



A review of hoki and middle-depth summer trawl surveys of the Sub-Antarctic, November December 1991–1993 and 2000–2009

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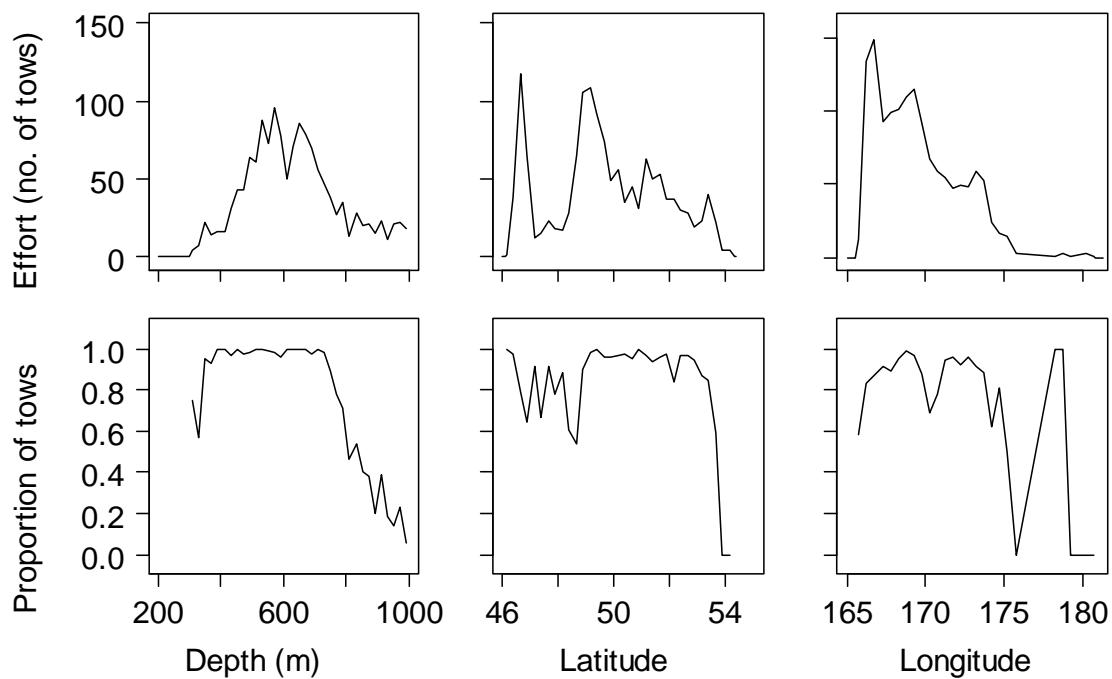
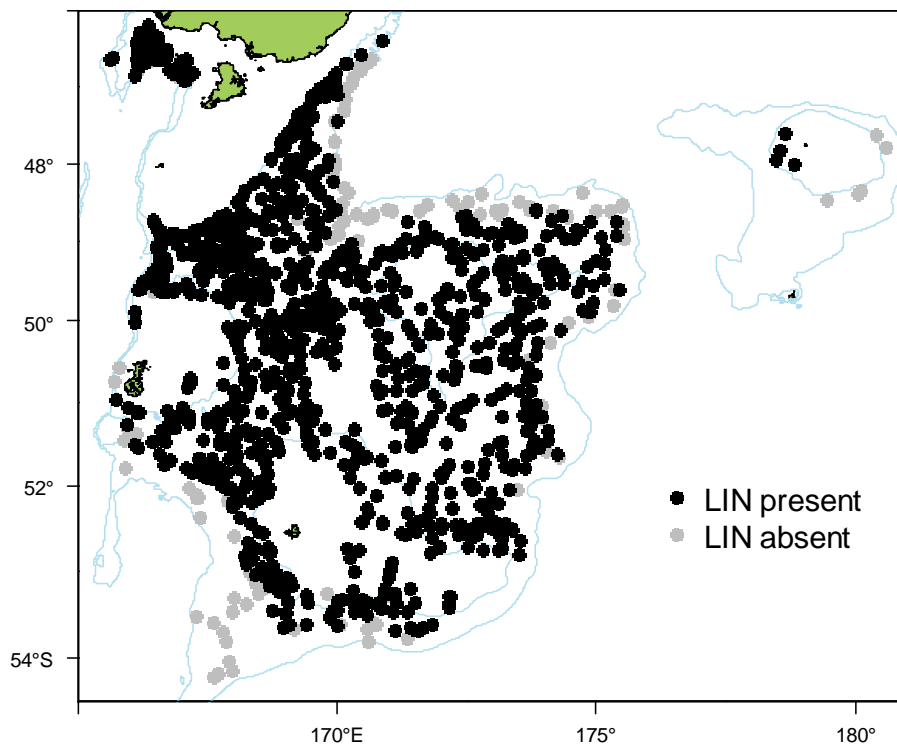
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	105 455.3
Number measured	34 563
Length range (mean) (cm)	13–168 (79.0)
Number weighed	17 471
Length-weight parameters a, b (r^2)	0.0015242, 3.25538 (97.54)

This species has been **well** identified during the time series. It is occasionally found **deeper than 800 m**. The core survey area and depth range **is** appropriate for this species. Distribution **does** extend to the areas deeper than 800 m surveyed from 2000 to 2009. It **is** recorded from the Bounty Platform.

Biomass of this species is **very well** estimated by the core survey. Biomass **shows no clear trend** since the start of the time series. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **poorly** estimated. Catch rates are highest at Puysegur.

Length frequencies **have multiple modes which may contain information about year-class strength**. Mean length has **decreased** since the start of the time series. Gonad stage data overall indicate that most female fish are **resting, while males are ripe**. Ling in spawning condition have been recorded at Puysegur and the Bounty Platform during the time series.

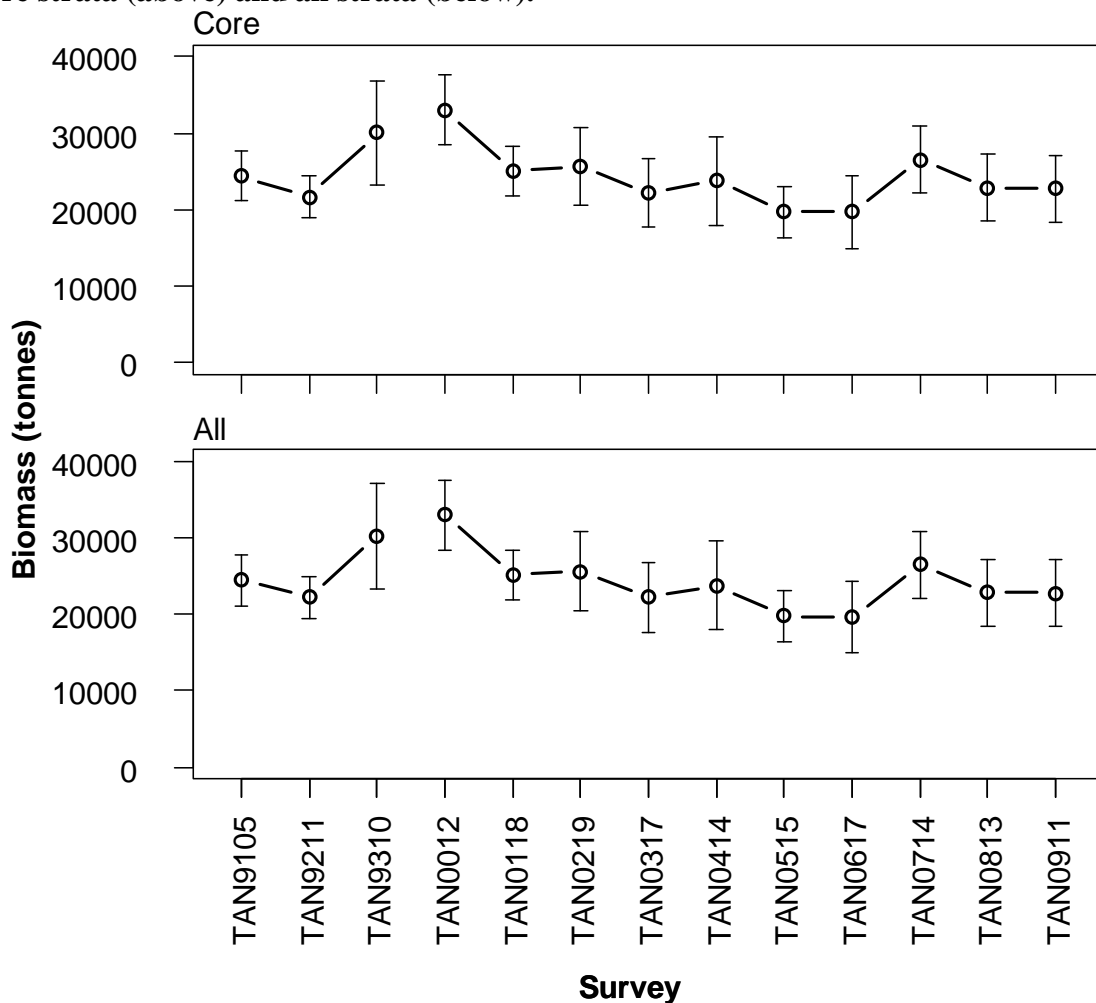
Distribution of *Genypterus blacodes* from all summer surveys. Valid biomass stations only.



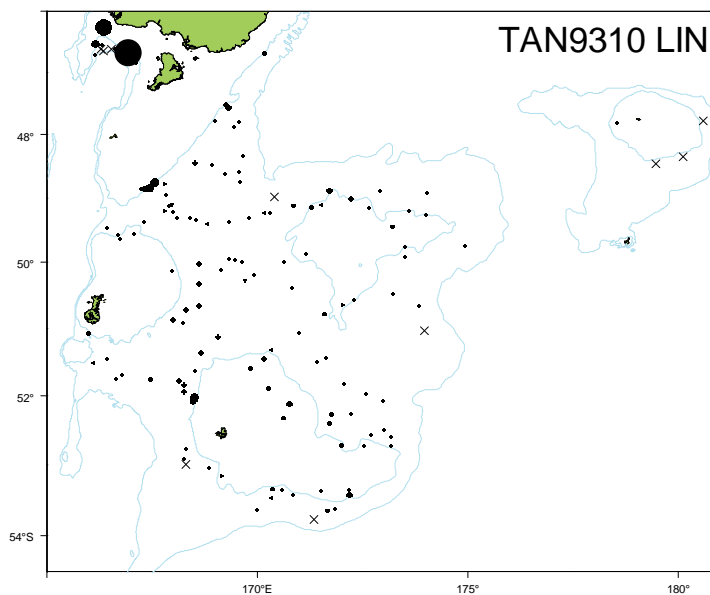
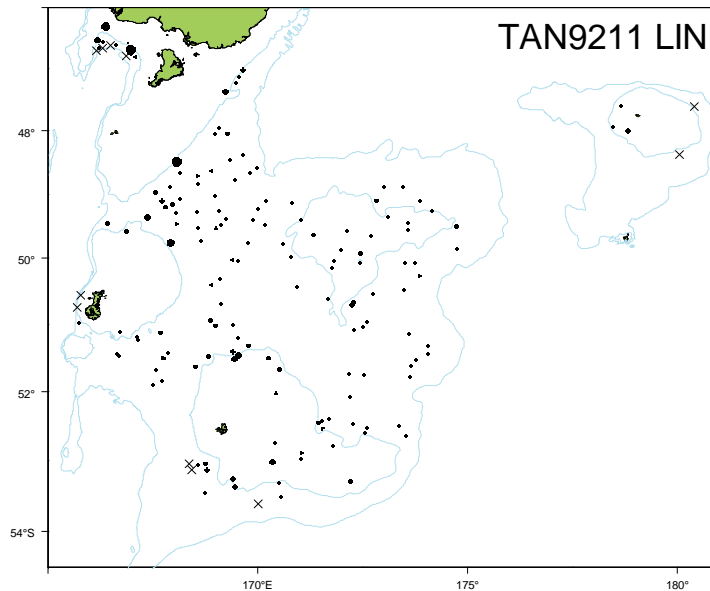
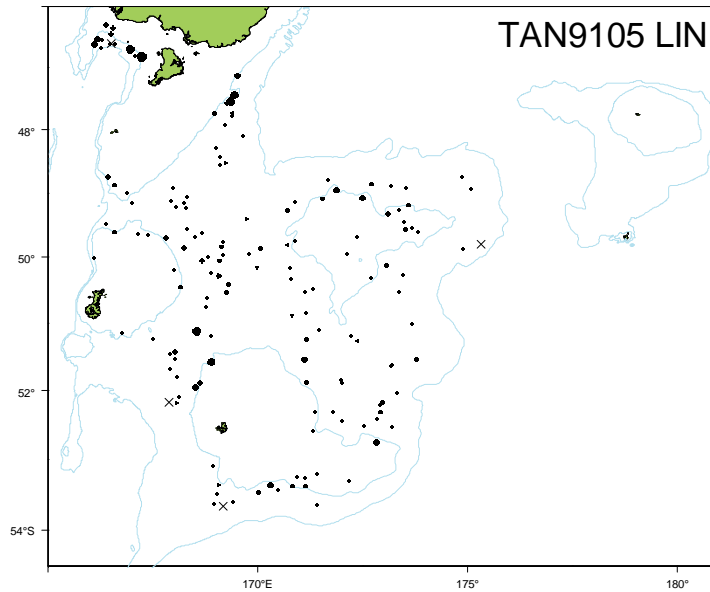
Relative biomass estimates (t) and c.v.s (%) of *Genypterus blacodes* for core strata, strata outside the core area and all strata.

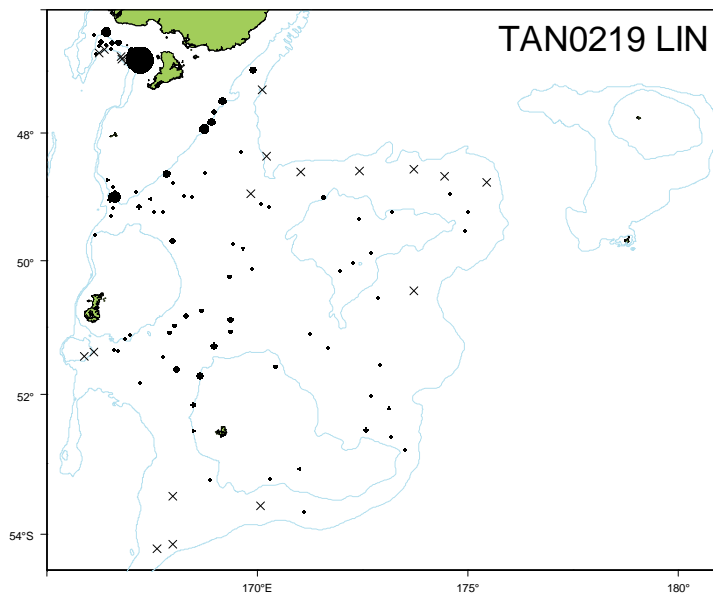
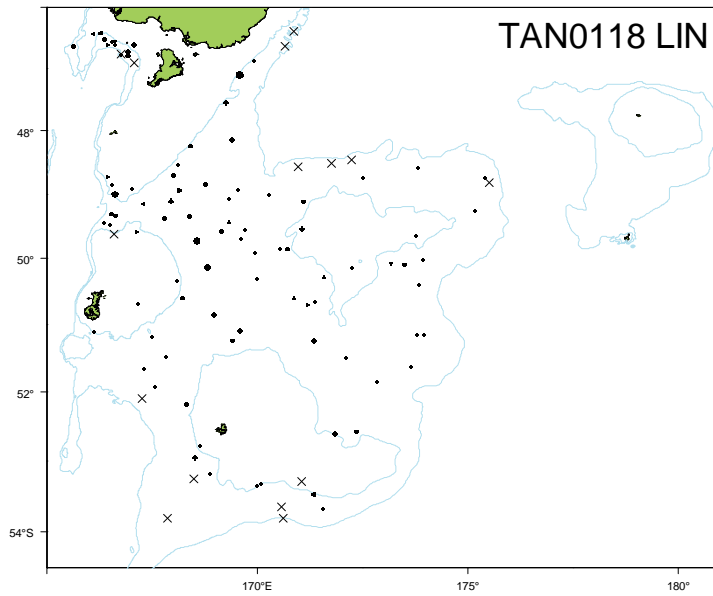
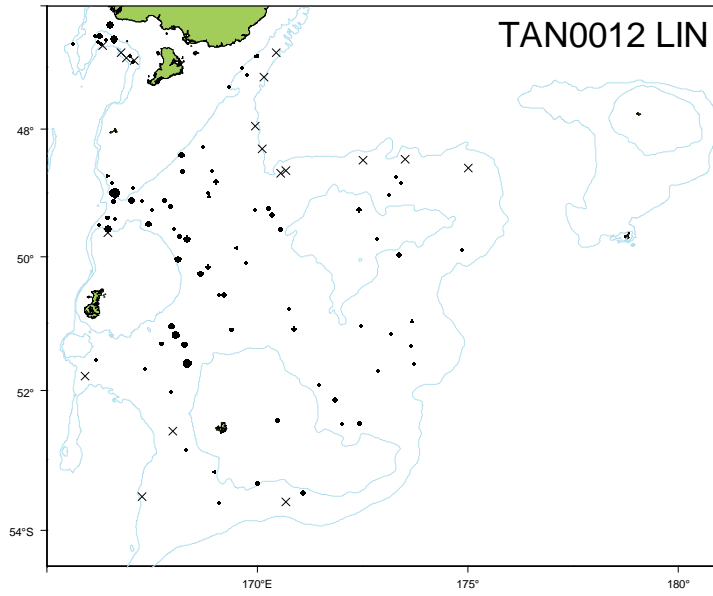
Survey	Core biomass	Core (c.v.)	Strata		Stratum		Stratum		Total biomass	Total (c.v.)
			27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	24434	7	NA	NA	NA	NA	NA	NA	24434	7
TAN9211	21652	6	NA	NA	NA	NA	589	55	22241	6
TAN9310	30045	11	NA	NA	NA	NA	144	100	30189	11
TAN0012	33033	7	0	0	0	0	NA	NA	33033	7
TAN0118	25091	6	77	52	0	0	NA	NA	25168	6
TAN0219	25635	10	0	0	0	0	NA	NA	25635	10
TAN0317	22178	10	14	100	NA	NA	NA	NA	22192	10
TAN0414	23762	12	32	100	NA	NA	NA	NA	23794	12
TAN0515	19712	8	44	66	0	0	NA	NA	19756	8
TAN0617	19661	12	0	0	NA	NA	NA	NA	19661	12
TAN0714	26492	8	0	0	0	0	NA	NA	26492	8
TAN0813	22868	10	12	90	0	0	NA	NA	22880	10
TAN0911	22743	10	29	53	0	0	NA	NA	22772	10

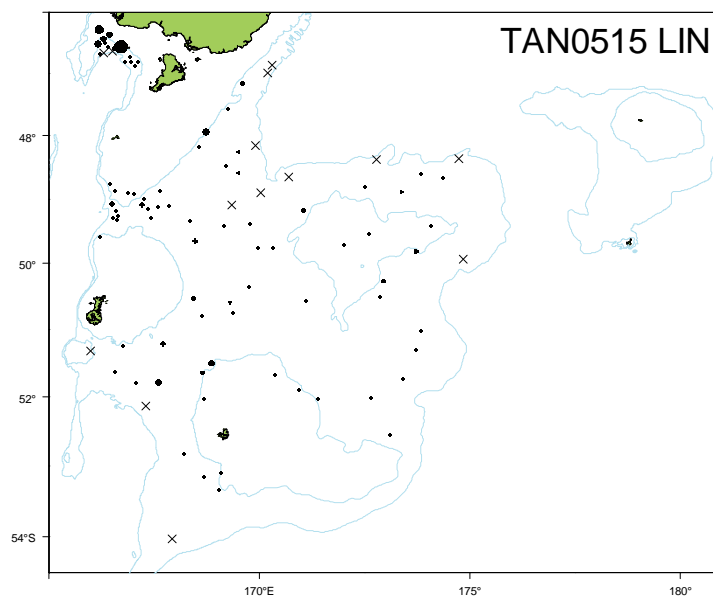
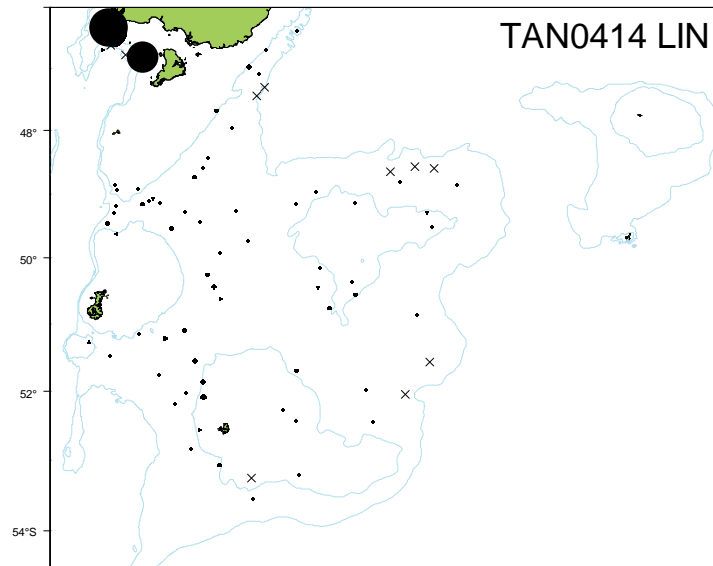
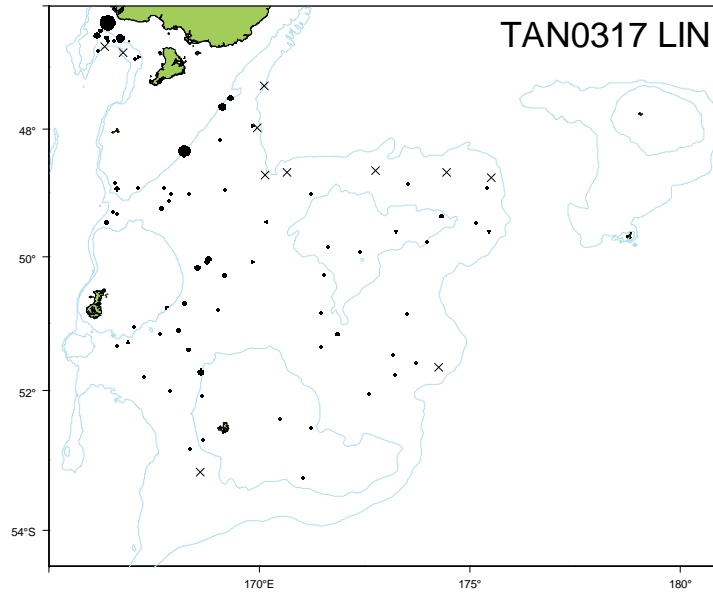
Trends in relative biomass estimates (± 2 standard errors) of *Genypterus blacodes* for core strata (above) and all strata (below).

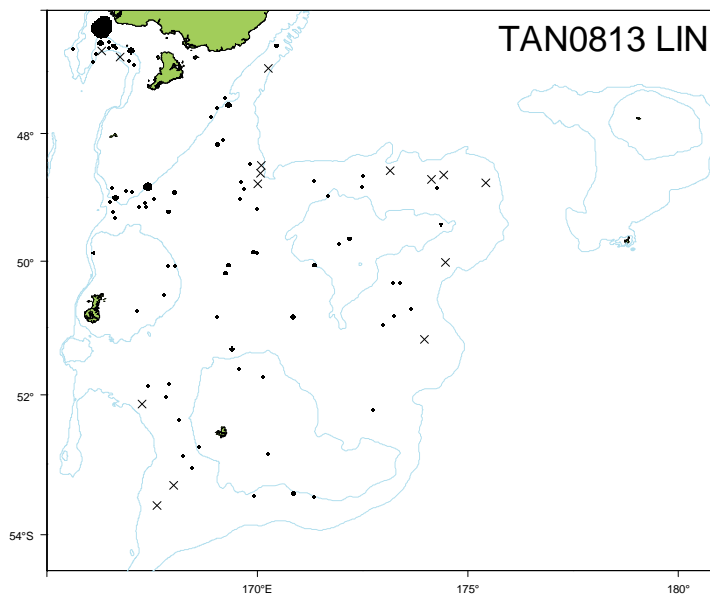
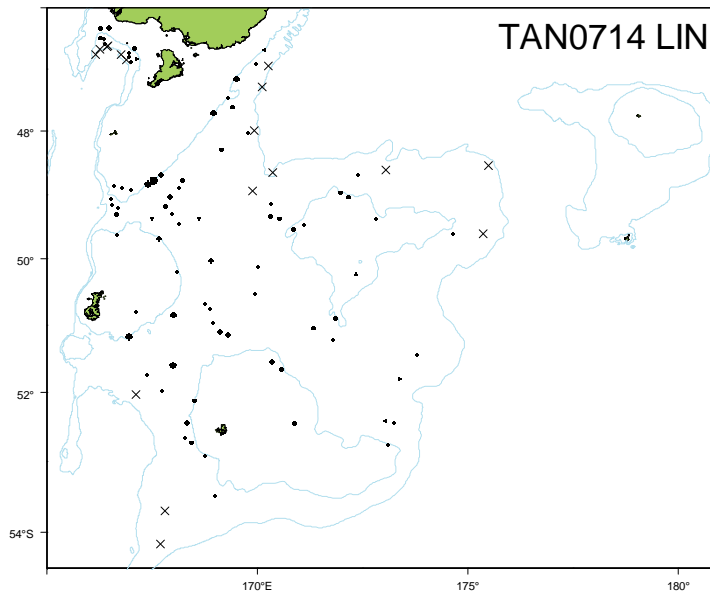
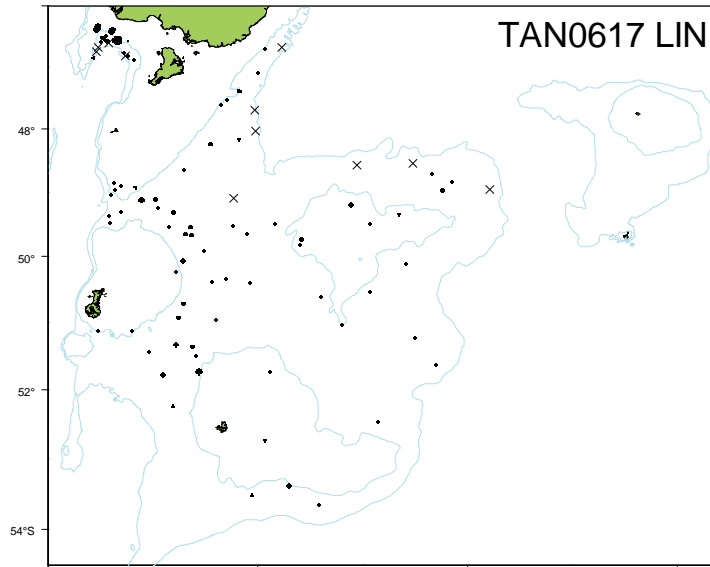


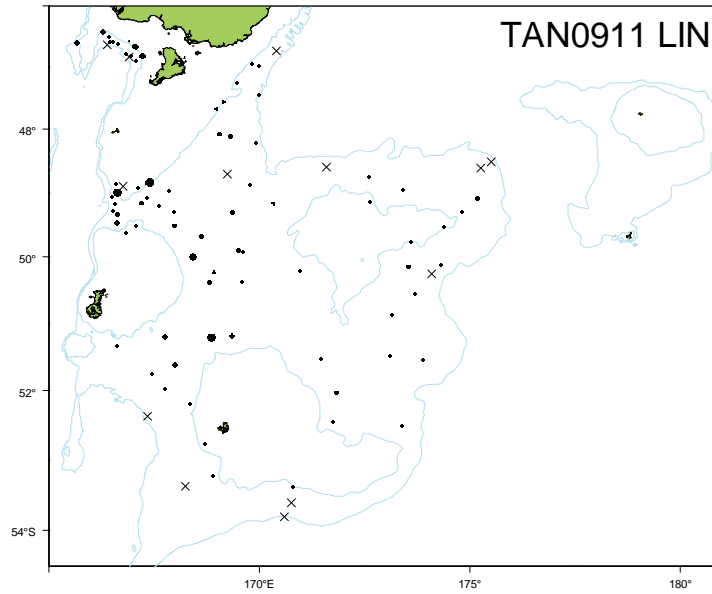
Catchrates of *Genypterus blacodes*. Circle area is proportional to the maximum catchrate from all surveys (see Table 5).







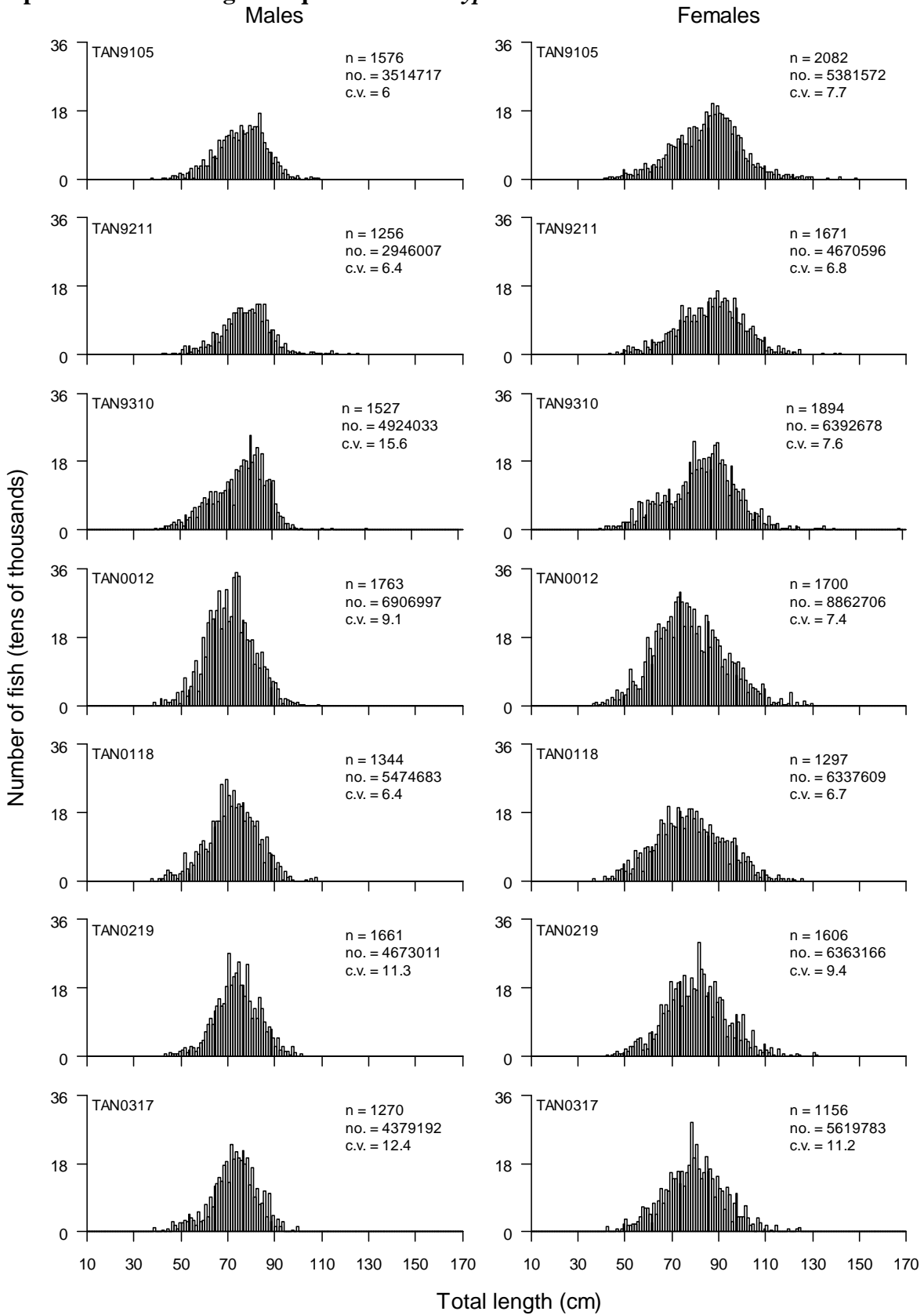


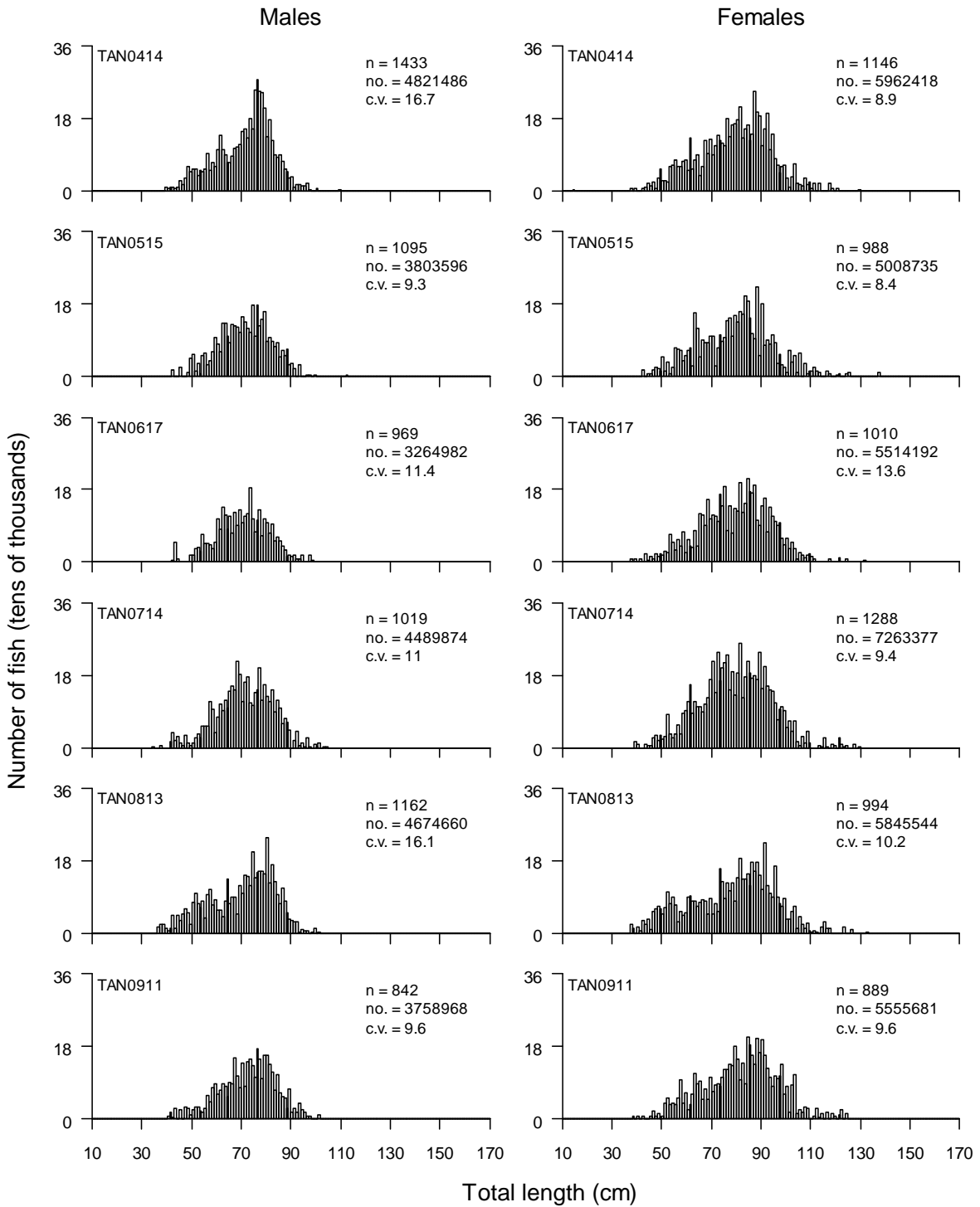


Length summaries

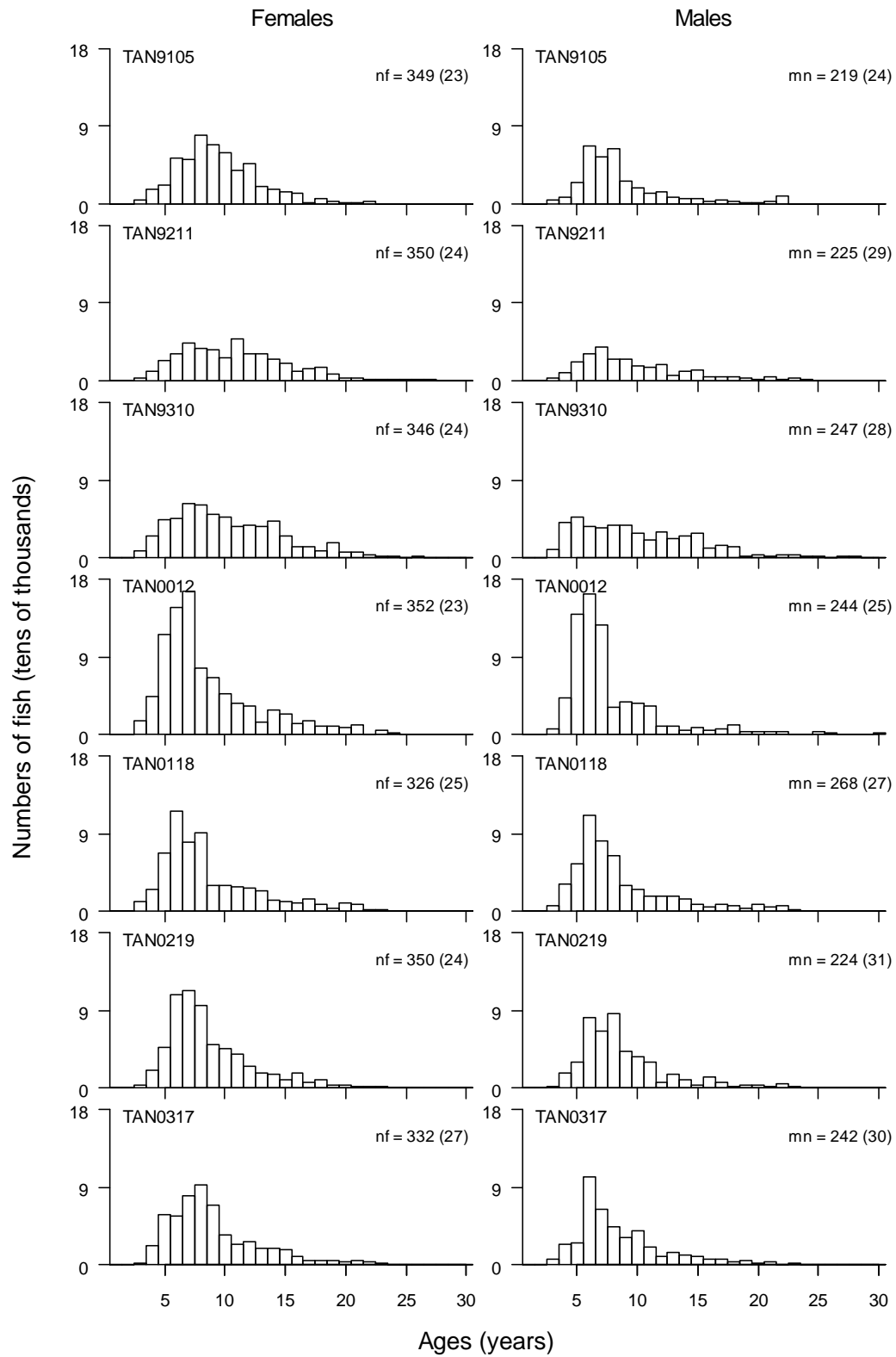
Survey	Minimum length (cm)	Maximum length (cm)	Mean length (cm)	Number measured
TAN9105	37	148	81.7	3662
TAN9211	42	141	82.9	2931
TAN9310	39	168	80.3	3424
TAN0012	13	129	75.4	3464
TAN0118	14	125	75.4	2643
TAN0219	39	131	77.1	3267
TAN0317	38	137	76.5	2427
TAN0414	14	129	76.5	2580
TAN0515	42	137	77.8	2083
TAN0617	37	131	78.3	1980
TAN0714	34	129	76.6	2307
TAN0813	36	132	77.2	2156
TAN0911	38	142	78.2	1733

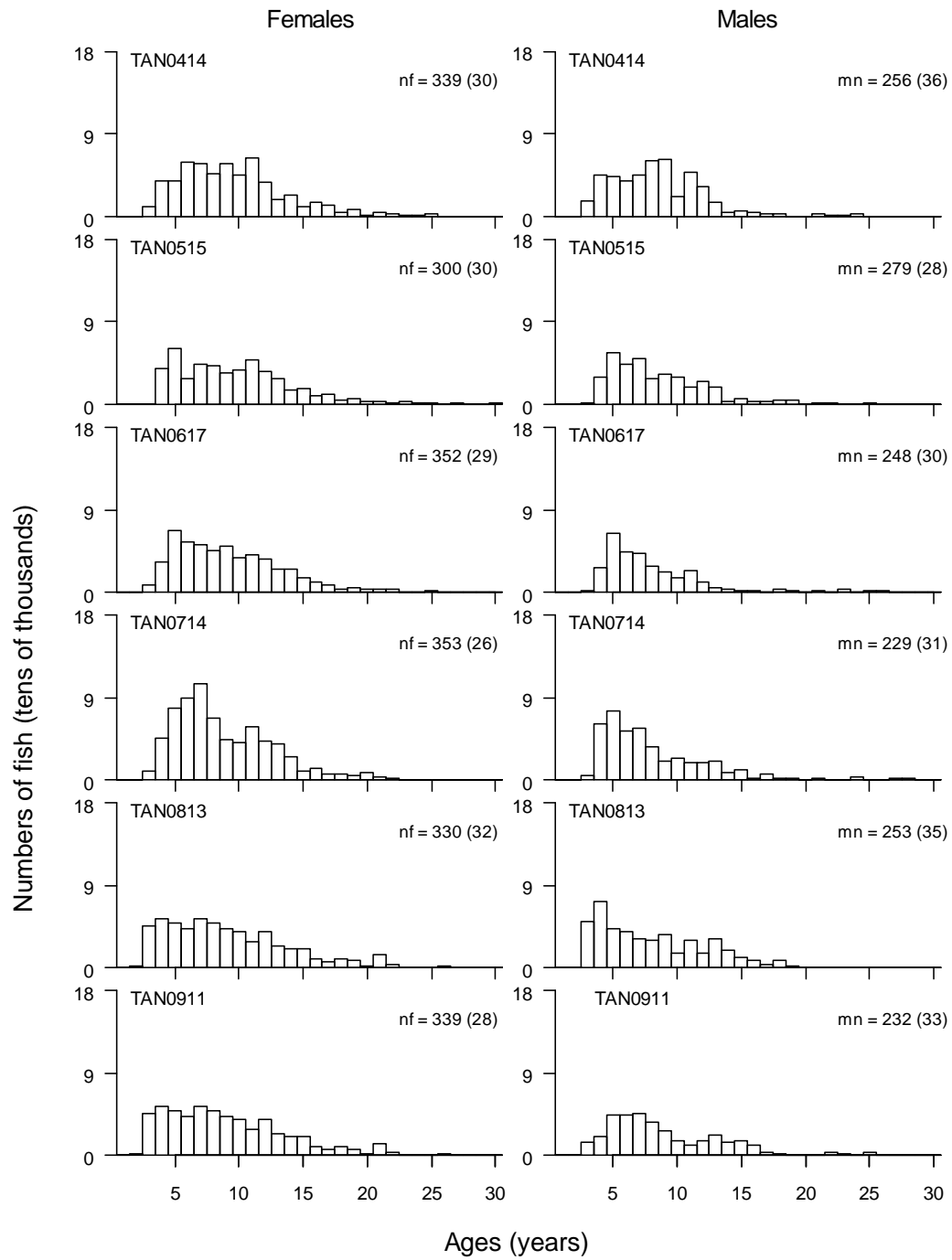
Population scaled length frequencies of *Genypterus blacodes* for all strata.





Population scaled length frequencies of *Genypterus blacodes* for all strata.





Gonad stage summaries by sex for *Genypterus blacodes*. Percentage at each stage using the MD staging method.

Survey	M1	M2	M3	M4	M5	M6	M7	F1	F2	F3	F4	F5	F6	F7
TAN9105	12	44	19	20	2	3	0	7	60	30	2	0	1	0
TAN9211	8	31	14	18	0	22	6	12	82	2	2	0	1	3
TAN9310	17	30	8	4	1	38	1	13	70	5	4	0	8	0
TAN0012	9	32	11	32	10	5	1	16	72	5	6	1	0	0
TAN0118	11	43	15	30	1	1	0	20	72	6	3	0	0	0
TAN0219	12	23	13	35	14	3	0	30	54	5	9	2	0	0
TAN0317	15	21	11	47	6	1	0	26	60	3	10	1	0	0
TAN0414	11	14	10	48	11	6	1	20	54	3	22	1	1	0
TAN0515	13	24	17	32	6	7	1	20	56	6	15	1	1	0
TAN0617	14	31	7	34	11	2	0	16	68	3	11	0	0	1
TAN0714	14	25	5	52	2	2	0	20	74	2	3	0	0	0
TAN0813	15	21	15	45	1	2	0	20	65	3	11	0	0	0
TAN0911	14	24	6	39	4	11	2	12	80	2	3	1	0	1
ALL	13	27	12	36	6	6	1	19	66	5	8	1	1	0



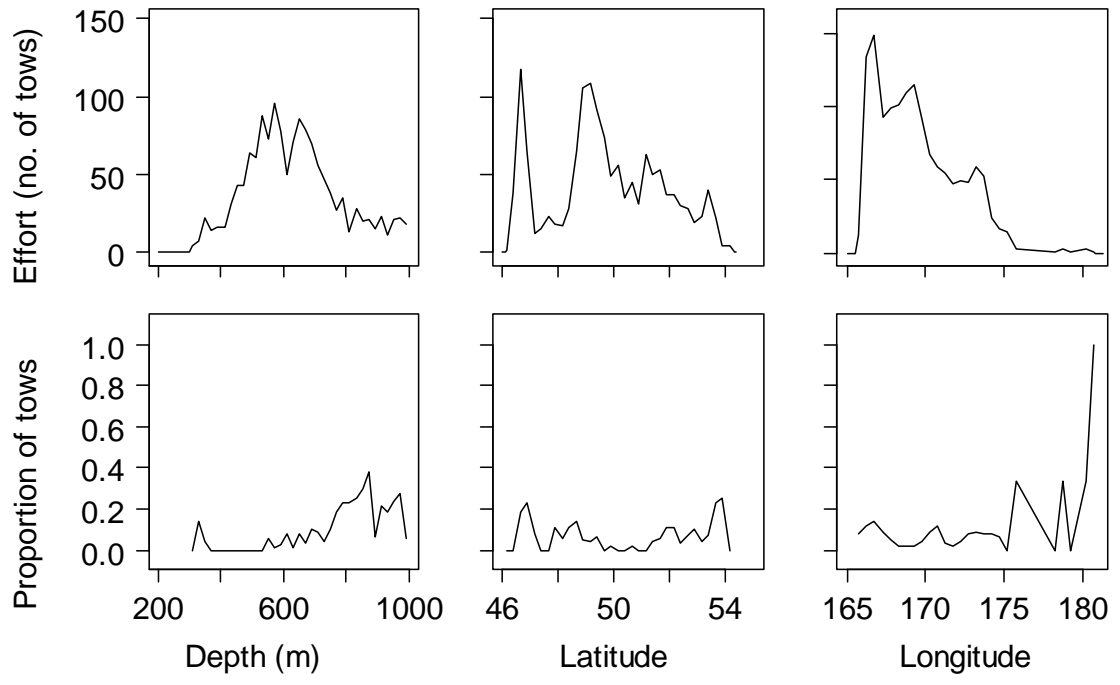
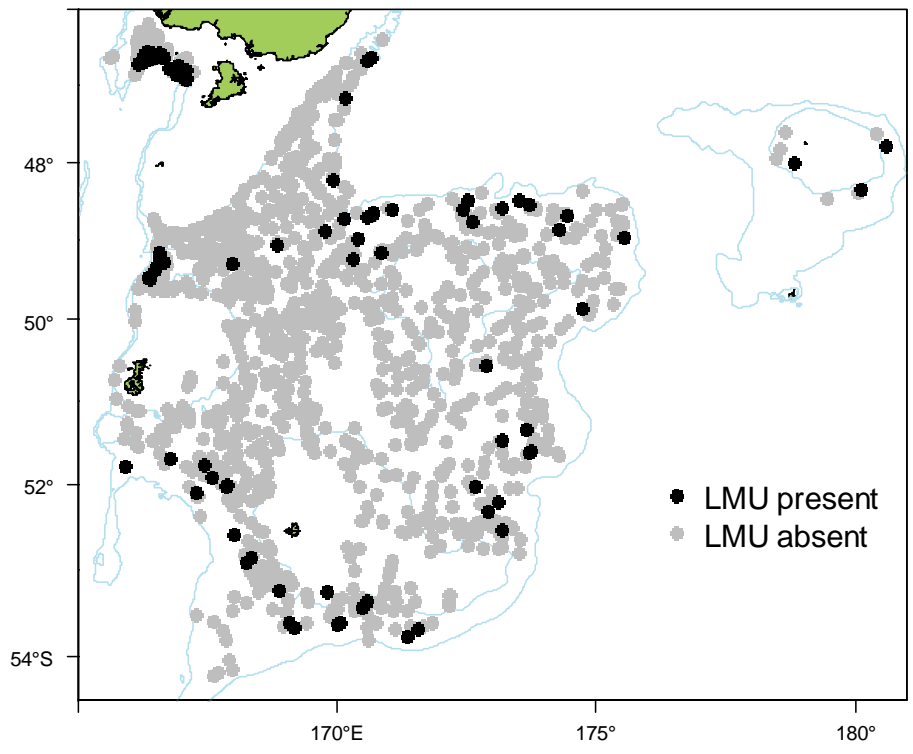
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	234.3
Number measured	0
Length range (mean) (cm)	–
Number weighed	0

This species **has** been well identified during the time series. A recent revision of this group has changes in identification and includes another species Robertson's King Crab (*Lithodes robertsoni*) from the survey area. The New Zealand King Crab is found **deeper** than 1000 m. The core survey area and depth range **is not** appropriate for this species. Distribution **does extend** to strata deeper than 800 m surveyed from 2000 to 2009. It **was** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey area. Biomass has **increased then decreased**. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **not well** estimated. Catches are recorded from most areas close to and deeper than 800 m.

There is no length or stage information presented.

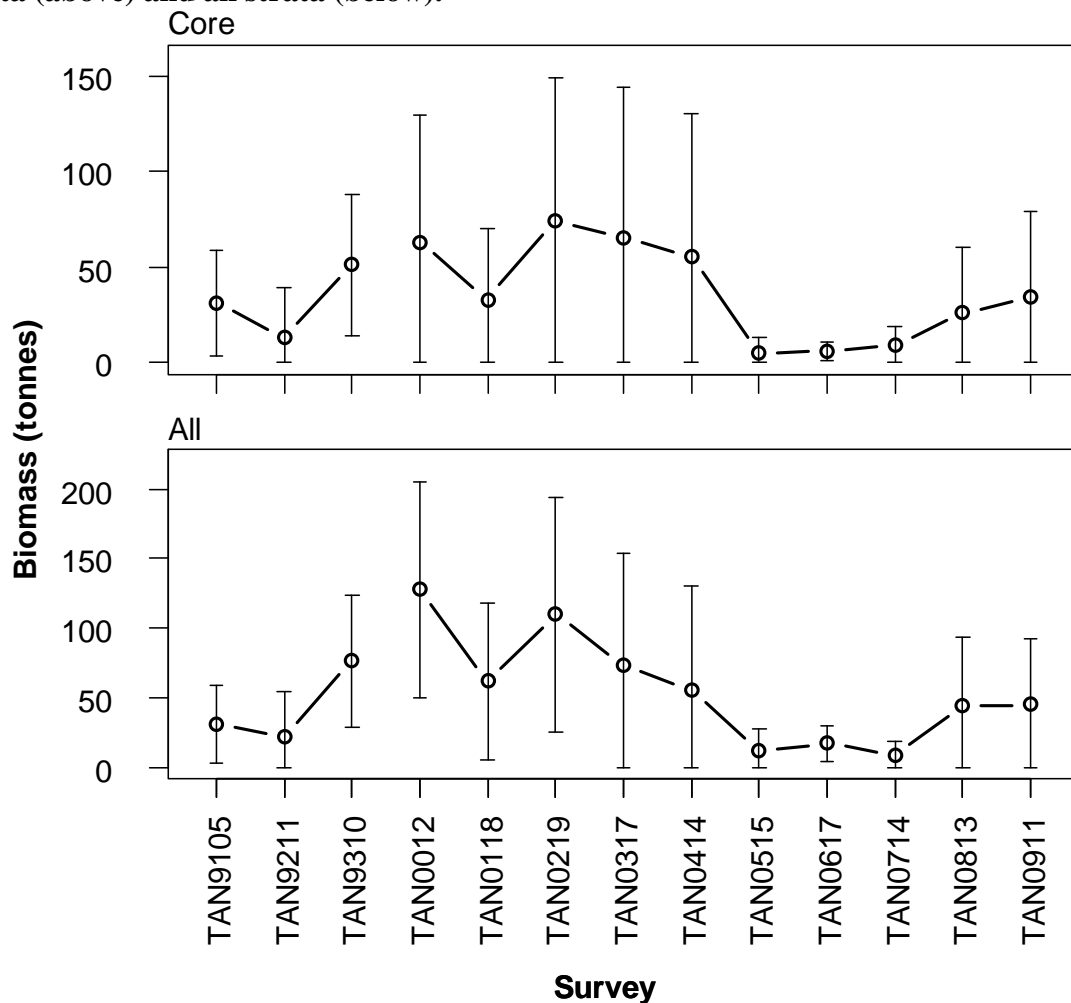
Distribution of *Lithodes aotearoa* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Lithodes aotearoa* for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	31	45	NA	NA	NA	NA	NA	NA	31	45
TAN9211	13	100	NA	NA	NA	NA	9	100	22	72
TAN9310	51	36	NA	NA	NA	NA	26	58	77	31
TAN0012	63	53	32	38	33	50	NA	NA	128	30
TAN0118	33	56	10	100	19	100	NA	NA	62	46
TAN0219	74	50	36	56	0	0	NA	NA	110	39
TAN0317	65	61	8	100	NA	NA	NA	NA	73	55
TAN0414	55	69	0	0	NA	NA	NA	NA	55	69
TAN0515	5	83	7	100	0	0	NA	NA	12	68
TAN0617	6	44	11	54	NA	NA	NA	NA	17	38
TAN0714	9	59	0	0	0	0	NA	NA	9	59
TAN0813	26	68	18	100	0	0	NA	NA	44	58
TAN0911	34	65	11	62	0	0	NA	NA	45	52

Trends in relative biomass estimates (± 2 standard errors) of *Lithodes aotearoa* for core strata (above) and all strata (below).



Lyconus spp

LYC



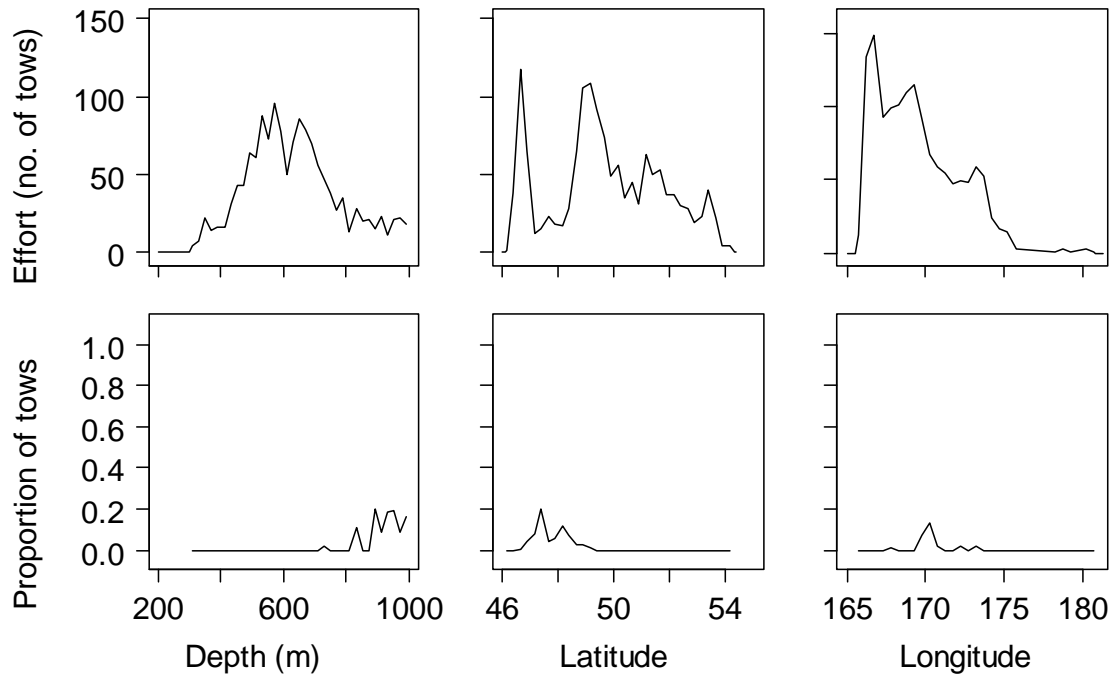
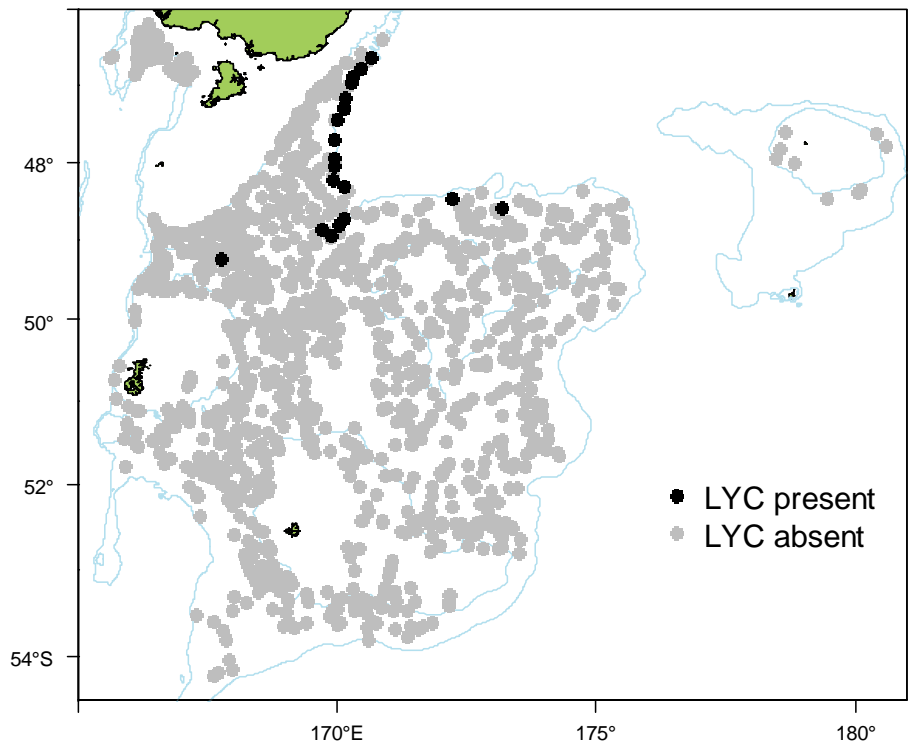
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	9
Total catch weight (kg):	22.3
Number measured	1
Length range (mean) (cm)	–
Number weighed	1

This species **has** been well identified during the time series. It is found **deeper** than 1000 m. The core survey area and depth range **is not** appropriate for this species. Distribution **does extend** to strata deeper than 800 m surveyed from 2000 to 2009. It **was not** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey area. Biomass **shows no clear trend**. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **not well** estimated. Catches are recorded from **northern** areas close to and deeper than 800 m.

There is no length or gonad stage information presented.

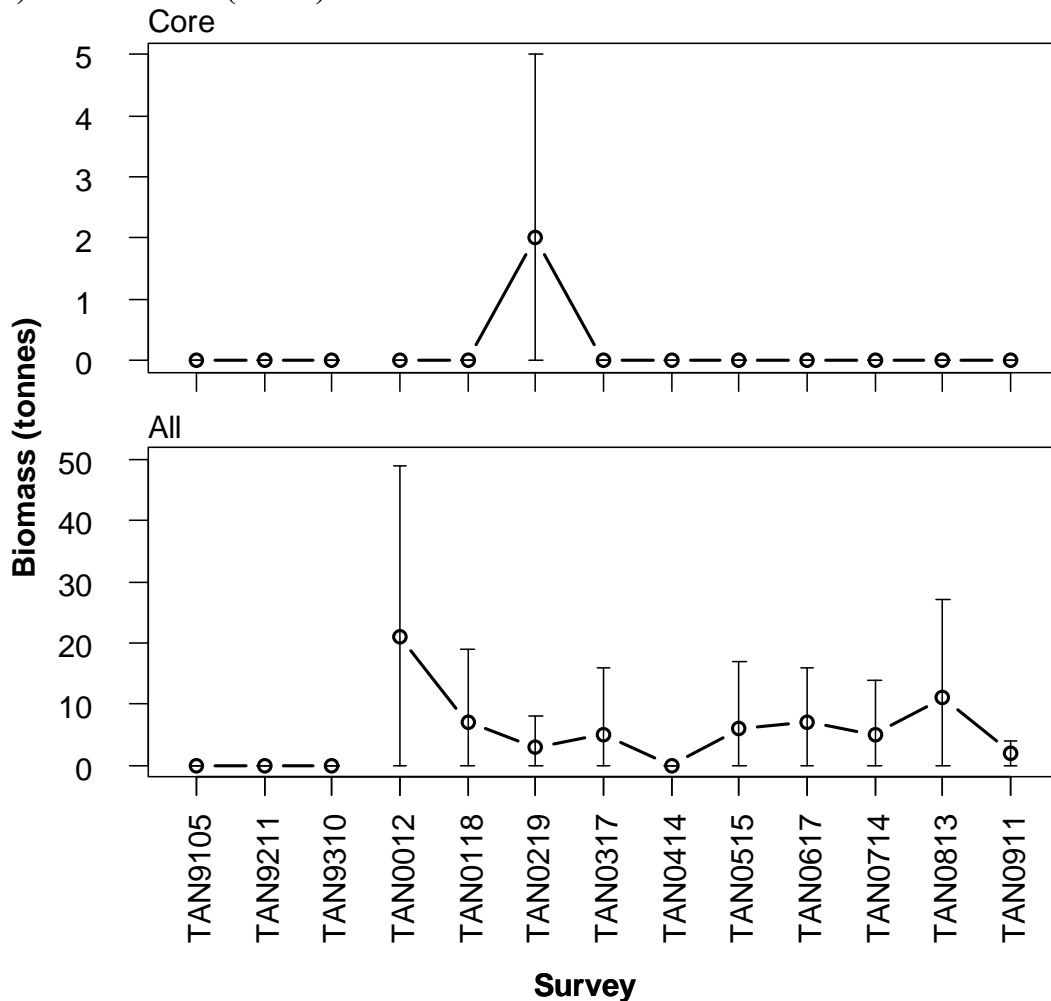
Distribution of *Lyconus* sp. from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Lyconus* sp. for core strata, strata outside the core area and all strata.

Survey	Core biomass	Core (c.v.)	Strata 27+28 biomass	27+28 (c.v.)	Stratum 26 biomass	26 (c.v.)	Stratum 17 biomass	17 (c.v.)	Total biomass	Total (c.v.)
TAN9105	0	0	NA	NA	NA	NA	NA	NA	0	0
TAN9211	0	0	NA	NA	NA	NA	0	0	0	0
TAN9310	0	0	NA	NA	NA	NA	0	0	0	0
TAN0012	0	0	21	68	0	0	NA	NA	21	68
TAN0118	0	0	7	87	0	0	NA	NA	7	88
TAN0219	2	100	2	100	0	0	NA	NA	3	71
TAN0317	0	0	5	100	NA	NA	NA	NA	5	100
TAN0414	0	0	0	0	NA	NA	NA	NA	0	0
TAN0515	0	0	6	100	0	0	NA	NA	6	100
TAN0617	0	0	7	66	NA	NA	NA	NA	7	66
TAN0714	0	0	5	86	0	0	NA	NA	5	86
TAN0813	0	0	10	77	0	0	NA	NA	11	75
TAN0911	0	0	2	64	0	0	NA	NA	2	64

Trends in relative biomass estimates (± 2 standard errors) of *Lyconus* sp. for core strata (above) and all strata (below).





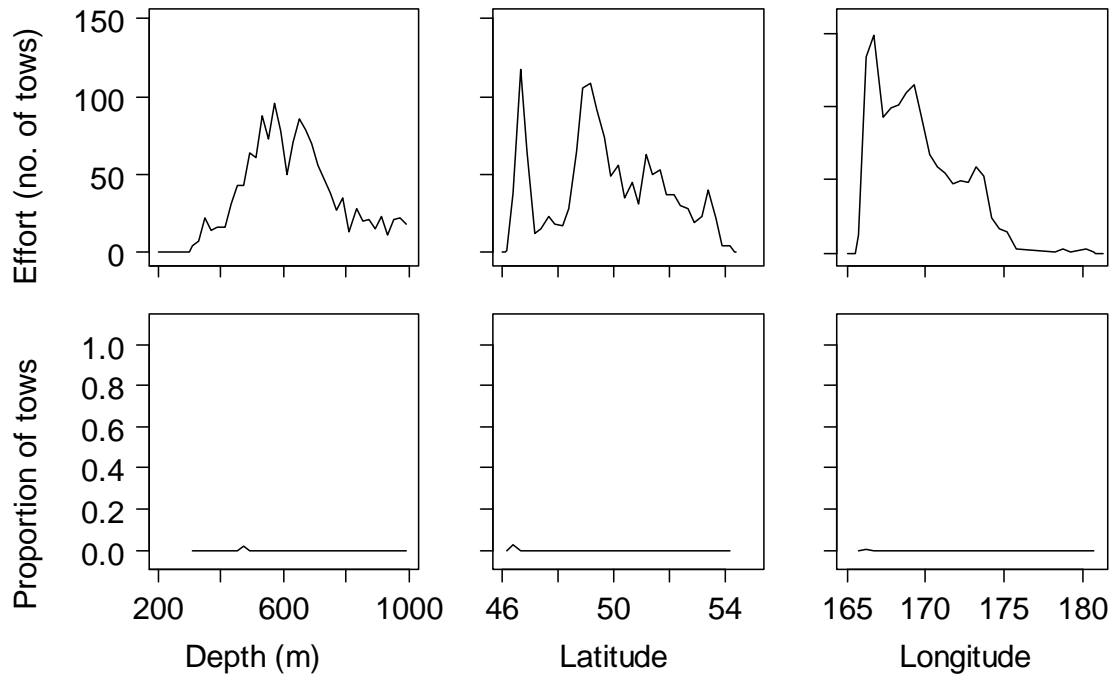
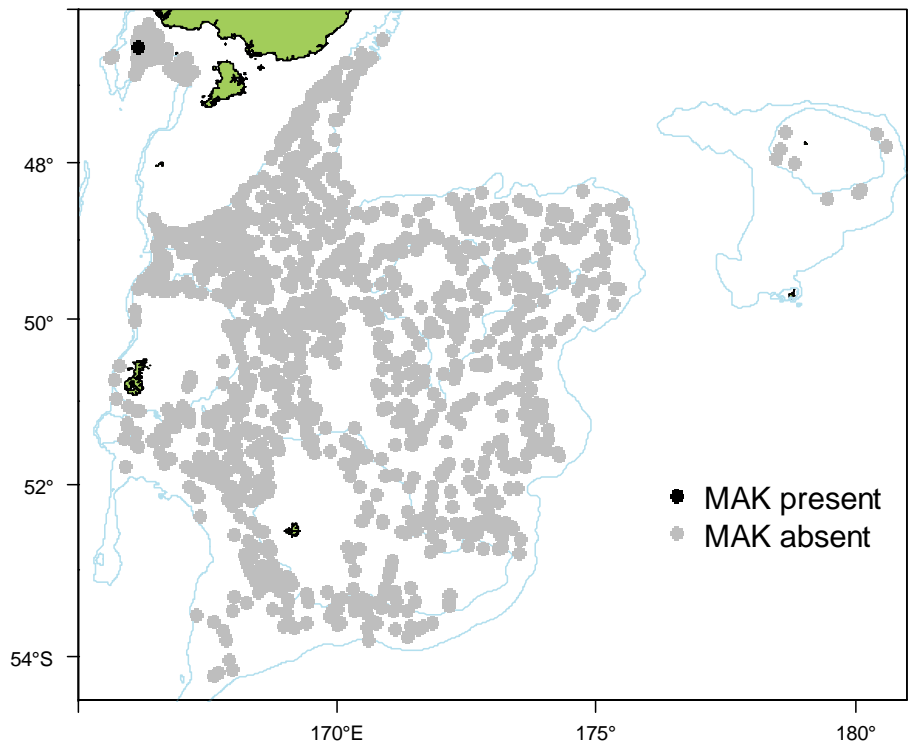
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	70.0
Number measured	0
Length range (mean) (cm)	–
Number weighed	0
Length-weight parameters a, b (r^2)	–

This species **has** been well identified during the time series. It is **pelagic**. The core survey area and depth range **is not** appropriate for this species. Distribution **does not extend** to strata deeper than 800 m surveyed from 2000 to 2009. It **was not** recorded from the Bounty Platform.

There were **too few fish caught to determine whether the core survey area is appropriate for this species**. Biomass of this species is **poorly** estimated by the core survey area. Biomass **shows no clear trend** since the start of the time series.

There is no length or gonad stage information presented.

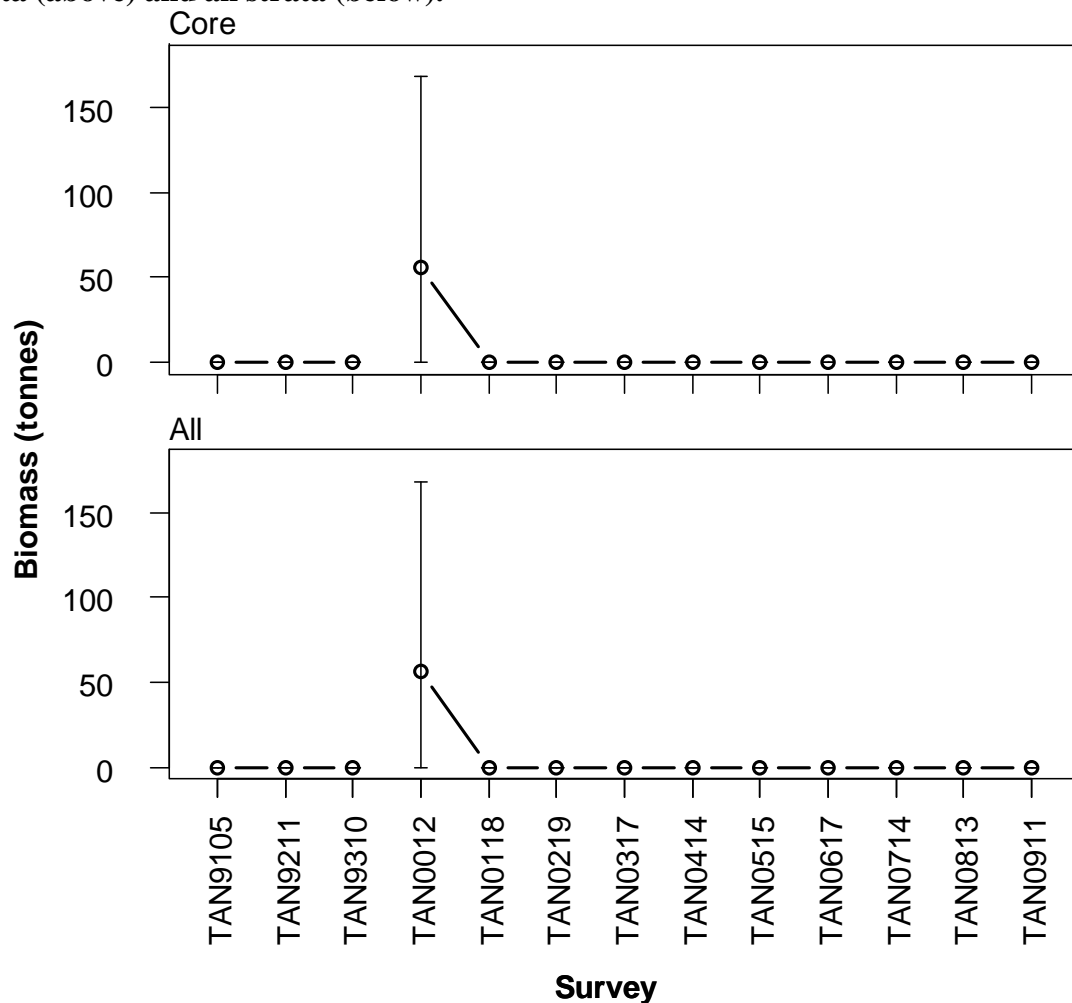
Distribution of *Isurus oxyrinchus* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Isurus oxyrinchus* for core strata, strata outside the core area and all strata.

Survey	Core biomass	Core (c.v.)	Strata 27+28 biomass	27+28 (c.v.)	Stratum 26 biomass	26 (c.v.)	Stratum 17 biomass	17 (c.v.)	Total biomass	Total (c.v.)
TAN9105	0	0	NA	NA	NA	NA	NA	NA	0	0
TAN9211	0	0	NA	NA	NA	NA	0	0	0	0
TAN9310	0	0	NA	NA	NA	NA	0	0	0	0
TAN0012	56	100	0	0	0	0	NA	NA	56	100
TAN0118	0	0	0	0	0	0	NA	NA	0	0
TAN0219	0	0	0	0	0	0	NA	NA	0	0
TAN0317	0	0	0	0	NA	NA	NA	NA	0	0
TAN0414	0	0	0	0	NA	NA	NA	NA	0	0
TAN0515	0	0	0	0	0	0	NA	NA	0	0
TAN0617	0	0	0	0	NA	NA	NA	NA	0	0
TAN0714	0	0	0	0	0	0	NA	NA	0	0
TAN0813	0	0	0	0	0	0	NA	NA	0	0
TAN0911	0	0	0	0	0	0	NA	NA	0	0

Trends in relative biomass estimates (± 2 standard errors) of *Isurus oxyrinchus* for core strata (above) and all strata (below).





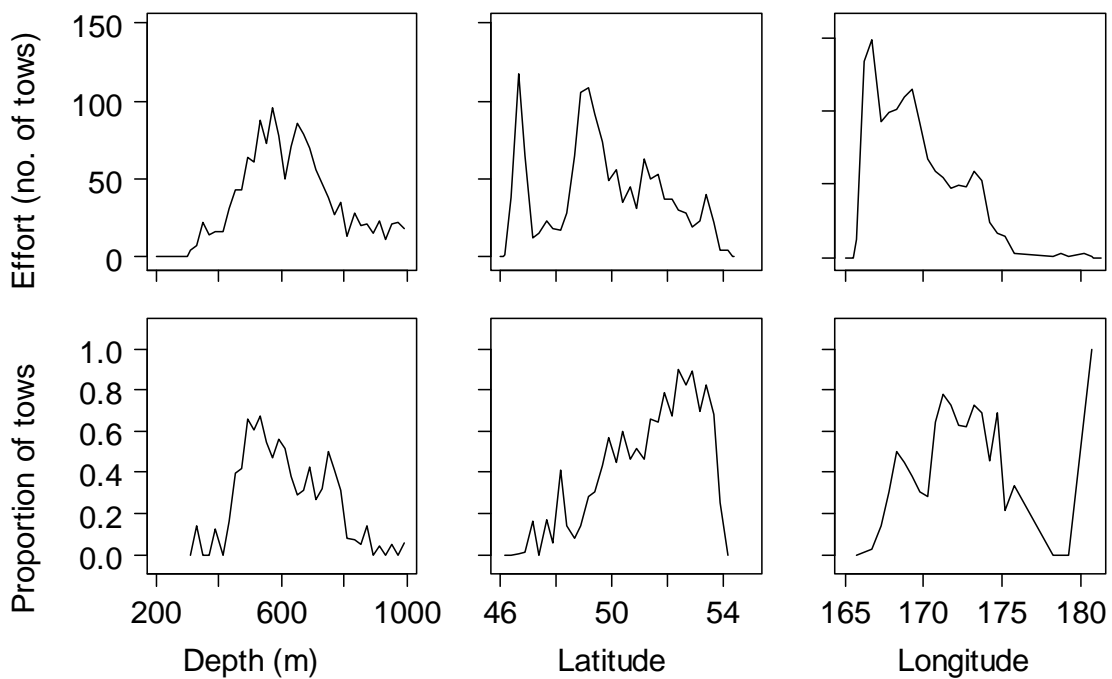
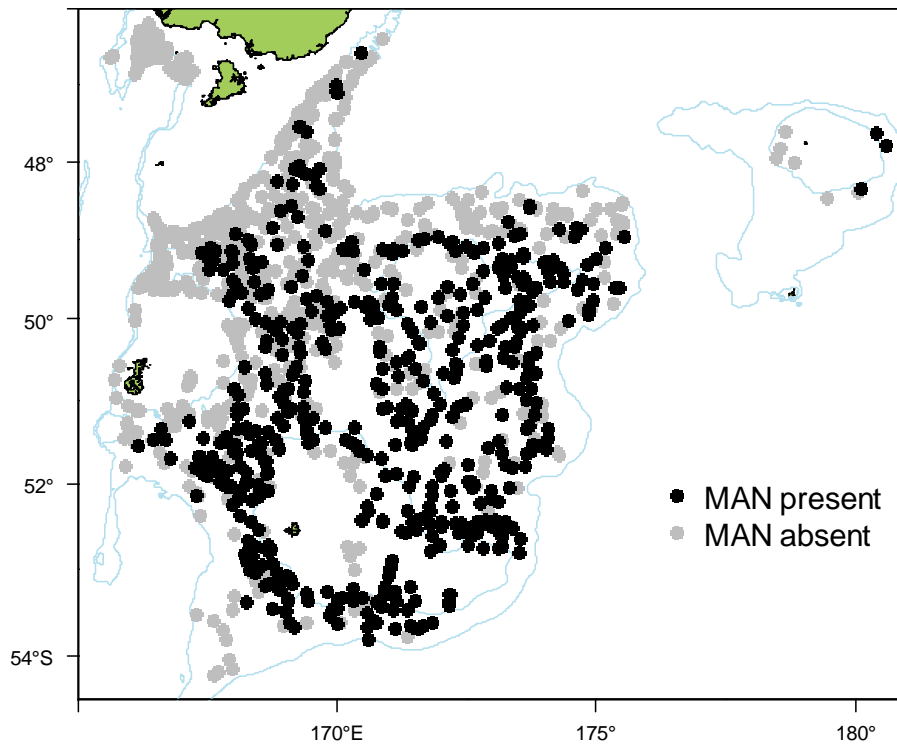
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	1 661.8
Number measured	198
Length range (mean) (cm)	30–63 (49)
Number weighed	178
Length-weight parameters a, b (r^2)	–

This species **has** been well identified during the time series. It is found **deeper than 1000 m**. The core survey area and depth range **is** appropriate for this group. Distribution **does** extend to the areas deeper than 800 m surveyed from 2000 to 2009. It **was** recorded from the Bounty Platform.

Biomass of this species is **well** estimated by the core survey area. Biomass **shows no clear trend** since the start of the time series. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **poorly** estimated.

There is no length or gonad stage information presented.

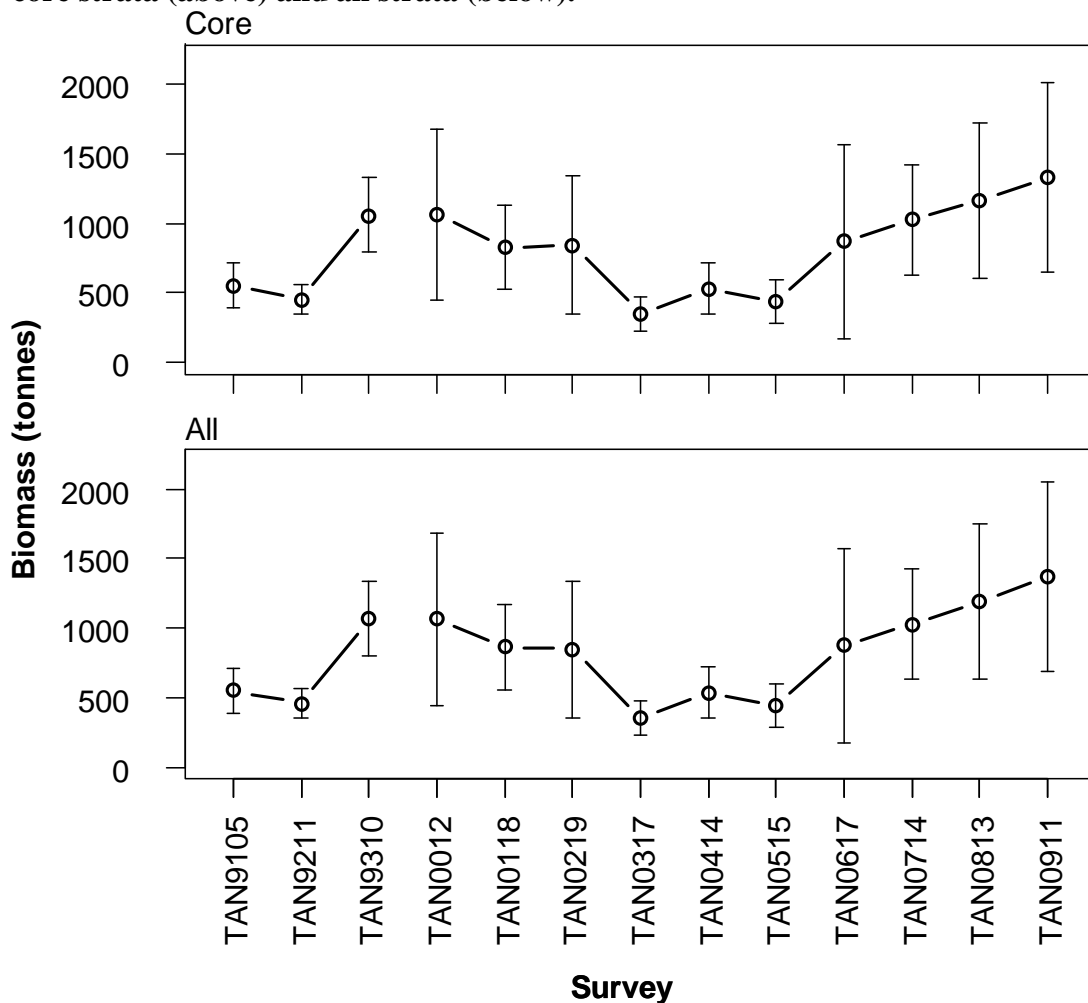
Distribution of *Neochirosetta milfordi* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Neoachirosetta milfordi* for core strata, strata outside the core area and all strata.

Survey	Core biomass	Core (c.v.)	Strata 27+28 biomass	27+28 (c.v.)	Stratum 26 biomass	26 (c.v.)	Stratum 17 biomass	17 (c.v.)	Total biomass	Total (c.v.)
TAN9105	552	15	NA	NA	NA	NA	NA	NA	552	15
TAN9211	453	12	NA	NA	NA	NA	4	100	457	12
TAN9310	1058	13	NA	NA	NA	NA	8	87	1067	13
TAN0012	1064	29	0	0	0	0	NA	NA	1064	29
TAN0118	826	18	6	100	34	58	NA	NA	866	18
TAN0219	843	29	4	100	0	0	NA	NA	847	29
TAN0317	351	17	0	0	NA	NA	NA	NA	351	17
TAN0414	530	17	7	100	NA	NA	NA	NA	537	17
TAN0515	439	18	0	0	0	0	NA	NA	439	18
TAN0617	870	40	4	100	NA	NA	NA	NA	874	40
TAN0714	1028	19	0	0	0	0	NA	NA	1028	19
TAN0813	1164	24	0	0	30	100	NA	NA	1195	24
TAN0911	1335	26	5	100	34	100	NA	NA	1373	25

Trends in relative biomass estimates (± 2 standard errors) of *Neoachirosetta milfordi* for core strata (above) and all strata (below).





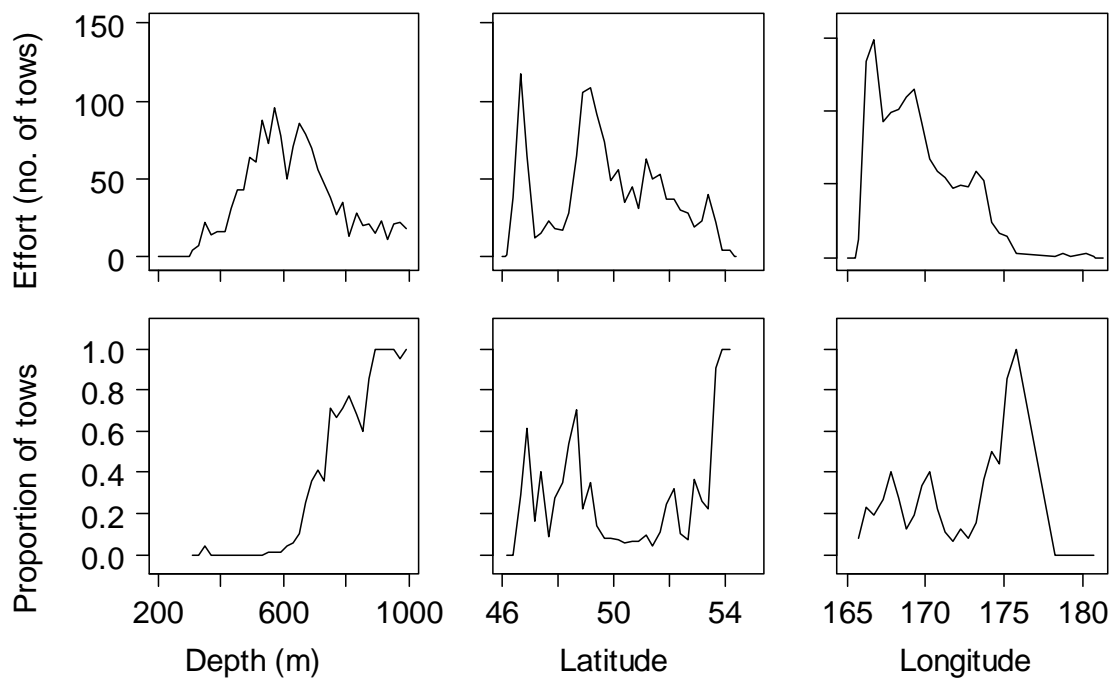
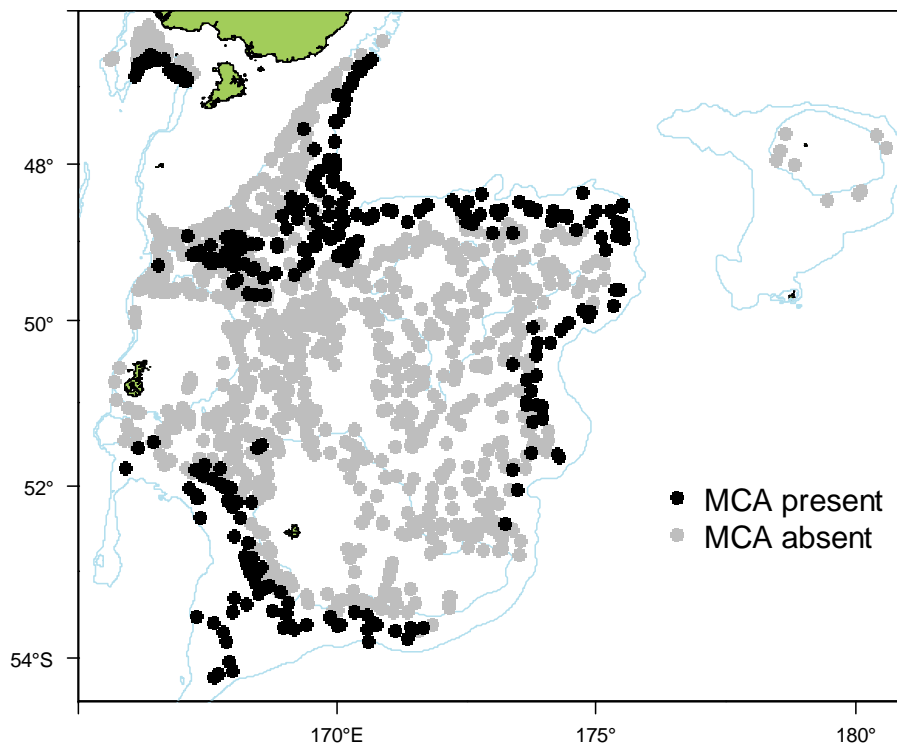
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	11 069.1
Number measured	5 536
Length range (mean) (cm)	18–101 (65.9)
Number weighed	3 321
Length-weight parameters a, b (r^2)	0.00490895, 3.008140 (96.58)

This species **has** been well identified during the time series. It is found **deeper** than 1000 m. The core survey area and depth range **is** appropriate for this species. Distribution **does extend** to strata deeper than 800 m surveyed from 2000 to 2009. It **was not** recorded from the Bounty Platform.

Biomass of this species is **moderately well** estimated by the core survey area. Biomass **shows no clear trend since** the start of the time series. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **moderately well** estimated. High biomass estimates are recorded from stratum 26, **south** of Campbell Island. Catches are recorded from most areas close to and deeper than 800 m. Catch rates are highest in the **south** between 800 and 1000 m.

Length frequencies **are usually unimodal for males with females having multiple modes which may contain information about year-class strength**. Mean length **shows no clear trend**. Gonad stage data indicate that most fish are **immature to mature**.

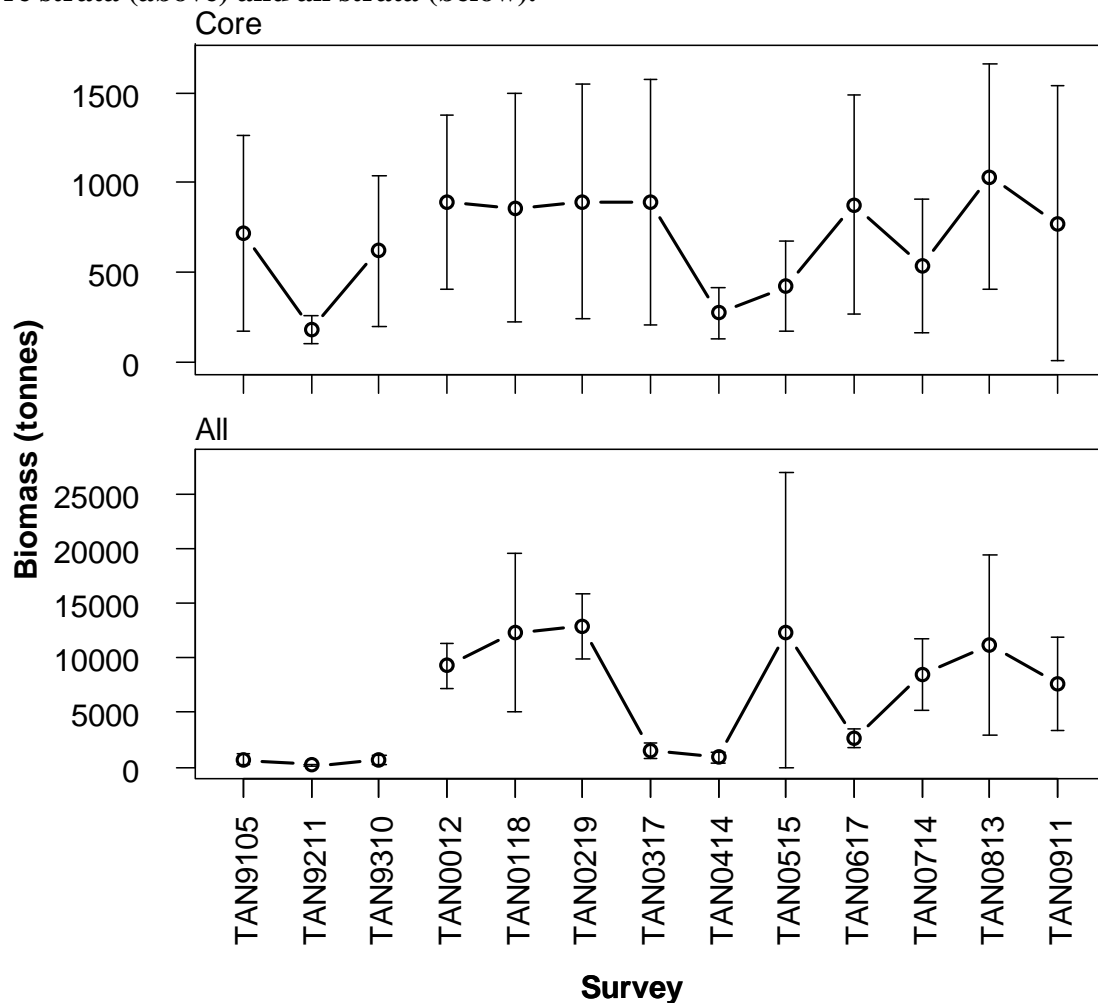
Distribution of *Macrourus carinatus* from all summer surveys. Valid biomass stations only.



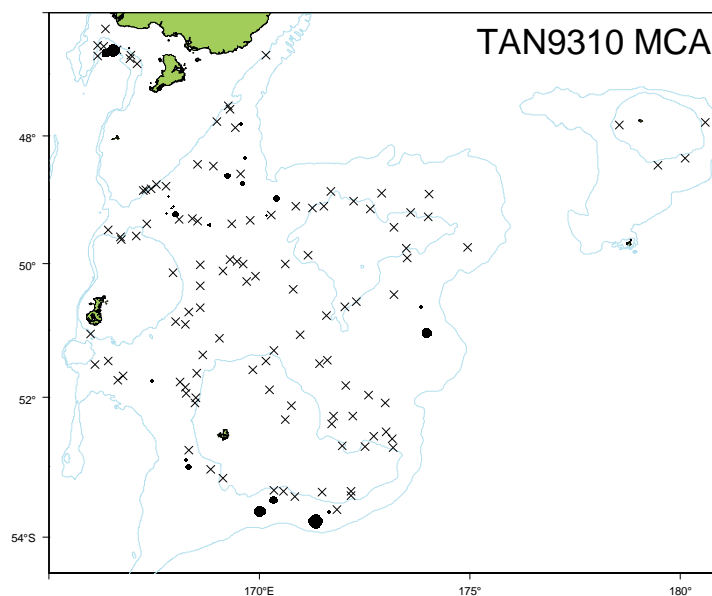
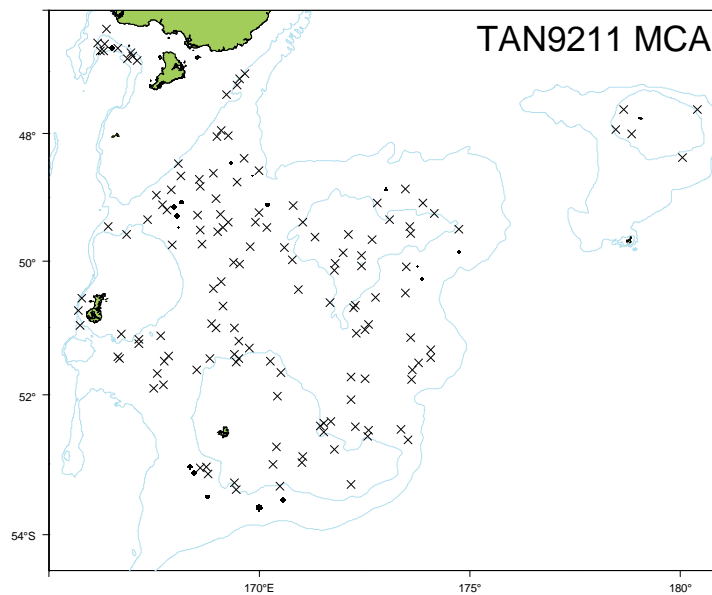
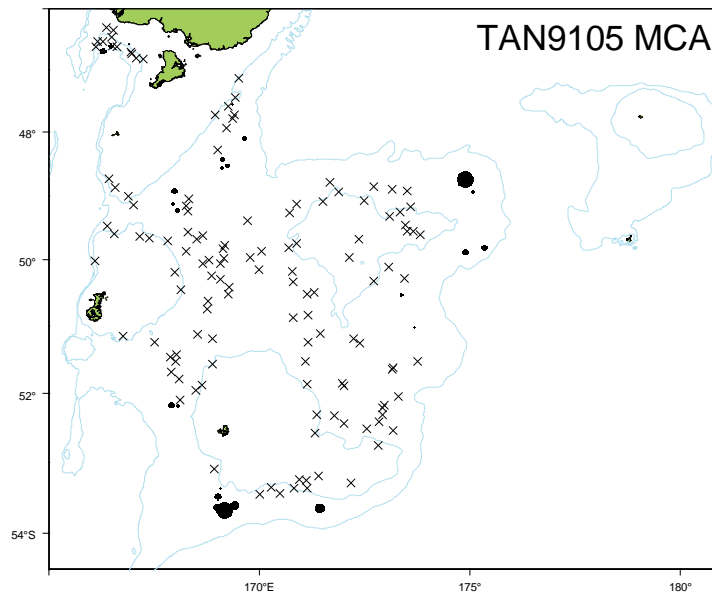
Relative biomass estimates (t) and c.v.s (%) of *Macrourus carinatus* for core strata, strata outside the core area and all strata.

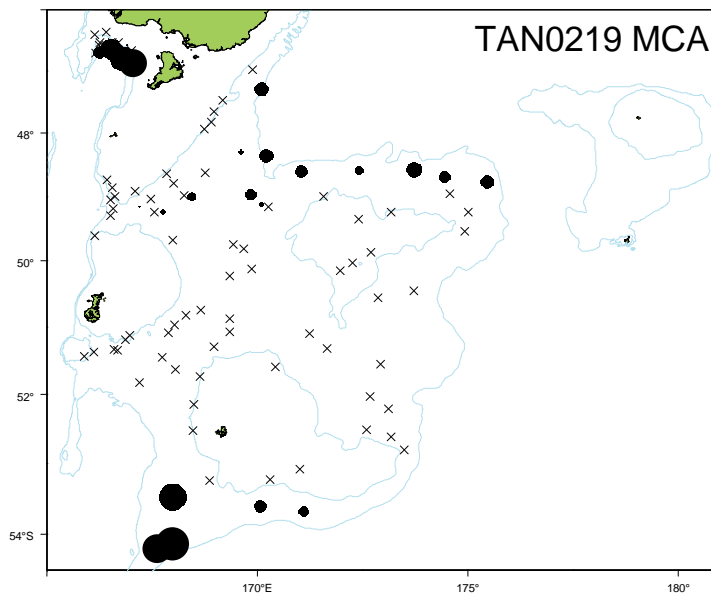
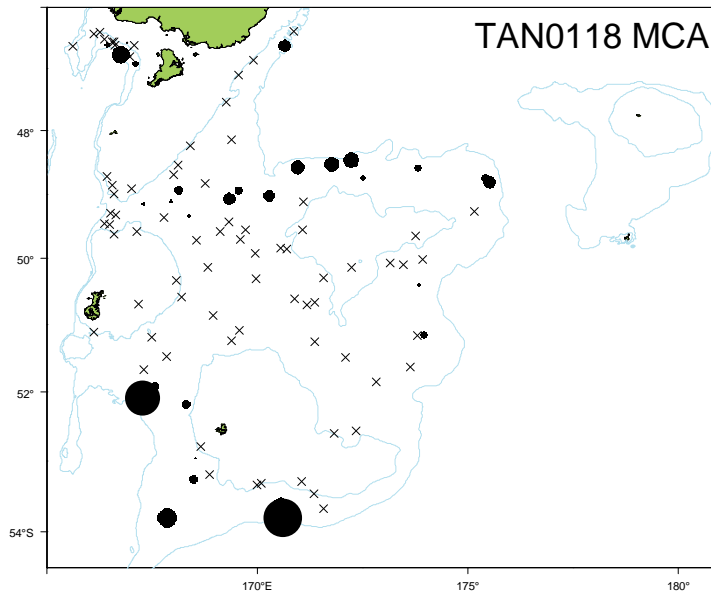
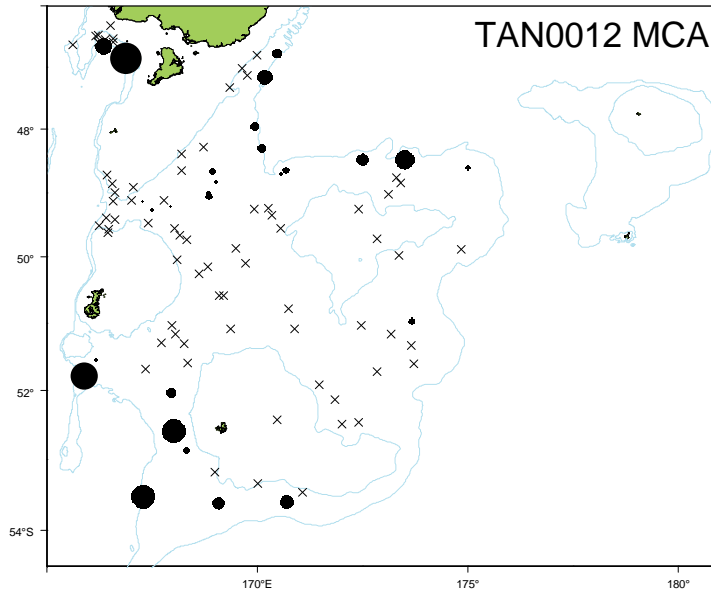
Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	716	38	NA	NA	NA	NA	NA	NA	716	38
TAN9211	183	21	NA	NA	NA	NA	0	0	183	21
TAN9310	620	34	NA	NA	NA	NA	0	0	620	34
TAN0012	890	27	935	35	7453	12	NA	NA	9278	11
TAN0118	860	37	1013	19	10483	34	NA	NA	12356	29
TAN0219	894	36	1254	12	10744	13	NA	NA	12892	12
TAN0317	892	38	618	29	NA	NA	NA	NA	1511	26
TAN0414	276	26	611	40	NA	NA	NA	NA	888	28
TAN0515	423	29	1174	43	10780	68	NA	NA	12377	59
TAN0617	878	34	1703	18	NA	NA	NA	NA	2581	16
TAN0714	537	35	1740	28	6266	25	NA	NA	8544	19
TAN0813	1033	30	745	27	9421	44	NA	NA	11198	37
TAN0911	773	50	2111	62	4726	35	NA	NA	7610	28

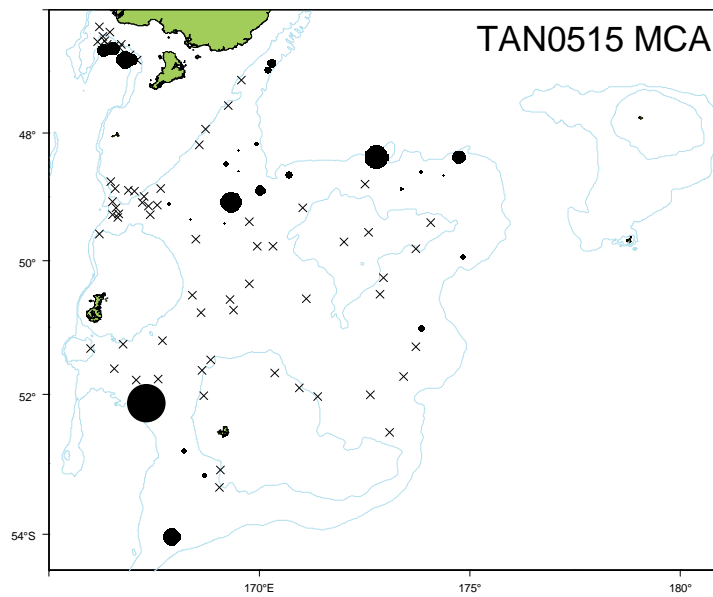
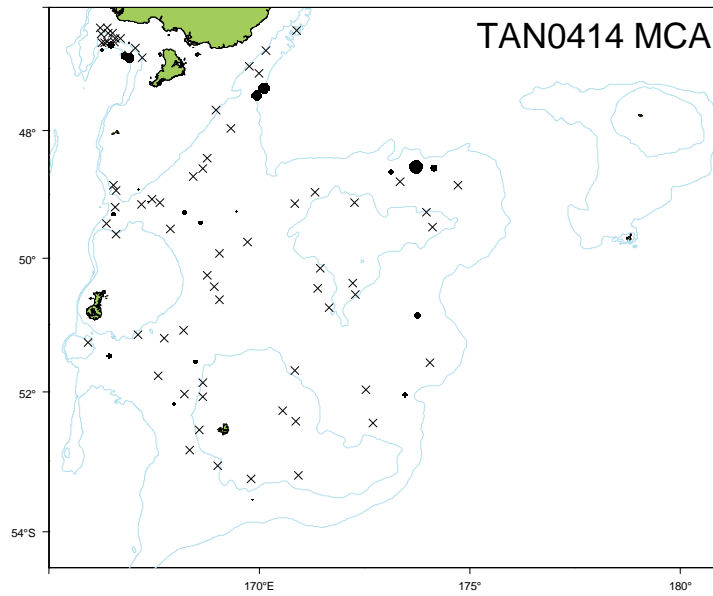
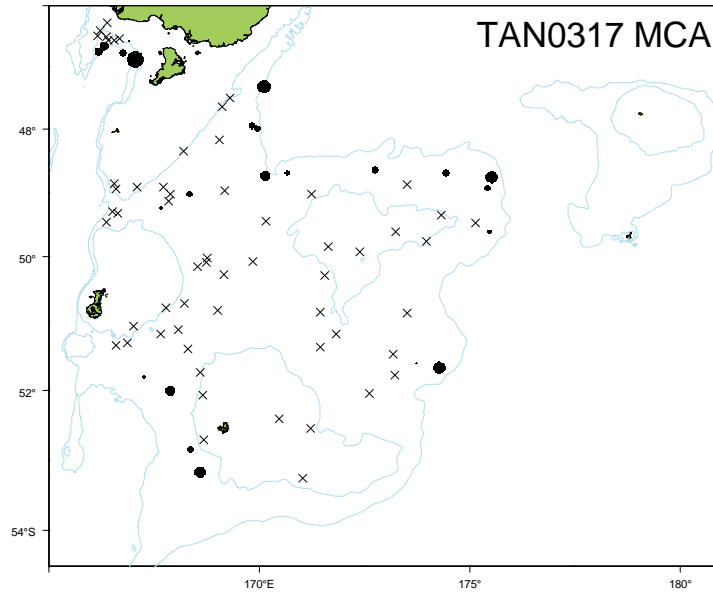
Trends in relative biomass estimates (± 2 standard errors) of *Macrourus carinatus* for core strata (above) and all strata (below).

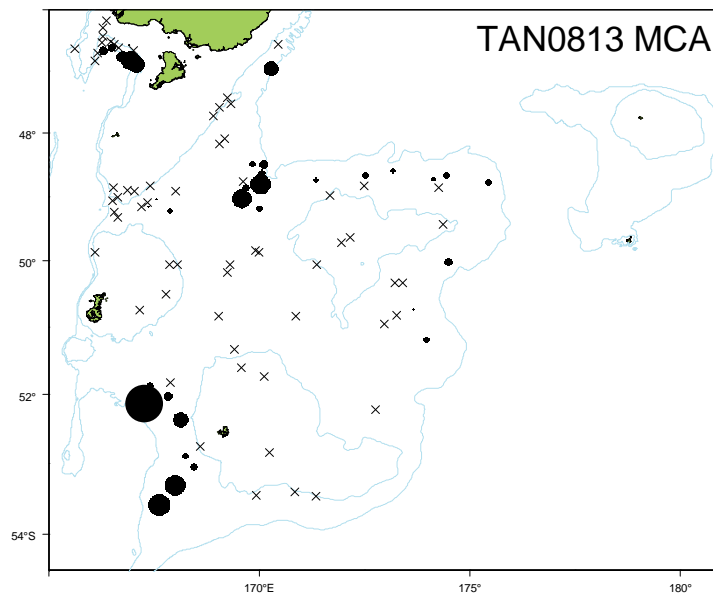
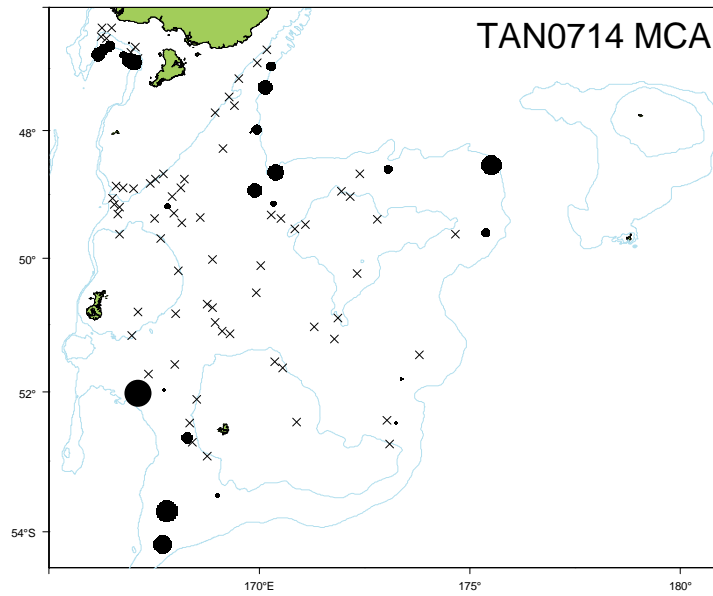
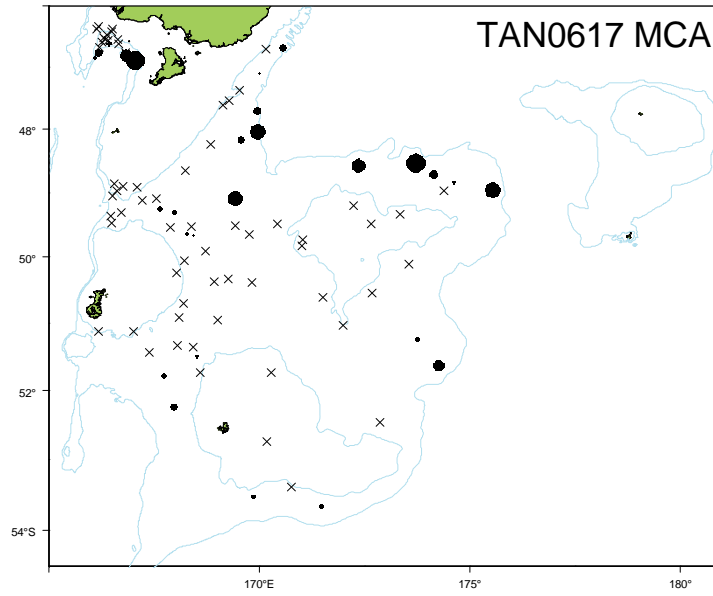


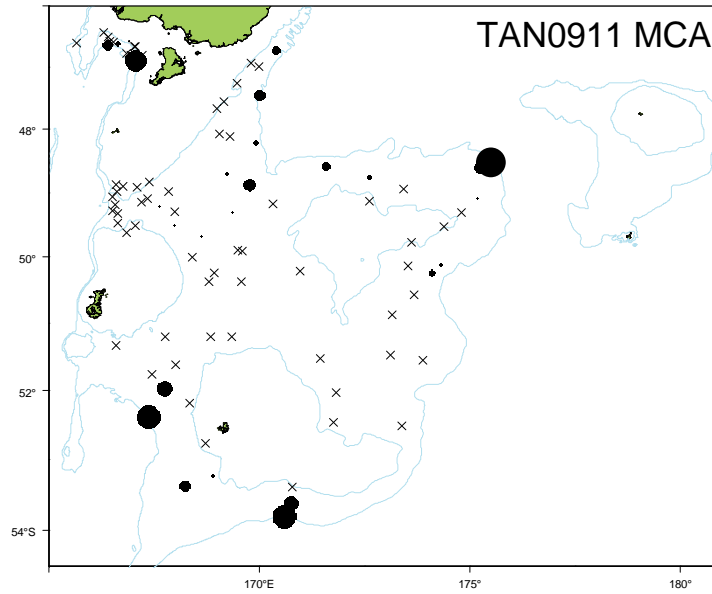
Catchrates of *Macrourus carinatus*. Circle area is proportional to the maximum catchrate from all surveys (see Table 5).







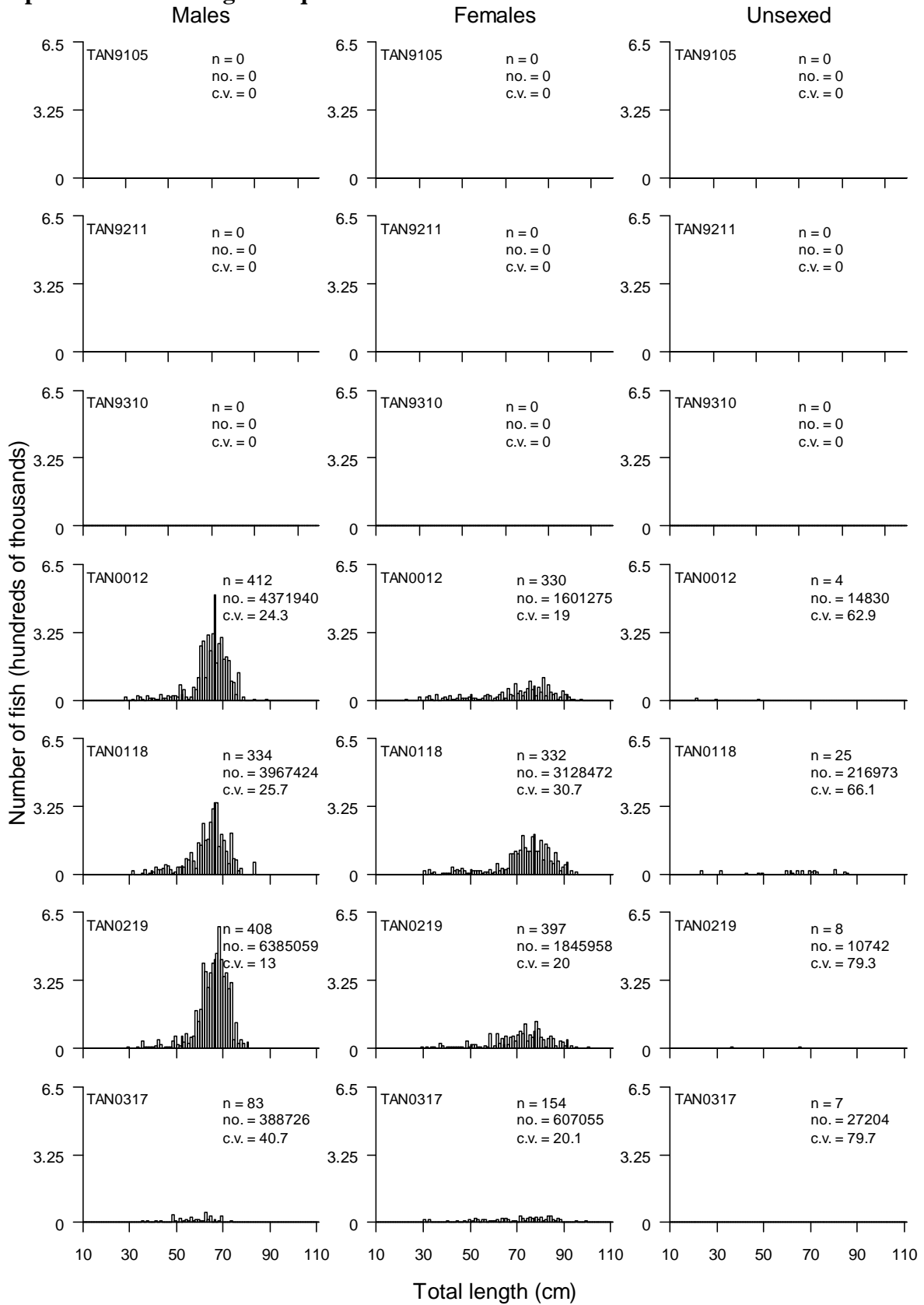


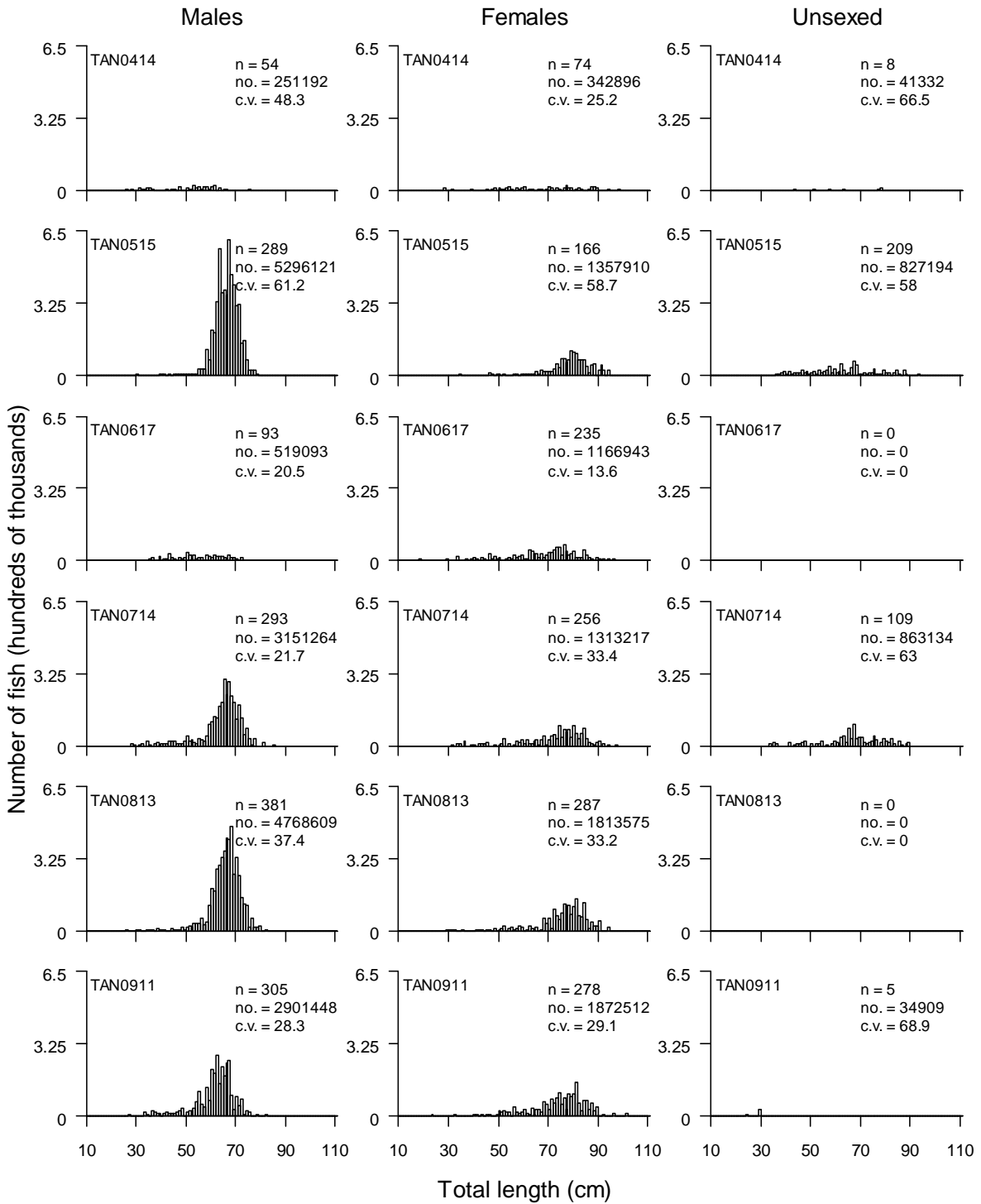


Length summaries

Survey	Minimum length (cm)	Maximum length (cm)	Mean length (cm)	Number measured
TAN9105	NA	NA	NA	0
TAN9211	NA	NA	NA	0
TAN9310	NA	NA	NA	0
TAN0012	21	97	65.9	746
TAN0118	23	95	65.1	691
TAN0219	29	100	68.1	813
TAN0317	27	99	64.2	244
TAN0414	26	98	61.9	136
TAN0515	30	94	66.0	664
TAN0617	18	96	66.3	328
TAN0714	28	97	67.3	658
TAN0813	26	94	67.7	668
TAN0911	23	101	66.0	588

Population scaled length frequencies of *Macrourus carinatus* for all strata.





Gonad stage summaries by sex for *Macrourus carinatus*. Percentage at each stage using the MD staging method.

Survey	M1	M2	M3	M4	M5	M6	M7	F1	F2	F3	F4	F5	F6	F7
TAN9105	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9211	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0012	37	24	8	30	0	2	0	12	22	16	0	0	2	48
TAN0118	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0219	0	25	50	12	12	0	0	0	7	93	0	0	0	0
TAN0317	0	67	33	0	0	0	0	0	8	0	8	0	4	81
TAN0414	0	100	0	0	0	0	0	14	71	14	0	0	0	0
TAN0515	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0617	18	33	12	20	3	12	1	6	20	58	5	1	4	6
TAN0714	5	18	19	55	0	2	0	6	26	62	0	0	2	3
TAN0813	2	19	28	31	2	17	0	1	24	74	1	0	0	0
TAN0911	2	30	14	33	20	0	1	1	38	35	5	3	1	16
ALL	9	24	18	39	5	5	0	6	24	50	3	1	3	15



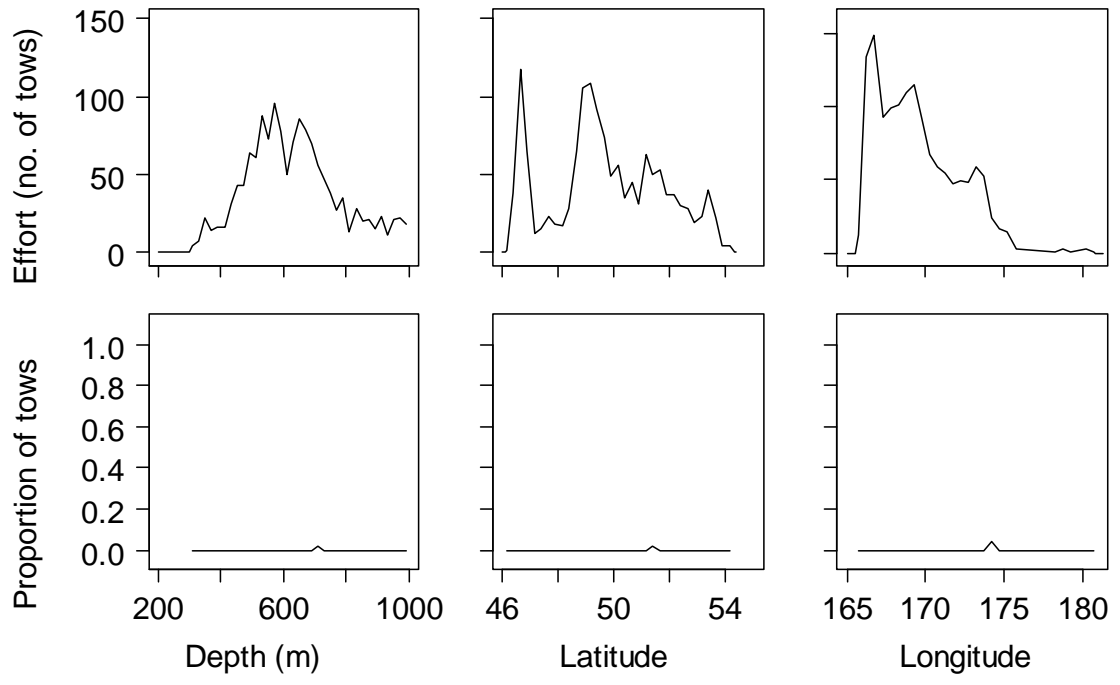
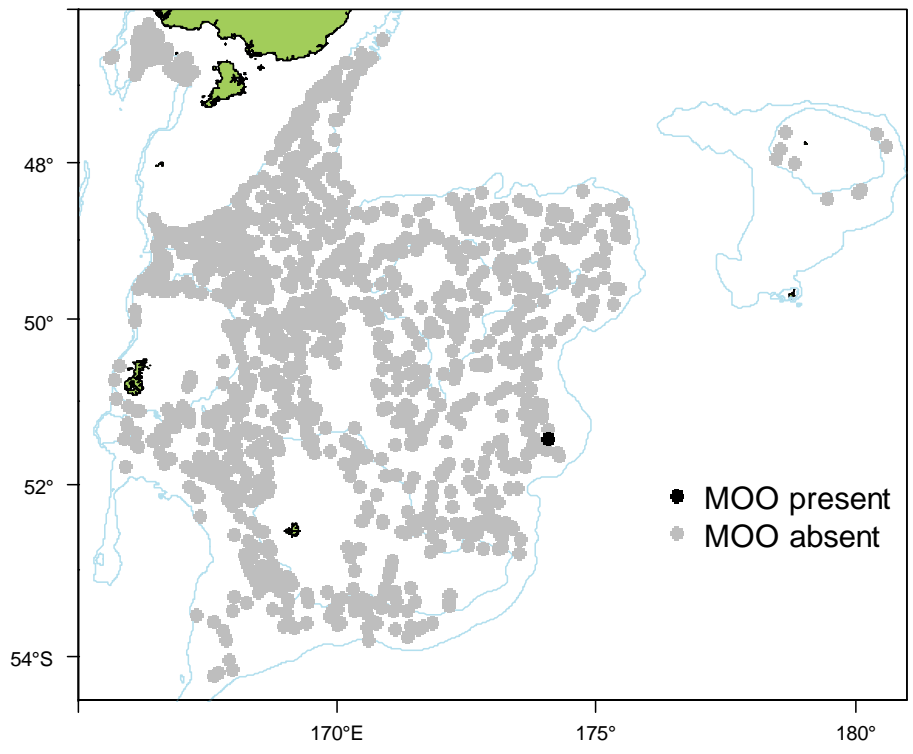
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	11.4
Number measured	1
Length range (mean) (cm)	–
Number weighed	0

This species **has** been well identified during the time series. It is **pelagic**. The core survey area and depth range **is not** appropriate for this species. Distribution **does not extend** to strata deeper than 800 m surveyed from 2000 to 2009. It **was not** recorded from the Bounty Platform.

There were **too few fish caught to determine whether the core survey area is appropriate for this species**. Biomass of this species is **poorly** estimated by the core survey area. Biomass **shows no clear trend** since the start of the time series.

There is no length or gonad stage information presented.

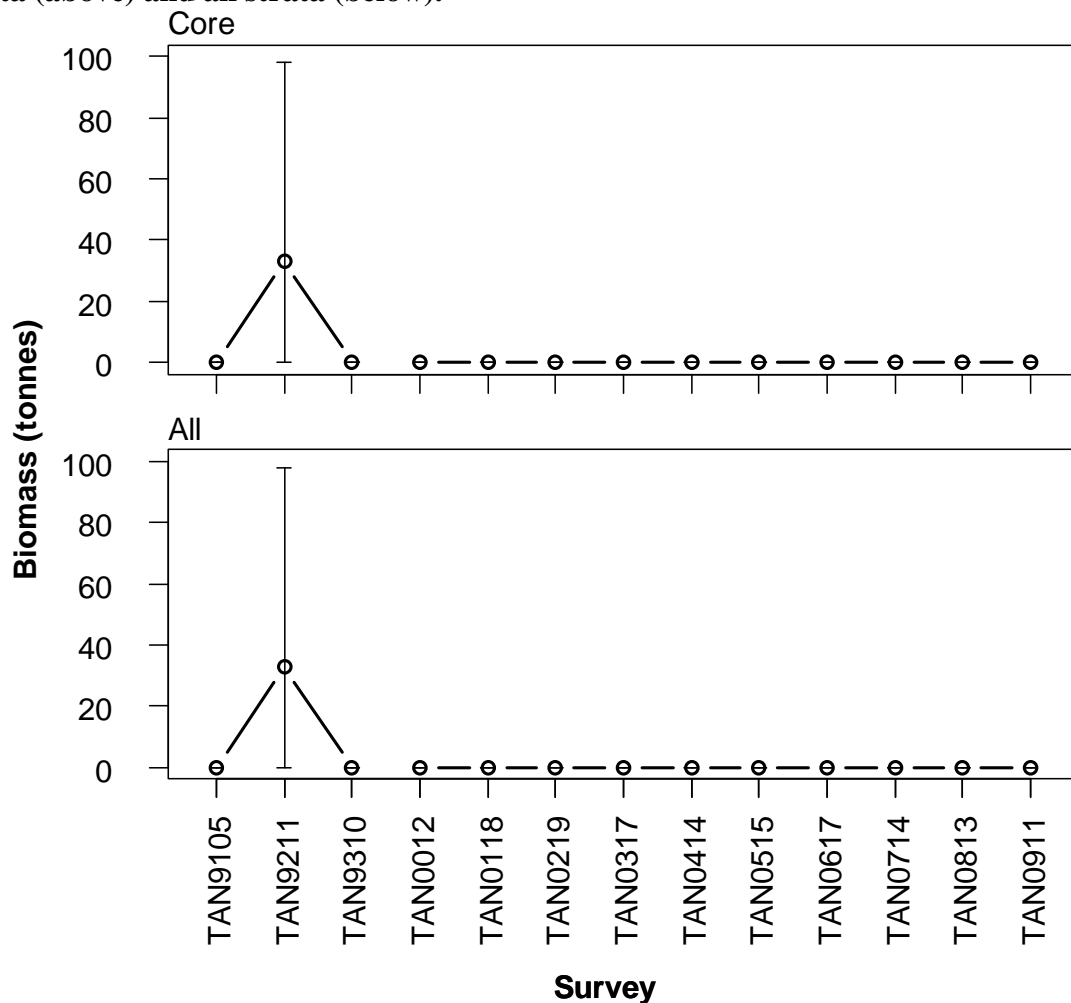
Distribution of *Lampris guttatus* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Lampris guttatus* for core strata, strata outside the core area and all strata.

Survey	Core biomass	Core (c.v.)	Strata 27+28 biomass	27+28 (c.v.)	Stratum 26 biomass	26 (c.v.)	Stratum 17 biomass	17 (c.v.)	Total biomass	Total (c.v.)
TAN9105	0	0	NA	NA	NA	NA	NA	NA	0	0
TAN9211	33	100	NA	NA	NA	NA	0	0	33	100
TAN9310	0	0	NA	NA	NA	NA	0	0	0	0
TAN0012	0	0	0	0	0	0	NA	NA	0	0
TAN0118	0	0	0	0	0	0	NA	NA	0	0
TAN0219	0	0	0	0	0	0	NA	NA	0	0
TAN0317	0	0	0	0	NA	NA	NA	NA	0	0
TAN0414	0	0	0	0	NA	NA	NA	NA	0	0
TAN0515	0	0	0	0	0	0	NA	NA	0	0
TAN0617	0	0	0	0	NA	NA	NA	NA	0	0
TAN0714	0	0	0	0	0	0	NA	NA	0	0
TAN0813	0	0	0	0	0	0	NA	NA	0	0
TAN0911	0	0	0	0	0	0	NA	NA	0	0

Trends in relative biomass estimates (± 2 standard errors) of *Lampris guttatus* for core strata (above) and all strata (below).



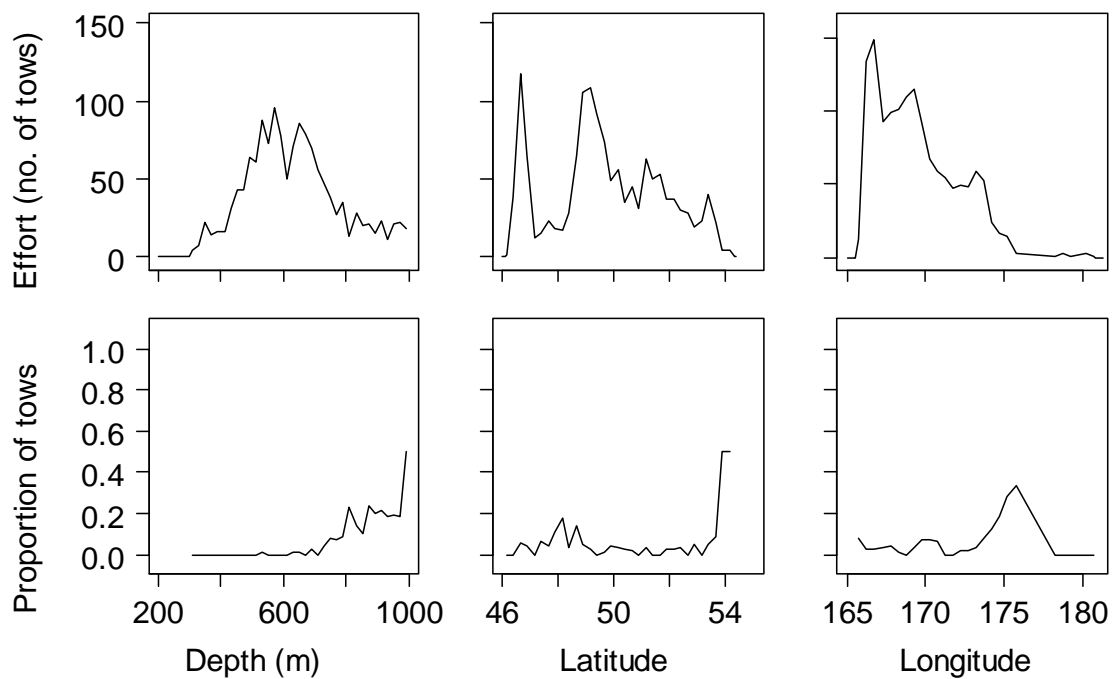
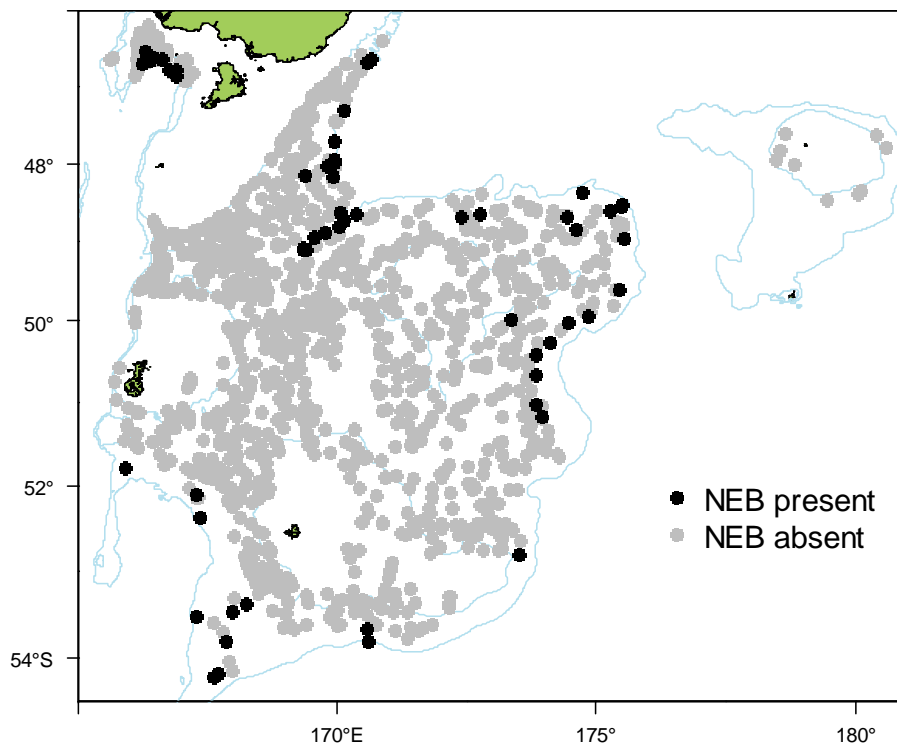


Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	11
Total catch weight (kg):	95.9
Number measured	0
Length range (mean) (cm)	–
Number weighed	0

This species **may not have been** well identified during the time series, with zero biomass recorded in 1991 and 1992. It is found **deeper** than 1000 m. The core survey area and depth range **is** appropriate for this species. Distribution **does extend** to strata deeper than 800 m surveyed from 2000 to 2009. It **was not** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey area. Biomass **shows no clear trend** since the start of the time series. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is also **poorly** estimated. Catches are recorded from most areas close to and deeper than 800 m.

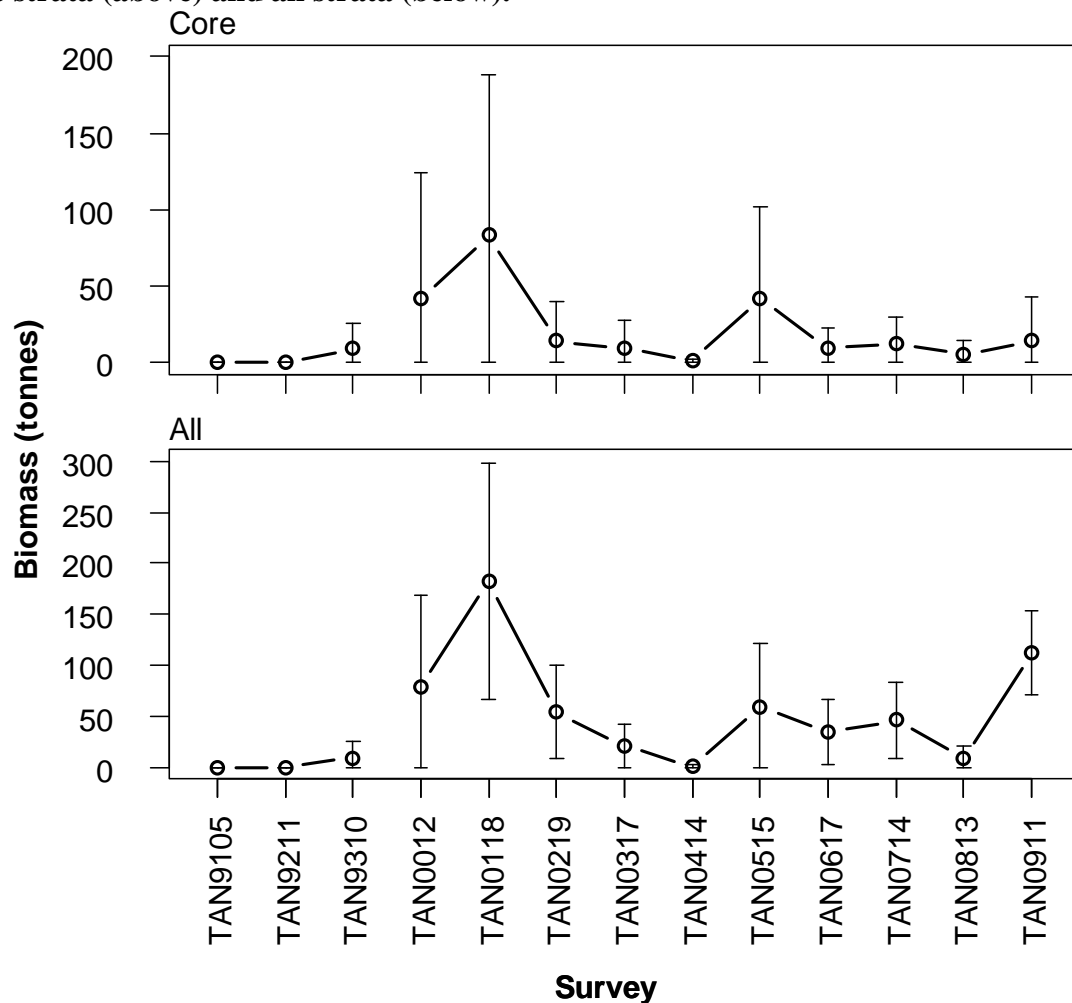
Distribution of *Neolithodes brodiei* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Neolithodes brodiei* for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	0	0	NA	NA	NA	NA	NA	NA	0	0
TAN9211	0	0	NA	NA	NA	NA	0	0	0	0
TAN9310	9	100	NA	NA	NA	NA	0	0	9	100
TAN0012	42	99	2	100	36	50	NA	NA	79	57
TAN0118	83	63	43	35	56	35	NA	NA	182	32
TAN0219	14	92	4	100	36	52	NA	NA	54	42
TAN0317	9	100	12	51	NA	NA	NA	NA	21	53
TAN0414	1	100	0	0	NA	NA	NA	NA	1	100
TAN0515	42	71	16	62	0	0	NA	NA	59	54
TAN0617	9	81	25	58	NA	NA	NA	NA	34	47
TAN0714	12	72	21	53	13	100	NA	NA	46	42
TAN0813	5	100	5	78	0	0	NA	NA	9	63
TAN0911	14	100	17	45	81	15	NA	NA	112	18

Trends in relative biomass estimates (± 2 standard errors) of *Neolithodes brodiei* for core strata (above) and all strata (below).





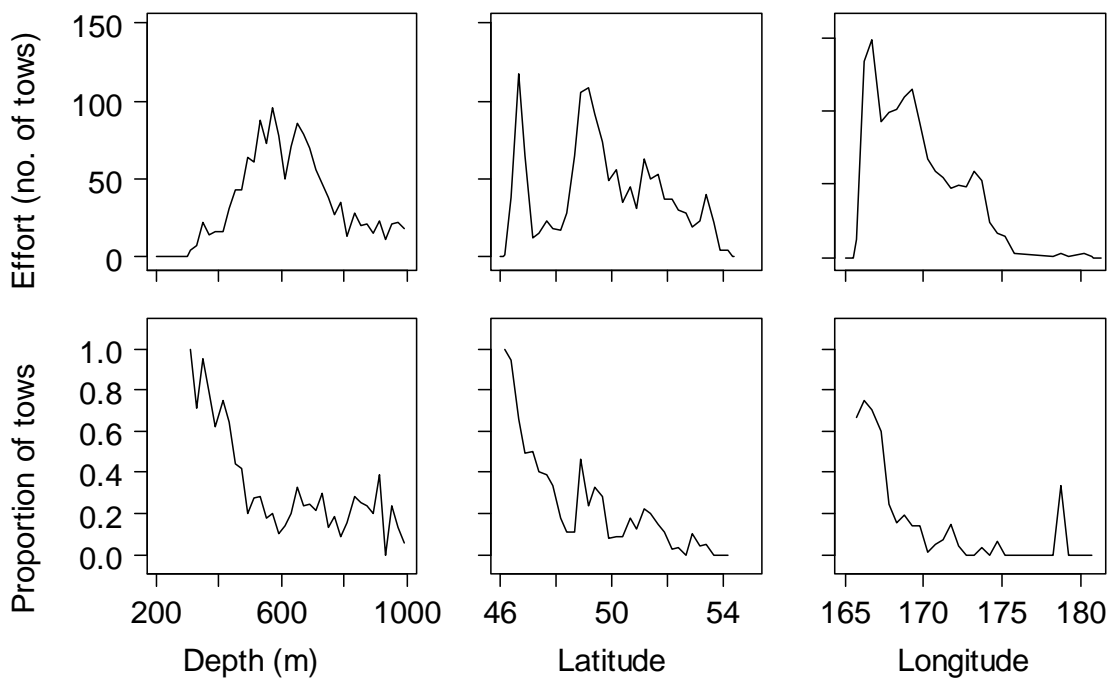
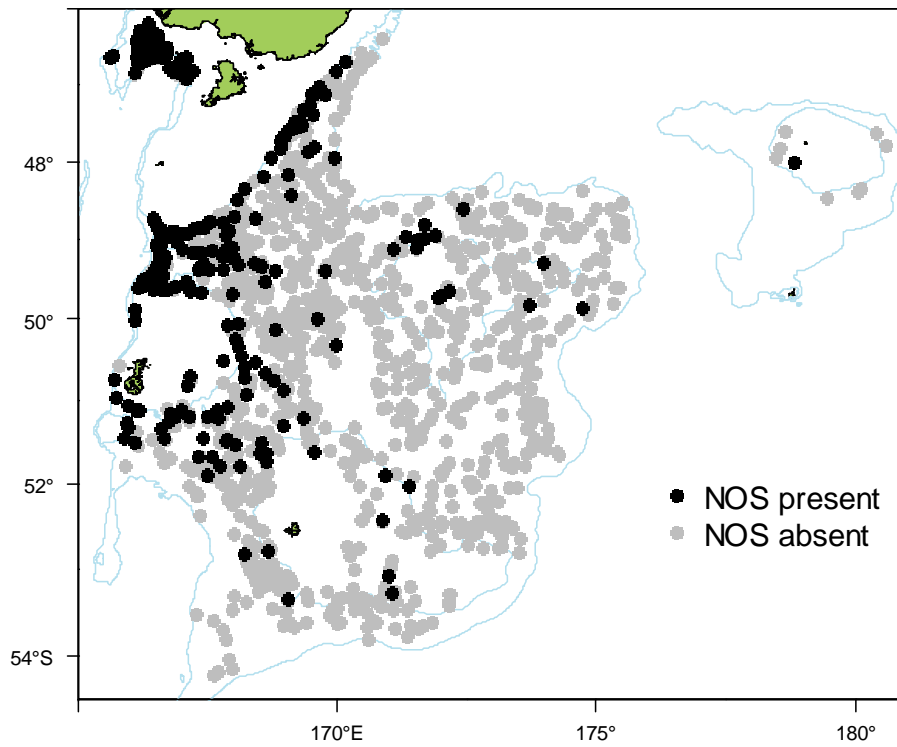
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	6 990.8
Number measured	5 801
Length range (mean) (cm)	12–48 (23.3)
Number weighed	1 214
Length-weight parameters a, b (r^2)	0.0140067 3.15444 (87.91)

This species **has** been well identified during the time series. It is found **shallower** than 300 m. The core survey area and depth range **is** appropriate for this species. Distribution **does extend** to strata deeper than 800 m surveyed from 2000 to 2009. It **was** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey area. Biomass **shows no clear trend** since the start of the time series. With arrow squid having a short life cycle of about one year and highly variable recruitment this may be expected. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is also **poorly** estimated. Higher catchrates are recorded from the bottom of the Stewart/Snares shelf.

Length frequencies **are usually bimodal**. Mean length **shows no clear trend**. There is **no gonad stage information**.

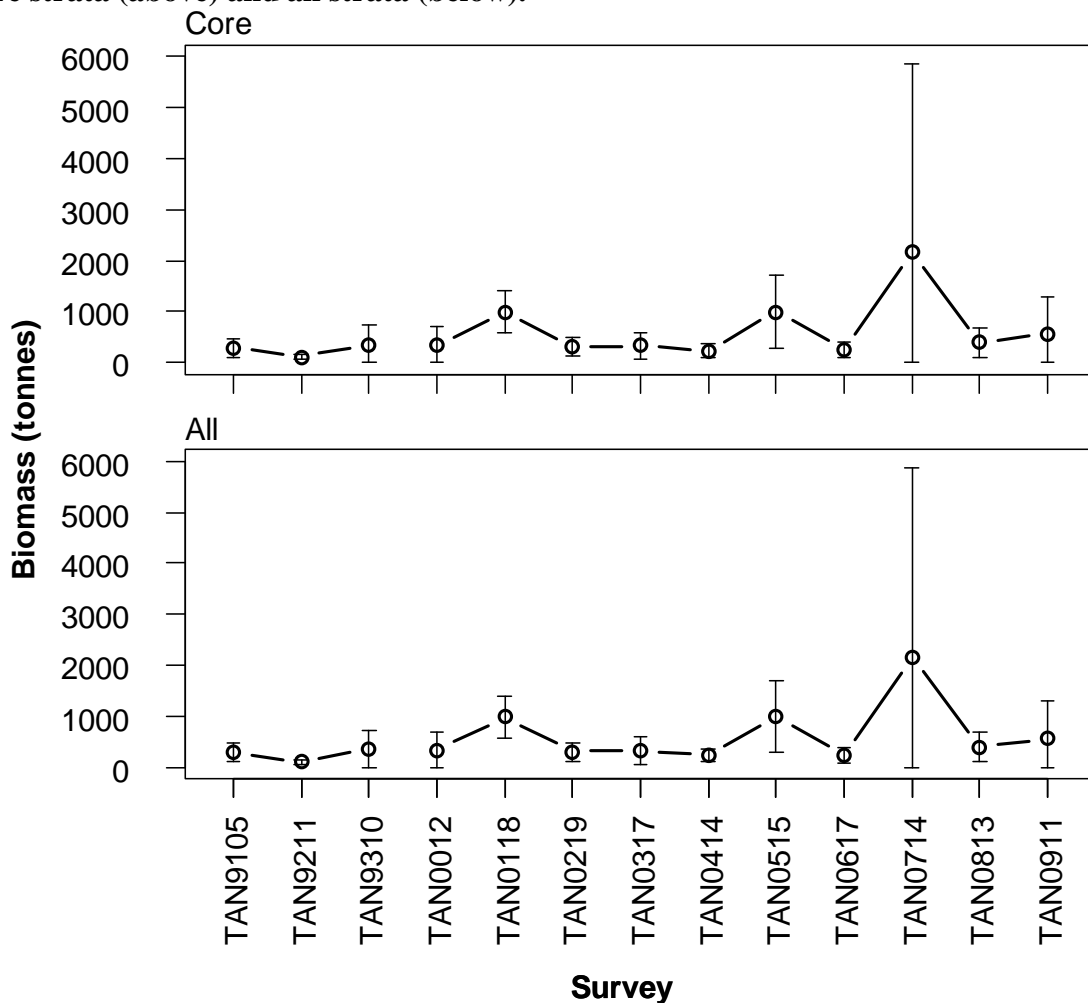
Distribution of *Nototodarus sloanii* from all summer surveys. Valid biomass stations only.



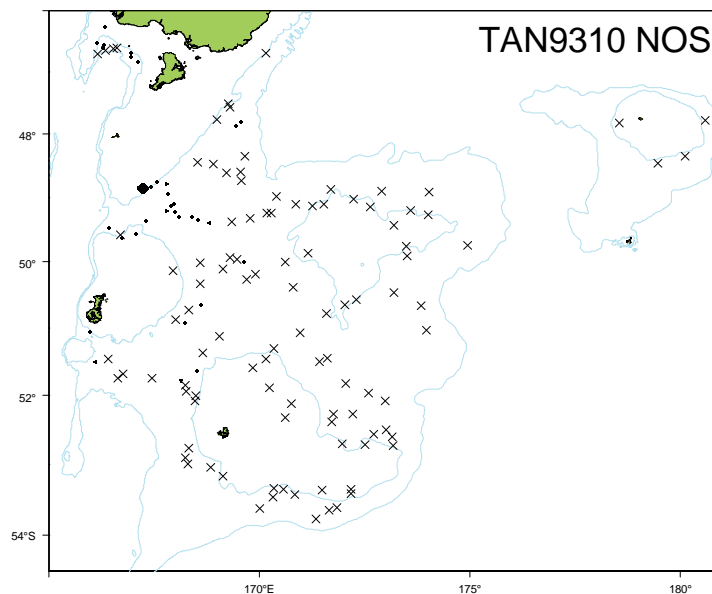
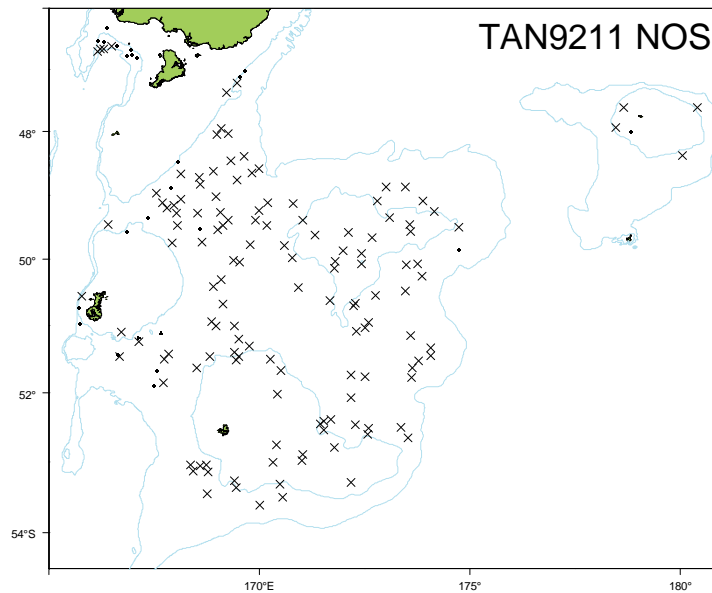
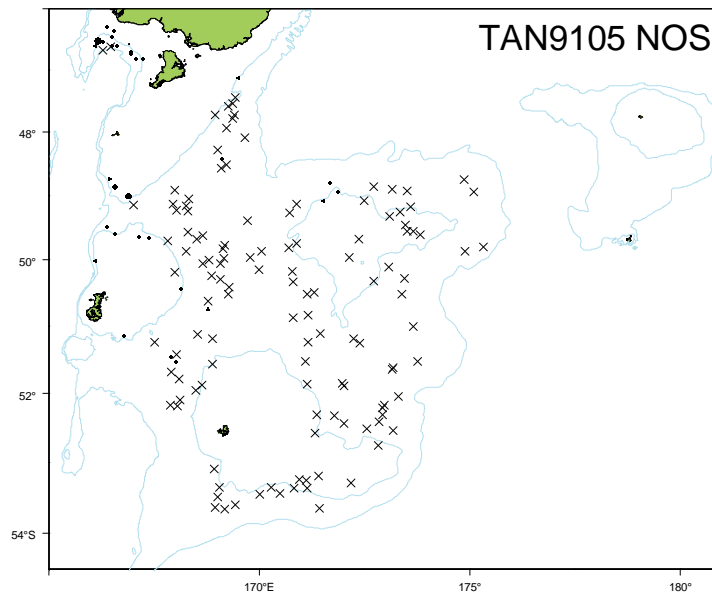
Relative biomass estimates (t) and c.v.s (%) of *Nototodarus sloanii* for core strata, strata outside the core area and all strata.

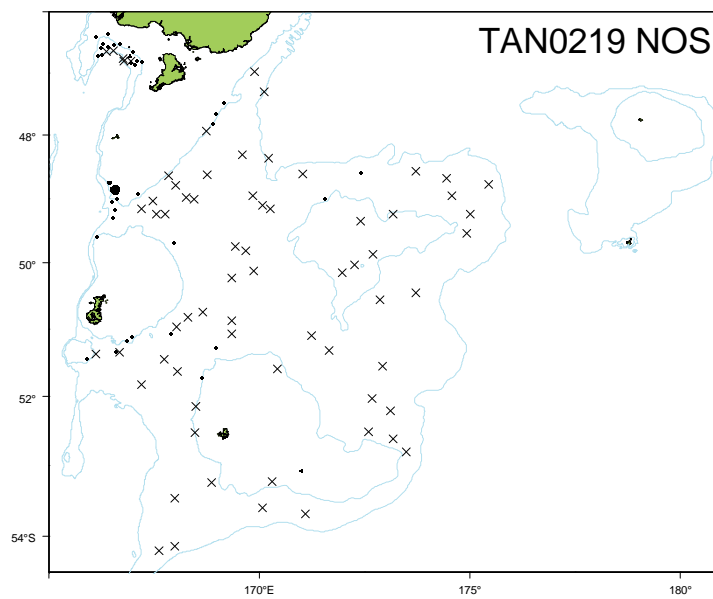
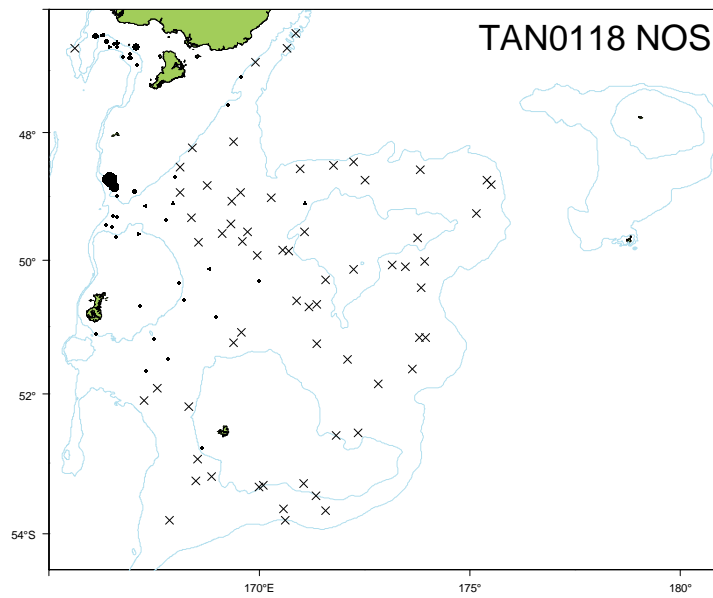
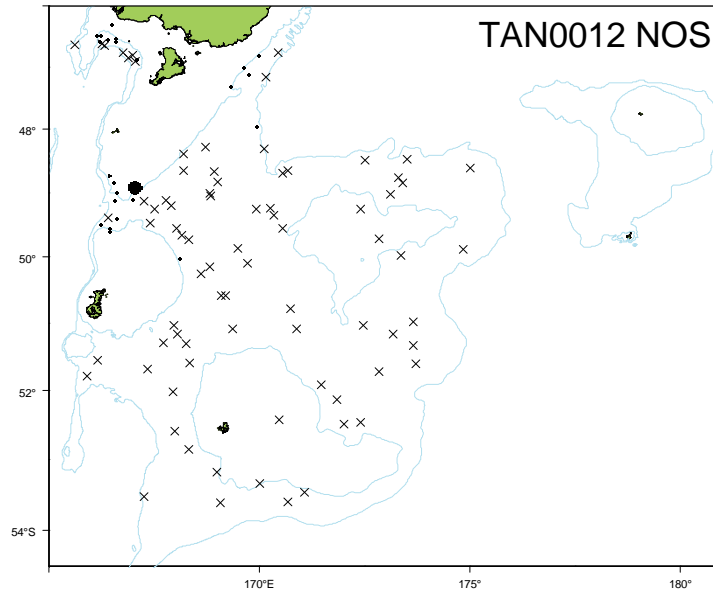
Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	286	32	NA	NA	NA	NA	NA	NA	286	32
TAN9211	106	22	NA	NA	NA	NA	1	100	107	21
TAN9310	354	54	NA	NA	NA	NA	0	0	354	54
TAN0012	328	56	2	100	0	0	NA	NA	331	56
TAN0118	988	21	0	0	0	0	NA	NA	988	21
TAN0219	300	30	2	100	0	0	NA	NA	303	30
TAN0317	325	40	0	0	NA	NA	NA	NA	325	40
TAN0414	232	28	0	0	0	0	NA	NA	232	28
TAN0515	995	35	0	0	0	0	NA	NA	995	35
TAN0617	239	32	0	0	NA	NA	NA	NA	239	32
TAN0714	2161	86	0	0	0	0	NA	NA	2161	86
TAN0813	396	36	0	0	0	0	NA	NA	396	36
TAN0911	563	65	0	0	0	0	NA	NA	563	65

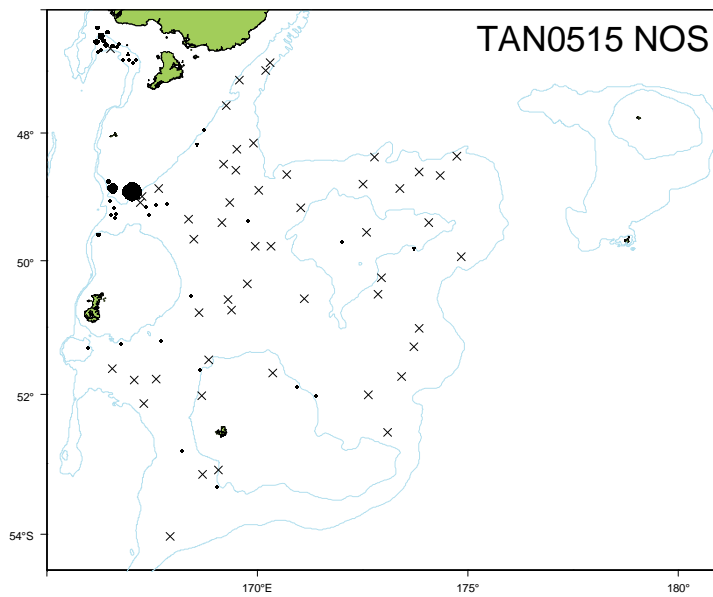
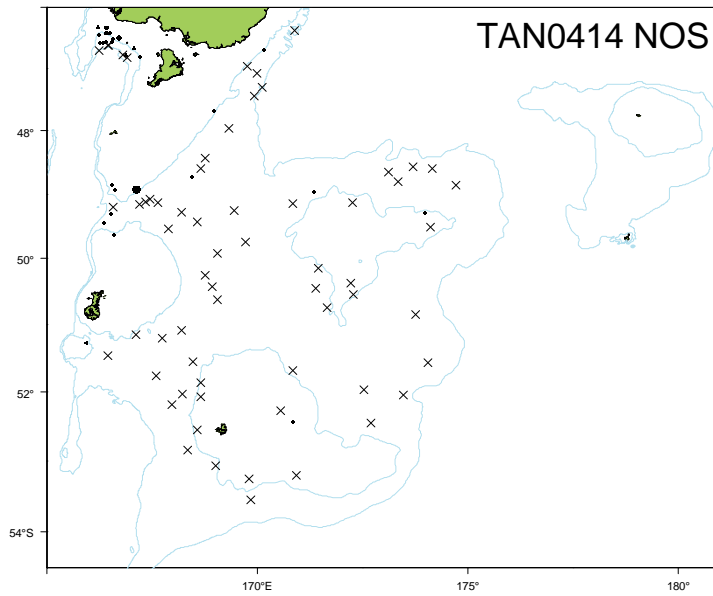
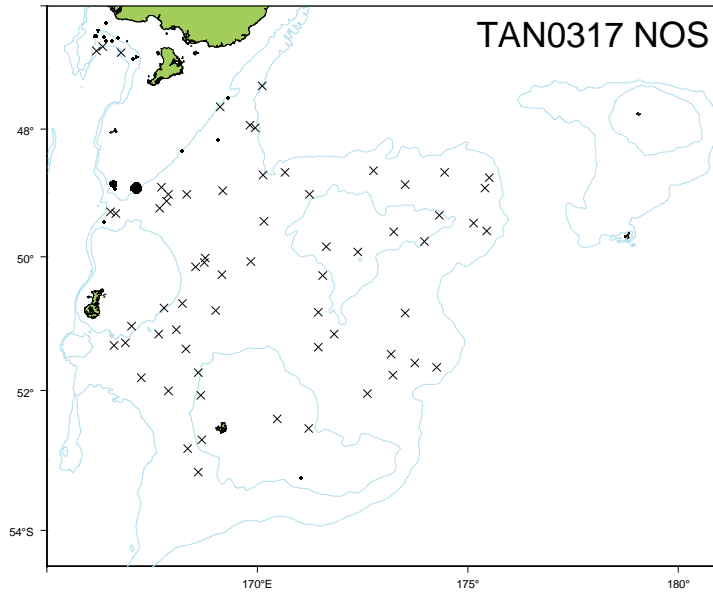
Trends in relative biomass estimates (± 2 standard errors) of *Nototodarus sloanii* for core strata (above) and all strata (below).

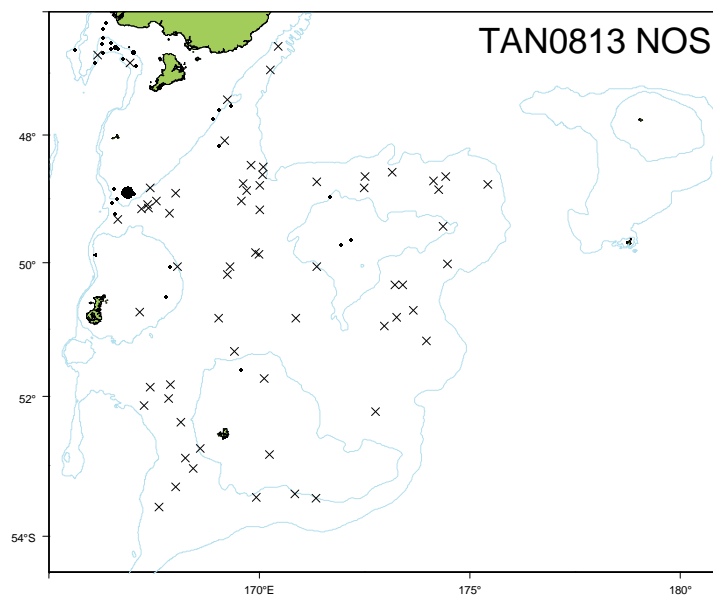
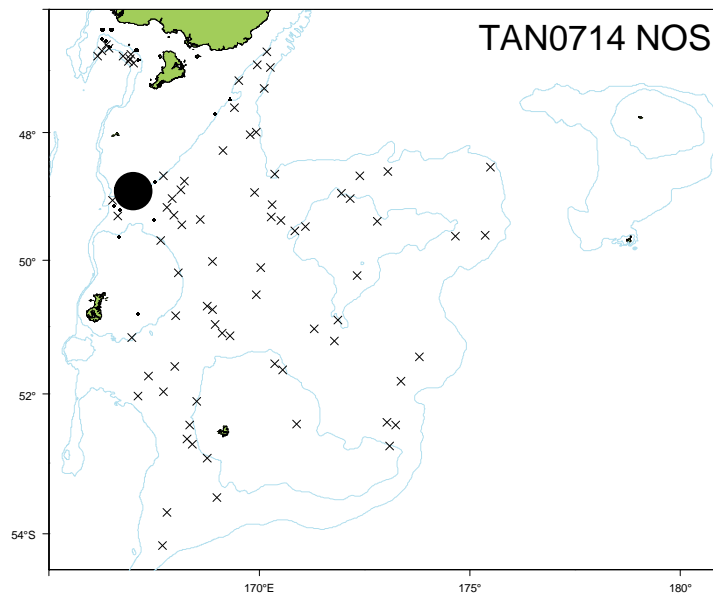
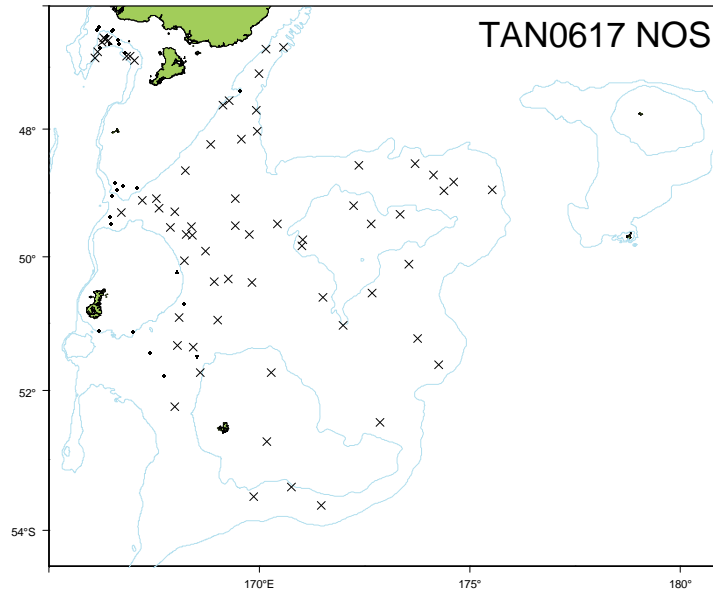


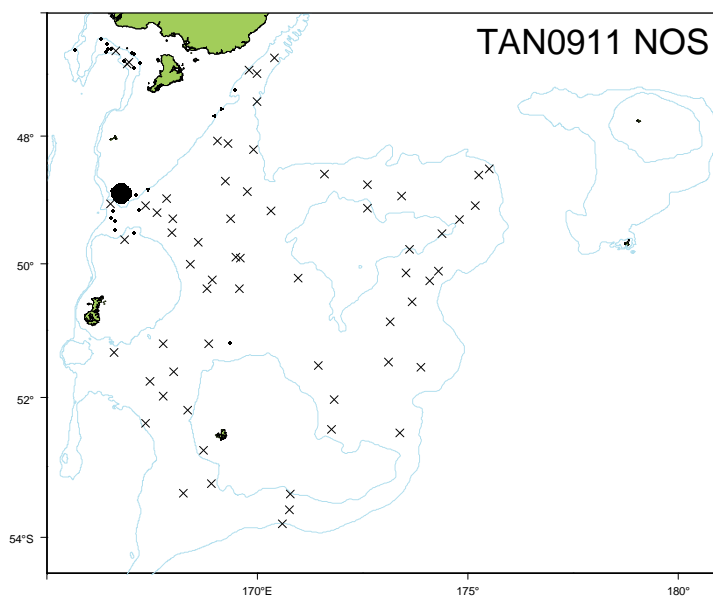
Catchrates of *Nototodarus sloanii*. Circle area is proportional to the maximum catchrate from all surveys (see Table 5).







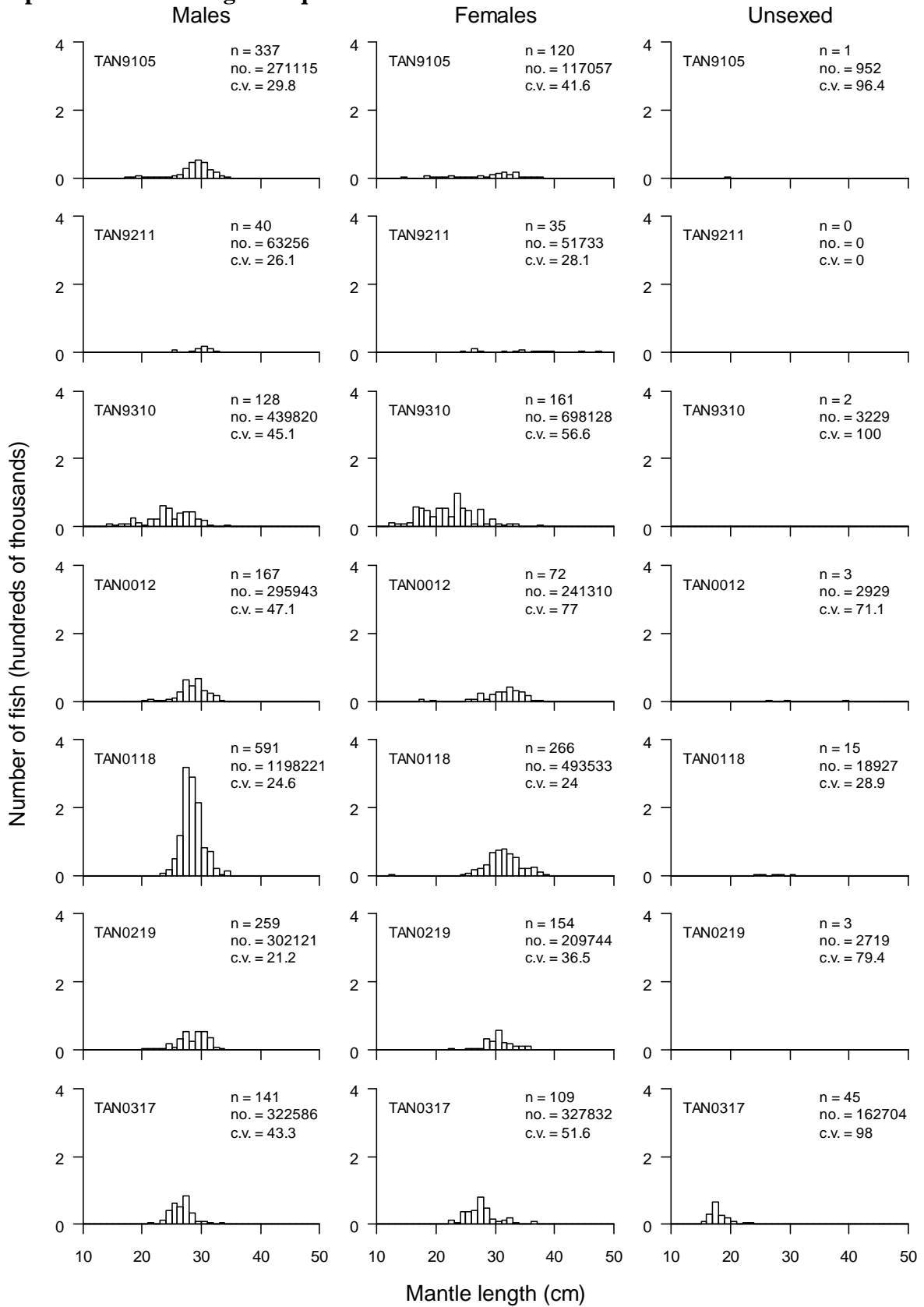


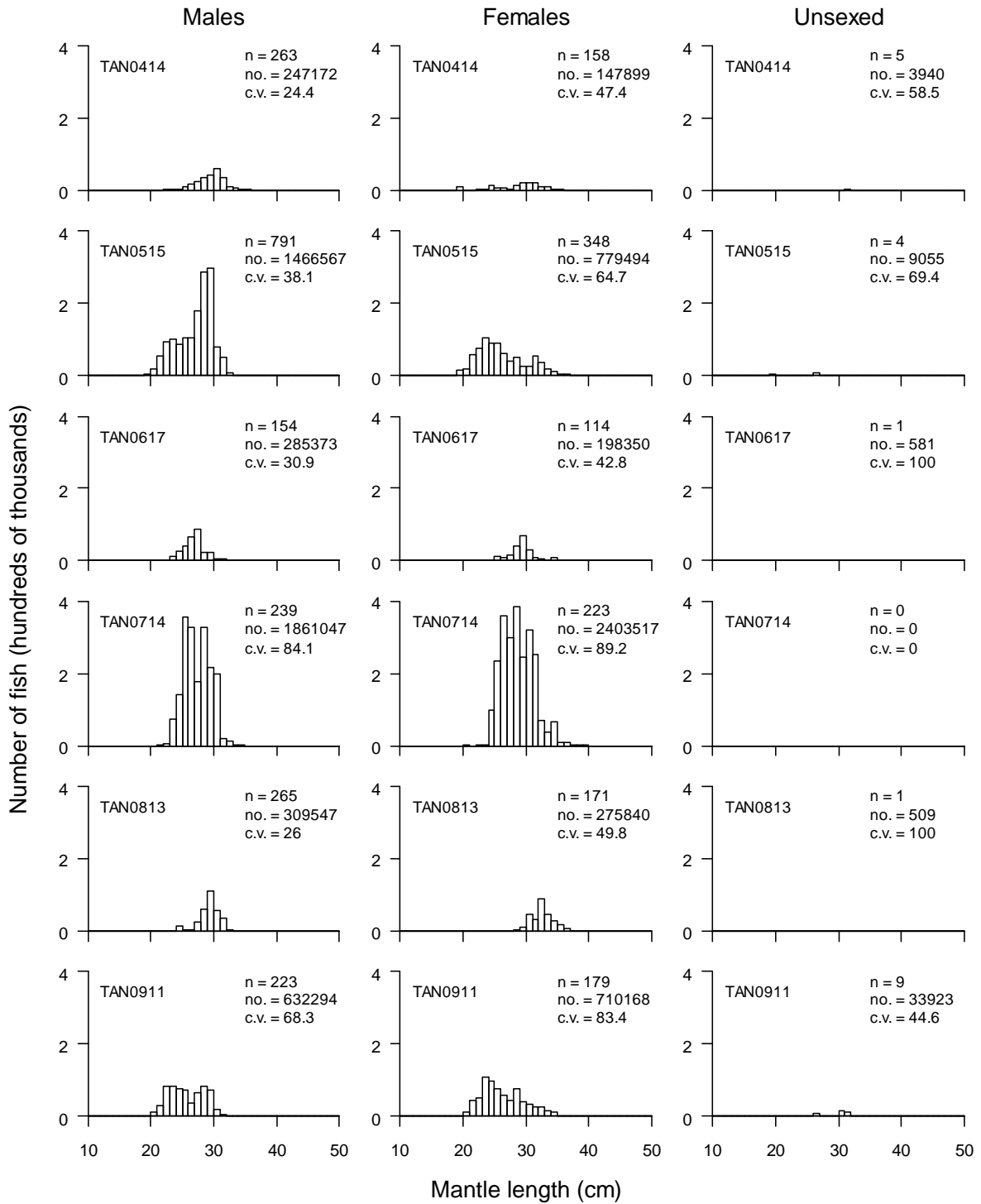


Length summaries

Survey	Minimum length (cm)	Maximum length (cm)	Mean length (cm)	Number measured
TAN9105	14	41	28.5	450
TAN9211	23	47	31.9	75
TAN9310	12	41	23.6	291
TAN0012	17	39	29.3	242
TAN0118	12	41	28.7	872
TAN0219	18	37	28.9	416
TAN0317	15	41	26.5	295
TAN0414	19	38	29.1	426
TAN0515	17	38	27.2	1143
TAN0617	19	42	27.8	269
TAN0714	20	39	28.2	462
TAN0813	24	37	30.2	437
TAN0911	18	37	26.6	411

Population scaled length frequencies of *Nototodarus sloanii* for all strata.





**Coded as AMP**

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	3
Total catch weight (kg):	43.8

Coded as BNO

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	1.3

Coded as EZE

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	5
Total catch weight (kg):	16.8

Coded as OCP

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.7

Coded as OCT

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	7.8

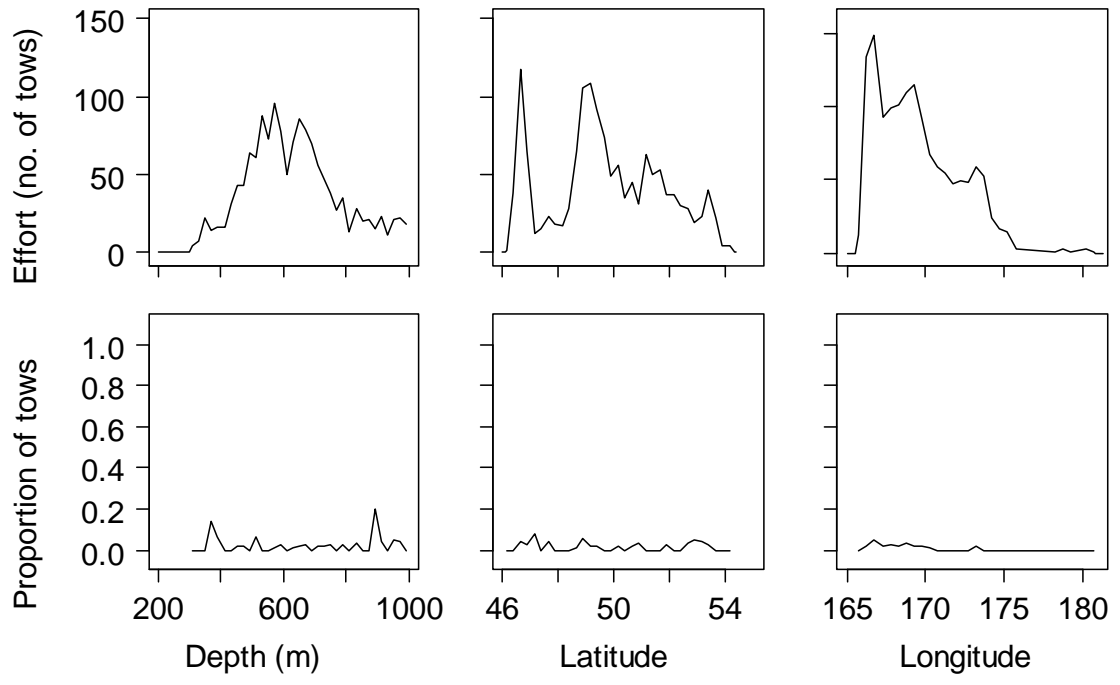
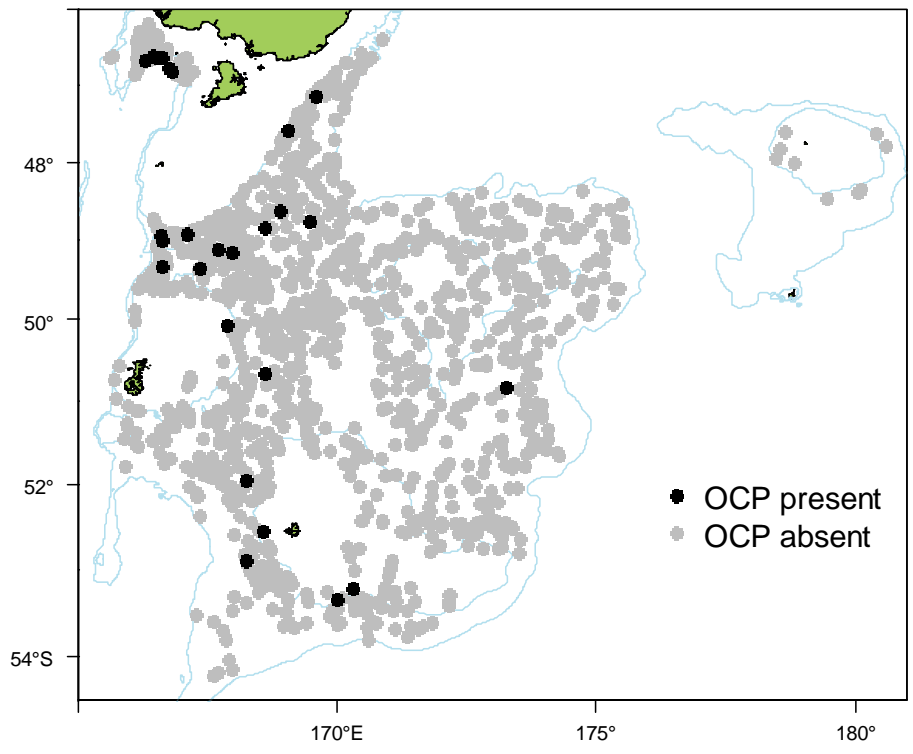
Coded as OHU

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.1

This group **has** been well identified during the time series. It is found **deeper** than 1000 m. The core survey area and depth range **is** appropriate for this species. Distribution **does not extend** to strata deeper than 800 m surveyed from 2000 to 2009. It **was not** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey area. Biomass **shows no clear trend** since the start of the time series.

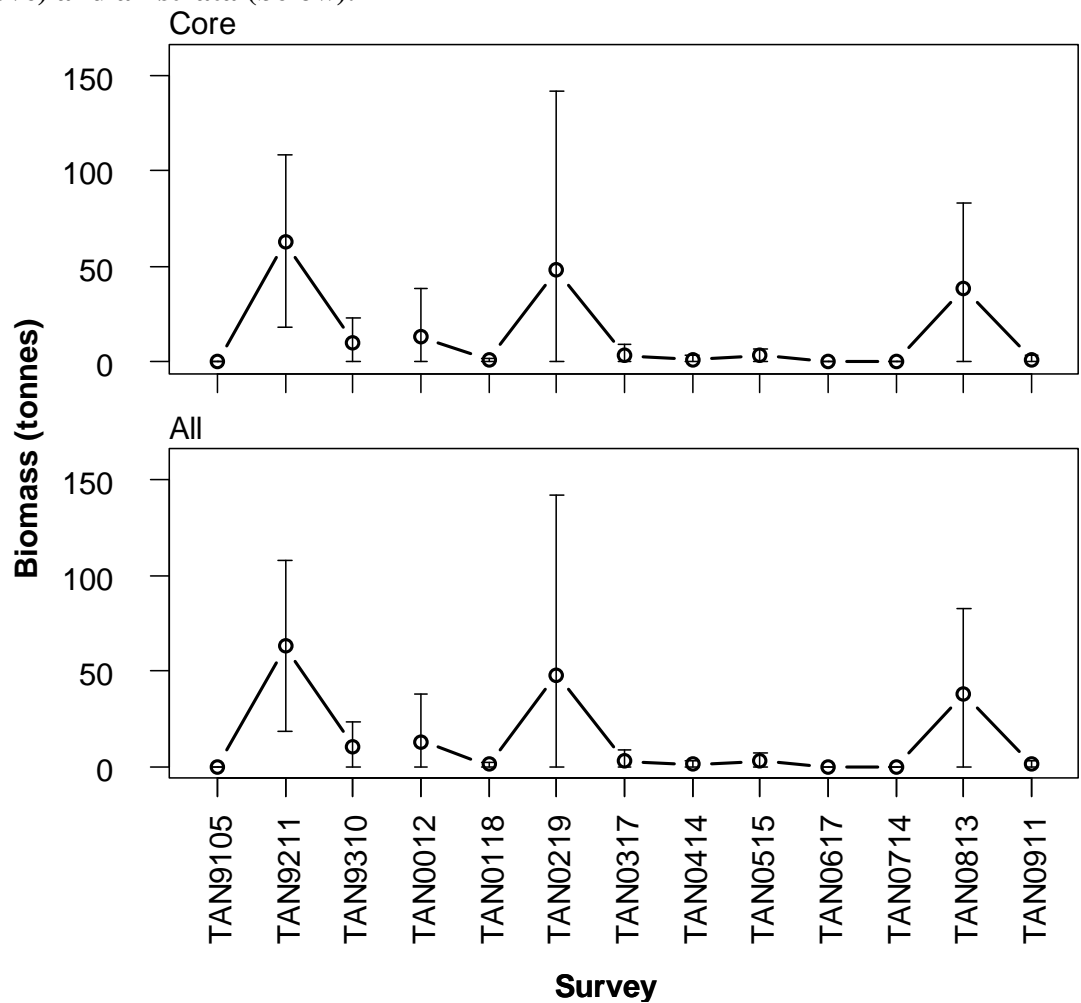
Distribution of Octopuses from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of Octopuses for core strata, strata outside the core area and all strata.

Survey	Core biomass	Core (c.v.)	Strata 27+28 biomass	27+28 (c.v.)	Stratum 26 biomass	26 (c.v.)	Stratum 17 biomass	17 (c.v.)	Total biomass	Total (c.v.)
TAN9105	0	NA	NA	NA	NA	NA	NA	NA	0	NA
TAN9211	63	36	NA	NA	NA	NA	0	0	63	36
TAN9310	10	66	NA	NA	NA	NA	0	0	10	66
TAN0012	13	100	0	0	0	0	NA	NA	13	100
TAN0118	1	65	0	0	0	0	NA	NA	1	65
TAN0219	48	100	0	0	0	0	NA	NA	48	100
TAN0317	3	100	0	0	NA	NA	NA	NA	3	100
TAN0414	1	100	0	0	NA	NA	NA	NA	1	100
TAN0515	3	72	0	0	0	0	NA	NA	3	72
TAN0617	0	NA	0	0	NA	NA	NA	NA	0	NA
TAN0714	0	NA	0	0	0	0	NA	NA	0	NA
TAN0813	38	60	0	0	0	0	NA	NA	38	60
TAN0911	1	100	0	0	0	0	NA	NA	1	100

Trends in relative biomass estimates (± 2 standard errors) of Octopuses for core strata (above) and all strata (below).



Sponges

ONG

**Coded as APU**

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.2

Coded as CIC

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	3.4

Coded as CPG

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.5

Coded as CRM

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	1.0

Coded as CRS

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	2.0

Coded as DSO

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.2

Coded as ERE

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	1.1

Coded as GLS

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	4
Total catch weight (kg):	2 032.1

Coded as GVE

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	8.7

Coded as HYA

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	3
Total catch weight (kg):	1 558.5

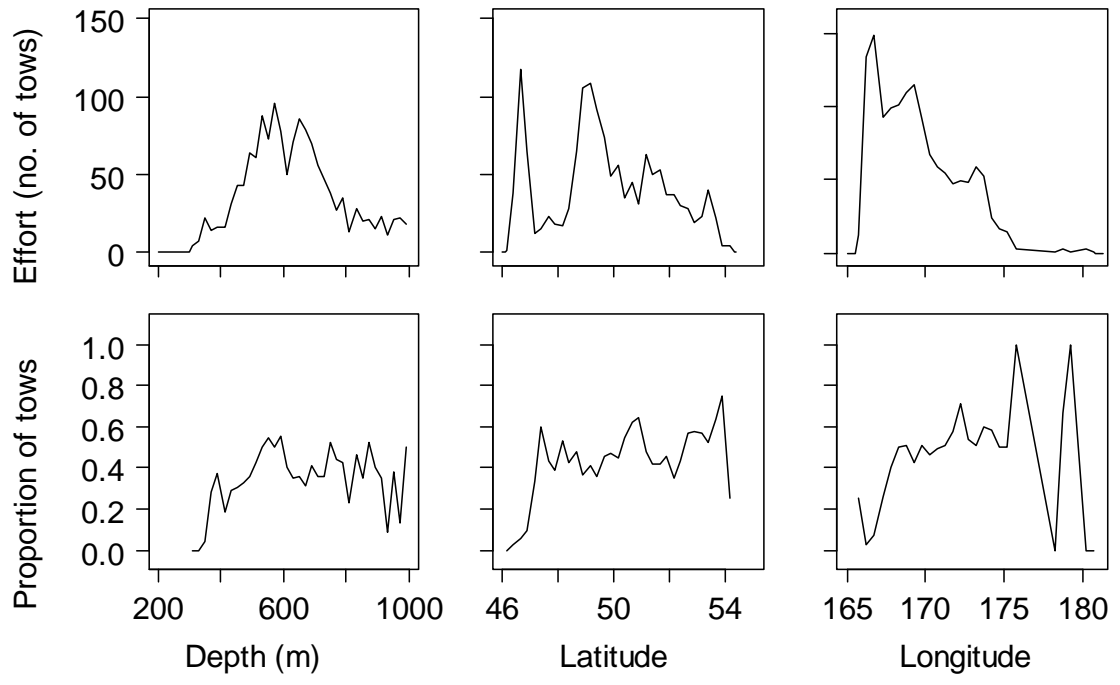
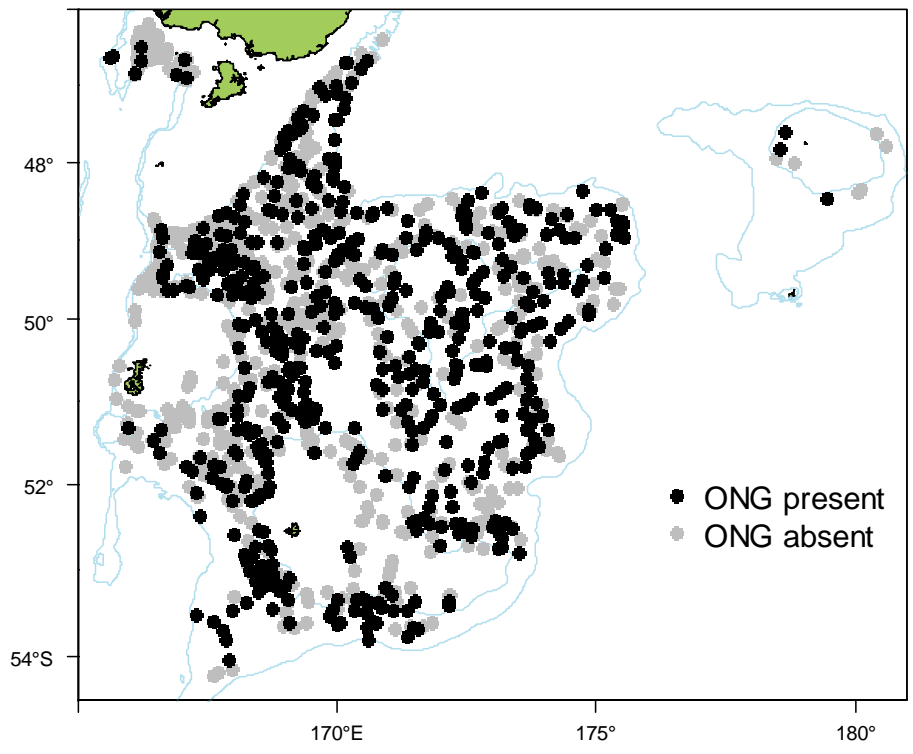
Coded as MYX

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.1
Coded as ONG	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	12
Total catch weight (kg):	2 169.1
Coded as PAZ	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	1.5
Coded as PHB	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	5
Total catch weight (kg):	6.7
Coded as PHW	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	2.1
Coded as SUA	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	5
Total catch weight (kg):	12.1
Coded as THN	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.1
Coded as TLD	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	3
Total catch weight (kg):	2.8
Coded as TTL	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.1

This group **has not** been well identified during the time series, particularly on early surveys in 1991 and 1992. Some members of this group are found **shallower than 300 m** and **deeper than 1000 m**. The core survey area and depth range **is** appropriate for this group. Distribution **extends** to strata deeper than 800 m surveyed from 2000 to 2009. It **is** recorded from the Bounty Platform.

Biomass of this species is **moderately well** estimated by the core survey from 1993. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **poorly** estimated. Biomass **shows an increase** since 2000, although this will be influenced by one large catch in 2006.

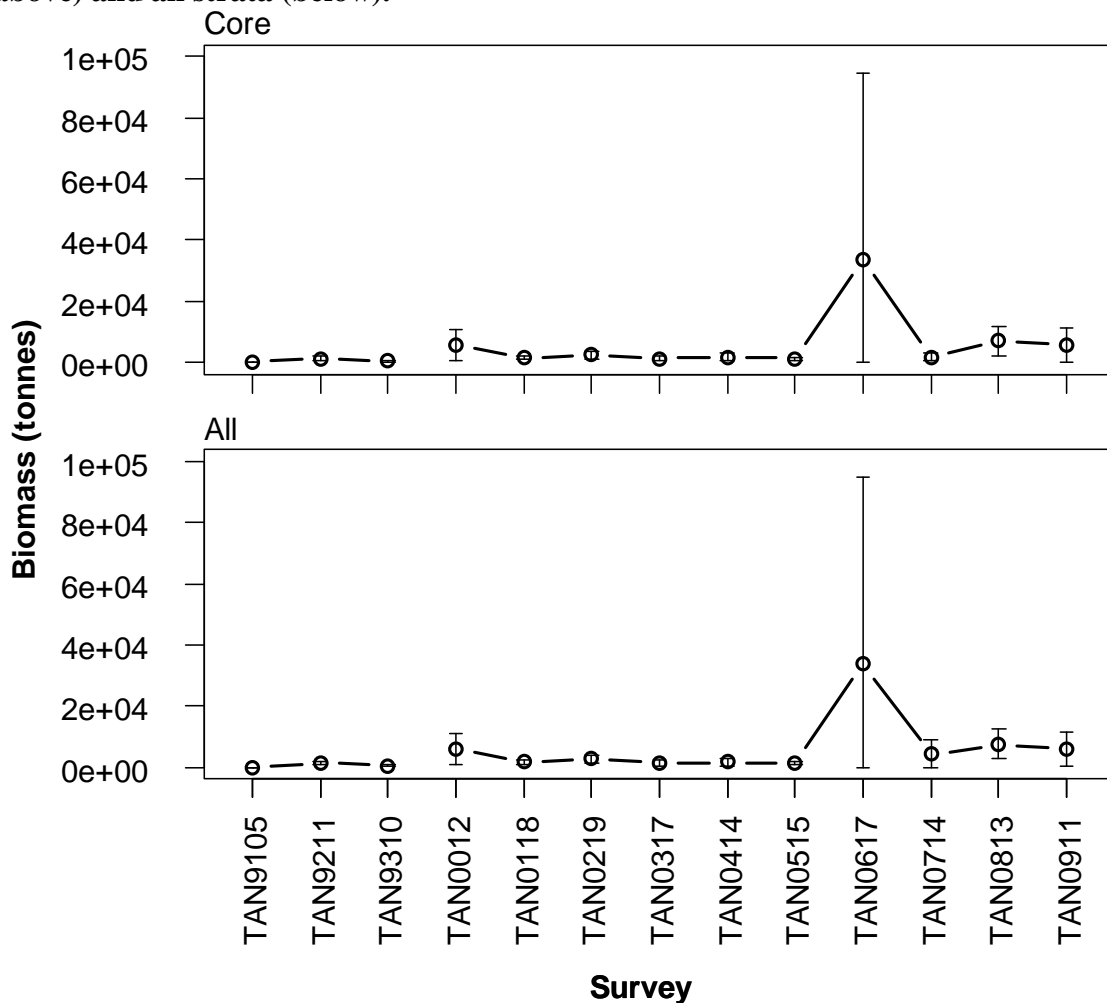
Distribution of Sponges from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of Sponges for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	0	NA	NA	NA	NA	NA	NA	NA	0	NA
TAN9211	1328	26	NA	NA	NA	NA	10	100	1338	26
TAN9310	551	22	NA	NA	NA	NA	10	80	561	22
TAN0012	5598	45	237	82	8	52	NA	NA	5843	44
TAN0118	1534	19	39	74	84	78	NA	NA	1657	18
TAN0219	2484	24	18	55	191	100	NA	NA	2693	23
TAN0317	1274	38	36	64	NA	NA	NA	NA	1310	37
TAN0414	1628	40	15	68	NA	NA	NA	NA	1642	40
TAN0515	1303	20	41	64	5	100	NA	NA	1349	19
TAN0617	33617	93	38	59	NA	NA	NA	NA	33655	93
TAN0714	1807	34	5	66	2331	100	NA	NA	4142	58
TAN0813	7013	35	36	86	553	100	NA	NA	7603	33
TAN0911	5636	50	52	87	116	82	NA	NA	5803	48

Trends in relative biomass estimates (± 2 standard errors) of Sponges for core strata (above) and all strata (below).



Umbrella octopus (*Opisthoteuthis* spp.)

OPI

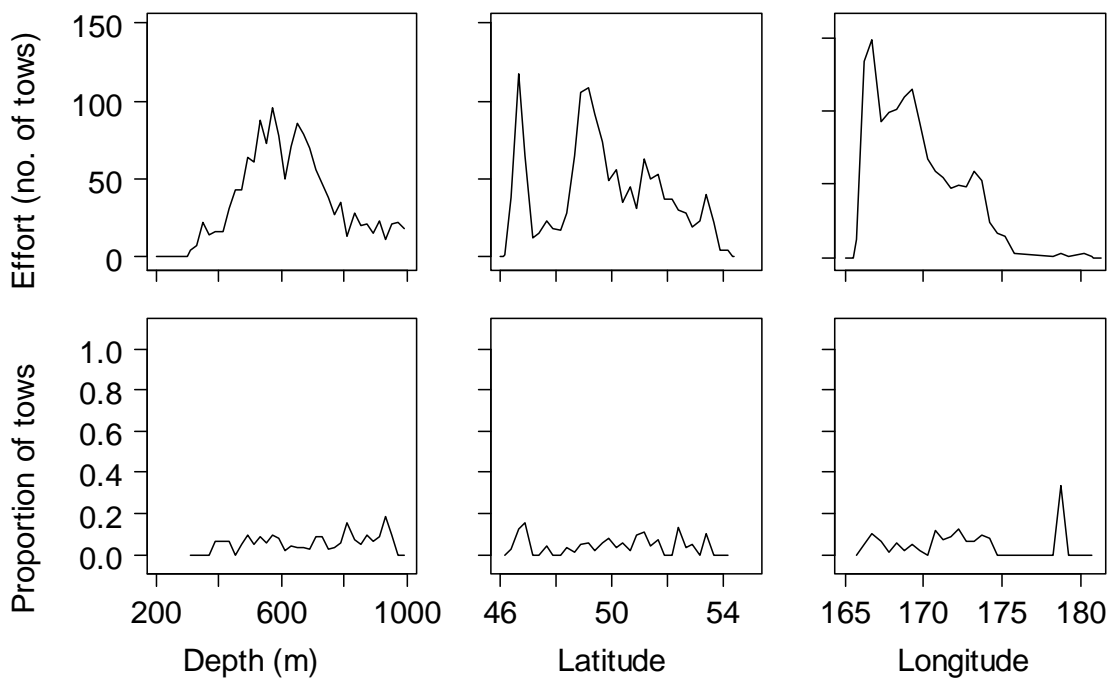
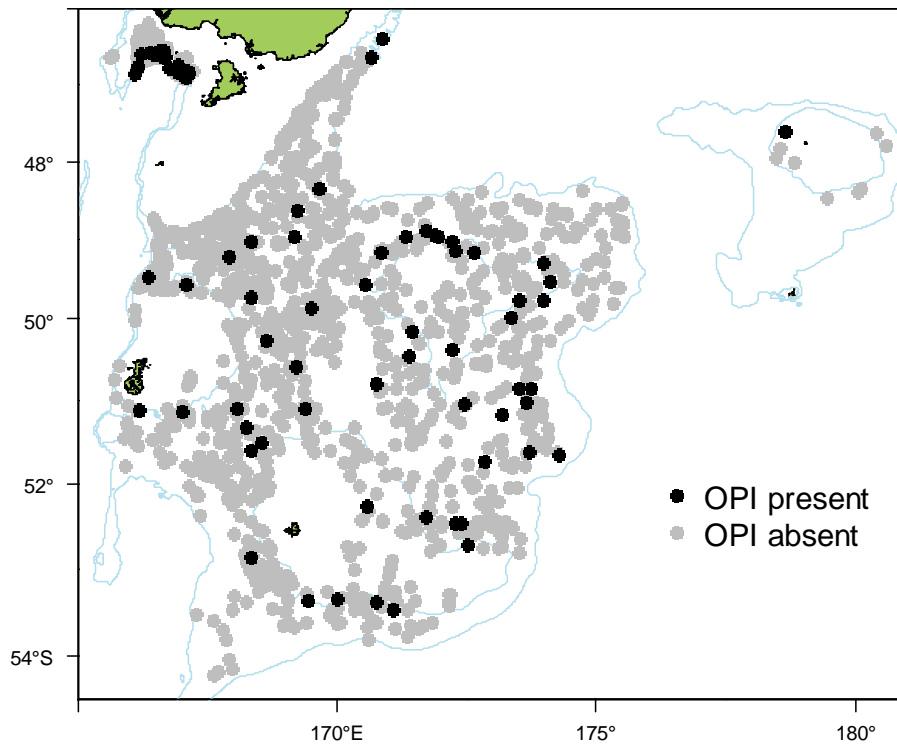


Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	159.3
Number measured	0
Length range (mean) (cm)	–
Number weighed	0

This group **has** been well identified during the time series. Some members of this group are found **shallower than 300 m** and **deeper than 1000 m**. The core survey area and depth range **is** appropriate for this group. Distribution **extends** to strata deeper than 800 m surveyed from 2000 to 2009. It **is** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey from 1993. Biomass **shows no clear trend**. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **poorly** estimated.

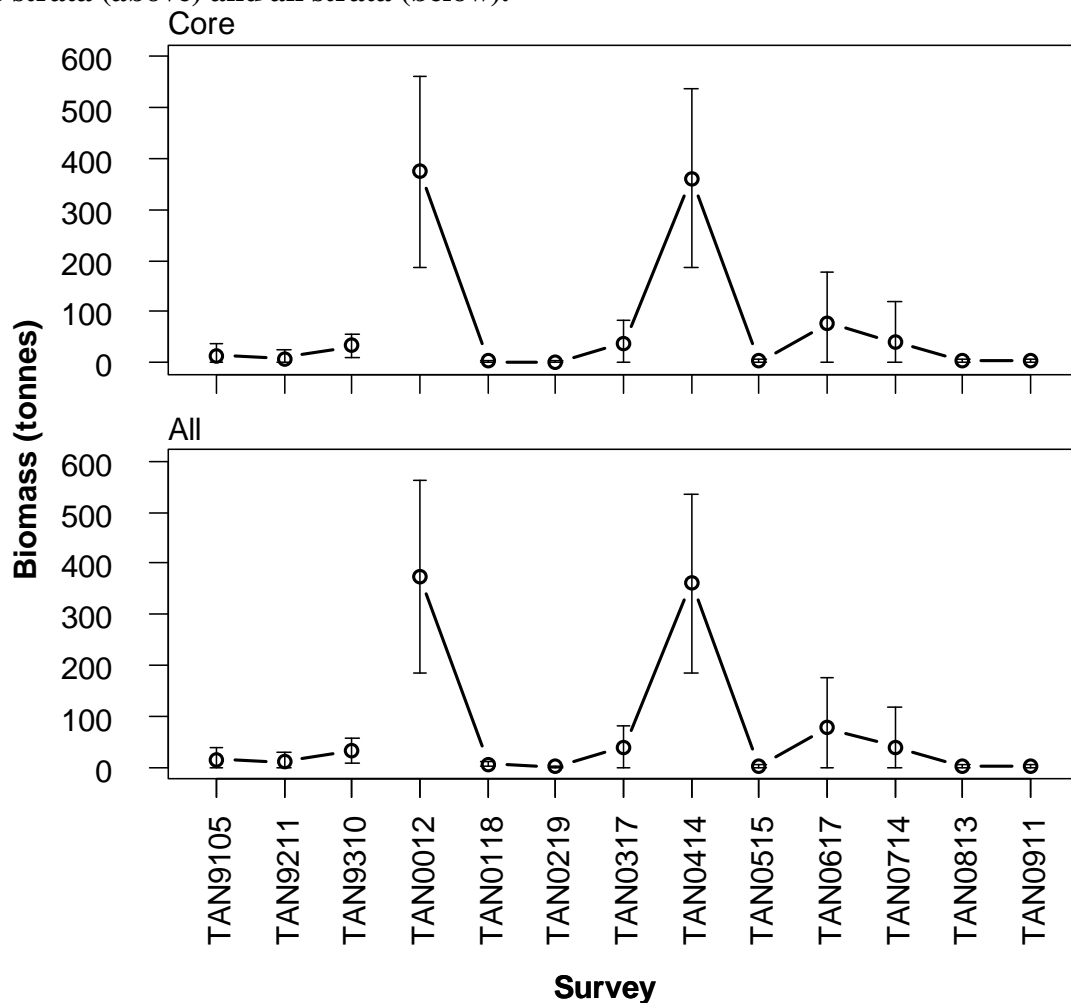
Distribution of *Opisthoteuthis* spp. from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Opisthoteuthis* spp. for core strata, strata outside the core area and all strata.

Survey	Core biomass	Core (c.v.)	Strata 27+28 biomass	27+28 (c.v.)	Stratum 26 biomass	26 (c.v.)	Stratum 17 biomass	17 (c.v.)	Total biomass	Total (c.v.)
TAN9105	14	85	NA	NA	NA	NA	NA	NA	14	85
TAN9211	8	97	NA	NA	NA	NA	3	100	12	75
TAN9310	33	36	NA	NA	NA	NA	0	0	33	36
TAN0012	375	25	0	0	0	0	NA	NA	375	25
TAN0118	2	58	4	59	0	0	NA	NA	6	44
TAN0219	1	100	0	0	0	0	NA	NA	1	100
TAN0317	38	58	0	0	NA	NA	NA	NA	38	58
TAN0414	361	24	0	0	NA	NA	NA	NA	361	24
TAN0515	2	44	0	0	0	0	NA	NA	2	44
TAN0617	77	64	0	0	NA	NA	NA	NA	77	64
TAN0714	40	100	0	0	0	0	NA	NA	40	100
TAN0813	2	49	0	0	0	0	NA	NA	2	49
TAN0911	3	60	0	0	0	0	NA	NA	3	60

Trends in relative biomass estimates (± 2 standard errors) of *Opisthoteuthis* spp. for core strata (above) and all strata (below).





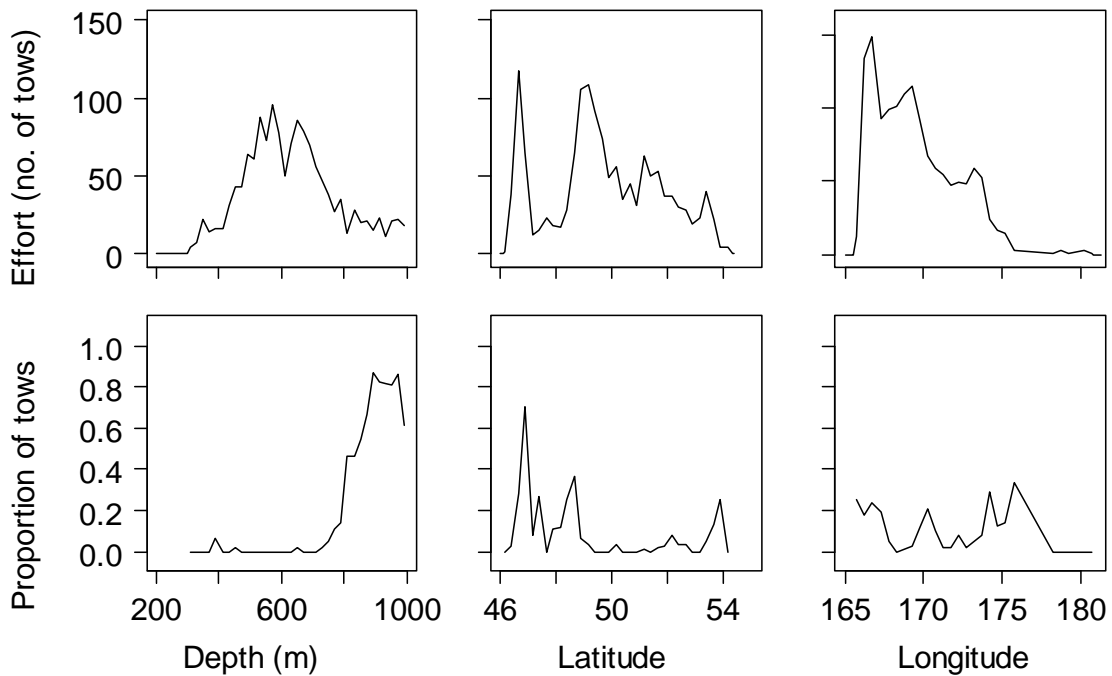
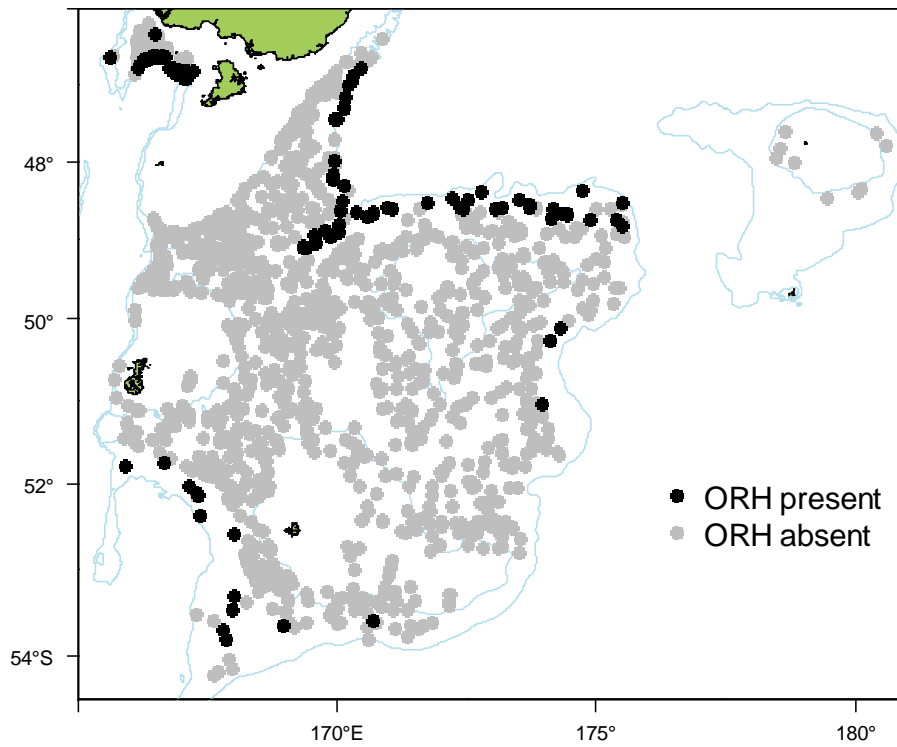
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	1 511.7
Number measured	2 848
Length range (mean) (cm)	5–45 (24.1)
Number weighed	1 842
Length-weight parameters a, b (r^2)	0.06655792, 2.796348 (98.57)

This species **has** been well identified during the time series. It is found **deeper** than 1000 m. The core survey area and depth range **is not** appropriate for this species. Distribution **does extend** to strata deeper than 800 m surveyed from 2000 to 2009. It **was not** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey area. Biomass **shows no clear trend** since the start of the time series. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is also **poorly** estimated. Catches are recorded from areas close to and deeper than 800 m. Higher catchrates are in the **northwest** at Puysegur.

Length frequencies **have multiple modes** and comprise of mostly juvenile fish. Mean length **shows no clear trend** since the start of the time series. Gonad stage data indicate that most fish are **immature or resting**.

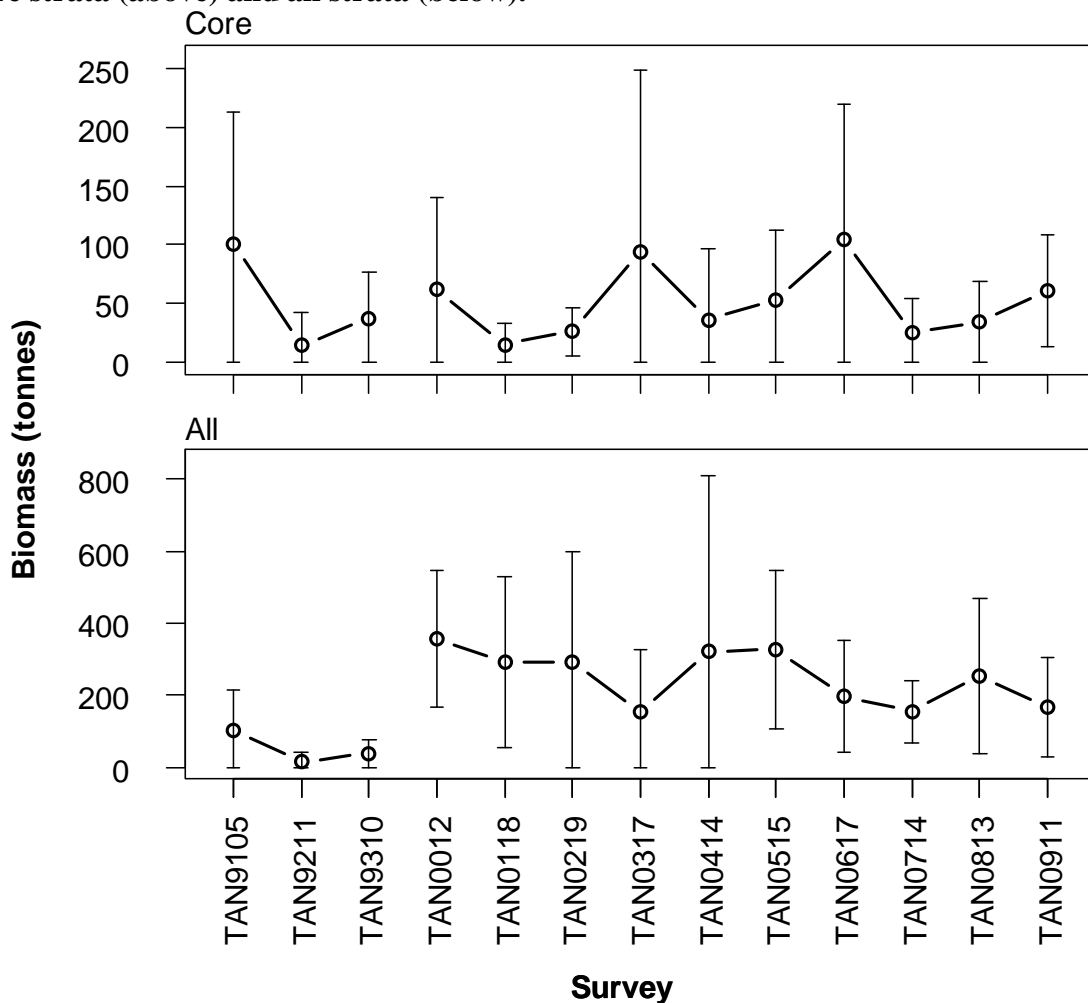
Distribution of *Hoplostethus atlanticus* from all summer surveys. Valid biomass stations only.



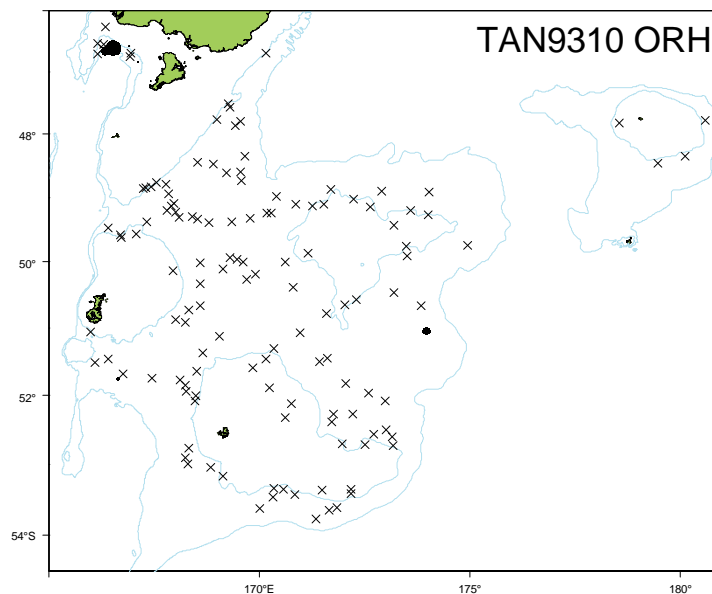
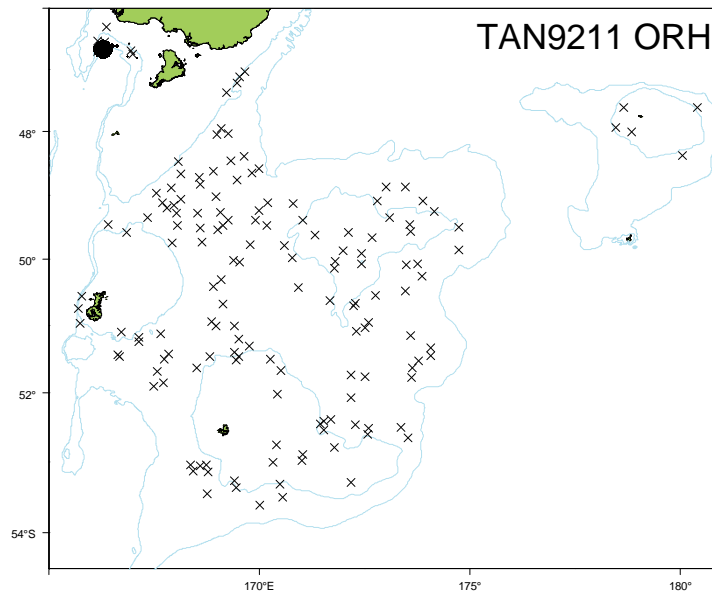
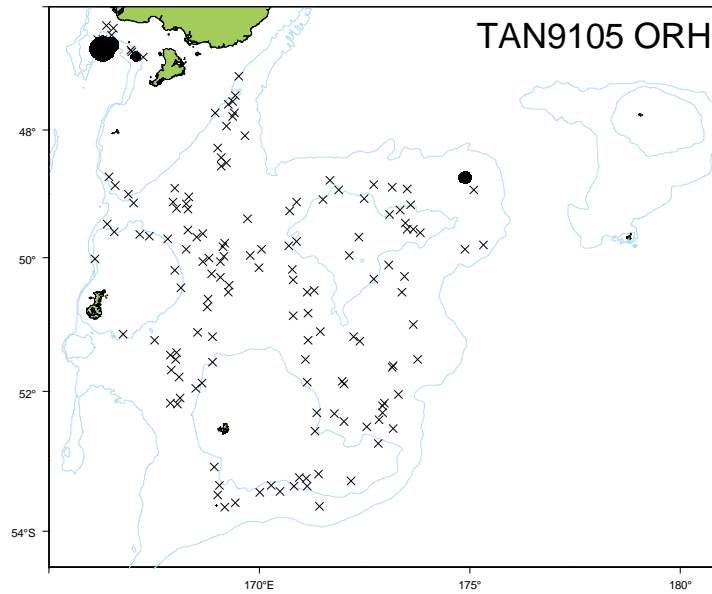
Relative biomass estimates (t) and c.v.s (%) of *Hoplostethus atlanticus* for core strata, strata outside the core area and all strata.

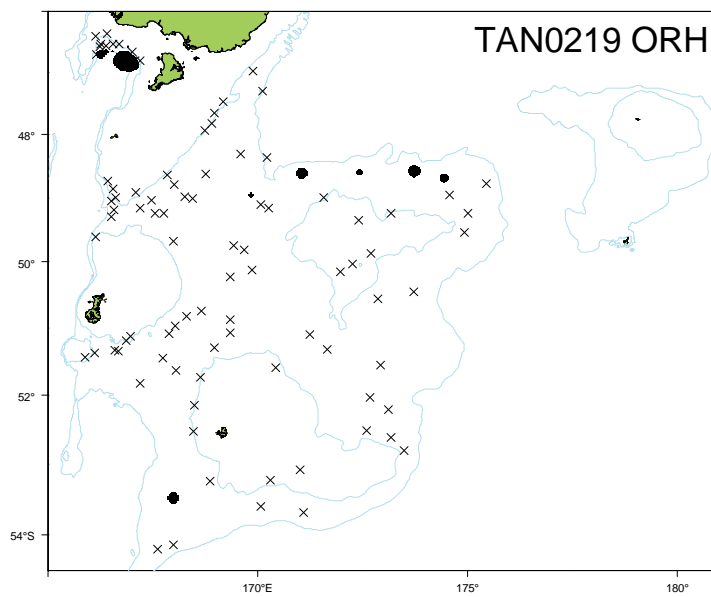
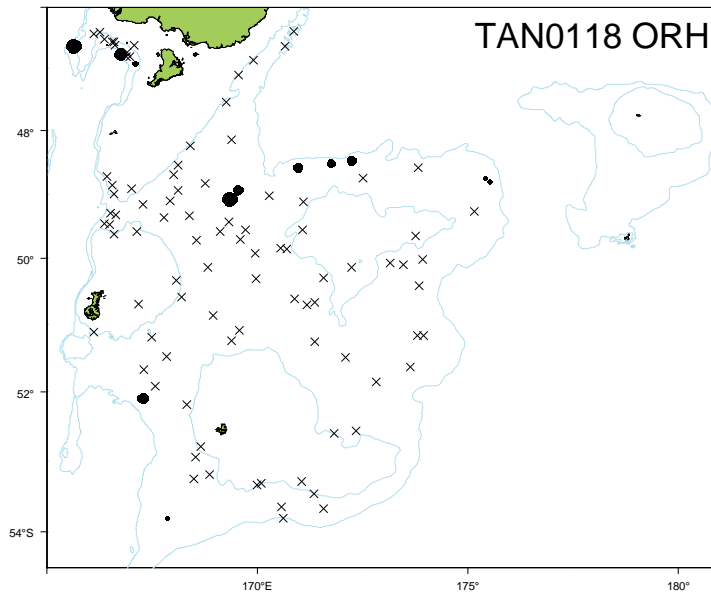
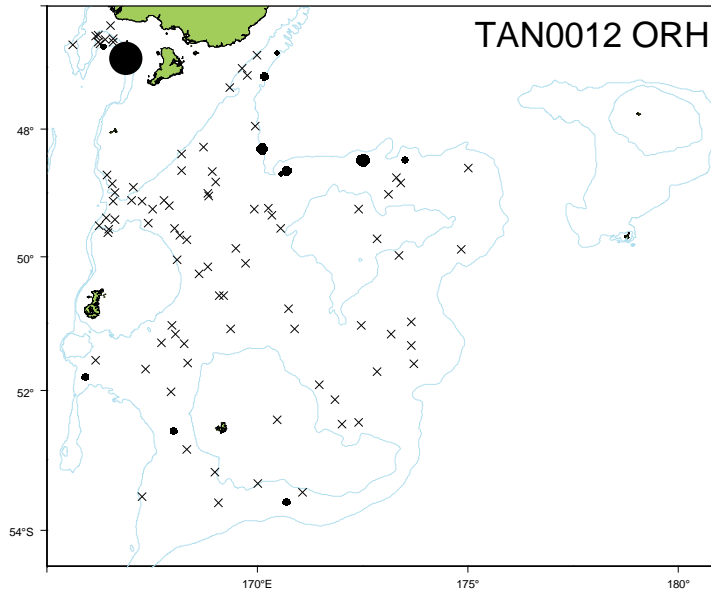
Survey	Core biomass	Core (c.v.)	Strata		Stratum		Stratum		Total biomass	Total (c.v.)
			27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	100	56	NA	NA	NA	NA	NA	NA	100	56
TAN9211	15	87	NA	NA	NA	NA	0	0	15	87
TAN9310	37	55	NA	NA	NA	NA	0	0	37	55
TAN0012	62	62	150	32	143	51	NA	NA	355	27
TAN0118	15	58	147	35	128	83	NA	NA	291	41
TAN0219	27	38	117	34	148	100	NA	NA	292	53
TAN0317	94	82	59	68	NA	NA	NA	NA	154	56
TAN0414	36	82	288	84	NA	NA	NA	NA	324	75
TAN0515	53	56	200	38	74	100	NA	NA	326	34
TAN0617	104	55	93	55	NA	NA	NA	NA	198	39
TAN0714	25	56	107	36	22	80	NA	NA	154	29
TAN0813	34	52	142	51	78	100	NA	NA	254	42
TAN0911	61	39	82	73	24	100	NA	NA	167	41

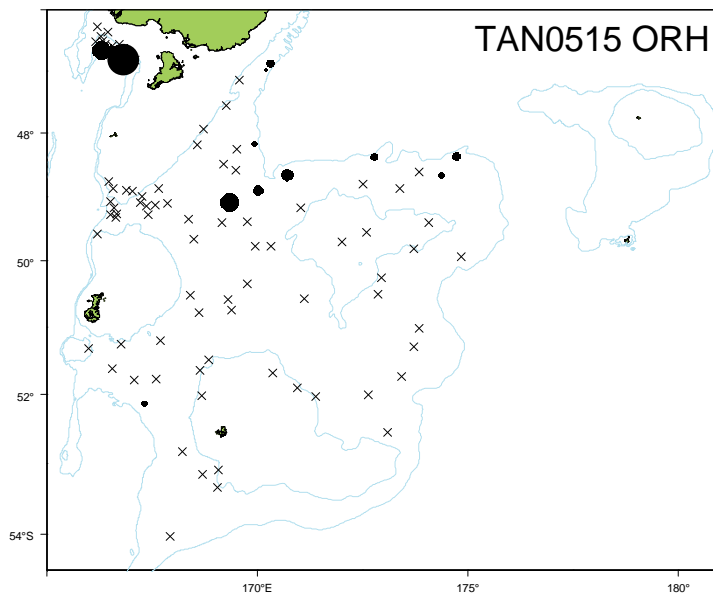
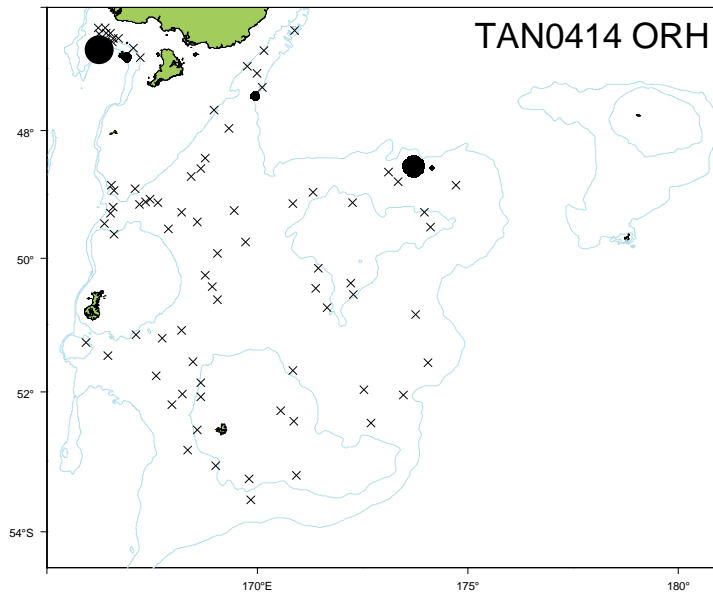
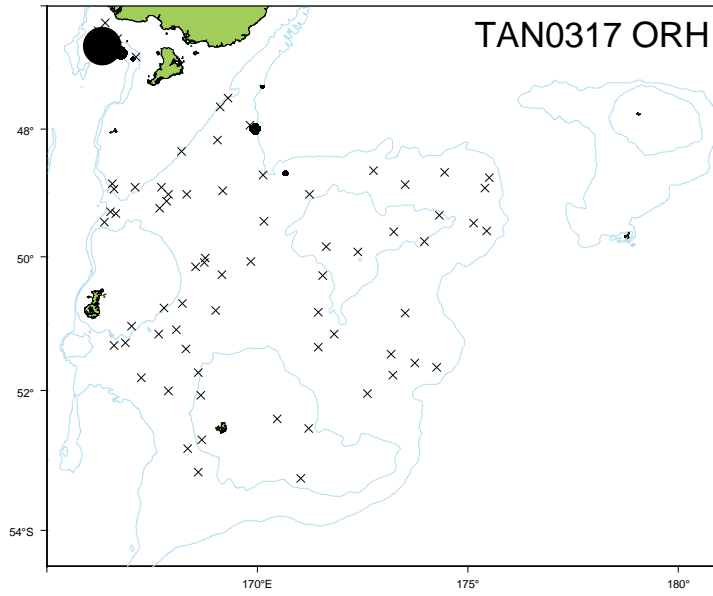
Trends in relative biomass estimates (± 2 standard errors) of *Hoplostethus atlanticus* for core strata (above) and all strata (below).

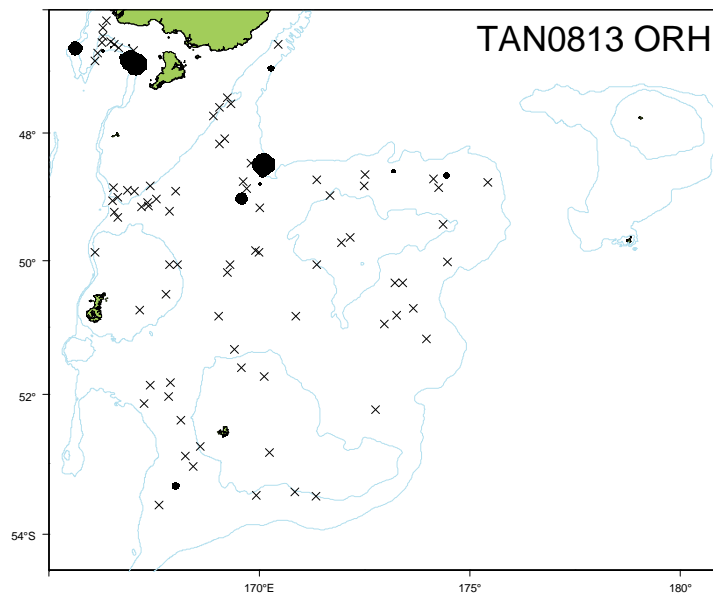
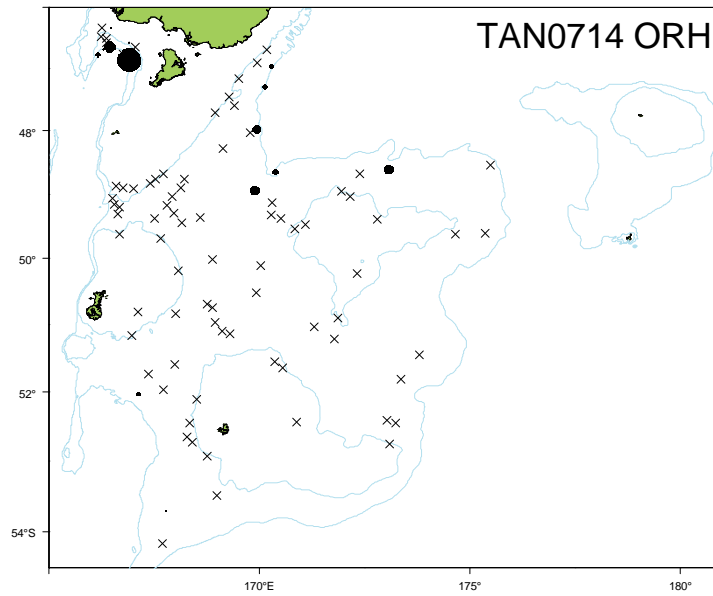
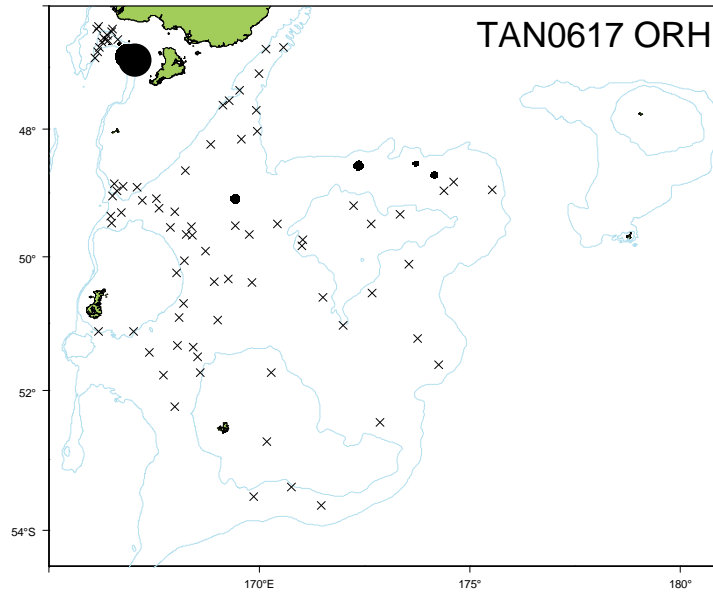


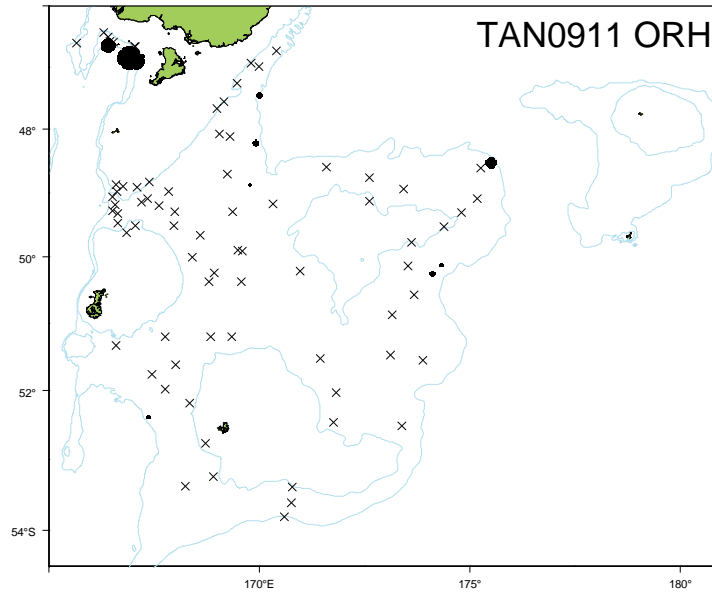
Catchrates of *Hoplostethus atlanticus*. Circle area is proportional to the maximum catchrate from all surveys (see Table 5).







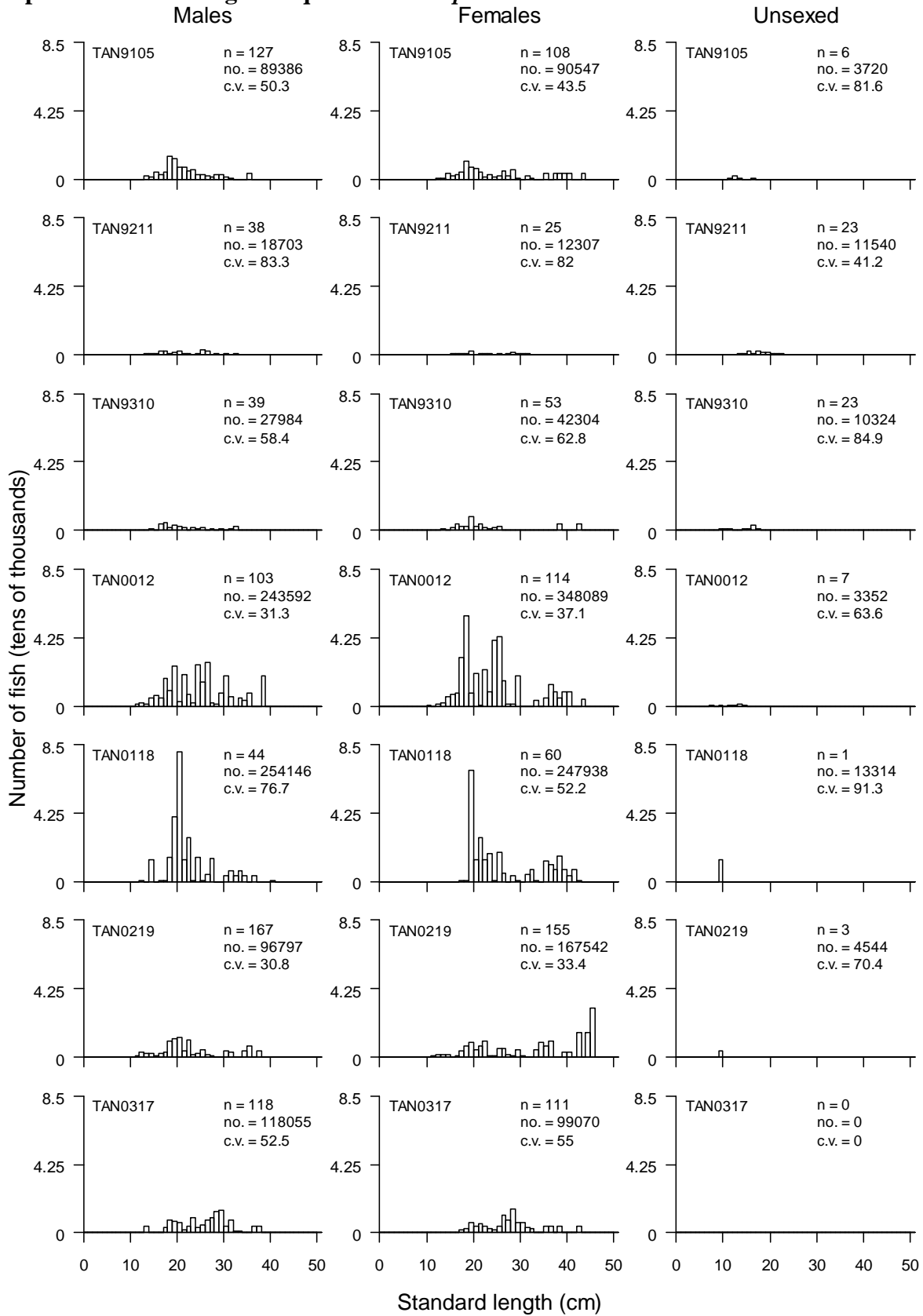


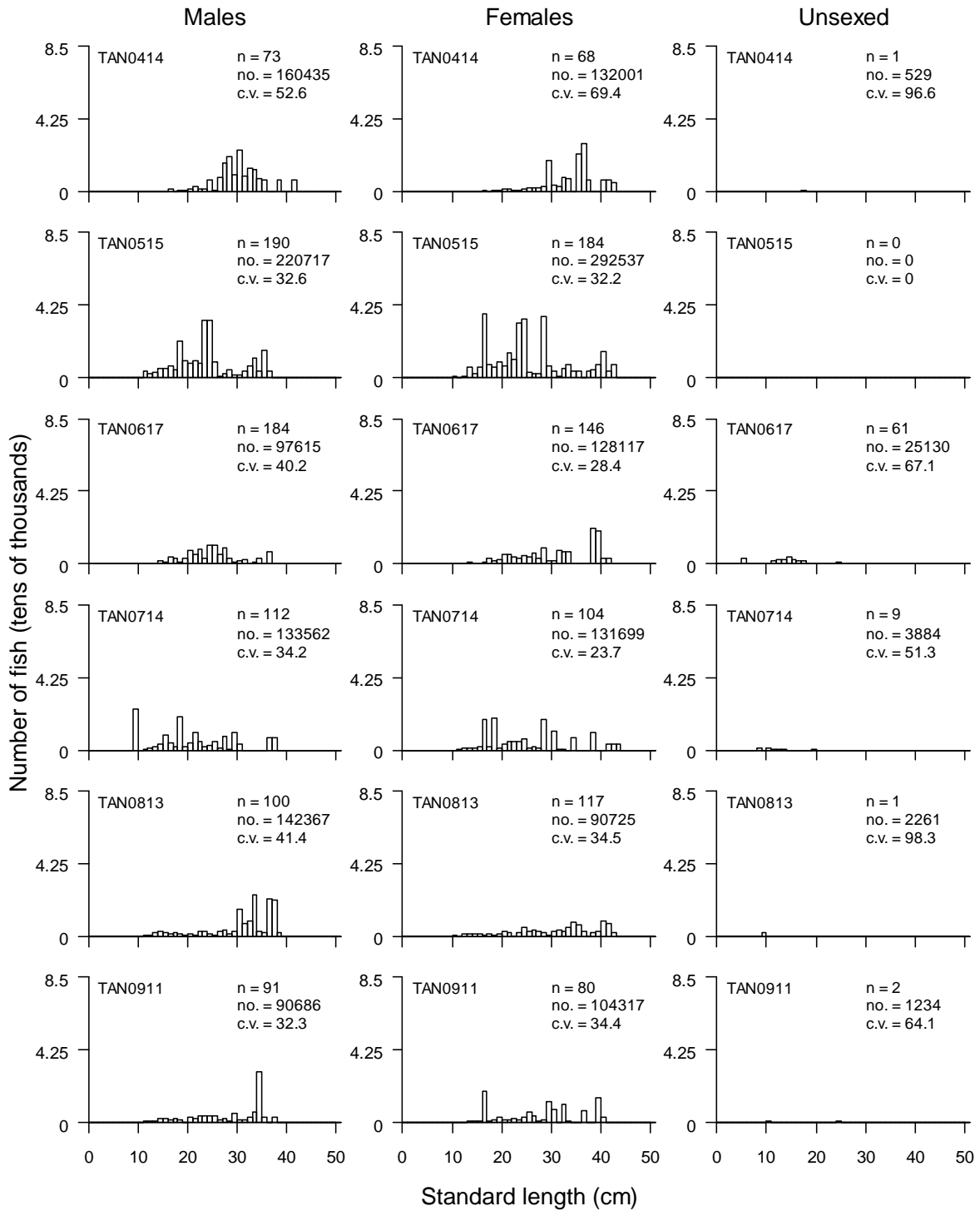


Length summaries

Survey	Minimum length (cm)	Maximum length (cm)	Mean length (cm)	Number measured
TAN9105	11	43	20.9	241
TAN9211	13	32	20.6	86
TAN9310	9	42	18.9	115
TAN0012	7	43	20.7	224
TAN0118	9	42	26.2	105
TAN0219	9	45	20.2	325
TAN0317	13	42	25.6	229
TAN0414	16	42	27.9	142
TAN0515	10	42	21.8	374
TAN0617	5	41	21.8	391
TAN0714	8	43	20.7	225
TAN0813	9	42	24.8	218
TAN0911	10	40	23.6	173

Population scaled length frequencies of *Hoplostethus atlanticus* for all strata.





Gonad stage summaries by sex for *Hoplostethus atlanticus*. Percentage at each stage using the DW staging method.

Survey	M1	M2	M3	M4	M5	M8	F1	F2	F3	F4	F5	F6	F8
TAN9105	97	0	3	0	0	0	100	0	0	0	0	0	0
TAN9211	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0012	100	0	0	0	0	0	44	0	0	0	0	56	0
TAN0118	33	0	67	0	0	0	36	0	50	0	0	0	14
TAN0219	74	26	0	0	0	0	53	43	0	0	0	3	0
TAN0317	100	0	0	0	0	0	100	0	0	0	0	0	0
TAN0414	0	94	6	0	0	0	0	14	86	0	0	0	0
TAN0515	43	57	0	0	0	0	47	53	0	0	0	0	0
TAN0617	50	50	0	0	0	0	25	25	50	0	0	0	0
TAN0714	78	22	0	0	0	0	64	36	0	0	0	0	0
TAN0813	40	45	15	0	0	0	14	52	24	0	0	10	0
TAN0911	71	28	1	0	0	0	63	35	2	0	0	0	0

Combined MD and DW stages

**OSQ**

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	8
Total catch weight (kg):	90.2
Number measured	0
Length range (mean) (cm)	–
Number weighed	0

TDQ

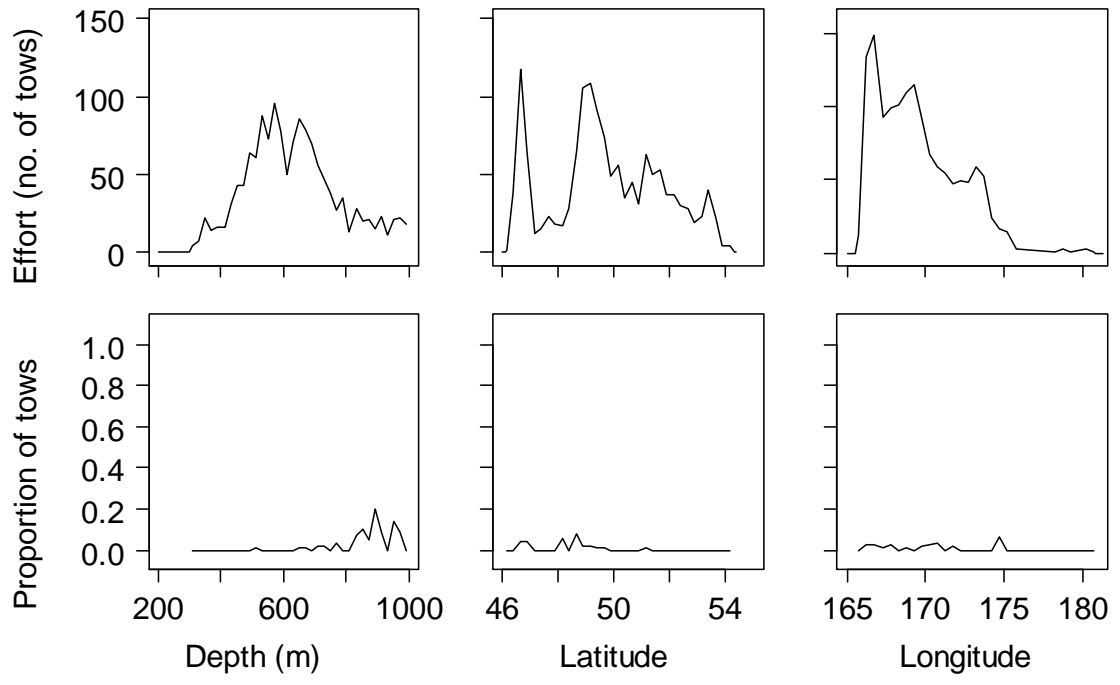
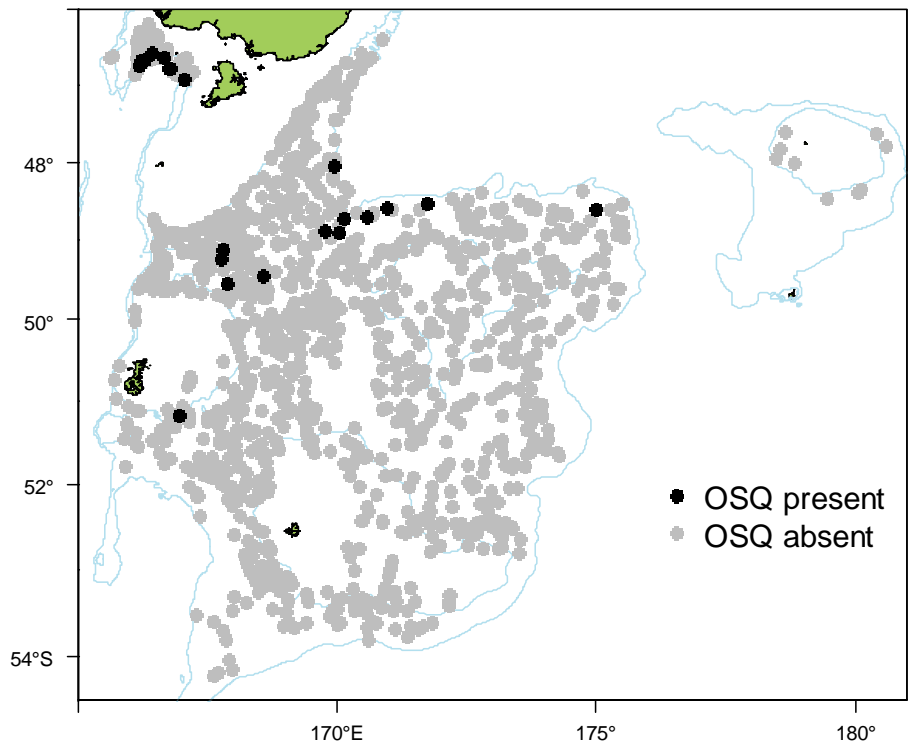
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	3
Total catch weight (kg):	8.4
Number measured	0
Length range (mean) (cm)	–
Number weighed	0

This species **has** been well identified during the time series. The core survey area and depth range **is not** appropriate for this species. Distribution **does extend** to strata deeper than 800 m surveyed from 2000 to 2009. It **was not** recorded from the Bounty Platform.

There were **too few squid caught to determine whether the core survey area is appropriate for this species**. Biomass of this species is **poorly** estimated by the core survey area. Biomass **shows no clear trend** since the start of the time series.

There is no length or gonad stage information presented.

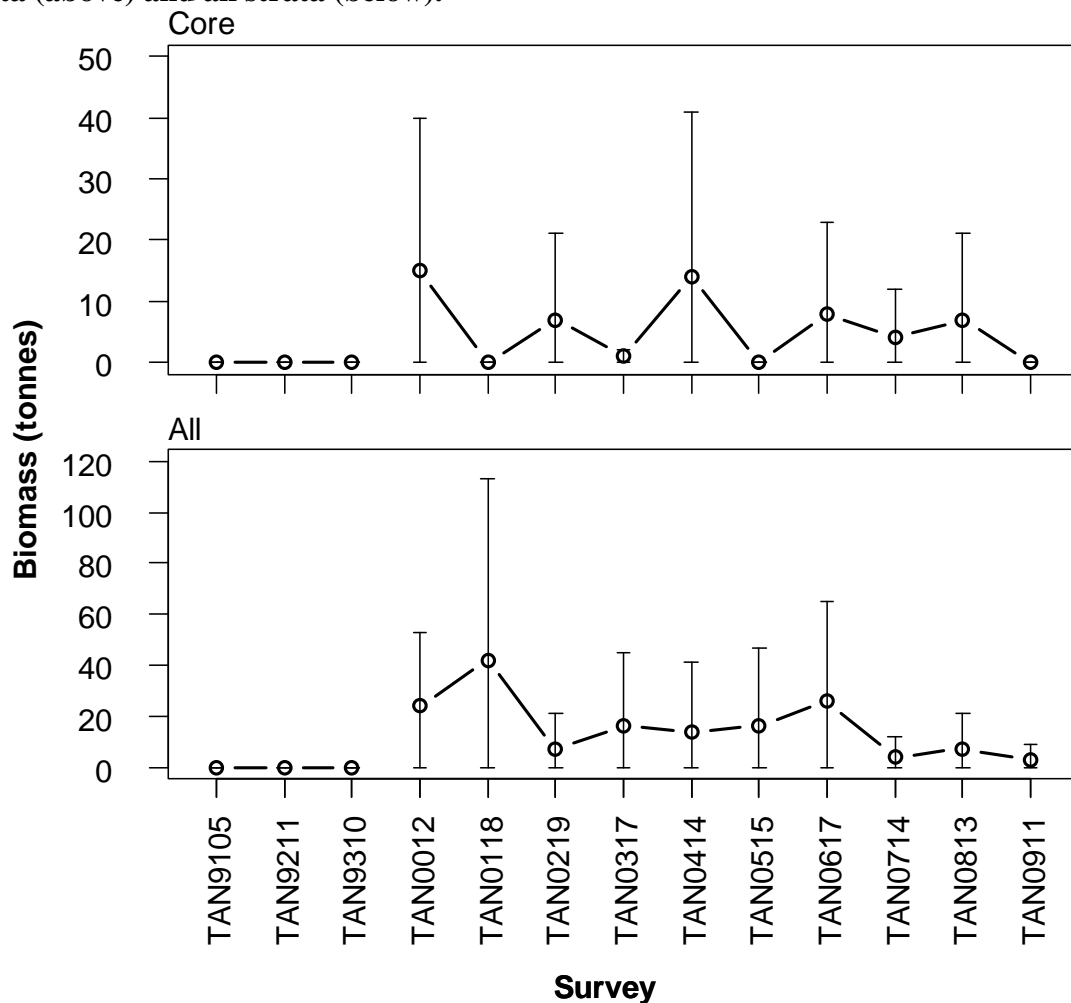
Distribution of Octopoteuthidae from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of Octopoteuthidae for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total	Total
	biomass	(c.v.)	27+28	27+28	26	26	17	17		
TAN9105	0	NA	NA	NA	NA	NA	NA	NA	0	NA
TAN9211	0	NA	NA	NA	NA	NA	0	0	0	NA
TAN9310	0	NA	NA	NA	NA	NA	0	0	0	NA
TAN0012	15	85	9	81	0	0	NA	NA	24	61
TAN0118	0	NA	42	86	0	0	NA	NA	42	86
TAN0219	7	99	0	0	0	0	NA	NA	7	99
TAN0317	1	59	15	100	NA	NA	NA	NA	16	92
TAN0414	14	100	0	0	NA	NA	NA	NA	14	100
TAN0515	0	NA	16	100	0	0	NA	NA	16	100
TAN0617	8	99	18	100	NA	NA	NA	NA	26	76
TAN0714	4	100	0	0	0	0	NA	NA	4	100
TAN0813	7	100	0	0	0	0	NA	NA	7	100
TAN0911	0	NA	3	100	0	0	NA	NA	3	100

Trends in relative biomass estimates (± 2 standard errors) of Octopoteuthidae for core strata (above) and all strata (below).





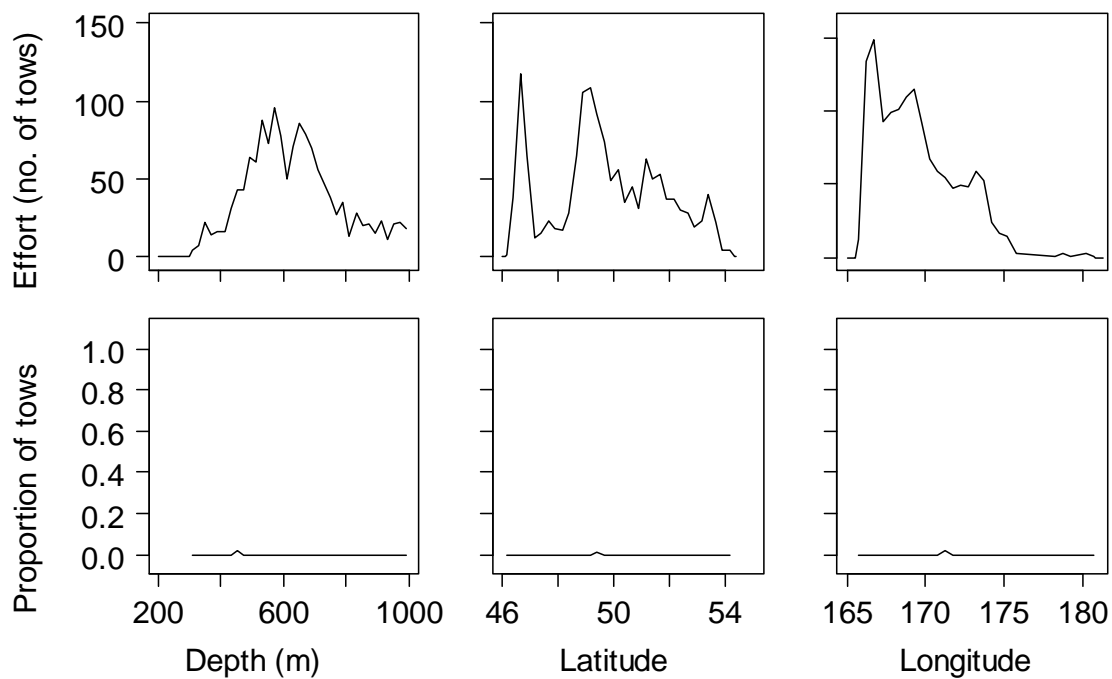
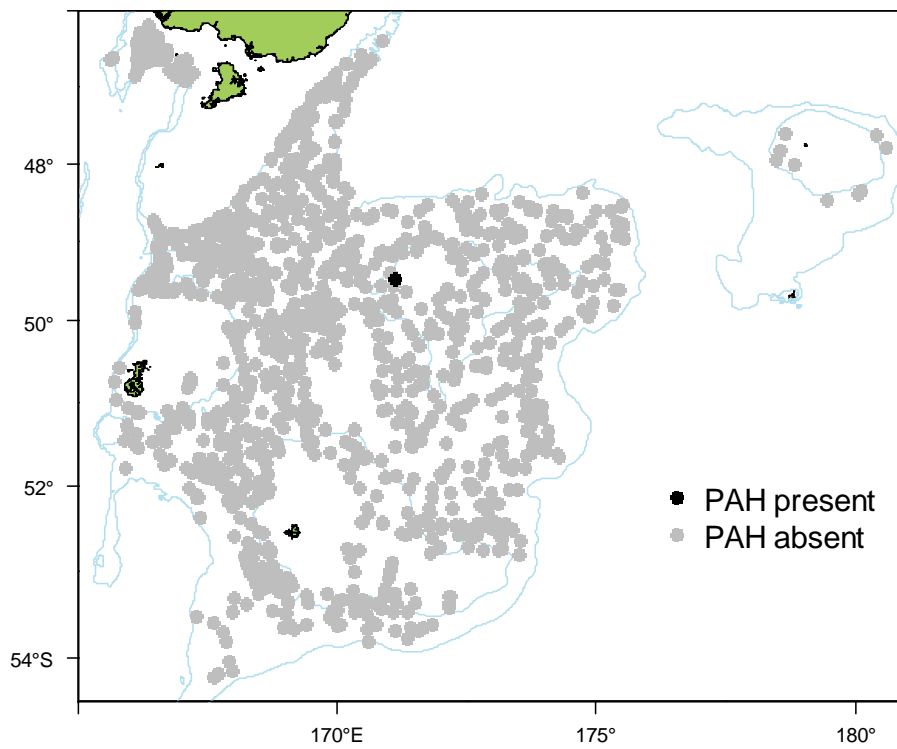
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	14.9
Number measured	0
Length range (mean) (cm)	–
Number weighed	0

This species **has** been well identified during the time series. It is **pelagic**. The core survey area and depth range **is not** appropriate for this species. Distribution **does not extend** to strata deeper than 800 m surveyed from 2000 to 2009. It **was not** recorded from the Bounty Platform.

There were **too few fish caught to determine whether the core survey area is appropriate for this species**. Biomass of this species is **poorly** estimated by the core survey area. Biomass **shows no clear trend** since the start of the time series.

There is no length or gonad stage information presented.

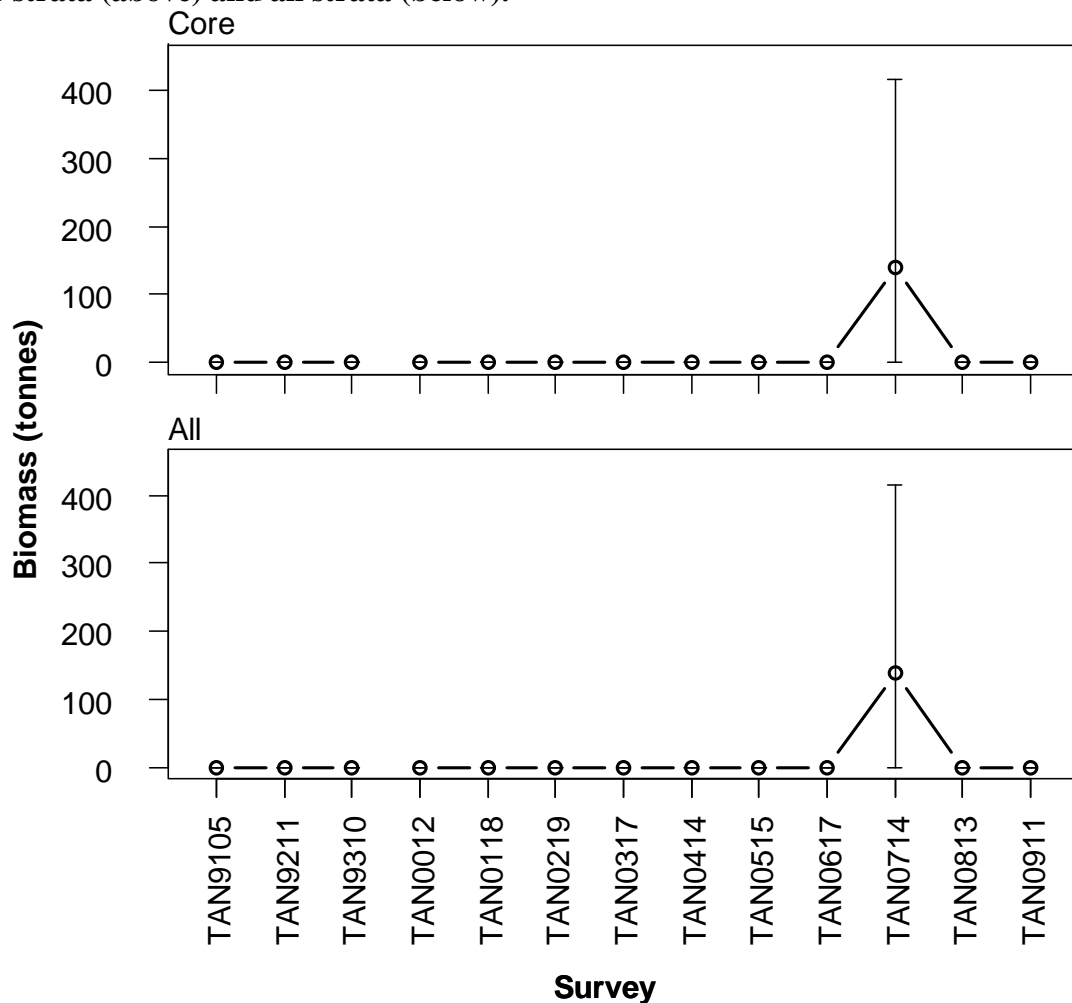
Distribution of *Lampris immaculatus* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Lampris immaculatus* for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	0	0	NA	NA	NA	NA	NA	NA	0	0
TAN9211	0	0	NA	NA	NA	NA	0	0	0	0
TAN9310	0	0	NA	NA	NA	NA	0	0	0	0
TAN0012	0	0	0	0	0	0	NA	NA	0	0
TAN0118	0	0	0	0	0	0	NA	NA	0	0
TAN0219	0	0	0	0	0	0	NA	NA	0	0
TAN0317	0	0	0	0	NA	NA	NA	NA	0	0
TAN0414	0	0	0	0	NA	NA	NA	NA	0	0
TAN0515	0	0	0	0	0	0	NA	NA	0	0
TAN0617	0	0	0	0	NA	NA	NA	NA	0	0
TAN0714	139	100	0	0	0	0	NA	NA	139	100
TAN0813	0	0	0	0	0	0	NA	NA	0	0
TAN0911	0	0	0	0	0	0	NA	NA	0	0

Trends in relative biomass estimates (± 2 standard errors) of *Lampris immaculatus* for core strata (above) and all strata (below).





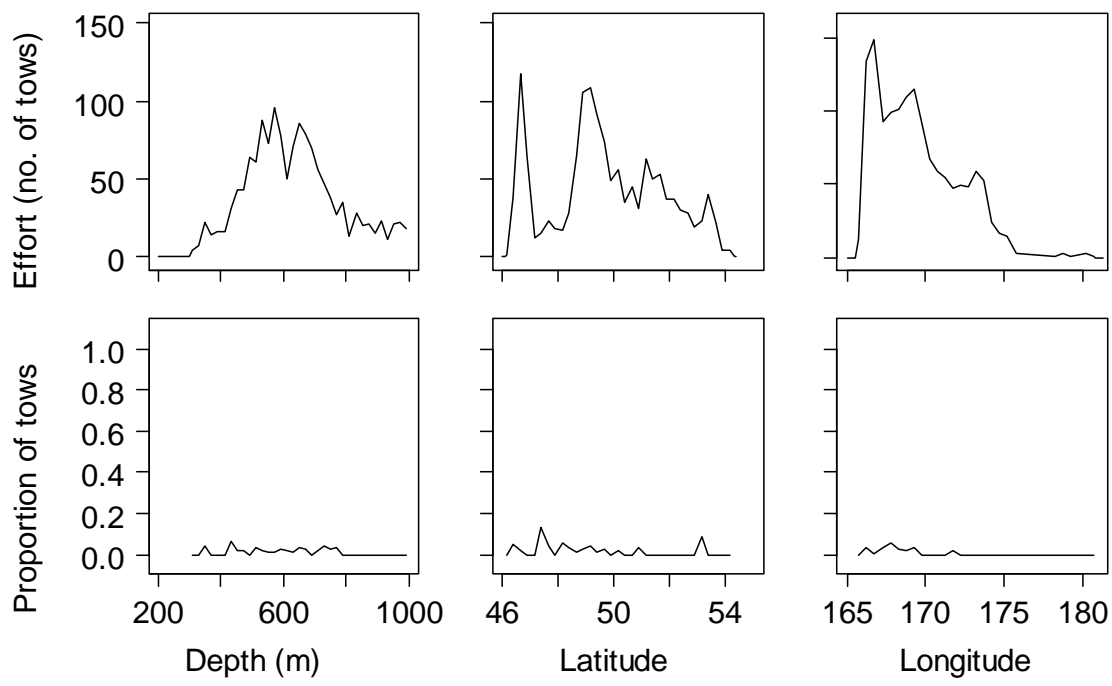
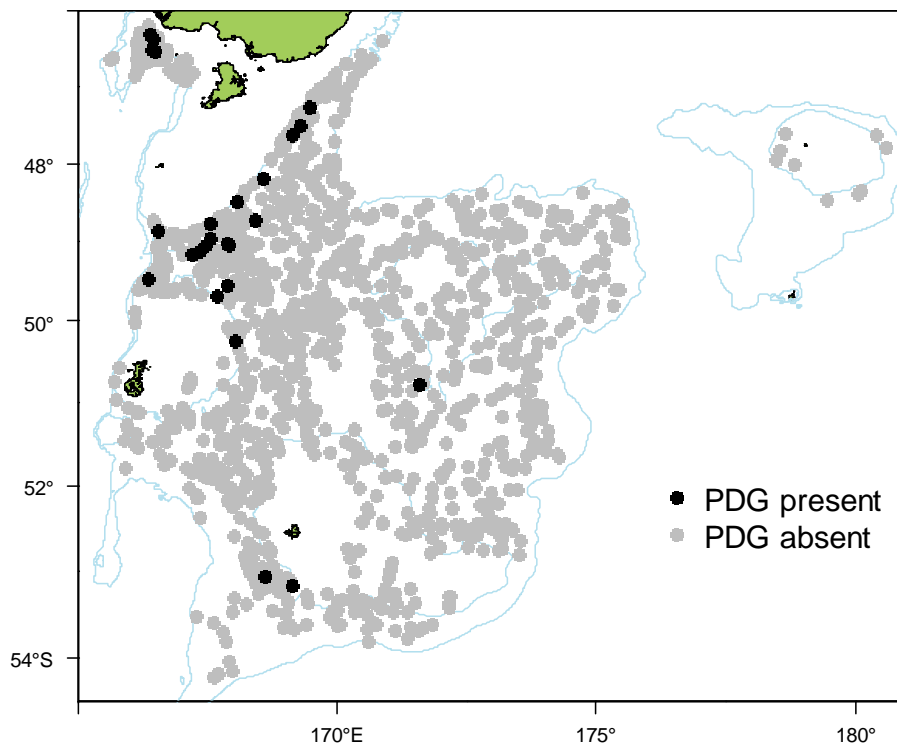
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	11
Total catch weight (kg):	65.5
Number measured	8
Length range (mean) (cm)	41–63 (55.9)
Number weighed	8
Length-weight parameters a, b (r^2)	–

This species has **been well** identified during the time series. It is found **shallower than 300 m**. The core survey area and depth range **is** appropriate for this species. Distribution **does not** extend to the areas deeper than 800 m surveyed from 2000 to 2009. It **is not** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey. Biomass **shows no clear trend** since the start of the time series. Catches are highest in the **northwest**.

There is no length or gonad stage information presented.

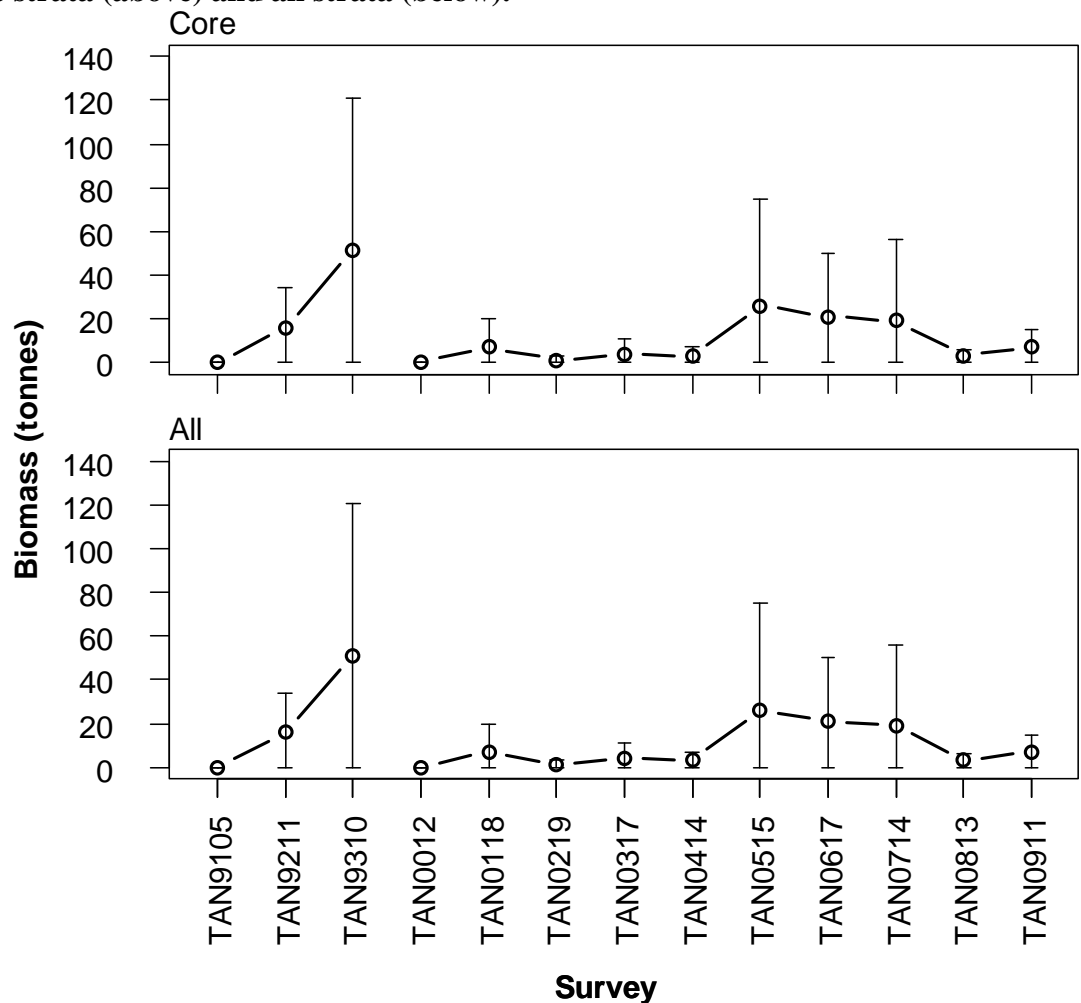
Distribution of *Oxynotus bruniensis* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Oxynotus bruniensis* for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	0	0	NA	NA	NA	NA	NA	NA	0	0
TAN9211	16	58	NA	NA	NA	NA	0	0	16	58
TAN9310	51	68	NA	NA	NA	NA	0	0	51	68
TAN0012	0	0	0	0	0	0	NA	NA	0	0
TAN0118	7	100	0	0	0	0	NA	NA	7	100
TAN0219	1	100	0	0	0	0	NA	NA	1	100
TAN0317	4	84	0	0	NA	NA	NA	NA	4	84
TAN0414	3	78	0	0	NA	NA	NA	NA	3	78
TAN0515	26	94	0	0	0	0	NA	NA	26	94
TAN0617	21	67	0	0	NA	NA	NA	NA	21	67
TAN0714	19	93	0	0	0	0	NA	NA	19	93
TAN0813	3	71	0	0	0	0	NA	NA	3	71
TAN0911	7	58	0	0	0	0	NA	NA	7	58

Trends in relative biomass estimates (± 2 standard errors) of *Oxynotus bruniensis* for core strata (above) and all strata (below).





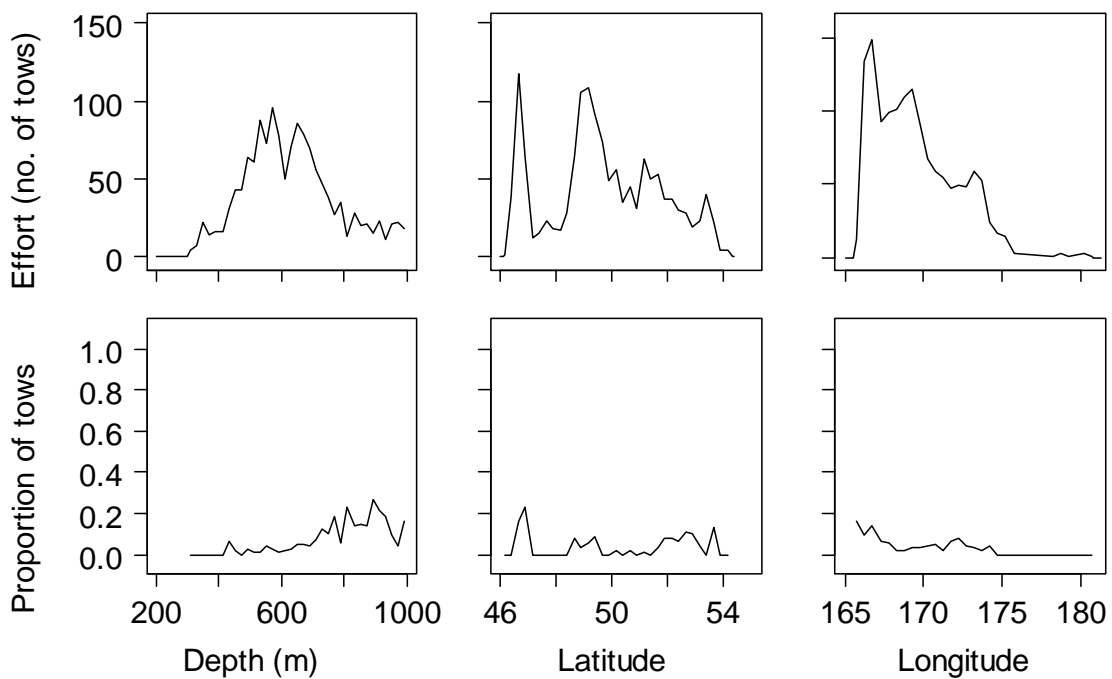
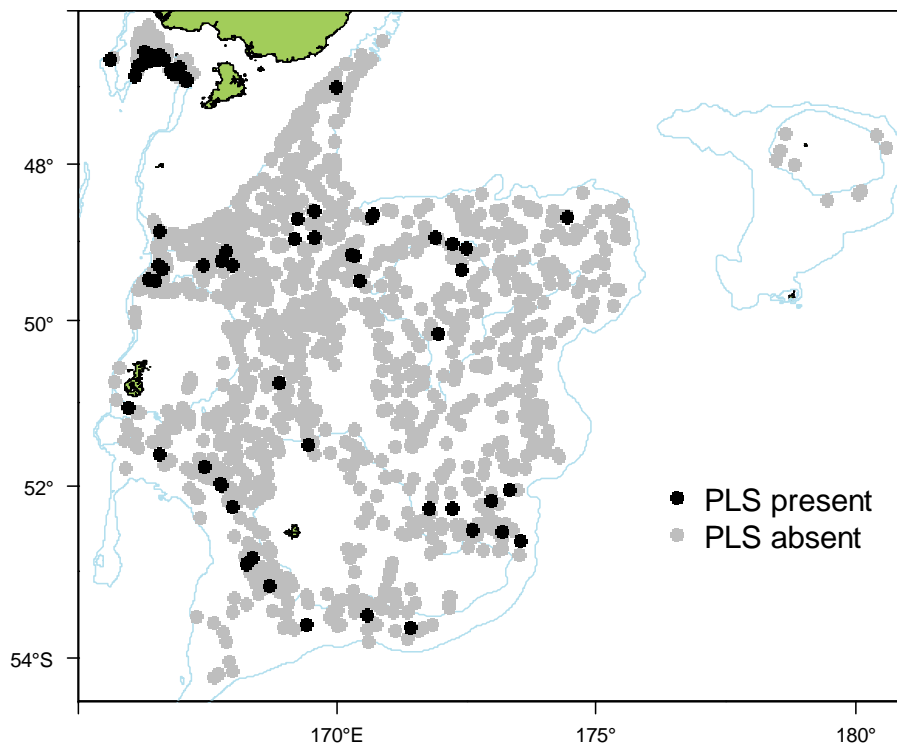
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	529.8
Number measured	72
Length range (mean) (cm)	29–126 (90.5)
Number weighed	60
Length-weight parameters a, b (r^2)	–

This species **has** been well identified during the time series. It is found **deeper than 800 m**. The core survey area and depth range **is** appropriate for this group. Distribution **does** extend to the areas deeper than 800 m surveyed from 2000 to 2009. It **was not** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey. Biomass **shows no clear trend** since the start of the time series. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is also **poorly** estimated. Higher catches are recorded from Puysegur.

Gonad stage data indicate that males are **immature to mature**.

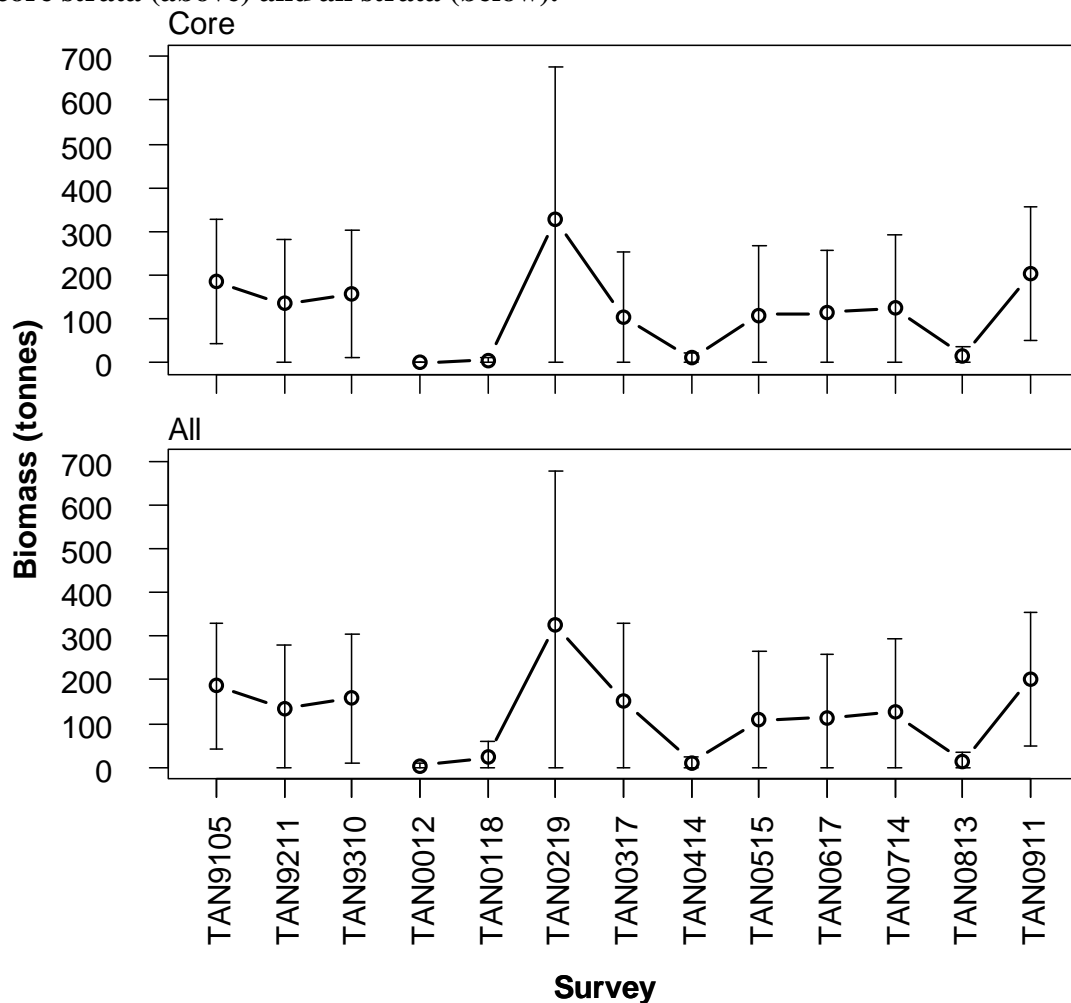
Distribution of *Centroscymnus plunketi* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Centroscymnus plunketi* for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	186	38	NA	NA	NA	NA	NA	NA	186	38
TAN9211	134	55	NA	NA	NA	NA	0	0	134	55
TAN9310	157	47	NA	NA	NA	NA	0	0	157	47
TAN0012	0	0	3	100	0	0	NA	NA	3	100
TAN0118	5	61	18	100	0	0	NA	NA	23	79
TAN0219	327	54	0	0	0	0	NA	NA	327	54
TAN0317	103	73	50	92	NA	NA	NA	NA	153	58
TAN0414	11	50	0	0	NA	NA	NA	NA	11	50
TAN0515	108	73	0	0	0	0	NA	NA	108	73
TAN0617	114	62	0	0	NA	NA	NA	NA	114	62
TAN0714	125	67	0	0	0	0	NA	NA	125	67
TAN0813	13	86	0	0	0	0	NA	NA	13	86
TAN0911	202	38	0	0	0	0	NA	NA	202	38

Trends in relative biomass estimates (± 2 standard errors) of *Centroscymnus plunketi* for core strata (above) and all strata (below).



Gonad stage summaries by sex for *Centroscymnus plunketi*. Percentage at each stage using the SS staging method.

Survey	M1	M2	M3	F1	F2	F3	F4	F5	F6
TAN9105	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9211	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9310	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0012	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0118	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0219	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0317	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0414	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0515	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0617	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0714	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0813	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0911	0	33	67	100	0	0	0	0	0
ALL	0	33	67	100	0	0	0	0	0



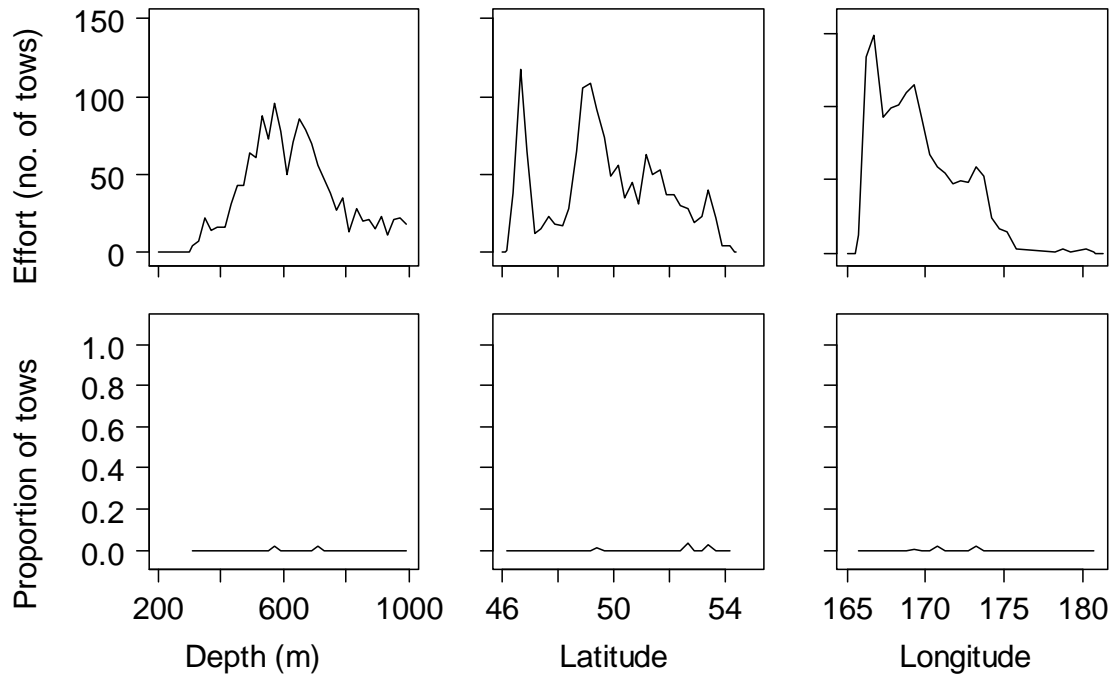
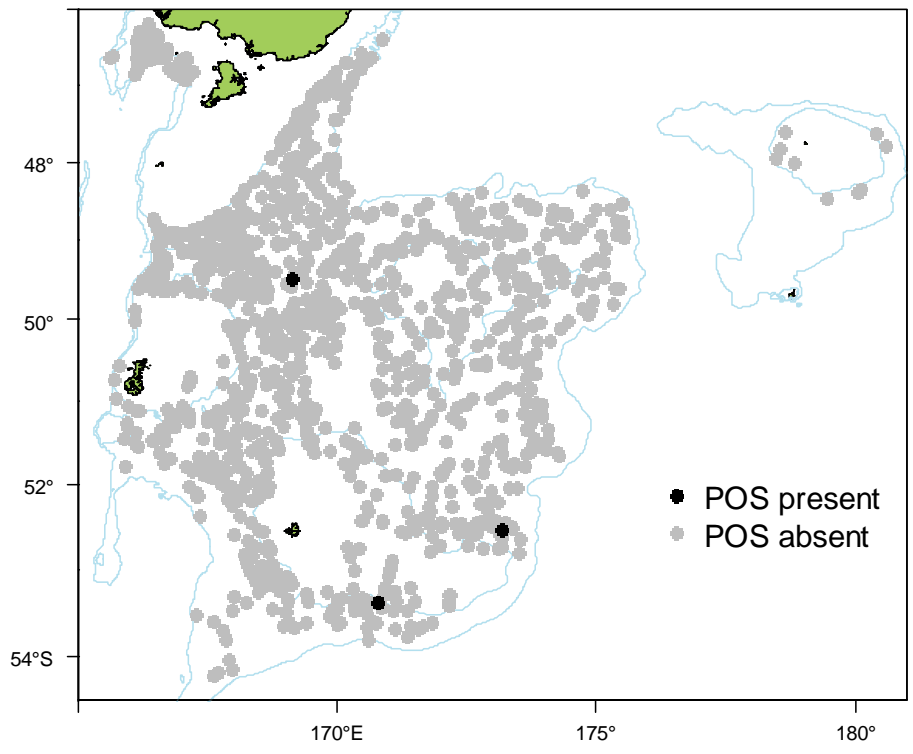
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	3
Total catch weight (kg):	245.0
Number measured	0
Length range (mean) (cm)	–
Number weighed	0
Length-weight parameters a, b (r^2)	–

This species **has** been well identified during the time series. It is **pelagic**. The core survey area and depth range **is not** appropriate for this species. Distribution **does not extend** to strata deeper than 800 m surveyed from 2000 to 2009. It **was not** recorded from the Bounty Platform.

There were **too few fish caught to determine whether the core survey area is appropriate for this species**. Biomass of this species is **poorly** estimated by the core survey area. Biomass **shows no clear trend** since the start of the time series.

There is no length or gonad stage information presented.

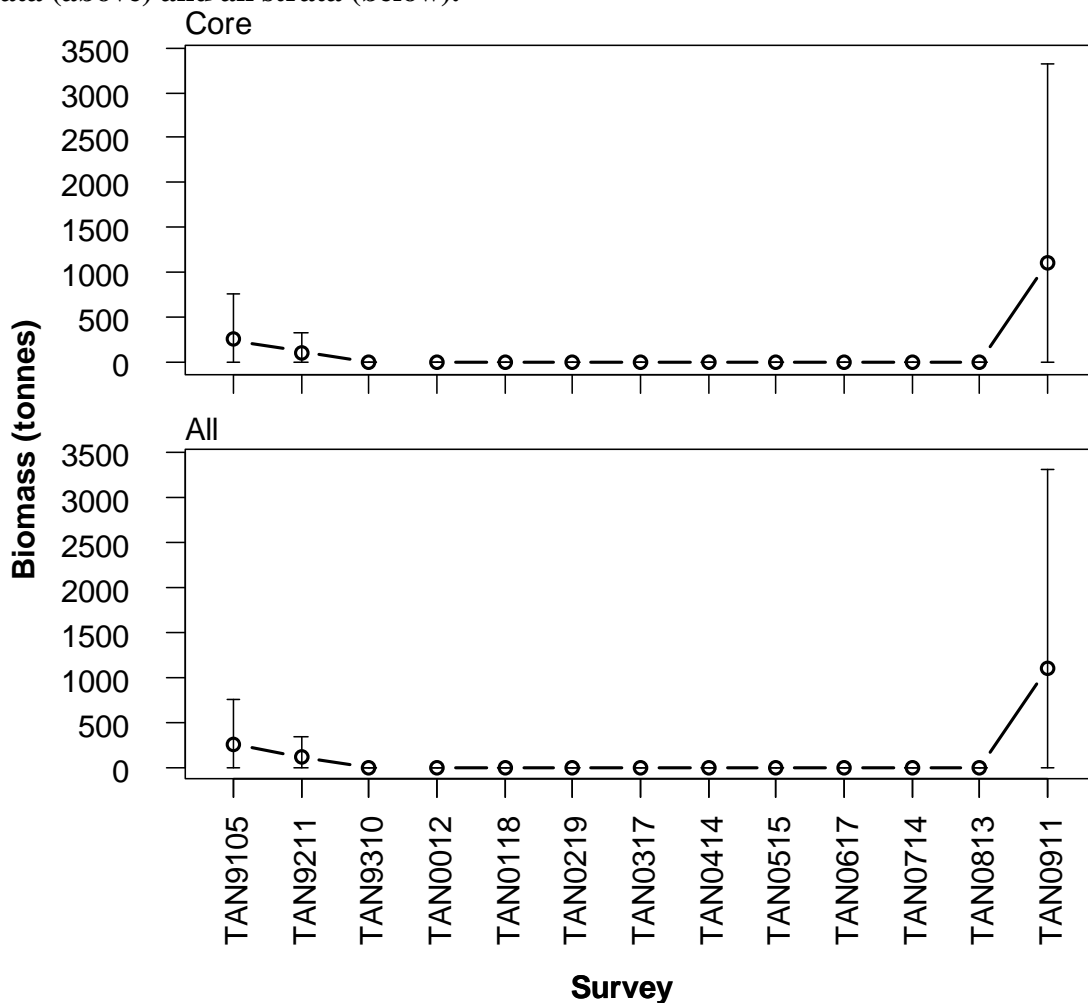
Distribution of *Lamna nasus* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Lamna nasus* for core strata, strata outside the core area and all strata.

Survey	Core biomass	Core (c.v.)	Strata 27+28 biomass	27+28 (c.v.)	Stratum 26 biomass	26 (c.v.)	Stratum 17 biomass	17 (c.v.)	Total biomass	Total (c.v.)
TAN9105	253	100	NA	NA	NA	NA	NA	NA	253	100
TAN9211	111	100	NA	NA	NA	NA	0	0	111	100
TAN9310	0	0	NA	NA	NA	NA	0	0	0	0
TAN0012	0	0	0	0	0	0	NA	NA	0	0
TAN0118	0	0	0	0	0	0	NA	NA	0	0
TAN0219	0	0	0	0	0	0	NA	NA	0	0
TAN0317	0	0	0	0	NA	NA	NA	NA	0	0
TAN0414	0	0	0	0	NA	NA	NA	NA	0	0
TAN0515	0	0	0	0	0	0	NA	NA	0	0
TAN0617	0	0	0	0	NA	NA	NA	NA	0	0
TAN0714	0	0	0	0	0	0	NA	NA	0	0
TAN0813	0	0	0	0	0	0	NA	NA	0	0
TAN0911	1104	100	0	0	0	0	NA	NA	1104	100

Trends in relative biomass estimates (± 2 standard errors) of *Lamna nasus* for core strata (above) and all strata (below).



**Coded as ACA**

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	6
Total catch weight (kg):	7.0

Coded as AFO

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	0.3

Coded as APE

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	0.4

Coded as ARI

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	0.3

Coded as CAM

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	8
Total catch weight (kg):	3.9

Coded as FUN

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.1

Coded as HSI

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	0.2

Coded as NAU

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	0.2

Coded as NMA

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.1

Coded as ONO

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	6
Total catch weight (kg):	1.5

Coded as OPP

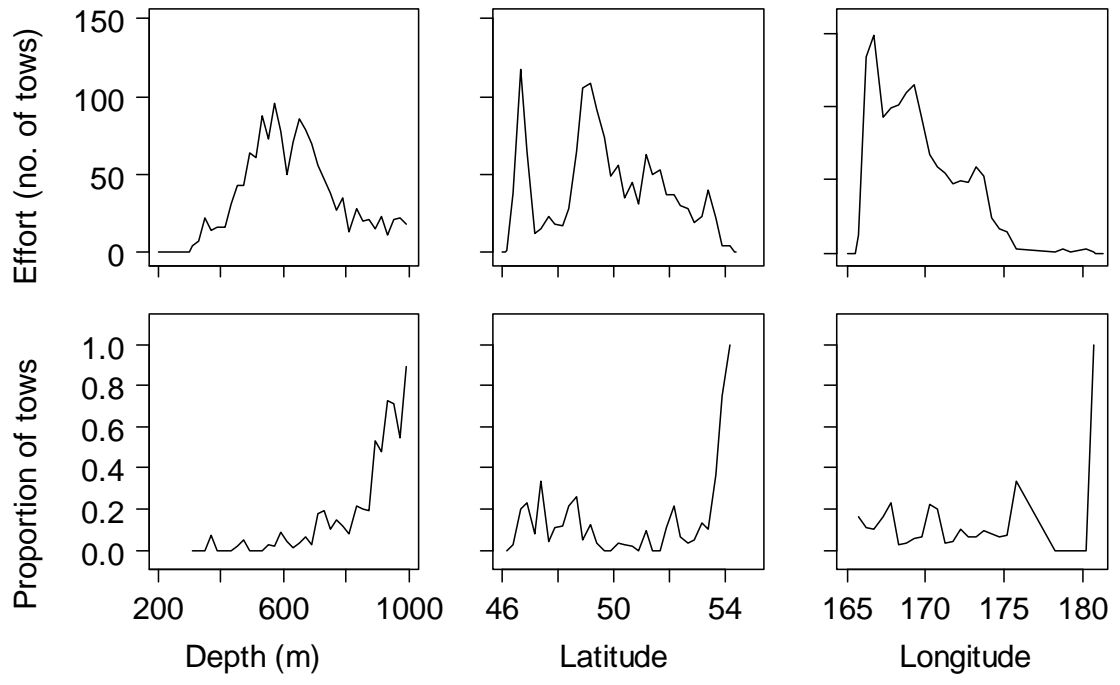
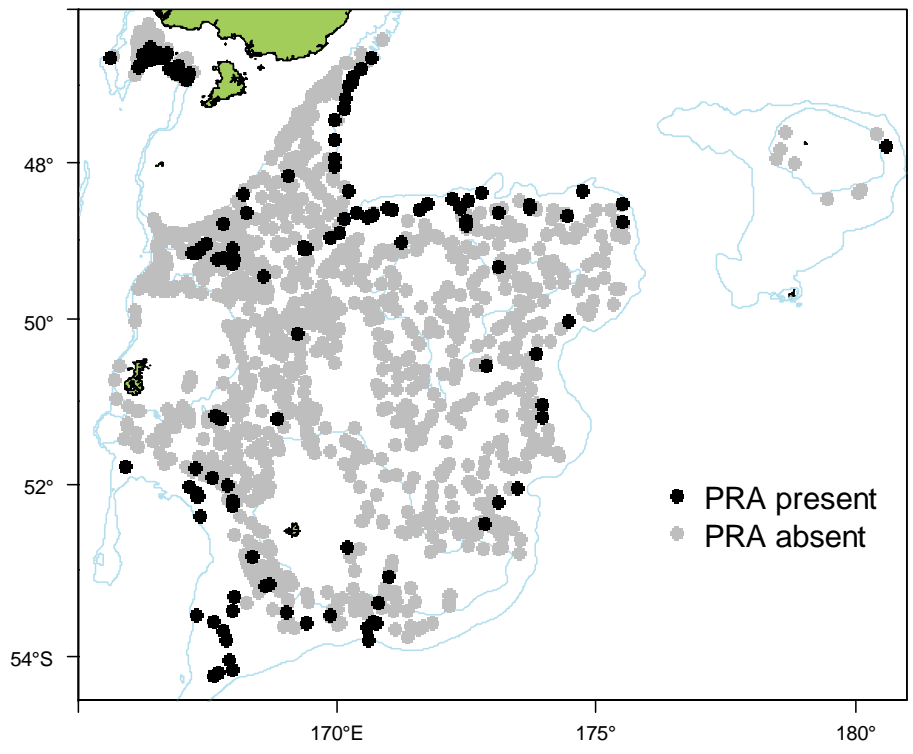
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	0.2
Coded as PAS	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	8
Total catch weight (kg):	9.4
Coded as PBA	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	7
Total catch weight (kg):	9.5
Coded as PED	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	5
Total catch weight (kg):	0.6
Coded as PLM	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.2
Coded as PRA	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	4
Total catch weight (kg):	2.0
Coded as PTA	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	1.2
Coded as SEP	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.1
Coded as SER	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	0.4

This group **has not** been well identified during the time series, particularly on the early surveys in the 1990s. They are found **deeper** than 1000 m. The core survey area and depth range **is not** appropriate for this species. Distribution **does extend** to strata deeper than 800 m surveyed from 2000 to 2009. It **was** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey area. Biomass since 2000 **shows no clear trend**. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **not well** estimated. Catches are recorded from most areas close to and deeper than 800 m.

There is no length or stage information presented.

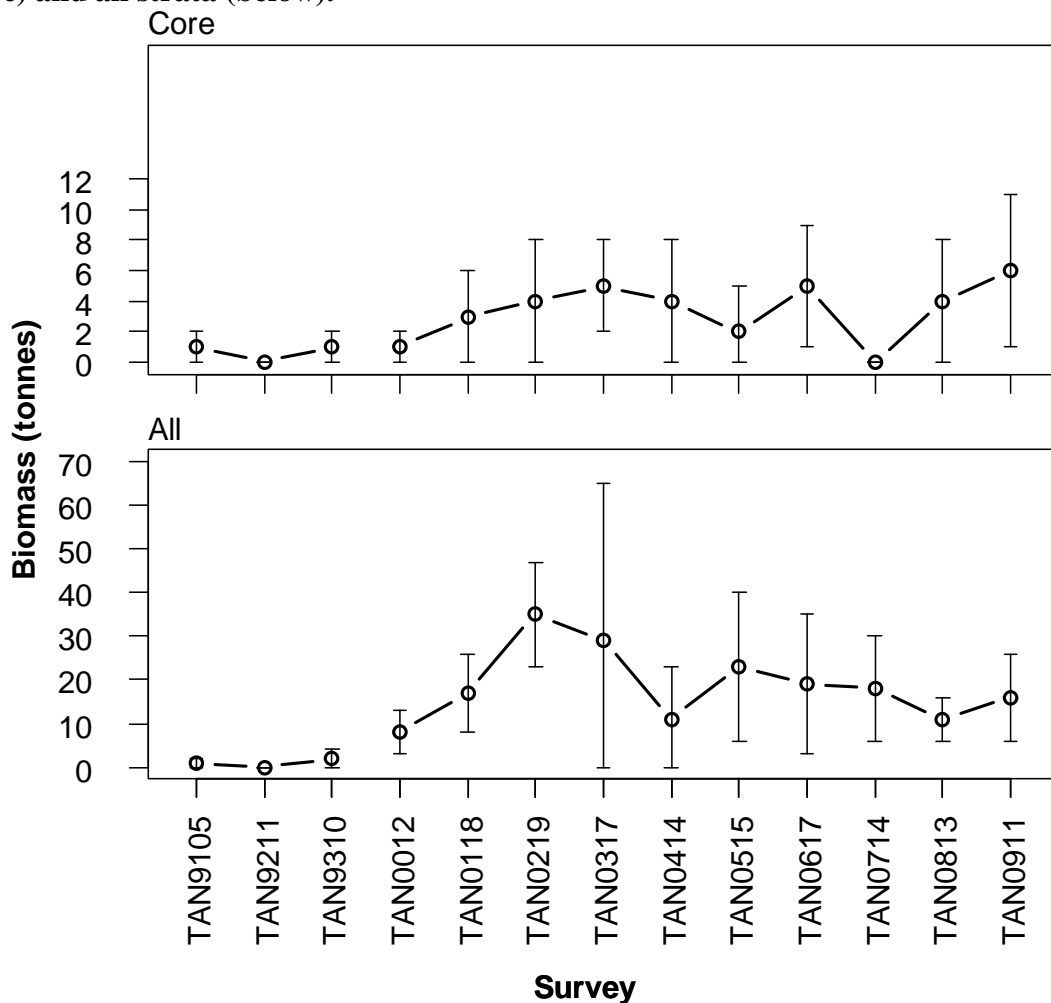
Distribution of Prawns from all summer surveys. Valid biomass stations only.

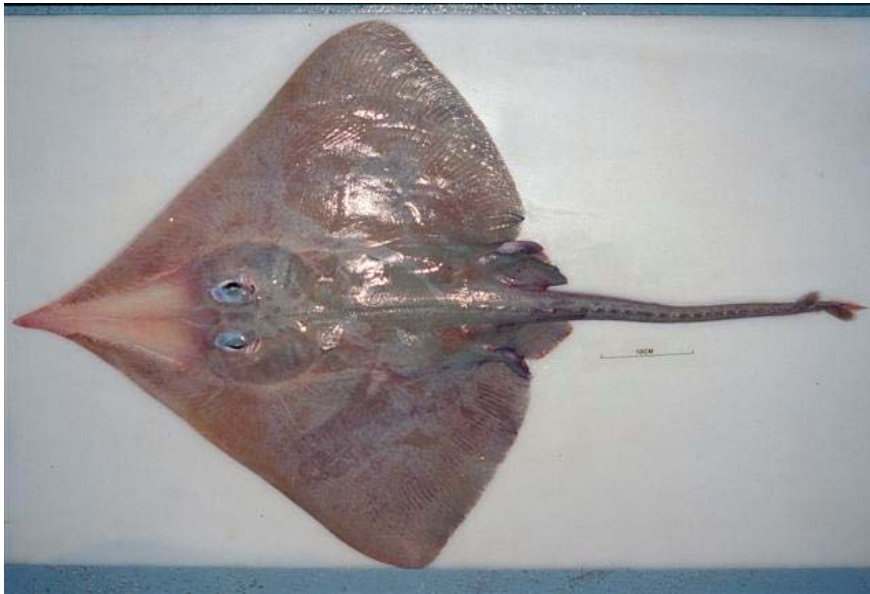


Relative biomass estimates (t) and c.v.s (%) of Prawns for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	1	70	NA	NA	NA	NA	NA	NA	1	70
TAN9211	0	NA	NA	NA	NA	NA	0	0	0	NA
TAN9310	1	63	NA	NA	NA	NA	0	0	2	54
TAN0012	1	75	4	45	3	50	NA	NA	8	31
TAN0118	3	56	3	50	10	38	NA	NA	17	27
TAN0219	4	47	8	33	25	22	NA	NA	35	18
TAN0317	5	32	24	76	NA	NA	NA	NA	29	63
TAN0414	4	51	8	80	NA	NA	NA	NA	11	55
TAN0515	2	75	6	30	15	58	NA	NA	23	38
TAN0617	5	43	14	57	NA	NA	NA	NA	19	42
TAN0714	0	NA	4	57	14	41	NA	NA	18	35
TAN0813	4	45	0	0	7	29	NA	NA	11	25
TAN0911	6	46	3	58	8	55	NA	NA	16	33

Trends in relative biomass estimates (± 2 standard errors) of Prawns for core strata (above) and all strata (below).





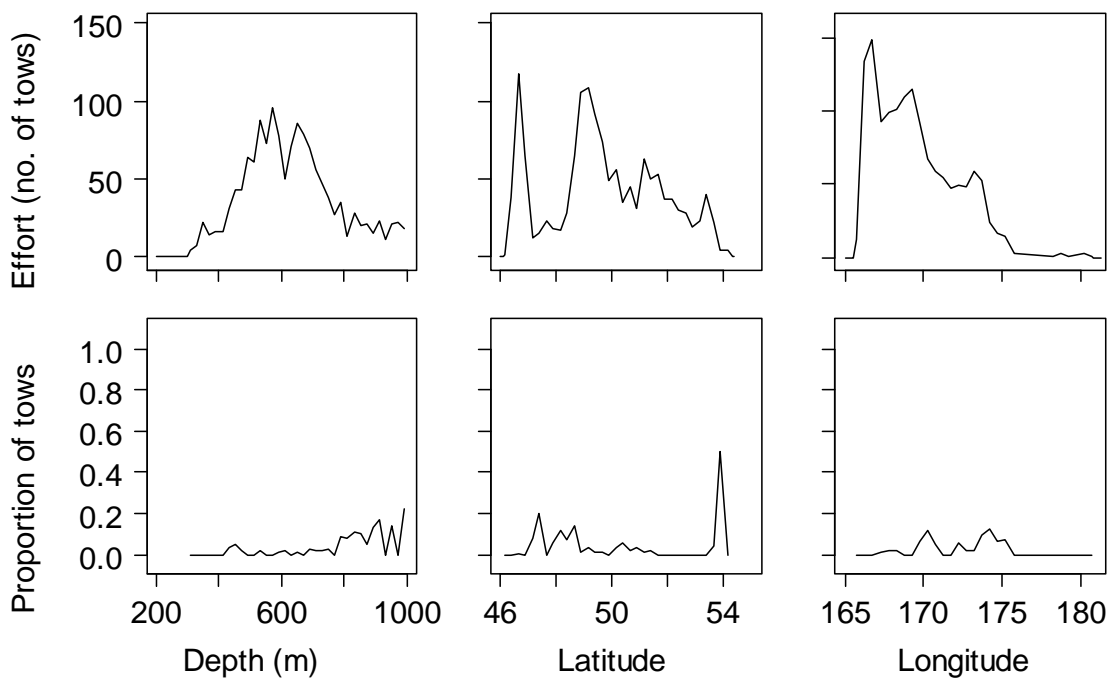
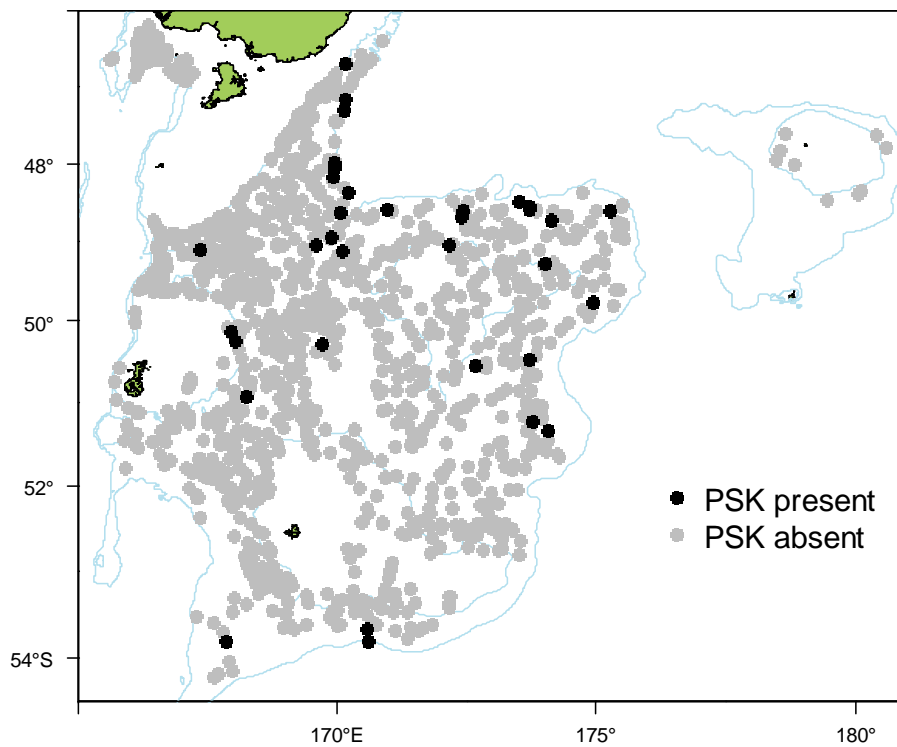
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	12
Total catch weight (kg):	102.0
Number measured	1
Length range (mean) (cm)	–
Number weighed	1

This species **has** been well identified during the time series. It is found **deeper** than 1000 m. The core survey area and depth range **is not** appropriate for this species. Distribution **does** extend to strata deeper than 800 m surveyed from 2000 to 2009. It **was not** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey area. Biomass **shows no clear trend** since the start of the time series. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **poorly** estimated.

There is no length or gonad stage information presented.

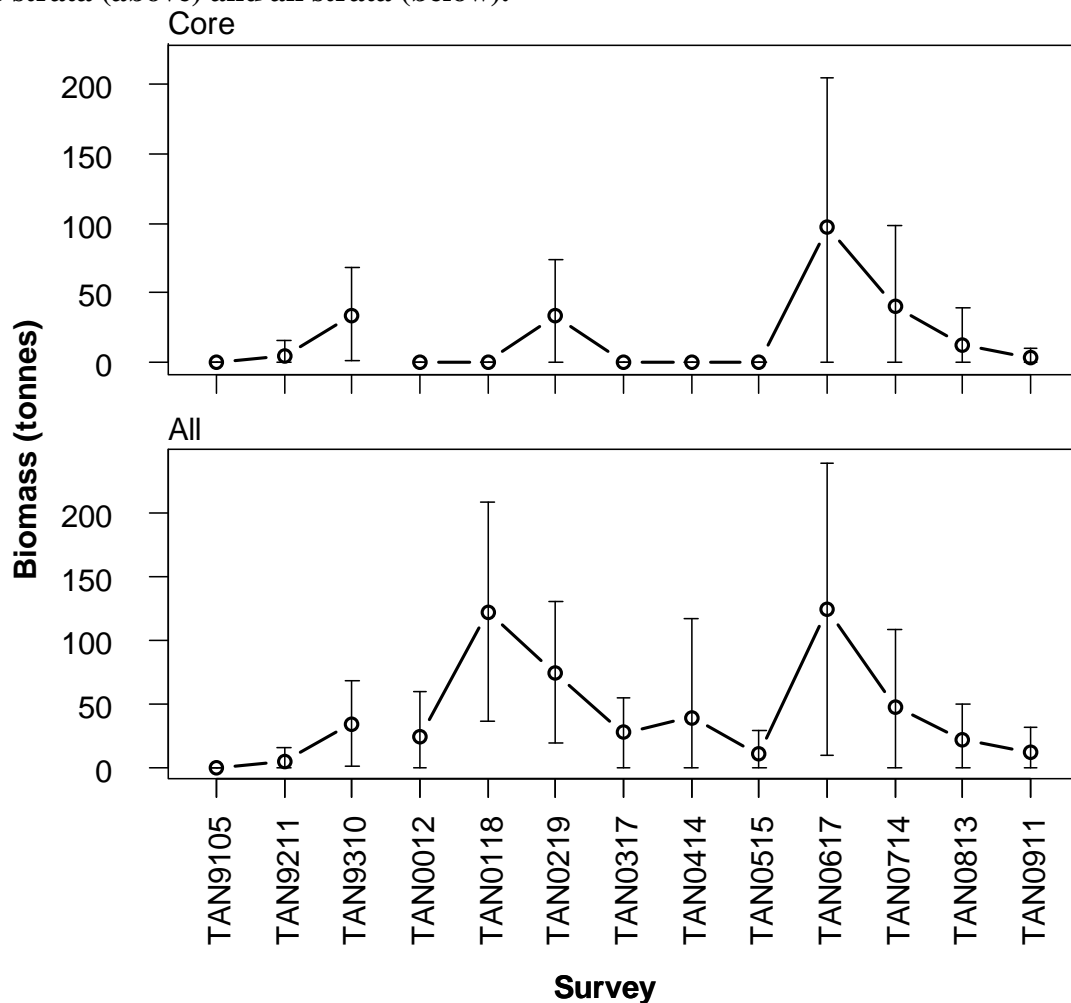
Distribution of *Bathyraja shuntovi* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Bathyraja shuntovi* for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	0	0	NA	NA	NA	NA	NA	NA	0	0
TAN9211	5	100	NA	NA	NA	NA	0	0	5	100
TAN9310	34	49	NA	NA	NA	NA	0	0	34	49
TAN0012	0	0	24	71	0	0	NA	NA	24	71
TAN0118	0	0	20	100	102	37	NA	NA	122	35
TAN0219	34	58	40	48	0	0	NA	NA	74	37
TAN0317	0	0	27	51	NA	NA	NA	NA	27	51
TAN0414	0	0	39	100	NA	NA	NA	NA	39	100
TAN0515	0	0	10	100	0	0	NA	NA	10	100
TAN0617	97	56	26	76	NA	NA	NA	NA	124	46
TAN0714	40	73	7	100	0	0	NA	NA	47	64
TAN0813	13	100	8	63	0	0	NA	NA	21	66
TAN0911	3	100	9	100	0	0	NA	NA	12	78

Trends in relative biomass estimates (± 2 standard errors) of *Bathyraja shuntovi* for core strata (above) and all strata (below).



Blobfish (*Psychrolutes microporos*)

PSY



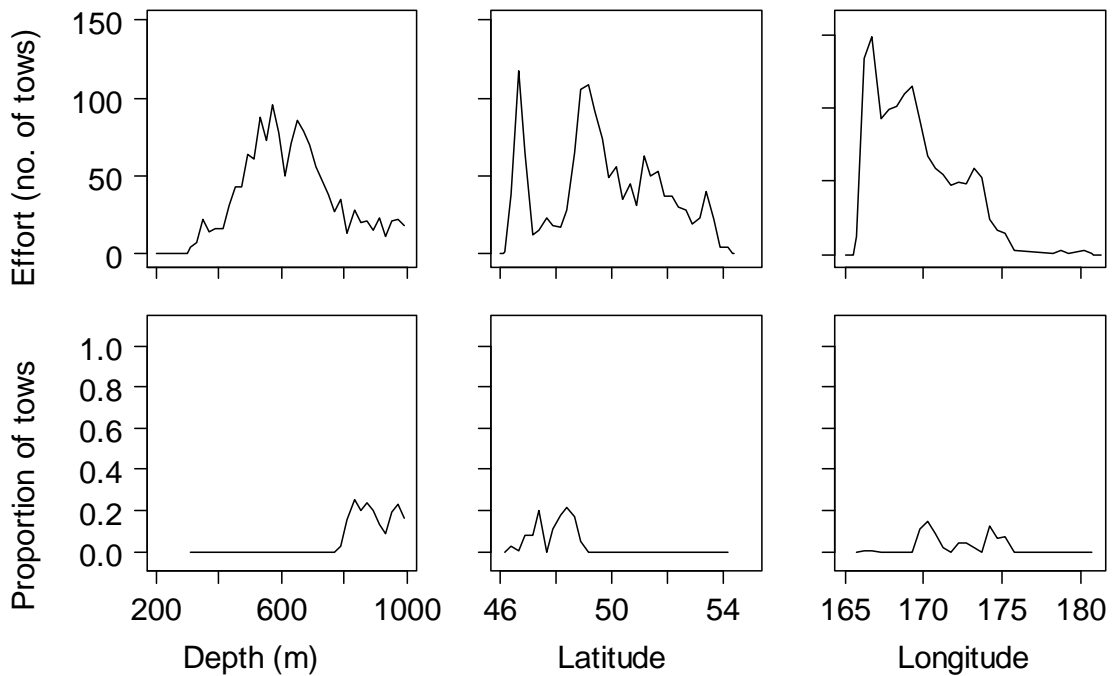
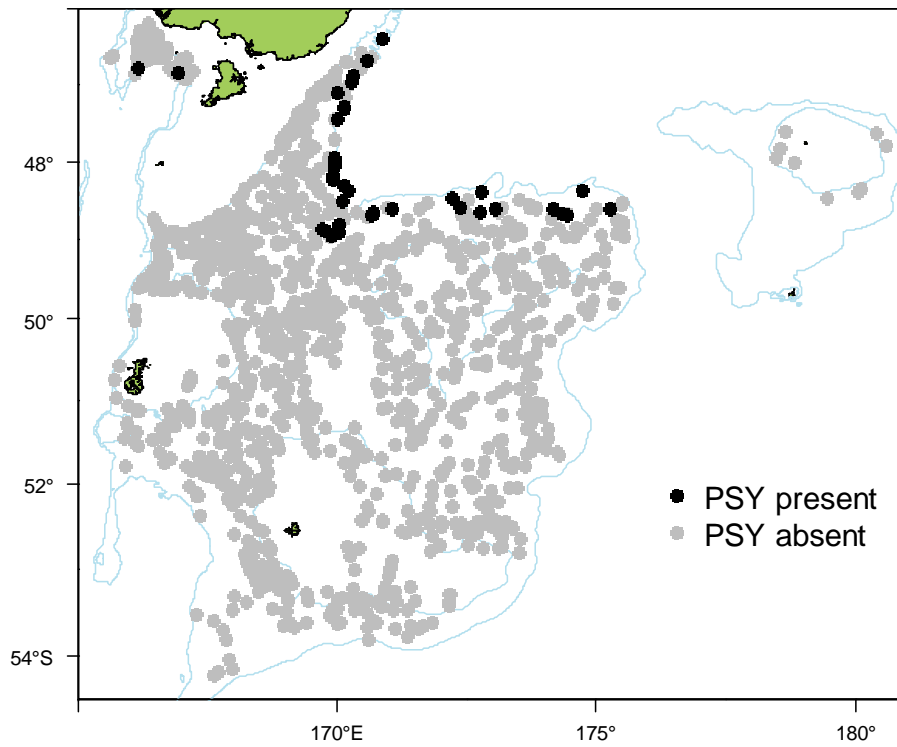
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	10
Total catch weight (kg):	247.5
Number measured	0
Length range (mean) (cm)	–
Number weighed	0

This species **has** been well identified during the time series. It is found **deeper** than 1000 m. The core survey area and depth range **is not** appropriate for this species. Distribution **does** extend to strata deeper than 800 m surveyed from 2000 to 2009. It **was not** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey area. Biomass **shows no clear trend** since the start of the time series. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **poorly** estimated. Higher catchrates are in the north.

There is no length or gonad stage information presented.

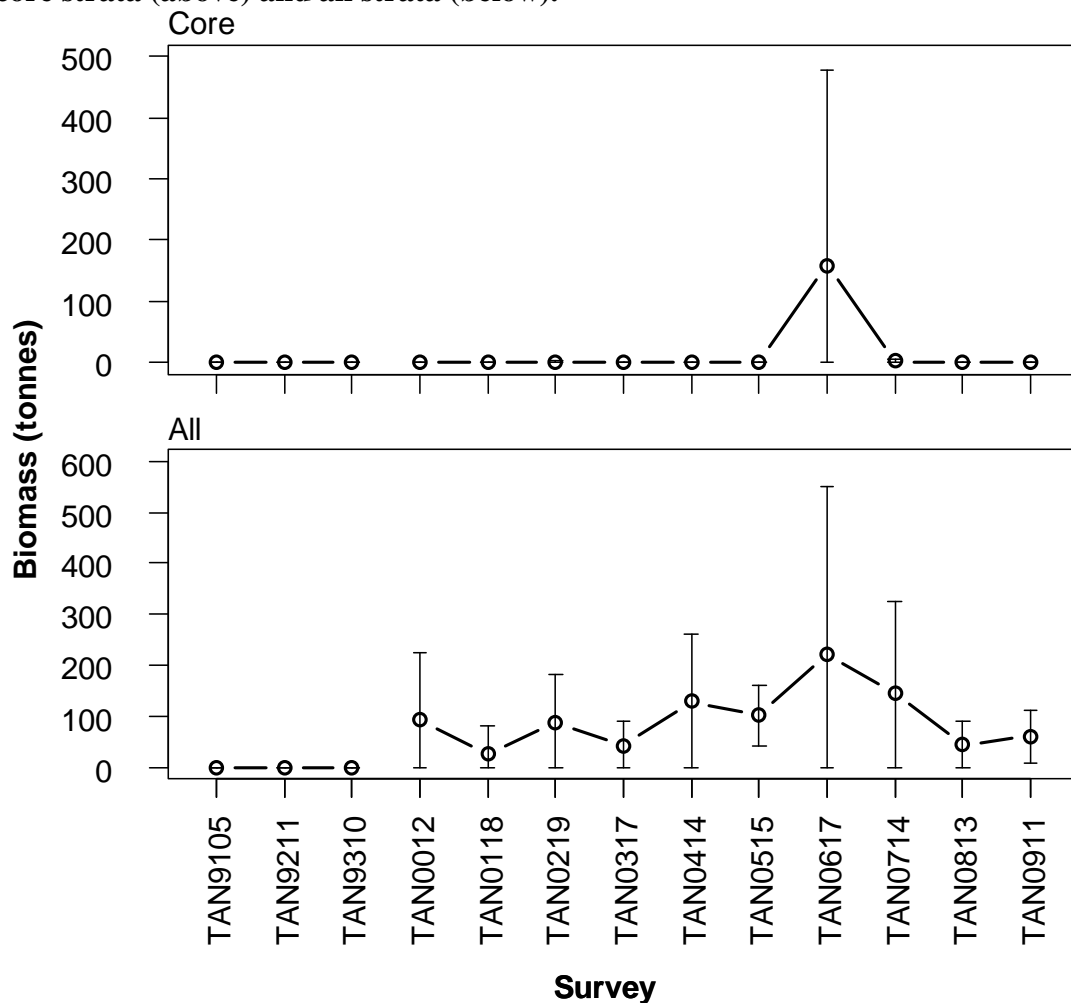
Distribution of *Psychrolutes microporos* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Psychrolutes microporos* for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	0	0	NA	NA	NA	NA	NA	NA	0	0
TAN9211	0	0	NA	NA	NA	NA	0	0	0	0
TAN9310	0	0	NA	NA	NA	NA	0	0	0	0
TAN0012	0	0	93	72	0	0	NA	NA	92	72
TAN0118	0	0	27	100	0	0	NA	NA	27	100
TAN0219	1	100	85	55	0	0	NA	NA	86	55
TAN0317	0	0	43	54	NA	NA	NA	NA	43	54
TAN0414	0	0	129	52	NA	NA	NA	NA	129	52
TAN0515	0	0	102	29	0	0	NA	NA	102	29
TAN0617	159	100	63	68	NA	NA	NA	NA	222	74
TAN0714	2	100	145	62	0	0	NA	NA	146	61
TAN0813	0	0	45	50	0	0	NA	NA	45	50
TAN0911	0	0	60	44	0	0	NA	NA	60	43

Trends in relative biomass estimates (± 2 standard errors) of *Psychrolutes microporos* for core strata (above) and all strata (below).





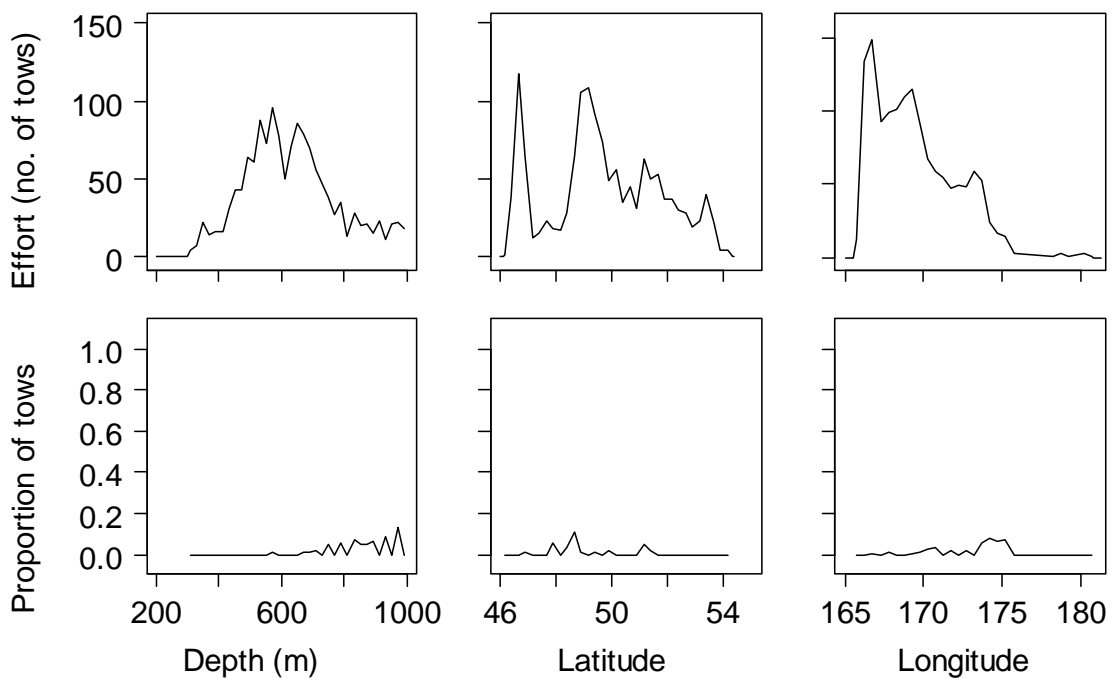
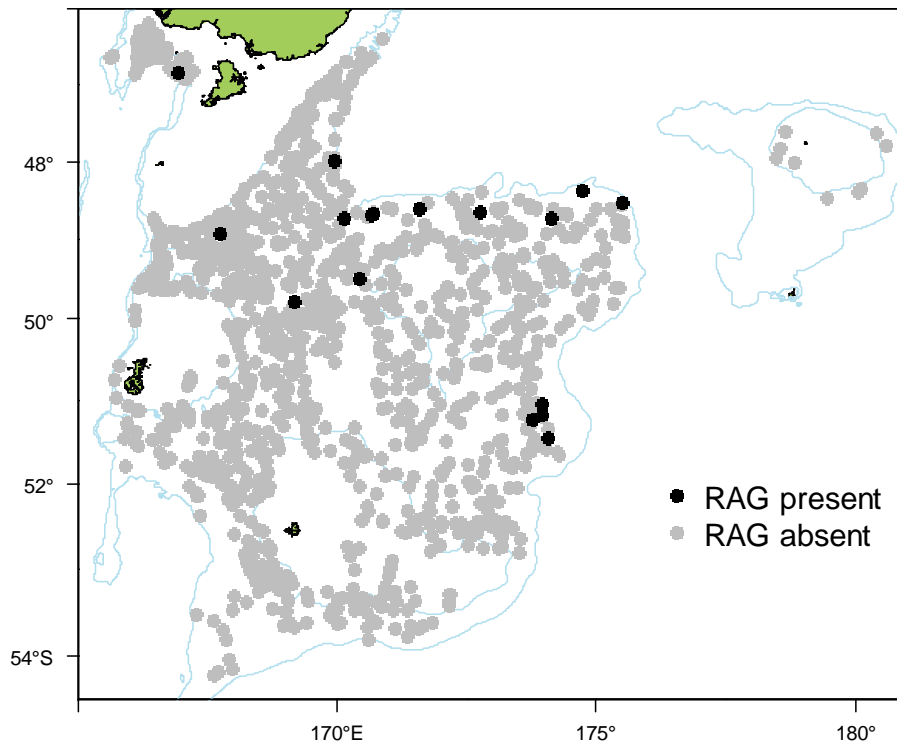
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	11
Total catch weight (kg):	35.7
Number measured	0
Length range (mean) (cm)	–
Number weighed	0
Length-weight parameters a, b (r^2)	–

This species **has** been well identified during the time series. It is found **deeper** than 1000 m. The core survey area and depth range **is not** appropriate for this species. Distribution **does** extend to strata deeper than 800 m surveyed from 2000 to 2009. It **was not** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey area. Biomass **shows no clear trend** since the start of the time series. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **poorly** estimated.

There is no length or gonad stage information presented.

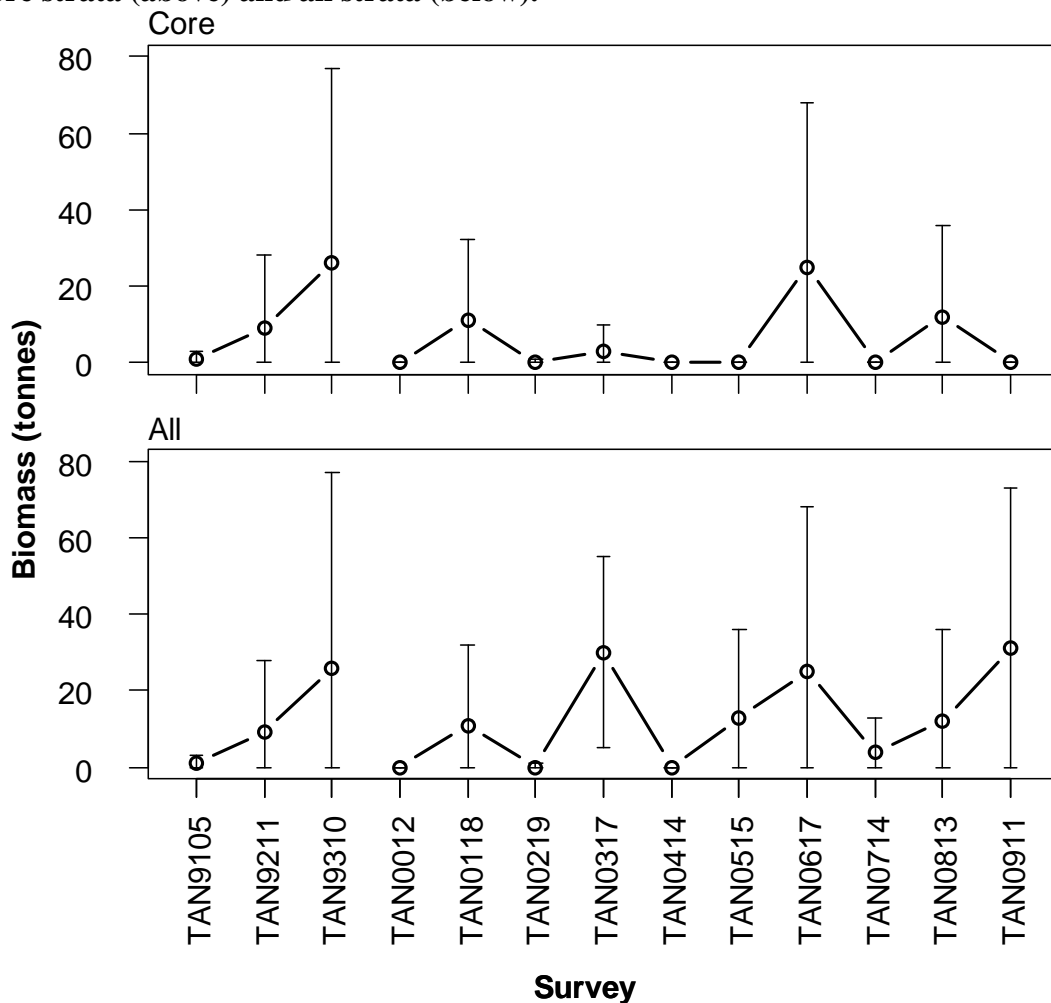
Distribution of *Pseudoicichthys australis* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Pseudoicichthys australis* for core strata, strata outside the core area and all strata.

Survey	Core biomass	Core (c.v.)	Strata 27+28 biomass	27+28 (c.v.)	Stratum 26 biomass	26 (c.v.)	Stratum 17 biomass	17 (c.v.)	Total biomass	Total (c.v.)
TAN9105	1	100	NA	NA	NA	NA	NA	NA	1	100
TAN9211	9	100	NA	NA	NA	NA	0	0	9	100
TAN9310	26	100	NA	NA	NA	NA	0	0	26	100
TAN0012	0	0	0	0	0	0	NA	NA	0	0
TAN0118	11	100	0	0	0	0	NA	NA	11	100
TAN0219	0	100	0	0	0	0	NA	NA	0	100
TAN0317	3	100	27	45	NA	NA	NA	NA	30	42
TAN0414	0	0	0	0	NA	NA	NA	NA	0	0
TAN0515	0	0	13	91	0	0	NA	NA	13	91
TAN0617	25	86	0	0	NA	NA	NA	NA	25	86
TAN0714	0	0	4	100	0	0	NA	NA	4	100
TAN0813	12	100	0	0	0	0	NA	NA	12	100
TAN0911	0	0	31	68	0	0	NA	NA	31	68

Trends in relative biomass estimates (± 2 standard errors) of *Pseudoicichthys australis* for core strata (above) and all strata (below).



**BBR**

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	4
Total catch weight (kg):	11.8
Number measured	4
Length range (mean) (cm)	47–51 (49.0)
Number weighed	3

RBM

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	12
Total catch weight (kg):	375.4
Number measured	272
Length range (mean) (cm)	31–56 (41.8)
Number weighed	203

SRB

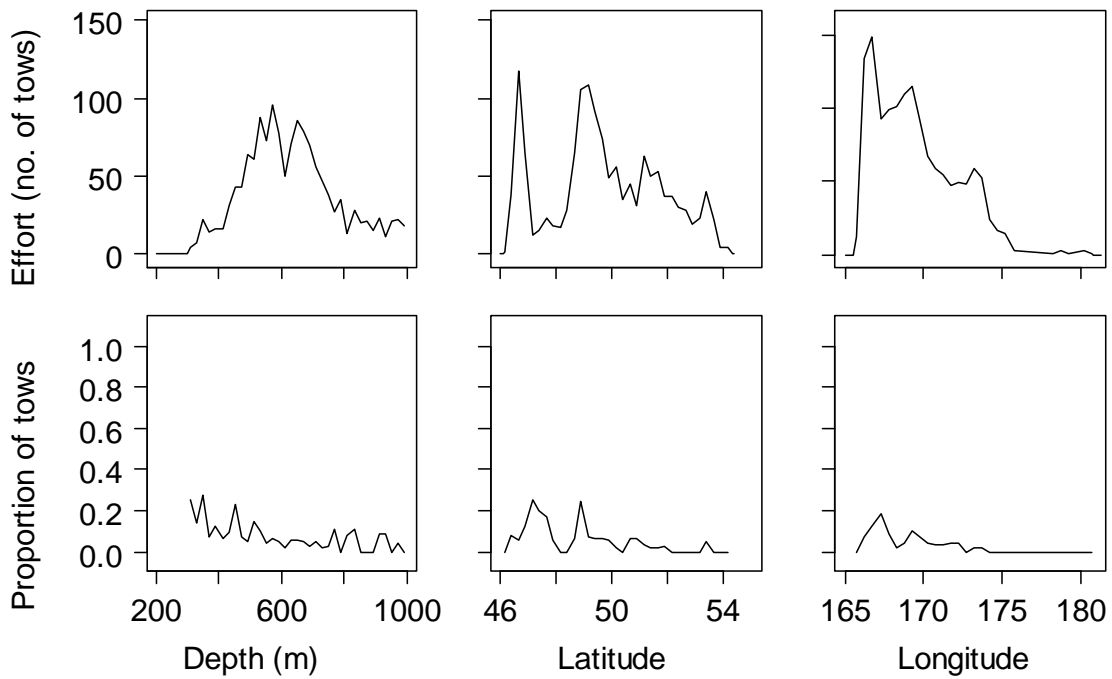
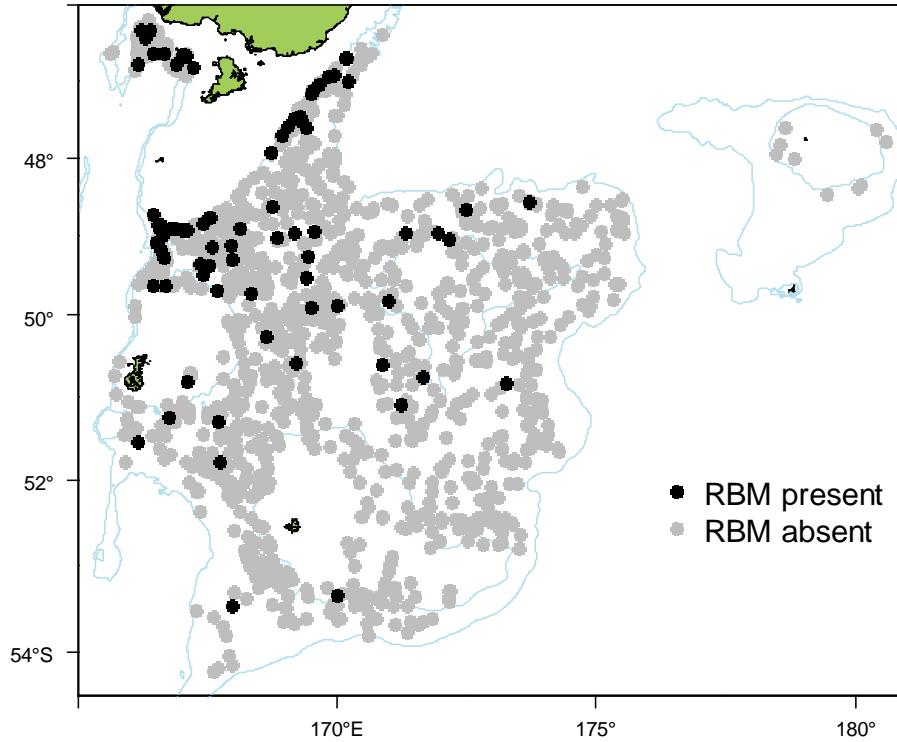
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	5
Total catch weight (kg):	70.3
Number measured	38
Length range (mean) (cm)	33–55 (45.7)
Number weighed	22

This group has **been well** identified during the time series. The core survey area and depth range **is** appropriate for this group. It is found **shallower than 300 m and deeper than 1000m**. Distribution **does** extend to the areas deeper than 800 m surveyed from 2000 to 2009. It **is not** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey. Biomass has **increased** since the start of the time series. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **poorly** estimated. Catches are highest in the **west**.

There is no length information presented. Gonad stage data indicate that most fish are **resting**.

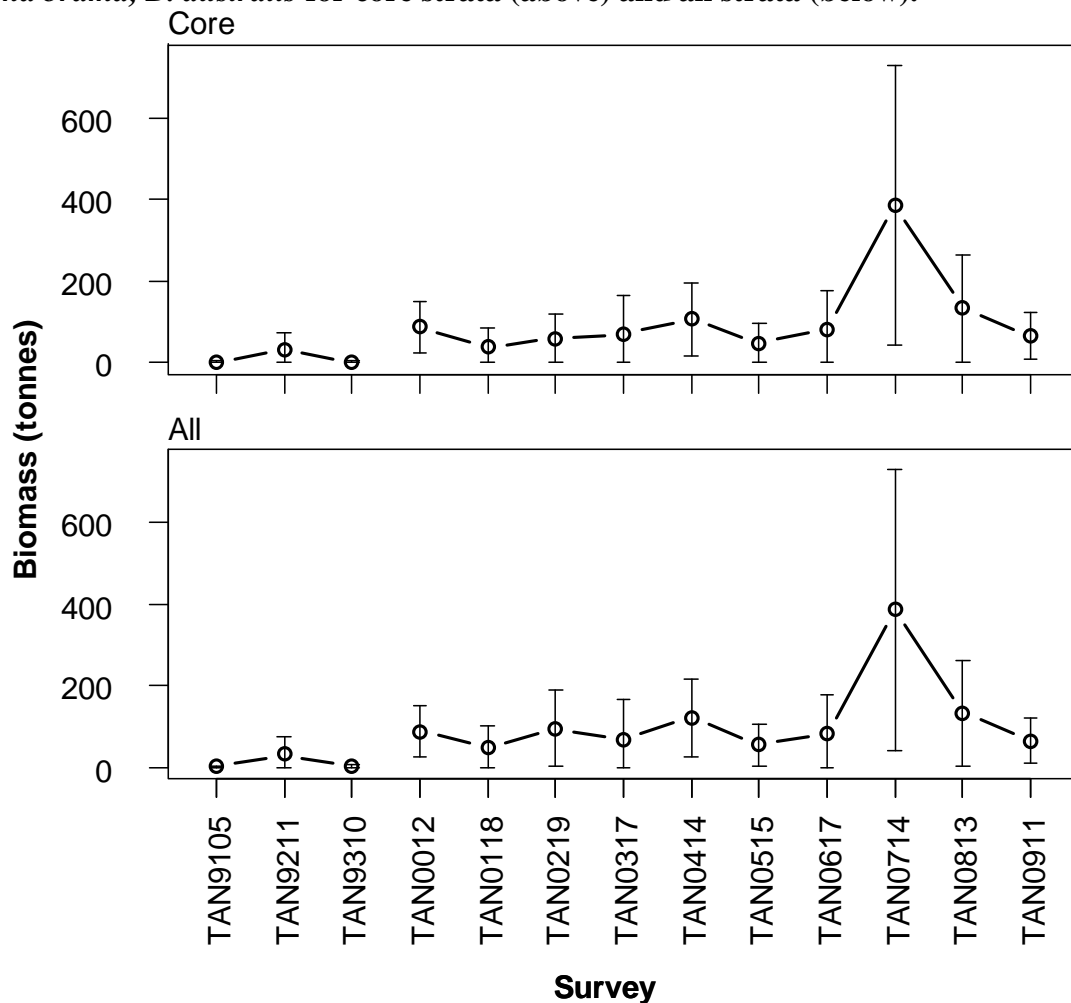
Distribution of *Xenobrama microlepis*, *Brama brama*, *B. australis* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Xenobrama microlepis*, *Brama brama*, *B. australis* for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	1	100	NA	NA	NA	NA	NA	NA	1	100
TAN9211	31	71	NA	NA	NA	NA	0	0	31	71
TAN9310	2	100	NA	NA	NA	NA	0	0	2	100
TAN0012	88	37	0	0	0	0	NA	NA	88	37
TAN0118	37	63	12	100	0	0	NA	NA	49	53
TAN0219	58	54	0	0	36	100	NA	NA	95	51
TAN0317	69	72	0	0	NA	NA	NA	NA	69	72
TAN0414	106	43	15	100	NA	NA	NA	NA	121	40
TAN0515	47	55	7	100	0	0	NA	NA	54	49
TAN0617	82	59	0	0	NA	NA	NA	NA	82	59
TAN0714	386	46	0	0	0	0	NA	NA	386	46
TAN0813	132	51	0	0	0	0	NA	NA	132	51
TAN0911	65	44	0	0	0	0	NA	NA	65	44

Trends in relative biomass estimates (± 2 standard errors) of *Xenobrama microlepis*, *Brama brama*, *B. australis* for core strata (above) and all strata (below).



**Gonad stage summaries by sex for *Xenobrama microlepis*, *Brama brama*, *B. australis*.
Percentage at each stage using the MD staging method.**

Survey	M1	M2	M3	M4	M5	M6	M7	F1	F2	F3	F4	F5	F6	F7
TAN9105	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9211	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0012	0	0	100	0	0	0	0	0	0	100	0	0	0	0
TAN0118	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0219	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0317	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0414	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0515	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0617	NA	NA	NA	NA	NA	NA	NA	0	100	0	0	0	0	0
TAN0714	30	70	0	0	0	0	0	8	33	42	0	0	8	8
TAN0813	33	33	33	0	0	0	0	0	0	100	0	0	0	0
TAN0911	0	100	0	0	0	0	0	0	40	60	0	0	0	0
ALL	26	58	16	0	0	0	0	3	54	37	0	0	3	3



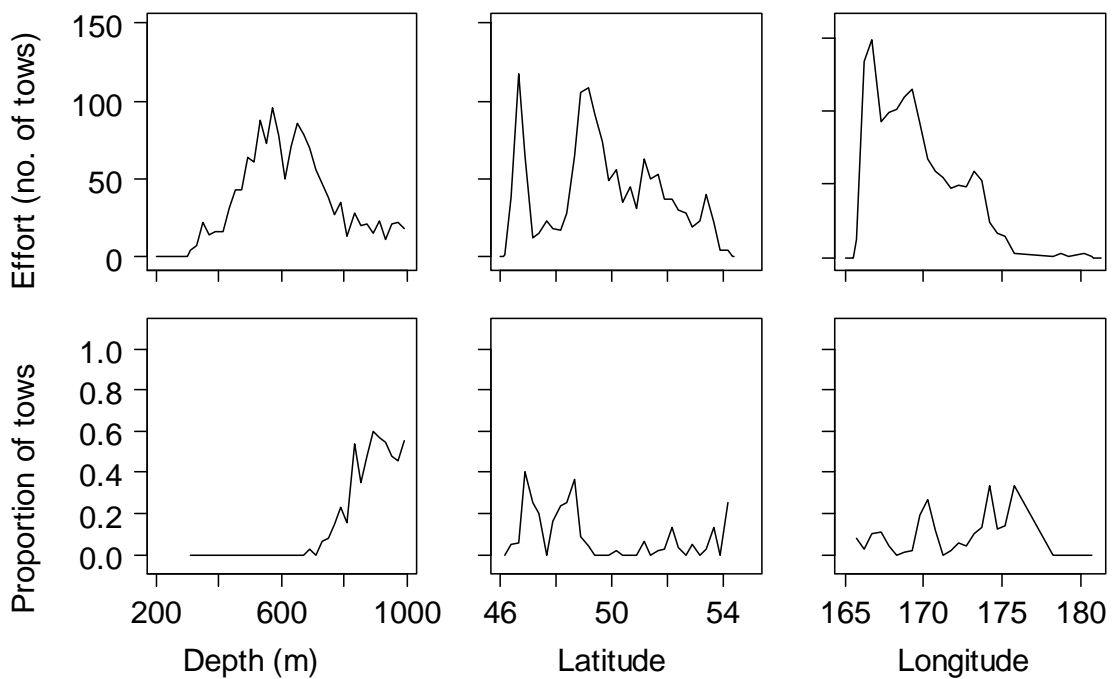
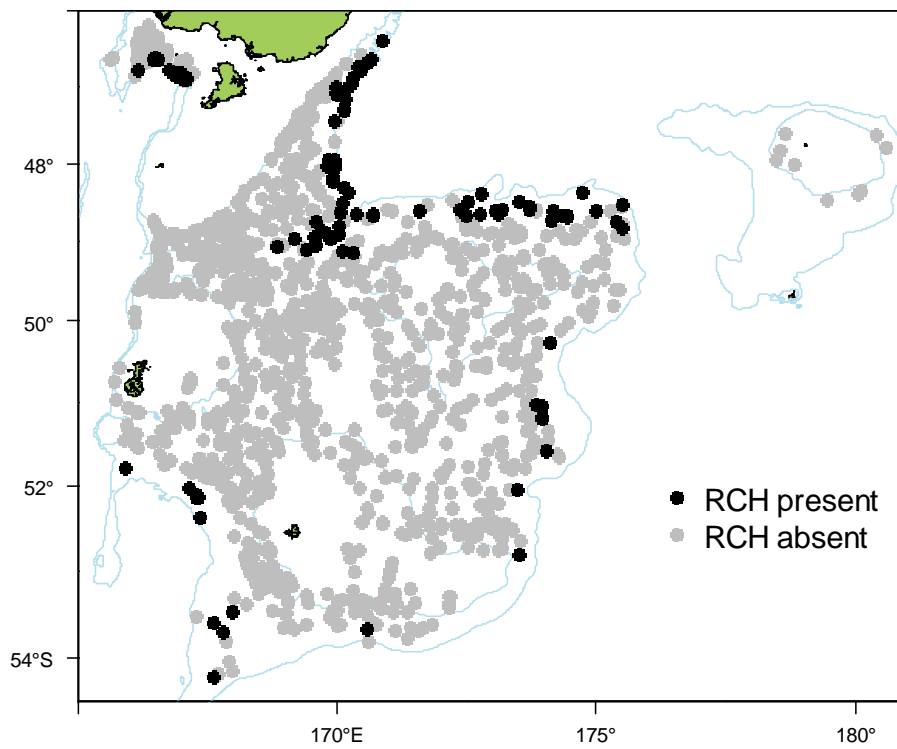
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	12
Total catch weight (kg):	1 160.0
Number measured	282
Length range (mean) (cm)	28–155 (112.8)
Number weighed	196
Length-weight parameters a, b (r^2)	–

This species **has** been well identified during the time series. It is found **deeper** than 1000 m. The core survey area and depth range **is not** appropriate for this species. Distribution **does** extend to strata deeper than 800 m surveyed from 2000 to 2009. It **was not** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey area. Biomass has **increased** since the start of the time series. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **reasonably well** estimated. Catches are recorded from areas close to and deeper than 800 m.

There is no length information presented. Gonad stage data indicate that most fish are **maturing**.

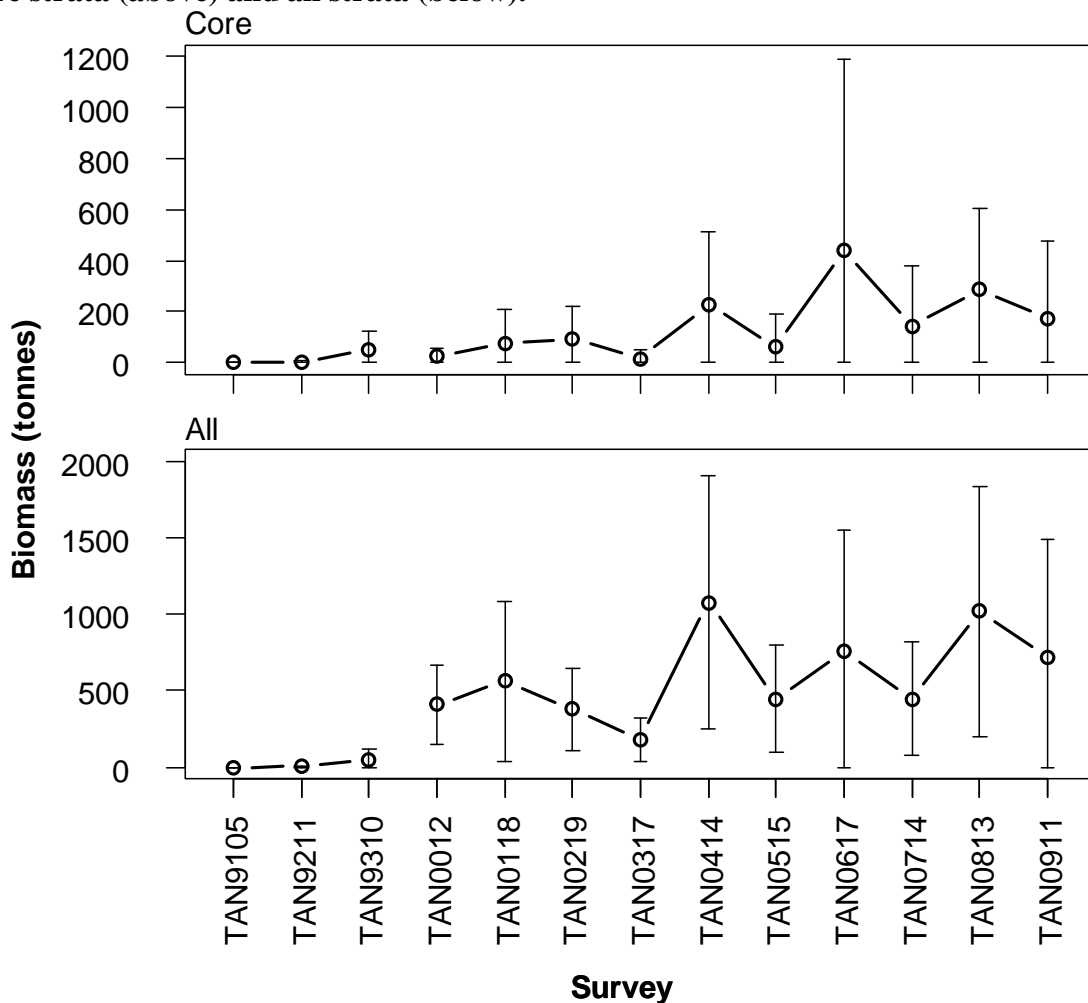
Distribution of *Rhinochimaera pacifica* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Rhynchimaera pacifica* for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	0	0	NA	NA	NA	NA	NA	NA	0	0
TAN9211	3	100	NA	NA	NA	NA	0	0	3	100
TAN9310	47	79	NA	NA	NA	NA	0	0	47	79
TAN0012	23	77	298	32	88	100	NA	NA	408	32
TAN0118	72	96	166	33	325	75	NA	NA	563	46
TAN0219	92	68	144	66	142	50	NA	NA	378	35
TAN0317	16	100	162	44	NA	NA	NA	NA	178	41
TAN0414	226	64	852	45	NA	NA	NA	NA	1077	38
TAN0515	63	98	228	25	155	100	NA	NA	446	40
TAN0617	439	86	323	35	NA	NA	NA	NA	762	52
TAN0714	140	85	161	60	147	72	NA	NA	448	42
TAN0813	285	56	274	28	461	80	NA	NA	1019	40
TAN0911	173	87	196	35	351	100	NA	NA	719	54

Trends in relative biomass estimates (± 2 standard errors) of *Rhynchimaera pacifica* for core strata (above) and all strata (below).



Gonad stage summaries by sex for *Rhinochimaera pacifica* . Percentage at each stage using the SS staging method.

Survey	M1	M2	M3	F1	F2	F3	F4	F5	F6
TAN9105	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9211	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9310	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0012	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0118	NA	NA	NA	100	0	0	0	0	0
TAN0219	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0317	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0414	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0515	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0617	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0714	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0813	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0911	0	0	100	0	0	100	0	0	0
ALL	0	0	100	33	0	67	0	0	0



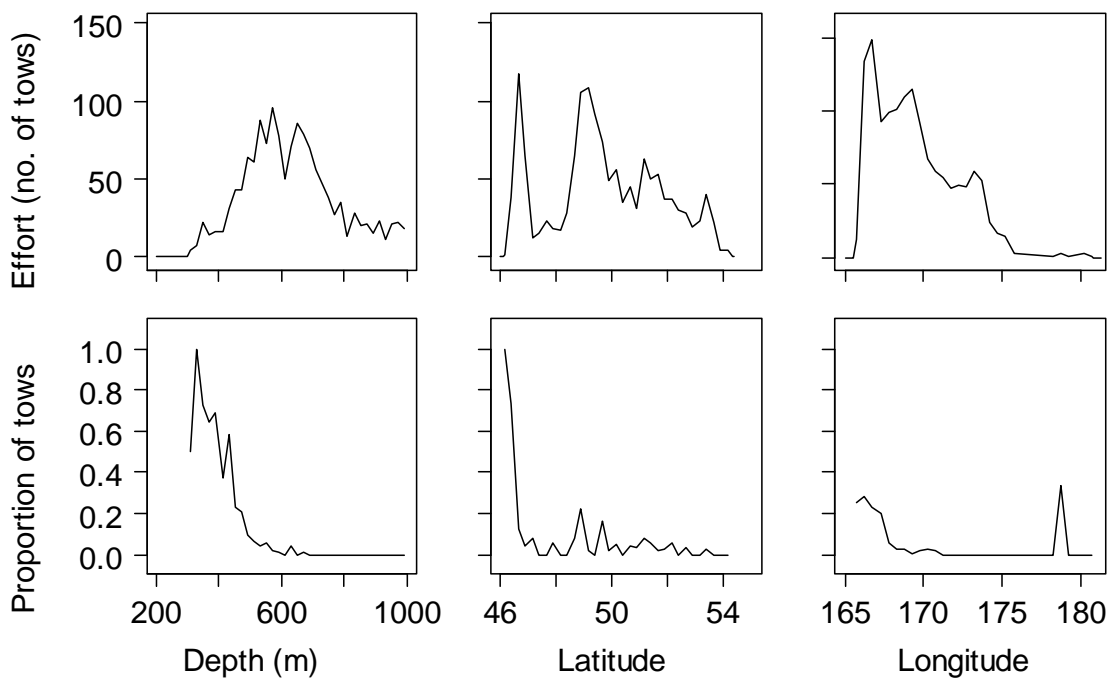
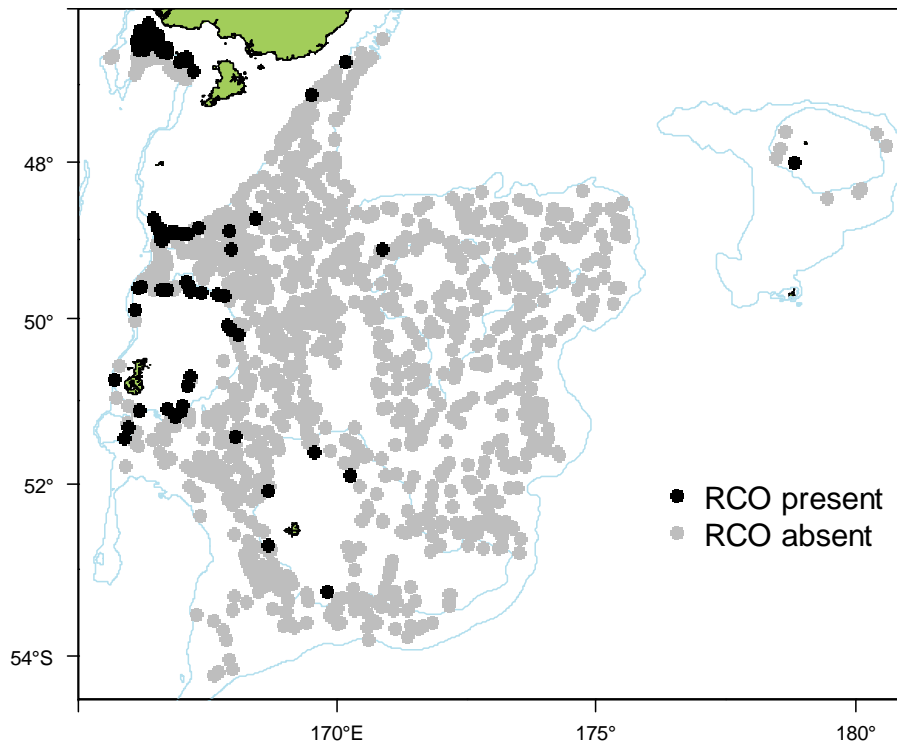
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	2 111.1
Number measured	1 690
Length range (mean) (cm)	17–72 (47.4)
Number weighed	784
Length-weight parameters a, b (r^2)	0.019088, 2.806483 (96.66)

This species has **been well** identified during the time series. The core survey area and depth range **is** appropriate for this species. It is found **shallower than 300 m**. Distribution **does not** extend to the areas deeper than 800 m surveyed from 2000 to 2009. It **is** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey. Biomass **shows no clear trend** since the start of the time series. Catch rates are highest in the **west**, south of the Stewart/Snares shelf.

Length frequencies **have multiple modes which may contain information about year-class strength**. Mean length **shows no clear trend** since the start of the time series. Gonad stage data indicate that most fish are **mature and ripe** with evidence of some spawning activity.

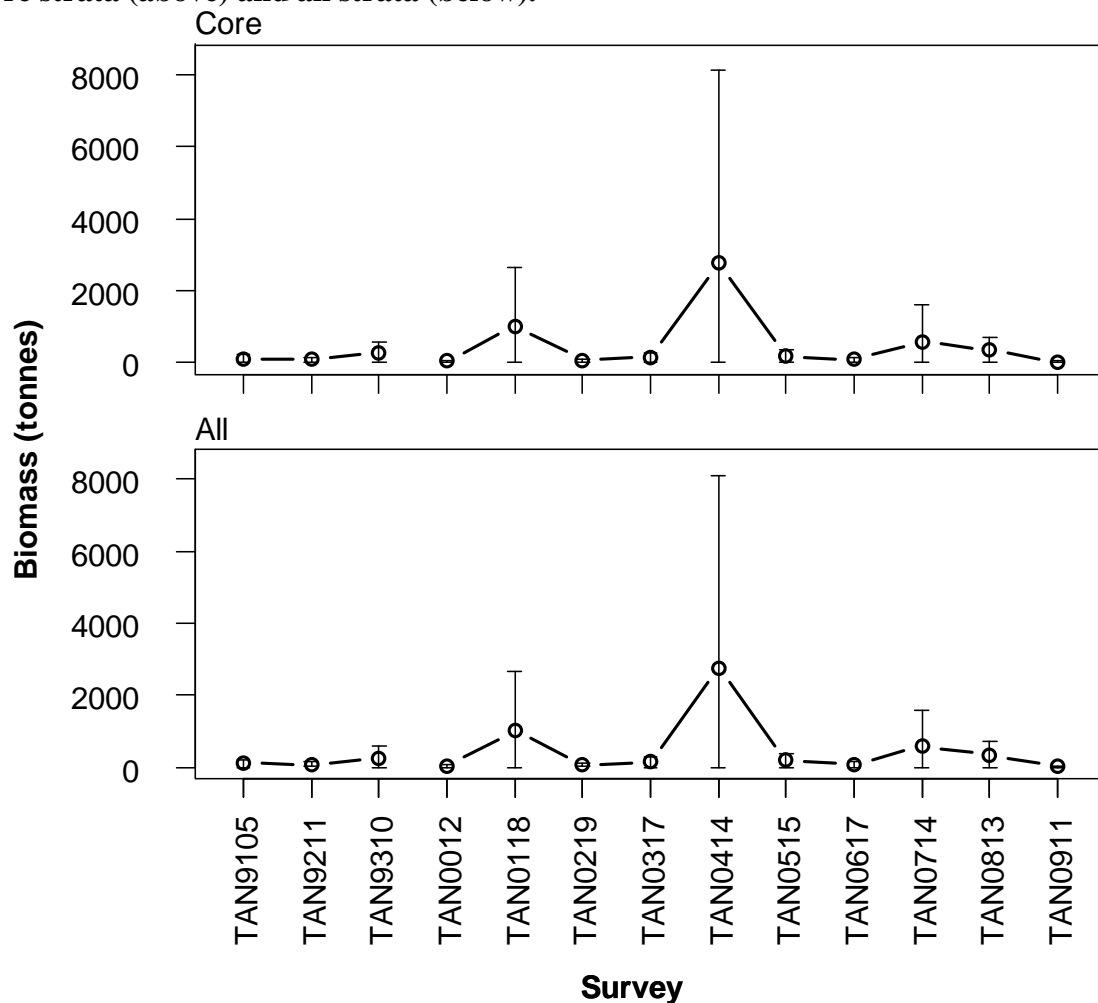
Distribution of *Pseudophycis bachus* from all summer surveys. Valid biomass stations only.



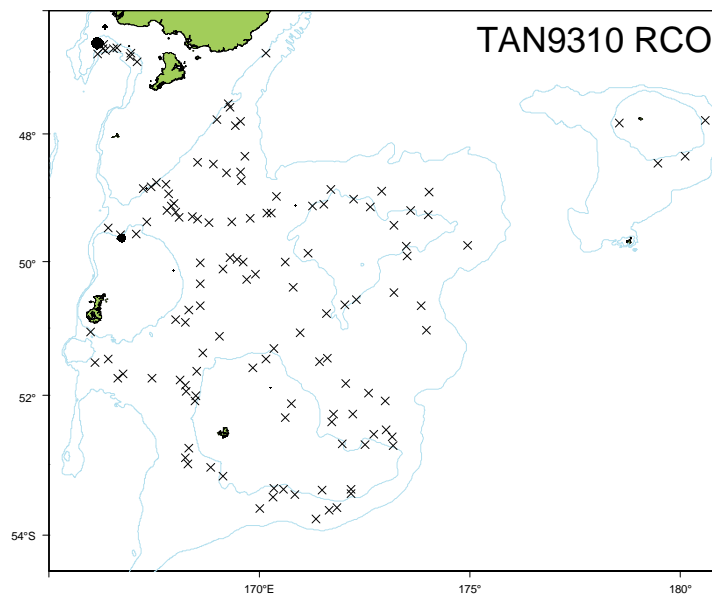
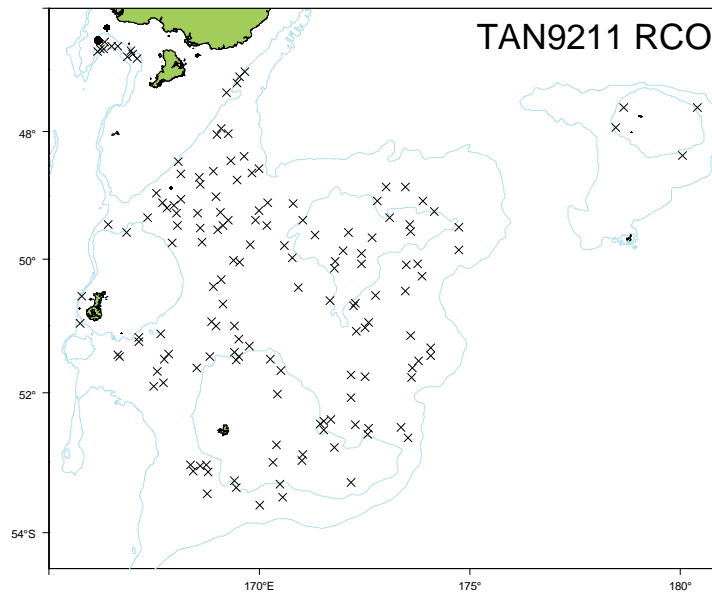
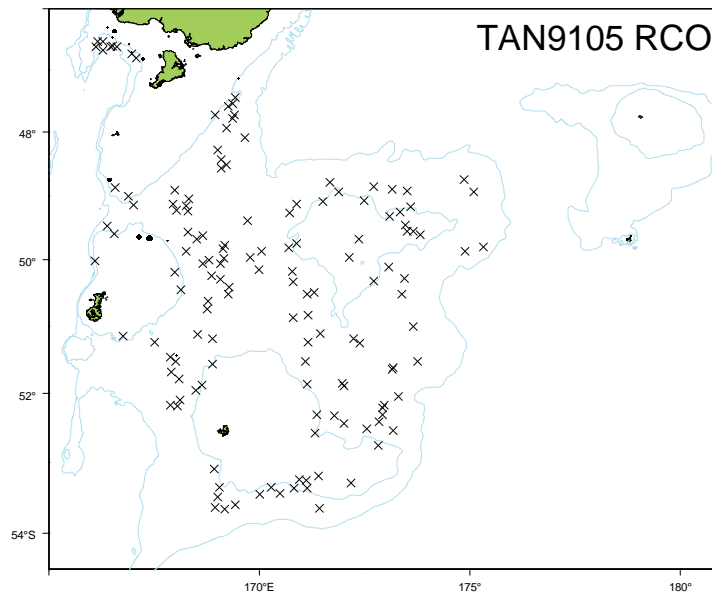
Relative biomass estimates (t) and c.v.s (%) of *Pseudophycis bachus* for core strata, strata outside the core area and all strata.

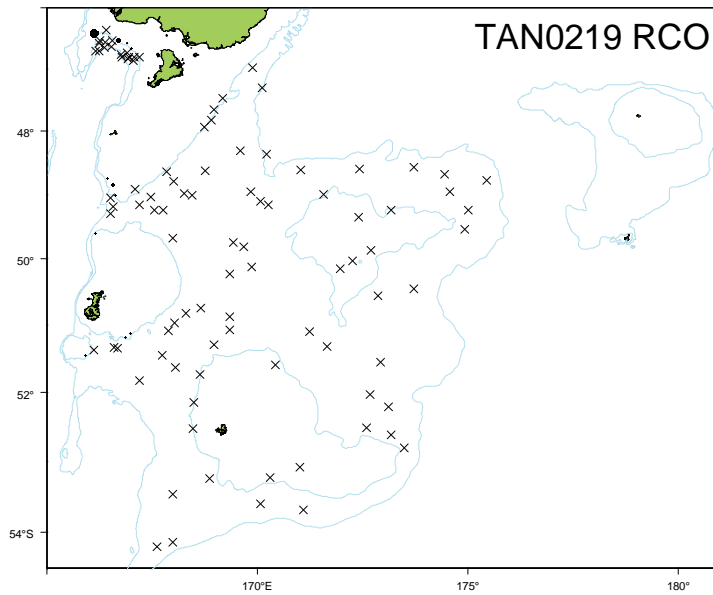
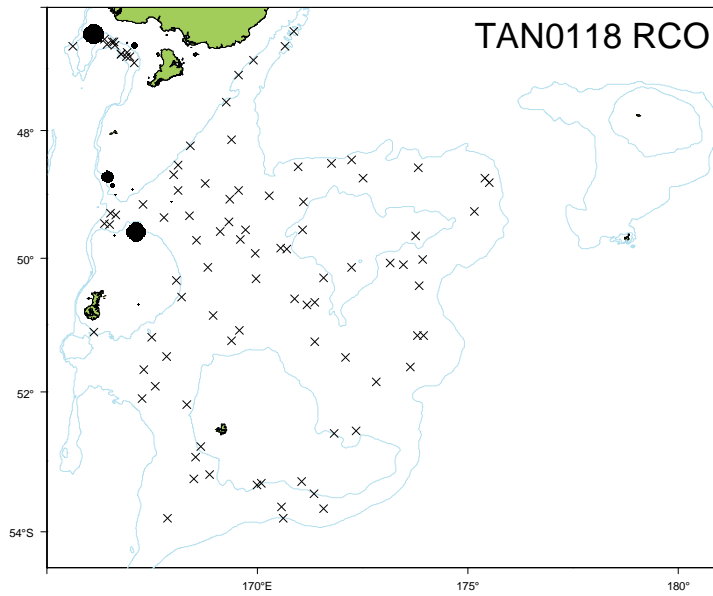
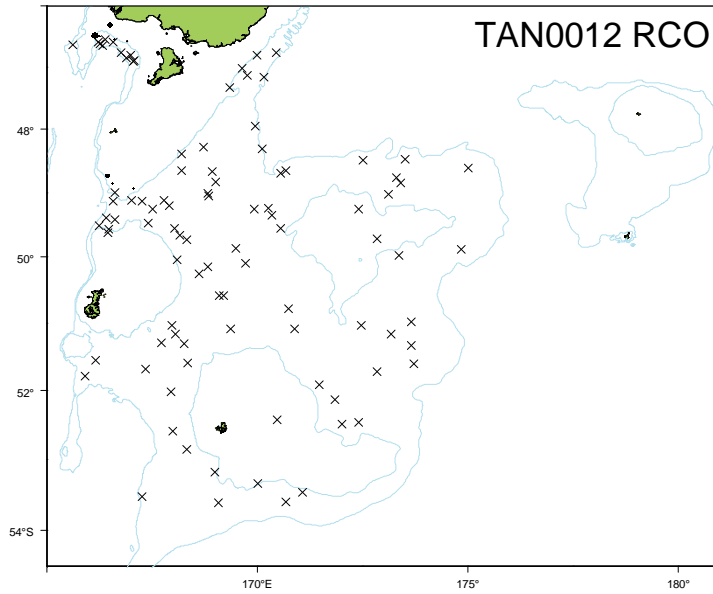
Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	103	51	NA	NA	NA	NA	NA	NA	103	51
TAN9211	72	43	NA	NA	NA	NA	9	100	81	40
TAN9310	253	62	NA	NA	NA	NA	0	0	253	62
TAN0012	38	43	0	0	0	0	NA	NA	38	43
TAN0118	1018	80	0	0	0	0	NA	NA	1018	80
TAN0219	60	36	0	0	0	0	NA	NA	60	36
TAN0317	140	49	0	0	NA	NA	NA	NA	140	49
TAN0414	2765	97	0	0	NA	NA	NA	NA	2765	97
TAN0515	179	49	0	0	0	0	NA	NA	179	49
TAN0617	72	50	0	0	NA	NA	NA	NA	72	50
TAN0714	585	86	0	0	0	0	NA	NA	585	86
TAN0813	332	58	0	0	0	0	NA	NA	332	58
TAN0911	23	48	0	0	0	0	NA	NA	23	48

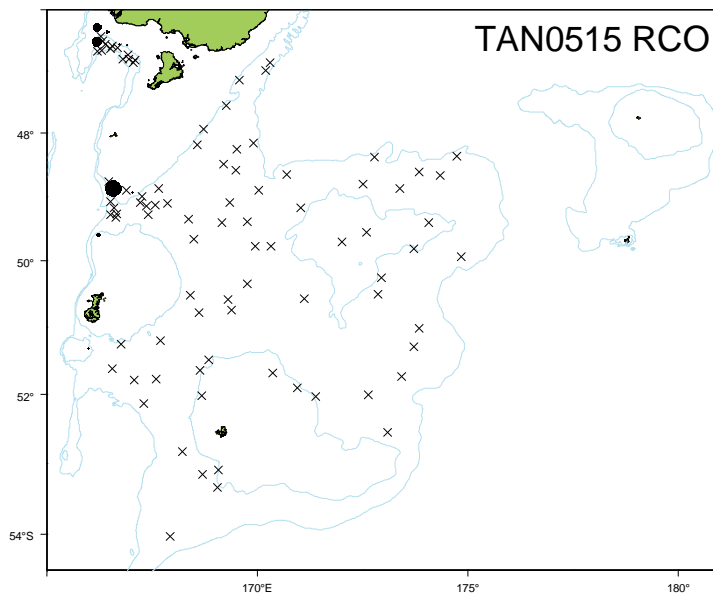
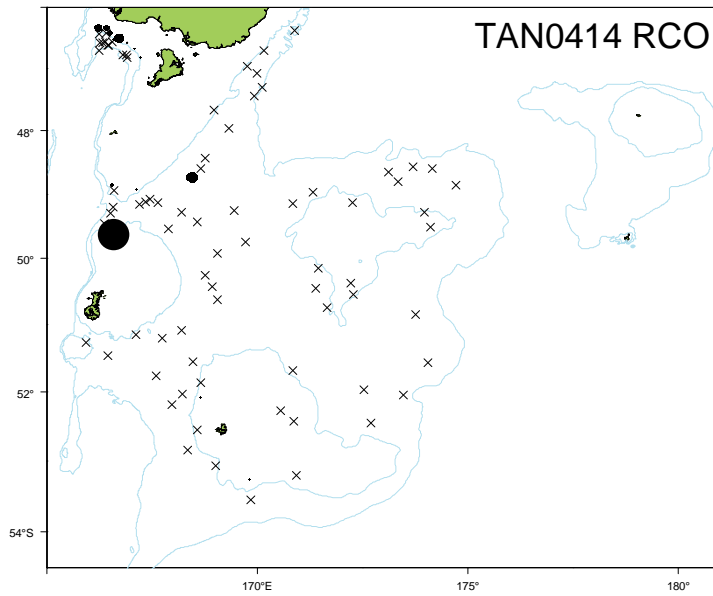
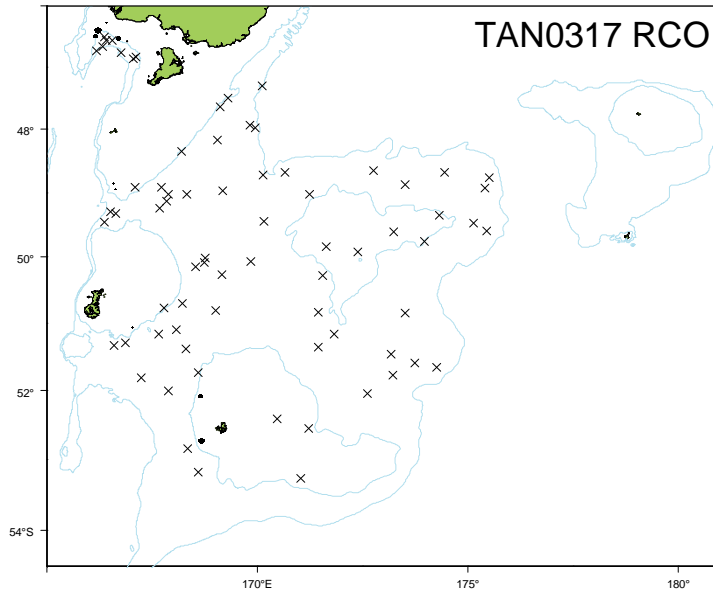
Trends in relative biomass estimates (± 2 standard errors) of *Pseudophycis bachus* for core strata (above) and all strata (below).

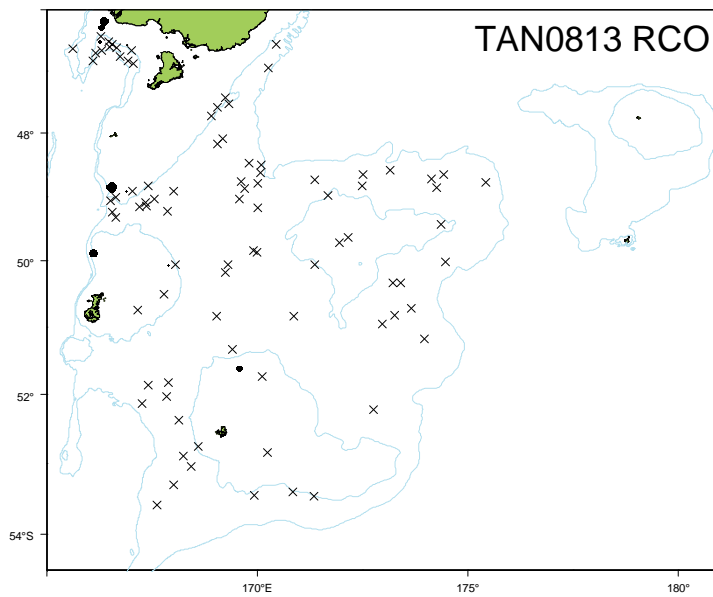
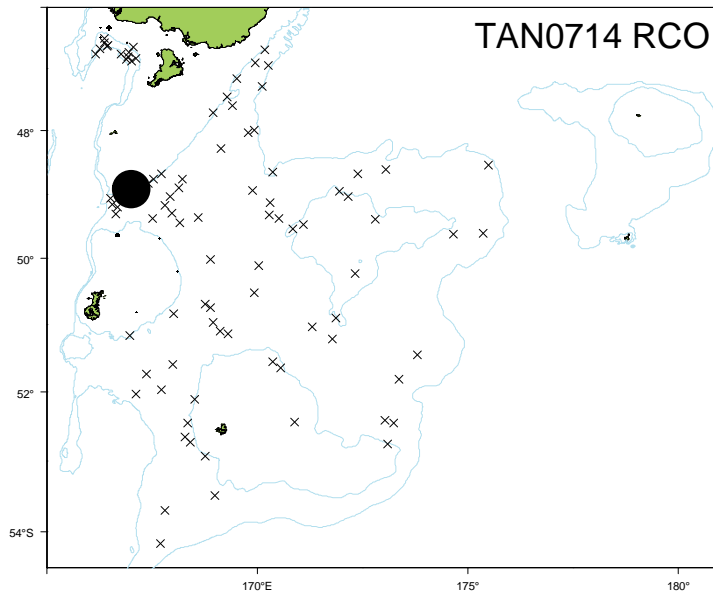
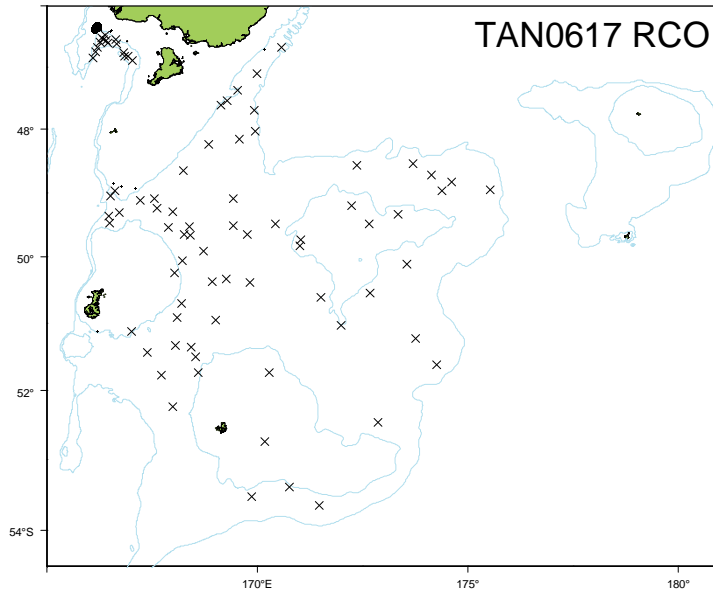


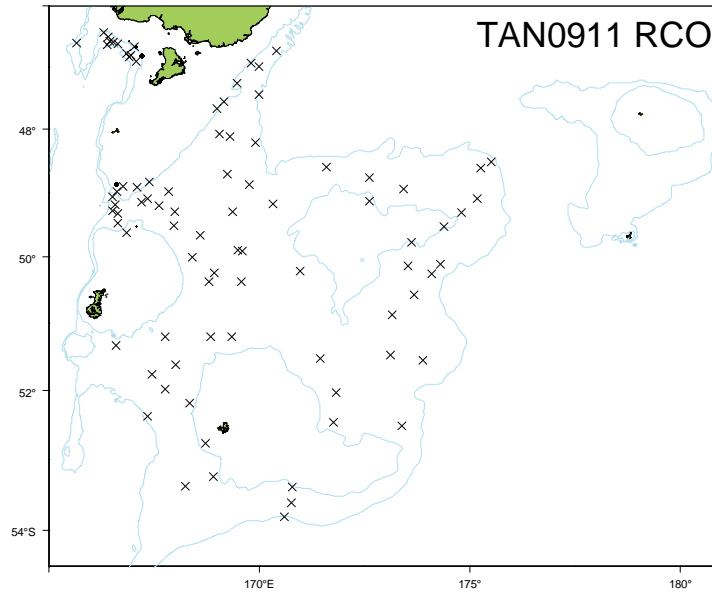
Catchrates of *Pseudophycis bachus*. Circle area is proportional to the maximum catchrate from all surveys (see Table 5).







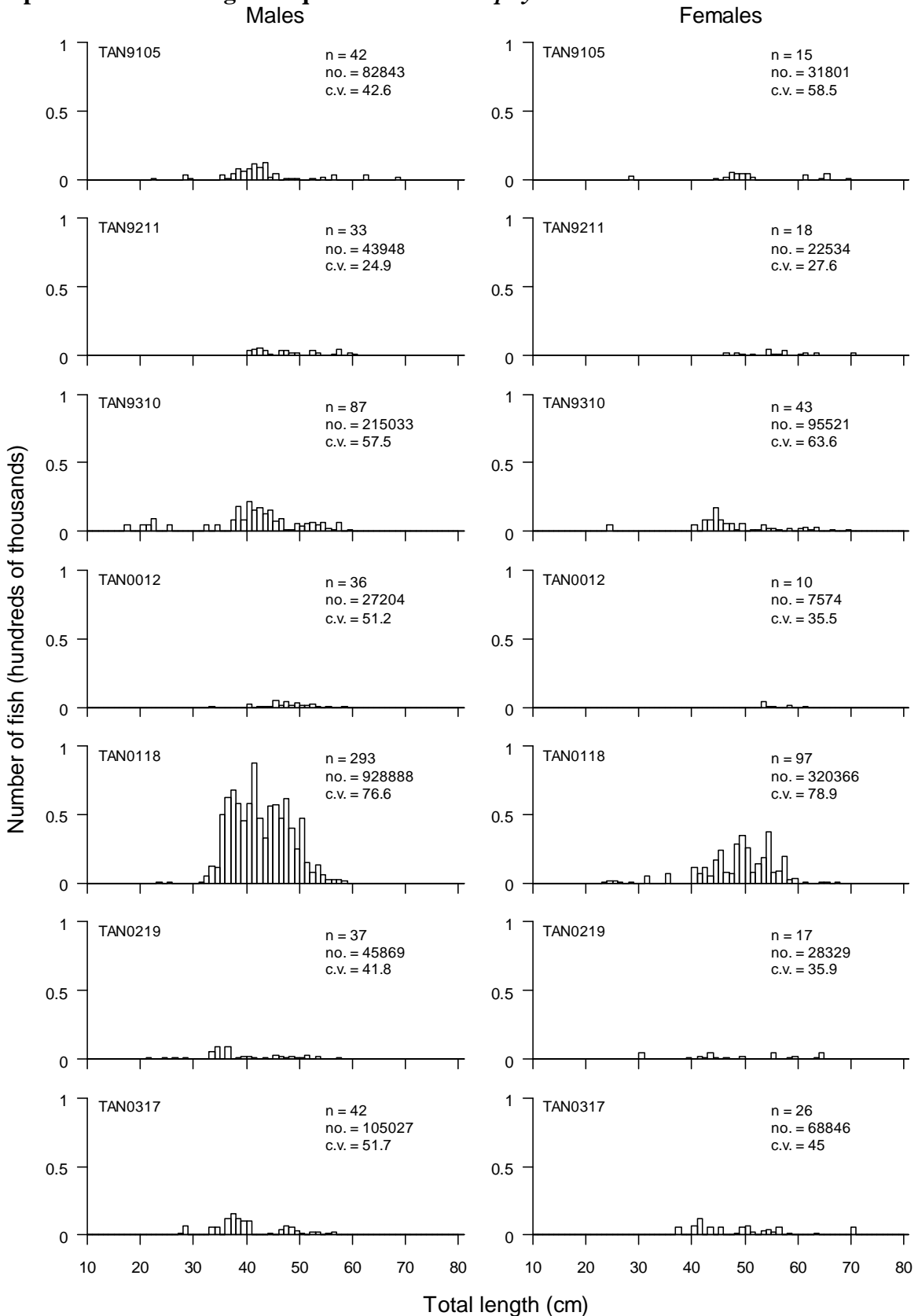


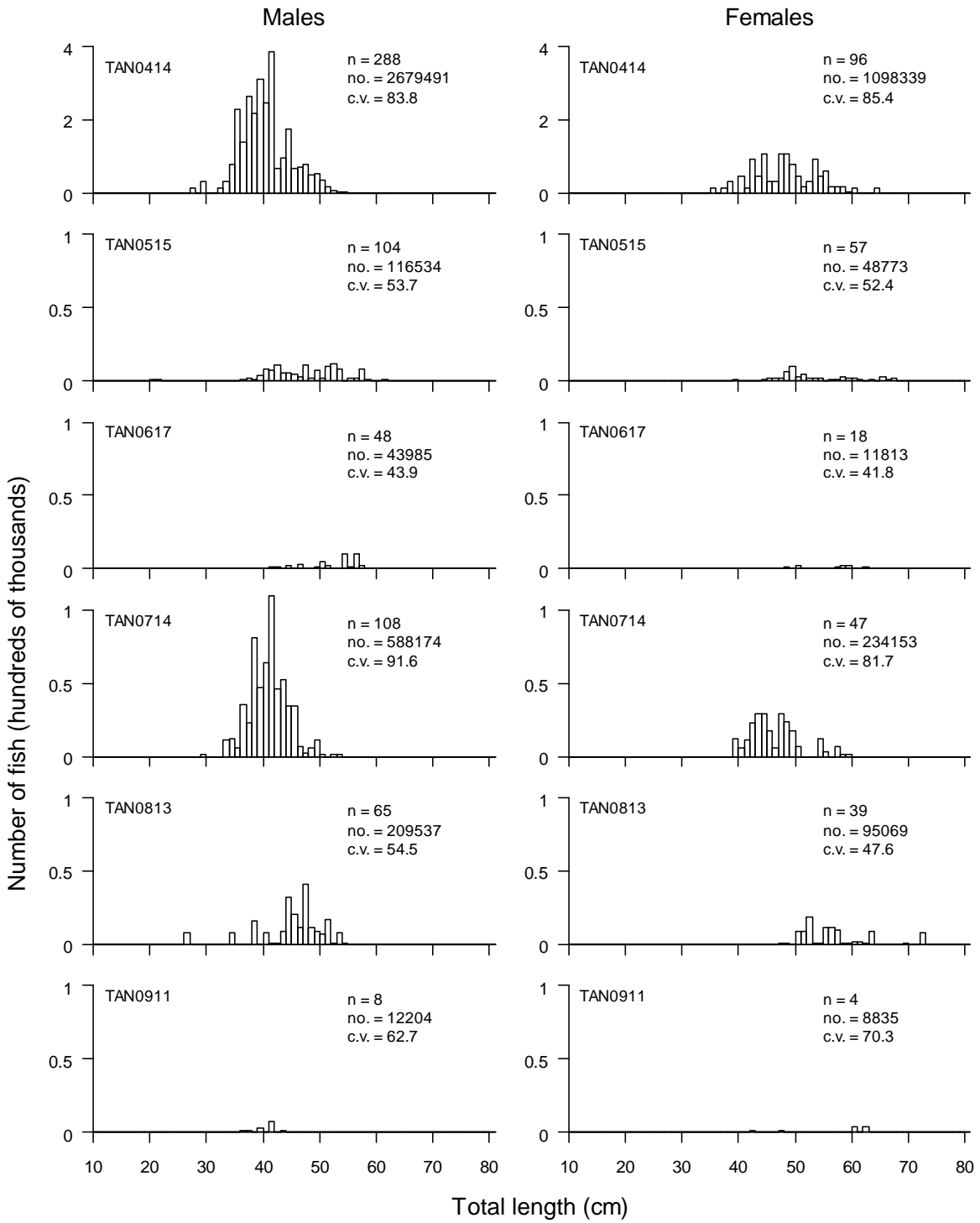


Length summaries

Survey	Minimum length (cm)	Maximum length (cm)	Mean length (cm)	Number measured
TAN9105	22	69	44.8	57
TAN9211	40	70	51.5	51
TAN9310	17	69	46.6	133
TAN0012	33	61	48.8	46
TAN0118	23	67	45.5	391
TAN0219	21	64	44.3	54
TAN0317	27	70	46.4	68
TAN0414	19	64	43.7	384
TAN0515	20	67	47.5	161
TAN0617	34	63	51.1	66
TAN0714	29	59	42.7	163
TAN0813	26	72	49.9	104
TAN0911	36	62	43.7	12

Population scaled length frequencies of *Pseudophycis bachus* for all strata.





Gonad stage summaries by sex for *Pseudophycis bachus*. Percentage at each stage using the MD staging method.

Survey	M1	M2	M3	M4	M5	M6	M7	F1	F2	F3	F4	F5	F6	F7
TAN9105	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9211	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0012	0	0	67	33	0	0	0	0	0	100	0	0	0	0
TAN0118	1	10	11	62	4	9	4	10	13	30	13	0	0	35
TAN0219	NA	NA	NA	NA	NA	NA	NA	0	0	100	0	0	0	0
TAN0317	0	18	5	18	18	41	0	0	29	29	21	0	7	14
TAN0414	1	7	13	37	5	37	1	6	15	39	37	0	1	1
TAN0515	0	0	0	36	41	23	0	0	0	5	26	0	53	16
TAN0617	0	0	23	67	10	0	0	0	11	28	17	0	22	22
TAN0714	0	30	21	40	6	3	0	0	24	35	35	2	4	0
TAN0813	0	9	20	34	14	23	0	0	16	32	35	3	8	5
TAN0911	0	0	29	71	0	0	0	0	0	100	0	0	0	0
ALL	1	11	16	46	8	17	1	4	15	33	27	1	7	13



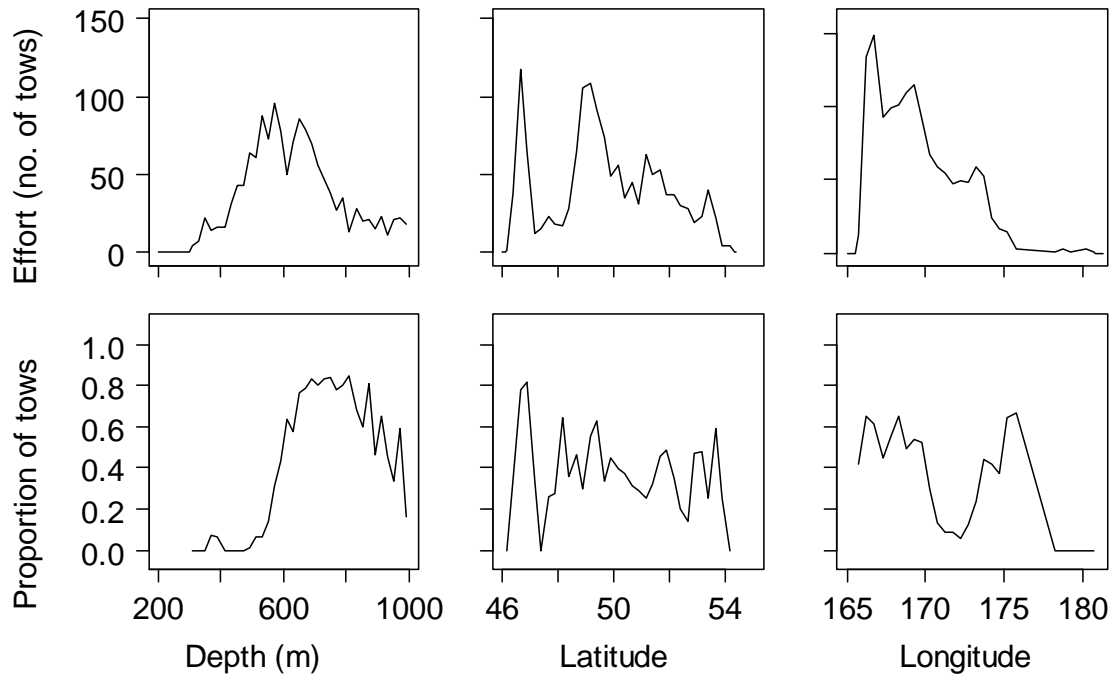
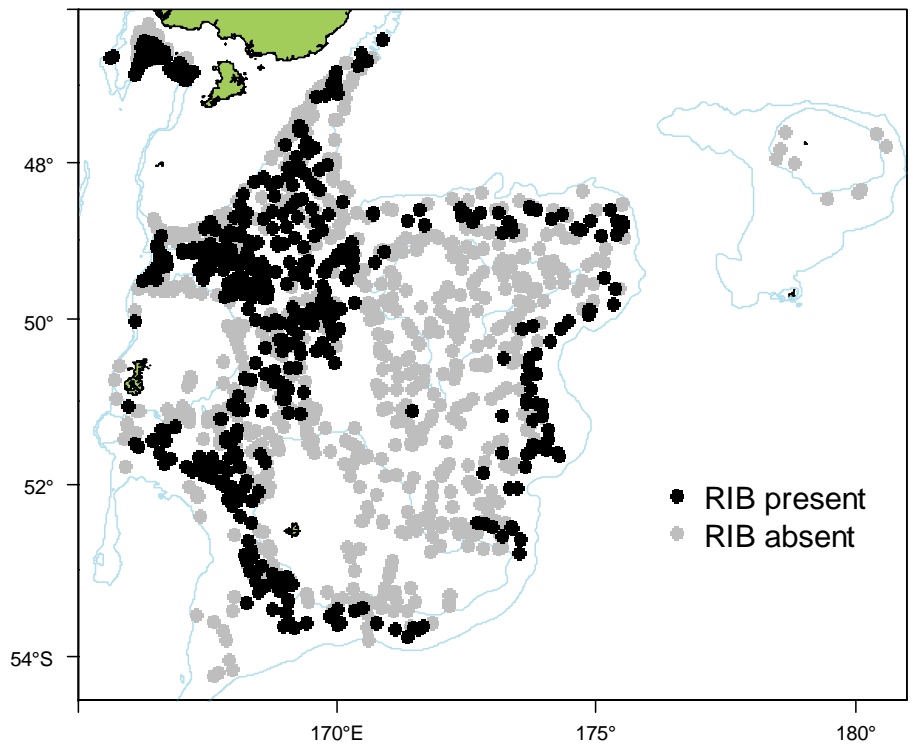
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	6 239.6
Number measured	3 144
Length range (mean) (cm)	9–89 (53.6)
Number weighed	2 300
Length-weight parameters a, b (r^2)	0.0053089, 3.174810 (97.88)

This species has been **well** identified during the time series. It is found **deeper than 800 m**. The core survey area and depth range **is** appropriate for this species. Distribution **does** extend to the areas deeper than 800 m surveyed from 2000 to 2009. It **is not** recorded from the Bounty Platform.

Biomass of this species is **very well** estimated by the core survey. Biomass **shows no clear trend** since the start of the time series. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **poorly** estimated. Catch rates are highest in the **northwest** at Puysegur.

Length frequencies **have multiple modes which may contain information about year-class strength**. Mean length has **decreased** since the start of the time series. Gonad stage data indicate that most fish are **resting**.

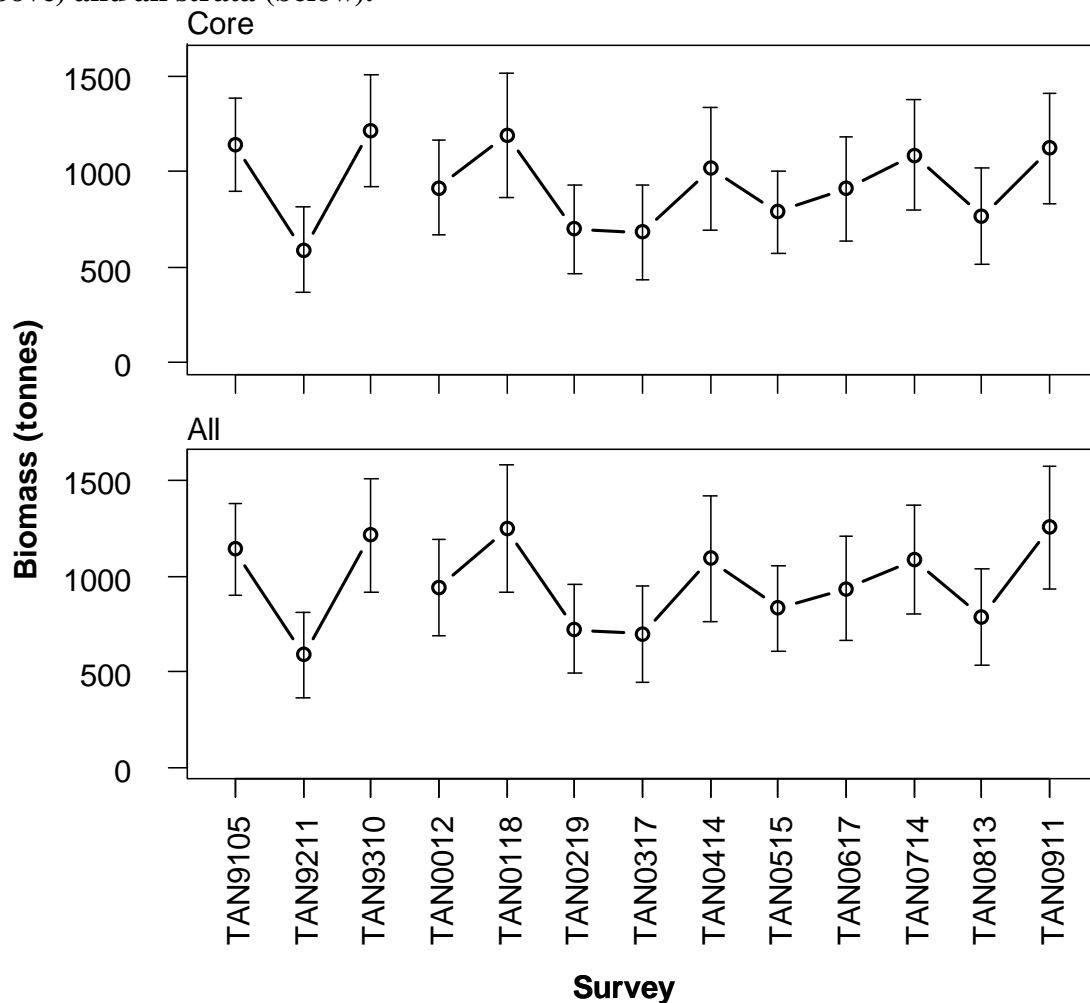
Distribution of *Mora moro* from all summer surveys. Valid biomass stations only.



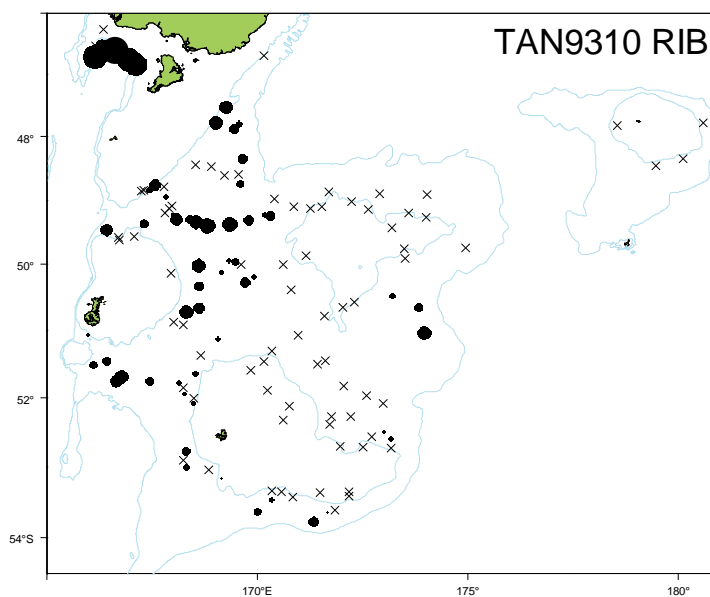
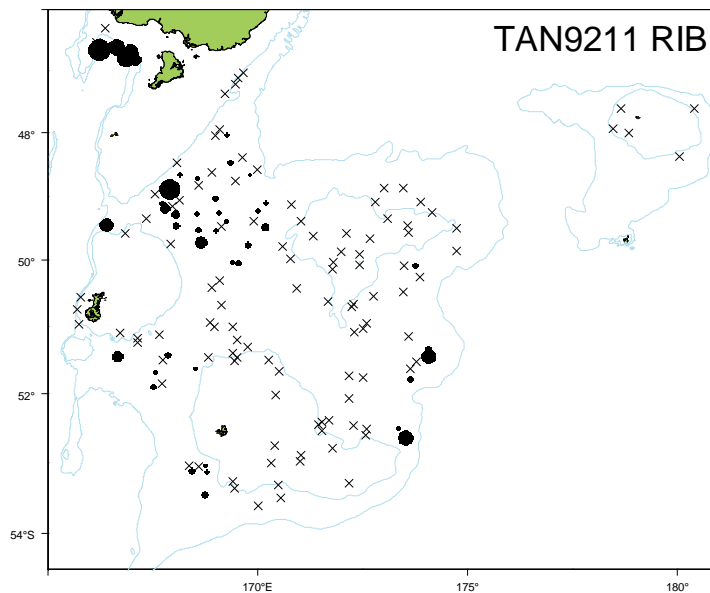
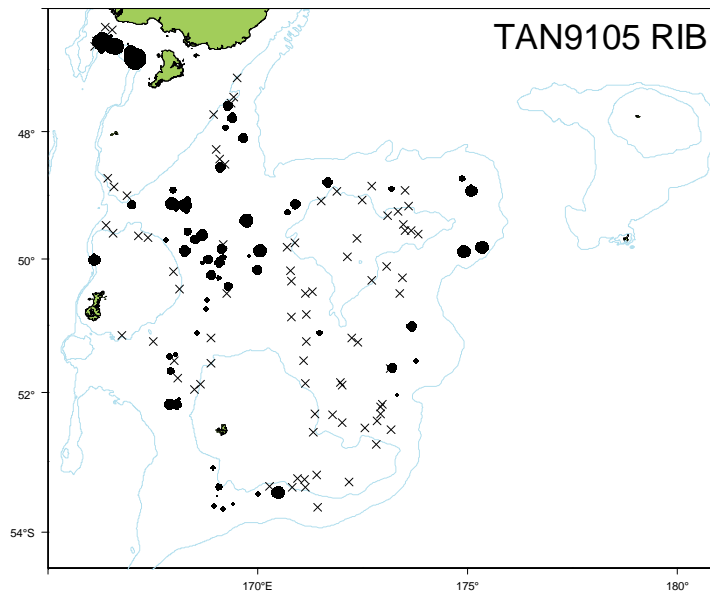
Relative biomass estimates (t) and c.v.s (%) of *Mora moro* for core strata, strata outside the core area and all strata.

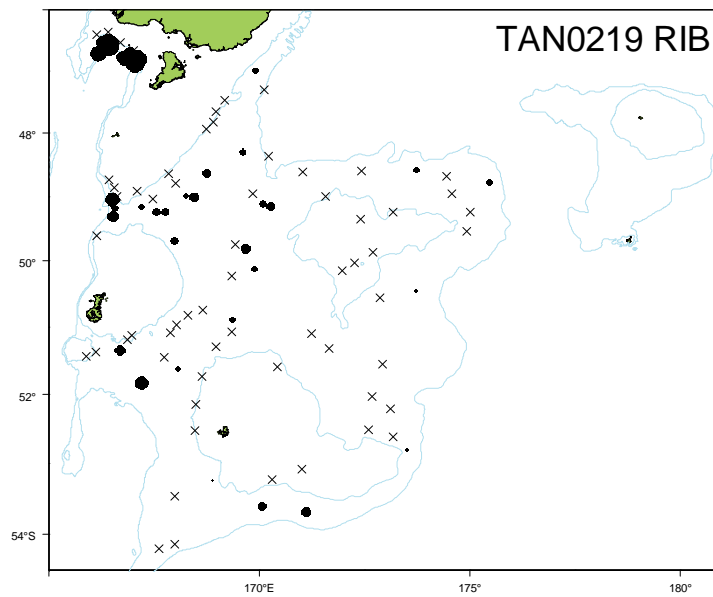
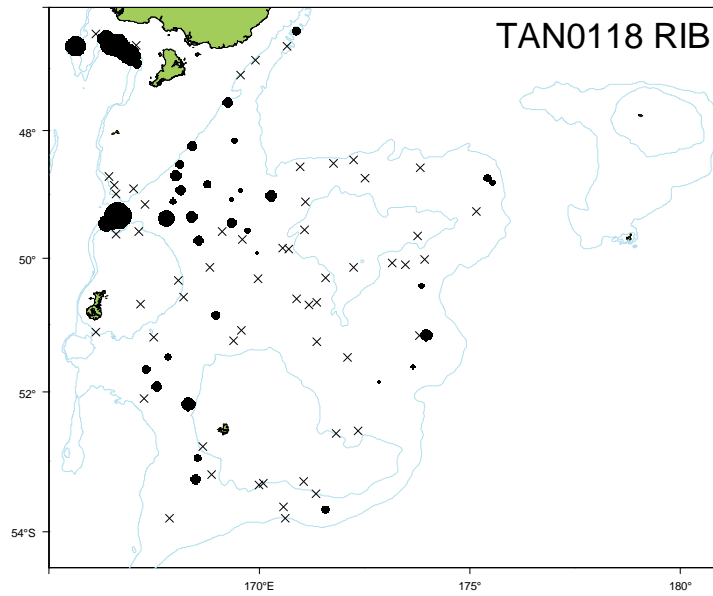
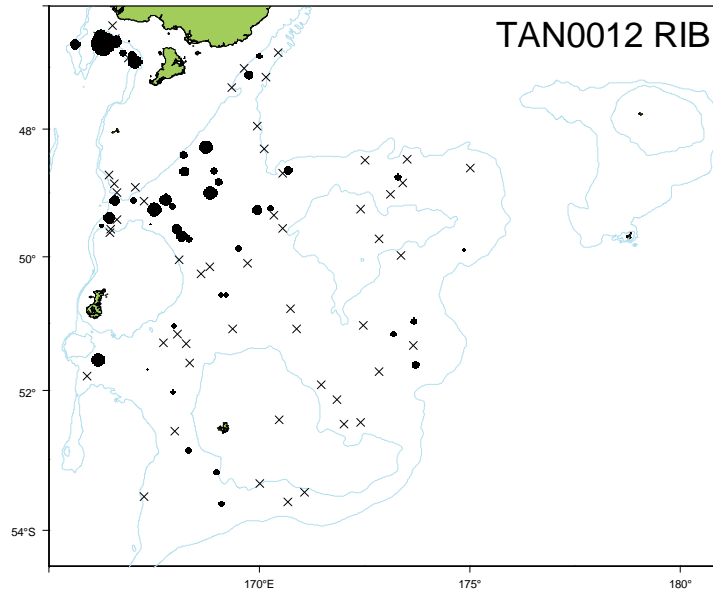
Survey	Core biomass	Core (c.v.)	Strata		Stratum		Stratum		Total biomass	Total (c.v.)
			27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	1140	11	NA	NA	NA	NA	NA	NA	1140	11
TAN9211	589	19	NA	NA	NA	NA	0	0	589	19
TAN9310	1213	12	NA	NA	NA	NA	0	0	1213	12
TAN0012	914	14	24	100	0	0	NA	NA	938	13
TAN0118	1188	14	61	45	0	0	NA	NA	1250	13
TAN0219	697	17	25	62	0	0	NA	NA	722	16
TAN0317	681	18	14	70	NA	NA	NA	NA	696	18
TAN0414	1015	16	77	53	NA	NA	NA	NA	1091	15
TAN0515	789	14	44	66	0	0	NA	NA	833	13
TAN0617	909	15	28	71	NA	NA	NA	NA	936	14
TAN0714	1086	13	0	0	0	0	NA	NA	1086	13
TAN0813	765	16	22	57	0	0	NA	NA	786	16
TAN0911	1120	13	90	67	45	100	NA	NA	1255	13

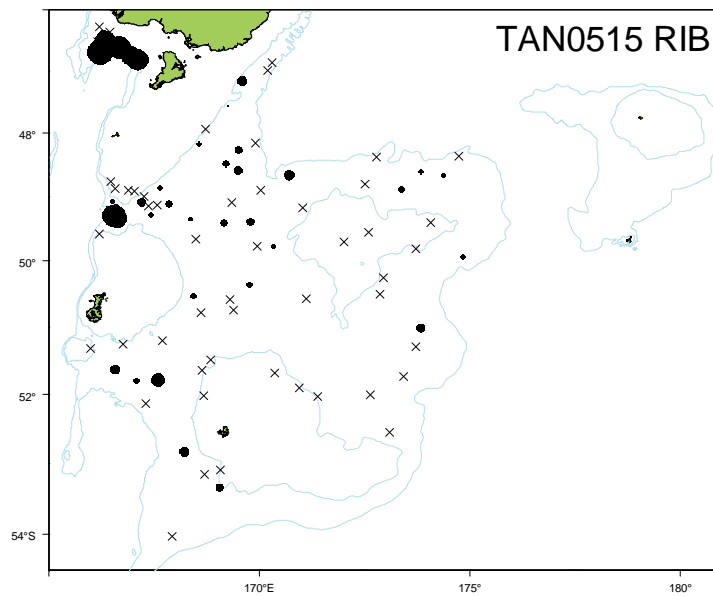
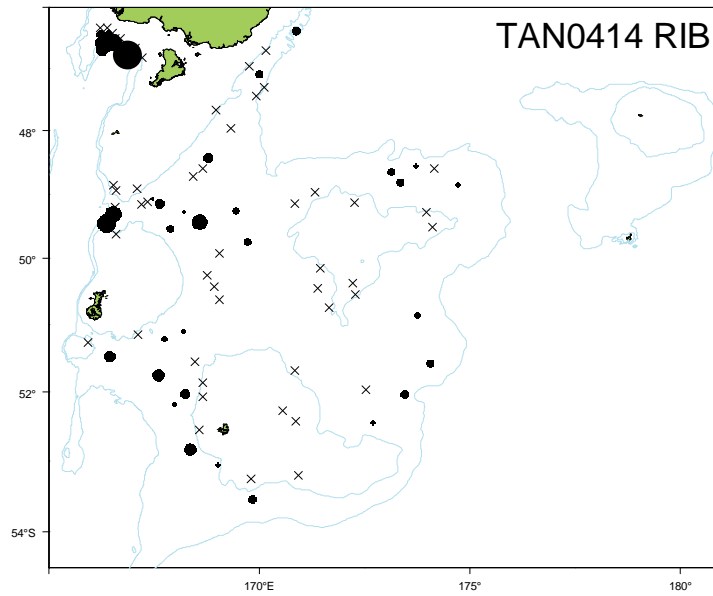
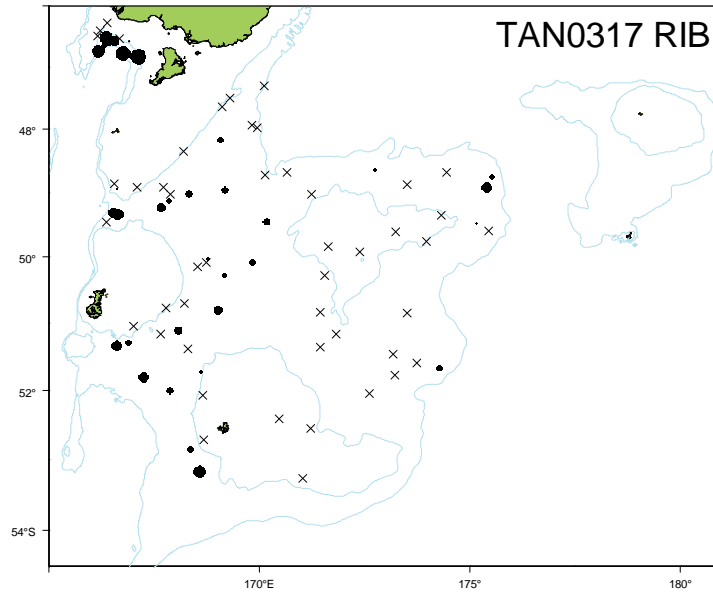
Trends in relative biomass estimates (± 2 standard errors) of *Mora moro* for core strata (above) and all strata (below).

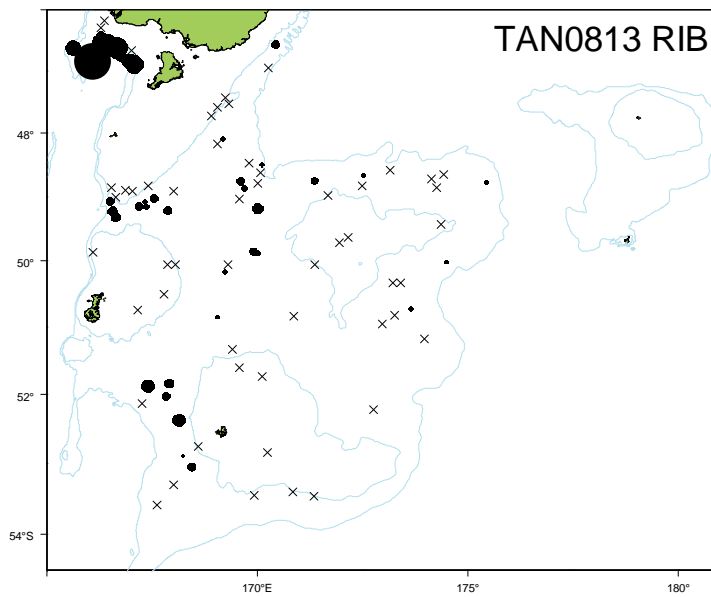
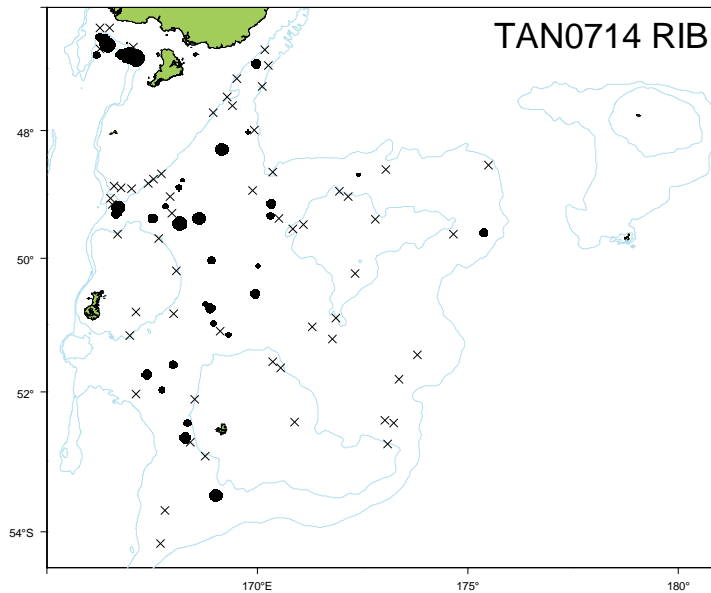
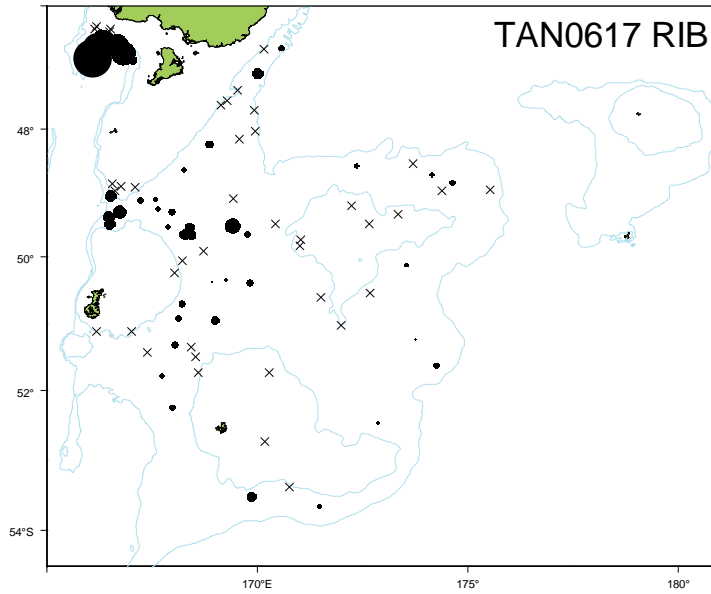


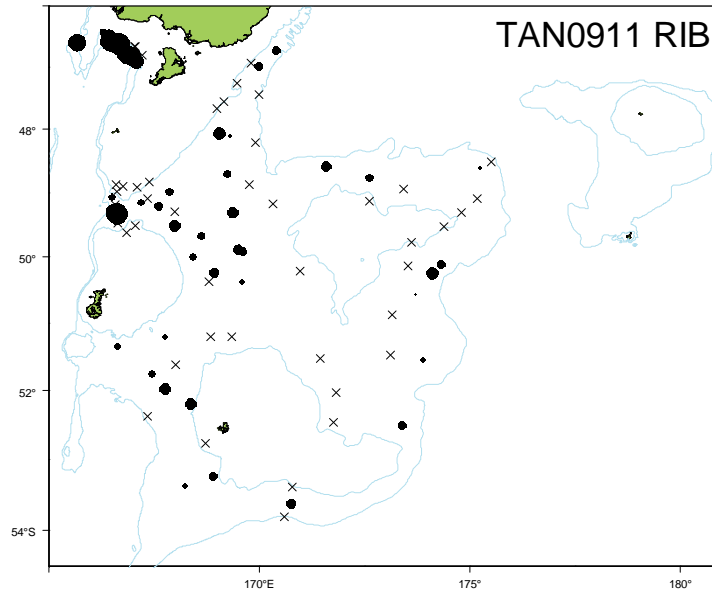
Catchrates of *Mora moro*. Circle area is proportional to the maximum catchrate from all surveys (see Table 5).







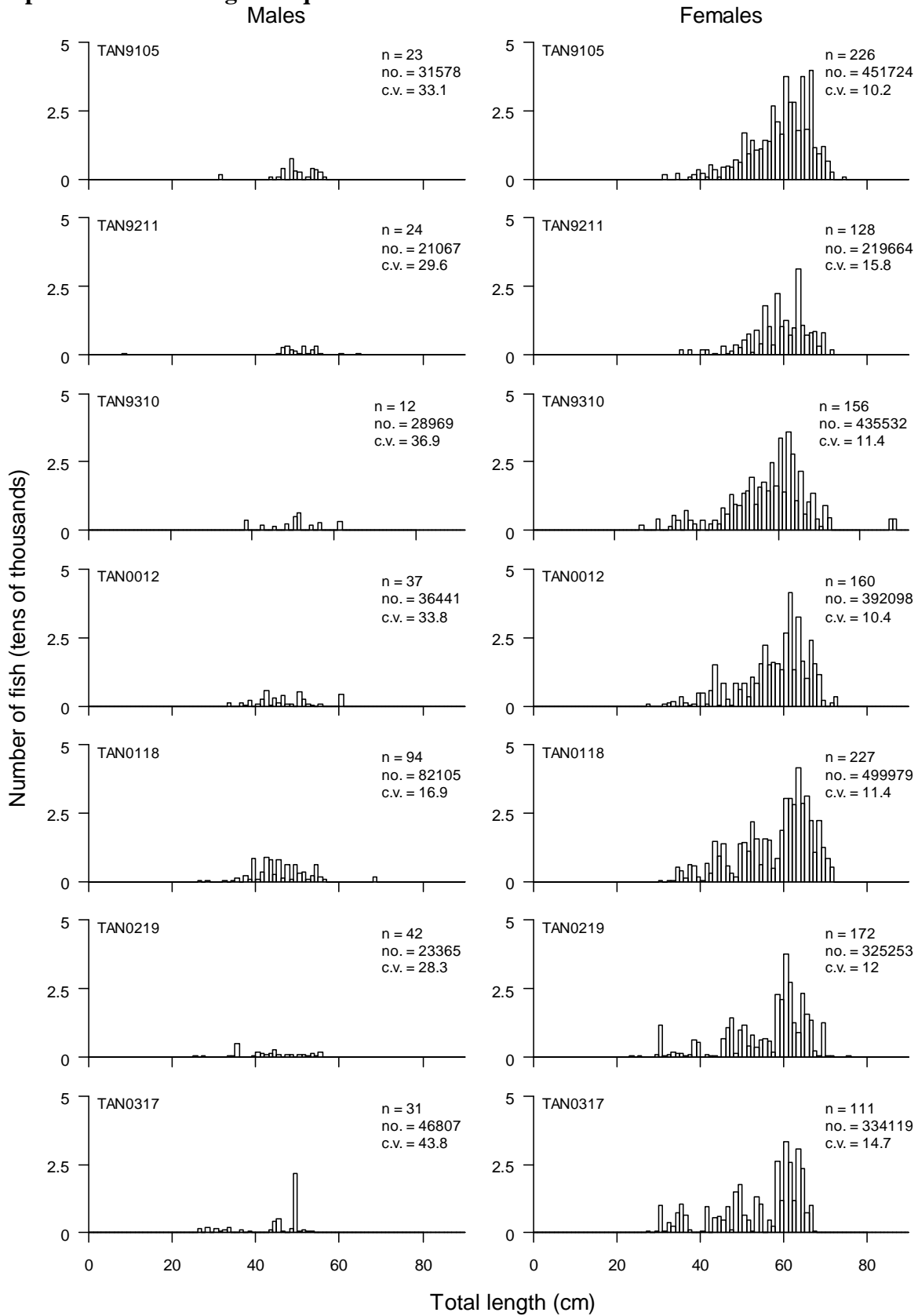


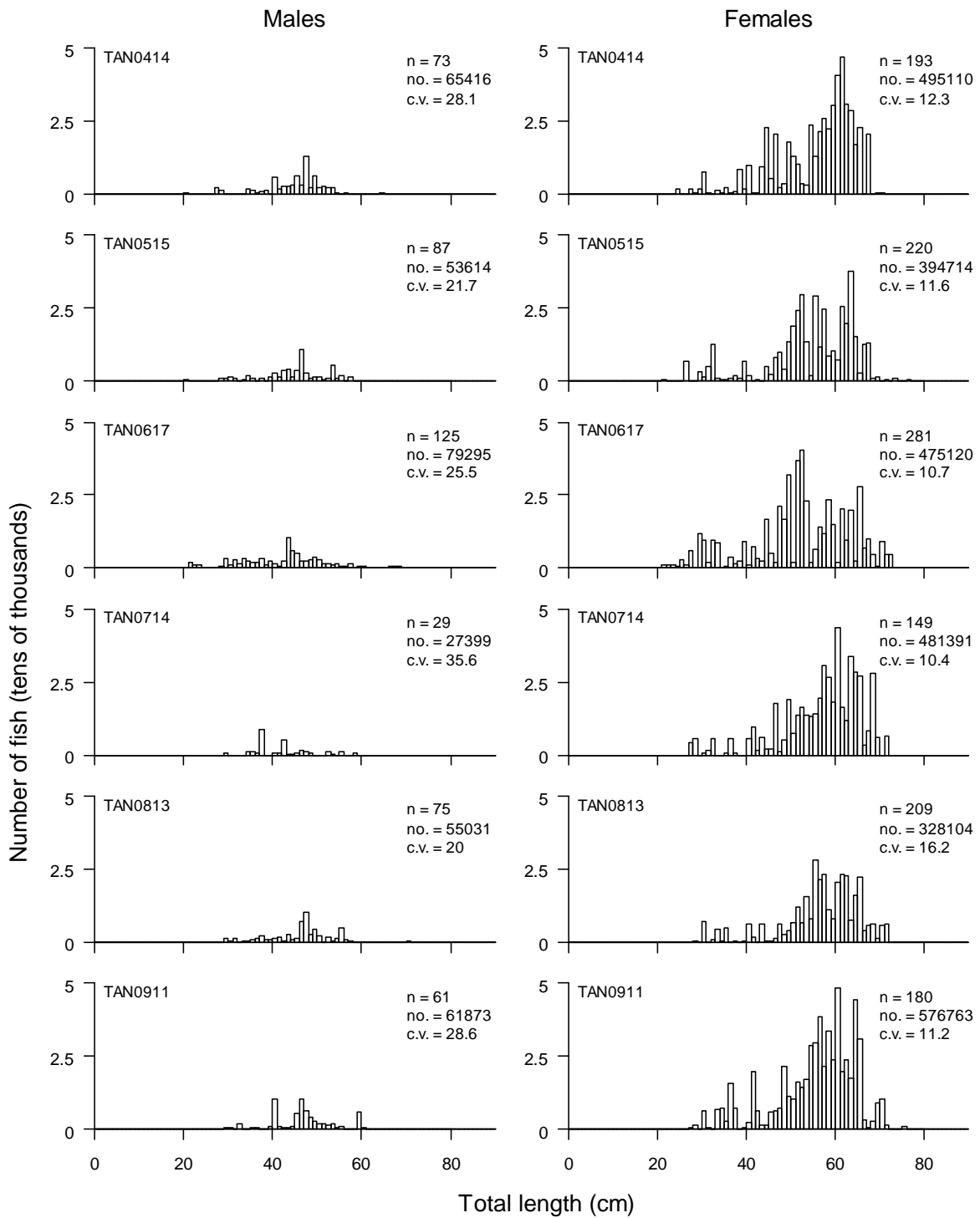


Length summaries

Survey	Minimum length (cm)	Maximum length (cm)	Mean length (cm)	Number measured
TAN9105	32	75	57.7	249
TAN9211	9	72	57.9	153
TAN9310	27	89	57.6	168
TAN0012	28	73	54.6	197
TAN0118	27	72	53.4	321
TAN0219	24	76	53.1	214
TAN0317	27	68	49.0	142
TAN0414	11	71	50.5	267
TAN0515	21	77	51.2	308
TAN0617	22	73	50.3	410
TAN0714	28	72	52.8	178
TAN0813	29	72	54.2	284
TAN0911	28	76	53.6	241

Population scaled length frequencies of *Mora moro* for all strata.





Gonad stage summaries by sex for *Mora moro*. Percentage at each stage using the MD staging method.

Survey	M1	M2	M3	M4	M5	M6	M7	F1	F2	F3	F4	F5	F6	F7
TAN9105	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9211	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0012	3	67	0	0	0	0	31	8	64	1	0	0	1	27
TAN0118	0	100	0	0	0	0	0	12	81	0	0	0	0	7
TAN0219	0	100	0	0	0	0	0	5	82	0	0	0	0	14
TAN0317	29	64	0	0	0	0	7	16	59	0	0	0	1	23
TAN0414	14	86	0	0	0	0	0	11	82	0	0	0	0	7
TAN0515	24	72	4	0	0	0	0	10	87	0	0	0	0	3
TAN0617	17	75	8	0	0	0	0	12	85	0	0	0	0	2
TAN0714	17	79	3	0	0	0	0	7	85	4	0	0	1	3
TAN0813	13	31	51	0	0	0	4	5	90	2	0	0	0	2
TAN0911	15	65	3	3	0	0	15	8	81	1	1	0	0	9
ALL	15	70	10	0	0	0	5	9	81	1	0	0	0	8



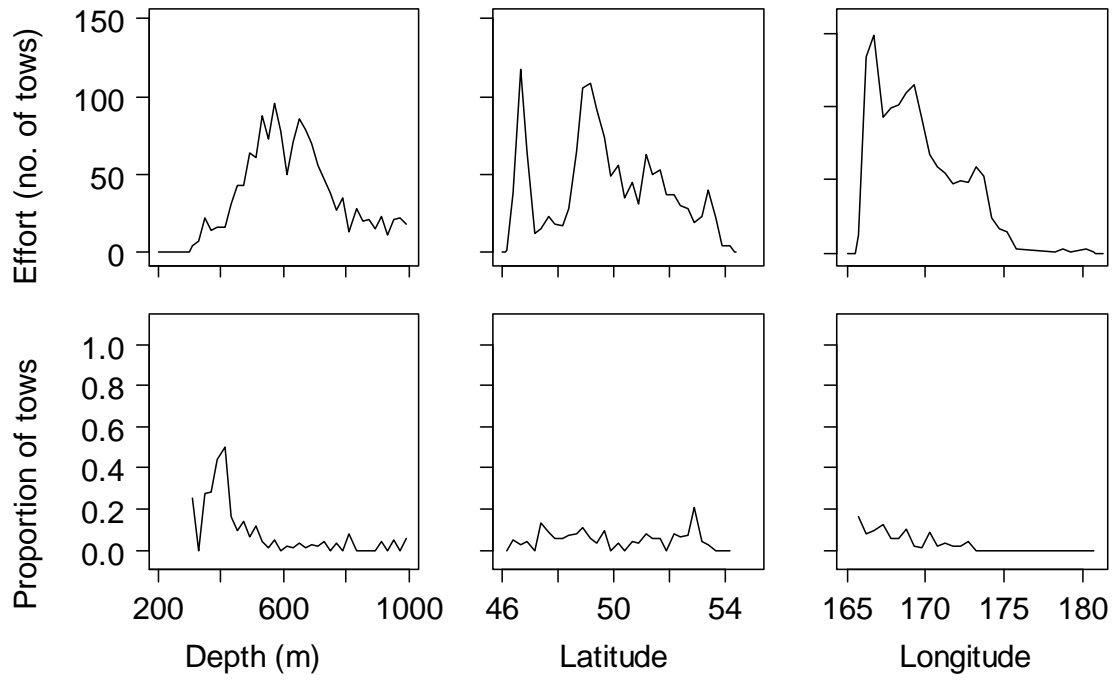
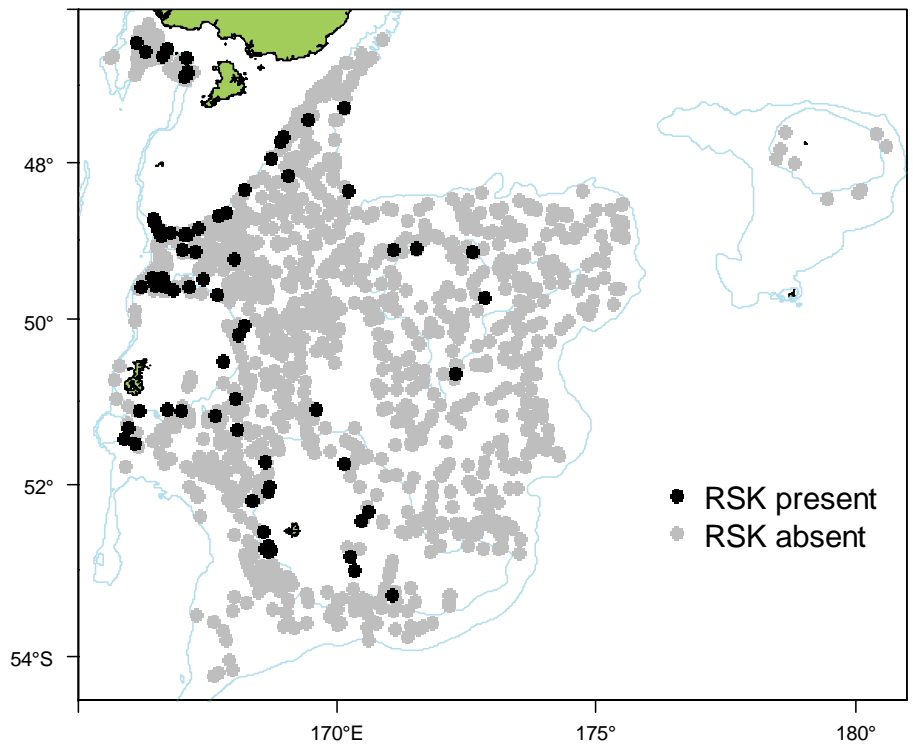
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	408.1
Number measured	88
Length range (mean) (cm)	31–70 (50.3)
Number weighed	86
Length-weight parameters a, b (r^2)	–

This species has been **well** identified during the time series. It is found **shallower than 300 m**. The core survey area and depth range **is** appropriate for this species. Distribution **does** extend to the areas deeper than 800 m surveyed from 2000 to 2009. It **is not** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey. Biomass **shows no clear trend** since the start of the time series. Catches are highest in shallower depths throughout the survey area, except the Bounty Platform.

There is no length data presented. Gonad stage data from a few specimens indicate that most fish are **immature to maturing**.

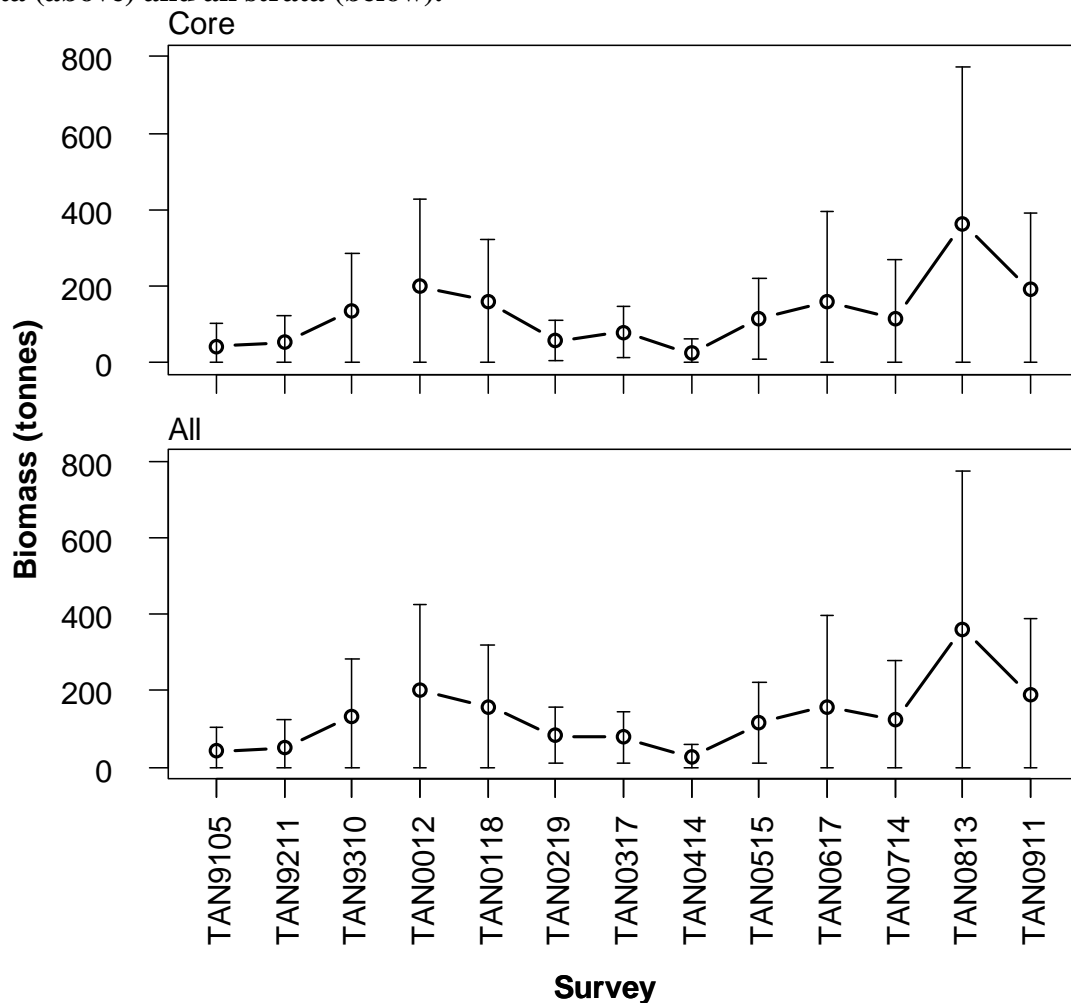
Distribution of *Zearaja nasuta* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Zearaja nasuta* for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	42	73	NA	NA	NA	NA	NA	NA	42	73
TAN9211	52	69	NA	NA	NA	NA	0	0	52	69
TAN9310	133	57	NA	NA	NA	NA	0	0	133	57
TAN0012	201	56	0	0	0	0	NA	NA	201	56
TAN0118	158	51	0	0	0	0	NA	NA	158	51
TAN0219	57	46	26	100	0	0	NA	NA	83	45
TAN0317	78	43	0	0	NA	NA	NA	NA	78	43
TAN0414	25	72	0	0	NA	NA	NA	NA	25	72
TAN0515	116	46	0	0	0	0	NA	NA	116	46
TAN0617	159	74	0	0	NA	NA	NA	NA	159	74
TAN0714	115	67	8	100	0	0	NA	NA	123	64
TAN0813	362	57	0	0	0	0	NA	NA	362	57
TAN0911	190	52	0	0	0	0	NA	NA	190	52

Trends in relative biomass estimates (± 2 standard errors) of *Zearaja nasuta* for core strata (above) and all strata (below).



Gonad stage summaries by sex for *Zearaja nasuta*. Percentage at each stage using the SS staging method.

Survey	M1	M2	M3	F1	F2	F3	F4	F5	F6
TAN9105	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9211	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9310	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0012	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0118	NA	NA	NA	100	0	0	0	0	0
TAN0219	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0317	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0414	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0515	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0617	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0714	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0813	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0911	0	100	0	NA	NA	NA	NA	NA	NA
ALL	0	100	0	100	0	0	0	0	0



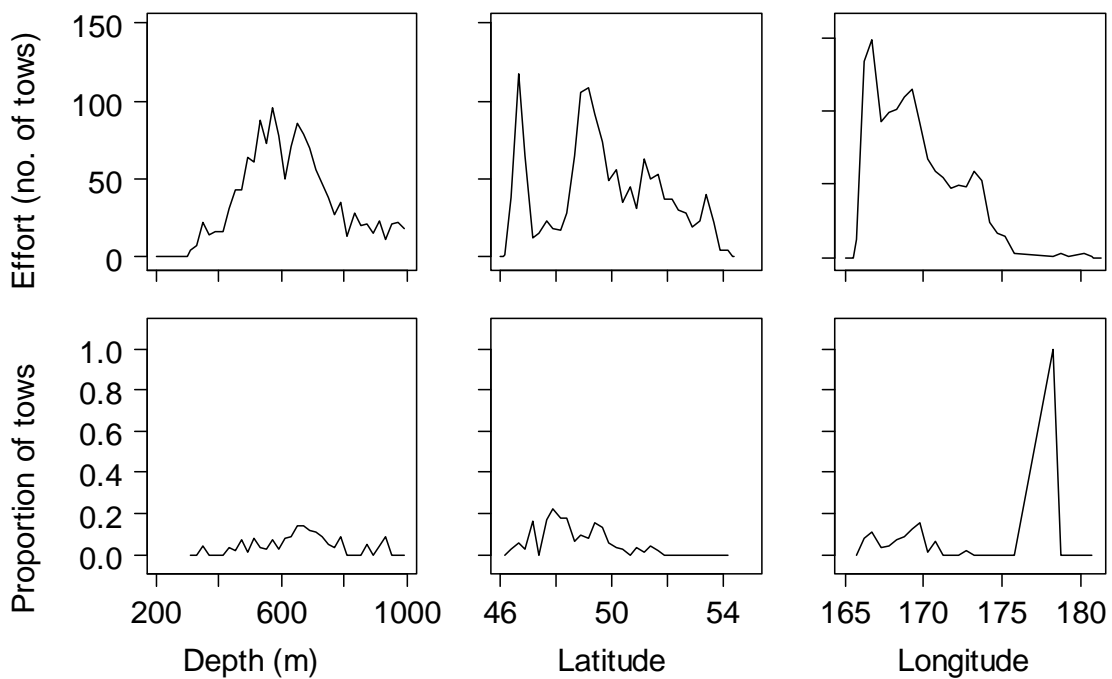
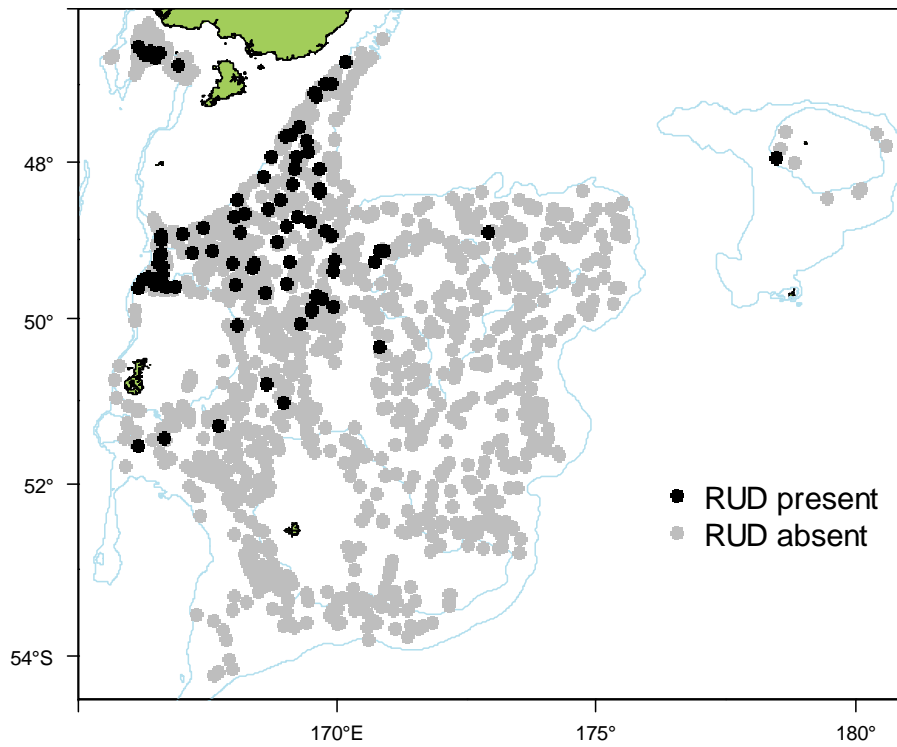
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	920.1
Number measured	25
Length range (mean) (cm)	53–100 (80.3)
Number weighed	22
Length-weight parameters a, b (r^2)	–

This species has been **well** identified during the time series. It is found **deeper than 800 m**. The core survey area and depth range **is** appropriate for this species. Distribution **does** extend to the areas deeper than 800 m surveyed from 2000 to 2009. It **is** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey. Biomass **shows no clear trend** since the start of the time series. Catches are highest in the **north** and **west** of the survey area.

There is no length data presented. Gonad stage data indicate that most fish are **immature to mature**.

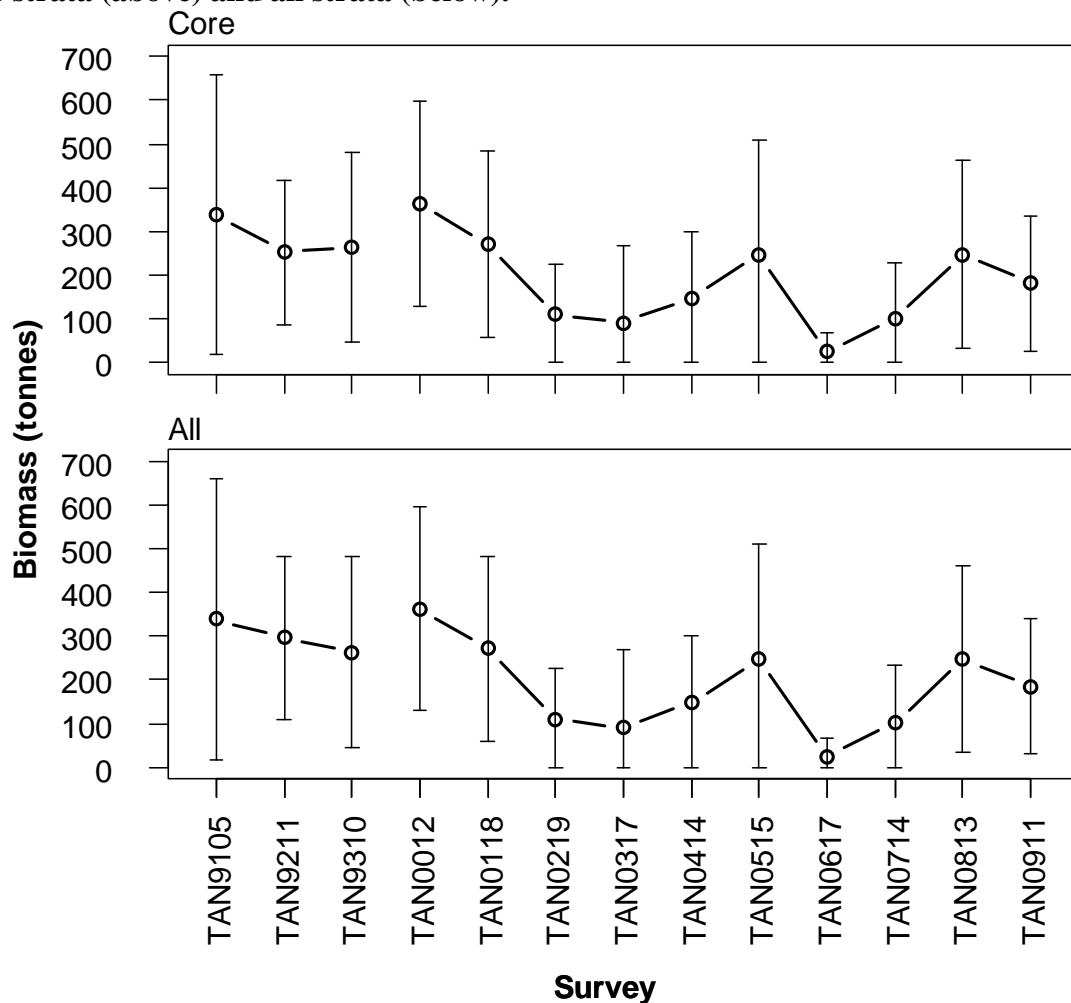
Distribution of *Centrolophus niger* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Centrolophus niger* for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	339	47	NA	NA	NA	NA	NA	NA	339	47
TAN9211	252	33	NA	NA	NA	NA	44	100	296	32
TAN9310	263	41	NA	NA	NA	NA	0	0	263	41
TAN0012	363	32	0	0	0	0	NA	NA	363	32
TAN0118	271	39	0	0	0	0	NA	NA	271	39
TAN0219	109	53	0	0	0	0	NA	NA	109	53
TAN0317	91	98	0	0	NA	NA	NA	NA	91	98
TAN0414	147	52	0	0	NA	NA	NA	NA	147	52
TAN0515	246	54	0	0	0	0	NA	NA	246	54
TAN0617	24	91	0	0	NA	NA	NA	NA	24	91
TAN0714	100	65	3	100	0	0	NA	NA	103	63
TAN0813	247	43	0	0	0	0	NA	NA	247	43
TAN0911	182	43	4	100	0	0	NA	NA	185	42

Trends in relative biomass estimates (± 2 standard errors) of *Centrolophus niger* for core strata (above) and all strata (below).



Gonad stage summaries by sex for *Centrolophus niger*. Percentage at each stage using the MD staging method.

Survey	M1	M2	M3	M4	M5	M6	M7	F1	F2	F3	F4	F5	F6	F7
TAN9105	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9211	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0118	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0219	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0317	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0414	NA	NA	NA	NA	NA	NA	NA	0	75	25	0	0	0	0
TAN0515	NA	NA	NA	NA	NA	NA	NA	0	0	100	0	0	0	0
TAN0617	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0714	NA	NA	NA	NA	NA	NA	NA	0	0	100	0	0	0	0
TAN0813	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0911	100	0	0	0	0	0	0	0	100	0	0	0	0	0
ALL	100	0	0	0	0	0	0	0	67	33	0	0	0	0

Salps

SAL



Coded as PYR

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):

5

Total catch weight (kg):

5 309.5

Coded as SAL

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):

10

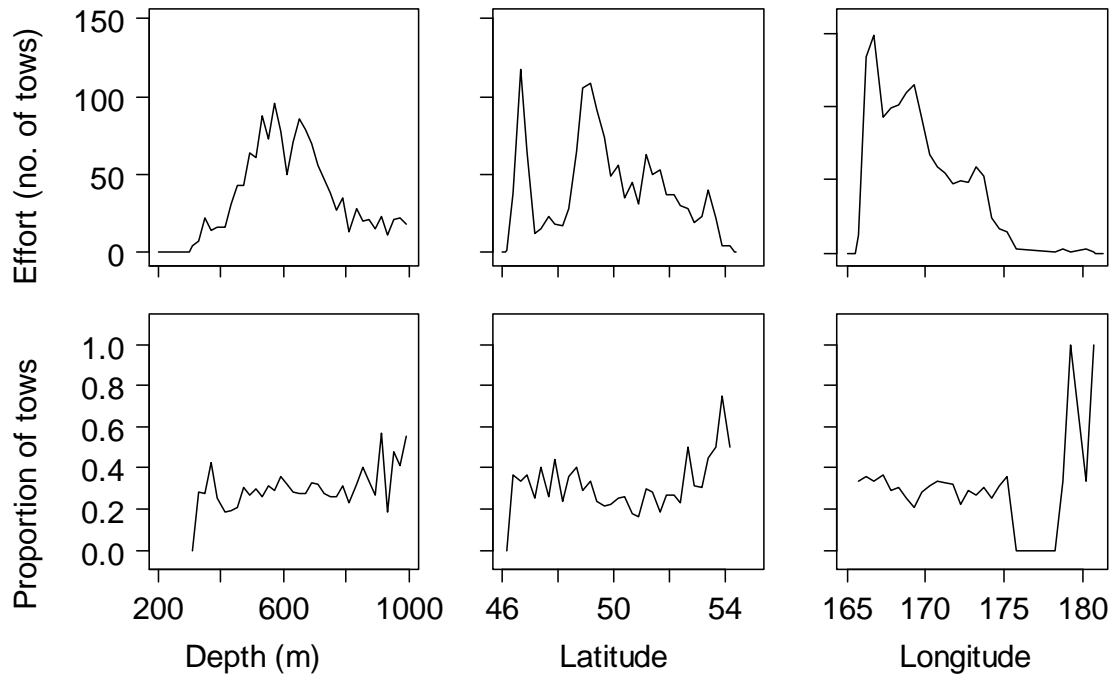
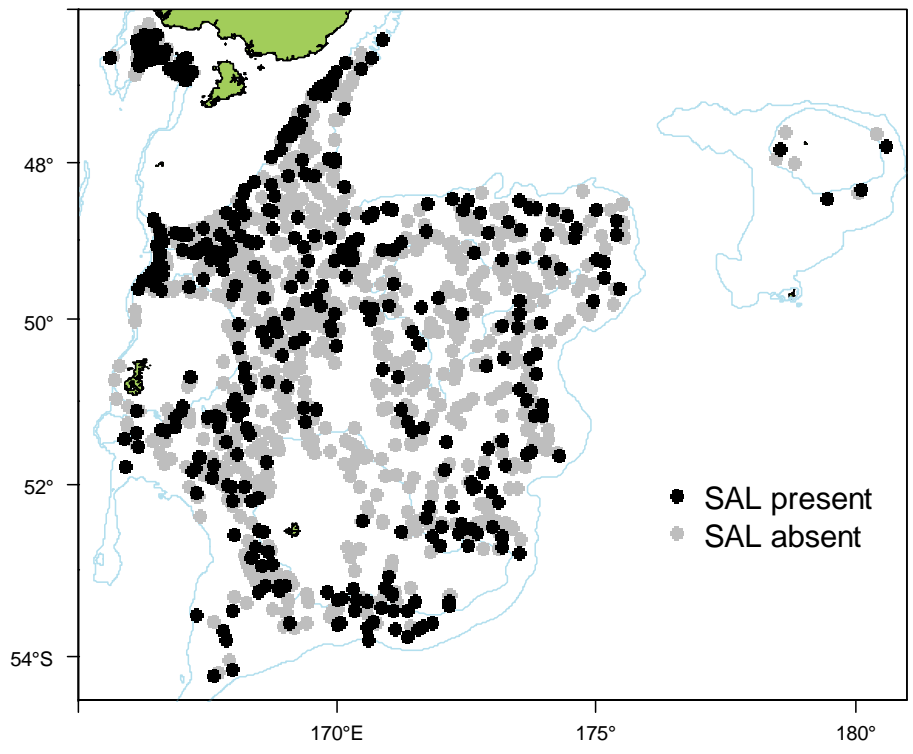
Total catch weight (kg):

772.2

This group **has not** been well identified during the time series, particularly on early surveys in 1991 and 1992. It is **pelagic**. Some members of this group are found **shallower than 300 m** and **deeper than 1000 m**. The core survey area and depth range **is** appropriate for this group. Distribution **extends** to strata deeper than 800 m surveyed from 2000 to 2009. It **is** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey from 1993. Biomass has **increased then decreased** since 1993. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **poorly** estimated.

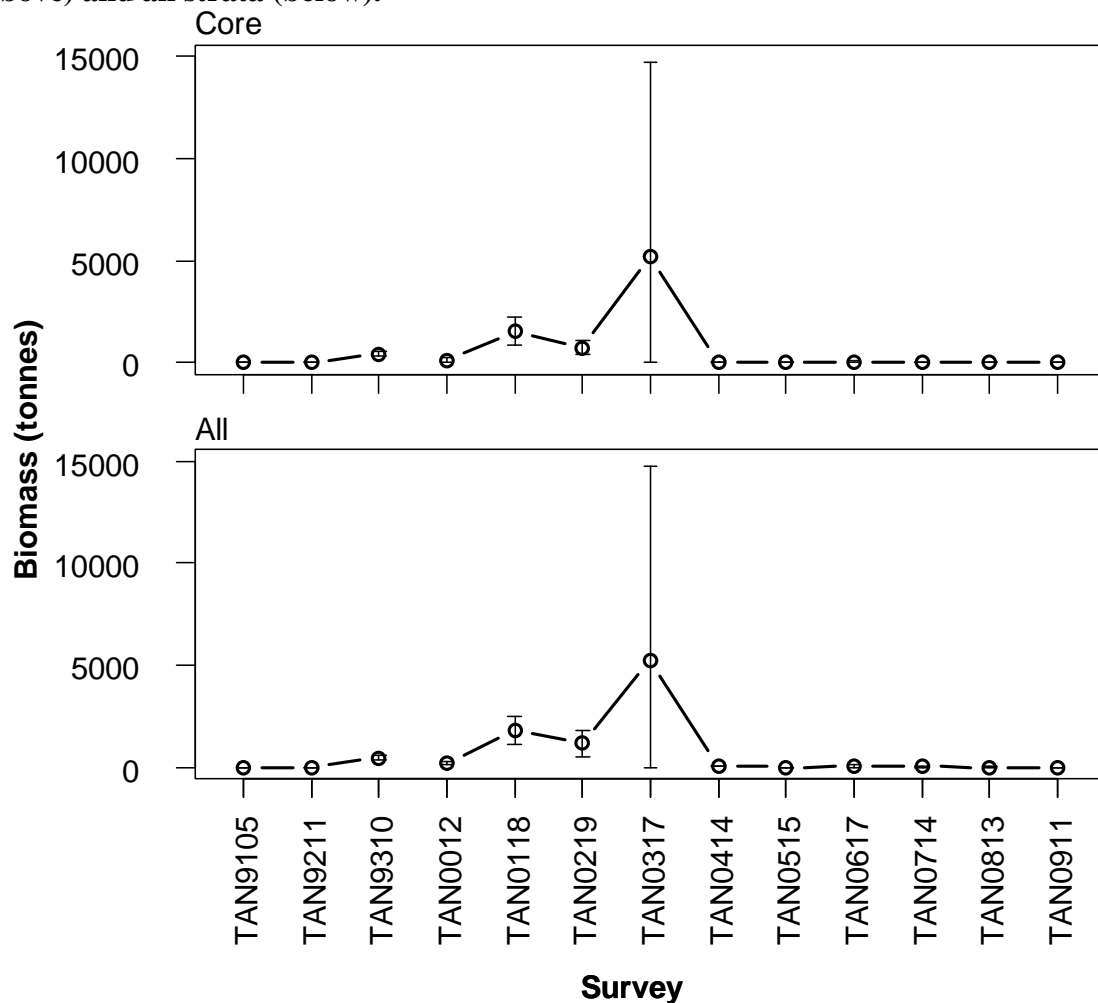
Distribution of Salps from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of Salps for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	0	NA	NA	NA	NA	NA	NA	NA	0	NA
TAN9211	0	NA	NA	NA	NA	NA	0	0	0	NA
TAN9310	405	13	NA	NA	NA	NA	58	31	463	12
TAN0012	124	33	29	37	66	31	NA	NA	218	22
TAN0118	1544	22	159	20	102	21	NA	NA	1806	19
TAN0219	731	22	27	54	415	70	NA	NA	1173	28
TAN0317	5211	93	58	43	NA	NA	NA	NA	5269	92
TAN0414	32	23	13	78	NA	NA	NA	NA	45	28
TAN0515	0	NA	0	0	0	0	NA	NA	0	NA
TAN0617	34	91	0	0	NA	NA	NA	NA	34	91
TAN0714	2	57	0	0	14	100	NA	NA	16	86
TAN0813	6	46	0	0	0	0	NA	NA	6	46
TAN0911	4	58	0	0	0	0	NA	NA	4	58

Trends in relative biomass estimates (± 2 standard errors) of Salps for core strata (above) and all strata (below).





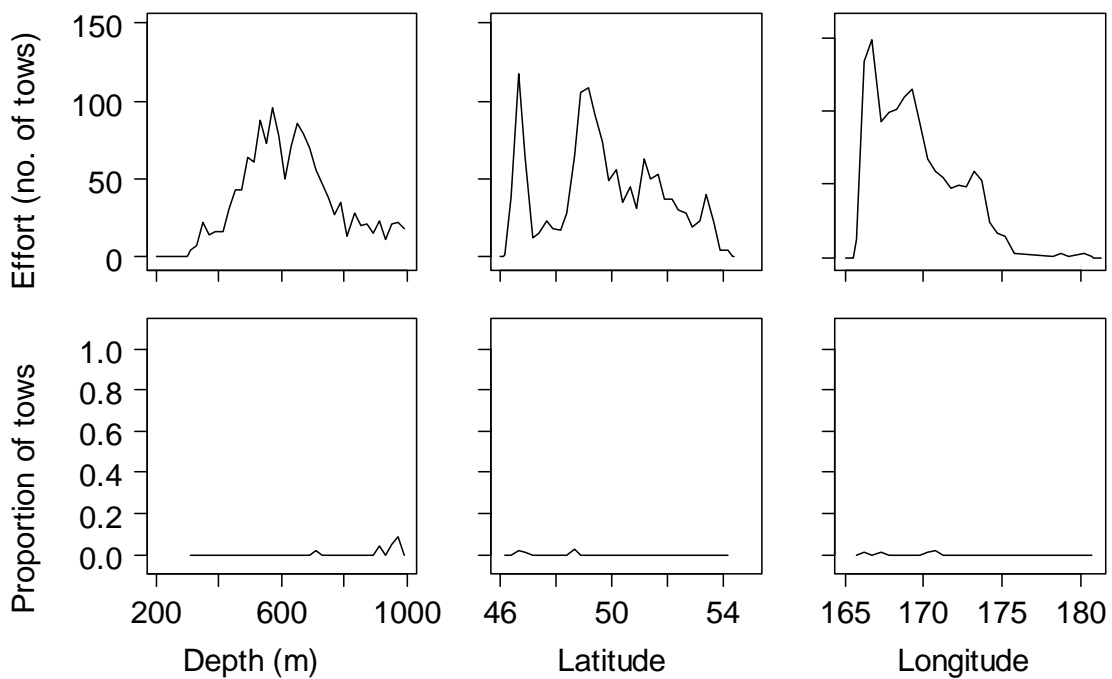
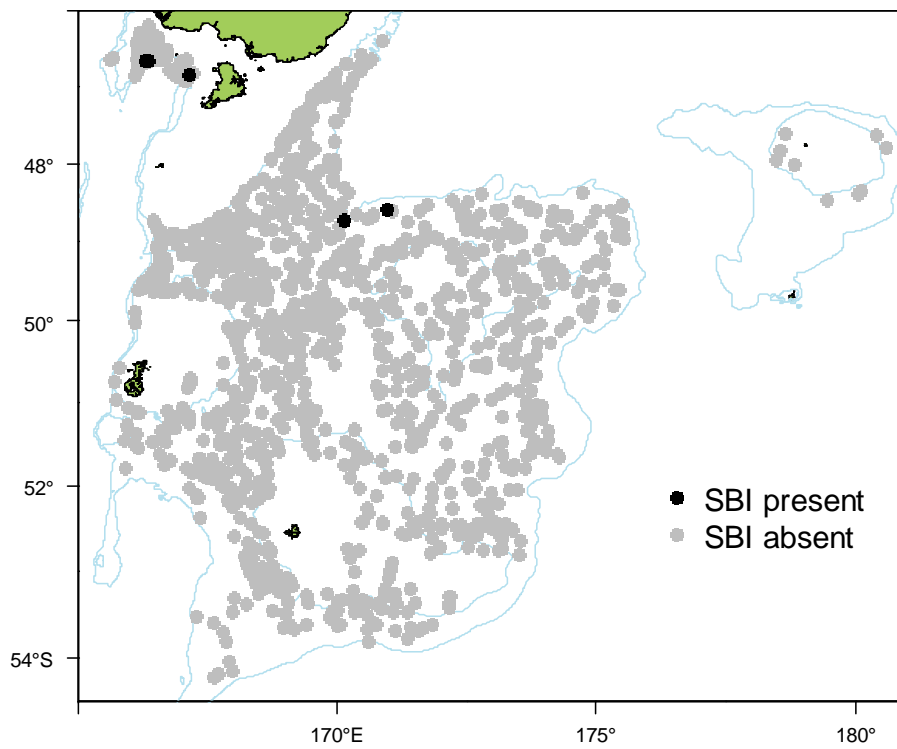
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	4
Total catch weight (kg):	38.3
Number measured	11
Length range (mean) (cm)	–
Number weighed	0
Length-weight parameters a, b (r^2)	–

This species **has** been well identified during the time series. It is found **deeper** than 1000 m. The core survey area and depth range **is not** appropriate for this species. Distribution **does extend** to strata deeper than 800 m surveyed from 2000 to 2009. It **was not** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey area. Biomass **shows no clear trend** since the beginning of the time series. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **not well** estimated. Catches are recorded from **northern** areas close to and deeper than 800 m.

There is no length or gonad stage information presented.

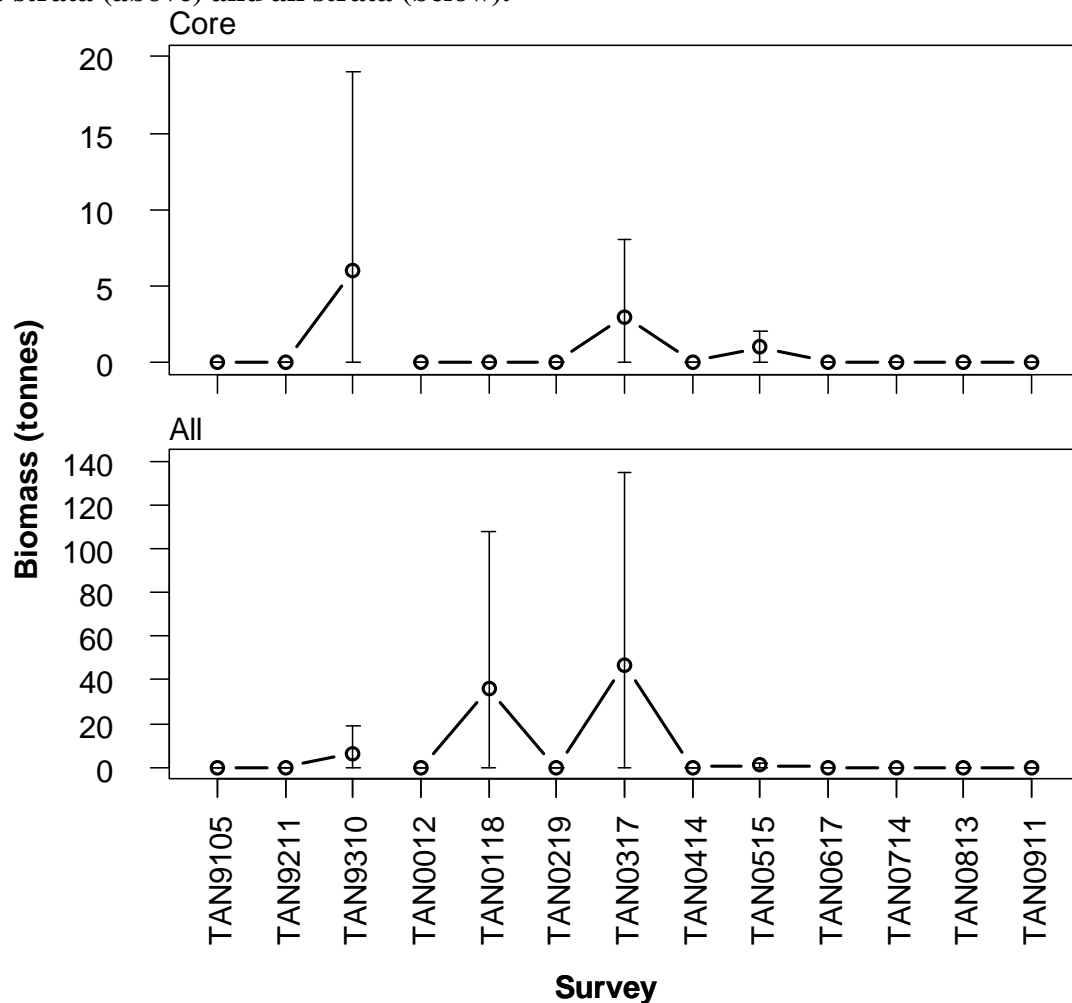
Distribution of *Alepocephalus australis* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Alepocephalus australis* for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	0	0	NA	NA	NA	NA	NA	NA	0	0
TAN9211	0	0	NA	NA	NA	NA	0	0	0	0
TAN9310	6	100	NA	NA	NA	NA	0	0	6	100
TAN0012	0	0	0	0	0	0	NA	NA	0	0
TAN0118	0	0	36	100	0	0	NA	NA	36	100
TAN0219	0	0	0	0	0	0	NA	NA	0	0
TAN0317	3	100	44	100	NA	NA	NA	NA	47	94
TAN0414	0	0	0	0	NA	NA	NA	NA	0	0
TAN0515	1	100	0	0	0	0	NA	NA	1	100
TAN0617	0	0	0	0	NA	NA	NA	NA	0	0
TAN0714	0	0	0	0	0	0	NA	NA	0	0
TAN0813	0	0	0	0	0	0	NA	NA	0	0
TAN0911	0	0	0	0	0	0	NA	NA	0	0

Trends in relative biomass estimates (± 2 standard errors) of *Alepocephalus australis* for core strata (above) and all strata (below).





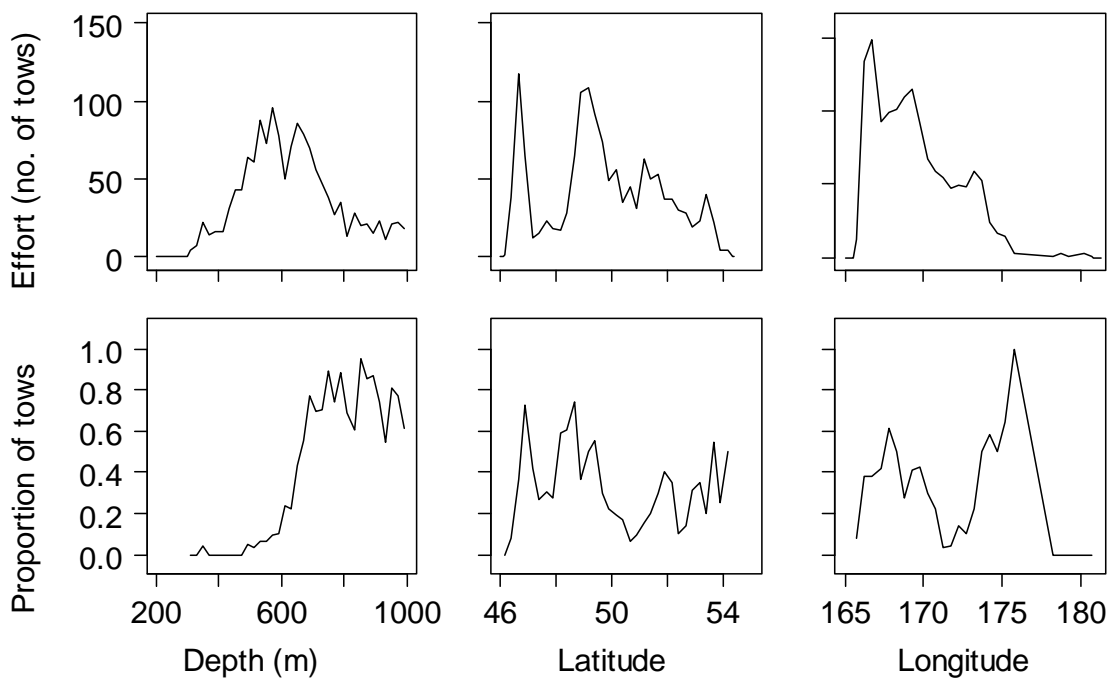
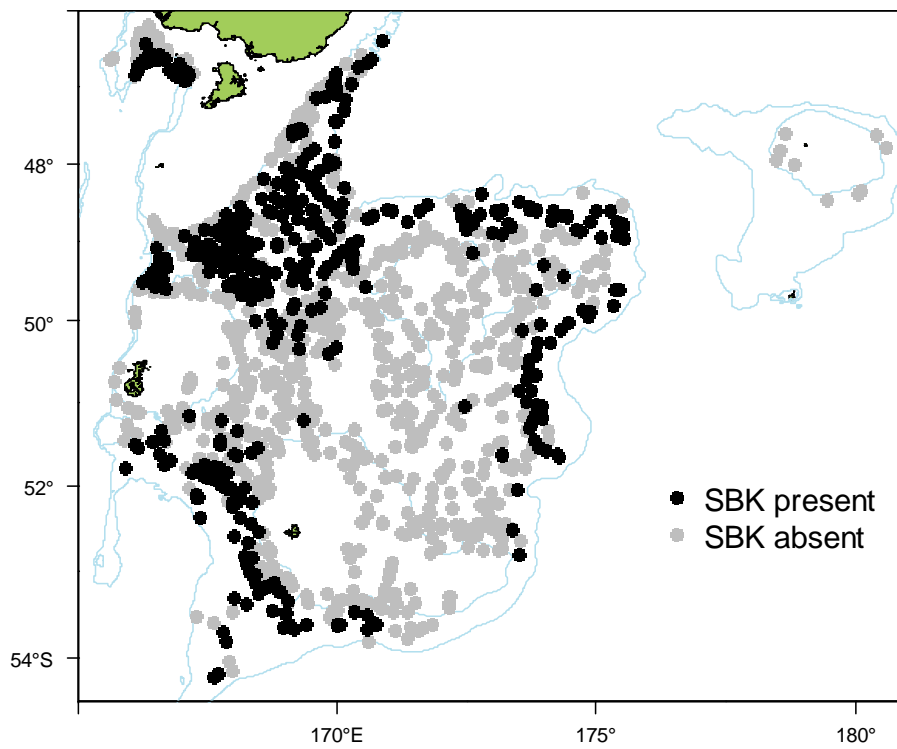
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	1 830.9
Number measured	593
Length range (mean) (cm)	39–73 (55.4)
Number weighed	391
Length-weight parameters a, b (r^2)	0.0023731, 2.934455 (83.91)

This species **has** been well identified during the time series. It is found **deeper** than 1000 m. The core survey area and depth range **is** appropriate for this species. Distribution **does extend** to strata deeper than 800 m surveyed from 2000 to 2009. It **was not** recorded from the Bounty Platform.

Biomass of this species is **moderately well** estimated by the core survey area. Biomass **shows no clear trend**. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **poorly** estimated. Higher catch rates are recorded from areas close to and deeper than 800 m to the **northeast and west**.

Length frequencies **are usually unimodal** although sample sizes are small. Mean length **shows no clear trend** since 2001. Gonad stage data indicate that most fish are **resting** for males and **maturing** for females.

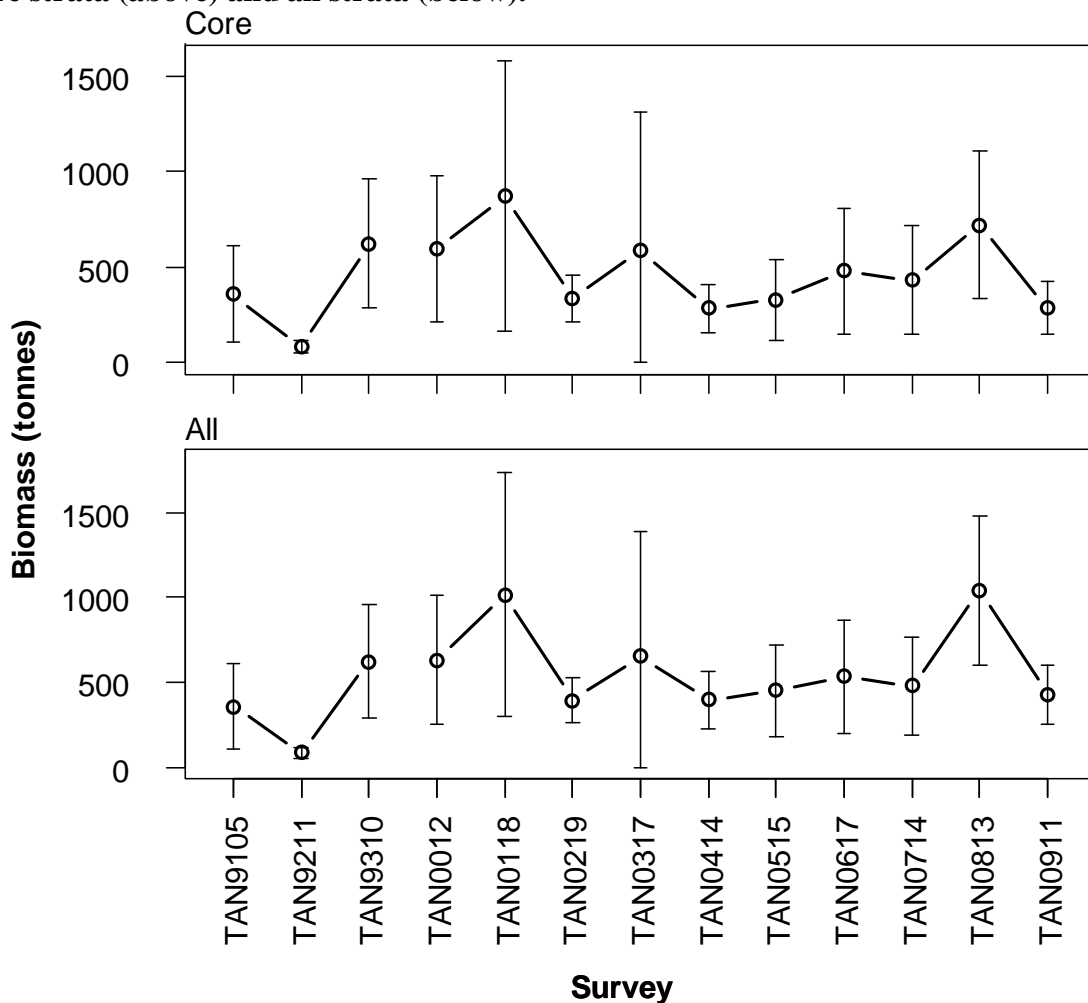
Distribution of *Notacanthus sexspinis* from all summer surveys. Valid biomass stations only.



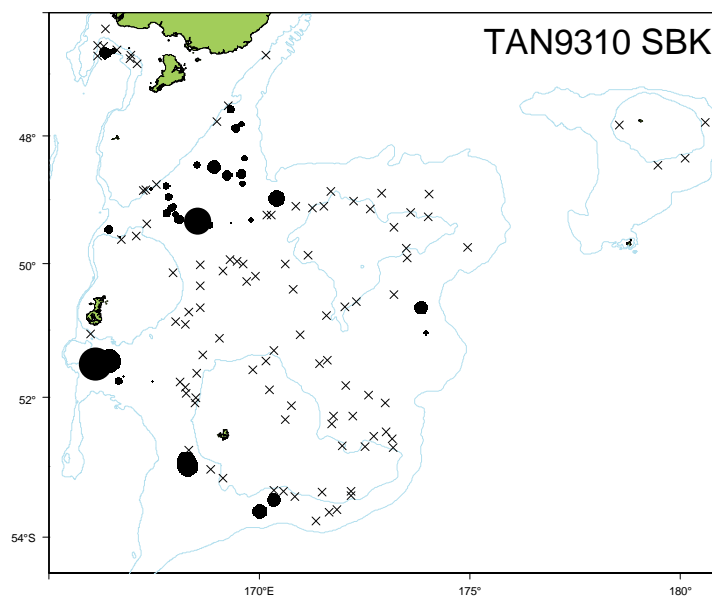
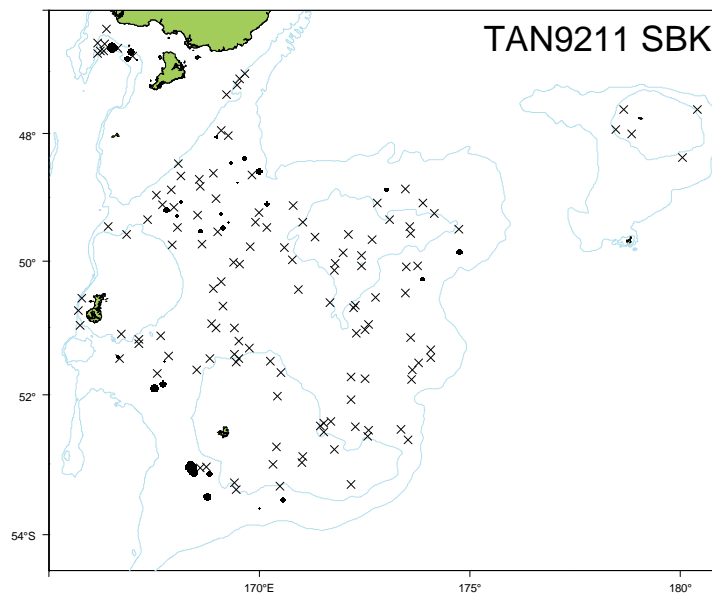
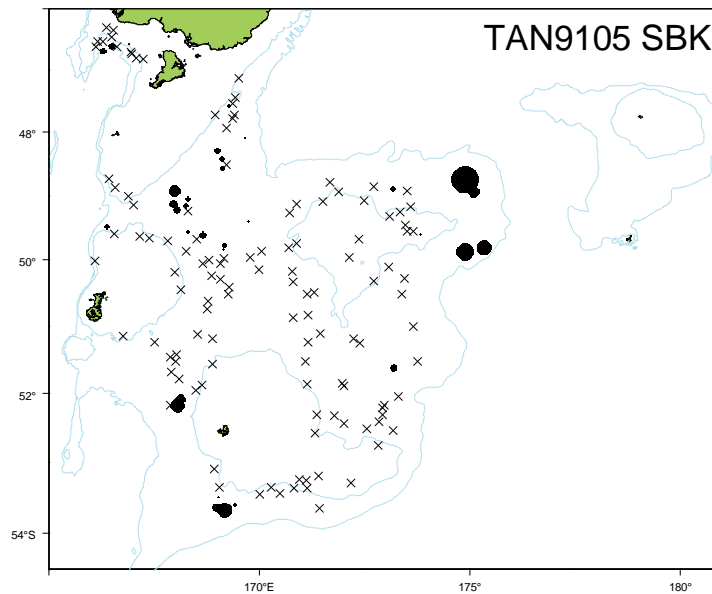
Relative biomass estimates (t) and c.v.s (%) of *Notacanthus sexspinis* for core strata, strata outside the core area and all strata.

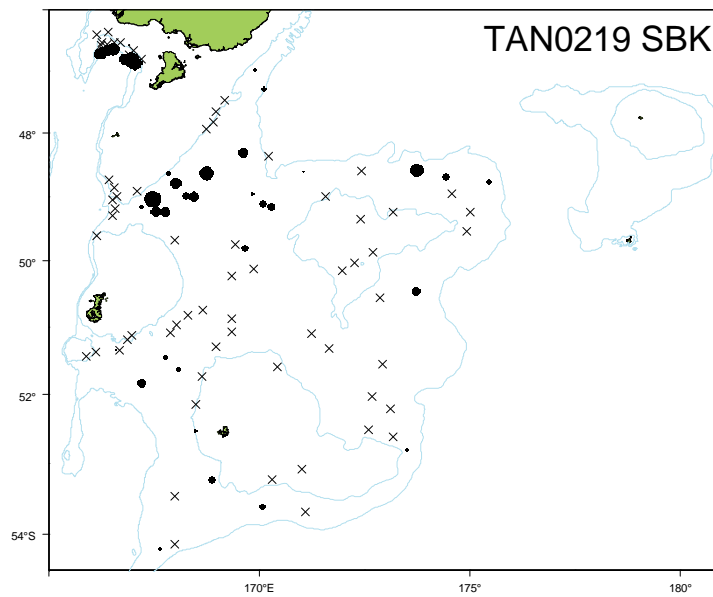
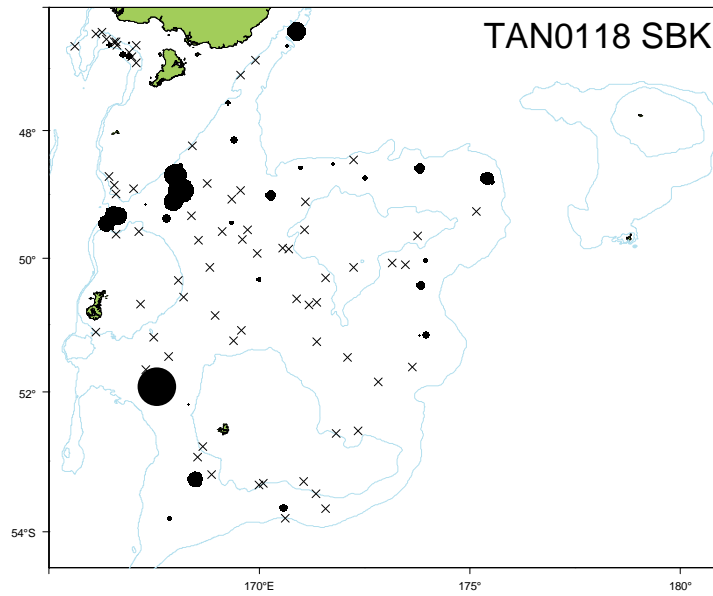
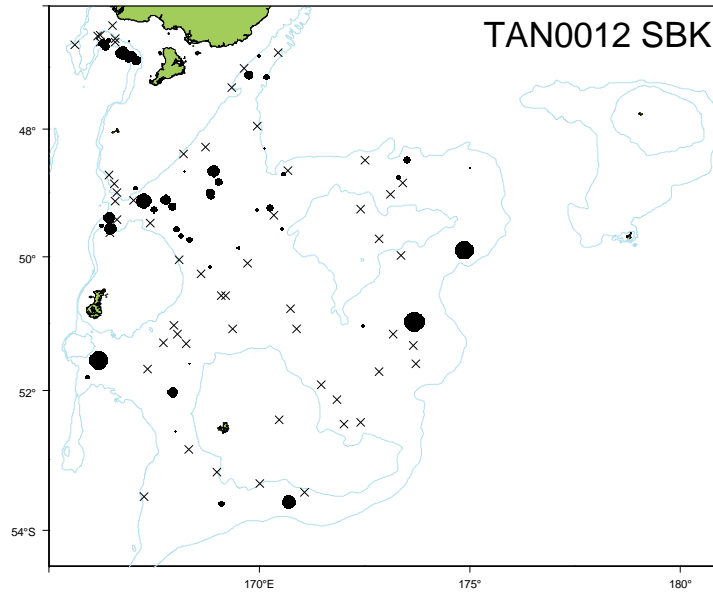
Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	356	35	NA	NA	NA	NA	NA	NA	356	35
TAN9211	84	20	NA	NA	NA	NA	0	0	84	20
TAN9310	623	27	NA	NA	NA	NA	0	0	623	27
TAN0012	594	32	17	50	22	62	NA	NA	632	30
TAN0118	869	41	99	54	44	57	NA	NA	1012	36
TAN0219	335	18	52	54	8	100	NA	NA	394	17
TAN0317	585	62	70	75	NA	NA	NA	NA	655	56
TAN0414	283	22	112	49	NA	NA	NA	NA	395	21
TAN0515	327	32	46	48	79	100	NA	NA	451	30
TAN0617	477	35	54	54	NA	NA	NA	NA	532	32
TAN0714	431	33	28	70	19	77	NA	NA	478	30
TAN0813	719	27	239	32	81	88	NA	NA	1038	21
TAN0911	285	24	99	42	40	89	NA	NA	424	21

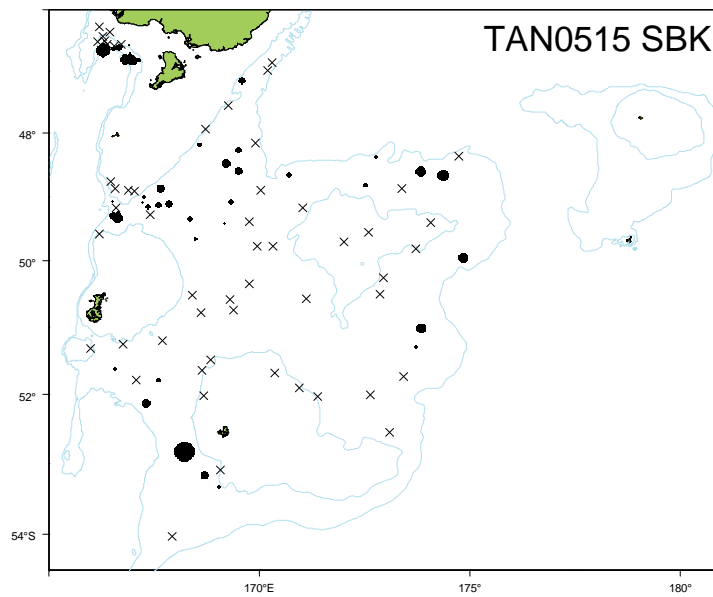
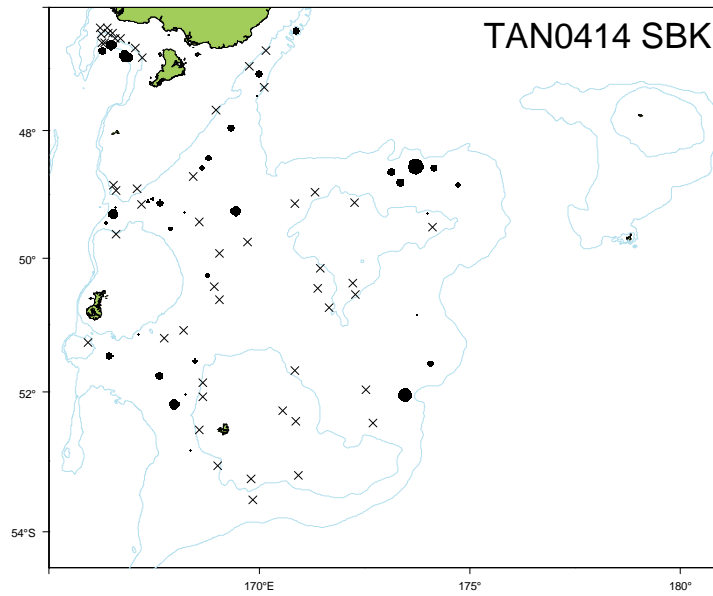
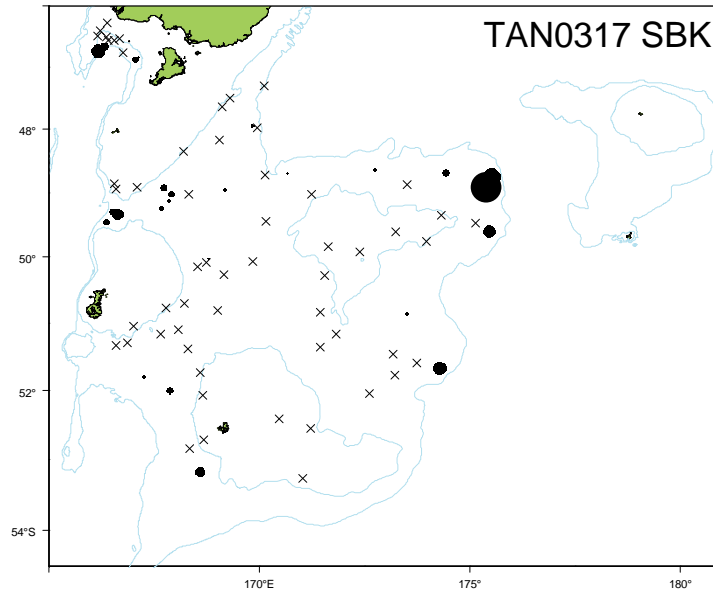
Trends in relative biomass estimates (± 2 standard errors) of *Notacanthus sexspinis* for core strata (above) and all strata (below).

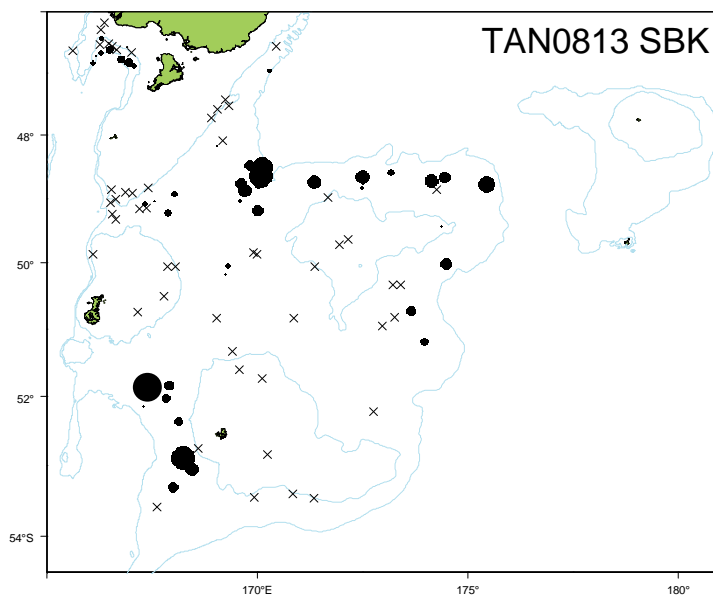
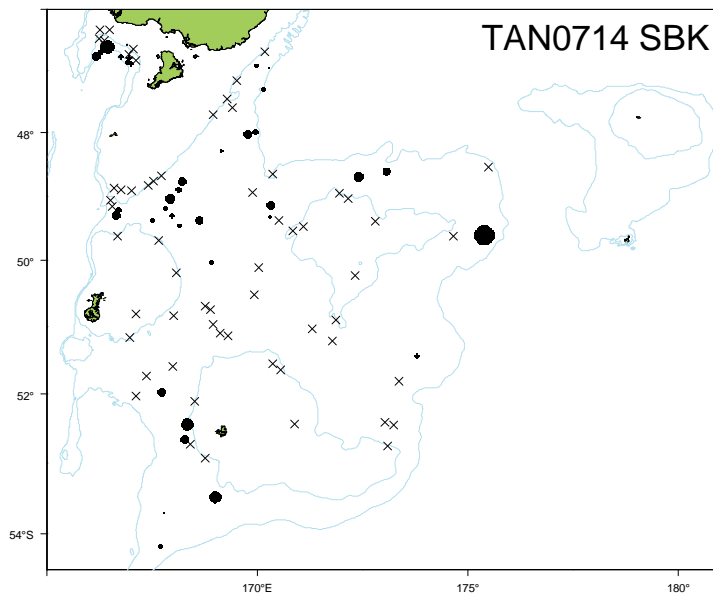
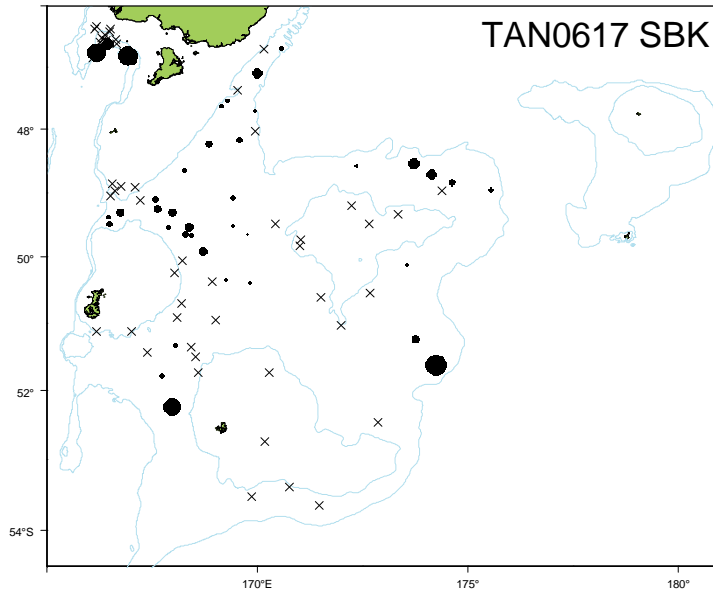


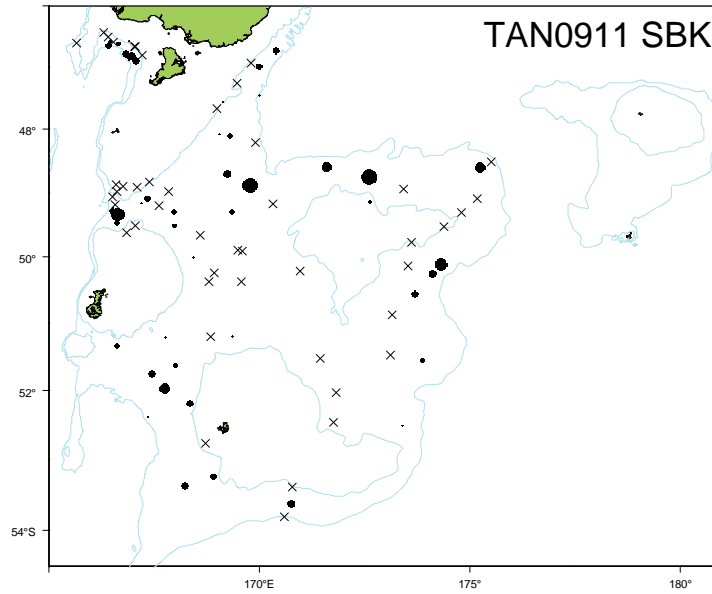
Catchrates of *Notacanthus sexspinis*. Circle area is proportional to the maximum catchrate from all surveys (see Table 5).







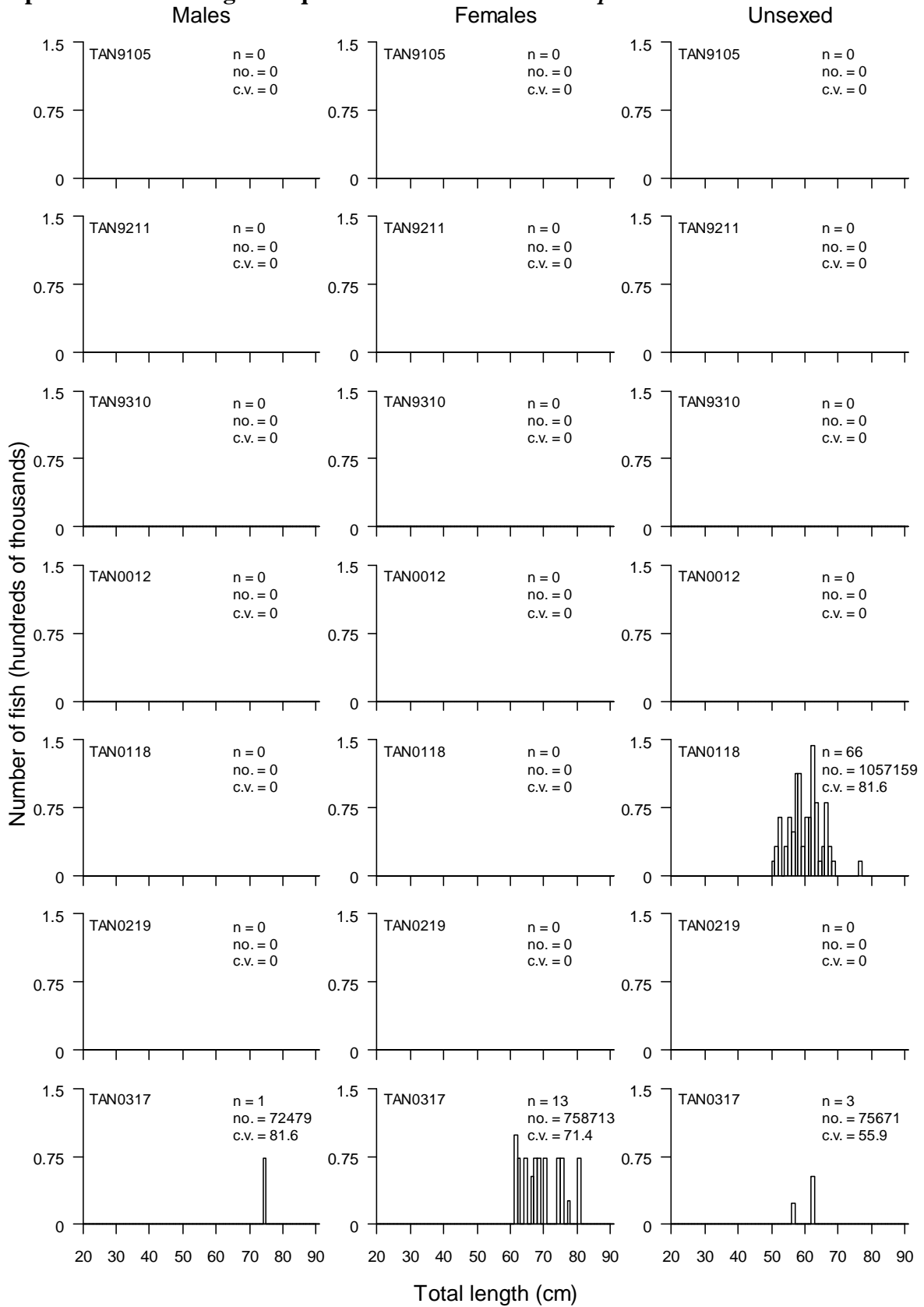


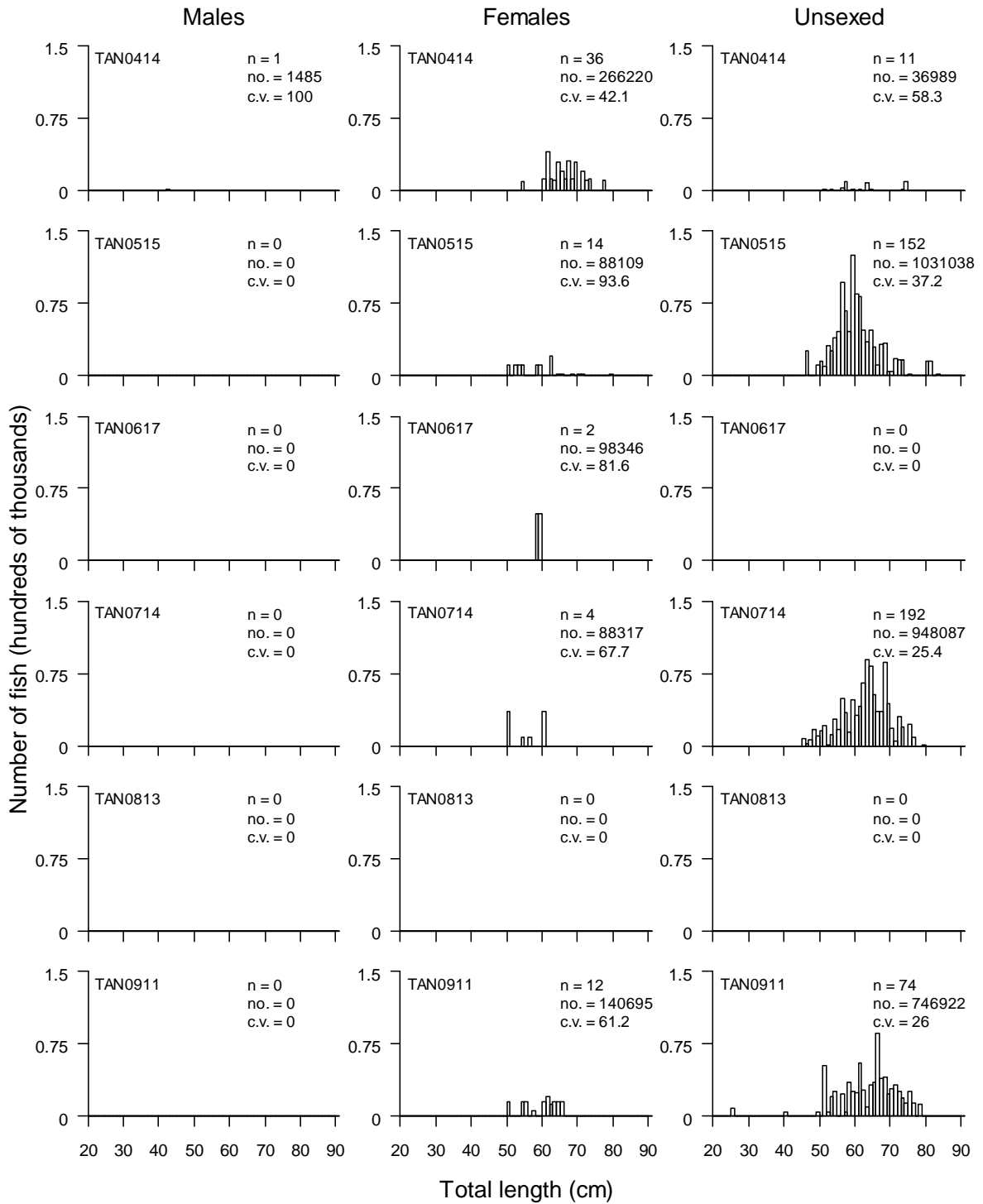


Length summaries

Survey	Minimum length (cm)	Maximum length (cm)	Mean length (cm)	Number measured
TAN9105	NA	NA	NA	0
TAN9211	NA	NA	NA	0
TAN9310	NA	NA	NA	0
TAN0012	NA	NA	NA	0
TAN0118	50	76	59.7	66
TAN0219	NA	NA	NA	0
TAN0317	56	80	67.4	17
TAN0414	42	77	63.9	48
TAN0515	46	83	60.8	166
TAN0617	50	67	58.5	2
TAN0714	45	79	61.9	196
TAN0813	NA	NA	NA	0
TAN0911	25	78	61.3	86

Population scaled length frequencies of *Notacanthus sexspinis* for all strata.





Gonad stage summaries by sex for *Notacanthus sexspinis*. Percentage at each stage using the MD staging method.

Survey	M1	M2	M3	M4	M5	M6	M7	F1	F2	F3	F4	F5	F6	F7
TAN9105	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9211	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN9310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0118	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0219	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0317	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0414	0	100	0	0	0	0	0	0	0	100	0	0	0	0
TAN0515	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0617	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0714	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0813	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0911	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALL	0	100	0	0	0	0	0	0	0	100	0	0	0	0



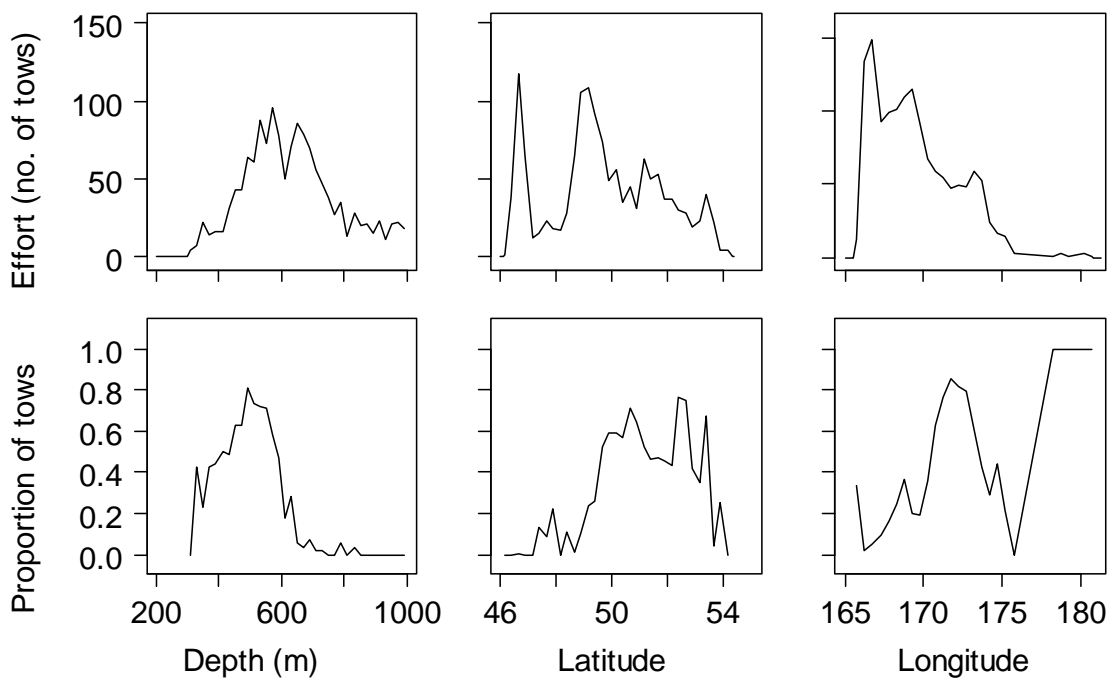
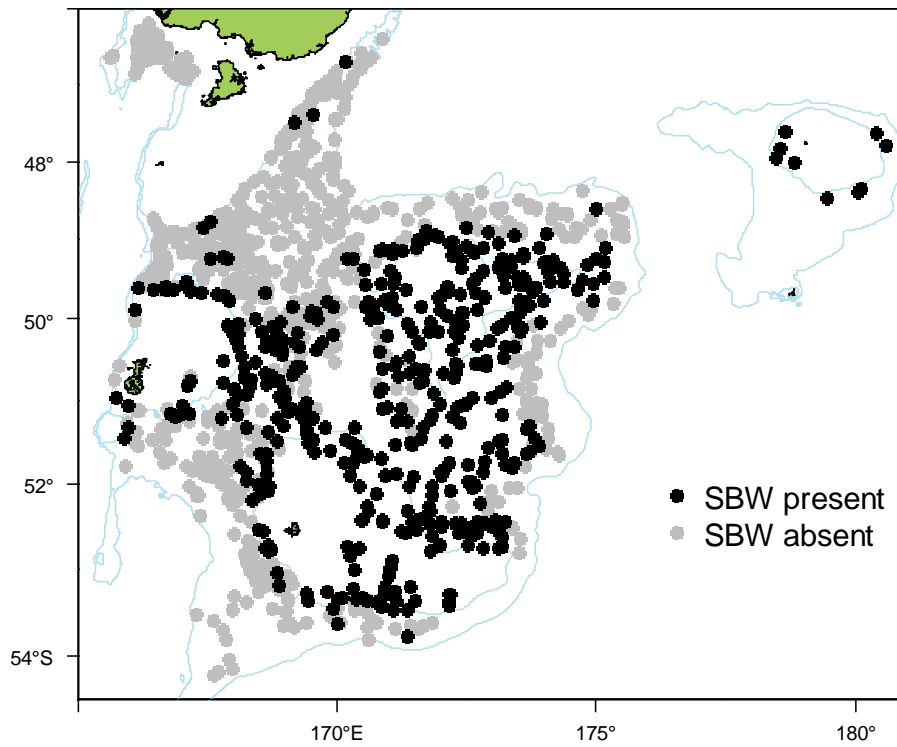
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	20 490.2
Number measured	26 981
Length range (mean) (cm)	16–59 (39.5)
Number weighed	8 437
Length-weight parameters a, b (r^2)	0.00339079, 3.172698, (97.77)

This species has been **well** identified during the time series. It is found **deeper than 800 m**. The core survey area and depth range **is** appropriate for this species. Distribution **does** occasionally extend to the areas deeper than 800 m surveyed from 2000 to 2009. It **is** recorded from the Bounty Platform.

Biomass of this species is **moderately well** estimated by the core survey. Biomass **shows no clear trend** since the start of the time series. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 are rare and **poorly** estimated. Catch rates are highest to the **east** around the Pukaki Rise and Campbell Island.

Length frequencies **have multiple modes which may contain information about year-class strength**. Mean length **shows a decrease** during the time series, probably as a result of strong 2006 and 2007 year classes. Gonad stage data indicate that most fish are **resting**.

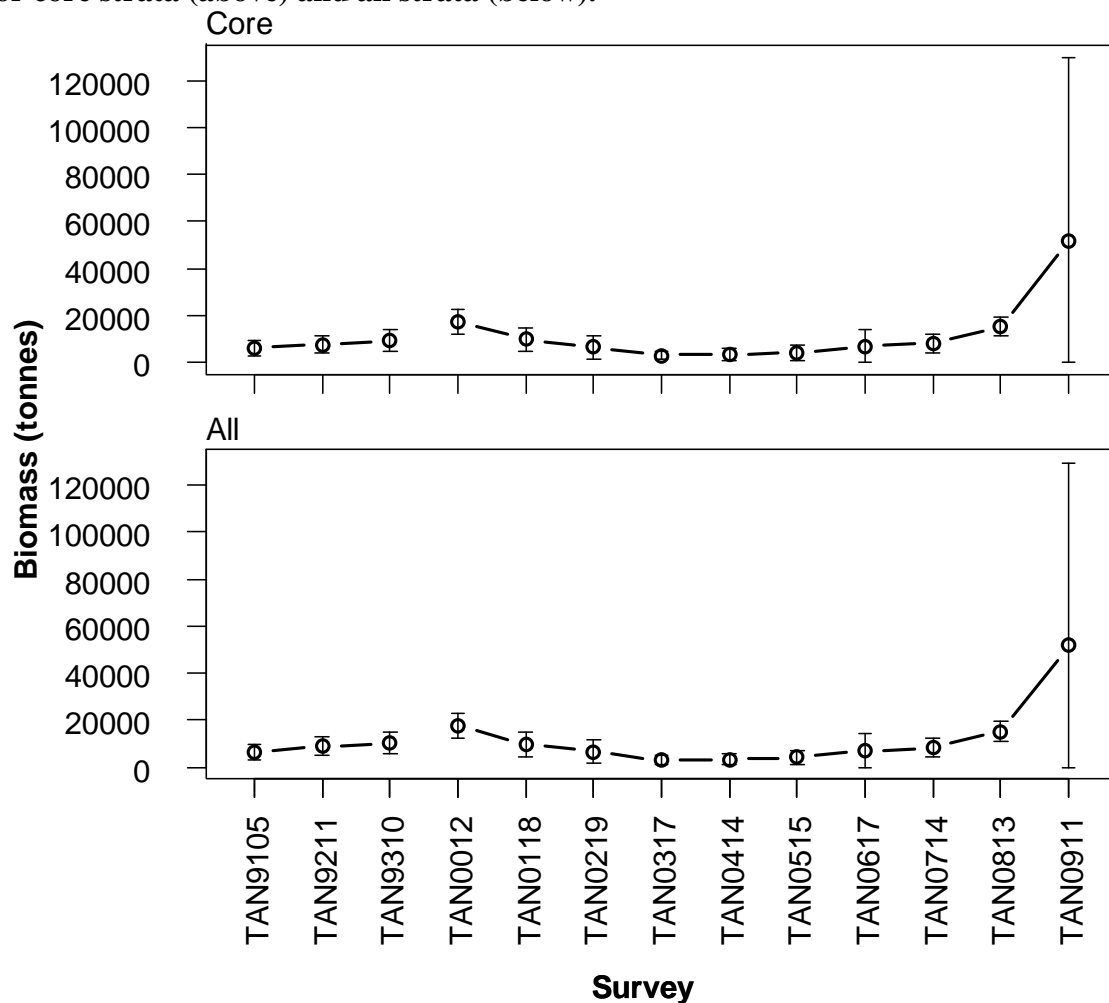
Distribution of *Micromesistius australis* from all summer surveys. Valid biomass stations only.



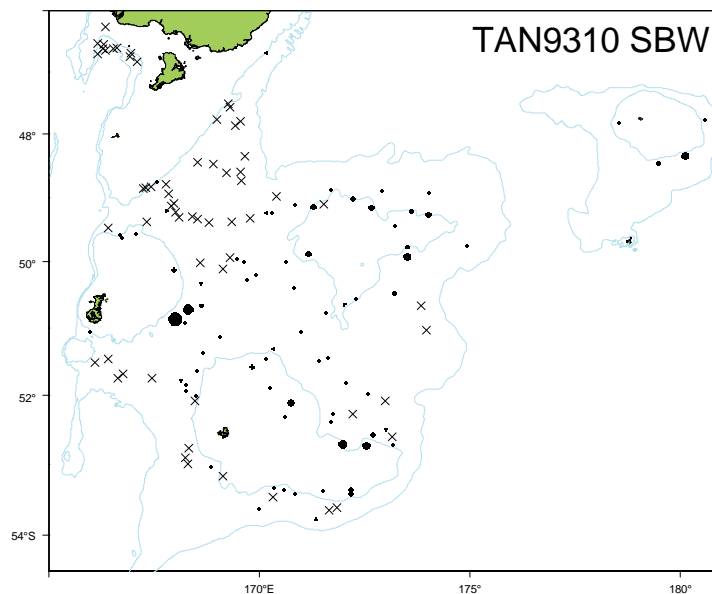
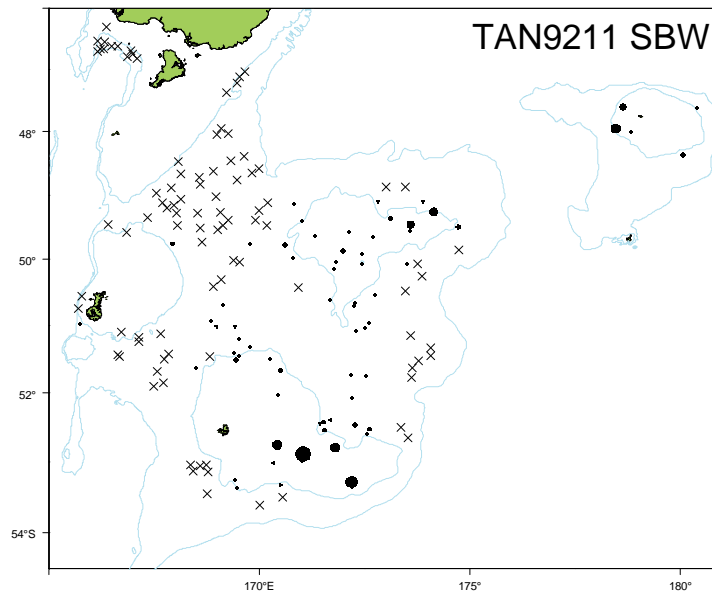
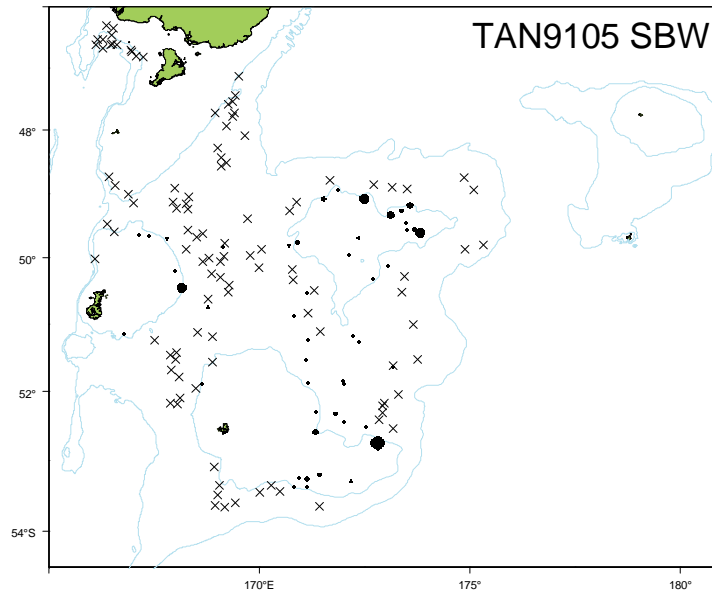
Relative biomass estimates (t) and c.v.s (%) of *Micromesistius australis* for core strata, strata outside the core area and all strata.

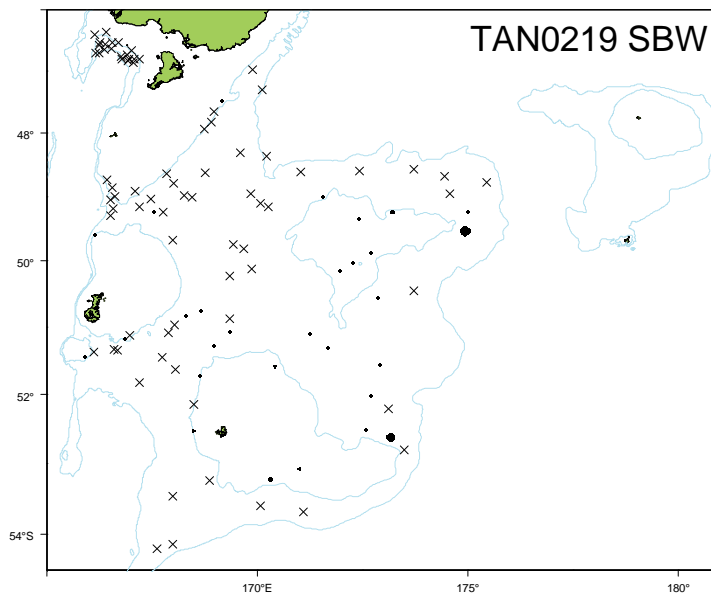
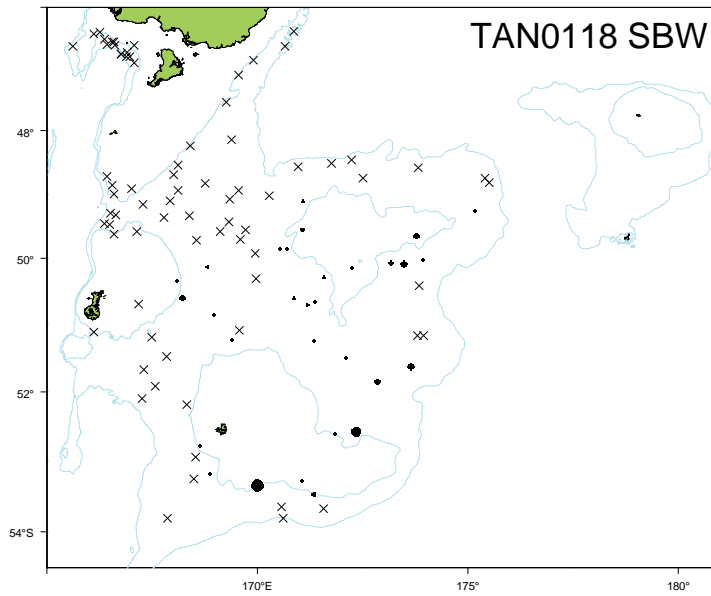
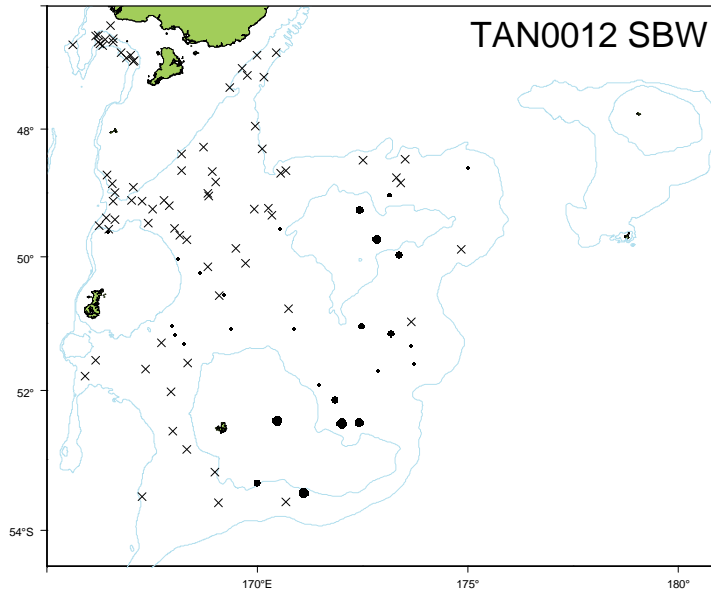
Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	6153	27	NA	NA	NA	NA	NA	NA	6153	27
TAN9211	7611	23	NA	NA	NA	NA	1380	51	8990	21
TAN9310	9315	24	NA	NA	NA	NA	825	65	10140	23
TAN0012	17491	15	1	100	0	0	NA	NA	17492	15
TAN0118	9809	26	0	0	0	0	NA	NA	9809	26
TAN0219	6517	38	0	0	0	0	NA	NA	6517	38
TAN0317	3058	29	0	0	NA	NA	NA	NA	3058	29
TAN0414	3346	36	0	0	NA	NA	NA	NA	3346	36
TAN0515	4146	38	0	0	0	0	NA	NA	4146	38
TAN0617	6962	52	0	0	NA	NA	NA	NA	6962	52
TAN0714	8165	24	0	0	0	0	NA	NA	8165	24
TAN0813	15269	14	0	0	0	0	NA	NA	15269	14
TAN0911	51860	75	0	0	0	0	NA	NA	51860	75

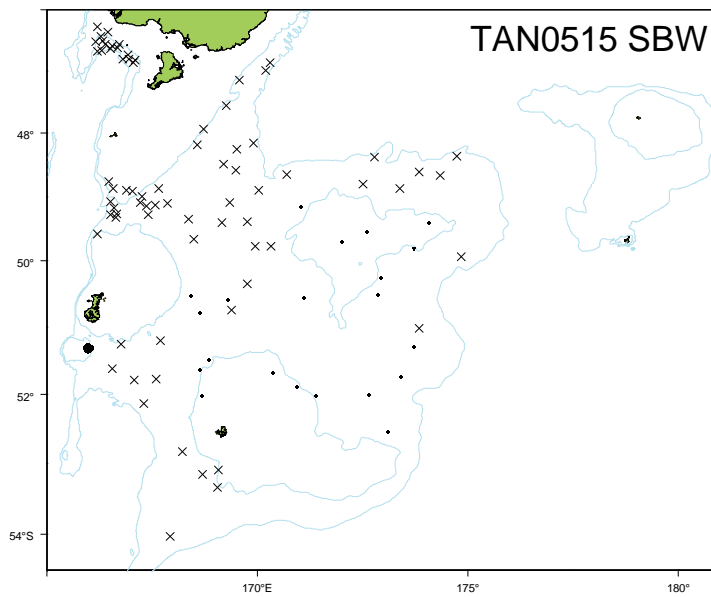
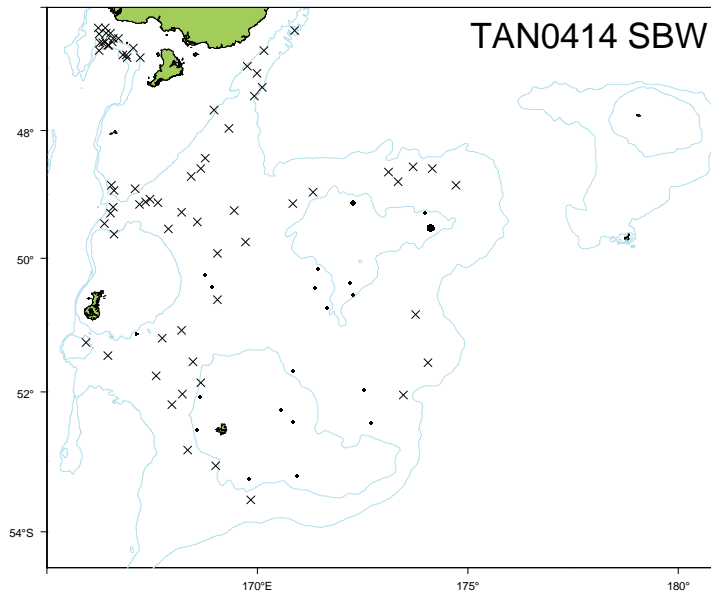
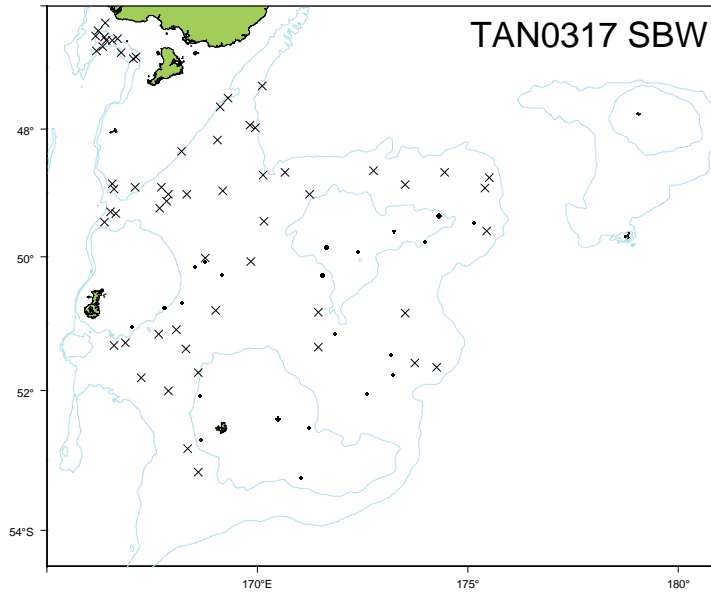
Trends in relative biomass estimates (± 2 standard errors) of *Micromesistius australis* for core strata (above) and all strata (below).

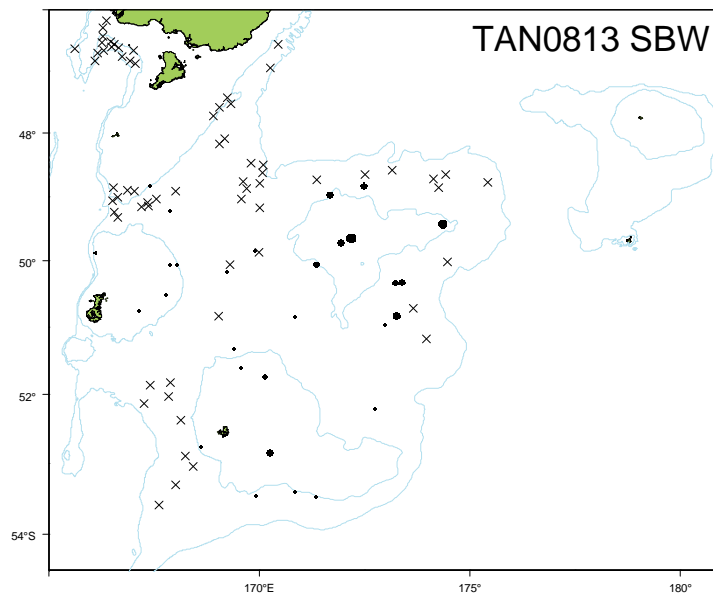
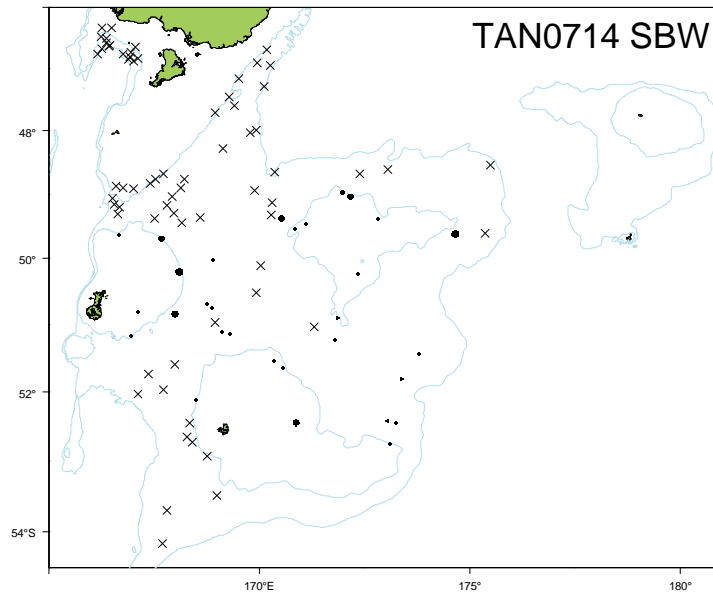
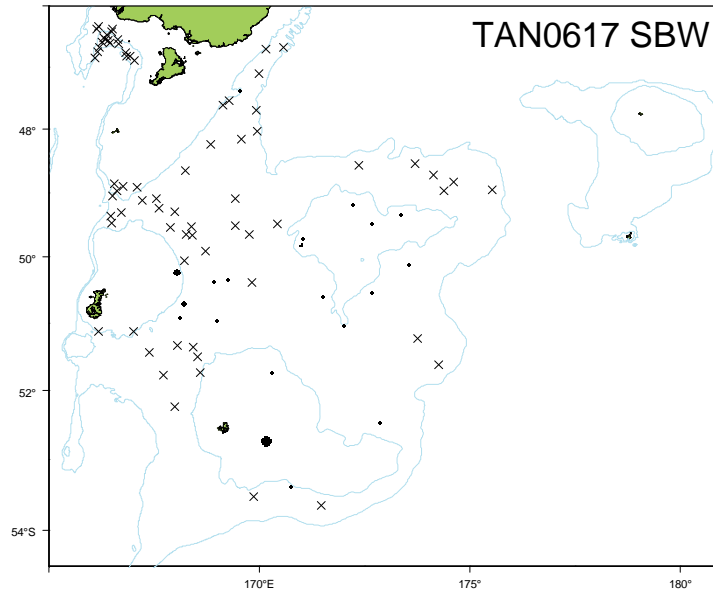


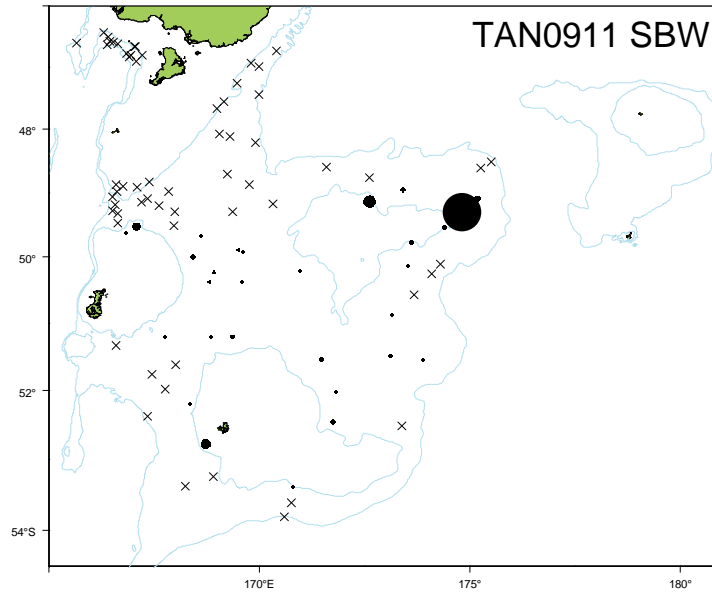
Catchrates of *Micromesistius australis*. Circle area is proportional to the maximum catchrate from all surveys (see Table 5).







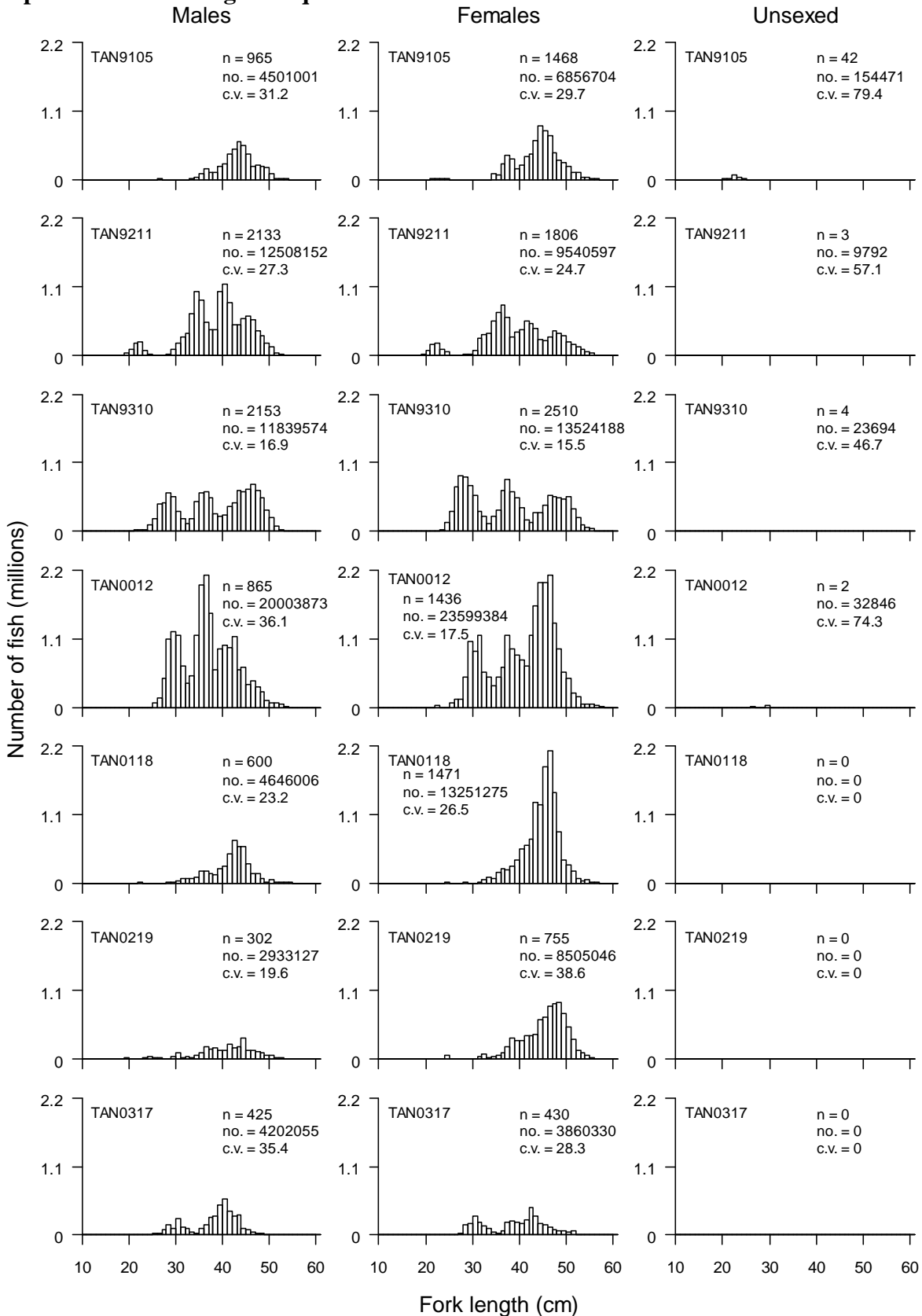


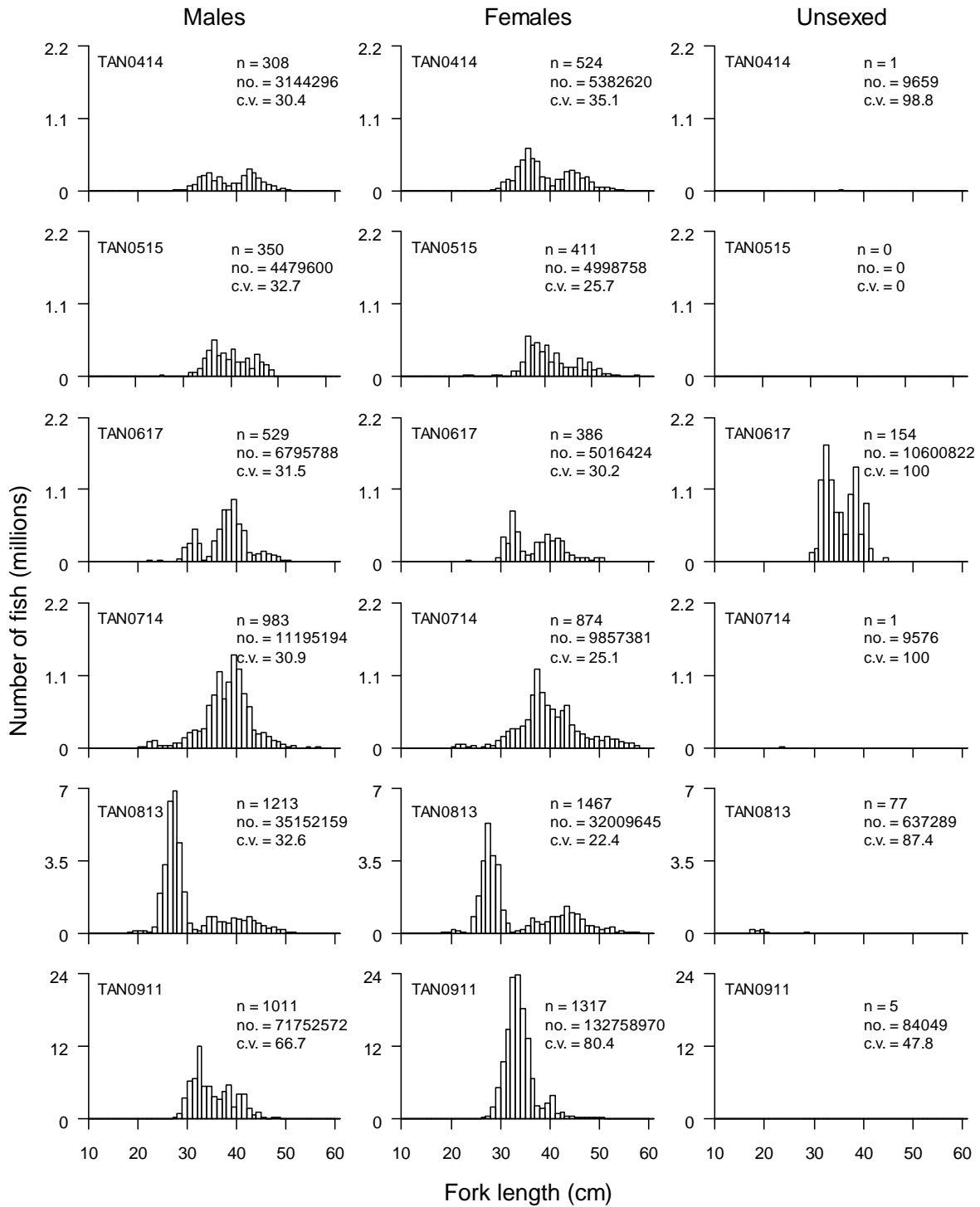


Length summaries

Survey	Minimum length (cm)	Maximum length (cm)	Mean length (cm)	Number measured
TAN9105	20	58	43.3	2475
TAN9211	17	56	39.6	3942
TAN9310	18	56	37.3	4667
TAN0012	22	57	40.9	2303
TAN0118	22	56	43.0	2071
TAN0219	19	55	42.9	1057
TAN0317	21	53	38.2	855
TAN0414	27	54	38.7	833
TAN0515	23	59	40.0	761
TAN0617	20	53	37.2	1069
TAN0714	20	57	38.6	1858
TAN0813	16	58	34.8	2757
TAN0911	26	56	37.0	2333

Population scaled length frequencies of *Micromesistius australis* for all strata.





Gonad stage summaries by sex for *Micromesistius australis*. Percentage at each stage using the MD staging method.

Survey	M1	M2	M3	M4	M5	M6	M7	F1	F2	F3	F4	F5	F6	F7
TAN9105	3	95	0	0	0	0	2	3	84	0	0	0	0	12
TAN9211	10	89	0	0	0	0	1	47	52	0	0	0	0	1
TAN9310	19	63	0	0	0	0	18	20	66	0	0	0	0	14
TAN0012	20	73	0	0	0	0	8	5	91	0	0	0	0	3
TAN0118	NA	NA	NA	NA	NA	NA	NA	17	83	0	0	0	0	0
TAN0219	23	77	0	0	0	0	0	2	98	0	0	0	0	0
TAN0317	17	75	0	0	0	1	7	26	65	0	0	0	0	9
TAN0414	41	59	0	0	0	0	0	40	59	0	0	0	0	1
TAN0515	8	90	0	0	0	0	2	5	95	0	0	0	0	0
TAN0617	14	66	0	0	0	0	20	24	70	1	0	0	0	5
TAN0714	12	87	1	0	0	0	0	11	78	10	0	0	0	0
TAN0813	11	87	0	0	0	0	2	11	86	2	0	0	0	2
TAN0911	5	95	0	0	0	0	0	20	79	0	0	0	0	1
ALL	13	81	0	0	0	0	5	18	76	2	0	0	0	4



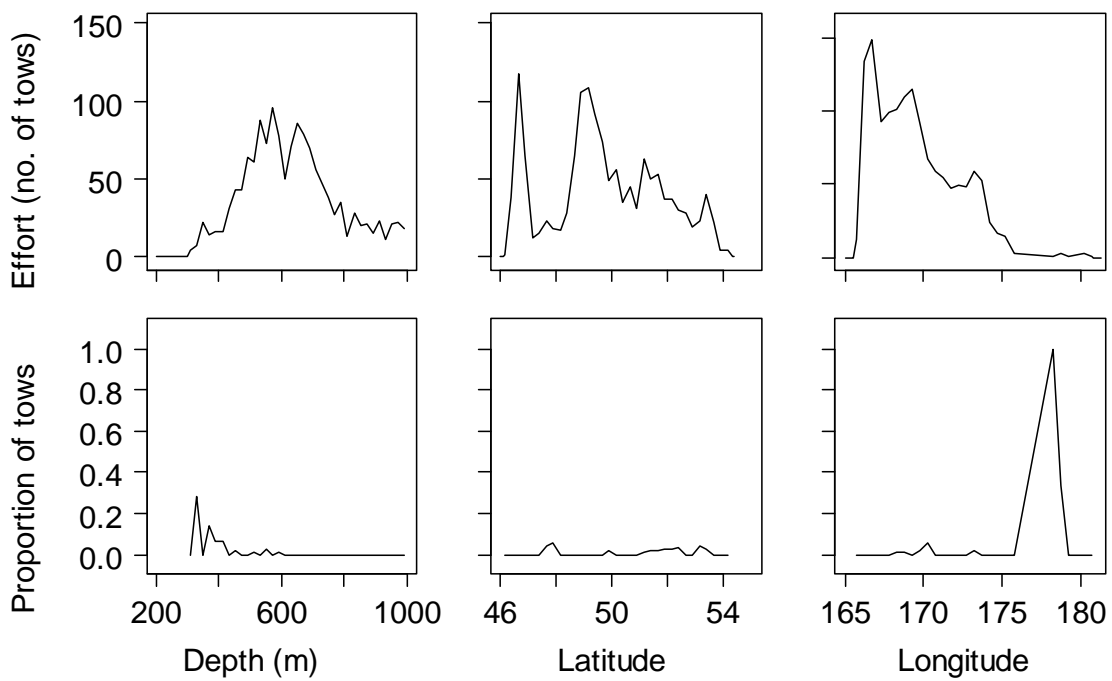
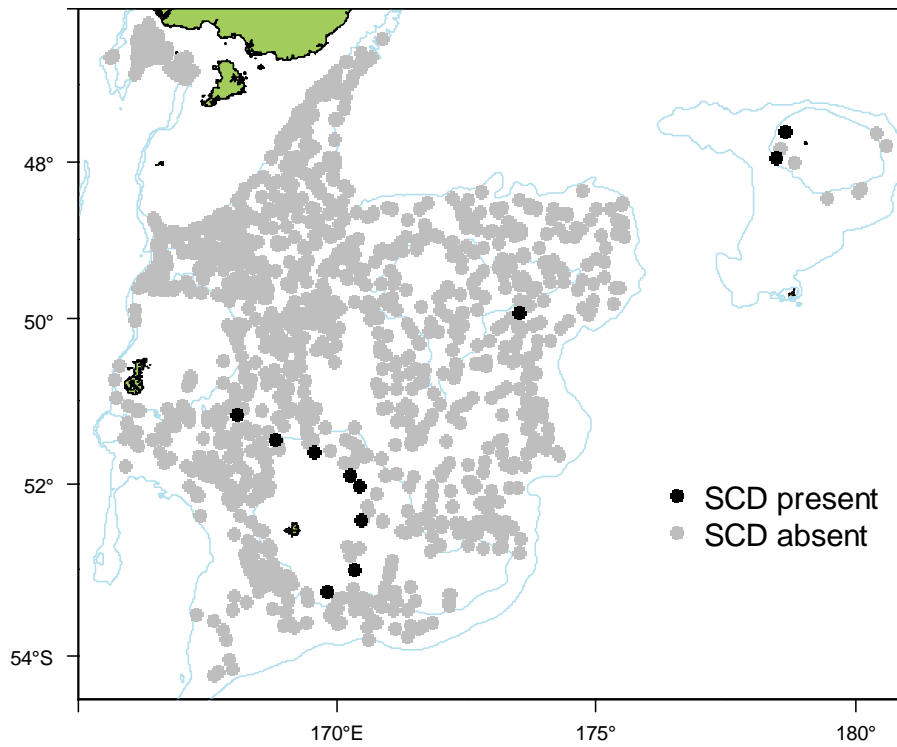
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	5
Total catch weight (kg):	138.9
Number measured	15
Length range (mean) (cm)	36–55 (46.7)
Number weighed	15
Length-weight parameters a, b (r^2)	–

This species has been **well** identified during the time series. It is found **shallower than 300 m**. The core survey area and depth range **is** appropriate for this species. Distribution **does not** extend to the areas deeper than 800 m surveyed from 2000 to 2009. It **is** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey. Biomass has **decreased** since the start of the time series. Catches are highest in shallower depths around Campbell Island.

There is no length or gonad stage data presented.

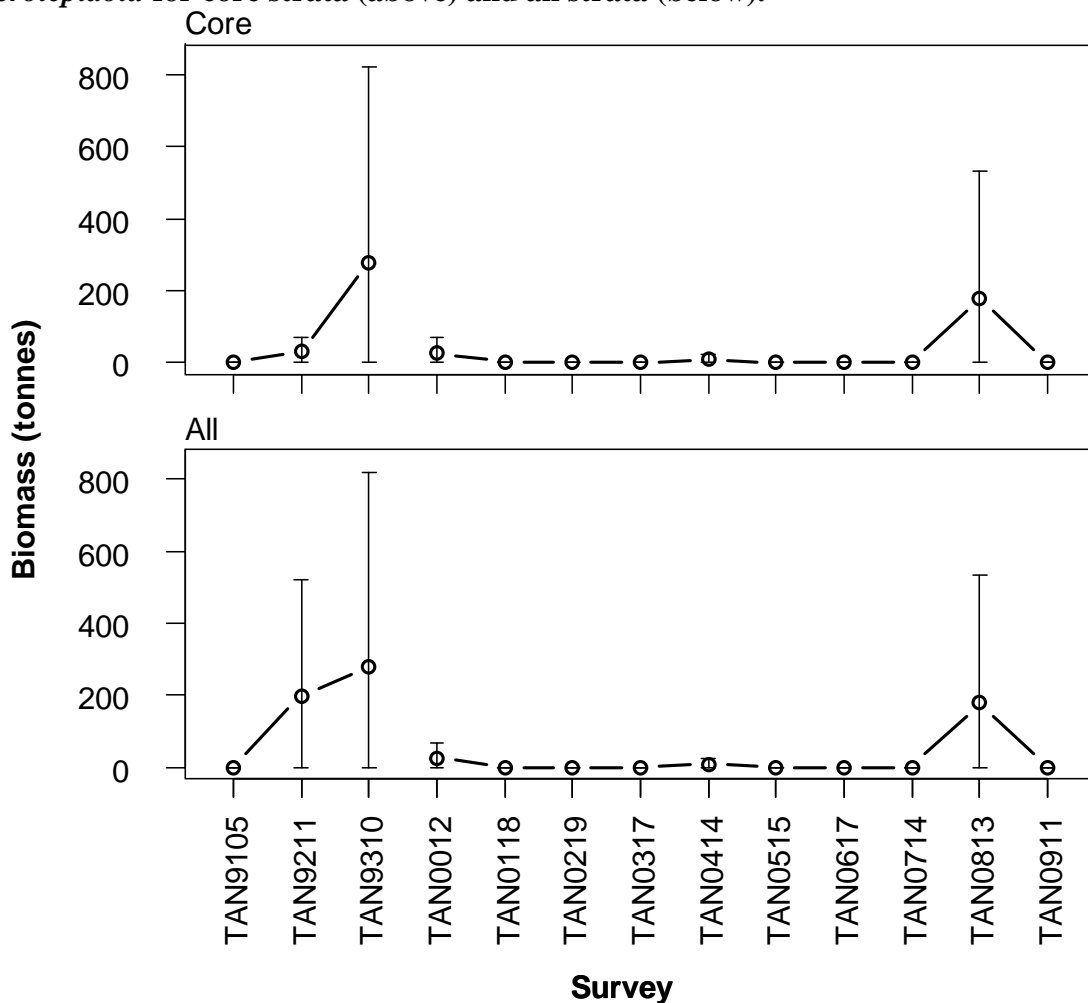
Distribution of *Paranotothenia microlepidota* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Paranotothenia microlepidota* for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	0	0	NA	NA	NA	NA	NA	NA	0	0
TAN9211	29	73	NA	NA	NA	NA	170	94	199	81
TAN9310	278	98	NA	NA	NA	NA	0	0	278	98
TAN0012	26	84	0	0	0	0	NA	NA	26	84
TAN0118	0	0	0	0	0	0	NA	NA	0	0
TAN0219	0	0	0	0	0	0	NA	NA	0	0
TAN0317	0	0	0	0	NA	NA	NA	NA	0	0
TAN0414	8	100	0	0	NA	NA	NA	NA	8	100
TAN0515	0	0	0	0	0	0	NA	NA	0	0
TAN0617	0	0	0	0	NA	NA	NA	NA	0	0
TAN0714	0	0	0	0	0	0	NA	NA	0	0
TAN0813	178	100	0	0	0	0	NA	NA	178	100
TAN0911	0	0	0	0	0	0	NA	NA	0	0

Trends in relative biomass estimates (± 2 standard errors) of *Paranotothenia microlepidota* for core strata (above) and all strata (below).





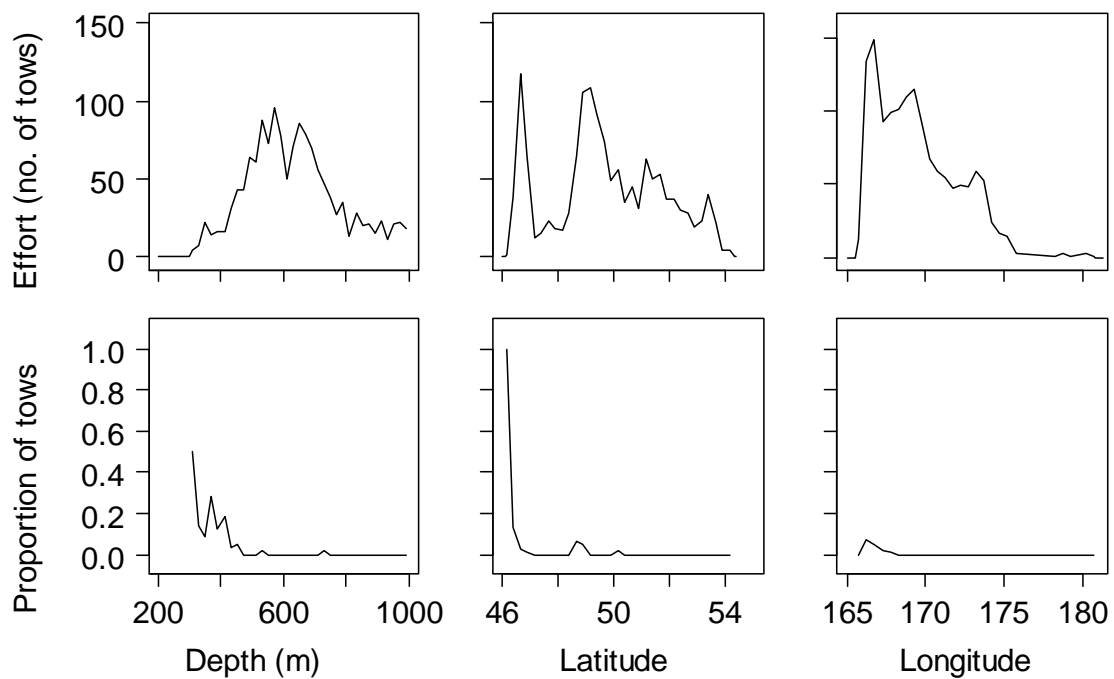
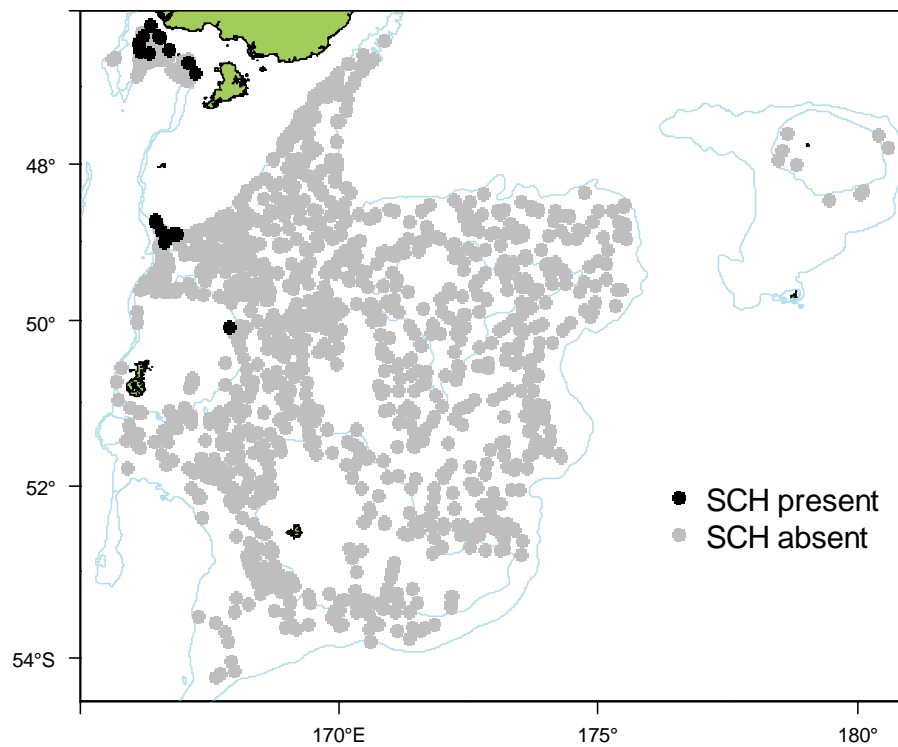
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	9
Total catch weight (kg):	421.2
Number measured	29
Length range (mean) (cm)	119–159 (137.8)
Number weighed	21
Length-weight parameters a, b (r^2)	–

This species **has** been well identified during the time series. It is found **shallower than 300 m**. The core survey area and depth range **is not** appropriate for this species. Distribution **does not extend** to strata deeper than 800 m surveyed from 2000 to 2009. It **was not** recorded from the Bounty Platform.

There were **too few fish caught to determine whether the core survey area is appropriate for this species**. Biomass of this species is **poorly** estimated by the core survey area. Biomass **shows no clear trend** since the start of the time series. Catches were highest in the **northwest**.

There is no length or gonad stage information presented.

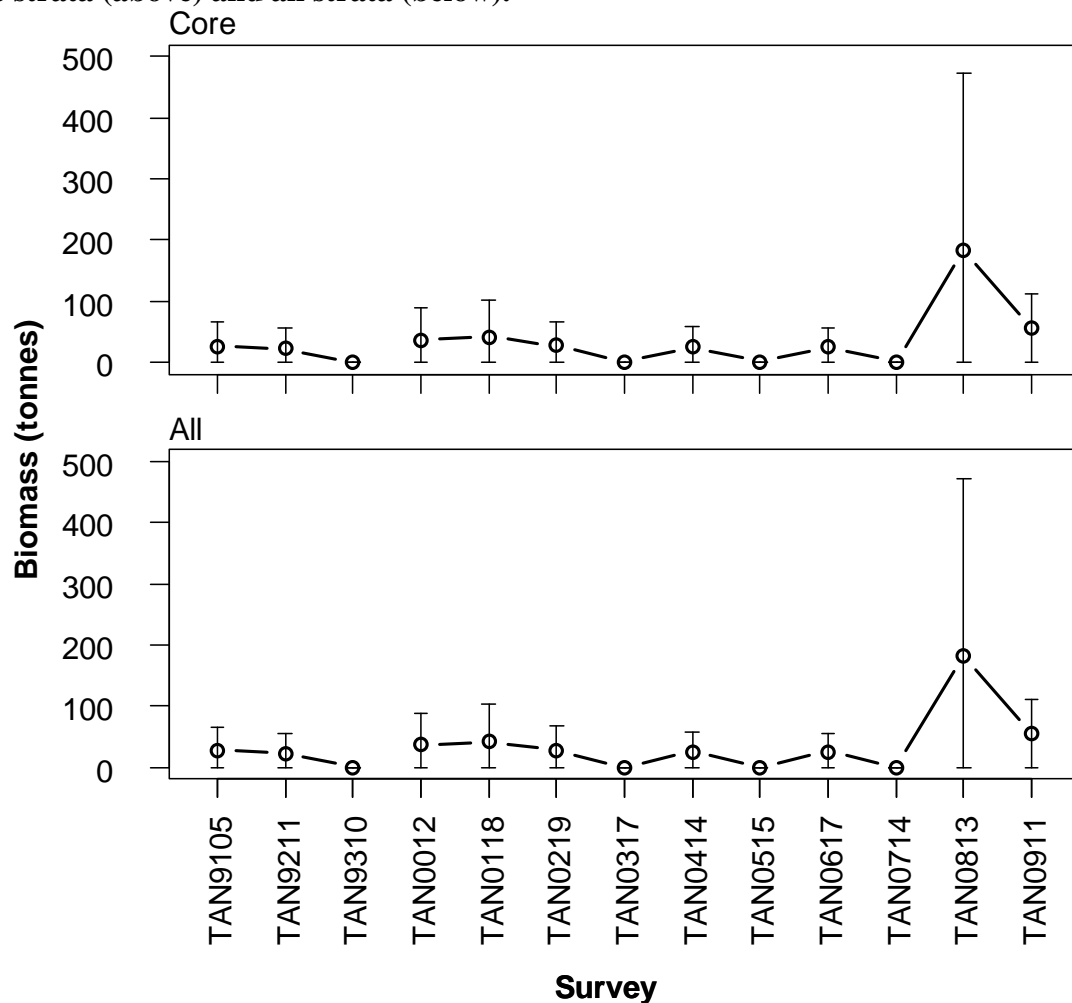
Distribution of *Galeorhinus galeus* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Galeorhinus galeus* for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total	Total
	biomass	(c.v.)	27+28	(c.v.)	26	(c.v.)	17	(c.v.)		
TAN9105	27	73	NA	NA	NA	NA	NA	NA	27	73
TAN9211	23	72	NA	NA	NA	NA	0	0	23	72
TAN9310	0	0	NA	NA	NA	NA	0	0	0	0
TAN0012	36	74	0	0	0	0	NA	NA	36	74
TAN0118	42	72	0	0	0	0	NA	NA	42	72
TAN0219	28	71	0	0	0	0	NA	NA	28	71
TAN0317	0	0	0	0	NA	NA	NA	NA	0	0
TAN0414	25	69	0	0	NA	NA	NA	NA	25	69
TAN0515	0	0	0	0	0	0	NA	NA	0	0
TAN0617	25	62	0	0	NA	NA	NA	NA	25	62
TAN0714	0	0	0	0	0	0	NA	NA	0	0
TAN0813	183	79	0	0	0	0	NA	NA	183	79
TAN0911	55	51	0	0	0	0	NA	NA	55	51

Trends in relative biomass estimates (± 2 standard errors) of *Galeorhinus galeus* for core strata (above) and all strata (below).





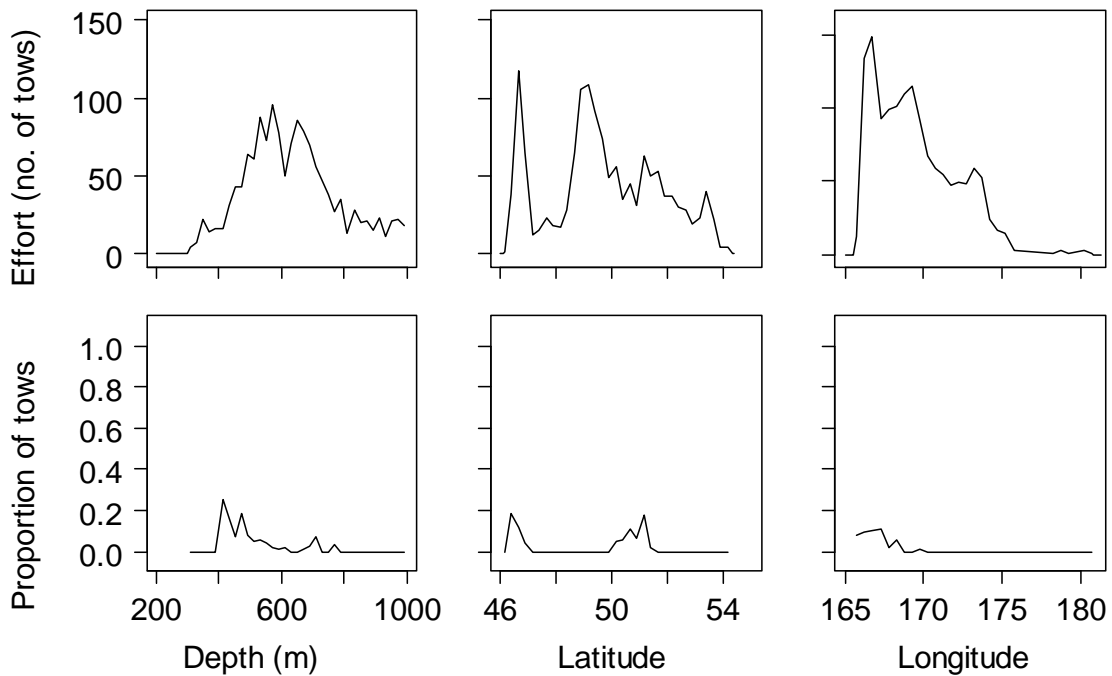
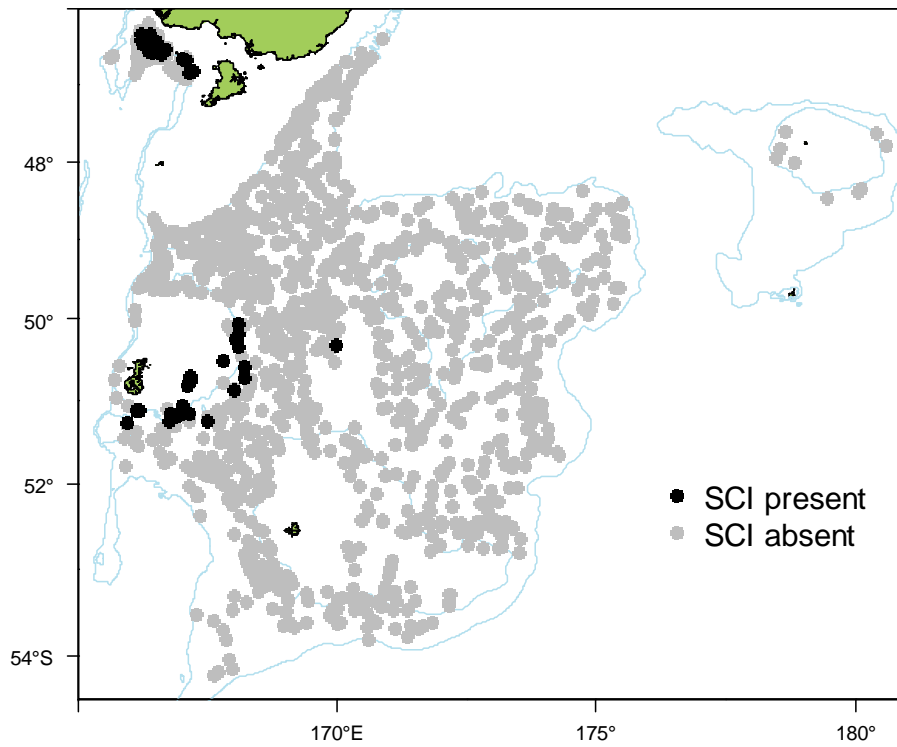
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	11
Total catch weight (kg):	24.0
Number measured	119
Length range (mean) (cm)	1–10 (5)
Number weighed	116
Length-weight parameters a, b (r^2)	–

This species has been **well** identified during the time series. It is found **shallower than 300 m**. The core survey area and depth range **is** appropriate for this species. Distribution **does not** extend to the areas deeper than 800 m surveyed from 2000 to 2009. It **is not** recorded from the Bounty Platform.

Biomass of this species is **poorly** estimated by the core survey. Biomass **shows no clear trend** since the start of the time series. Catchrates are highest in shallower depths around the Auckland Islands and at Puysegur.

There is no length data or stage presented.

Distribution of *Metanephrops challengeri* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Metanephrops challengeri* for core strata, strata outside the core area and all strata.

Survey	Core		Strata		Stratum		Stratum		Total	Total
	biomass	(c.v.)	27+28	27+28	26	26	17	17		
TAN9105	4	80	NA	NA	NA	NA	NA	NA	4	80
TAN9211	0	0	NA	NA	NA	NA	0	0	0	0
TAN9310	1	100	NA	NA	NA	NA	0	0	1	100
TAN0012	1	65	0	0	0	0	NA	NA	1	65
TAN0118	32	74	0	0	0	0	NA	NA	32	74
TAN0219	6	64	0	0	0	0	NA	NA	6	64
TAN0317	2	72	0	0	NA	NA	NA	NA	2	72
TAN0414	3	45	0	0	NA	NA	NA	NA	3	45
TAN0515	6	100	0	0	0	0	NA	NA	6	100
TAN0617	51	34	0	0	NA	NA	NA	NA	51	34
TAN0714	8	54	0	0	0	0	NA	NA	8	54
TAN0813	5	61	0	0	0	0	NA	NA	5	61
TAN0911	0	0	0	0	0	0	NA	NA	0	0

Trends in relative biomass estimates (± 2 standard errors) of *Metanephrops challengeri* for core strata (above) and all strata (below).

