2	1	-	-	-	-	33	-
2001	-	14	92	162	1	-	-	-	-	-	-	-	-	-	-	-	3	-
2002	22	12	191	82	128	-	-	-	-	-	-	1	-	1	-	1	3	-
2003	-	6	748	37	295	-	-	-	-	-	1	-	-	1	-	1	17	-
2004	58	8	426	10	5	-	-	-	1	-	-	-	-	1	-	-	-	-
2005	14	8	562	53	19	-	2	-	-	-	-	1	-	1	-	-	-	-
2006	58	8	306	60	1	-	2	1	1	-	-	-	-	-	-	-	-	1
2007	56	10	267	22	1	-	2	1	-	-	-	-	-	-	-	-	-	-
2008	77	14	97	15	-	-	1	3	1	-	-	-	-	-	-	-	-	-
2009	145	13	424	21	-	-	1	2	1	-	4	1	-	1	-	-	-	-
2010	212	9	543	28	-	-	2	2	1	-	-	1	1	1	-	-	-	1
2011	57	3	187	18	-	-	-	-	-	-	-	-	-	1	-	-	-	-
2012	91	10	168	10	-	-	-	1	-	-	2	1	-	-	-	-	-	-
2013	64	6	256	2	-	-	-	2	-	-	-	1	-	-	1	-	-	-
slope	0.27	0.17	0.02	-0.13	-0.03	-0.02	0.09	0.13	0.06	-0.02	0.04	0.08	-0.03	-0.02	0.02	-0.03	-0.03	0.02

Fishing	Species																	
year	CHI	CSQ	PSK	SNR	PSY	SBI	BBE	GDU	PSE	CAY	COR	PSL	IBR	NOR	ETP	SLK	TAM	JAV
1991	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	16
1992	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1994	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
1996	1	50	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	19
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	-	4
1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	1
2000	1	5	1	-	1	-	-	-	8	-	-	-	-	-	30	18	-	10
2001	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	13	-	6
2002	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	17	-	5
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	-	10
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	2
2005	1	-	-	-	-	-	-	-	-	-	-	-	-	4	-	11	-	18
2006	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	20	1	3
2007	1	-	-	-	1	-	-	5	-	-	-	-	-	-	-	15	1	3
2008	-	-	-	1	-	-	-	17	-	1	-	-	-	-	-	17	2	4
2009	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	42	1	7
2010	-	1	-	1	-	-	-	3	-	-	-	-	-	-	-	35	2	12
2011	1	1	-	-	-	-	5	5	-	-	-	-	1	-	-	11	1	5
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	1
2013	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	1
slope	-0.02	0.03	0.00	0.03	0.01	-0.02	0.04	0.11	-0.01	0.01	0.00	0.02	0.02	0.01	-0.01	0.16	0.10	0.10

Table 6: Oreo trawl fishery. —*continued*

Fishing																			Species
year	BSH	BTH	SND	SCM	HAK	DWE	ECN	SIA	SBW	TOA	LIN	SPD	RUD	MIQ	JFI	SSK	COD	LAE	
1991	-	-	1	-	2	-	-	-	-	-	7	-	-	6	-	-	-	-	
1992	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	1	
1993	2	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	
1994	14	-	-	-	1	3	-	-	-	-	6	71	-	-	-	-	-	-	
1995	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1996	5	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	
1997	80	-	1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	
1998	9	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	
1999	33	-	1	-	2	-	2	-	-	-	-	-	-	-	-	-	-	-	
2000	39	-	3	-	19	-	8	-	-	1	-	-	-	-	-	-	3	-	
2001	40	-	6	-	6	1	-	-	-	1	-	-	1	-	-	-	-	-	
2002	151	-	4	-	5	-	1	-	-	-	1	-	-	-	-	-	-	-	
2003	66	-	1	-	3	-	3	-	-	-	2	-	-	-	-	1	-	-	
2004	42	-	1	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	
2005	3	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	
2006	4	-	1	-	3	1	-	-	1	1	-	-	-	-	-	-	-	1	
2007	6	-	1	-	3	-	-	-	-	-	1	-	-	-	-	-	-	-	
2008	5	-	-	-	1	1	-	-	1	-	-	4	-	1	-	-	-	-	
2009	3	1	2	-	1	-	-	-	-	-	-	-	-	1	1	-	-	-	
2010	3	-	5	-	1	-	-	1	-	-	-	-	-	1	-	2	-	-	
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	
2012	11	-	2	1	-	-	-	-	-	-	-	-	-	-	-	16	-	-	
2013	4	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	
slope	0.02	0.02	0.05	0.01	-0.02	-0.01	-0.01	0.04	0.02	0.00	-0.06	-0.03	-0.03	0.00	0.02	0.08	-0.01	-0.01	

Fishing																			Species
year	ROC	CSH	LPS	VIT	PTO	GOB	OSP	BEE	HYD	CBD	GSP	LCH	GRM	CHR	DSK	MOD	SVA	PLS	
1991	-	-	-	-	-	-	-	3	-	-	-	6	-	-	-	-	-	-	
1992	-	-	-	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	
1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1994	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	
1995	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	
1996	-	-	-	-	-	-	-	13	-	-	1	2	-	-	-	42	-	-	
1997	-	1	-	-	-	1	-	2	-	-	-	8	-	-	-	3	-	-	
1998	-	-	1	-	-	-	-	7	-	-	1	2	-	-	-	12	-	-	
1999	-	-	-	-	-	-	-	4	-	-	1	2	-	-	-	3	-	-	
2000	-	-	-	3	-	-	-	7	-	-	7	2	-	-	-	7	-	6	
2001	-	-	-	-	-	-	-	11	1	-	10	2	-	-	-	6	-	-	
2002	-	-	-	-	-	-	-	7	-	-	16	4	-	-	-	3	-	-	
2003	-	-	-	-	1	-	-	21	-	-	17	2	-	-	-	7	-	-	
2004	-	-	-	-	-	-	-	29	-	-	3	3	-	-	-	5	-	-	
2005	-	-	-	-	-	-	1	10	-	-	4	2	-	-	-	7	-	-	
2006	1	-	-	-	-	-	-	15	-	-	6	3	-	-	-	9	-	-	
2007	2	-	-	-	-	-	-	15	-	5	6	2	-	-	-	5	-	-	
2008	-	-	-	-	-	-	-	18	1	-	3	3	-	2	-	7	20	-	
2009	-	-	-	-	-	-	-	11	-	-	4	3	-	-	-	13	37	-	
2010	-	-	-	-	-	-	-	9	-	-	3	2	1	1	-	6	2	1	
2011	-	-	-	-	-	-	-	6	-	-	2	-	-	-	-	3	-	-	
2012	-	-	-	-	-	-	-	11	-	-	2	1	-	-	-	9	-	-	
2013	-	-	-	-	-	-	-	5	-	-	5	1	-	-	-	2	-	-	
slope	0.02	-0.01	-0.01	-0.01	0.00	-0.01	0.01	0.12	0.01	0.02	0.19	0.03	0.02	0.04	-0.04	0.17	0.10	0.01	

Table 6: Oreo trawl fishery. —*continued*

Fishing	Species																		
year	ANT	SSM	SQA	MOC	CDL	MOR	SMC	SPI	CMU	SBR	SKA	CUB	BAT	BNS	RAT	ISI	HOK	HJO
1991	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	-	54	3
1992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	6
1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	-	31	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	-	-	6
1996	-	-	-	-	-	-	-	-	-	-	1	-	-	-	40	-	291	-
1997	-	-	-	-	5	-	-	-	-	-	-	-	1	-	21	-	82	-
1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	-	46	-
1999	6	-	-	-	-	-	-	-	-	-	3	-	-	-	29	-	15	1
2000	-	-	-	-	-	-	-	2	-	-	2	1	-	-	142	-	60	3
2001	-	-	-	-	-	1	1	-	-	-	2	-	-	-	132	-	327	16
2002	-	-	-	-	-	-	2	-	-	-	1	-	-	-	98	-	143	-
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	108	-	91	1
2004	-	-	-	-	1	-	-	-	-	-	-	-	-	-	71	-	22	1
2005	-	-	4	-	12	-	-	-	6	-	-	-	-	1	76	-	16	-
2006	-	-	48	-	-	-	-	-	-	1	-	-	-	-	155	1	145	11
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	-	52	1
2008	-	-	-	7	-	-	-	-	-	-	-	-	-	-	54	-	11	4
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54	-	16	3
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35	-	78	5
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46	-	13	11
2012	-	1	-	-	-	-	1	-	-	-	-	-	-	-	30	-	58	13
2013	-	12	-	-	-	-	11	-	-	-	-	-	-	-	23	-	125	1
slope	-0.01	0.08	0.04	0.02	0.00	0.00	0.07	-0.01	0.01	0.01	-0.03	0.00	-0.01	0.01	0.10	0.01	0.14	0.10

Fishing	Species																	
year	LAN	MCA	RAG	ONG	VCO	WWA	BSL	GRC	GSH	OCT	CON	ETM	ECH	RAY	SSI	ETL	DDI	LDO
1991	-	-	-	-	-	-	-	-	26	-	-	-	-	-	-	-	-	-
1992	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1994	-	-	-	-	-	-	4	-	6	-	-	-	-	1	1	-	-	-
1995	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	1	-	-	9	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	4	-	-	3	-	-	-	-	-	-
1998	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
1999	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	2	-	-	-	5	1	-	40	-	-	49	-	-	-
2001	-	-	-	-	-	-	-	-	1	2	1	7	1	-	7	-	-	-
2002	-	-	-	-	-	-	1	-	-	-	1	41	-	-	-	-	-	-
2003	-	-	-	3	-	1	-	1	-	-	-	142	-	-	-	11	-	1
2004	-	-	-	-	-	1	-	7	-	-	-	-	-	-	-	1	-	-
2005	-	-	1	-	-	-	-	16	-	-	-	64	-	-	-	-	-	-
2006	2	33	-	-	2	-	-	-	1	-	-	25	-	-	-	-	-	-
2007	-	55	1	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-
2008	-	69	-	-	3	-	1	-	-	-	-	13	-	-	-	1	1	-
2009	-	33	-	-	12	-	-	-	-	-	-	-	-	-	-	4	-	-
2010	-	34	-	-	3	-	-	3	-	-	-	-	-	-	-	-	-	-
2011	-	27	-	-	-	4	1	-	-	-	-	-	-	-	-	-	-	-
2012	-	12	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
slope	0.01	0.28	0.02	0.00	0.11	0.04	0.04	0.05	-0.19	-0.01	0.00	0.04	0.00	-0.02	-0.04	0.05	0.01	0.00

Table 6: Oreo trawl fishery. —*continued*

Fishing	Species			
year	CRB	SQX	EEL	BJA
1991	-	-	-	-
1992	-	-	-	-
1993	-	-	-	-
1994	-	1	-	-
1995	-	-	-	-
1996	-	1	-	-
1997	-	-	-	-
1998	-	-	-	-
1999	-	-	-	-
2000	-	-	1	-
2001	1	-	-	-
2002	-	-	1	-
2003	-	-	-	-
2004	-	-	-	-
2005	-	-	-	-
2006	-	-	-	-
2007	-	-	-	-
2008	-	-	-	-
2009	-	-	-	-
2010	-	-	-	-
2011	-	-	-	-
2012	-	-	-	2
2013	-	-	-	-
slope	0.00	-0.03	0.00	0.03

Table 7: Scampi trawl fishery. Total annual bycatch estimates (t) for individual species with at least 1 t of bycatch in at least one year, based on observer catch rates; - means less than 1 t. The slope of a regression through the data points is shown after fishing year (see http://marlin.niwa.co.nz **for species code definitions).**

Fishing	Species																		
year	SDM	FMA	GSC	DCO	SMK	ACS	GVO	SQU	GPA	PSI	HTR	BBE	PLY	OPA	SRH	AER	PAG	GAS
1991	-	-	-	-	-	-	-	11	-	-	-	42	-	-	123	-	-	-
1992	-	-	13	-	-	-	-	51	-	-	-	2	-	-	55	-	-	-
1993	-	-	-	-	-	-	-	21	-	-	-	13	-	-	6	-	-	-
1994	-	-	6	-	-	-	-	41	-	-	-	23	-	-	15	-	-	-
1995	-	-	-	-	-	-	-	32	-	-	-	17	-	-	96	-	-	-
1996	-	-	-	-	-	-	-	19	-	-	-	52	-	-	157	-	-	-
1997	-	-	10	-	-	-	-	8	-	-	-	1	-	-	-	-	-	-
1998	-	-	-	-	-	-	-	22	-	-	-	30	-	-	11	-	-	-
1999	-	-	-	-	-	-	-	9	-	-	-	121	-	-	18	-	-	-
2000	-	-	-	1	-	-	-	12	-	-	-	127	-	-	38	-	-	-
2001	-	-	-	-	-	-	-	45	-	-	-	144	-	-	13	-	-	7
2002	-	-	-	-	-	-	-	71	-	-	-	41	-	-	19	-	-	25
2003	-	-	3	-	-	-	-	29	-	-	-	45	-	-	8	-	-	-
2004	-	-	-	-	-	-	-	14	-	-	-	39	-	-	1	-	-	3
2005	-	-	-	-	-	-	-	10	-	-	-	4	-	-	66	-	-	-
2006	-	16	30	-	106	10	7	35	-	2	3	7	-	-	14	-	-	-
2007	-	-	47	-	48	2	-	35	-	21	-	3	-	-	154	-	-	-
2008	1	4	5	-	24	5	2	26	-	8	-	22	-	-	50	-	-	8
2009	-	-	2	-	11	-	-	17	-	-	-	6	-	-	29	-	-	20
2010	-	2	-	-	7	9	1	33	-	3	-	11	-	1	35	-	-	4
2011	1	2	10	-	8	8	-	34	-	3	-	12	-	-	50	-	1	5
2012	6	5	1	-	4	7	1	38	-	17	2	11	-	1	36	1	2	18
2013	15	24	17	1	9	10	2	52	5	17	4	54	1	-	6	-	-	-
slope	0.13	0.19	0.12	0.02	0.28	0.22	0.11	0.02	0.04	0.23	0.08	-0.01	0.02	0.04	0.01	0.02	0.05	0.18

Fishing	Species																	
year	CHI	CSQ	PSK	SNR	PSY	SBI	BBE	GDU	PSE	CAY	COR	PSL	IBR	NOR	ETP	SLK	TAM	JAV
1991	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	16
1992	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
1993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1994	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
1996	1	50	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	19
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	-	4
1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-
1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	1
2000	1	5	1	-	1	-	-	-	8	-	-	-	-	-	30	18	-	10
2001	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	13	-	6
2002	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	17	-	5
2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	-	10
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	2
2005	1	-	-	-	-	-	-	-	-	-	-	-	-	4	-	11	-	18
2006	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	20	1	3
2007	1	-	-	-	1	-	-	5	-	-	-	-	-	-	-	15	1	3
2008	-	-	-	1	-	-	-	17	-	1	-	-	-	-	-	17	2	4
2009	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	42	1	7
2010	-	1	-	1	-	-	-	3	-	-	-	-	-	-	-	35	2	12
2011	1	1	-	-	-	-	5	5	-	-	-	-	1	-	-	11	1	5
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	1
2013	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	1
slope	-0.02	0.03	0.00	0.03	0.01	-0.02	0.04	0.11	-0.01	0.01	0.00	0.02	0.02	0.01	-0.01	0.16	0.10	0.10

Table 7: Scampi trawl fishery—*continued*

Fishing	Species																	
year	LAG	EPL	SMT	URP	ALL	BWH	TAY	GDU	JMA	RIB	OSK	EUC	AWI	CDY	PNE	SBK	YSG	CBB
1991	-	-	-	-	-	-	-	-	20	1	-	-	-	-	-	-	-	-
1992	-	-	-	-	-	1	-	-	3	1	-	-	-	-	-	1	-	-
1993	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-
1994	-	-	-	-	-	-	-	-	1	18	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	2	158	-	-	-	-	-	3	-	-
1996	-	-	-	-	-	-	-	-	2	13	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	-
1999	-	-	-	-	-	-	-	-	2	5	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	1	-	-
2001	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
2002	-	-	-	-	-	-	-	-	1	3	-	-	-	-	-	-	-	-
2003	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-
2004	-	-	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
2006	-	-	1	-	-	27	4	-	-	-	1	-	-	1	-	-	5	-
2007	-	-	-	-	-	28	8	3	-	-	12	-	-	-	-	2	-	7
2008	2	1	1	-	1	-	10	1	1	1	-	1	-	-	-	-	-	-
2009	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
2010	1	-	-	-	-	-	3	-	-	-	2	-	-	-	2	-	-	-
2011	3	-	1	1	2	30	1	-	-	-	4	-	-	-	4	-	1	-
2012	5	-	-	-	7	-	-	-	-	-	12	-	1	-	12	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	26	-	-	-	-	-	-	-
slope	0.10	0.01	0.04	0.02	0.08	0.08	0.13	0.03	-0.14	-0.20	0.20	0.01	0.02	0.01	0.10	-0.04	0.01	0.02

Fishing	Species																	
year	APR	CHI	LMI	YSP	SDF	KWH	HPB	COU	BAR	PSY	SHL	ORH	RPE	EMO	KIC	SHR	PSE	DAS
1991	-	-	-	-	-	-	19	-	-	-	-	-	-	-	-	-	-	-
1992	-	-	-	-	-	-	4	-	-	5	-	-	-	-	-	-	-	-
1993	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-
1994	-	-	-	-	-	-	2	-	-	-	-	-	-	-	1	-	-	-
1995	-	5	-	-	-	-	5	-	-	-	10	1	9	1	-	-	-	-
1996	-	-	-	-	-	-	2	-	-	-	3	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	1	-	-	-	2	-	-	-	-	-	-	-
1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1999	-	-	-	-	-	-	5	82	-	-	6	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	43	1	-	-	1	-	6	-	-	-	-
2001	-	-	-	-	-	-	1	1	-	1	-	-	-	-	-	1	-	-
2002	2	-	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-
2003	-	-	-	-	-	-	5	-	-	-	1	-	-	-	-	-	2	-
2004	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-	-	2
2007	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-
2008	1	-	-	-	-	1	-	3	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	7	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
slope	0.08	-0.03	0.04	0.02	0.02	0.01	-0.20	0.00	0.00	-0.04	-0.05	-0.02	-0.03	-0.02	-0.02	0.00	0.00	0.01

Table 7: Scampi trawl fishery—*continued*

Fishing	Species																	
year	COR	GIZ	CYP	WIT	JAV	OPI	LIN	ZOR	SSK	API	HAK	BTS	EZE	CPA	SPD	SCO	MIQ	SBW
1991	-	73	-	-	547	-	639	-	117	-	-	-	-	-	-	-	-	-
1992	-	200	-	4	1 526	-	808	-	32	2	47	4	-	-	25	-	1	-
1993	-	263	-	1	1 636	-	947	-	120	-	60	5	-	-	38	-	39	5
1994	-	263	-	2	670	-	696	-	28	1	52	-	-	-	39	-	3	7
1995	-	213	-	6	1 040	-	756	-	89	-	100	-	-	-	25	-	-	-
1996	-	113	-	-	1 332	-	420	-	49	1	26	-	-	-	53	18	-	3
1997	-	88	-	1	431	-	452	-	41	-	70	-	-	-	310	20	-	108
1998	4	69	-	-	610	-	337	-	87	4	50	-	-	-	16	1	1	3
1999	-	62	-	-	756	-	308	-	22	-	22	-	-	-	2	2	-	-
2000	-	63	-	-	1 325	33	356	-	156	-	34	-	-	-	56	-	-	-
2001	-	69	-	-	1 255	-	498	-	-	1	43	-	-	-	61	1	-	-
2002	-	191	-	-	1 464	-	640	-	12	-	129	-	-	-	84	-	-	12
2003	-	226	-	2	765	-	502	-	55	1	66	-	-	-	131	6	-	2
2004	-	127	-	2	701	-	247	-	125	2	66	-	-	-	97	-	-	8
2005	-	27	-	1	1 255	-	300	-	150	-	24	-	-	-	44	-	-	-
2006	-	35	2	1	388	-	49	10	77	-	4	-	1	5	48	-	-	4
2007	-	41	-	3	879	4	154	-	123	1	18	-	-	-	139	-	-	1
2008	-	51	-	1	832	-	97	1	90	1	5	-	-	-	82	1	-	-
2009	-	62	-	3	687	-	98	-	78	-	5	-	-	-	130	-	-	7
2010	-	9	-	1	977	2	81	-	44	1	7	-	1	-	67	-	-	-
2011	-	22	-	1	555	1	51	11	63	1	3	-	-	2	12	-	-	2
2012	-	62	-	2	515	2	59	12	64	-	5	-	3	3	25	-	-	2
2013	-	41	-	8	939	20	93	6	127	2	19	1	-	5	41	9	4	1
slope	-0.02	-0.09	0.01	0.07	-0.02	0.14	-0.13	0.16	0.02	0.03	-0.05	-0.05	0.06	0.12	0.08	-0.01	-0.07	0.01

Fishing	Species																	
year	CDX	MOL	FLA	CSH	TOA	BTH	SDO	ECN	JFI	SND	GMC	SBO	GAT	SPE	RSO	CDO	ERA	PRK
1991	-	-	-	2	3	-	-	-	-	2	-	-	-	273	103	122	15	-
1992	-	2	13	-	8	-	1	8	1	2	-	-	-	424	35	96	6	-
1993	-	-	-	6	63	-	15	-	-	1	-	1	-	708	38	2	6	-
1994	-	18	-	2	22	-	6	-	-	2	-	-	-	458	10	10	5	-
1995	-	-	-	3	5	-	4	-	-	2	-	-	-	965	25	61	9	1
1996	-	-	7	-	15	-	80	-	-	3	-	-	-	750	61	21	13	78
1997	-	6	-	55	117	5	-	-	12	-	-	1	-	105	43	-	-	-
1998	-	-	10	33	48	4	-	1	10	1	-	-	-	482	5	3	2	35
1999	-	-	-	2	33	-	1	1	-	1	-	-	-	258	44	21	6	1
2000	-	4	3	-	76	-	-	7	-	1	-	-	-	351	34	7	7	-
2001	-	-	59	1	24	-	-	17	-	2	-	-	-	409	74	4	18	-
2002	-	-	22	-	54	-	22	83	-	30	-	2	-	941	48	27	77	-
2003	-	-	-	5	23	-	10	3	2	1	-	-	-	981	7	-	4	-
2004	-	-	-	6	53	-	2	3	-	9	-	-	-	496	1	2	7	1
2005	-	1	-	-	2	-	74	12	-	-	-	-	-	917	15	-	7	-
2006	-	2	20	14	13	3	4	-	-	4	9	-	-	230	23	56	13	2
2007	-	8	1	52	21	1	5	-	-	1	1	-	-	385	43	163	8	198
2008	28	5	-	15	14	14	-	13	-	1	8	-	-	356	36	80	5	23
2009	-	1	-	6	11	-	-	1	-	-	2	-	1	211	7	48	1	5
2010	76	1	-	-	4	3	2	1	-	2	3	2	-	265	23	65	7	3
2011	17	-	3	16	12	-	4	-	-	-	2	1	-	300	30	49	9	27
2012	-	-	-	20	14	1	2	1	-	-	13	3	1	223	19	19	6	5
2013	1	-	-	-	11	-	-	-	-	-	5	-	-	469	-	13	2	1
slope	0.16	0.00	-0.04	0.04	-0.03	0.07	-0.02	0.04	-0.06	-0.10	0.22	0.05	0.04	-0.02	-0.10	0.04	-0.01	0.17

Table 7: Scampi trawl fishery—*continued*

Fishing	Species																	
year	FRO	MDO	TOD	SSH	RBY	TAM	JGU	DAP	SEE	RUD	PED	SCG	LSO	ADT	BSH	PLZ	CCO	SOL
1991	1	32	-	7	1	-	-	-	4	-	2	-	-	-	1	10	-	-
1992	-	9	-	1	1	-	2	-	-	1	-	-	-	-	1	-	-	-
1993	3	1	-	-	1	-	2	-	2	1	-	-	-	-	6	-	-	-
1994	2	-	-	-	1	-	-	-	-	1	-	2	-	-	2	-	-	-
1995	3	3	-	-	-	-	6	-	4	1	-	29	-	-	2	-	-	-
1996	1	28	-	-	3	-	-	-	-	-	-	-	-	-	7	-	-	-
1997	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	-	11	-	3	-	-	-	-	-	-	-	8	-	-	-	-	-	-
1999	-	20	-	2	-	-	-	-	-	-	-	-	-	-	2	-	-	-
2000	-	9	-	1	-	-	2	-	-	-	-	-	-	-	1	-	-	-
2001	6	2	-	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-
2002	1	19	-	-	1	-	-	-	-	-	-	-	-	-	29	-	-	5
2003	-	1	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
2004	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2005	-	14	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	1	19	-	2	-	1	-	5	2	-	-	-	-	-	-	-	-	-
2007	-	15	-	3	-	-	-	1	1	-	-	-	-	-	-	-	-	-
2008	1	29	-	3	-	1	-	1	-	-	-	-	-	-	1	-	2	-
2009	-	8	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	1	9	-	-	-	1	1	2	2	-	-	-	-	-	1	-	-	-
2011	1	14	-	1	-	-	-	1	-	-	-	1	-	-	-	-	-	-
2012	1	8	1	-	1	-	-	4	1	-	-	-	-	1	-	-	-	1
2013	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-
slope	-0.04	0.01	0.04	-0.02	-0.08	0.04	-0.07	0.15	-0.02	-0.08	-0.03	-0.06	0.02	0.02	-0.14	-0.05	0.02	0.02

Fishing	Species																	
year	STR	DWE	SEV	WHE	NUD	AIR	BCO	TTA	CBE	HYM	SCM	ROC	PLT	OLY	LUC	SNA	LAE	SUR
1991	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	39
1992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1993	-	20	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1994	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-
1995	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1996	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1997	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
1998	2	-	-	-	-	-	-	-	-	-	-	6	-	-	-	1	-	-
1999	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	3	1	-	-	-	-	1	-	-	-	-	-	-
2001	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-
2002	2	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2003	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2006	13	-	-	-	10	-	-	-	-	-	-	-	1	-	-	-	-	-
2007	3	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	1	-	-	8	-	16	-	-	-	-	-	-	-	-
2011	-	1	1	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
slope	-0.04	-0.04	0.04	-0.04	0.05	-0.01	0.00	0.04	-0.03	0.08	0.00	-0.02	0.01	0.02	-0.04	-0.02	0.00	-0.06

Table 7: Scampi trawl fishery—*continued*

Fishing	Species																	
year	RCK	STN	BPE	PAO	HMT	PRU	RCO	GSP	TOP	DMG	CAM	SWA	CJA	PMO	SOT	LCH	FHD	PCH
1991	-	-	-	-	-	-	33	-	-	-	-	51	-	-	-	-	90	-
1992	-	-	-	-	-	-	255	-	1	-	-	57	-	-	-	-	14	-
1993	-	-	-	-	-	-	141	-	-	-	-	150	-	-	-	-	94	-
1994	-	-	-	-	-	-	247	-	-	-	-	82	-	-	-	1	110	-
1995	-	1	4	-	-	-	153	-	16	-	-	195	-	-	-	1	119	-
1996	-	-	-	-	-	-	85	-	1	-	-	77	-	-	-	3	416	-
1997	-	-	-	-	-	-	50	-	-	-	-	15	-	-	-	-	2	-
1998	-	-	-	-	-	-	46	6	-	-	-	56	-	-	-	1	53	-
1999	-	-	-	-	-	-	67	-	10	-	-	39	-	-	-	-	91	-
2000	-	-	-	-	-	-	37	4	8	-	-	80	-	-	-	1	217	-
2001	-	-	-	-	-	-	109	1	7	-	-	77	-	-	-	-	8	-
2002	-	-	-	-	-	-	197	12	2	-	-	288	-	-	-	-	253	-
2003	10	-	-	-	-	-	170	2	-	-	-	256	-	-	-	-	114	-
2004	-	-	-	-	-	-	220	5	-	-	-	39	-	-	-	-	127	-
2005	-	-	-	-	-	-	24	-	-	-	-	4	-	-	-	-	82	-
2006	-	-	-	-	10	-	16	4	-	8	1	3	-	-	-	-	133	-
2007	-	-	-	-	1	-	52	3	-	6	-	13	-	-	-	1	73	-
2008	-	-	-	-	1	3	23	5	1	-	1	2	-	-	-	1	102	1
2009	-	-	-	-	-	-	17	1	-	-	-	8	-	-	-	1	94	-
2010	-	-	-	-	4	-	17	-	3	-	1	12	1	-	-	-	85	-
2011	-	-	-	-	8	-	52	5	-	1	-	2	1	-	-	-	99	-
2012	-	-	-	-	5	-	45	-	-	1	1	2	2	-	1	-	69	-
2013	-	-	-	1	7	1	29	9	17	10	1	3	3	3	-	1	90	-
slope	0.00	-0.02	-0.03	0.02	0.20	0.04	-0.08	0.14	0.00	0.13	0.09	-0.18	0.10	0.04	0.02	0.00	0.03	0.01

Fishing	Species																	
year	ANT	SNI	MNI	CAR	DSK	GOU	HAG	MOD	CHX	RDO	NMP	NSD	HAP	BNS	DIR	BRZ	SPZ	HIS
1991	-	-	-	-	2	-	27	-	-	-	1	13	-	40	-	8	-	-
1992	58	-	-	13	6	-	16	-	-	-	4	3	6	13	-	5	-	-
1993	23	-	-	1	49	-	4	-	-	-	-	1	4	50	-	-	-	-
1994	21	-	-	-	13	-	15	2	2	-	1	-	1	7	-	-	-	-
1995	-	2	-	1	41	-	5	-	2	-	1	-	1	18	-	1	-	-
1996	-	-	-	17	-	-	11	-	-	-	8	-	1	23	-	5	2	-
1997	97	15	-	1	65	-	9	-	-	2	-	-	2	5	-	1	-	-
1998	55	-	-	-	28	-	2	-	-	-	6	12	1	3	-	3	-	-
1999	1	-	-	5	9	-	18	-	-	-	-	5	11	16	-	1	-	-
2000	58	6	-	25	7	-	22	1	-	-	-	-	8	19	-	7	-	-
2001	2	-	-	15	-	-	25	-	-	-	-	-	11	41	-	-	-	-
2002	11	-	-	22	-	-	17	-	-	1	17	-	34	58	-	-	7	-
2003	28	-	-	7	-	-	10	-	-	1	-	-	3	2	-	-	-	-
2004	1	-	-	6	-	-	3	-	-	-	-	2	2	1	-	-	-	-
2005	-	-	-	6	-	-	9	-	-	-	-	3	-	12	-	-	-	-
2006	1	-	-	8	5	-	5	-	-	-	2	-	-	-	-	4	-	-
2007	40	1	-	10	-	-	8	-	-	-	-	10	5	1	1	11	-	-
2008	11	-	-	10	2	-	8	-	-	-	-	1	1	-	2	12	1	-
2009	12	2	1	10	1	-	5	-	-	-	-	1	-	-	1	1	-	-
2010	-	-	2	10	4	-	6	-	-	-	-	-	-	-	2	4	-	1
2011	-	1	1	10	2	-	9	-	-	-	-	1	1	-	1	12	-	-
2012	-	-	3	7	2	-	8	-	-	-	1	1	2	1	-	3	-	-
2013	3	-	1	2	2	1	-	-	-	-	-	-	1	-	-	-	-	-
slope	-0.09	0.00	0.12	0.12	-0.12	0.02	-0.07	-0.03	-0.04	-0.01	-0.10	-0.03	-0.06	-0.28	0.09	0.02	0.00	0.02

Table 7: Scampi trawl fishery—*continued*

Fishing													Species					
year	DWO	SKA	AFO	BYX	TFA	HCO	SBR	OFH	HYA	MSL	PAM	SUN	SPI	PRA	PCO	SLG	STG	PFL
1991	-	41	-	6	-	-	-	-	-	-	-	-	-	-	8	-	-	-
1992	-	33	-	3	-	2	-	-	-	-	-	-	-	-	-	-	-	-
1993	-	13	-	4	-	-	1	-	-	-	-	-	3	-	-	-	-	-
1994	-	66	-	6	-	1	-	-	-	-	-	-	17	-	-	-	-	-
1995	-	78	-	31	-	-	2	22	-	-	-	-	-	-	-	-	-	-
1996	-	184	-	5	-	-	-	-	-	-	-	-	35	1	-	-	-	-
1997	1	62	-	3	-	6	-	-	-	-	-	-	46	2	-	14	-	-
1998	-	29	-	4	-	-	1	-	-	-	-	-	25	3	-	3	-	-
1999	-	160	-	19	-	-	1	1	-	2	-	-	3	-	-	-	-	-
2000	-	76	1	6	-	-	-	1	-	3	-	-	-	7	-	-	-	-
2001	-	201	-	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2002	-	256	-	1	-	7	22	-	-	-	-	-	8	-	-	-	-	-
2003	-	83	-	3	-	-	-	-	-	-	-	-	-	1	-	1	-	-
2004	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2005	-	-	-	5	-	4	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	-	1	-	-	9	-	-	-	2	-	-	-	1	-	-	-	-
2008	1	-	1	-	19	1	-	-	5	4	1	1	-	-	-	-	-	-
2009	-	-	-	-	15	-	-	-	-	-	-	-	1	2	-	-	1	-
2010	-	-	-	-	5	-	-	-	-	1	-	-	1	31	-	-	1	-
2011	-	-	2	-	7	1	-	-	7	-	2	-	-	-	-	-	-	-
2012	-	-	-	-	11	1	-	-	1	1	1	-	-	-	-	-	-	-
2013	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-	-	1
slope	0.00	-0.39	0.05	-0.25	0.23	0.02	-0.06	-0.05	0.08	0.06	0.06	0.01	-0.13	0.03	-0.05	-0.04	0.03	0.02

Fishing													Species					
year	CRU	OCP	SMC	BCD	ARE	BCR	HEX	SSC	SPK	MAK	LDO	CFA	HOK	GSH	BTA	DCS	SSI	RSK
1991	-	-	-	-	-	-	-	-	-	-	11	-	443	11	-	1	2	-
1992	18	-	-	-	-	-	-	12	-	-	18	-	577	189	-	7	17	63
1993	-	-	-	-	-	-	3	-	-	-	38	-	1 013	341	-	85	93	17
1994	-	-	-	-	-	-	1	-	-	-	24	-	403	100	-	2	35	5
1995	-	-	-	-	-	-	4	-	-	-	69	-	555	74	-	3	21	1
1996	-	-	-	-	-	-	1	-	-	-	53	-	310	104	-	-	17	-
1997	-	-	-	1	-	1	-	-	-	-	41	-	420	184	-	-	70	95
1998	-	-	-	-	-	-	-	-	-	-	17	-	148	127	-	26	40	11
1999	1	-	-	-	-	-	2	-	-	-	9	-	218	24	-	-	2	1
2000	-	-	-	-	-	-	1	-	16	1	36	-	296	52	-	-	2	-
2001	72	-	-	-	-	-	3	-	1	-	61	-	596	77	-	-	18	9
2002	62	-	-	-	-	-	-	-	-	-	37	-	582	127	-	14	29	8
2003	-	-	-	-	-	-	2	-	-	-	23	-	285	139	-	-	27	21
2004	-	5	-	-	-	-	-	-	-	-	28	-	139	111	1	-	40	17
2005	-	-	-	-	-	-	-	-	-	-	29	-	250	197	-	-	1	56
2006	-	-	-	-	-	-	-	-	-	-	15	-	122	126	-	4	37	39
2007	-	-	8	-	-	-	5	-	-	-	23	-	180	189	-	1	37	26
2008	-	-	-	-	-	-	-	-	-	-	24	-	221	118	-	1	25	26
2009	-	-	-	-	-	-	-	-	-	-	18	-	202	83	-	2	39	12
2010	-	-	-	-	-	-	-	-	-	-	7	-	167	50	-	-	45	16
2011	-	-	-	-	-	-	-	-	-	-	4	-	112	51	-	2	34	27
2012	-	-	-	-	1	-	-	-	-	-	13	-	134	109	-	-	32	28
2013	-	-	-	-	-	-	-	-	-	-	17	3	155	155	12	12	45	33
slope	-0.06	0.01	0.02	-0.01	0.02	-0.01	-0.08	-0.05	-0.01	0.00	-0.04	0.04	-0.07	0.01	0.06	-0.06	0.04	0.14

Table 7: Scampi trawl fishery—*continued*

Fishing	Species																	
year	CAS	BOC	HEC	ETL	WWA	BES	BAM	SPT	RAT	PIG	ONG	CON	OCT	CRB	BAS	CUC	BER	BRC
1991	-	-	-	2	-	-	-	-	158	-	-	1	1	4	11	1	-	-
1992	-	-	-	1	31	-	-	-	547	-	-	-	1	106	3	1	5	1
1993	-	-	-	-	19	-	-	-	887	11	-	6	3	66	3	-	22	-
1994	-	-	-	1	14	-	-	-	1 590	1	-	21	4	41	4	1	11	2
1995	-	-	-	3	41	-	-	-	1 579	-	-	16	6	102	4	3	69	3
1996	-	-	-	3	21	-	-	-	1 514	-	-	5	7	166	2	3	2	8
1997	-	-	-	1	79	-	-	-	586	1	7	-	1	60	1	6	1	-
1998	-	-	-	5	15	-	-	-	317	2	-	4	4	88	2	2	8	-
1999	-	-	-	3	15	-	-	-	501	-	-	12	2	31	1	1	10	-
2000	-	-	-	3	8	-	-	-	523	1	-	23	4	78	3	2	27	1
2001	-	-	-	-	28	-	-	-	577	-	-	20	2	70	3	-	-	2
2002	-	-	-	1	19	-	-	-	1 435	-	1	5	11	130	4	1	10	-
2003	-	-	-	2	127	-	-	-	754	-	-	14	1	94	-	1	18	-
2004	-	-	-	-	11	-	-	-	785	-	-	17	49	165	-	2	5	-
2005	-	-	-	2	64	-	-	-	724	-	-	-	-	33	-	-	5	-
2006	-	1	-	2	2	-	-	-	195	1	-	1	3	12	-	2	-	-
2007	-	-	-	15	27	-	-	14	418	7	1	6	2	11	-	-	-	-
2008	-	-	-	13	6	-	-	6	369	10	2	5	2	17	-	-	1	-
2009	-	-	-	1	8	-	-	14	367	3	-	1	2	11	-	-	3	-
2010	-	1	-	11	3	-	-	1	646	1	-	6	2	1	1	-	4	-
2011	-	1	1	7	1	-	1	2	413	1	3	4	3	23	-	-	1	1
2012	-	1	-	2	2	-	-	4	298	1	-	5	5	13	-	1	1	-
2013	23	1	-	1	4	1	2	1	458	-	20	1	1	1	-	-	3	-
slope	0.06	0.10	0.02	0.06	-0.05	0.02	0.05	0.19	-0.03	0.06	0.10	0.01	-0.01	-0.12	-0.21	-0.11	-0.07	-0.08

Fishing	Species																	
year	RBT	SER	SPO	OPE	WHX	YBO	HEP	ECH	CAL	CVI	COL	ETM	CBO	PNN	PNO	DDI	BOA	DHO
1991	-	-	6	-	-	14	1	-	-	-	-	-	-	-	-	-	-	-
1992	-	-	-	11	-	-	-	14	-	-	-	1	-	-	-	-	-	-
1993	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1994	-	-	-	1	-	-	-	-	-	-	-	-	2	-	-	-	-	-
1995	-	-	3	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-
1996	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	1	-
1997	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
1998	-	-	-	-	-	1	-	3	-	-	-	-	-	-	-	-	1	-
1999	-	-	-	-	-	1	1	1	-	-	-	1	-	-	-	-	2	-
2000	-	-	1	-	-	4	-	-	-	-	-	1	-	-	-	-	-	-
2001	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
2002	1	-	1	-	-	18	-	39	-	-	-	-	-	-	-	-	1	-
2003	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-
2004	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
2005	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	16	-	-	-	-	-	-	-	-	-	-	1	-
2007	-	-	-	1	1	14	-	-	-	-	-	1	-	-	-	-	-	-
2008	-	-	-	-	-	2	1	-	-	-	11	-	-	-	-	-	-	-
2009	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
2010	-	-	-	-	-	19	-	-	1	2	-	-	-	1	-	-	-	-
2011	-	-	-	-	-	-	-	1	3	-	-	-	-	-	-	1	6	-
2012	-	1	-	-	-	2	-	-	3	-	-	-	-	-	5	-	6	-
2013	-	-	-	1	-	2	-	-	-	-	-	-	-	-	-	1	-	-
slope	0.02	0.02	-0.11	-0.05	0.01	0.10	-0.03	-0.04	0.08	0.02	0.03	-0.04	-0.02	0.02	0.04	0.05	0.04	0.02

Table 7: Scampi trawl fishery—*continued*

Fishing	Species													
year	SQX	RSN	EGA	RAY	ODO	CTU	EEL	EPO	NOT	MOK	TLO	SLR	AST	KIN
1991	-	-	-	-	-	-	3	-	-	-	-	-	-	-
1992	-	-	-	-	-	-	17	-	-	-	-	3	-	1
1993	-	-	-	-	-	-	15	-	2	-	-	-	-	-
1994	-	-	-	4	-	-	-	-	-	-	-	-	-	-
1995	2	-	-	-	-	-	-	1	-	-	-	-	-	-
1996	5	-	-	9	-	-	-	-	-	-	-	-	-	-
1997	1	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	1	-	-	-	-	-	-	-	-	-	-	-	10	-
1999	-	1	-	-	-	-	11	-	-	-	-	-	-	-
2000	-	-	-	1	-	3	11	-	-	1	-	5	-	-
2001	-	-	-	-	-	-	30	-	-	-	-	-	-	-
2002	-	-	-	-	-	-	18	-	-	-	-	-	-	-
2003	-	-	-	-	-	-	5	-	-	-	-	-	-	-
2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2005	-	-	-	-	16	-	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-	1	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	-	-	1	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-
slope	-0.06	-0.01	0.02	-0.06	0.02	-0.01	-0.16	-0.02	-0.03	0.00	0.01	-0.04	-0.02	-0.02

Table 8: Southern blue whiting trawl fishery. Total annual bycatch estimates (t) for individual species with at least 1 t of bycatch in at least one year, based on observer catch rates; - means less than 1 t. The slope of a regression through the data points is shown after fishing year (see http://marlin.niwa.co.nz for species code definitions).

Fishing	Species																	
year	WSQ	SQU	POS	BBE	ETB	MOO	ASR	OPA	GSQ	GLS	SHA	POR	EMA	JMA	BAR	BSQ	CSQ	SBI
1991	9	7	3	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
1992	13	16	3	-	7	7	-	-	-	-	-	1	-	-	-	1	1	-
1993	1	1	10	-	-	5	-	1	-	-	-	-	-	-	-	-	-	-
1994	-	-	3	-	-	2	-	-	1	-	1	-	-	-	-	-	-	-
1995	-	-	7	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
1996	1	-	4	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
1997	1	1	5	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-
1998	-	42	22	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-
1999	1	10	34	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
2000	1	24	53	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-
2001	1	3	35	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
2002	6	6	39	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-
2003	1	31	5	-	-	1	-	-	-	-	-	-	1	21	1	-	-	-
2004	3	4	5	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
2005	1	-	3	-	2	6	1	-	-	-	-	-	-	-	-	-	-	84
2006	-	-	9	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
2007	1	1	4	-	-	5	-	-	-	1	-	-	-	-	-	-	-	-
2008	1	1	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2009	1	4	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	2	1	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	1	2	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	2	3	2	-	-	4	-	-	1	-	1	-	-	-	-	-	-	-
2013	1	1	13	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
slope	0.00	-0.01	0.01	-0.02	-0.03	-0.12	0.01	-0.02	0.00	0.01	0.00	-0.02	0.00	0.00	0.00	-0.02	-0.02	0.02

Fishing	Species																	
year	HAK	JAV	LIN	SPD	PAH	WIT	FRO	BSH	BCO	MIQ	POM	BTH	BRS	SBO	LCH	GSP	RCO	STU
1991	223	4	85	11	-	-	-	-	-	-	-	-	-	-	-	-	1	1
1992	114	52	572	15	-	1	-	1	2	2	-	7	-	-	14	176	1	-
1993	34	1	43	2	-	-	-	-	-	-	-	-	-	-	1	-	-	-
1994	80	-	87	5	-	-	-	-	-	1	-	-	-	20	4	-	-	-
1995	43	-	54	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1996	4	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1997	40	2	14	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	24	-	80	3	7	-	-	-	-	-	-	-	-	-	-	-	-	-
1999	32	1	84	2	14	-	-	-	-	-	-	-	7	-	-	1	-	-
2000	17	5	42	2	9	-	-	-	-	-	-	-	-	-	-	-	-	-
2001	65	5	65	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-
2002	26	7	78	4	2	-	-	-	-	-	-	-	-	-	-	-	-	-
2003	37	4	30	2	1	-	2	-	-	-	-	-	-	-	-	2	-	-
2004	65	24	154	3	4	2	-	-	-	-	-	-	-	-	1	11	1	-
2005	39	21	80	3	10	2	-	-	-	-	-	-	-	-	1	9	-	-
2006	19	1	15	-	7	-	-	1	-	-	-	-	-	-	1	3	-	-
2007	29	5	38	1	4	-	-	-	-	-	1	-	-	-	1	2	-	-
2008	22	2	14	1	11	-	-	-	-	-	-	-	-	-	1	4	-	-
2009	6	2	21	4	3	-	-	-	-	-	-	-	-	-	-	1	1	-
2010	33	1	35	10	7	-	-	-	-	-	-	-	-	-	-	1	-	-
2011	52	9	49	4	6	-	-	-	-	-	-	-	-	-	-	1	2	-
2012	13	8	69	8	5	-	-	-	-	-	-	-	-	-	2	12	-	-
2013	24	2	40	44	21	-	-	-	-	-	-	-	-	-	1	1	1	-
slope	-0.05	0.08	-0.04	0.03	0.23	-0.01	0.00	-0.01	-0.03	-0.05	0.01	-0.04	-0.01	-0.04	0.00	0.12	0.02	-0.02

Table 8: Southern blue whiting trawl fishery. — *continued.*

Fishing	Species																	
year	SWA	MAK	HYA	HCO	TOP	DSP	SKA	MIC	SPI	RAT	HOK	LDO	SSI	RBM	WWA	RSK	MAN	PIG
1991	-	-	-	-	-	-	-	-	-	3	132	1	9	-	-	-	-	7
1992	-	-	-	1	2	-	3	1	-	42	860	12	75	1	43	-	9	3
1993	1	-	-	-	-	-	-	-	-	3	58	-	1	-	1	-	-	-
1994	-	-	-	-	-	-	3	-	-	81	44	1	2	-	31	-	-	-
1995	-	-	-	-	-	-	-	-	-	2	22	-	3	-	-	-	-	-
1996	-	-	-	-	-	3	-	-	-	-	9	-	-	1	-	-	-	-
1997	-	-	-	-	-	-	-	-	-	14	52	-	4	1	-	-	-	-
1998	-	2	-	-	-	-	-	-	-	4	34	-	1	1	1	-	-	-
1999	-	-	-	-	-	-	-	-	-	17	92	-	2	3	1	-	-	1
2000	-	-	-	-	-	-	-	-	-	10	15	-	8	2	2	-	-	-
2001	-	-	-	-	-	-	-	-	-	6	22	-	4	17	1	-	-	-
2002	1	-	-	-	-	-	-	-	-	4	66	1	14	23	-	-	1	-
2003	-	4	-	-	-	-	-	-	-	5	6	-	3	6	-	-	-	-
2004	-	-	-	-	-	-	-	-	6	8	72	3	13	8	1	5	-	2
2005	-	-	-	-	-	-	-	-	-	2	2	1	4	3	1	-	-	-
2006	-	-	-	-	-	-	-	-	-	1	-	1	-	1	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-	1	-	4	3	6	-	-	-
2008	-	-	-	-	-	-	-	-	-	1	2	-	1	1	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	3	40	-	1	3	1	-	-	-
2010	-	1	-	-	-	-	-	-	-	7	12	1	136	4	1	-	-	-
2011	-	-	-	-	-	-	-	-	-	3	26	1	12	2	1	1	-	-
2012	-	-	2	-	-	-	-	-	-	13	14	1	16	3	8	-	-	-
2013	48	2	-	-	-	-	-	-	-	1	19	-	5	-	-	-	-	-
slope	-0.02	0.05	0.04	0.03	-0.02	-0.03	-0.02	-0.06	-0.02	0.01	-0.06	-0.14	-0.01	0.03	0.10	-0.02	0.03	-0.04

Fishing	Species									
year	GSH	CON	SQX	ONG	OCT	SOP	SRB	RBT	BOA	CBO
1991	-	-	-	-	-	-	-	-	-	8
1992	63	1	-	7	-	-	-	-	4	-
1993	4	-	-	-	-	-	-	-	-	-
1994	11	-	-	-	-	-	-	-	-	-
1995	3	-	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-	-
1998	-	-	-	-	-	-	-	-	-	-
1999	1	-	-	1	-	1	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	-
2001	-	-	-	2	-	-	-	-	-	-
2002	1	-	-	-	-	-	-	-	-	-
2003	-	-	-	-	-	-	-	1	-	-
2004	1	-	-	2	1	-	-	-	-	-
2005	2	1	-	1	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	-	-
2010	-	-	1	-	-	-	-	-	-	-
2011	1	-	-	-	-	3	-	-	-	-
2012	3	-	-	-	-	-	1	-	-	-
2013	-	-	-	-	-	-	-	-	-	-
slope	-0.08	-0.10	-0.02	0.02	-0.04	0.00	0.02	0.02	0.00	-0.04

Table 9: Regression slopes for each species/species group and fishery, from Tables 1–8. Slopes indicating a decline in bycatch over time are highlighted in salmon, and slopes indicating an increase in bycatch over time are highlighted in blue. Species/species groups are ordered alphabetically; blank cells = not estimated; LLL = ling longline fishery; HHL = hoki/hake/ling fishery.

Species	Fishery								Scientific
code	SBW	SQU	SCI	LLL	JMA	ORH	OEO	HHL	name
ACS		0.01	0.22			0.07		0.18	*Actinostolidae*
ADT			0.02						*Aphrodita spp.*
AER			0.02						*Aeneator recens*
AFO			0.05						*Aristaeomorpha foliacea*
AGR								-0.18	*Agrostichthys parkeri*
AIR			-0.01						*Argyripnus iridescens*
ALB		0.02			0.14			0	*Thunnus alalunga*
ALL			0.08						*Alcithoe larochei*
ANC					0.01				*Engraulis australis*
ANT		0	-0.09	0		0.04	-0.01	0.1	*Anthozoa*
ANZ		0.02							*Ecionemia novaezelandiae*
API		-0.04	0.03						*Alertichthys blacki*
APR		0.02	0.08	-0.02		0.03	0.02	0.09	*Apristurus spp.*
ARE			0.02						*Apatopygus recens*
ASR	0.01	0.12	0.08	0.12		0	-0.02	0.18	-
AST			-0.02						*Astronesthinae (Subfamily)*
ATT					0.08				*Arripis trutta*
AWI			0.02						*Alcithoe wilsonae*
BAC						-0.03			*Bathygadus cottoides*
BAM			0.05						*Bathyplotes spp.*
BAR	0	-0.01	0		0.04			-0.11	*Thyrsites atun*
BAS		0	-0.21	0.08				0.07	*Polyprion americanus*
BAT		-0.01				0	-0.01		*Rouleina spp.*
BBE	-0.02	0.04	-0.01			-0.04	0.04	0.03	*Centriscops humerosus*
BCA		0						-0.11	*Magnisudis prionosa*
BCD		0.24	0.01	0.01				0	*Paranotothenia magellanica*
BCO	-0.03	0.13	0	0	0.05			0	*Parapercis colias*
BCR			-0.01					-0.02	*Brotulotaenia crassa*
BDA								0	*Sphyraena novaehollandiae*
BEE						-0.08	0.12	0.03	*Diastobranchus capensis*
BEL		0.09	0.03			-0.01		0.15	*Centriscops spp.*
BEN					0.07			0.21	*Benthodesmus spp.*
BER			-0.07					-0.01	*Typhlonarke spp.*
BES			0.02					0.04	*Benthopecten spp.*
BFI						0			*Bathophilus filifer*
BFL		0.01							*Rhombosolea retiaria*
BGZ		0.1							*Kathetostoma binigrasella*
BIG		0.01						-0.02	*Thunnus obesus*
BJA						-0.02	0.03		*Mesobius antipodum*
BKM					0.02			-0.05	*Makaira indica*
BNE					0.01			0	*Benthodesmus elongatus*
BNS		-0.06	-0.28	-0.1	-0.06	-0.18	0.01	-0.1	*Hyperoglyphe antarctica*
BNT								-0.01	*Benthodesmus tenuis*
BOA	-0.04		0.04					-0.01	*Paristiopterus labiosus*
BOC		0.01	0.1						*Bolocera spp.*
BOE						-0.19		0.04	*Allocyttus niger*
BOO						0.02			*Keratoisis spp.*
BOT		0						0	*Bothidae*
BPE			-0.03		-0.1			-0.01	*Caesioperca lepidoptera*
BPI								0.03	*Benthopecten pikei*
BRA		-0.01			-0.08			0.01	*Dasyatis brevicaudata*
BRC			-0.08	0.02		-0.02		0.01	*Pseudophycis breviuscula*
BRG						0.1			*Brisingida*
BRS	-0.01							-0.01	*Echinorhinus brucus*
BRZ			0.02						*Xenocephalus armatus*

Table 9: Regression slopes for each species/species group and fishery, *continued*.

Species	Fishery								Scientific
code	SBW	SQU	SCI	LLL	JMA	ORH	OEO	HHL	Name
BSH	-0.01	-0.06	-0.14	0.14		-0.09	0.02	-0.01	*Dalatias licha*
BSK		0.22			-0.02	-0.02		-0.12	*Cetorhinus maximus*
BSL						-0.11	0.04	0.08	*Xenodermichthys spp.*
BSP				-0.02				0	*Taractichthys longipinnis*
BSQ	-0.02					-0.03		-0.08	*Sepioteuthis australis*
BTA			0.06					0.04	*Brochiraja asperula*
BTH	-0.04	0.01	0.07	0.01		0.04	0.02	0.06	*Notoraja spp.*
BTS			-0.05					0.08	*Brochiraja spinifera*
BWH			0.08		0.05	0			*Carcharhinus brachyurus*
BWS		0.02		-0.06	0.05			-0.08	*Prionace glauca*
BYD								0.1	*Beryx decadactylus*
BYS		0	0.03	0.02		0.1		0.2	*Beryx splendens*
BYX		0.01	-0.25	-0.04	-0.01	-0.23		-0.11	*Beryx splendens & B. decadactylus*
CAL			0.08						*Caenopedina porphyrogigas*
CAM			0.09						*Camplyonotus rathbunae*
CAR		0.25	0.12	0.27	-0.26	-0.02		0.14	*Cephaloscyllium isabellum*
CAS		0.04	0.06					-0.04	*Coelorinchus aspercephalus*
CAY							0.01		*Caryophyllia spp.*
CBB		0.02	0.02			0.08			-
CBD		0.1				0.01	0.02		-
CBE		0.02	-0.03		0.01			0.04	*Notopogon lilliei*
CBI								-0.02	*Coelorinchus biclinozonalis*
CBO	-0.05	0.01	-0.02			0		-0.07	*Coelorinchus bollonsi*
CBX								0	*Cubiceps baxteri*
CCA								0.01	*Cubiceps caeruleus*
CCO			0.02					0.03	*Coelorinchus cookianus*
CCR		0							*Cetonurus crassiceps*
CCX								0.05	*Coelorinchus parvifasciatus*
CDL					-0.01	-0.2	0	0.01	*Epigonidae*
CDO		0.06	0.04		0.05			0.18	*Capromimus abbreviatus*
CDX			0.16					0	*Coelorinchus maurofasciatus*
CDY			0.01						*Cosmasterias dyscrita*
CEN				0		-0.04			*Squalidae*
CFA			0.04						*Coelorinchus fasciatus*
CHA								0.01	*Chauliodus sloani*
CHC		0.02							*Chaceon bicolor*
CHG				0.06		0	0.08	0.04	*Chimaera lignaria*
CHI			-0.03	0.02		0.07	-0.02	-0.06	*Chimaera spp.*
CHM								0	*Chiasmodontidae*
CHP				-0.02		0.02	0.06	0	*Chimaera sp.*
CHQ		0.04						0.02	*Cranchiidae*
CHR							0.04		*Chrysogorgia spp.*
CHX			-0.04			0		0.01	*Chaunax pictus*
CJA			0.1					0.11	*Crossaster multispinus*
CMT		0.02							*Comatulida*
CMU							0.01	-0.02	*Coryphaenoides murrayi*
COB						0.01			*Antipatharia (Order)*
COD						0.01	-0.01	-0.02	-
COF		0.02						0.02	*Flabellum spp.*
COL			0.03			-0.02		0.1	*Coelorinchus oliverianus*
CON	-0.02	0.08	0.01	-0.05	-0.05	-0.04	0	0.11	*Conger spp.*
COR			-0.02			0.01	0		*Stylasteridae (Family)*
COU		-0.01	0	0		-0.01	-0.03	0.02	*Alcyonacea,Gorgonacea,Scleractinia,Antipatharia*
CPA			0.12	0.05				0.07	*Ceramaster patagonicus*
CPD								-0.03	*Centrolophidae*

Table 9: Regression slopes for each species/species group and fishery, *continued*.

Species	Fishery								Scientific
code	SBW	SQU	SCI	LLL	JMA	ORH	OEO	HHL	name
CRA		-0.01						-0.02	*Jasus edwardsii*
CRB		-0.14	-0.12	0		-0.02	0	0.03	-
CRM		0.1							*Callyspongia cf ramosa*
CRN		0.02							-
CRS						-0.01			*Callyspongia ramosa*
CRU		-0.04	-0.06					-0.01	-
CSH		0.05		0.06	-0.07	-0.04	-0.01	0.14	-
CSP		-0.01							*Coelorinchus spathulatus*
CSQ	-0.02	-0.01	0.02	0.29		0.11	0.03	0.09	*Centrophorus squamosus*
CST								-0.02	*Caristius sp.*
CSU						0.03			*Coryphaenoides subserrulatus*
CTU			-0.01					-0.01	*Cookia sulcata*
CUB							0	-0.03	*Cubiceps spp.*
CUC		-0.02	-0.11		-0.02				*Paraulopus nigripinnis*
CVI			0.02						*Pycnoplax victoriensis*
CYL						0.13		0.19	*Centroscymnus coelolepis*
CYO				-0.03		0.14		0.1	*Centroscymnus owstoni*
CYP			0.01	0.02		0.18	0.13	0.11	*Centroscymnus crepidater*
DAP			0.15						*Dagnaudus petterdi*
DAS			0.01						*Pteroplatytrygon violacea*
DCO			0.02						*Notophycis marginata*
DCS			-0.06	0.13		-0.02		-0.04	*Bythaelurus dawsoni*
DDI			0.05			0.02	0.01		*Desmophyllum dianthus*
DEA					0.04			-0.11	*Trachipterus trachypterus*
DEQ						-0.02		-0.02	*Deania quadrispinosum*
DHO			0.02					0.01	*Dermechinus horridus*
DIR			0.09						*Diacanthurus rubricatus*
DMG			0.13	0.09				0.08	*Dipsacaster magnificus*
DPO								-0.02	*Desmodema polystictum*
DSK		0.01	-0.12	0		0.02	-0.04	0.11	*Amblyraja hyperborea*
DSP	-0.02	0.04							*Congiopodus coriaceus*
DSS								-0.01	*Bathylagus spp.*
DWE			-0.04	-0.03		-0.06	-0.01	0.18	-
DWO			0					0.16	*Graneledone spp.*
ECH			-0.04	-0.01		-0.01	0	-0.04	*Echinodermata (Phylum)*
ECN			0.04	-0.01		0	-0.01	0	-
EEL			-0.16	-0.01		0.01	0	-0.08	-
EEX		0.04							*Enypniastes eximia*
EGA			0.02						*Euciroa galatheae*
EGR					0.1				*Myliobatis tenuicaudatus*
ELE					0.05				*Callorhinchus milii*
ELT				0.02					*Electrona spp.*
EMA	0				0			-0.2	*Scomber australasicus*
EMO			-0.02			0		0.02	*Etmopterus molleri*
EPD								0.02	*Epigonus denticulatus*
EPL		0.03	0.01			-0.1	-0.03	0.21	*Epigonus lenimen*
EPO			-0.02						*Melanostigma gelatinosum*
EPR			0.02			0.04		0.16	*Epigonus robustus*
ERA		0	-0.01					0.03	*Torpedo fairchildi*
ERO						0.04			*Enallopsammia rostrata*
ETB	-0.03	0.06	0.07	0.19		0.08	0.27	0.22	*Etmopterus baxteri*
ETL		0.05	0.06	0.04		-0.14	0.05	0.06	*Etmopterus lucifer*
ETM		-0.03	-0.04	-0.06		-0.08	0.04	-0.25	*Etmopterus sp.*
ETP				0.02		-0.04	-0.01	-0.01	*Etmopterus pusillus*
EUC			0.01			-0.02		0.13	*Euclichthys polynemus*

Table 9: Regression slopes for each species/species group and fishery, *continued*.

Species	Fishery								Scientific
code	SBW	SQU	SCI	LLL	JMA	ORH	OEO	HHL	name
EZE		0.05	0.06						*Enteroctopus zealandicus*
FAN								-0.01	*Pterycombus petersii*
FHD		0.04	0.03					0.09	*Hoplichthys haswelli*
FLA		0.16	-0.04					-0.02	-
FLO		0.01						-0.02	-
FMA		0.01	0.19					0.18	*Fusitriton magellanicus*
FOR					0			-0.01	*Forsterygion spp.*
FRO	0	0.08	-0.04		0.04	-0.03		-0.11	*Lepidopus caudatus*
FRS						-0.05		-0.02	*Chlamydoselachus anguineus*
FRX								-0.02	*Trichiuridae*
FTU		0.01							*Auxis thazard*
GAO						0			*Gadomus aoteanus*
GAS			0.18	0.01				0.05	*Gastropoda*
GAT			0.04						*Gastroptychus spp.*
GDU			0.03			0.17	0.11		*Goniocorella dumosa*
GFL		0.14							*Rhombosolea tapirina*
GIZ		0.06	-0.09	0	-0.23	-0.03		0	*Kathetostoma giganteum*
GLS	0.01					0.03		0.15	*Hexactinellida (Class)*
GMC		0.05	0.22						*Leptomithrax garricki*
GMU		0							*Mugil cephalus*
GOB							-0.01		*Mitsukurina owstoni*
GON		0.26						0.06	*Gonorynchus forsteri & G. greyi*
GOR								0.06	*Gorgonocephalus spp.*
GOU			0.02			0.03			*Goniocidaris umbraculum*
GPA			0.04						*Goniocidaris parasol*
GRC						0.01	0.05	-0.01	*Tripterophycis gilchristi*
GRM							0.02	0.05	*Gracilechinus multidentatus*
GSA								-0.01	*Hoplostethus gigas*
GSC		0.39	0.12	0.01		0		0.07	*Jacquinotia edwardsii*
GSH	-0.1	0.1	0.01	-0.06	-0.26	-0.17	-0.19	-0.09	*Hydrolagus novaezealandiae*
GSP	0.12	0.15	0.14			0.11	0.19	0.16	*Hydrolagus bemisi*
GSQ	0	0				0.02		0.02	*Architeuthis spp.*
GUR		0			-0.03			0.01	*Chelidonichthys kumu*
GVO			0.11					0.01	*Provocator mirabilis*
HAG			-0.07	0.2				0.18	*Eptatretus cirrhatus*
HAK	-0.05	0.04	0.05	0.16	0.05	-0.03	-0.02		*Merluccius australis*
HAL								0.02	*Halosauropsis macrochir*
HAP		0.1	-0.06	0.06	0.02			-0.02	*Polyprion oxygeneios*
HAT					-0.02				*Sternoptychidae*
HCO	-0.02	0.02	0.02	0.34		-0.01		-0.03	*Bassanago hirsutus*
HEC			0.02						*Henricia compacta*
HEP			-0.03	0.04	-0.02			0.05	*Heptranchias perlo*
HEX		0.07	-0.08	0.13				0.14	*Hexanchus griseus*
HGB						0.01			*Hydrolagus sp. d*
HIS			0.02						*Histocidaris spp.*
HJO						0.06	0.1	0	*Halargyreus johnsonii*
HMT			0.2	0.02				0.08	*Hormathiidae*
HOK	-0.14	0.04	-0.07	0.13	-0.12	-0.08	0.14		*Macruronus novaezelandiae*
HOL								0.01	*Holtbyrnia sp.*
HOR								0	*Atrina zelandica*
HPB		-0.11	-0.2	-0.14	-0.17			-0.18	*Polyprion oxygeneios & P americanus*
HSI			0.18						*Haliporoides sibogae*
HTH		-0.02	0.02			0.09	0.04	0.07	*Holothurian unidentified*
HTR			0.08					0.1	*Hippasteria phrygiana*
HYA	0.03	0.04	0.08			0.02		0.3	*Hyalascus sp.*

Table 9: Regression slopes for each species/species group and fishery, *continued*.

Species	Fishery								Scientific
code	SBW	SQU	SCI	LLL	JMA	ORH	OEO	HHL	name
HYB				0.01					*Hydrolagus homonycteris*
HYD				0			0.01	0.01	*Hydrolagus sp.*
HYM			0.08						*Hymenocephalus spp.*
HYP						0			*Hydrolagus trolli*
IBR						0.06	0.02		*Isistius brasiliensis*
ISI							0.01		*Isididae*
JAV	0.08	0.21	-0.02	0.09	0.1	0.01	0.1	0.05	*Lepidorhynchus denticulatus*
JDO		0			-0.04			-0.02	*Zeus faber*
JFI		-0.04	-0.06		0.07	0.02	0.02	0.02	-
JGU		-0.01	-0.07		-0.07			0	*Pterygotrigla picta*
JMA	0	-0.16	-0.14			-0.03		-0.24	*Trachurus declivis, T. murphyi, T. novaezelandiae*
KIC			-0.02			0.05	-0.02	0.06	*Lithodes murrayi, Neolithodes brodiei*
KIN			-0.02		0.18			0.01	*Seriola lalandi*
KWH			0.01					0.01	*Austrofucus glans*
LAE			0			-0.03	-0.01		*Laemonema spp.*
LAG			0.1						*Laetmogone spp.*
LAN		0.17			0.03	0	0.01	0.07	*Myctophidae*
LCH	0		0			0.01	0.03	0.02	*Harriotta raleighana*
LDO	-0.01	0.06	-0.04		0.06	-0.06	0	0	*Cyttus traversi*
LEA		0			-0.13				*Meuschenia scaber*
LEG						-0.05	0.02	0	*Lepidion schmidti & Lepidion inosimae*
LHE								-0.02	*Lampanyctodes hectoris*
LHO			0.06					0.03	*Lipkius holthuisi*
LIN	-0.04	0.06	-0.13		-0.14	-0.07	-0.06		*Genypterus blacodes*
LLC		0.09	0.02					0.02	*Leptomithrax longipes*
LMI			0.04						*Leptomithrax spp.*
LMU						0.01		0.03	*Lithodes murrayi*
LNV								0.06	*Lithosoma novaezelandiae*
LPI						0			*Lepidion inosimae*
LPS							-0.01		*Lepidion schmidti*
LSK		0.01	0.11			-0.02		0.12	*Arhynchobatis asperrimus*
LSO		-0.02	0.02					0.01	*Pelotretis flavilatus*
LUC			-0.04			-0.02		-0.02	*Luciosudus sp.*
MAK	0.04	0.04	0	0.04	0.13	-0.05		-0.06	*Isurus oxyrinchus*
MAN	-0.04	-0.02				0.02		-0.1	*Neoachiropsetta milfordi*
MCA						0.13	0.28	0	*Macrourus carinatus*
MDO		0.03	0.01			-0.03		-0.01	*Zenopsis nebulosa*
MIC	-0.02								*Microstoma microstoma*
MIQ	-0.05		-0.07			-0.09	0	0.07	*Onykia ingens*
MNI			0.12						*Munida spp.*
MOC						0.07	0.02		*Madrepora oculata*
MOD			-0.03	0.02		0.18	0.17	0.16	*Moridae*
MOK		-0.02	0			-0.02		-0.09	*Latridopsis ciliaris*
MOL			0					-0.02	-
MOO	-0.12	0.01			-0.05			-0.17	*Lampris guttatus*
MOR						0	0	-0.01	*Muraenidae (Family)*
MRQ								-0.01	*Onykia robsoni*
MSL			0.06						*Mediaster sladeni*
MST						0.03		0.02	*Melanostomiidae*
MUR						-0.02			*Muraenolepis marmoratus*
MUU		0							-
NCA		0.06							*Nectocarcinus antarcticus*
NCB		0.49						0.02	*Nectocarcinus bennetti*
NEB						0.08		0.01	*Neolithodes brodiei*
NEX					0			0	*Nemichthyidae*

Table 9: Regression slopes for each species/species group and fishery, *continued*.

Species	Fishery								Scientific
code	SBW	SQU	SCI	LLL	JMA	ORH	OEO	HHL	name
NMP		0.13	-0.1	0.01	-0.14			-0.07	*Nemadactylus macropterus*
NOC								0.02	*Notacanthus chemnitzi*
NOR							0.01		*Normichthys yahganorum*
NOT		-0.06	-0.03	-0.27		0			*Nototheniidae*
NSD		0.02	-0.03	0.17	-0.12			0.21	*Squalus griffini*
NTO		0.01							*Notomithrax spp.*
NTU					0			-0.01	*Thunnus thynnus*
NUD			0.05						*Nudibranchia (Order)*
OAR								-0.07	*Regalecus glesne*
OCP			0.01						-
OCT	0	0.05	-0.01	0	-0.02	-0.01	-0.01	-0.07	*Pinnoctopus cordiformis*
ODO		0	0.02	0.02	-0.04			-0.01	*Odontaspis ferox*
OEO						-0.13		-0.1	*P. maculatus, A. niger, & N. rhomboidalis*
OFH			-0.05	0.02		0.02		-0.01	*Ruvettus pretiosus*
OLY			0.02						*Ophiomusium lymani*
ONG	-0.04	0.18	0.1	0		0.09	0	0.09	*Porifera (Phylum)*
OPA	-0.02	0.15	0.04					0.02	*Hemerocoetes spp.*
OPE		0.16	-0.05		-0.01	-0.01		-0.02	*Lepidoperca aurantia*
OPH						-0.02			-
OPI			0.14					0.26	*Opisthoteuthis spp.*
OPL		0.01							*Opheliidae*
ORH			-0.02			-0.08	0.02	-0.08	*Hoplostethus atlanticus*
OSE								0	*Ophisurus serpens*
OSK			0.2			0.04		0.17	*Rajidae (Family)*
OSP							0.01	0	*Crassostrea gigas*
PAB						0.04	0.09		*Paragorgia arborea*
PAD		-0.3							*Ovalipes catharus*
PAG			0.05						*Paguroidea*
PAH	0.23							0	*Lampris immaculatus*
PAL								0	*Paralepididae*
PAM			0.06						*Pannychia moseleyi*
PAO			0.02					0.02	*Pillsburiaster aoteanus*
PCH			0.01						*Penion chathamensis*
PCO			-0.05						*Auchenoceros punctatus*
PDG		0.04				-0.06		0.06	*Oxynotus bruniensis*
PDS								0.03	*Paradiplospinus gracilis*
PED			-0.03						*Aristaeopsis edwardsiana*
PFL			0.02						*Pseudechinus flemingi*
PHO		0.04				-0.01		0.04	*Phosichthys argenteus*
PHW		0.02							*Psammocinia cf hawere*
PIG	-0.08	0.22	0.06					0.06	*Congiopodus leucopaecilus*
PIL					0.24				*Sardinops sagax*
PIN						0		0.01	*Idiolophorhynchus andriashevi*
PKN				0.02				0.07	*Plutonaster knoxi*
PLS		0.02		0.16		0.03	0.01	0.02	*Proscymnodon plunketi*
PLT			0.01					0.03	*Plutonaster spp.*
PLY			0.02						*Polycheles spp.*
PLZ			-0.05						*Pleuroscopus pseudodorsalis*
PMO			0.04					0.02	*Pseudostichopus mollis*
PMU			0.1						*Paramaretia peloria*
PNE			0.1	0.02					*Proserpinaster neozelanicus*
PNN			0.02						*Pennatula spp.*
PNO			0.04						*Pteropeltarion novaezelandiae*
POM	0.01								*Bramidae*
POP					0.02				*Allomycterus jaculiferus*

Table 9: Regression slopes for each species/species group and fishery, *continued*.

Species	Fishery								Scientific
code	SBW	SQU	SCI	LLL	JMA	ORH	OEO	HHL	name
POR	-0.02	-0.04			-0.01			-0.24	*Nemadactylus douglasii*
POS	0.01	0.02		-0.02	-0.06			-0.08	*Lamna nasus*
PRA			0.03						-
PRK			0.17						*Ibacus alticrenatus*
PRO					0				*Protomyctophum spp.*
PRU			0.04					0.01	*Pseudechinaster rubens*
PSE			0				-0.01		*Pseudechinus spp.*
PSI			0.23	0.02				0.14	*Psilaster acuminatus*
PSK		0.01	0.09	0.01		0.08	0	0.16	*Bathyraja shuntovi*
PSL						-0.02	0.02		*Paralomis dosleini*
PSO								-0.02	*Psolus spp.*
PSP								0.02	*Psenes pellucidus*
PSQ						0.02		0.06	*Pholidoteuthis massyae*
PSY			-0.04			0.03	0.01	-0.02	*Psychrolutes microporos*
PTO				0.04			0		*Dissostichus eleginoides*
PZE								0.01	*Paralomis zealandica*
QSC		0.14							*Zygochlamys delicatula*
RAG						0.03	0.02	-0.07	*Pseudoicichthys australis*
RAT	-0.06	0.08	-0.03	0.13	-0.06	-0.01	0.1	0.03	*Macrouridae*
RAY			-0.06		-0.05		-0.02	0.04	*Torpedinidae okas Dasyatidae Myliobatidae Mobulidae*
RBM	0.1	-0.1		-0.14	0.05	-0.01		-0.05	*Brama brama*
RBT	0	0.02	0.02		0.05			0.05	*Emmelichthys nitidus*
RBY		0.01	-0.08		0			-0.21	*Plagiogeneion rubiginosum*
RCH						0.05		0.02	*Rhinochimaera pacifica*
RCK			0						*Acanthoclinidae*
RCO	0.02	0.05	-0.08	0.04	-0.23			-0.07	*Pseudophycis bachus*
RDO		0.14	-0.01		0.05			0.1	*Cyttopsis roseus*
RHY			0.16		-0.01	0.07		0.2	*Paratrachichthys trailli*
RIB		0.05	-0.2	-0.04		-0.06	-0.02	-0.01	*Mora moro*
RIS								0.06	*Bathyraja richardsoni*
RMU								-0.02	*Upeneichthys lineatus*
ROC		0.01	-0.02	0.01		0.03	0.02	0	*Lotella rhacinus*
RPE			-0.03						-
RPI					-0.02				*Bodianus vulpinus*
RSC						0.01			*Scorpaena papillosa*
RSK	0.03	0.24	0.14	0.32	0.05	0.01		0.11	*Zearaja nasuta*
RSN			-0.01		-0.08			-0.02	*Centroberyx affinis*
RSO		-0.13	-0.1	0.04	-0.13			-0.03	*Rexea solandri*
RSQ		0.02				-0.07		0	*Ommastrephes bartrami*
RUD			-0.08		-0.01	-0.05	-0.03	-0.02	*Centrolophus niger*
SAF						0.01			*Synaphobranchus affinis*
SAI								0.01	*Istiophorus platypterus*
SAR						0			*Squilla armata*
SAW								-0.02	*Serrivomer spp.*
SBI	0.02					-0.13	-0.02	-0.03	*Alepocephalus australis*
SBK			-0.04			-0.03		0.05	*Notacanthus sexspinis*
SBO	-0.04	0	0.05			0.01		0.05	*Pseudopentaceros richardsoni*
SBR			-0.06	0.01		-0.03	0.01	0.04	*Pseudophycis barbata*
SBW		0.13	0.01				0.02	0.2	*Micromesistius australis*
SCA		0.02							*Pecten novaezelandiae*
SCD		0.11						0.01	*Notothenia microlepidota*
SCG			-0.06		0.12			0.01	*Lepidotrigla brachyoptera*
SCH		0.11	-0.06	0.08	-0.14	0.03		0.03	*Galeorhinus galeus*
SCI								0.1	*Metanephrops challengeri*
SCM		0.01	0	-0.04		0.05	0.01	0.12	*Centroscymnus macracanthus*

Table 9: Regression slopes for each species/species group and fishery, *continued*.

Species	Fishery								Scientific
code	SBW	SQU	SCI	LLL	JMA	ORH	OEO	HHL	name
SCO			-0.01	0.03		0.01		0.1	*Bassanago bulbiceps*
SDE								-0.02	*Cryptopsaras couesii*
SDF			0.02						*Azygopus pinnifasciatus*
SDL						0.01			*Scorpaena cardinalis*
SDM			0.13					0.02	*Sympagurus dimorphus*
SDO		0.39	-0.02		0.17			0.12	*Cyttus novaezealandiae*
SDR						-0.01		0.02	*Solegnathus spinosissimus*
SEE			-0.02	0.11				0.1	*Gnathophis habenatus*
SER			0.02						*Sergestes spp.*
SEV		0.06	0.04		0			0.1	*Notorynchus cepedianus*
SFL		0.07							*Rhombosolea plebeia*
SHA	0	0.06	-0.1	0.1	-0.06	0.13	-0.13	-0.03	-
SHE						-0.01		-0.04	*Scymnodalatias sherwoodi*
SHL			-0.05						*Scyllarus sp.*
SHR			0						*Aplysiomorpha (Order)*
SIA						0.15	0.04		*Scleractinia*
SKA	-0.06	-0.08	-0.39	0.36	0.18	-0.07	-0.03	-0.33	*Rajidae Arhynchobatidae (Families)*
SKJ		0.01							*Katsuwonus pelamis*
SLB								0.03	*Scymnodalatias albicauda*
SLC						-0.02			*Slosarczykovia circumantarctica*
SLG			-0.04						*Scutus breviculus*
SLK						0.04	0.16	0.16	*Alepocephalidae*
SLR			-0.04						*Optivus elongatus*
SMA		0.01			0.01				*Stigmatophora macropterygia*
SMC			0.02			-0.03	0.07	-0.04	*Lepidion microcephalus*
SMI		0.03				0		0.04	*Somniosus microcephalus*
SMK		0.02	0.28						*Teratomaia richardsoni*
SMO		0.06							*Sclerasterias mollis*
SMT			0.04						*Spatangus mathesoni*
SNA		-0.04	-0.02		0.16	-0.04		-0.09	*Pagrus auratus*
SND		0.04	-0.1	0.18	-0.01	0.04	0.05	0	*Deania calcea*
SNE								0.02	*Simenchelys parasitica*
SNI		-0.02	0		-0.02			0.01	*Macroramphosus scolopax*
SNO						0.01		0.02	*Sio nordenskjoldii*
SNR				0.01		-0.02	0.03	0.01	*Deania histricosa*
SOL			0.02						-
SOM						0.02			*Somniosus rostratus*
SOP	0.02					0.01		-0.02	*Somniosus pacificus*
SOR						-0.1		-0.01	*Neocyttus rhomboidalis*
SOT			0.02	0.01				0.03	*Solaster torulatus*
SPD	0.03	0.04	0.08	0.09	-0.12	0.19	-0.03	-0.01	*Squalus acanthias*
SPE		0.06	-0.02	0.03	0.25	-0.08		0.01	*Helicolenus spp.*
SPF					0			-0.01	*Pseudolabrus miles*
SPI	0.01	-0.06	0.13	0		-0.03	-0.01	-0.07	-
SPK			-0.01					-0.01	*Macrorhamphosodes uradoi*
SPL								0	*Scopelosaurus sp.*
SPO		0.03	-0.11	-0.04	-0.25			-0.06	*Mustelus lenticulatus*
SPP					0.01				*Callanthias spp.*
SPR								0	*Sprattus antipodum, S. muelleri*
SPT			0.19		-0.01			0.01	*Spatangus multispinus*
SPZ			0					-0.05	*Genyagnus monopterygius*
SQA				0.02		0.02	0.04	0.04	*Squalus spp.*
SQI		-0.03							*Pristilepis oligolepis*
SQU	-0.01		0.02		-0.07	-0.11	-0.03	0	*Nototodarus sloanii & N. gouldi*
SQX	0.02		-0.06		0.02	0.02	0.03	0.13	-

Table 9: Regression slopes for each species/species group and fishery, *continued*.

Species	Fishery								Scientific
code	SBW	SQU	SCI	LLL	JMA	ORH	OEO	HHL	name
SRB	0.02							0.02	*Brama australis*
SRH			0.01			-0.01		0.12	*Hoplostethus mediterraneus*
SRI						0.01		0.04	*Scymnodon ringens*
SSC		-0.14	-0.05					0.01	*Leptomithrax australis*
SSH		0.01	-0.02	0.03				0.17	*Gollum attenuatus*
SSI	0.03	0.21	0.04		-0.02	0.01	-0.04	0.05	*Argentina elongata*
SSK		0	0.02	0.12	-0.18	-0.03	0.08	0.03	*Dipturus innominatus*
SSM						-0.03	0.08	-0.01	*Alepocephalus antipodianus*
SSO						-0.19		-0.01	*Pseudocyttus maculatus*
SSP								-0.01	*Pecten novaezelandiae*
STG		-0.01	0.03		-0.01			-0.12	-
STN		0.03	-0.02		0			0.06	*Thunnus maccoyii*
STO								0.02	*Stomias spp.*
STR		0.02	-0.04		0.01			-0.01	-
STU	-0.02	-0.06			0.06			-0.12	*Allothunnus fallai*
SUH								-0.01	*Schedophilus huttoni*
SUN		-0.03	0.01		0.11	0.01		-0.02	*Mola mola*
SUR			-0.06			0		-0.03	*Evechinus chloroticus*
SVA						0.06	0.1		*Solenosmilia variabilis*
SWA	0.05	0.06	-0.18		-0.01	-0.04		-0.04	*Seriolella punctata*
SWO					0.04	-0.04		0	*Xiphias gladius*
SWR						-0.02			*Coris sandageri*
SYD								0.01	*Systellaspis debilis*
SYN						-0.03		0.02	*Synaphobranchidae*
TAM			0.04			0.06	0.1	0.23	*Echinothuriidae & Phormosomatidae*
TAY			0.13					0.05	*Typhlonarke aysoni*
TDQ								0.02	*Taningia danae*
TFA			0.23						*Trichopeltarion fantasticum*
THR		-0.07		0.02	-0.03			-0.14	*Alopias vulpinus*
TLD								0.03	*Tetilla leptoderma*
TLO			0.01						*Telesto spp.*
TOA		0.14	-0.03	0.04	-0.01	0.08	0	0.09	*Neophrynichthys sp.*
TOD		0.06	0.04					0.08	*Neophrynichthys latus*
TOP	-0.03		0	0.06		0.01		0.1	*Ambophthalmos angustus*
TOR		0.08						0.13	*Thunnus orientalis*
TRA					-0.01			-0.01	*Trachichthyidae (Family)*
TRE					0.06				*Pseudocaranx georgianus*
TRS						-0.02			*Trachyscorpia eschmeyeri*
TRU		0						-0.02	*Latris lineata*
TSQ						0.03		0.1	*Todarodes filippovae*
TTA			0.04						*Typhlonarke tarakea*
TUR		0.02							*Colistium nudipinnis*
TVI								0.03	*Trachonurus villosus*
URP		0.02	0.02						*Uroptychus spp.*
VCO						0.07	0.11	-0.02	*Antimora rostrata*
VIT							-0.01		*Vitjazmaia latidactyla*
VOL			0					0.01	*Volutidae (Family)*
VSQ						0.04		0.19	*Histioteuthis spp.*
WAR		-0.01			-0.09	0		-0.18	*Seriolella brama*
WHE			-0.04					0.03	-
WHR						-0.04		-0.07	*Trachyrincus longirostris*
WHX			0.01			0.06		0.17	*Trachyrincus aphyodes*
WIT	-0.01	0.11	0.07			0.05		0.14	*Arnoglossus scapha*
WOE						-0.03	-0.03		*Allocyttus verrucosus*
WPS		0.06			0.01	0.01		0.01	*Carcharodon carcharias*

Table 9: Regression slopes for each species/species group and fishery, *continued*.

Species	Fishery								Scientific
code	SBW	SQU	SCI	LLL	JMA	ORH	OEO	HHL	name
WPS		0.06			0.01	0.01		0.01	*Carcharodon carcharias*
WRA					-0.01			0.04	*Dasyatis thetidis*
WSE					-0.01				*Labridae (Family)*
WSQ	0	0.09	0.03			0.05	0.17	-0.04	*Onykia spp.*
WWA	-0.02	0.05	-0.05	-0.04	0		0.04	0.06	*Seriolella caerulea*
YBF								0.02	*Rhombosolea leporina*
YBO			0.1					0.12	*Pentaceros decacanthus*
YCO		0.08							*Parapercis gilliesi*
YEM		-0.02							*Aldrichetta forsteri*
YFN		0.01						0.01	*Thunnus albacares*
YSG			0.01						*Pterygotrigla pauli*
YSP			0.02						*Yaldwynopsis spinimana*
ZAS						0.03			*Zameus squamulosus*
ZOR			0.16	0.03				0.11	*Zoroaster spp.*