



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

Supplement B: Species codes CYO to LHO

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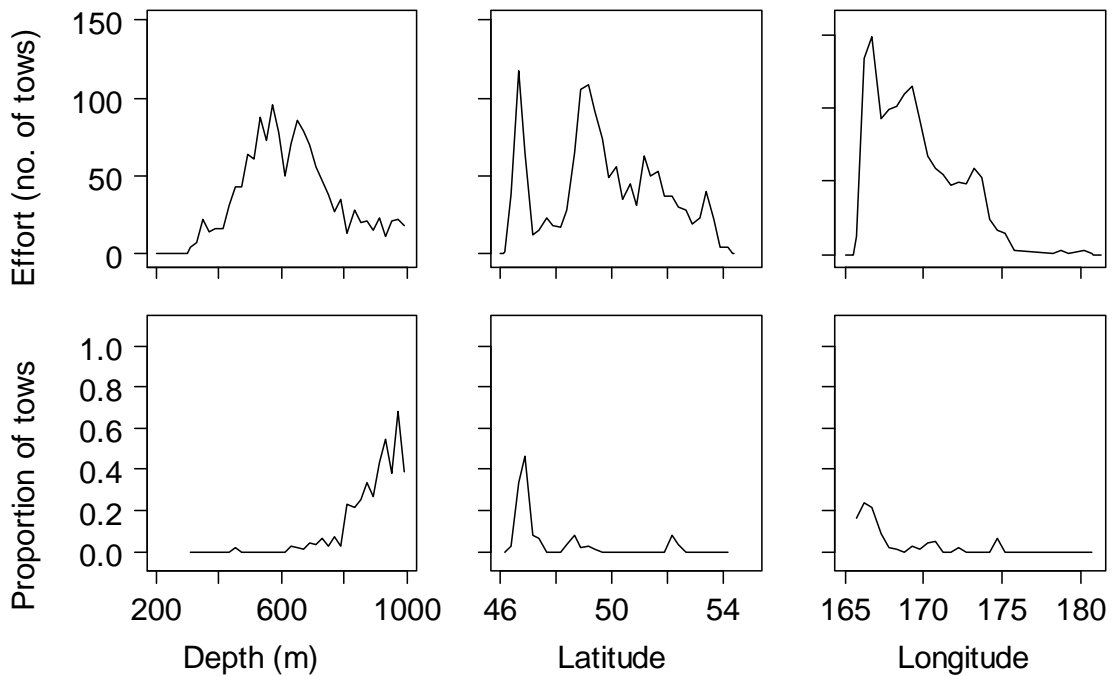
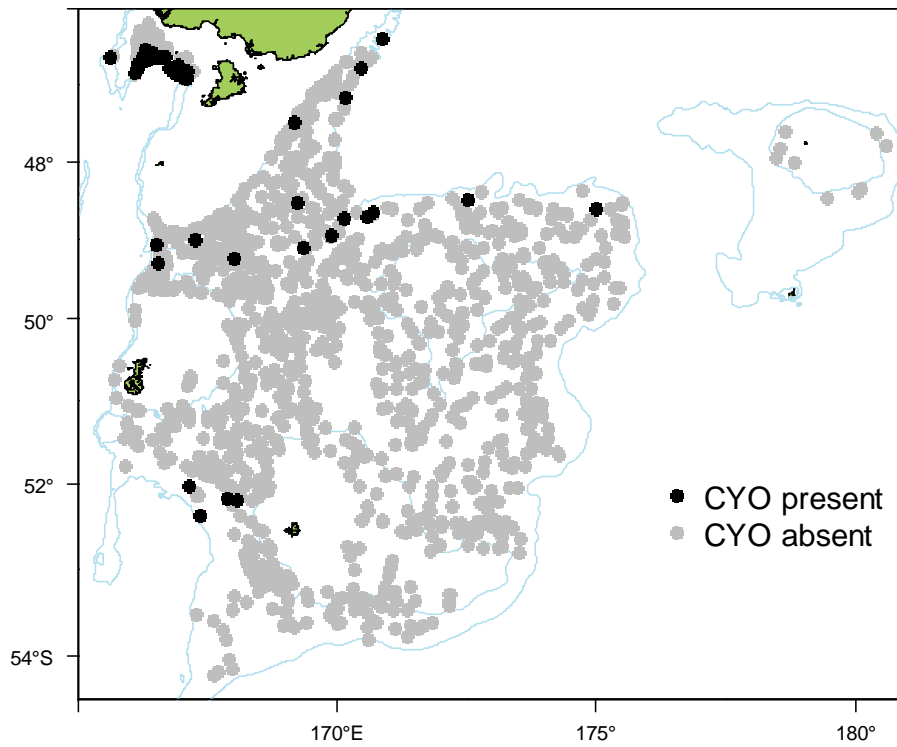
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	12
Total catch weight (kg):	1 244.6
Number measured	406
Length range (mean) (cm)	28–116 (61.0)
Number weighed	240
Length-weight parameters a, b (r^2)	–

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

Gonad stage data indicate that most fish are **immature**.

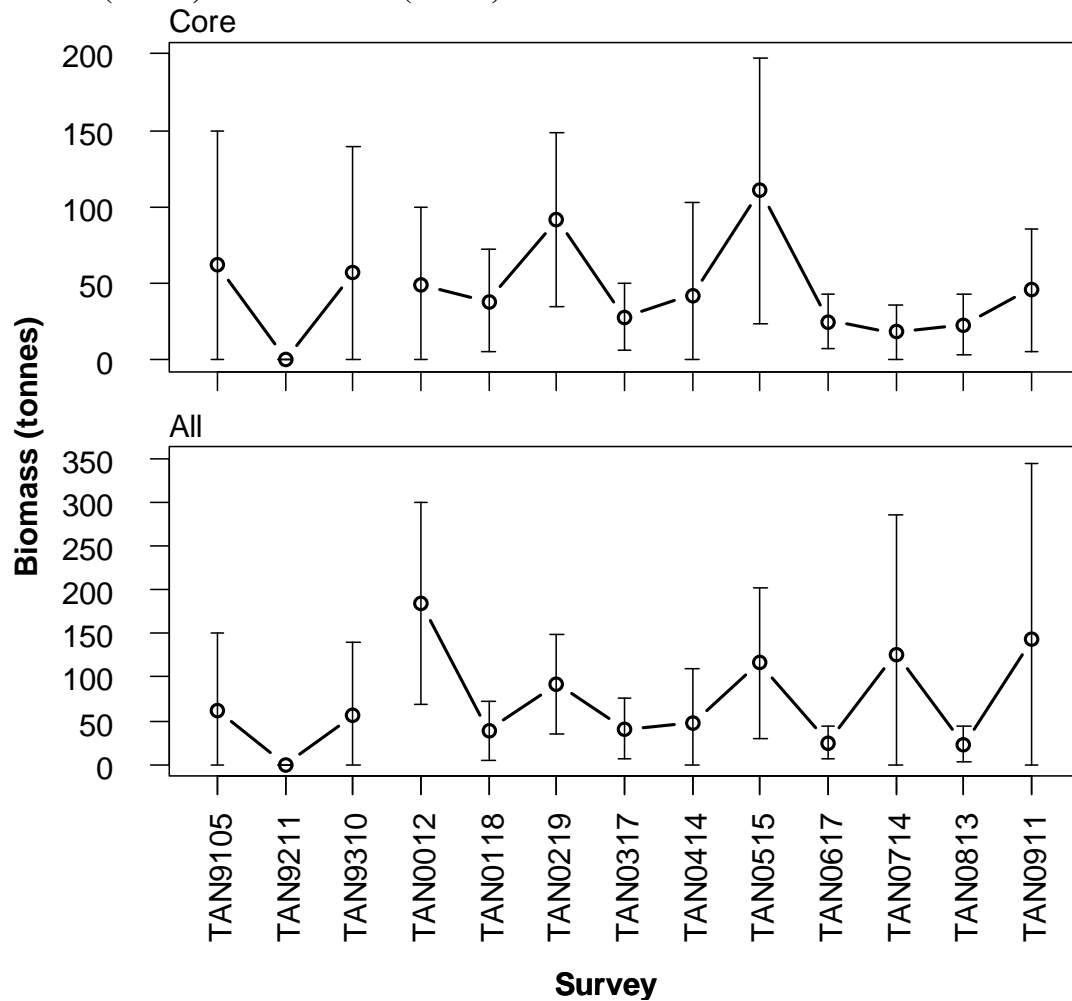
Distribution of *Centroscymnus owstoni* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Centroscymnus owstoni* 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	62	70	NA	NA	NA	NA	NA	NA	62	70
TAN9211	0	0	NA	NA	NA	NA	0	0	0	0
TAN9310	57	72	NA	NA	NA	NA	0	0	57	72
TAN0012	49	52	134	39	0	0	NA	NA	184	32
TAN0118	38	44	0	0	0	0	NA	NA	38	44
TAN0219	92	31	0	0	0	0	NA	NA	92	31
TAN0317	28	40	14	100	NA	NA	NA	NA	41	42
TAN0414	42	74	6	100	NA	NA	NA	NA	47	66
TAN0515	111	39	5	100	0	0	NA	NA	116	38
TAN0617	25	36	0	0	NA	NA	NA	NA	25	36
TAN0714	18	49	68	100	40	100	NA	NA	126	63
TAN0813	23	44	0	0	0	0	NA	NA	23	44
TAN0911	46	44	0	0	98	100	NA	NA	144	70

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



Gonad stage summaries by sex for *Centroscymnus owstoni*. 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	77	8	15	100	0	0	0	0	0
ALL	77	8	15	100	0	0	0	0	0



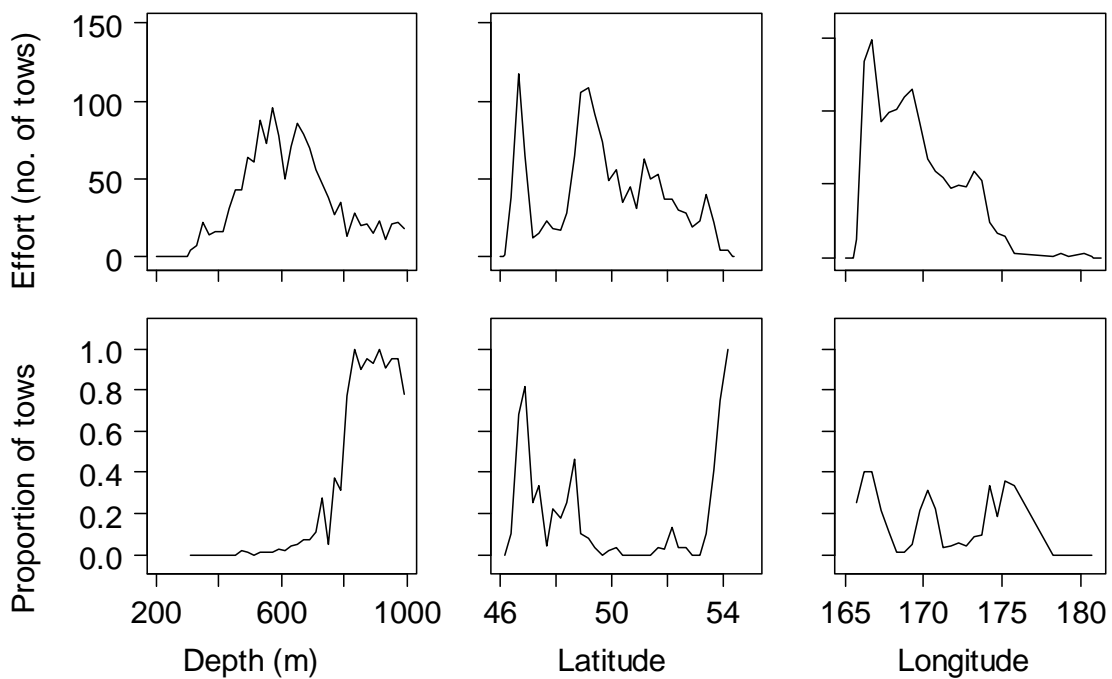
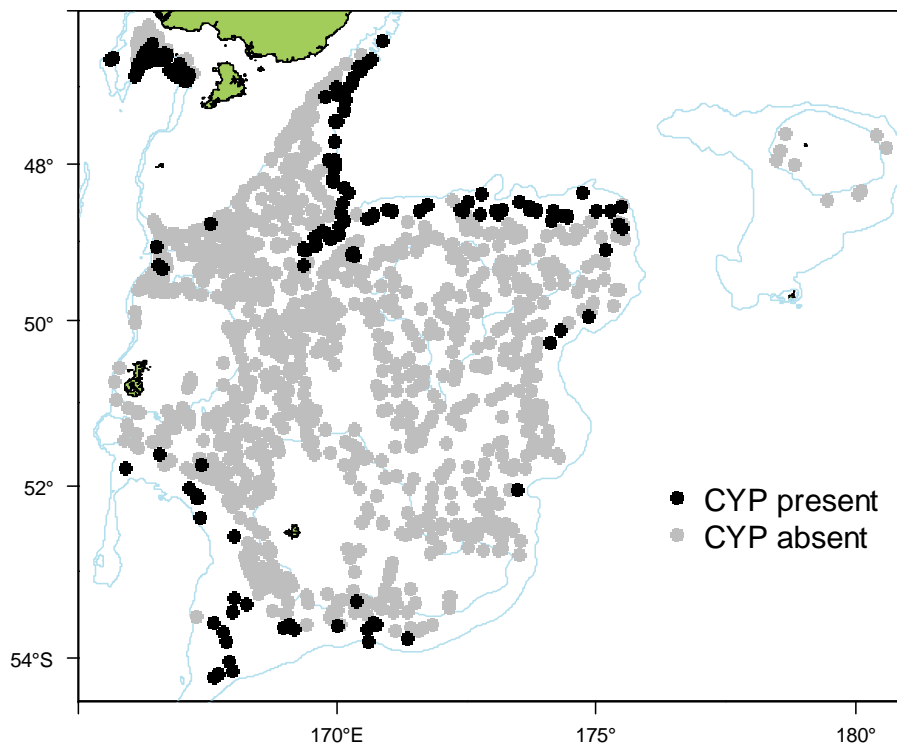
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	13 706.3
Number measured	3 537
Length range (mean) (cm)	24–101 (71.1)
Number weighed	2 165
Length-weight parameters a, b (r^2)	0.0015188, 3.265615 (98.50)

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 **moderately well** estimated by the core survey. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is also **well** estimated. Biomass **shows no clear trend** since the start of the time series. Higher catchrates are recorded from the **northwest** at Puysegur and east of the Stewart/Snares.

Length frequencies **have multiple modes** and include both adults and juveniles. Mean length shows **no clear trend** since the start of the time series. Gonad stage data indicate that most fish are **immature and mature**.

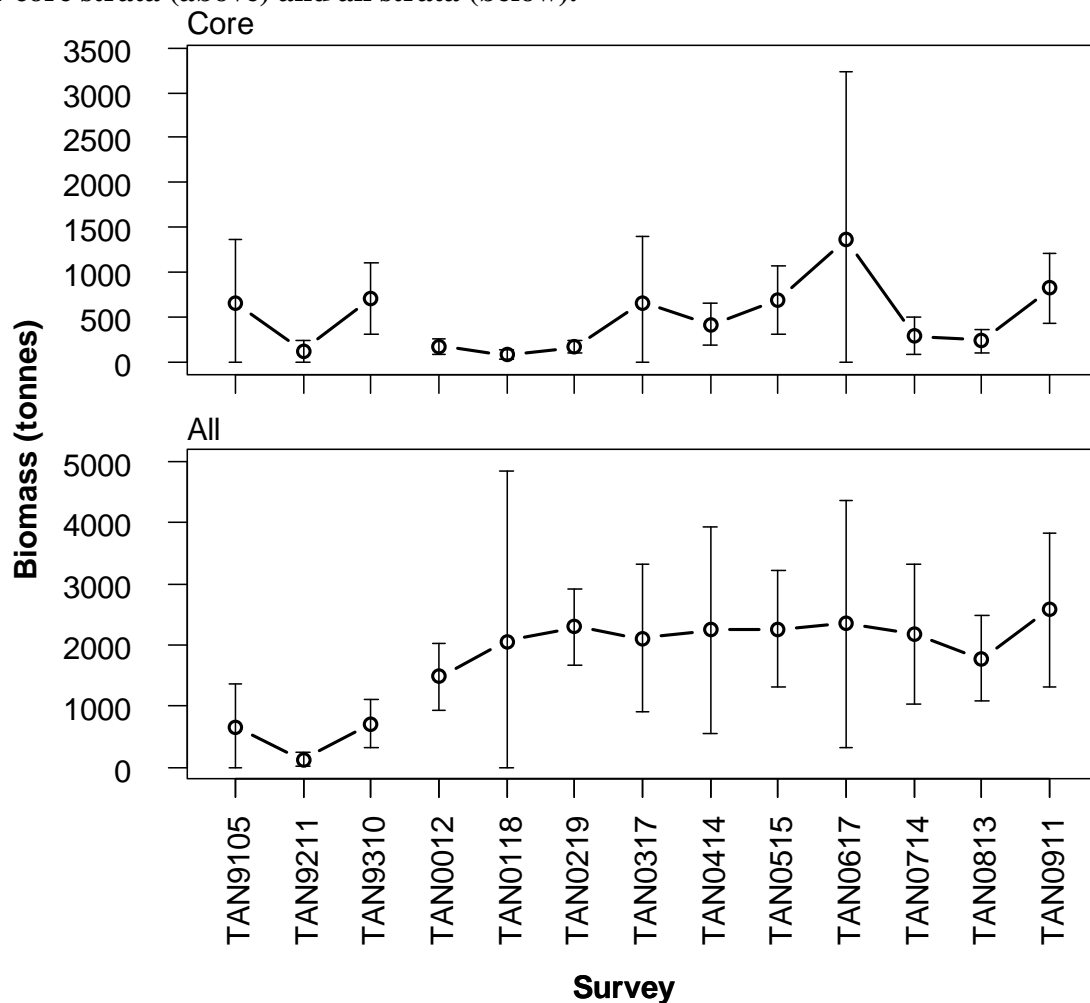
Distribution of *Centroscymnus crepidater* from all summer surveys. Valid biomass stations only.



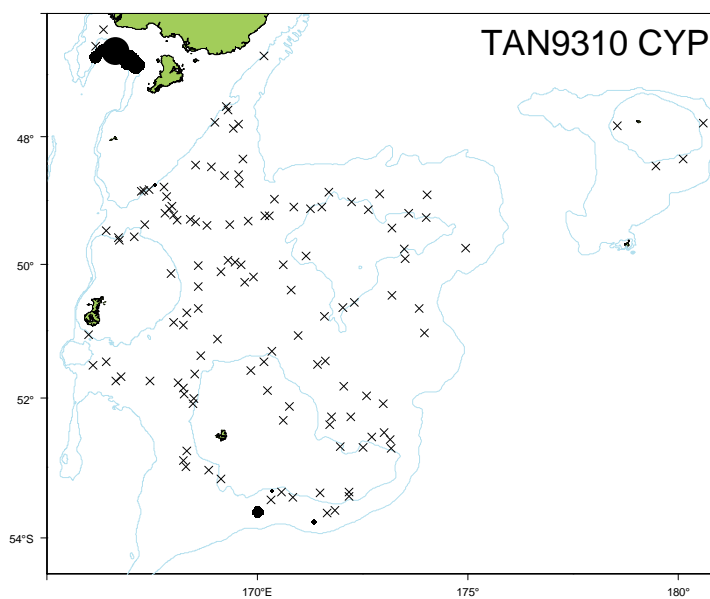
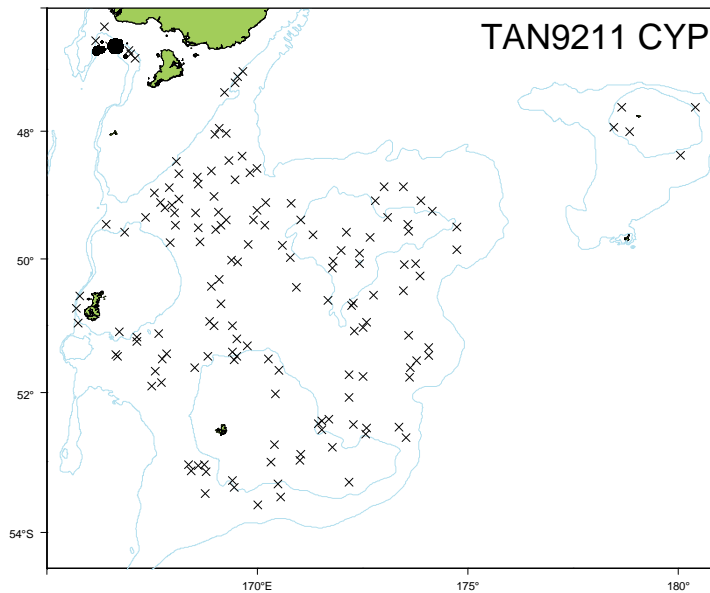
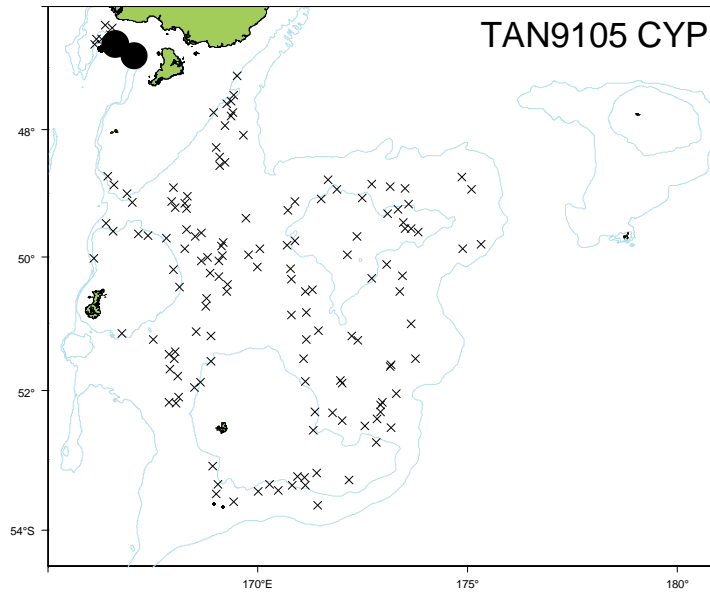
Relative biomass estimates (t) and c.v.s (%) of *Centroscymnus crepidater* for core strata, strata outside the core area and all strata.

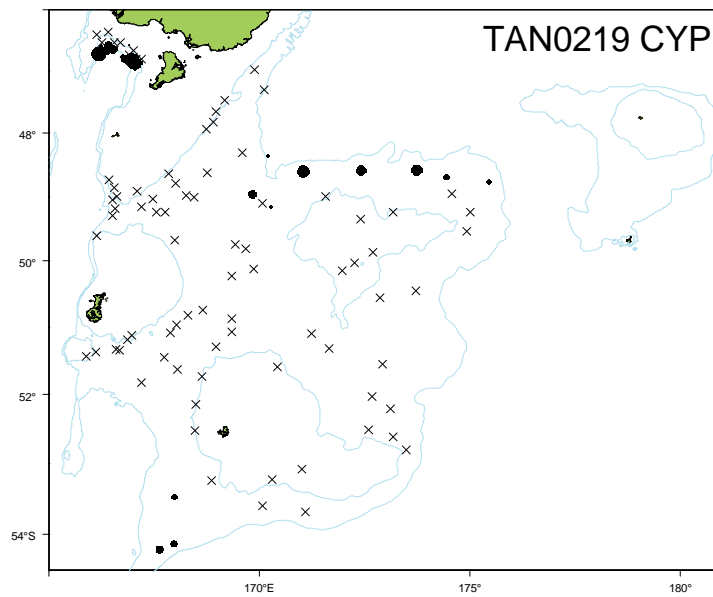
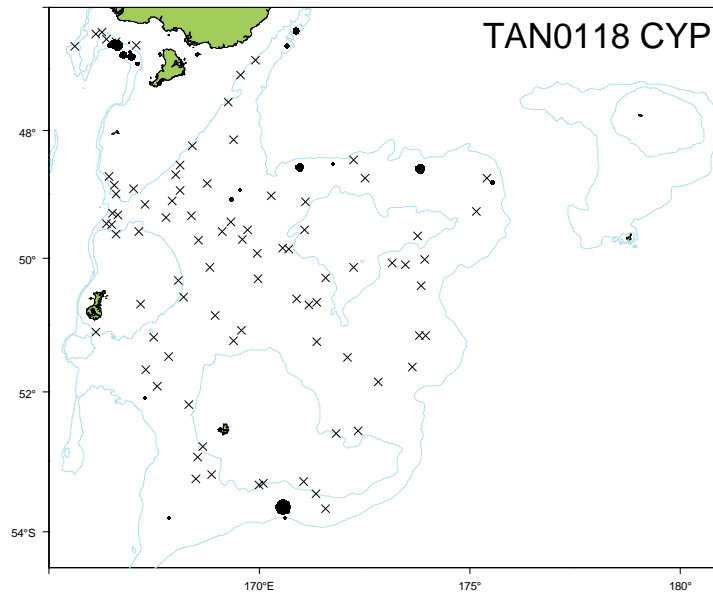
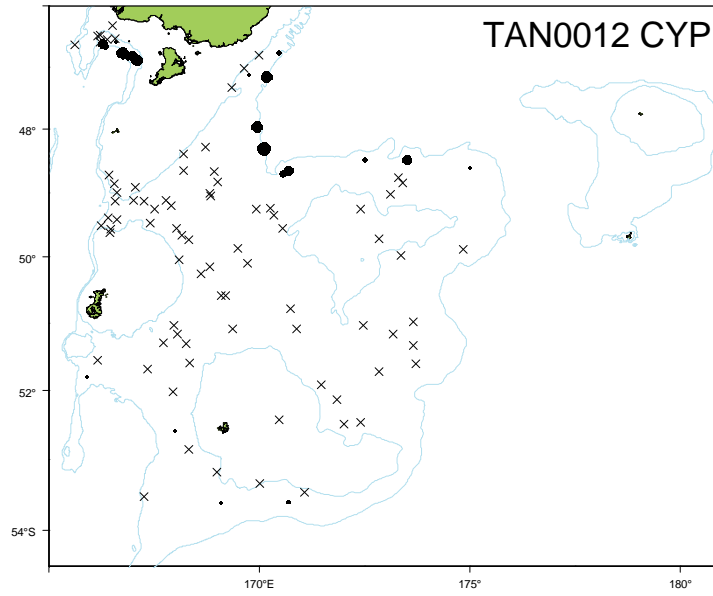
Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	656	54	NA	NA	NA	NA	NA	NA	656	54
TAN9211	126	47	NA	NA	NA	NA	0	0	126	47
TAN9310	713	28	NA	NA	NA	NA	0	0	713	28
TAN0012	173	25	1176	21	133	81	NA	NA	1482	19
TAN0118	88	29	460	37	1501	92	NA	NA	2049	68
TAN0219	169	21	1039	27	1084	12	NA	NA	2293	13
TAN0317	663	55	1448	33	NA	NA	NA	NA	2112	28
TAN0414	420	28	1821	46	NA	NA	NA	NA	2241	38
TAN0515	696	27	863	19	701	58	NA	NA	2260	21
TAN0617	1365	68	977	38	NA	NA	NA	NA	2343	43
TAN0714	297	35	1370	36	509	53	NA	NA	2176	26
TAN0813	240	28	1266	27	274	19	NA	NA	1780	20
TAN0911	824	23	1706	35	46	77	NA	NA	2575	24

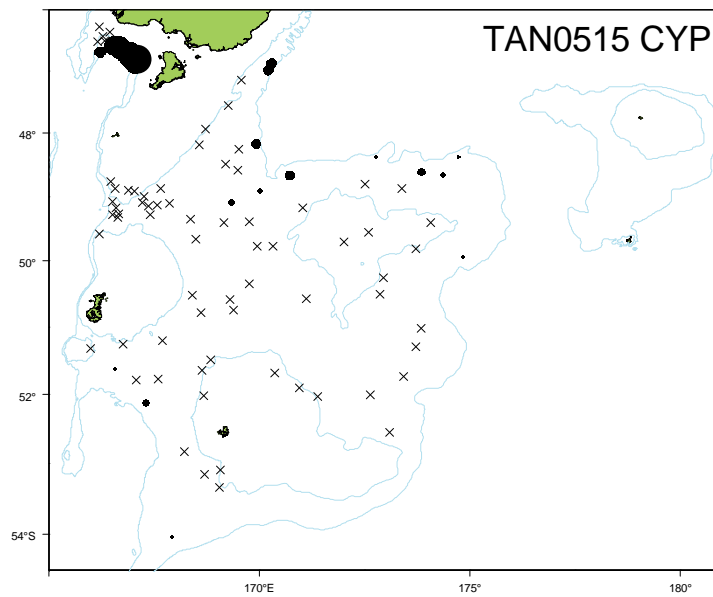
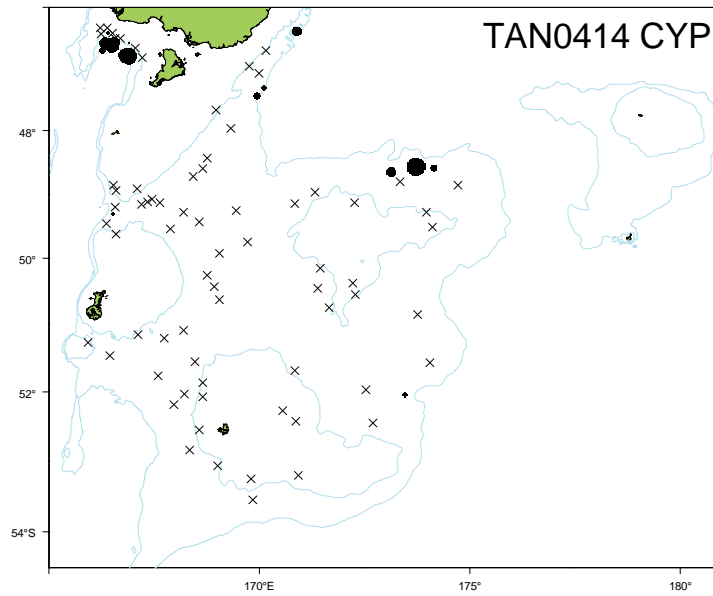
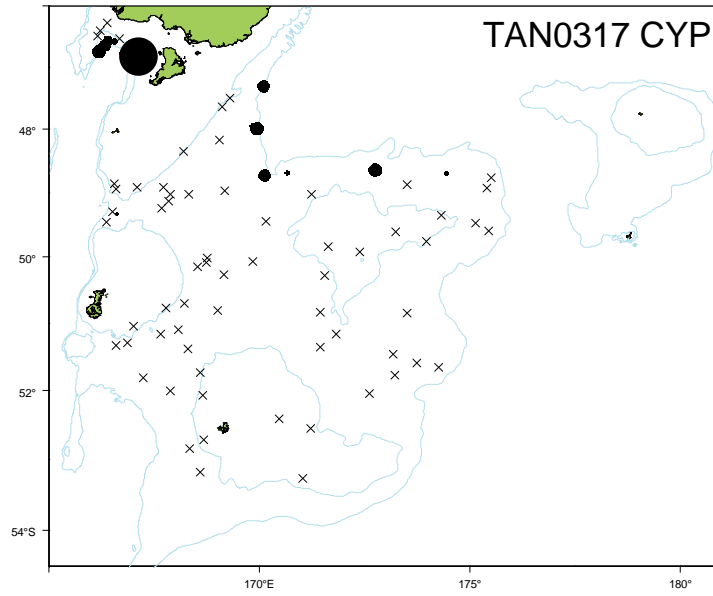
Trends in relative biomass estimates (± 2 standard errors) of *Centroscymnus crepidater* for core strata (above) and all strata (below).

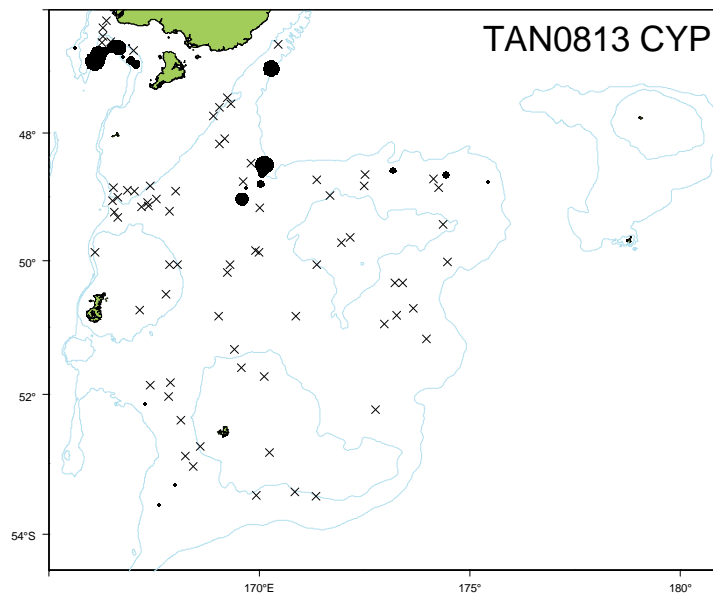
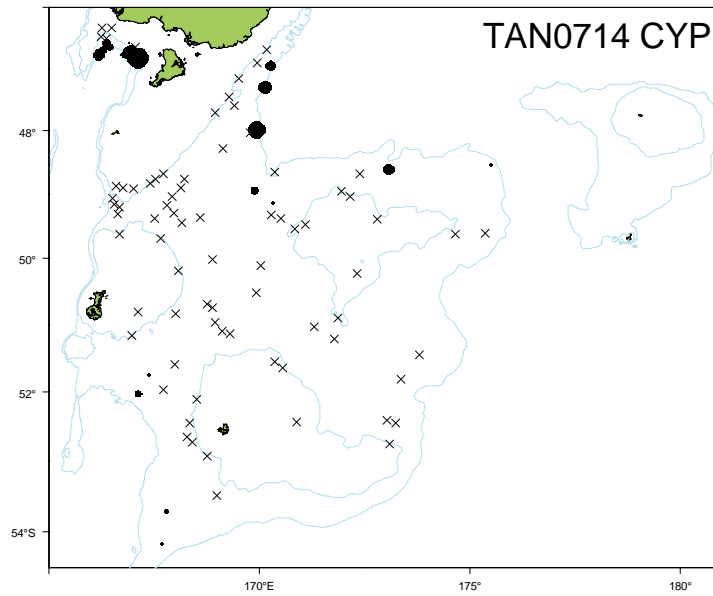
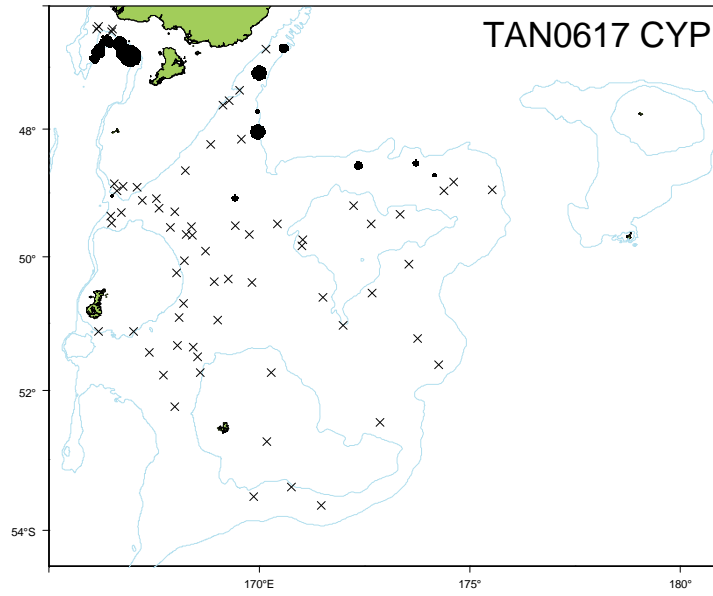


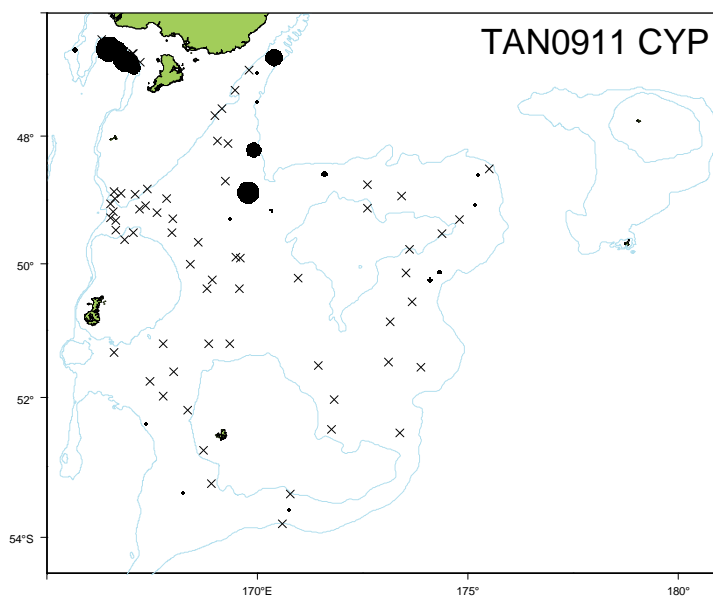
Catchrates of *Centroscymnus crepidater*. Circle area is proportional to the maximum catchrate from all surveys (see Table 5).







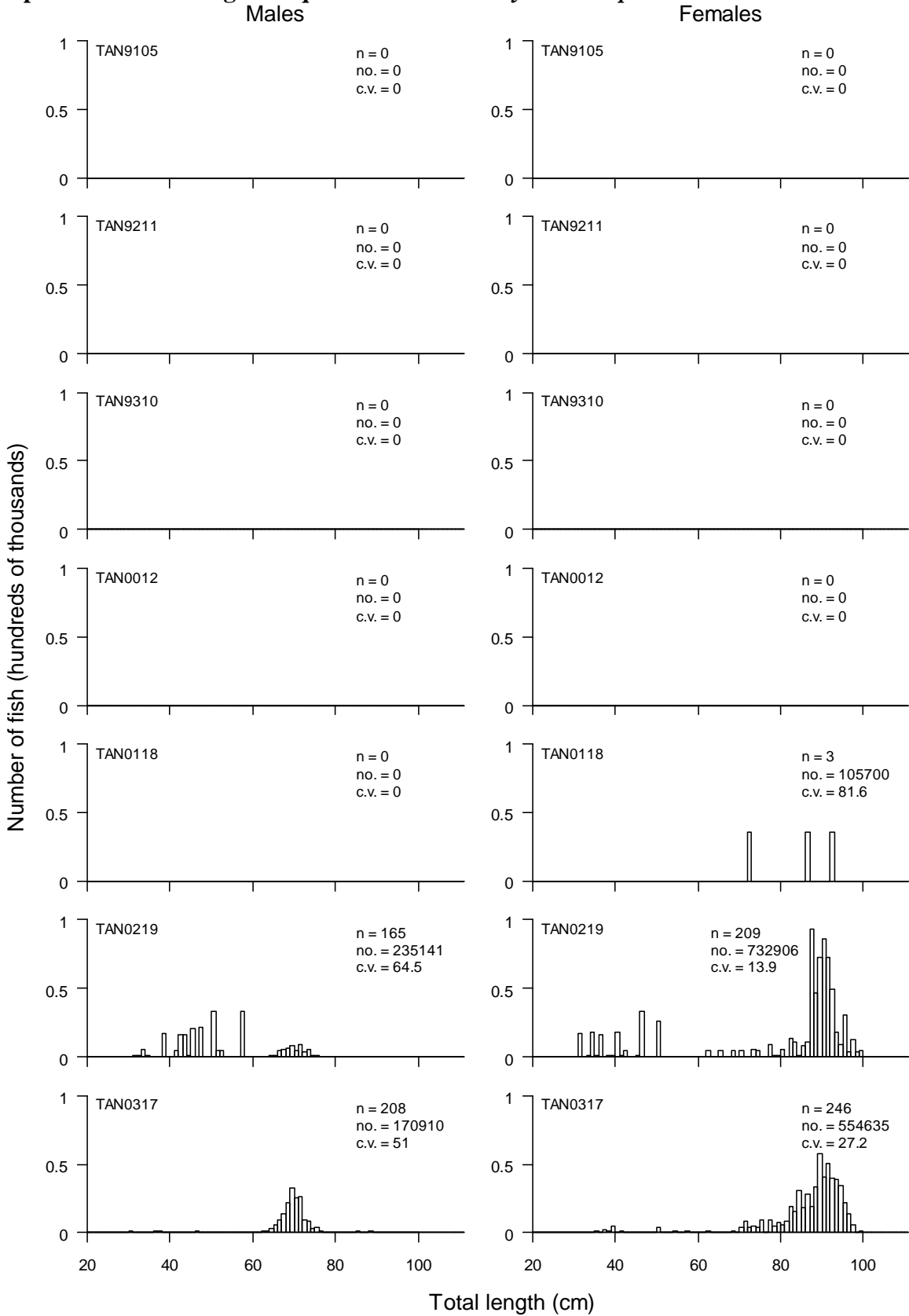


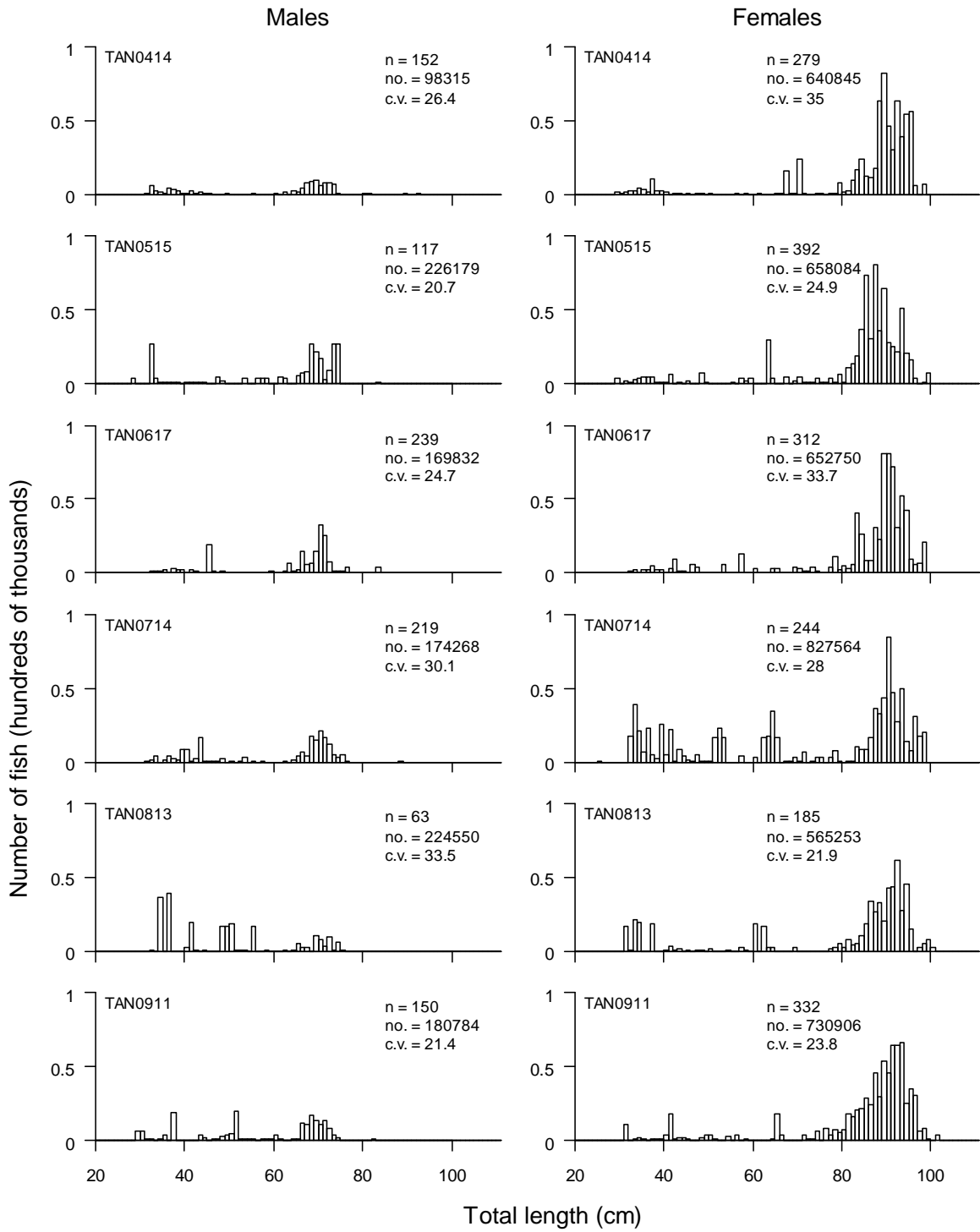


Length summaries

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	54	92	83.3	3
TAN0219	31	99	71.0	382
TAN0317	30	99	77.5	454
TAN0414	29	98	69.9	431
TAN0515	28	99	77.3	509
TAN0617	24	98	70.5	563
TAN0714	25	98	68.2	463
TAN0813	31	100	77.5	248
TAN0911	29	101	77.4	483

Population scaled length frequencies of *Centroscymnus crepidater* for all strata.





Gonad stage summaries by sex for *Centroscymnus crepidater*. 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	35	2	63	19	29	27	10	14	1
ALL	35	2	63	19	29	27	10	14	1



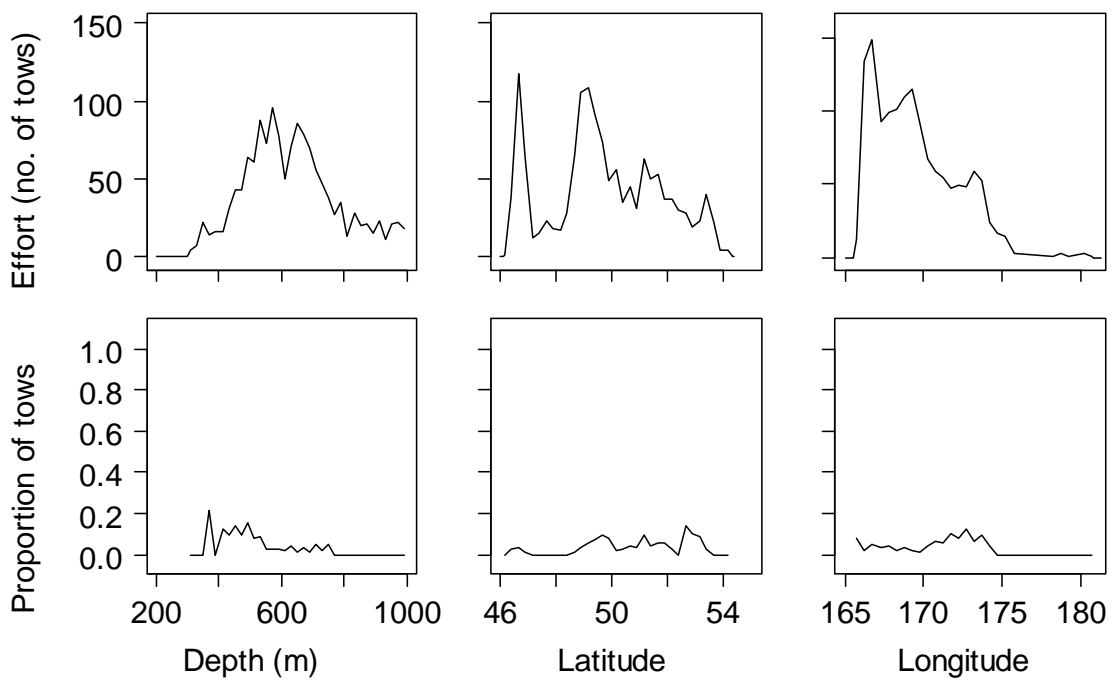
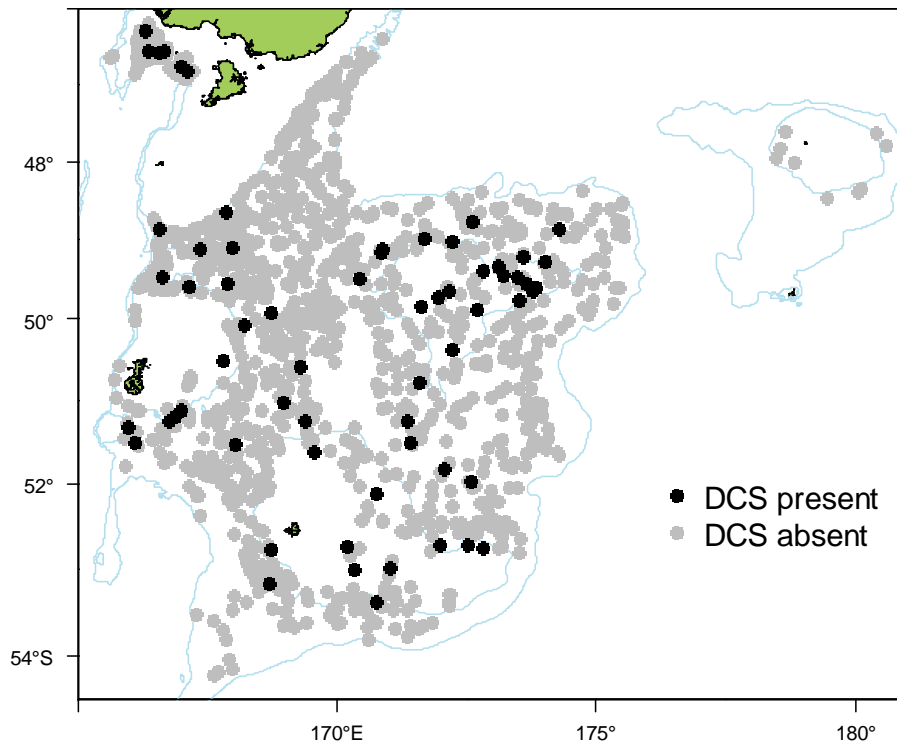
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	12
Total catch weight (kg):	21.1
Number measured	16
Length range (mean) (cm)	27–41 (34.9)
Number weighed	15
Length-weight parameters a, b (r^2)	–

This species **has** been well identified during the time series. It is not found **deeper than 800 m**. The core survey area and depth range **is** appropriate for this group. 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.

There is no **length or gonad stage data** presented.

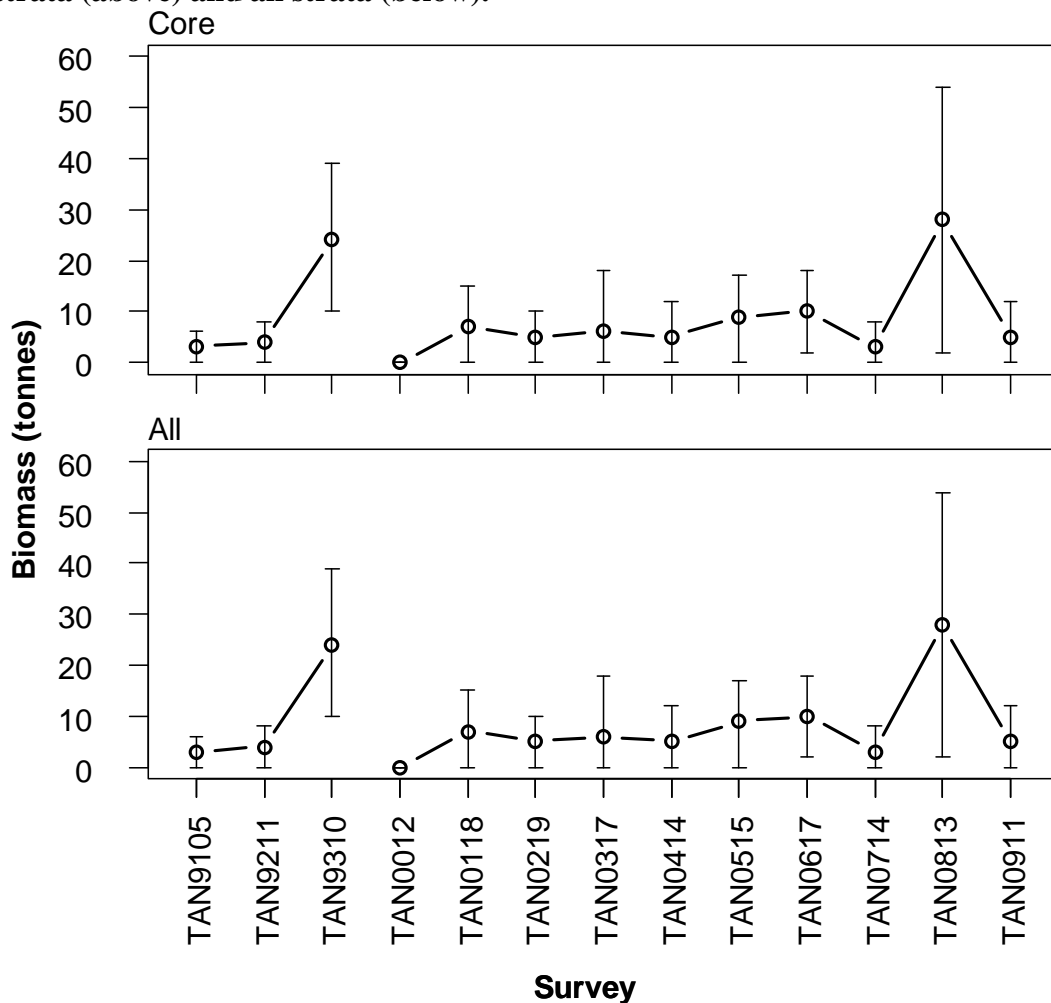
Distribution of *Halaelurus dawsoni* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Halaelurus dawsoni* 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	3	45	NA	NA	NA	NA	NA	NA	3	45
TAN9211	4	45	NA	NA	NA	NA	0	0	4	45
TAN9310	24	29	NA	NA	NA	NA	0	0	24	29
TAN0012	0	0	0	0	0	0	NA	NA	0	0
TAN0118	7	52	0	0	0	0	NA	NA	7	52
TAN0219	5	59	0	0	0	0	NA	NA	5	59
TAN0317	6	100	0	0	NA	NA	NA	NA	6	100
TAN0414	5	63	0	0	NA	NA	NA	NA	5	63
TAN0515	9	50	0	0	0	0	NA	NA	9	50
TAN0617	10	40	0	0	NA	NA	NA	NA	10	40
TAN0714	3	100	0	0	0	0	NA	NA	3	100
TAN0813	28	47	0	0	0	0	NA	NA	28	47
TAN0911	5	61	0	0	0	0	NA	NA	5	61

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





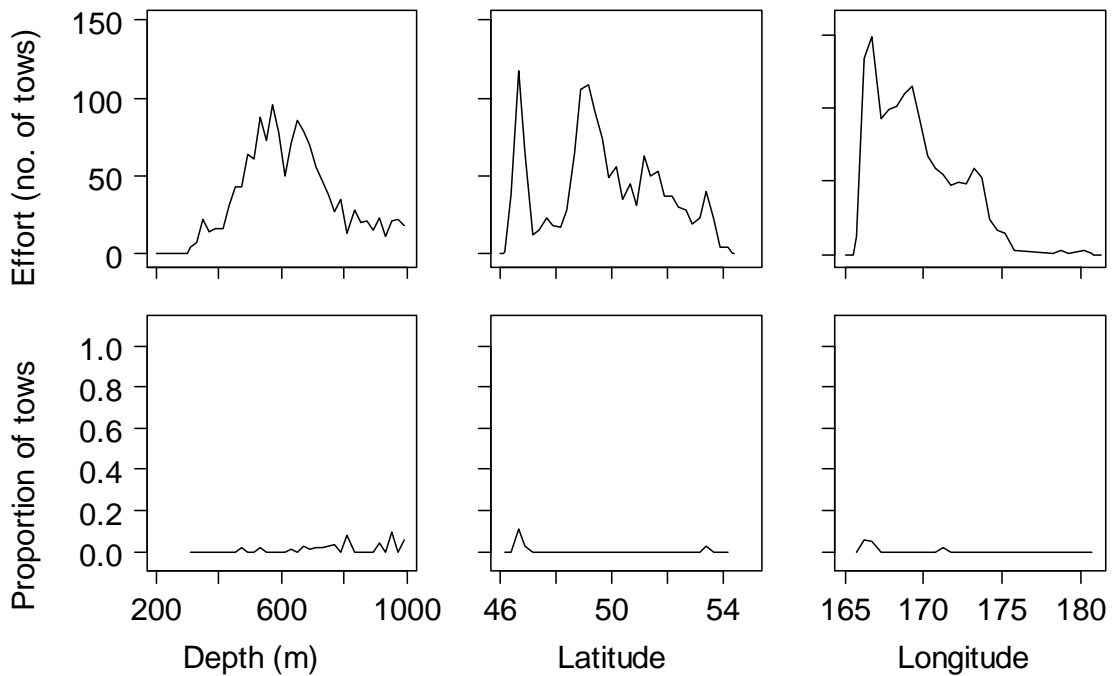
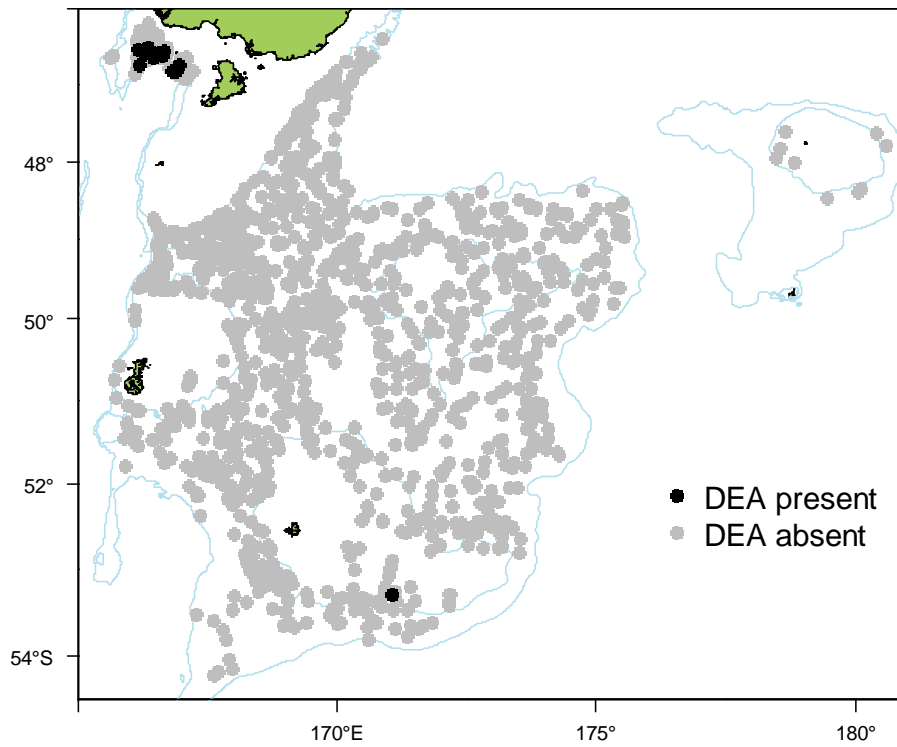
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	9
Total catch weight (kg):	133.6
Number measured	0
Length range (mean) (cm)	–
Number weighed	0
Length-weight parameters a, b (r^2)	–

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. 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. Catch rates are highest at **Puysegur**.

There is no length or gonad stage information presented.

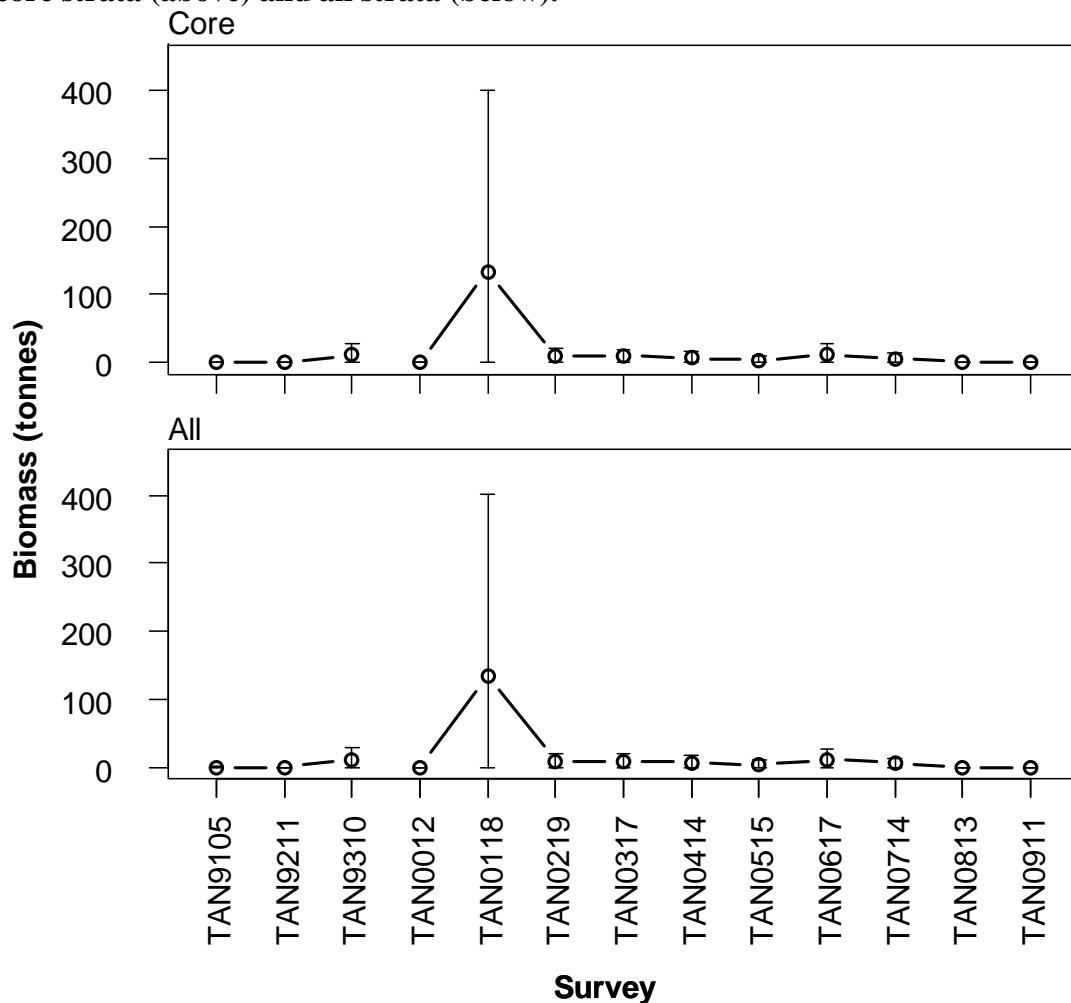
Distribution of *Trachipterus trachipterus* from all summer surveys. Valid biomass stations only.

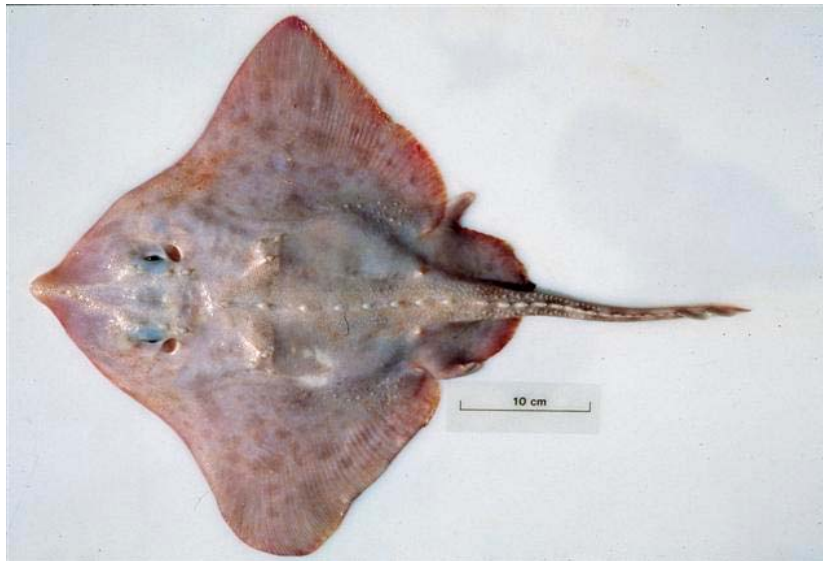


Relative biomass estimates (t) and c.v.s (%) of *Trachipterus trachipterus* for core strata, strata outside the core area and all strata.

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	100	NA	NA	NA	NA	NA	NA	0	100
TAN9211	0	0	NA	NA	NA	NA	0	0	0	0
TAN9310	11	73	NA	NA	NA	NA	0	0	11	73
TAN0012	0	0	0	0	0	0	NA	NA	0	0
TAN0118	134	100	0	0	0	0	NA	NA	134	100
TAN0219	9	64	0	0	0	0	NA	NA	9	64
TAN0317	9	59	0	0	NA	NA	NA	NA	9	59
TAN0414	7	73	0	0	NA	NA	NA	NA	7	73
TAN0515	3	100	0	0	0	0	NA	NA	3	100
TAN0617	11	74	0	0	NA	NA	NA	NA	11	74
TAN0714	6	71	0	0	0	0	NA	NA	6	71
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 *Trachipterus trachipterus* for core strata (above) and all strata (below).





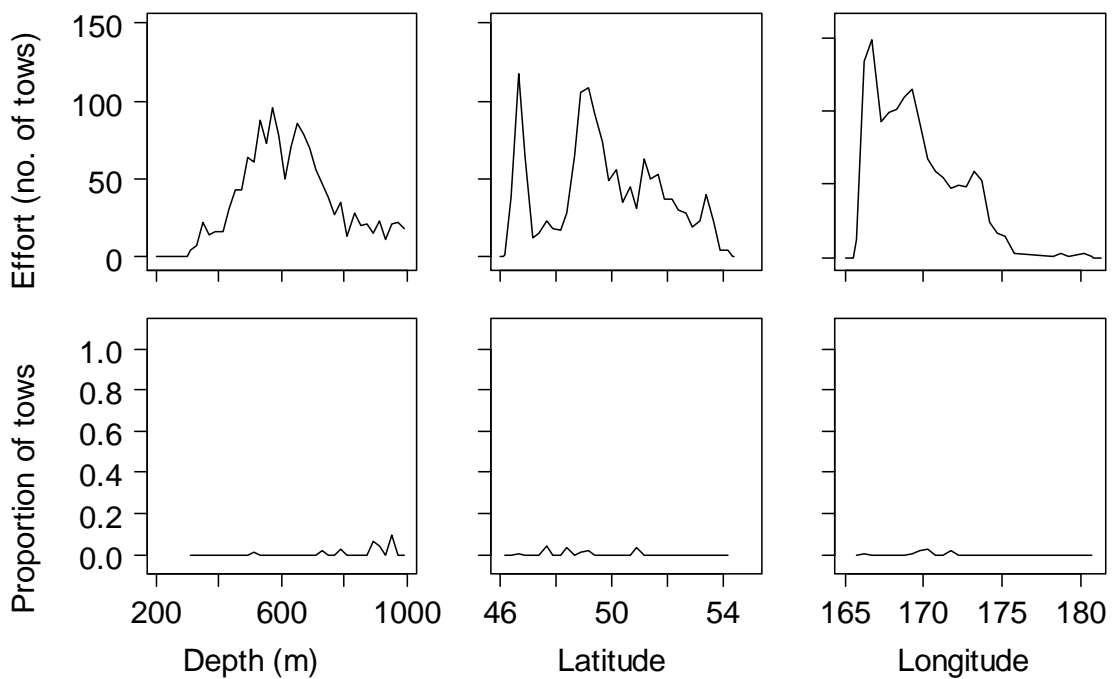
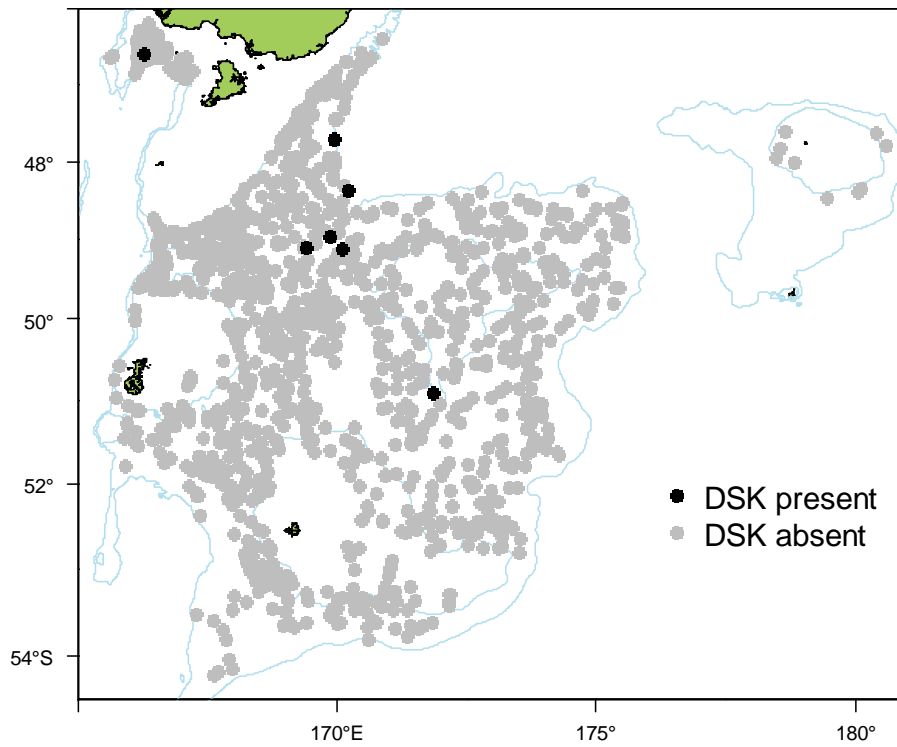
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	26.9
Number measured	0
Length range (mean) (cm)	–
Number weighed	0
Length-weight parameters a, b (r^2)	–

This species **has** been well identified during the time series. It is found **deeper than 800 m**. The core survey area and depth range **is not** 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.

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. 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 the **north and west**.

There is no length or gonad stage information presented.

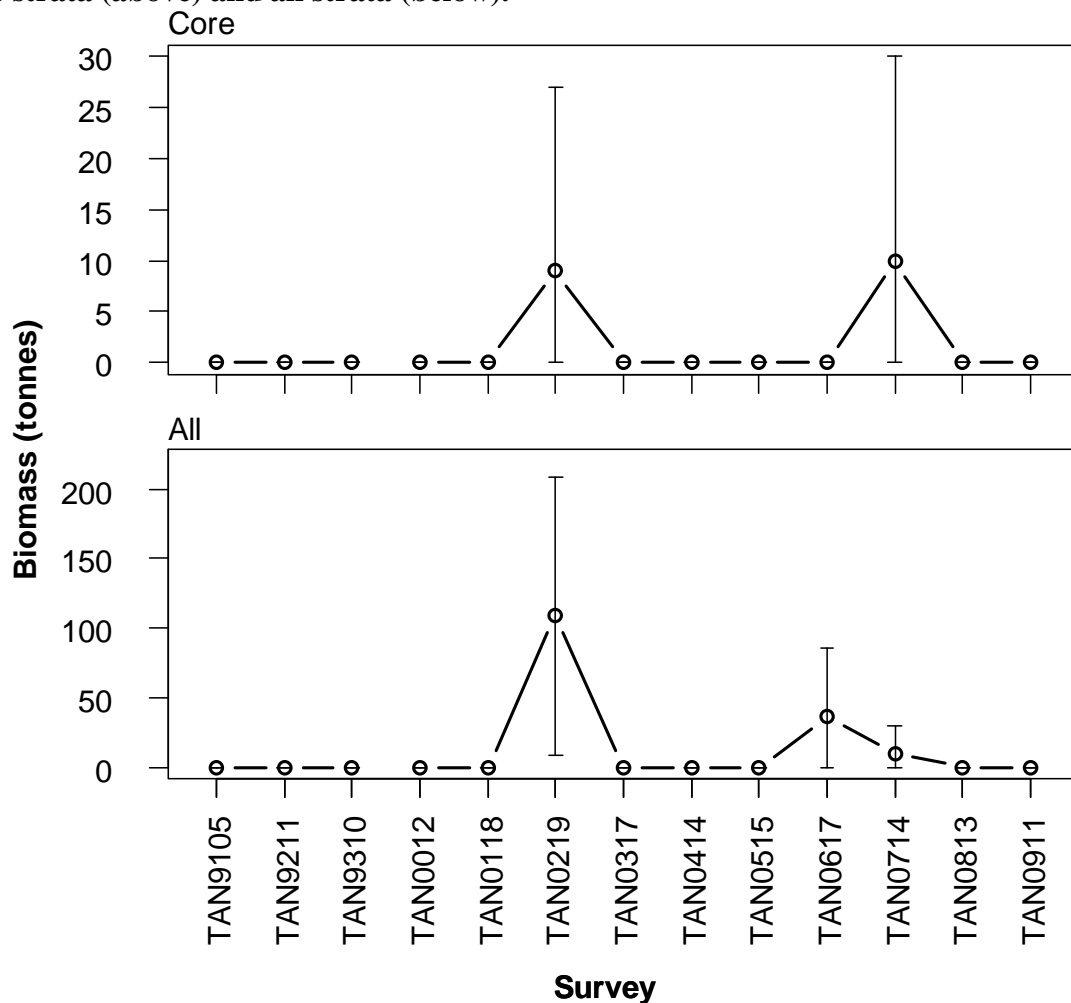
Distribution of *Amblyraja hyperborea* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Amblyraja hyperborea* 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	0	NA	NA	NA	NA	NA	0	0	0	NA
TAN0012	0	NA	0	0	0	0	NA	NA	0	NA
TAN0118	0	NA	0	0	0	0	NA	NA	0	NA
TAN0219	9	100	99	50	0	0	NA	NA	109	47
TAN0317	0	NA	0	0	NA	NA	NA	NA	0	NA
TAN0414	0	NA	0	0	NA	NA	NA	NA	0	NA
TAN0515	0	NA	0	0	0	0	NA	NA	0	NA
TAN0617	0	NA	36	71	NA	NA	NA	NA	36	71
TAN0714	10	100	0	0	0	0	NA	NA	10	100
TAN0813	0	NA	0	0	0	0	NA	NA	0	NA
TAN0911	0	NA	0	0	0	0	NA	NA	0	NA

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





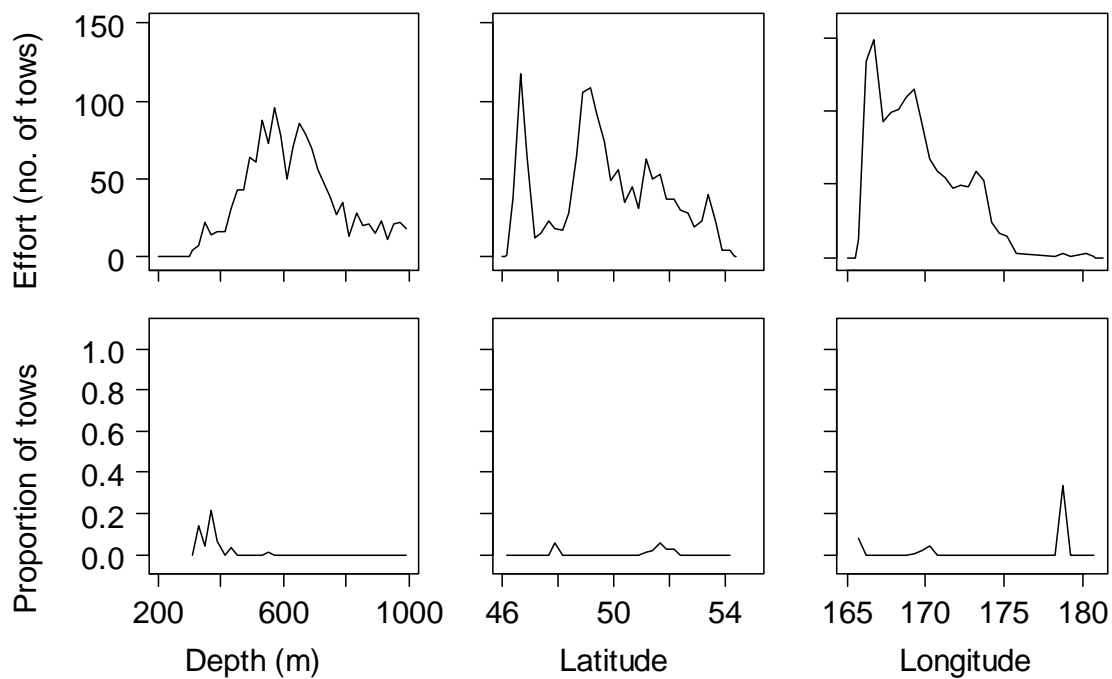
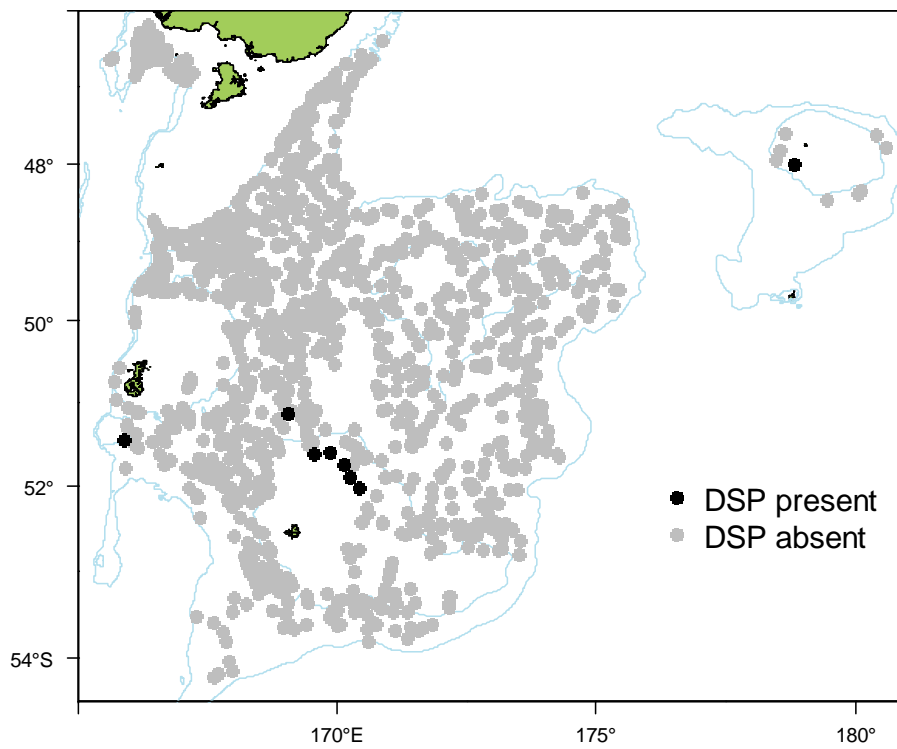
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	4
Total catch weight (kg):	19.9
Number measured	0
Length range (mean) (cm)	–
Number weighed	0
Length-weight parameters a, b (r^2)	–

This species has **been well** identified during the time series. It is found **shallower than 300 m**. The core survey area and depth range **is not** appropriate for this species. 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 to the **north** of Campbell Island.

There is no length or gonad stage information presented.

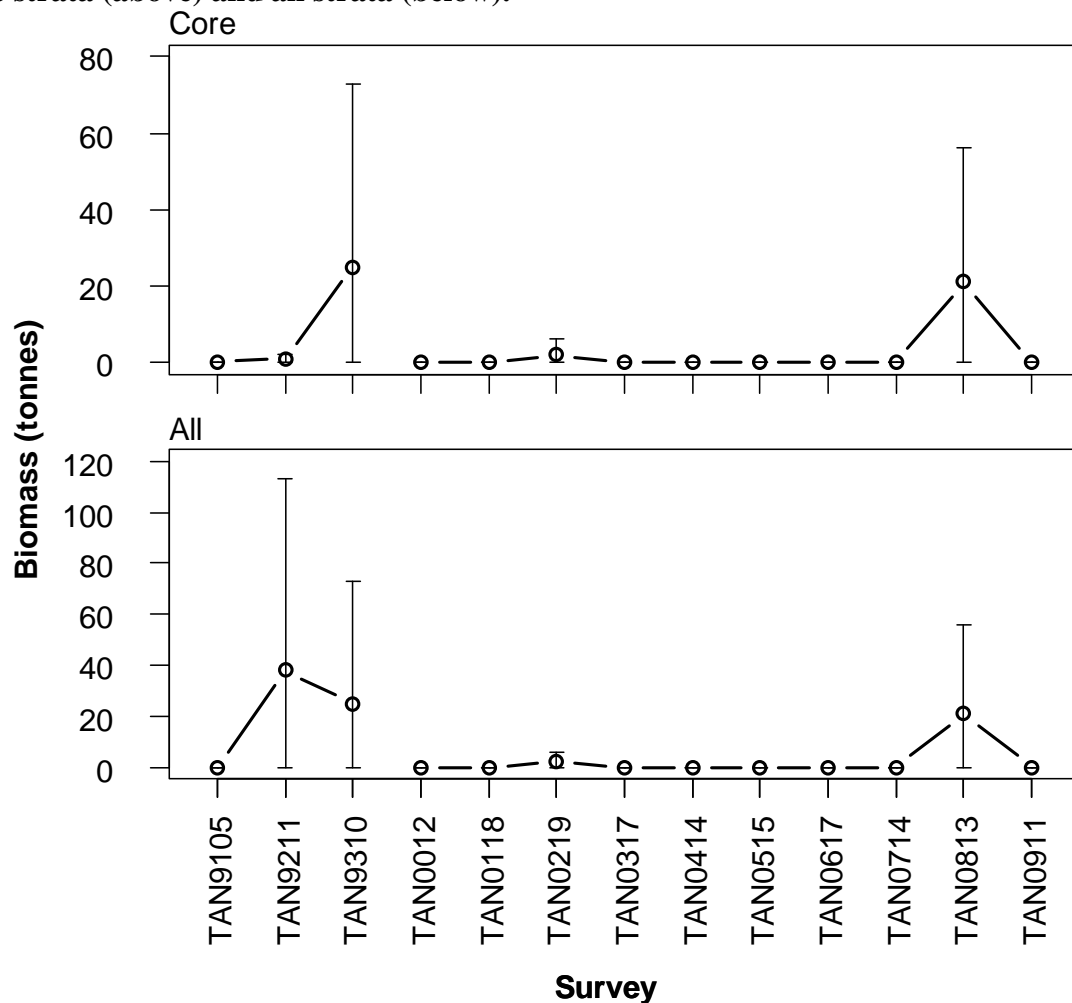
Distribution of *Congiopodus coriaceous* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Congiopodus coriaceus* 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	1	100	NA	NA	NA	NA	37	100	38	98
TAN9310	25	94	NA	NA	NA	NA	0	0	25	94
TAN0012	0	0	0	0	0	0	NA	NA	0	0
TAN0118	0	0	0	0	0	0	NA	NA	0	0
TAN0219	2	100	0	0	0	0	NA	NA	2	100
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	21	87	0	0	0	0	NA	NA	21	87
TAN0911	0	0	0	0	0	0	NA	NA	0	0

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



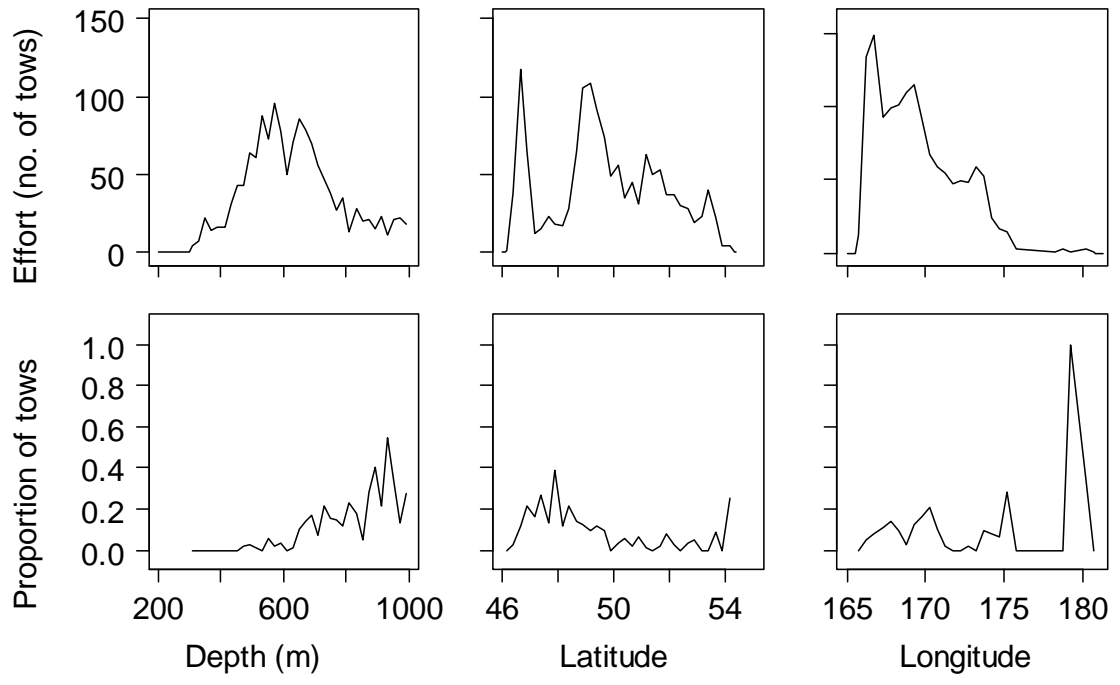
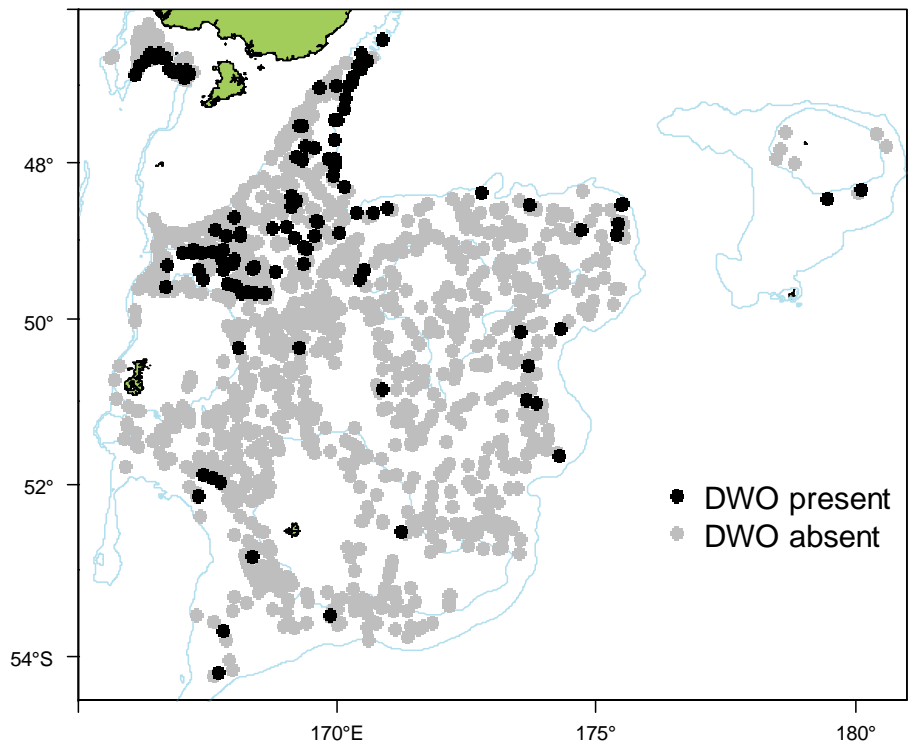


Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	12
Total catch weight (kg):	266.0
Number measured	0
Length range (mean) (cm)	–
Number weighed	0
Length-weight parameters a, b (r^2)	–

This species group **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** 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 the **north and west** of the survey area.

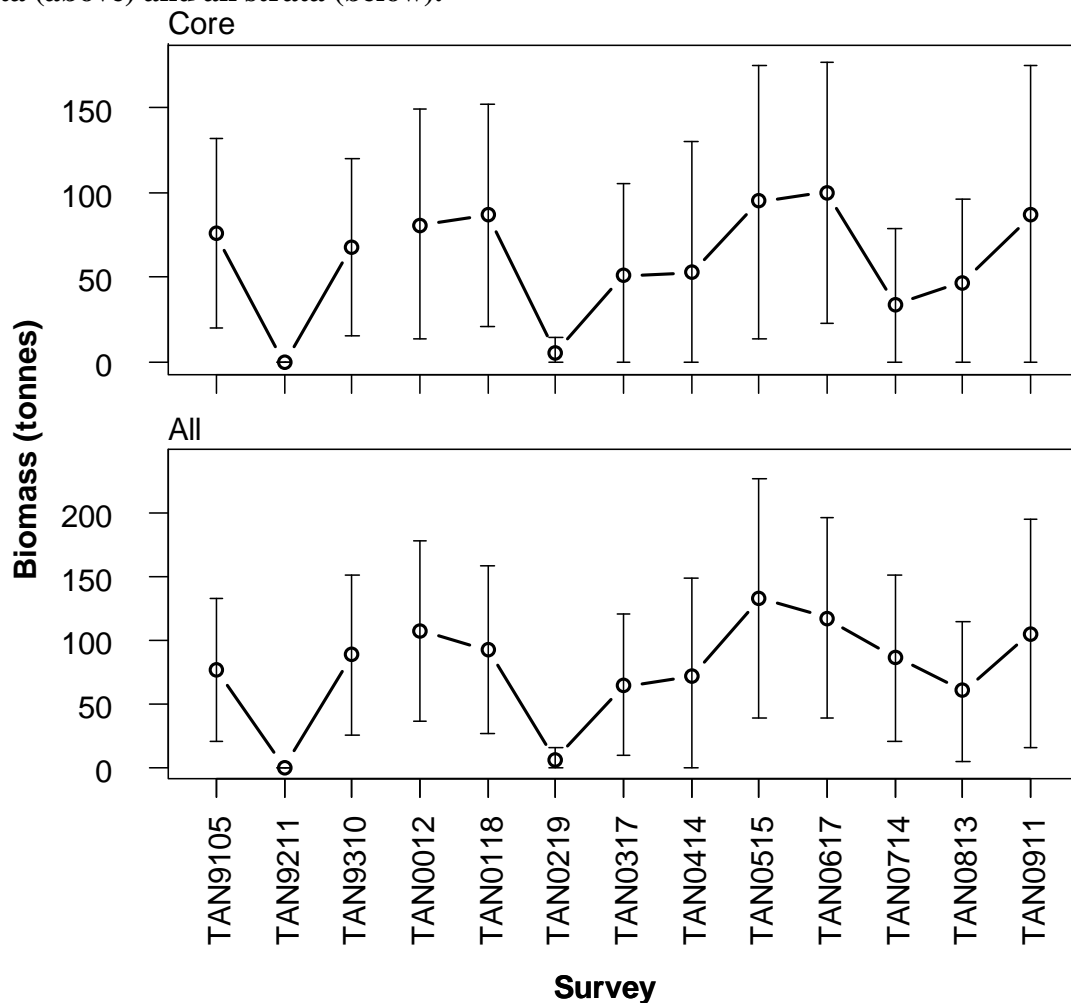
Distribution of *Graneledone* spp. from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Graneledone* spp. 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	76	37	NA	NA	NA	NA	NA	NA	76	37
TAN9211	0	0	NA	NA	NA	NA	0	0	0	0
TAN9310	68	38	NA	NA	NA	NA	20	90	88	36
TAN0012	81	41	25	46	0	0	NA	NA	107	33
TAN0118	87	38	6	62	0	0	NA	NA	92	36
TAN0219	6	76	0	0	0	0	NA	NA	6	76
TAN0317	51	52	13	55	NA	NA	NA	NA	64	43
TAN0414	53	72	18	8	NA	NA	NA	NA	71	54
TAN0515	95	42	15	36	24	100	NA	NA	133	35
TAN0617	100	39	17	38	NA	NA	NA	NA	117	33
TAN0714	34	66	28	48	24	81	NA	NA	86	38
TAN0813	47	52	13	93	0	0	NA	NA	60	46
TAN0911	87	50	18	56	0	0	NA	NA	105	43

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



**Coded as ACO**

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	14.9

Coded as ARA

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	3
Total catch weight (kg):	36.6

Coded as CID

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

Coded as DHO

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	3
Total catch weight (kg):	5.2

Coded as ECH

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	5
Total catch weight (kg):	18.0

Coded as ECN

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	5
Total catch weight (kg):	12.1

Coded as ECT

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.6

Coded as GOU

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	4
Total catch weight (kg):	1.7

Coded as GPA

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	9
Total catch weight (kg):	7.6

Coded as GRM

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	7
Total catch weight (kg):	22.0

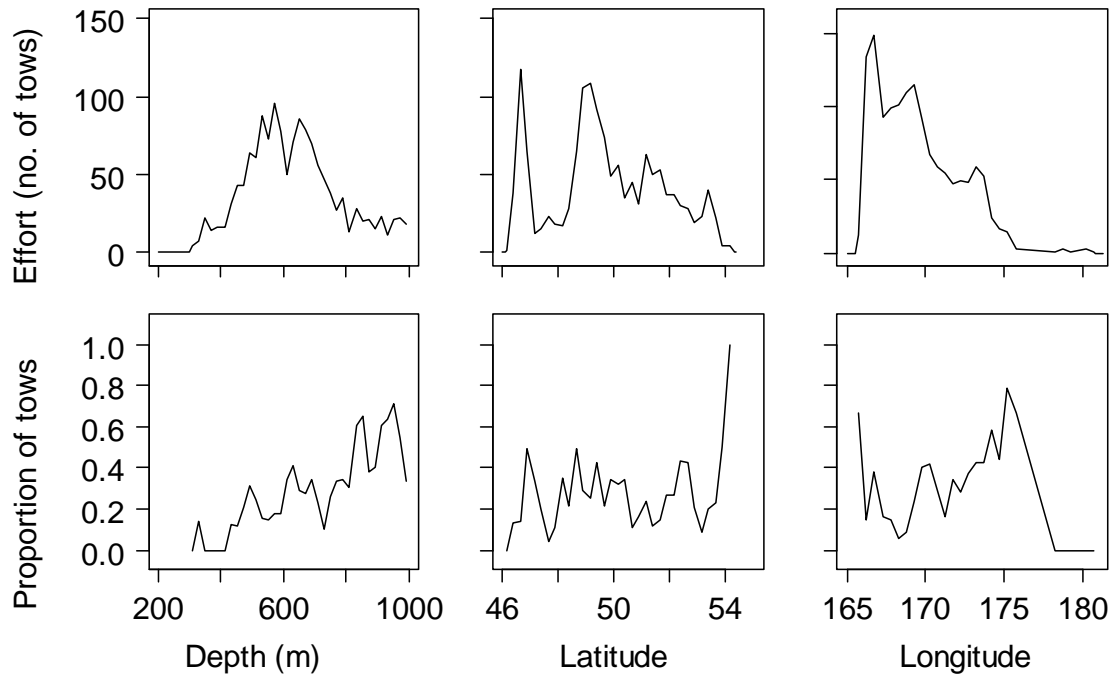
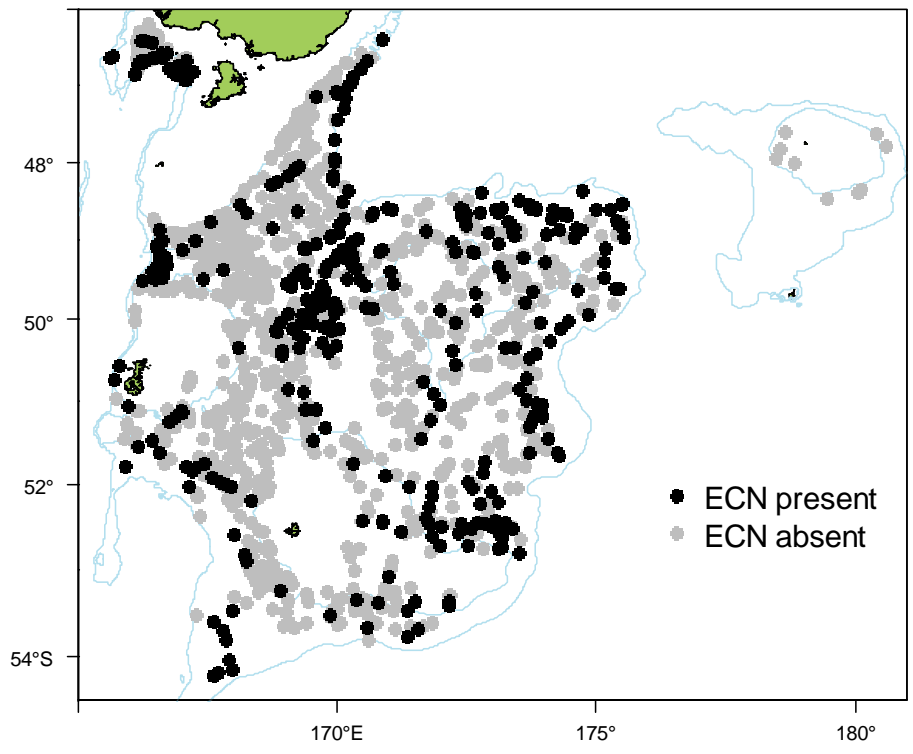
Coded as HIS

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	0.7
Coded as OBE	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	01
Coded as PCD	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	4
Total catch weight (kg):	0.9
Coded as PMU	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	3
Total catch weight (kg):	1.3
Coded as PSA	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.1
Coded as STC	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.1
Coded as SUR	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.1
Coded as TAM	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	10
Total catch weight (kg):	451.4
Coded as URO	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	61.8

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 **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 not** recorded from the Bounty Platform.

Biomass of this species is **poorly** 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 **no clear trend** since 1992.

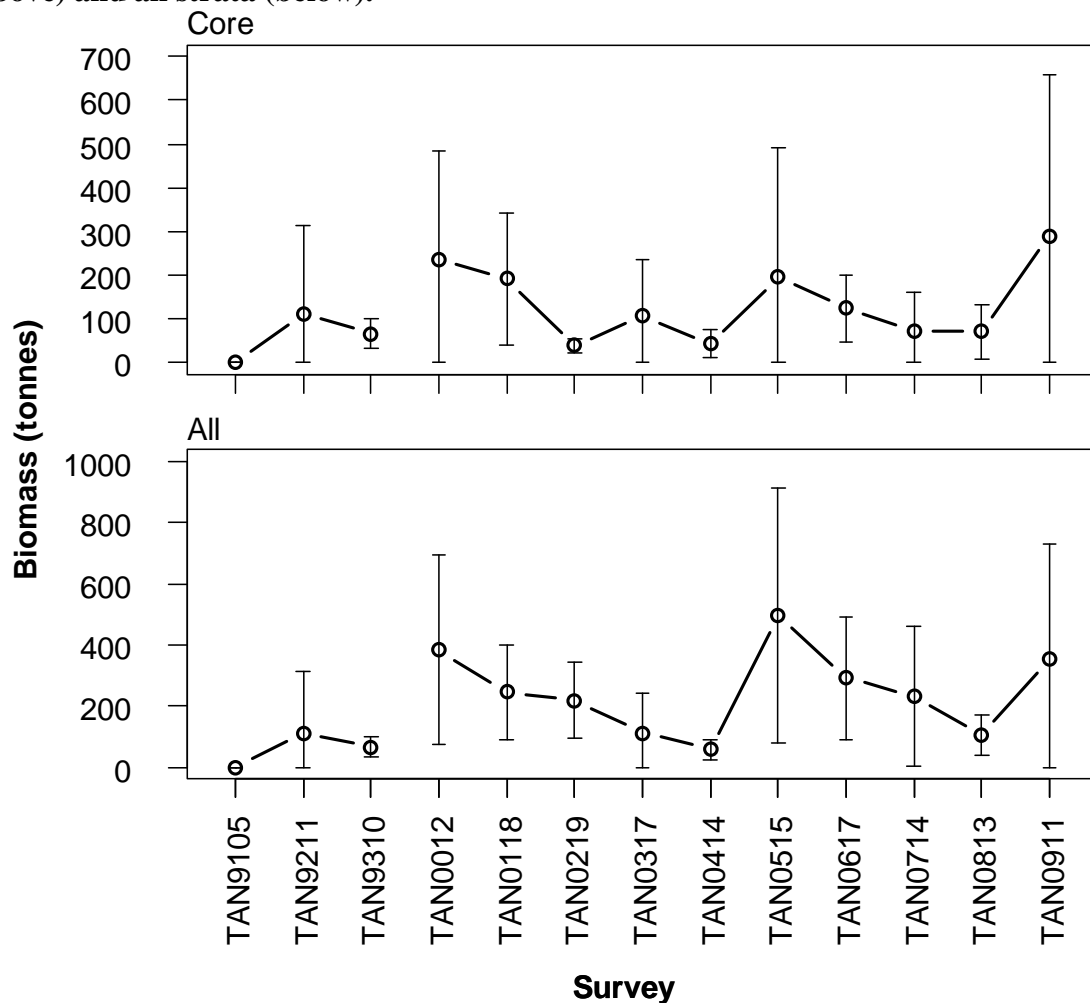
Distribution of Urchins from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of Urchins 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	111	93	NA	NA	NA	NA	0	0	111	93
TAN9310	66	25	NA	NA	NA	NA	0	0	66	25
TAN0012	235	55	38	53	109	83	NA	NA	383	41
TAN0118	191	40	43	43	13	58	NA	NA	247	32
TAN0219	38	21	82	56	98	45	NA	NA	219	29
TAN0317	106	63	6	42	NA	NA	NA	NA	112	60
TAN0414	42	39	16	23	NA	NA	NA	NA	58	28
TAN0515	195	78	176	47	124	100	NA	NA	495	43
TAN0617	124	32	167	56	NA	NA	NA	NA	292	35
TAN0714	73	62	42	67	115	90	NA	NA	230	51
TAN0813	70	46	27	34	8	100	NA	NA	104	33
TAN0911	290	65	66	58	0	0	NA	NA	355	54

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





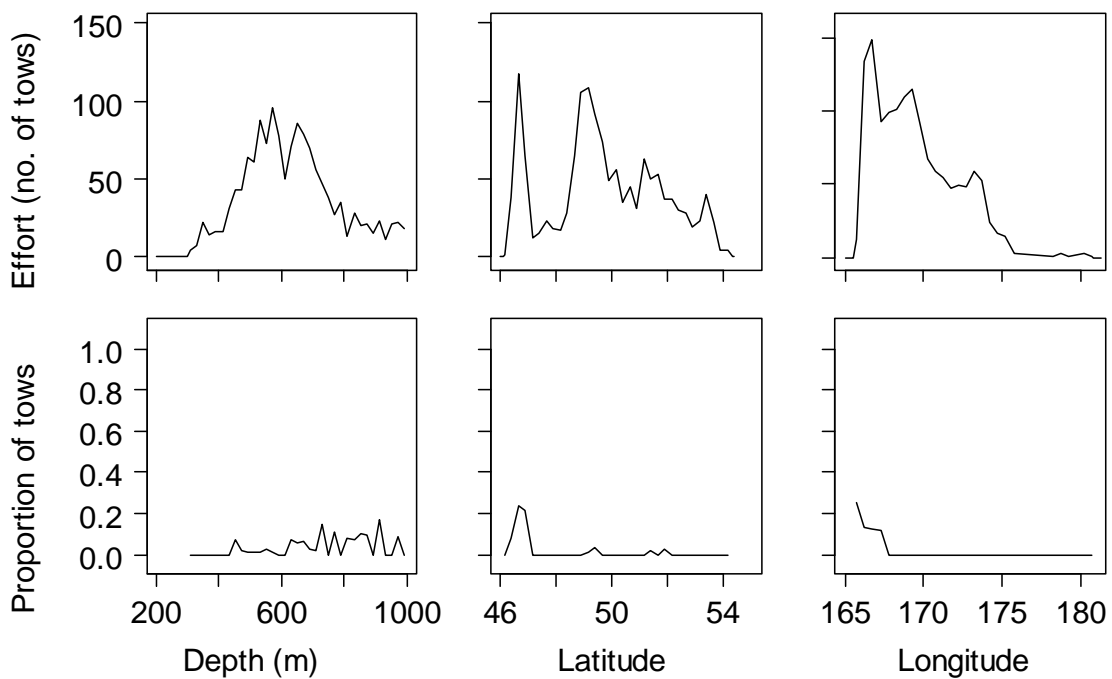
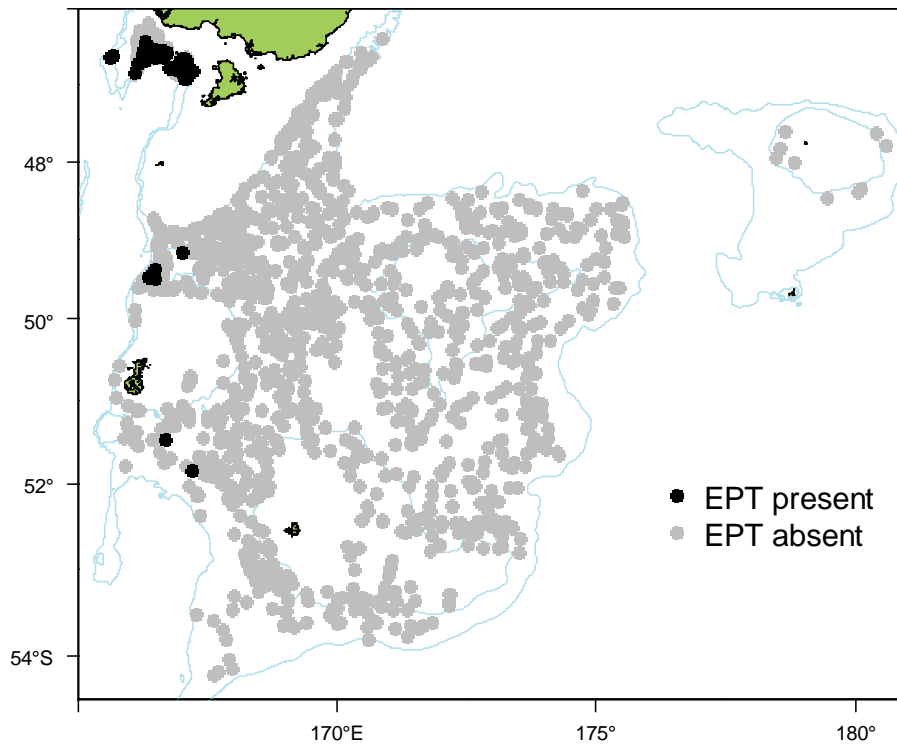
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	12
Total catch weight (kg):	120.5
Number measured	338
Length range (mean) (cm)	12–49 (24.8)
Number weighed	166
Length-weight parameters a, b (r^2)	–

This species has been **well** identified during the time series. It is not known if juveniles have been misidentified as the white cardinalfish (*Epigonus denticulatus*). Deepsea cardinalfish are found **deeper than 800 m**, however 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** at Puysegur.

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

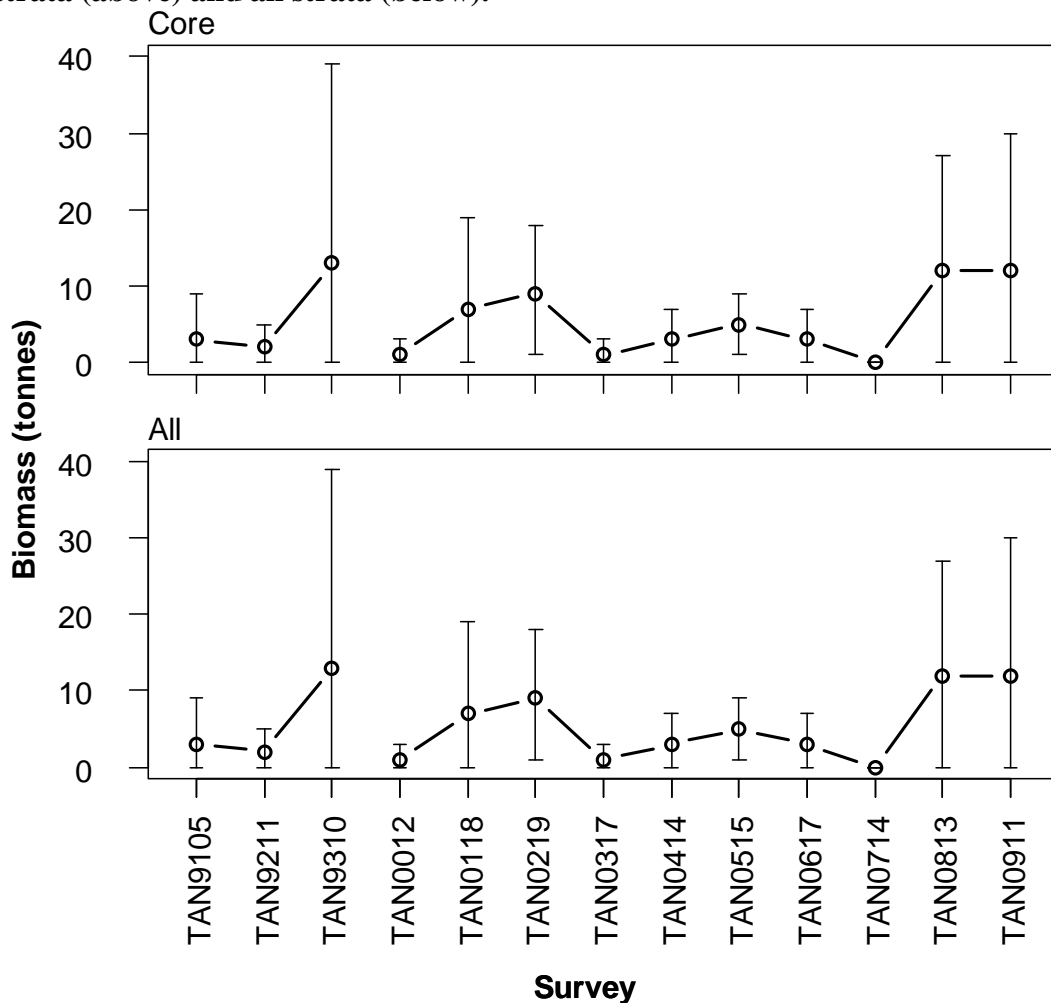
Distribution of *Epigonus telescopus* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Epigonus telescopus* 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	3	80	NA	NA	NA	NA	NA	NA	3	80
TAN9211	2	83	NA	NA	NA	NA	0	0	2	83
TAN9310	13	100	NA	NA	NA	NA	0	0	13	100
TAN0012	1	71	0	0	0	0	NA	NA	1	71
TAN0118	7	92	0	0	0	0	NA	NA	7	92
TAN0219	9	44	0	0	0	0	NA	NA	9	44
TAN0317	1	83	0	0	NA	NA	NA	NA	1	83
TAN0414	3	62	0	0	NA	NA	NA	NA	3	62
TAN0515	5	38	0	0	0	0	NA	NA	5	38
TAN0617	3	56	0	0	NA	NA	NA	NA	3	56
TAN0714	0	0	0	0	0	0	NA	NA	0	0
TAN0813	12	66	0	0	0	0	NA	NA	12	66
TAN0911	12	71	0	0	0	0	NA	NA	12	71

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



Gonad stage summaries by sex for *Epigonus telescopus*. 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	0	100	0	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	NA	NA	NA	NA	NA	NA	NA
TAN0714	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0813	100	0	0	0	0	0	0	100	0	0	0	0	0	0
TAN0911	100	0	0	0	0	0	0	57	43	0	0	0	0	0
ALL	100	0	0	0	0	0	0	60	40	0	0	0	0	0



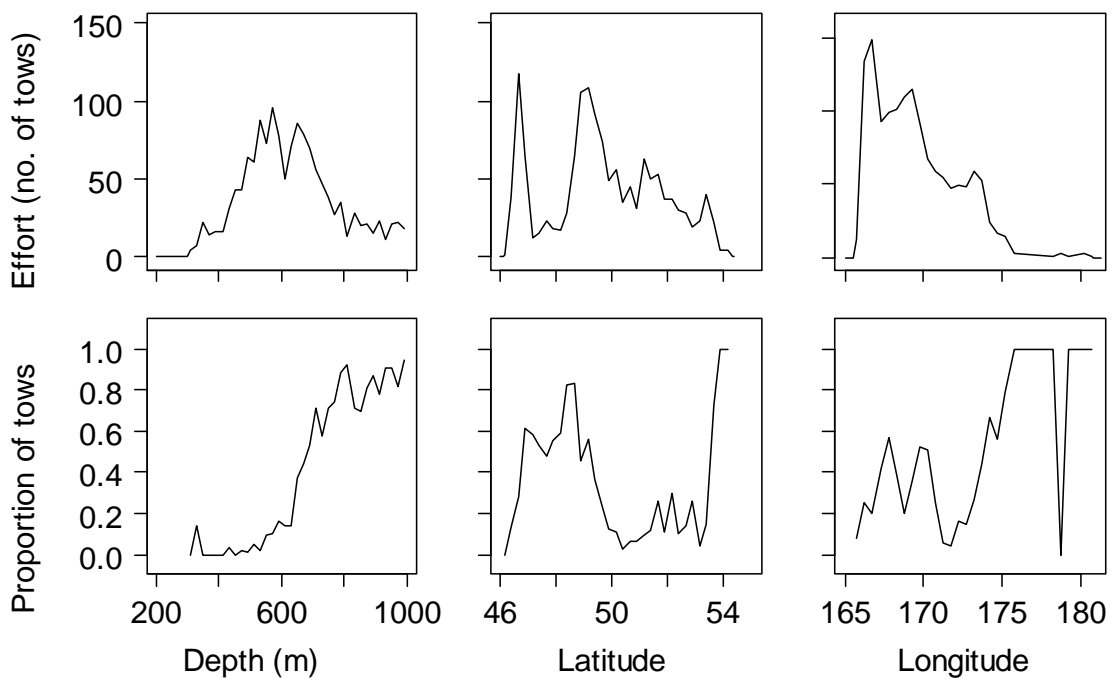
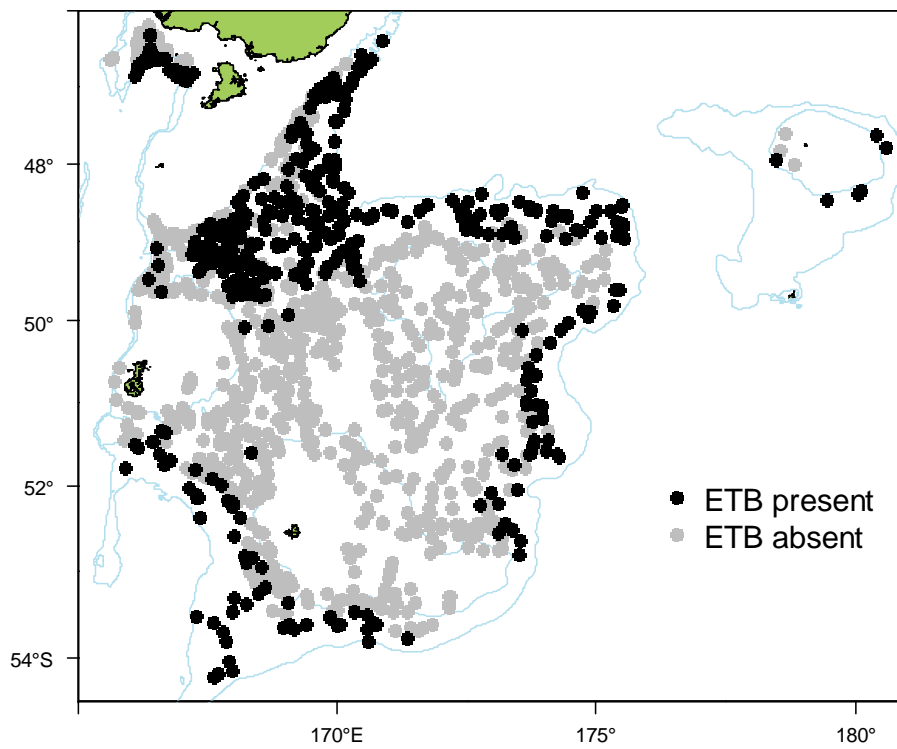
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	6 209.4
Number measured	3 306
Length range (mean) (cm)	20–82 (56.4)
Number weighed	2 662
Length-weight parameters a, b (r^2)	0.003056, 3.133997 (98.2)

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** recorded from the Bounty Platform.

Biomass of this species is **well** estimated by the core survey. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **well** estimated. Biomass has **increased** since the start of the time series. Higher catchrates are recorded from the northwest and eastern parts of the survey area close to, and deeper than 600 m.

Length frequencies **have multiple modes** and include both adults and juveniles. Mean length shows **no clear trend** since 2001. Gonad stage data indicate that male fish are **immature and mature** and females are recorded across all stages.

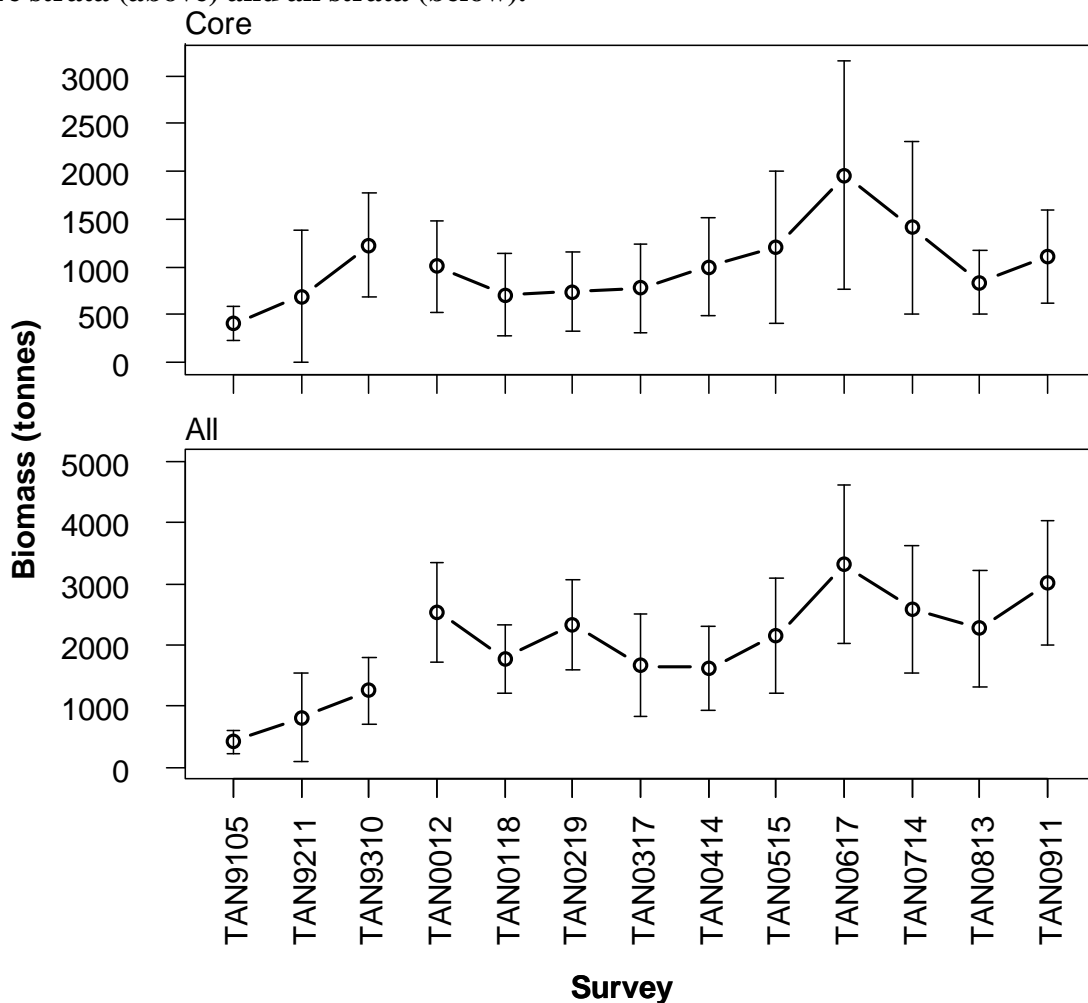
Distribution of *Etmopterus baxteri* from all summer surveys. Valid biomass stations only.



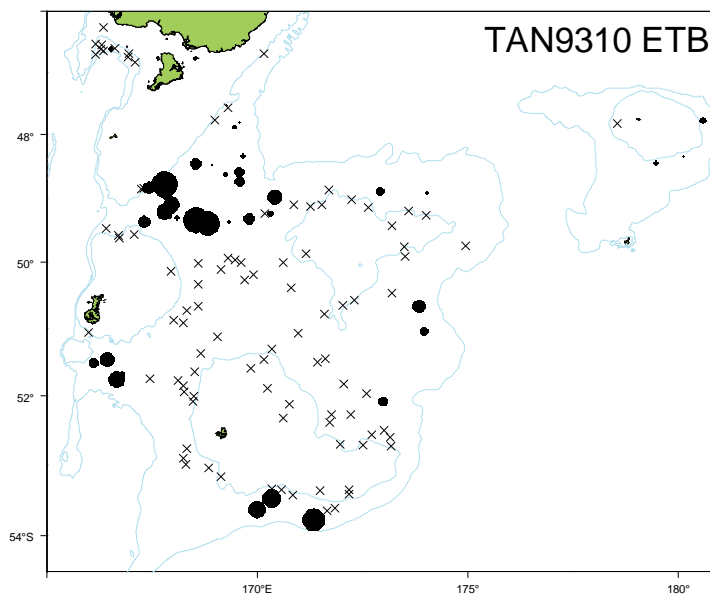
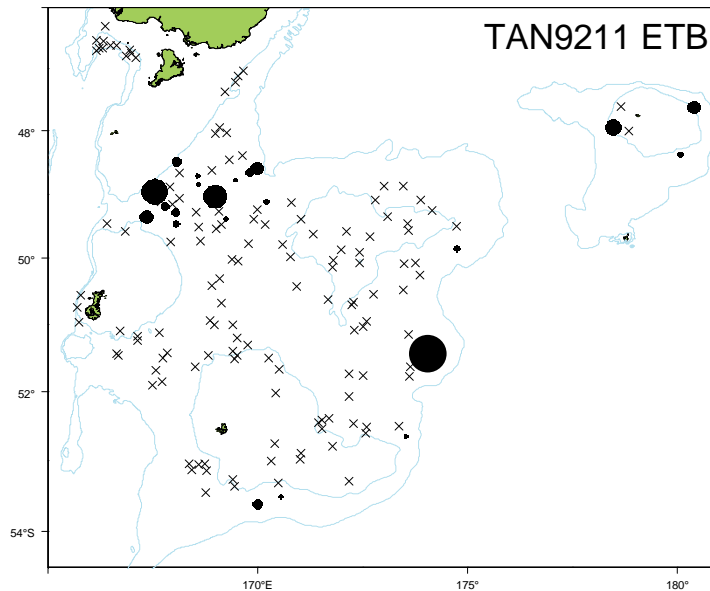
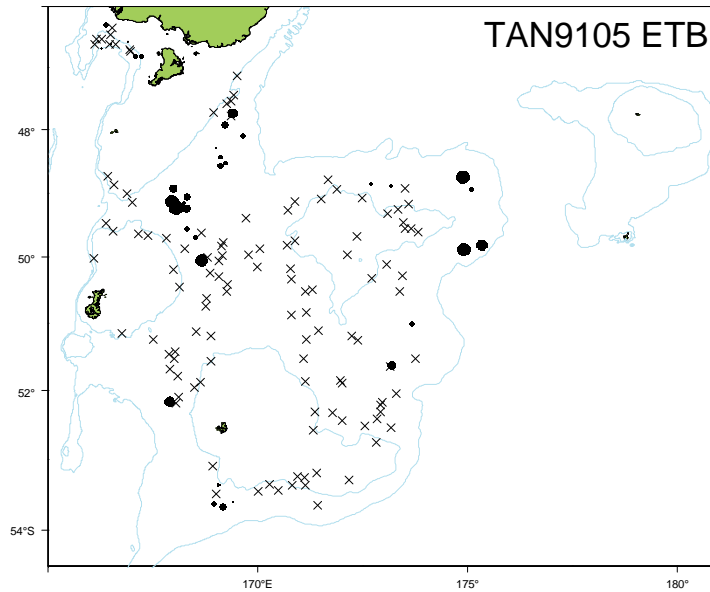
Relative biomass estimates (t) and c.v.s (%) of *Etmopterus baxteri* for core strata, strata outside the core area and all strata.

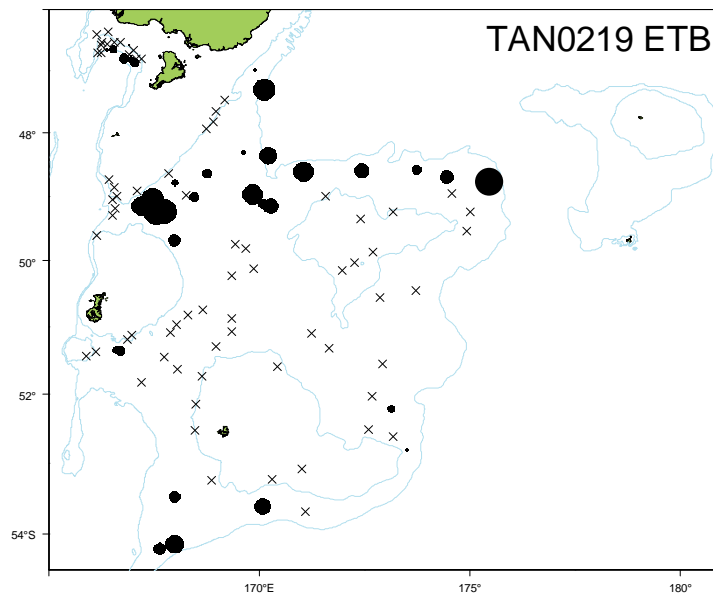
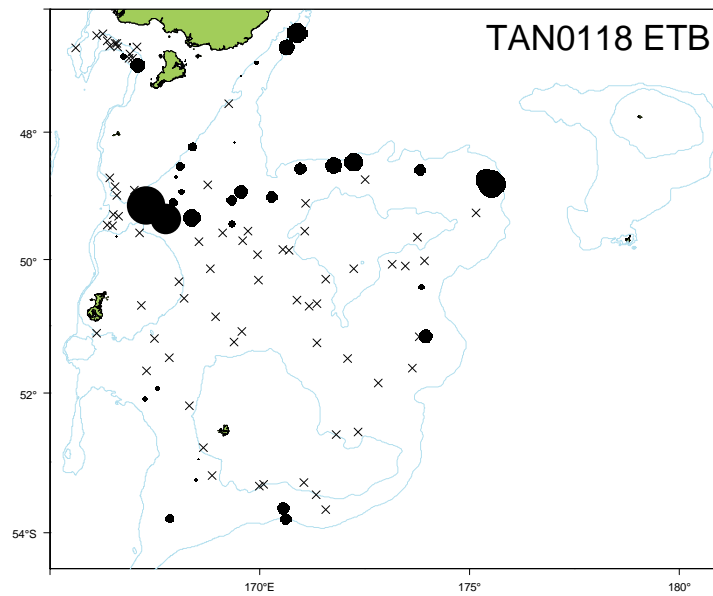
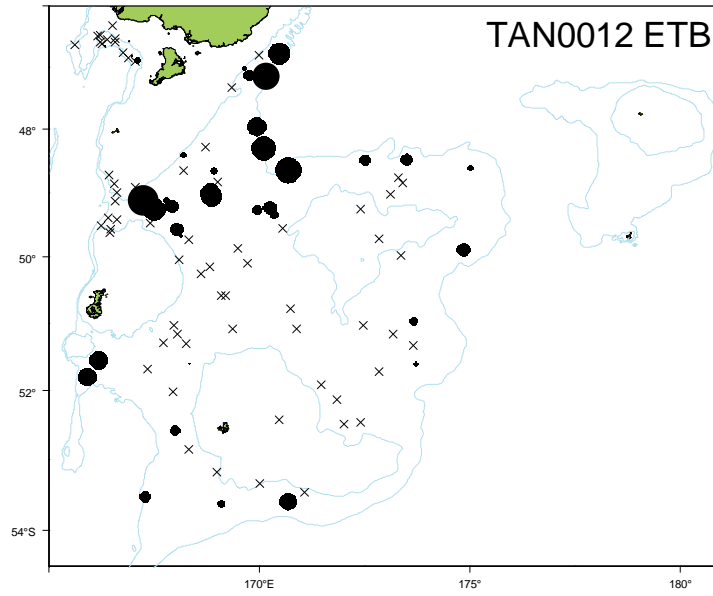
Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	410	22	NA	NA	NA	NA	NA	NA	410	22
TAN9211	686	51	NA	NA	NA	NA	127	57	814	44
TAN9310	1224	22	NA	NA	NA	NA	26	56	1251	22
TAN0012	1006	24	865	22	669	39	NA	NA	2540	16
TAN0118	704	31	736	20	341	29	NA	NA	1781	16
TAN0219	742	28	877	23	715	32	NA	NA	2334	16
TAN0317	780	30	884	40	NA	NA	NA	NA	1665	25
TAN0414	1000	26	627	36	NA	NA	NA	NA	1628	21
TAN0515	1204	33	482	20	458	50	NA	NA	2144	22
TAN0617	1956	31	1362	18	NA	NA	NA	NA	3318	20
TAN0714	1410	32	747	23	426	49	NA	NA	2583	20
TAN0813	835	20	855	36	578	56	NA	NA	2269	21
TAN0911	1111	22	1506	28	391	37	NA	NA	3008	17

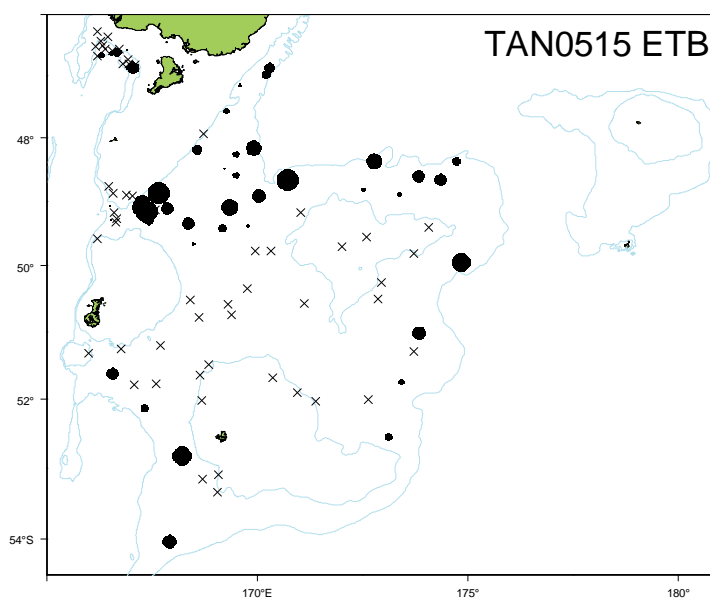
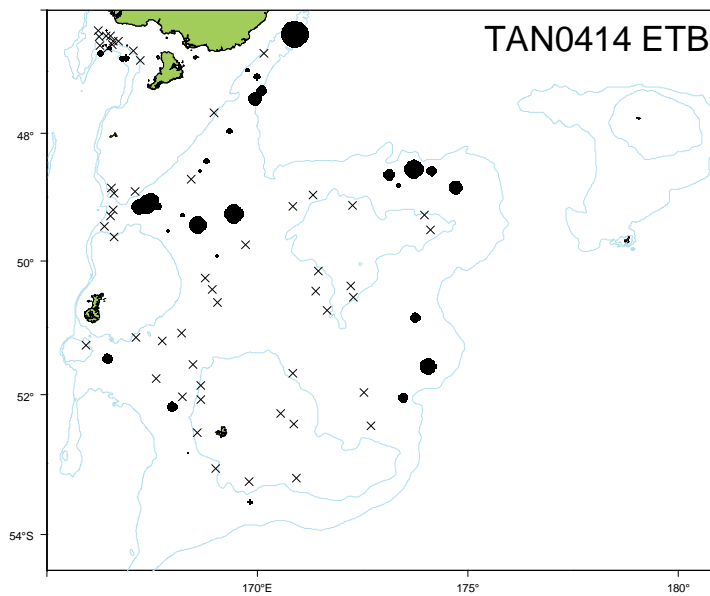
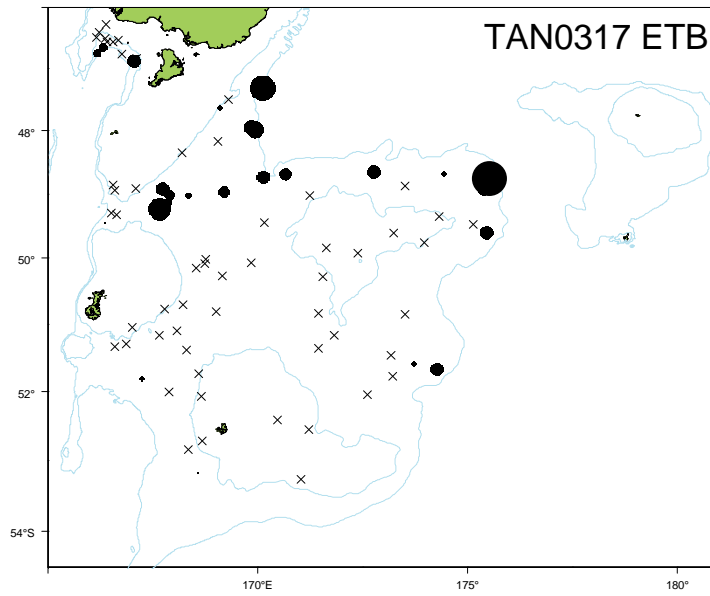
Trends in relative biomass estimates (± 2 standard errors) of *Etmopterus baxteri* for core strata (above) and all strata (below).

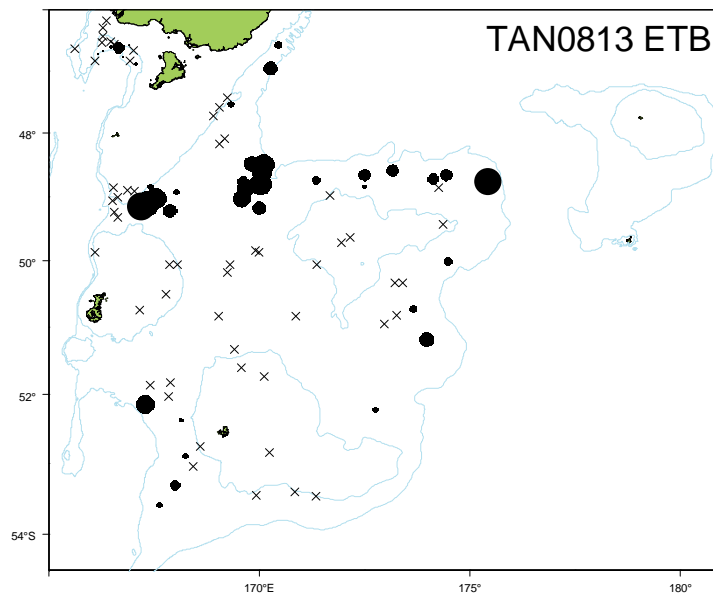
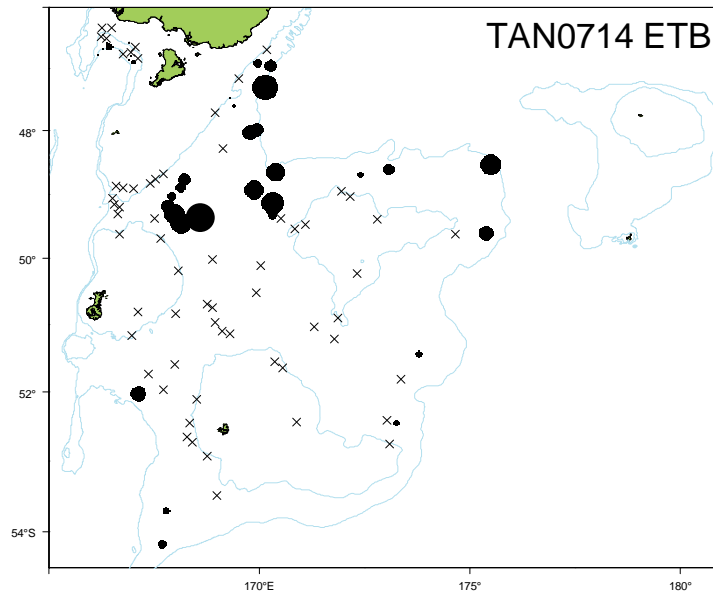
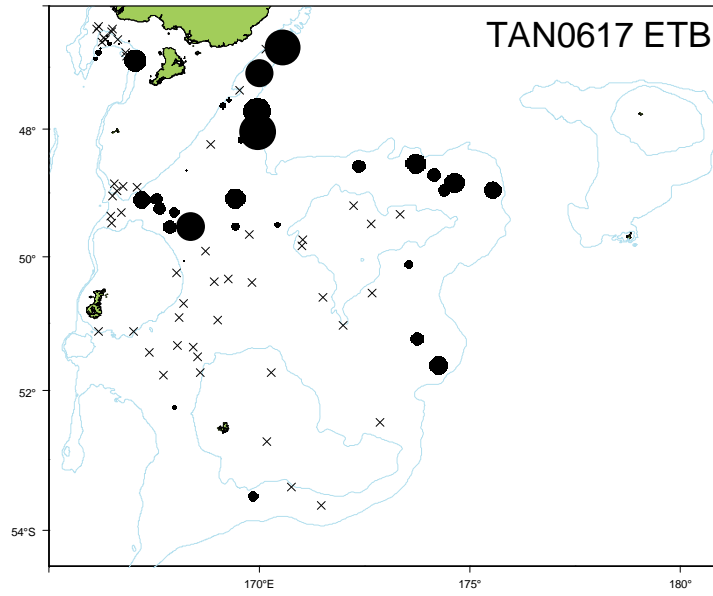


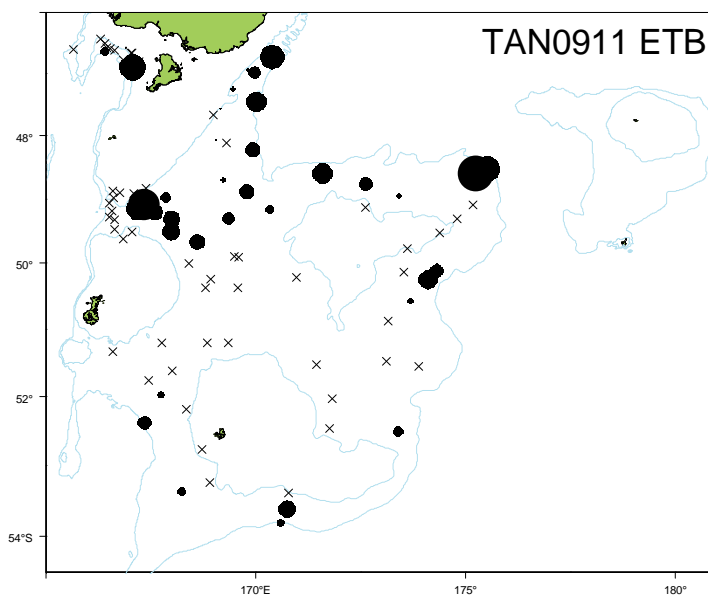
Catchrates of *Etmopterus baxteri*. Circle area is proportional to the maximum catchrate from all surveys (see Table 5).







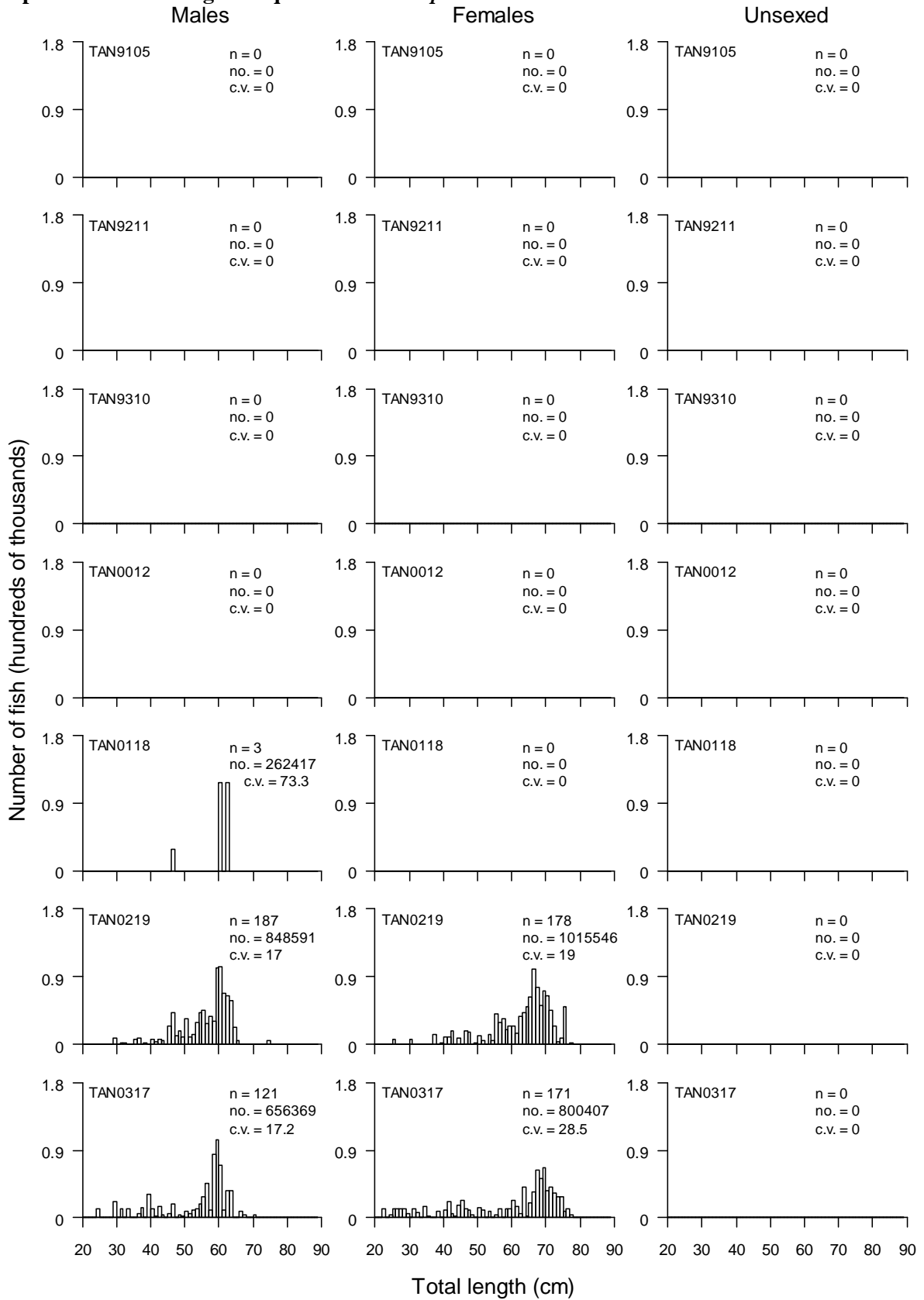


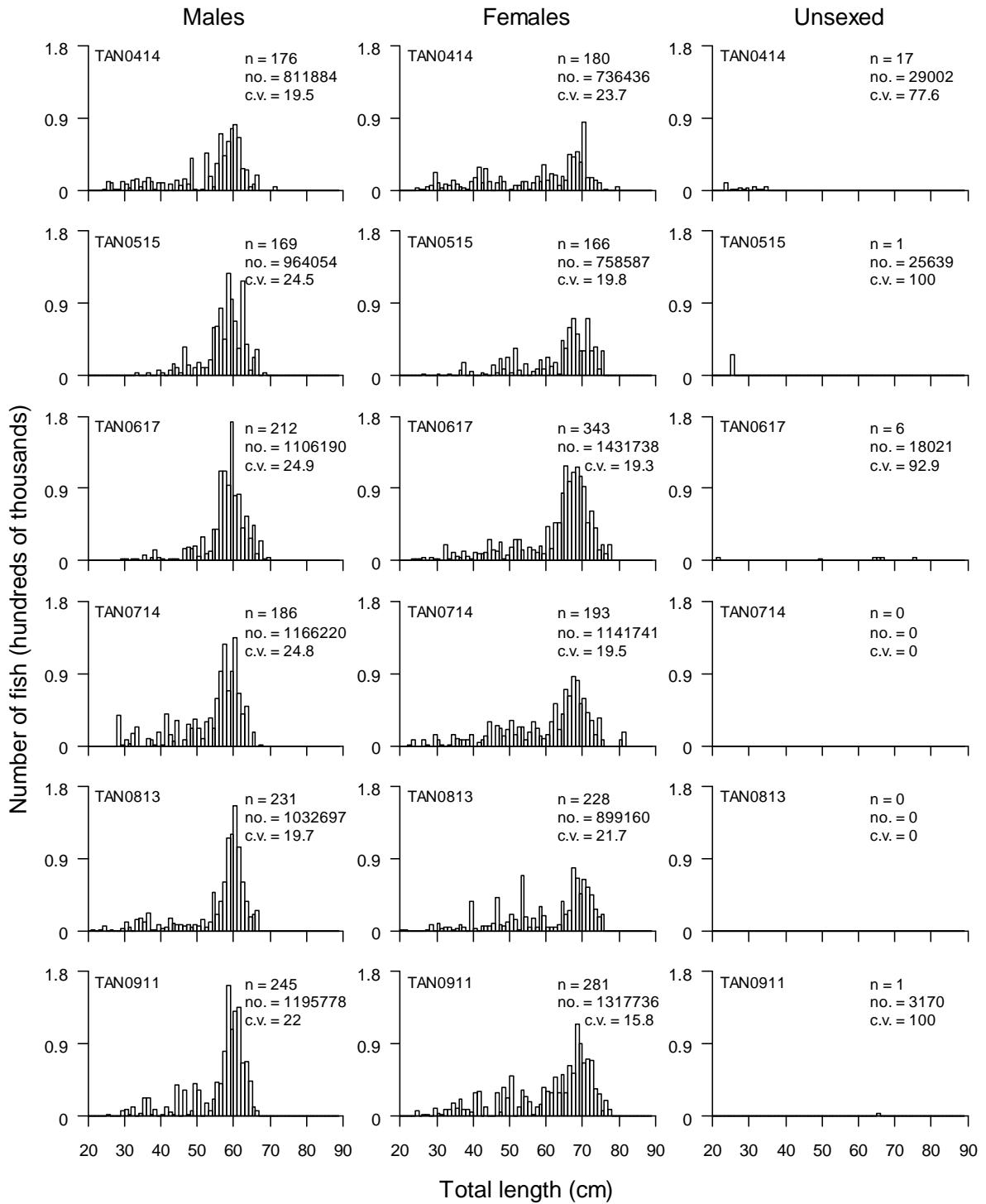


Length summaries

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	44	72	57.0	3
TAN0219	26	78	59.4	365
TAN0317	23	78	58.7	292
TAN0414	24	80	51.2	373
TAN0515	20	76	58.2	336
TAN0617	22	82	58.2	561
TAN0714	23	82	56.8	379
TAN0813	20	76	56.1	459
TAN0911	20	78	58.4	527

Population scaled length frequencies of *Etmopterus baxteri* for all strata.





Gonad stage summaries by sex for *Etmopterus baxteri*. 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	17	83	0	0	100	0	0	0	0
TAN0911	33	2	65	18	32	12	11	17	10
ALL	31	11	57	18	34	12	11	16	9



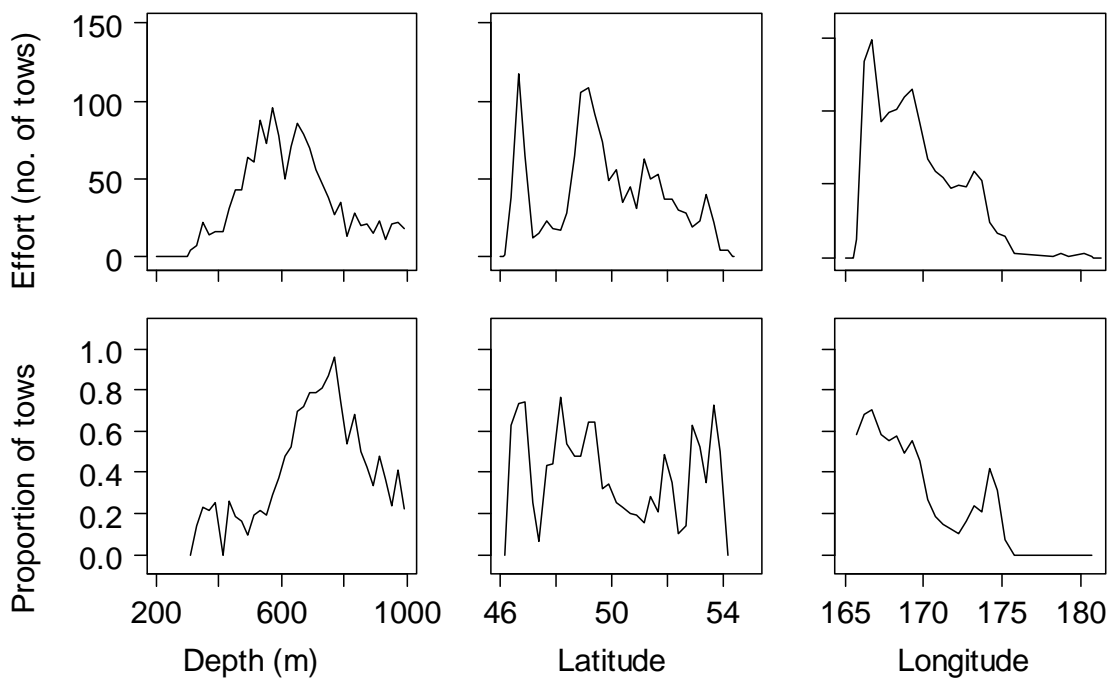
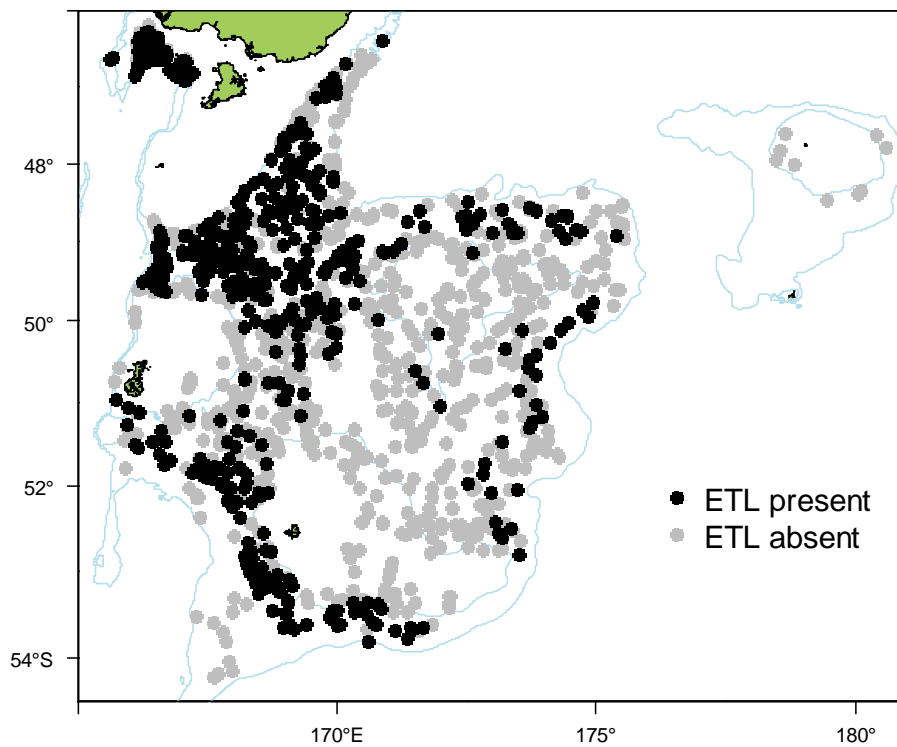
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	1 206.3
Number measured	1 673
Length range (mean) (cm)	15–53 (38.3)
Number weighed	778
Length-weight parameters a, b (r^2)	0.00115254, 3.282705 (93.12)

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 **well** estimated by the core survey area. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **poorly** estimated. Biomass **shows no clear trend** since the start of the time series. Higher catch rates are recorded from **southeast** of the Stewart/Snares Shelf.

Length frequencies **have multiple modes** and include both adults and juveniles. Mean length shows **a decrease** since the start of the time series. Gonad stage data indicate that most fish are **maturing and mature**.

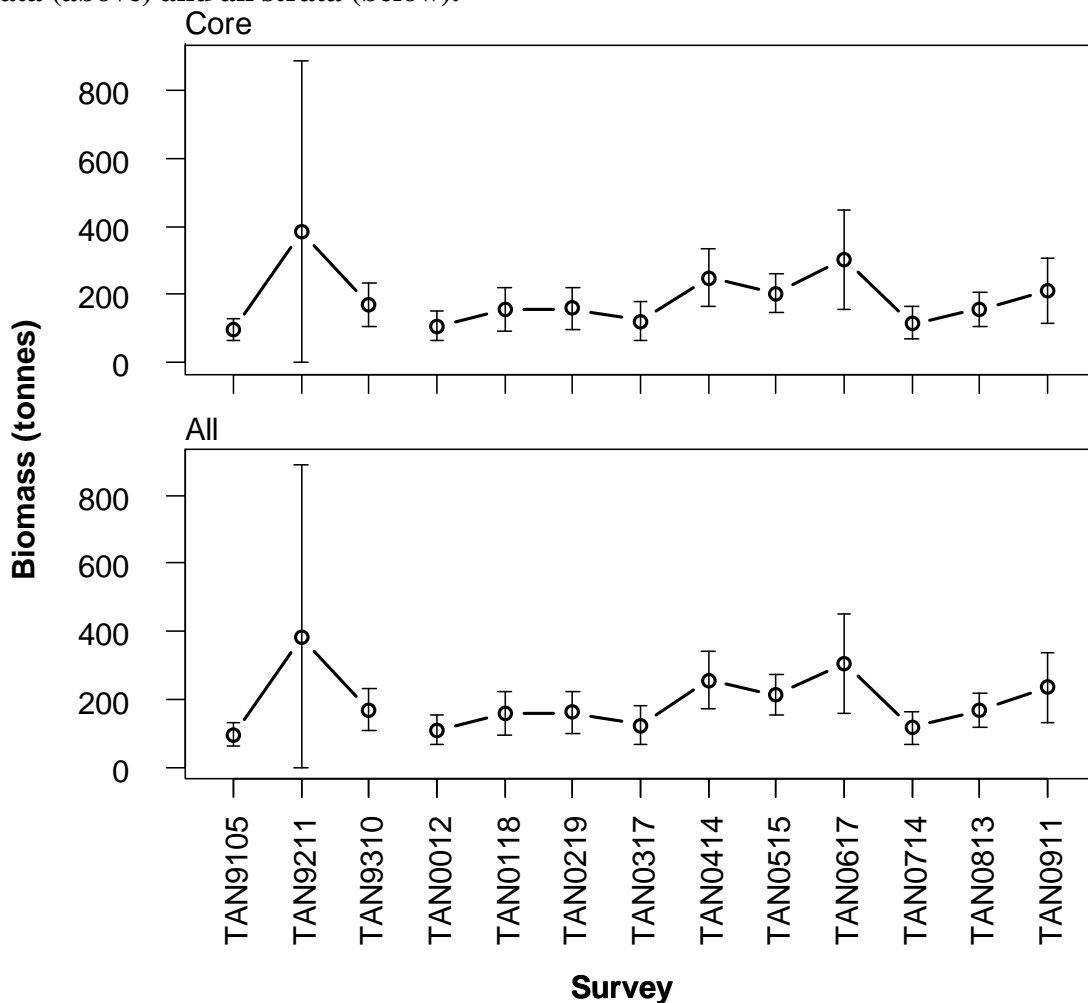
Distribution of *Etmopterus lucifer* from all summer surveys. Valid biomass stations only.



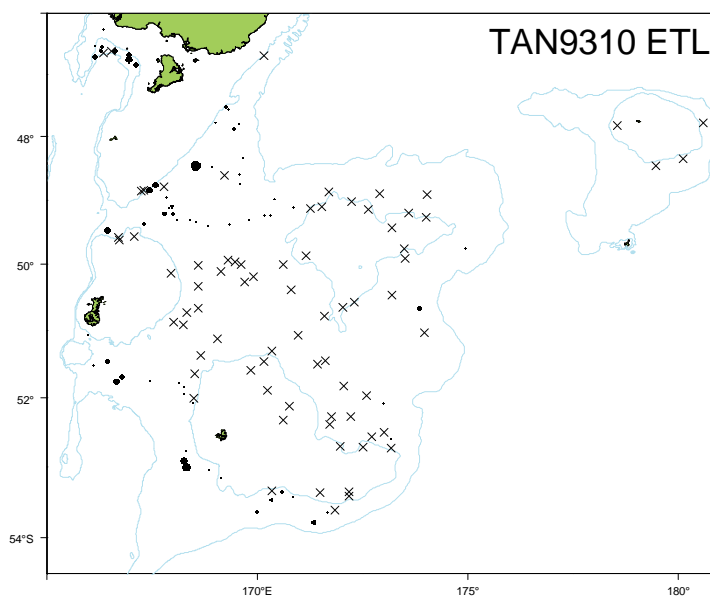
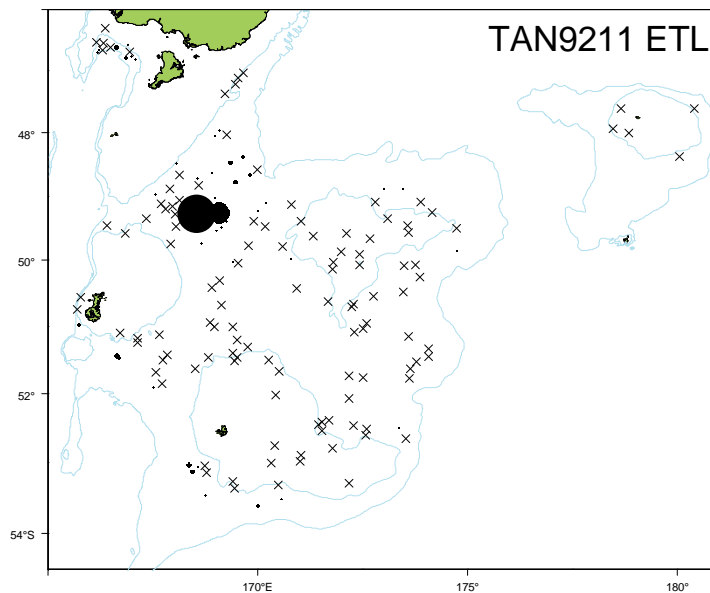
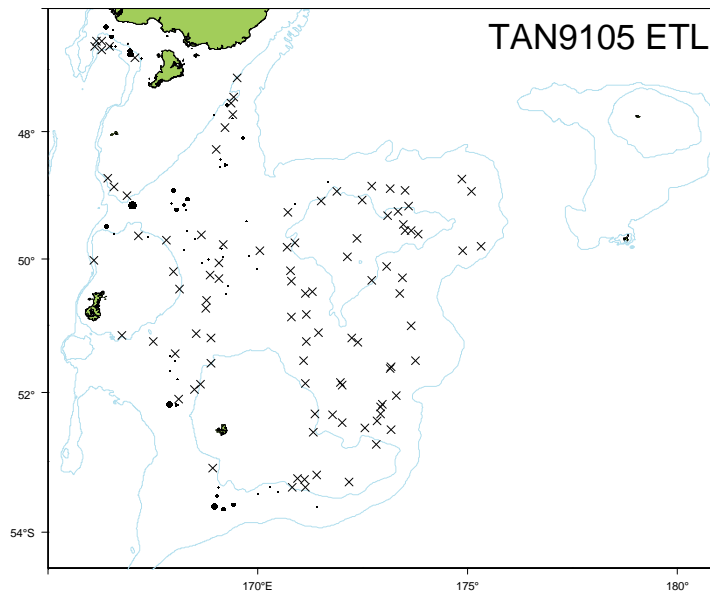
Relative biomass estimates (t) and c.v.s (%) of *Etmopterus lucifer* for core strata, strata outside the core area and all strata.

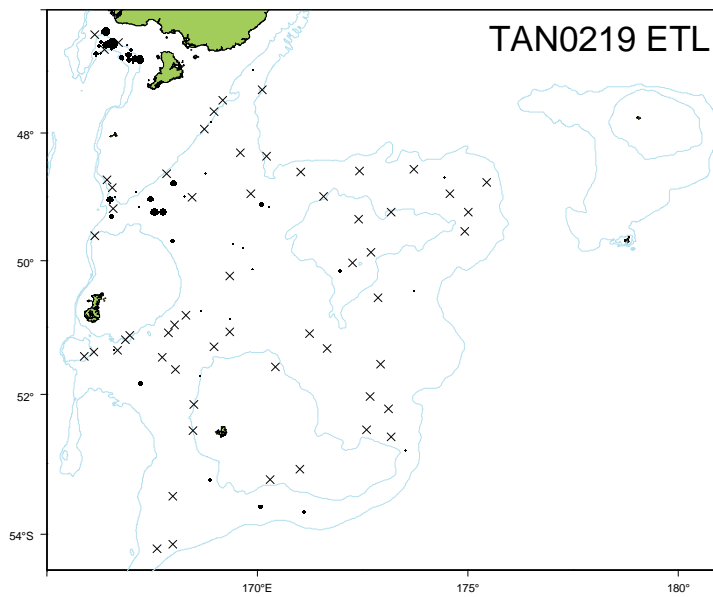
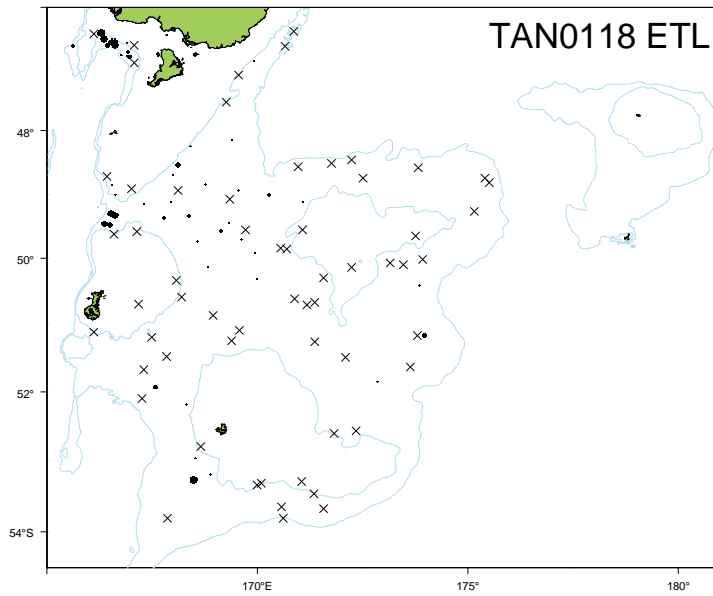
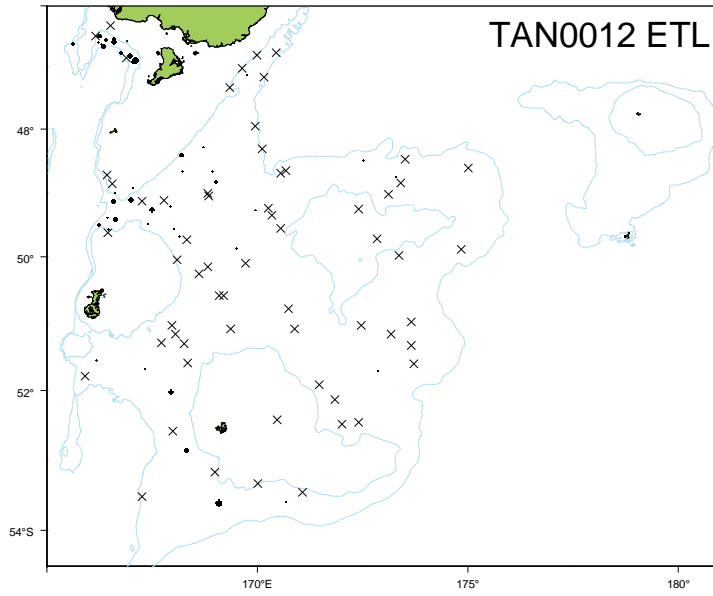
Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	96	18	NA	NA	NA	NA	NA	NA	96	18
TAN9211	383	66	NA	NA	NA	NA	0	0	383	66
TAN9310	169	18	NA	NA	NA	NA	0	0	169	18
TAN0012	106	21	2	100	0	0	NA	NA	109	20
TAN0118	156	20	2	100	0	0	NA	NA	158	20
TAN0219	159	20	2	100	0	0	NA	NA	161	20
TAN0317	121	24	2	100	NA	NA	NA	NA	123	23
TAN0414	249	17	7	87	NA	NA	NA	NA	256	17
TAN0515	203	14	9	64	0	0	NA	NA	213	14
TAN0617	303	24	1	100	NA	NA	NA	NA	304	24
TAN0714	115	21	0	0	0	0	NA	NA	115	21
TAN0813	156	16	11	45	0	0	NA	NA	167	15
TAN0911	211	23	14	93	9	100	NA	NA	235	22

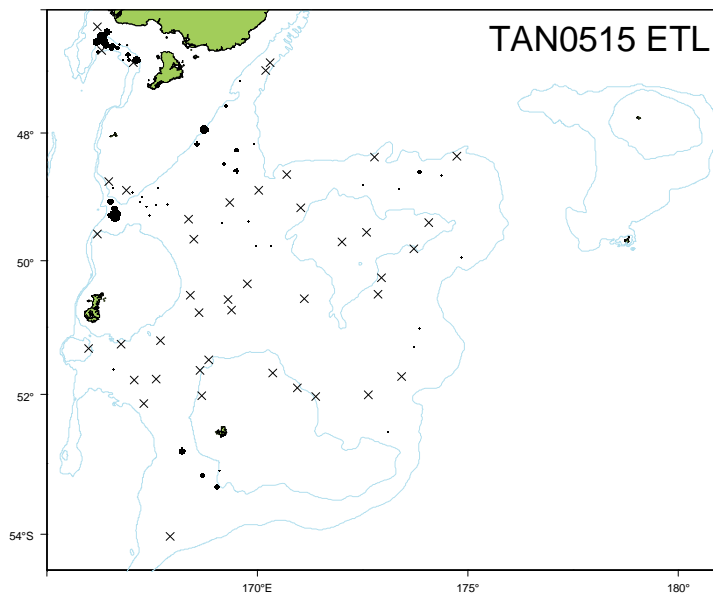
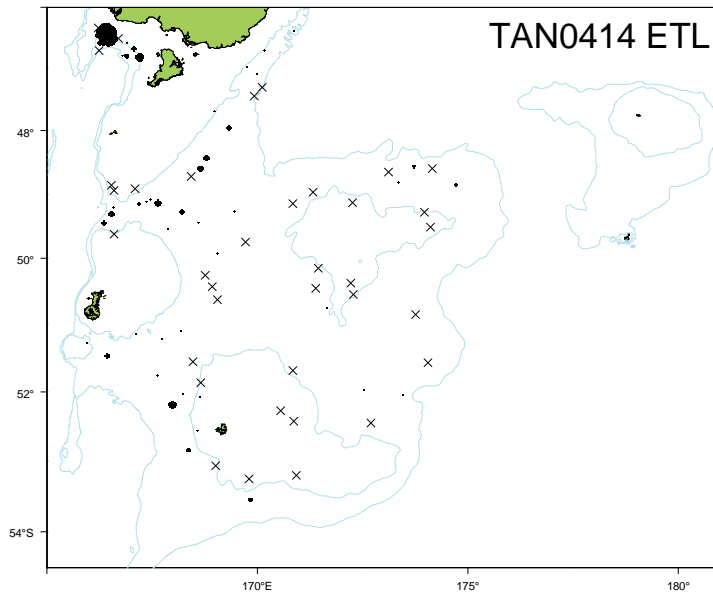
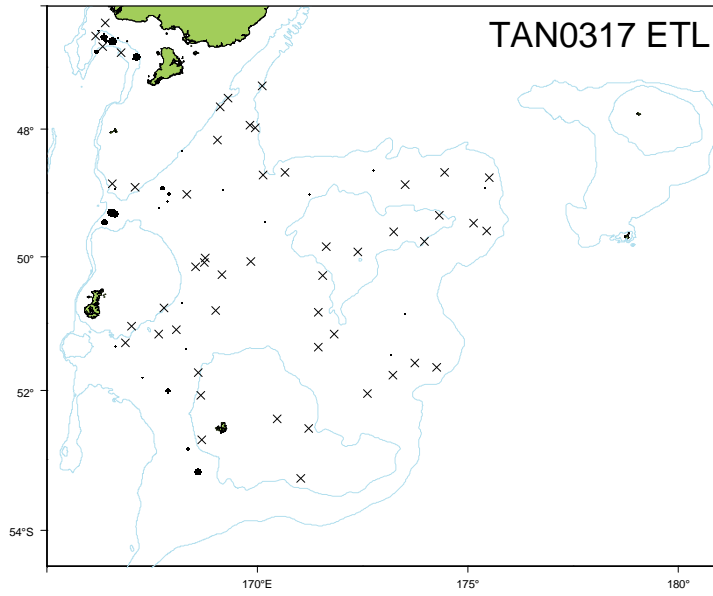
Trends in relative biomass estimates (± 2 standard errors) of *Etmopterus lucifer* for core strata (above) and all strata (below).

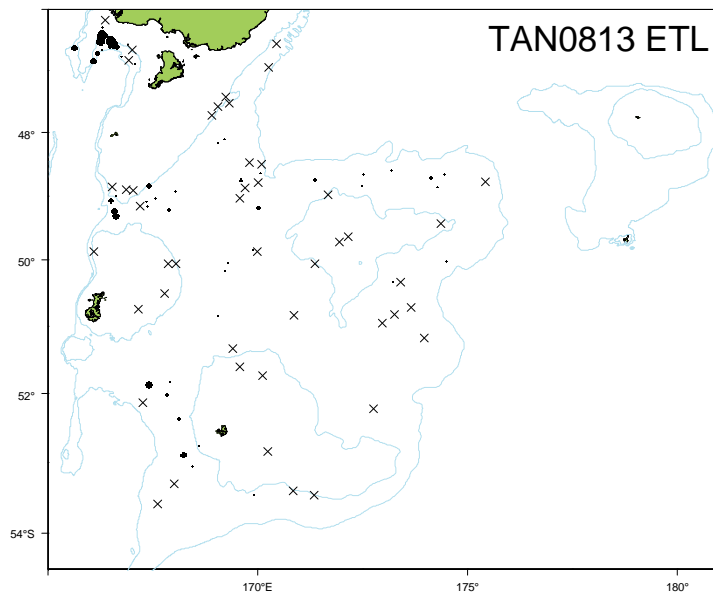
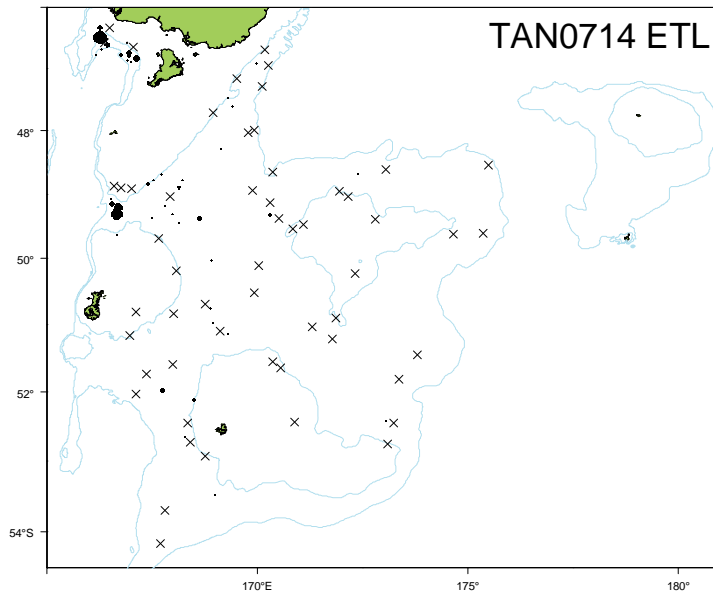
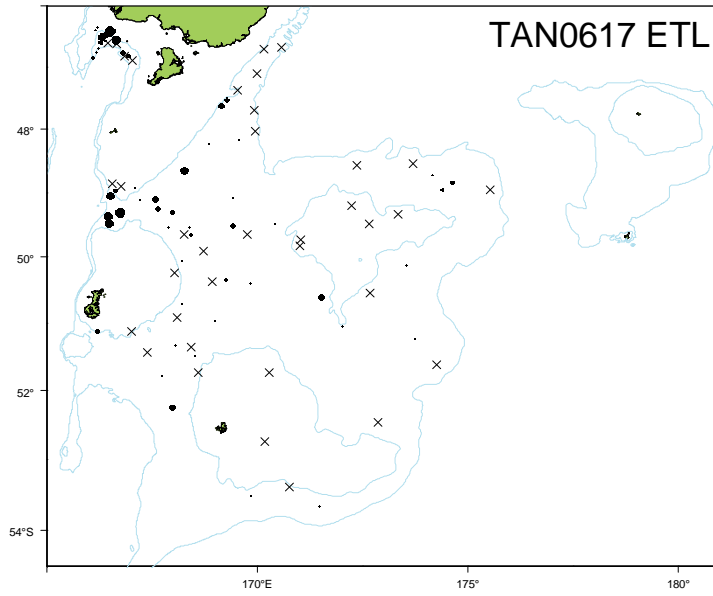


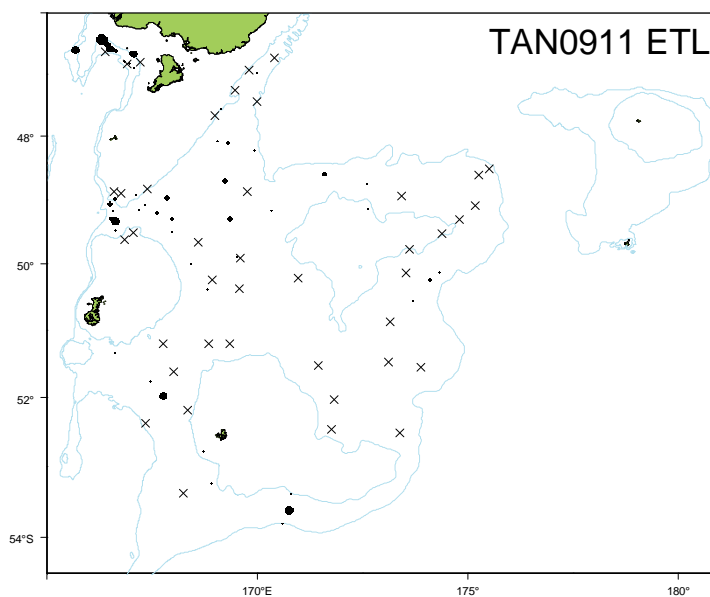
Catchrates of *Etmopterus lucifer*. Circle area is proportional to the maximum catchrate from all surveys (see Table 5).







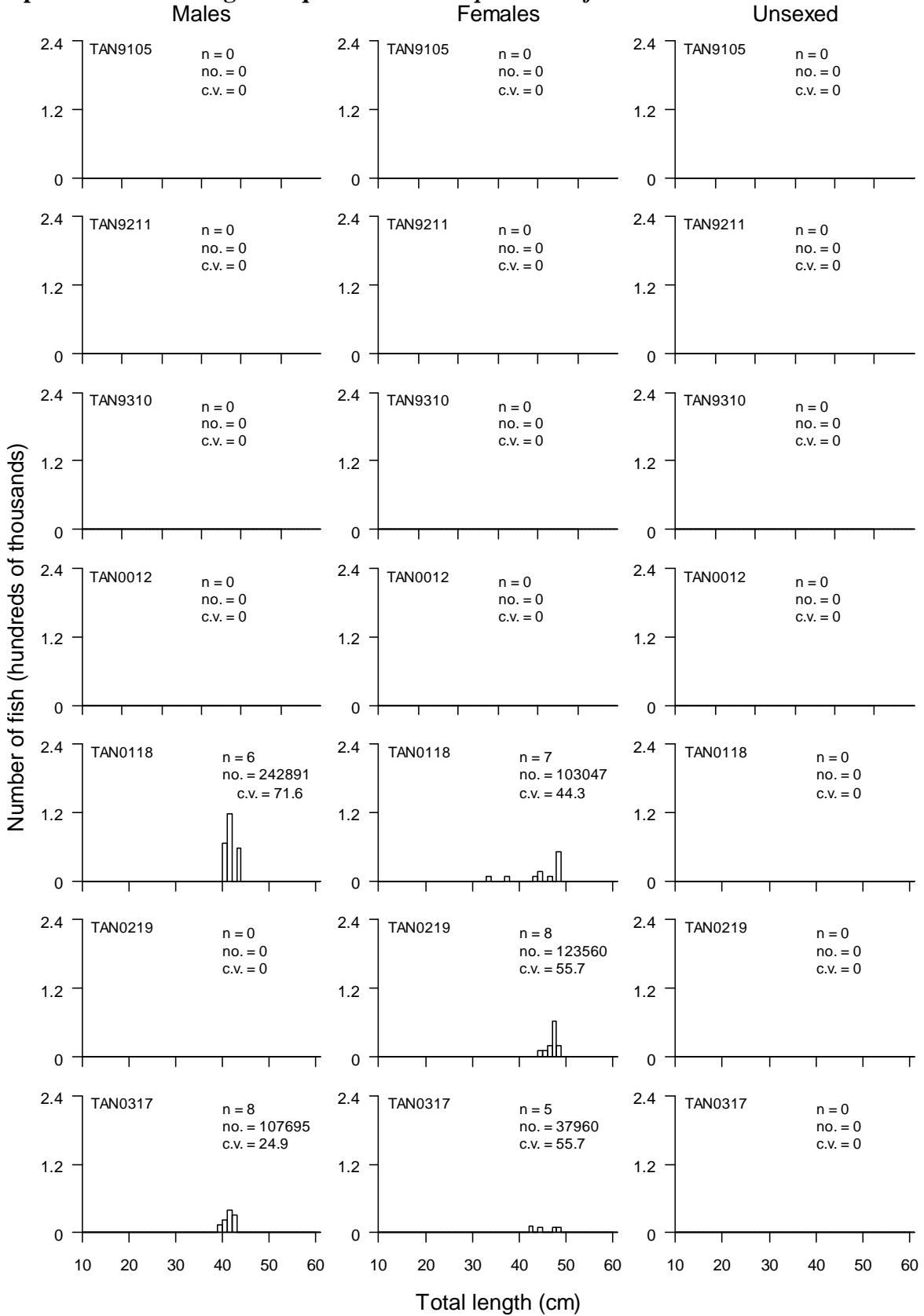


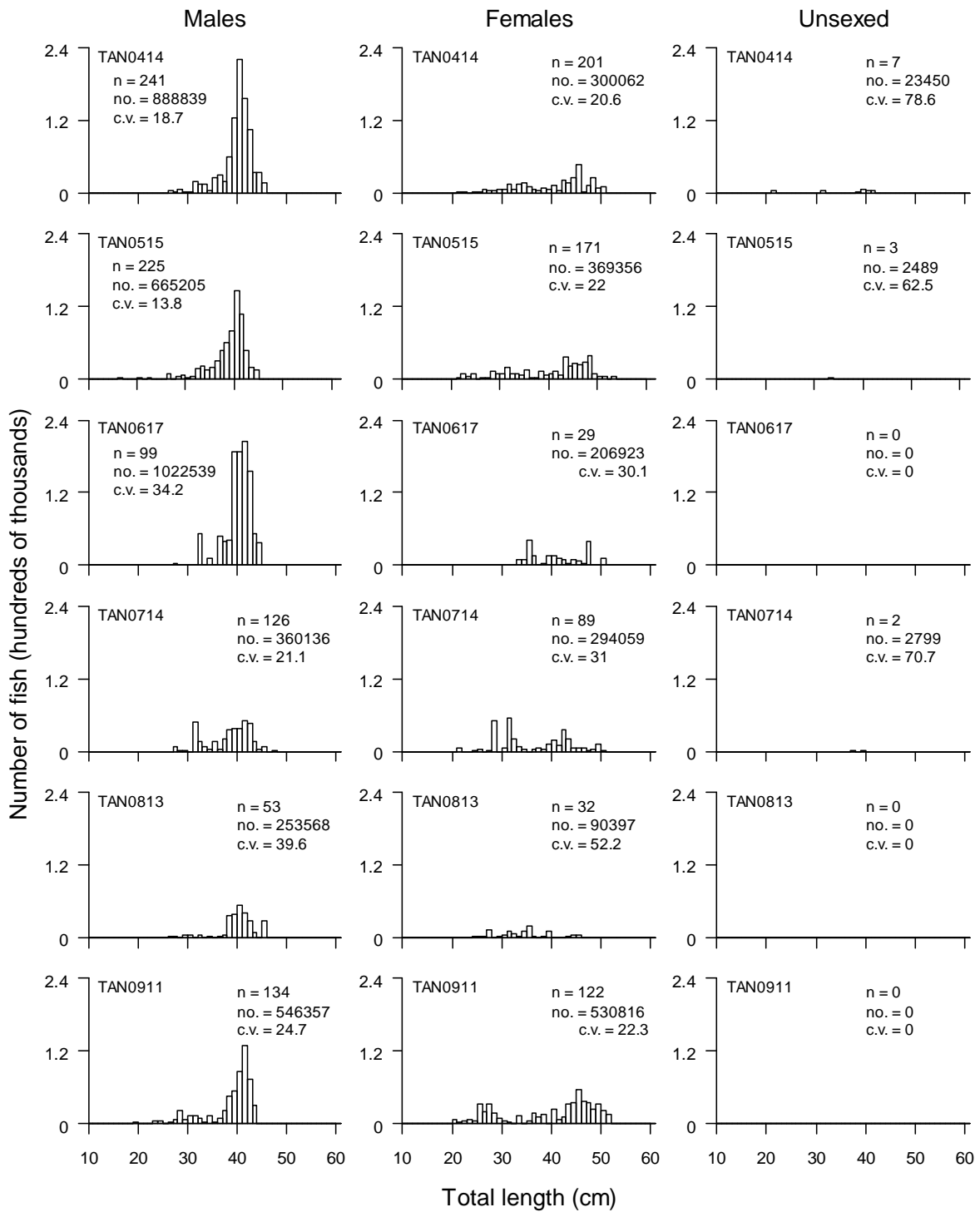


Length summaries

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	33	48	41.6	13
TAN0219	44	48	46.4	8
TAN0317	32	48	42.6	13
TAN0414	15	50	37.2	449
TAN0515	16	53	37.7	399
TAN0617	27	50	39.3	128
TAN0714	21	50	38.8	217
TAN0813	24	49	36.1	85
TAN0911	19	51	37.1	256

Population scaled length frequencies of *Etmopterus lucifer* for all strata.





Gonad stage summaries by sex for *Etmopterus lucifer*. 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	0	0	100	NA	NA	NA	NA	NA	NA
TAN0911	8	25	67	0	83	17	0	0	0
ALL	7	21	71	0	83	17	0	0	0



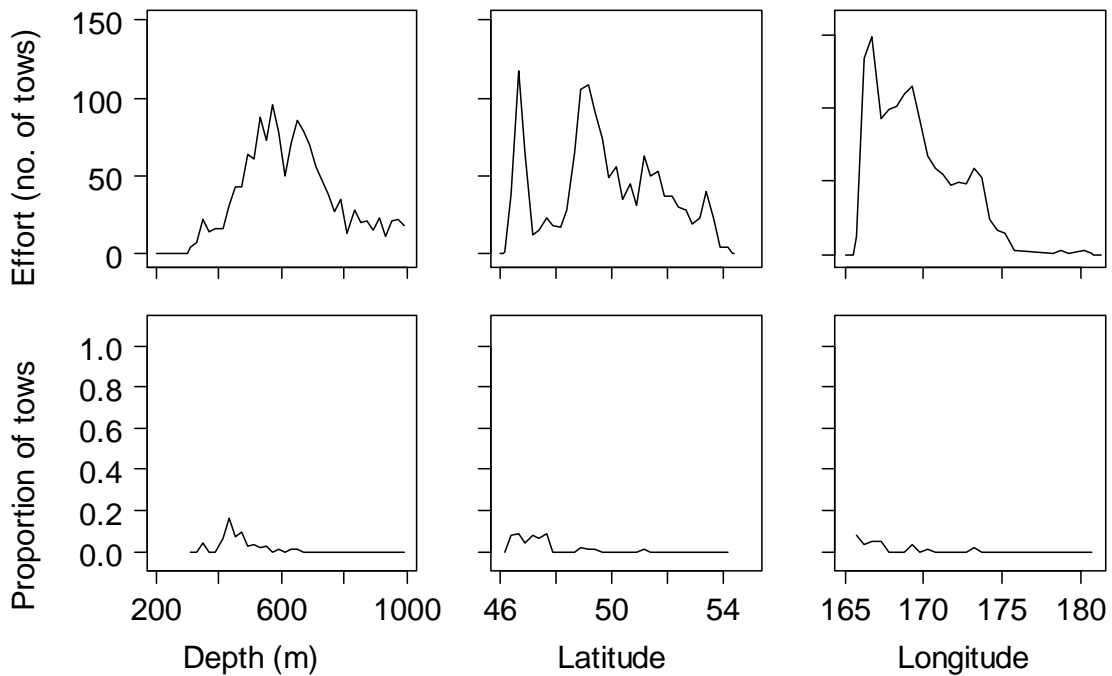
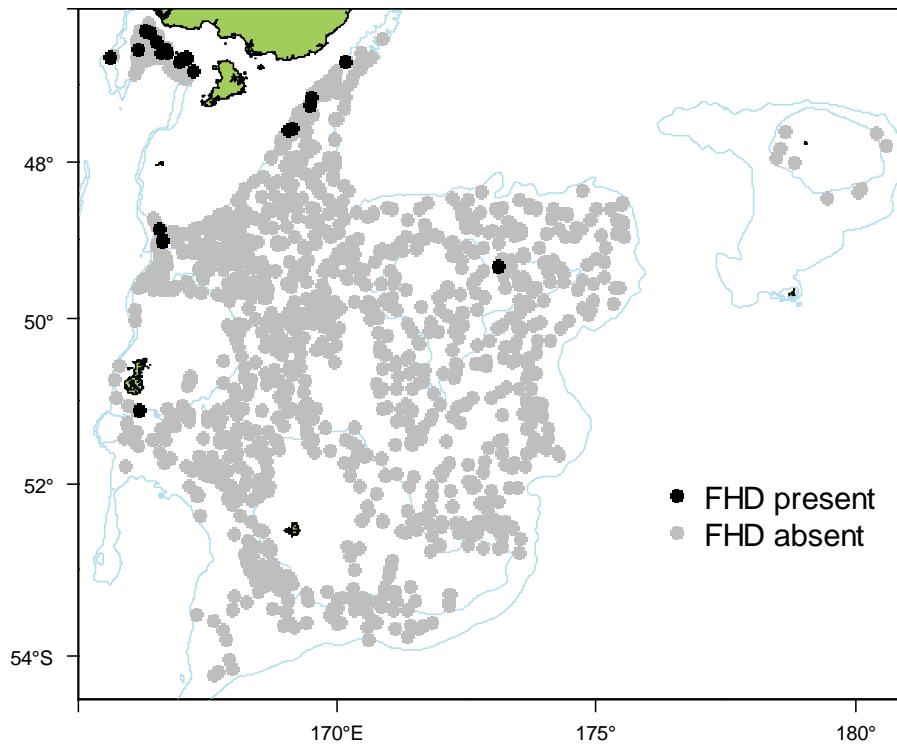
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	11
Total catch weight (kg):	19.5
Number measured	0
Length range (mean) (cm)	–
Number weighed	–
Length-weight parameters a, b (r^2)	–

This species has **been well** identified during the time series. 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 has **increased** since the start of the time series. Catch rates are highest in the **northwest**.

There is no length or gonad stage information presented.

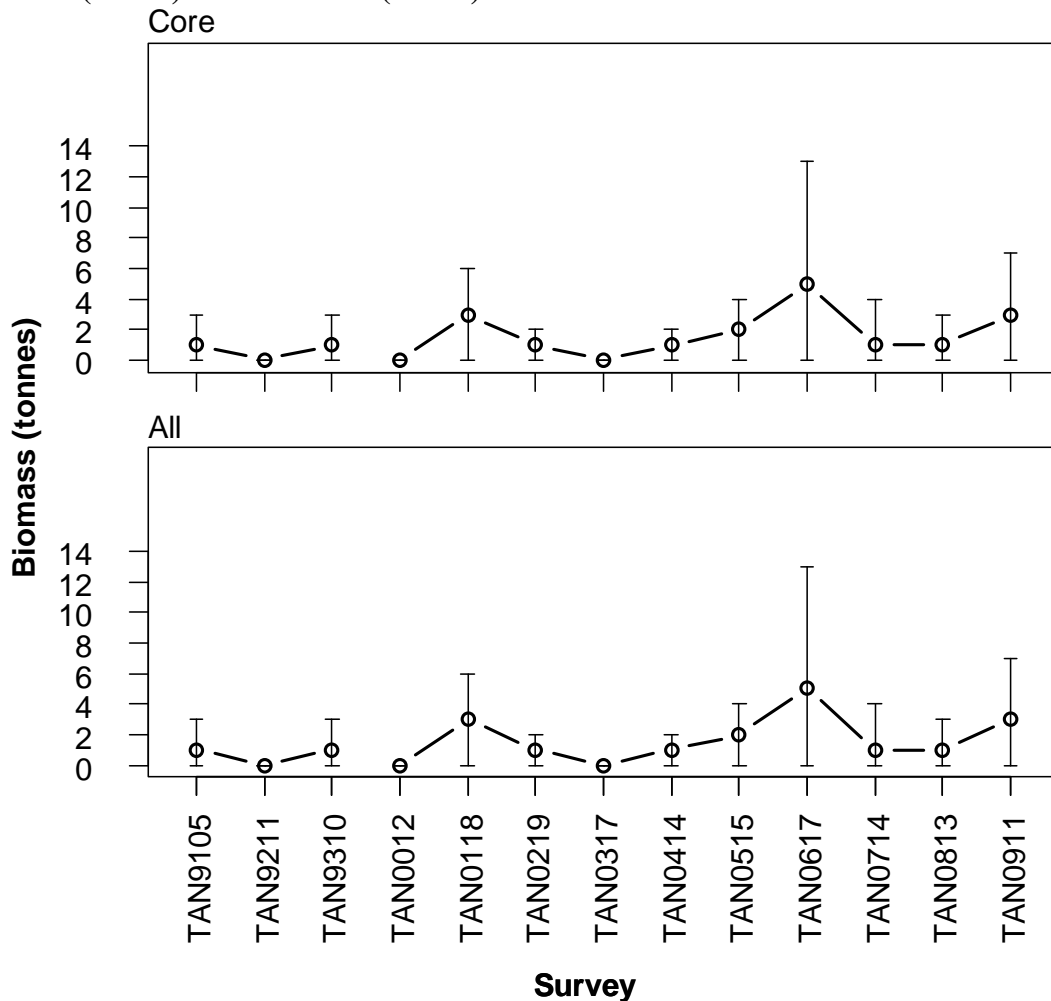
Distribution of *Hoplichthys haswelli* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Hoplichthys haswelli* 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	50	NA	NA	NA	NA	NA	NA	1	50
TAN9211	0	0	NA	NA	NA	NA	0	0	0	0
TAN9310	1	100	NA	NA	NA	NA	0	0	1	100
TAN0012	0	0	0	0	0	0	NA	NA	0	0
TAN0118	3	54	0	0	0	0	NA	NA	3	54
TAN0219	1	72	0	0	0	0	NA	NA	1	72
TAN0317	0	0	0	0	NA	NA	NA	NA	0	0
TAN0414	1	73	0	0	NA	NA	NA	NA	1	73
TAN0515	2	75	0	0	0	0	NA	NA	2	75
TAN0617	5	84	0	0	NA	NA	NA	NA	5	84
TAN0714	1	75	0	0	0	0	NA	NA	1	75
TAN0813	1	63	0	0	0	0	NA	NA	1	63
TAN0911	3	57	0	0	0	0	NA	NA	3	57

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



**Coded as AER**

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

Coded as AWI

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

Coded as FMA

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	8
Total catch weight (kg):	13.8

Coded as GAS

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	8
Total catch weight (kg):	15.0

Coded as GVO

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	4
Total catch weight (kg):	1.3

Coded as VOL

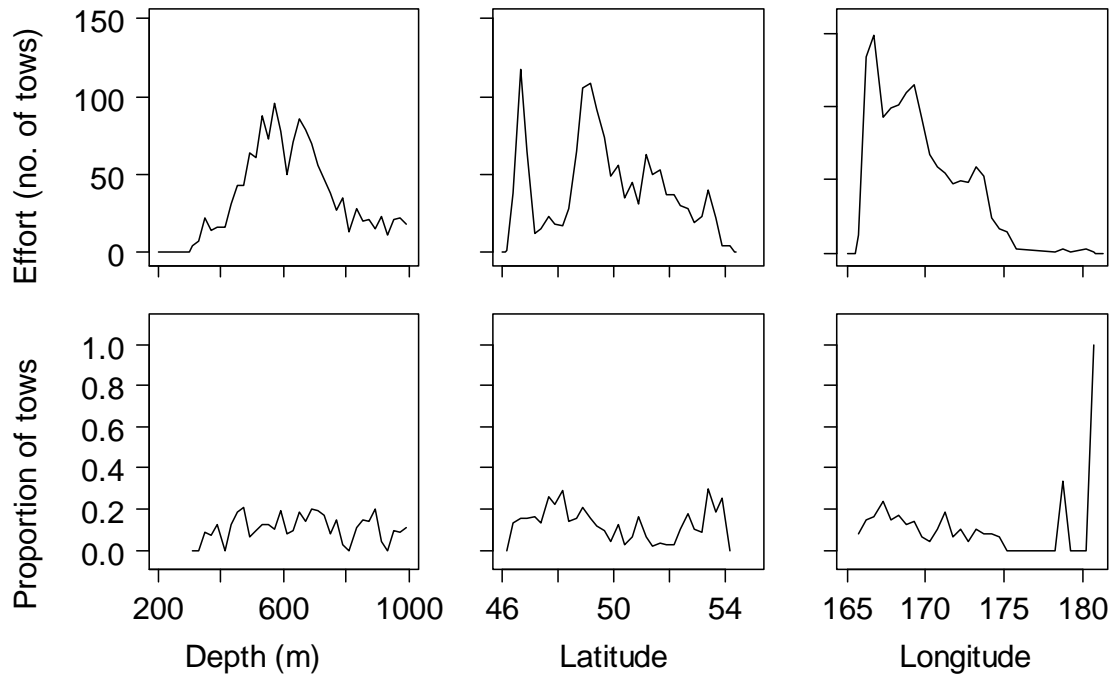
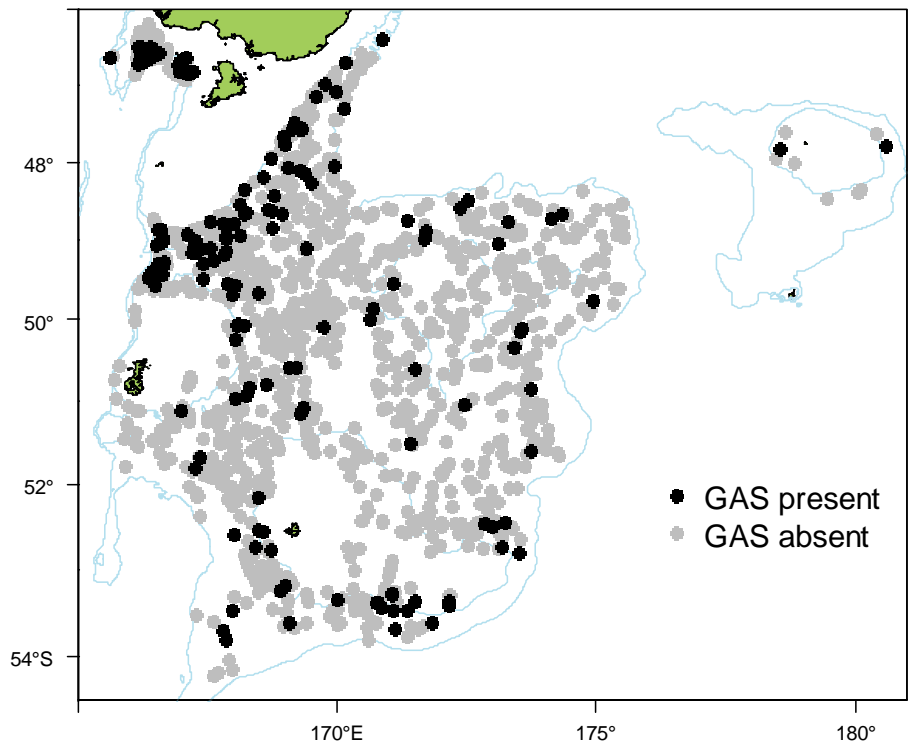
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	5
Total catch weight (kg):	1.0

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 no clear trend** since 2000.

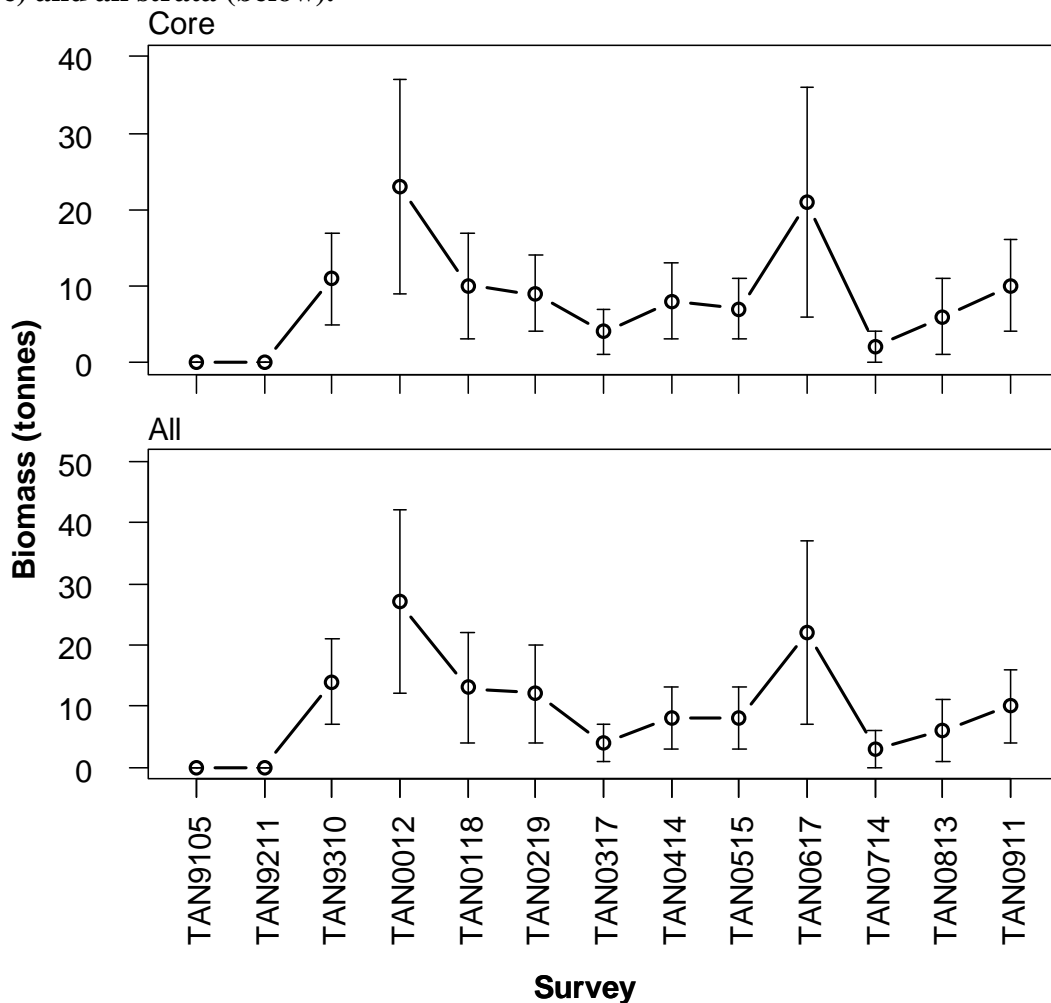
Distribution of Gastropods from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of Gastropods 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	11	26	NA	NA	NA	NA	3	64	14	25
TAN0012	23	30	1	100	3	100	NA	NA	27	29
TAN0118	10	35	0	0	2	100	NA	NA	13	34
TAN0219	9	27	0	0	3	100	NA	NA	12	32
TAN0317	4	45	0	0	NA	NA	NA	NA	4	45
TAN0414	8	34	0	0	NA	NA	NA	NA	8	34
TAN0515	7	31	1	100	0	0	NA	NA	8	30
TAN0617	21	36	1	100	NA	NA	NA	NA	22	34
TAN0714	2	55	0	0	2	100	NA	NA	3	54
TAN0813	6	44	0	0	0	0	NA	NA	6	44
TAN0911	10	33	0	0	0	0	NA	NA	10	33

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



Giant spider crabs (*Jacquinitia edwardsii*)
 Southern spider crab (*Leptomithrax australis*)

GSC
 SSC

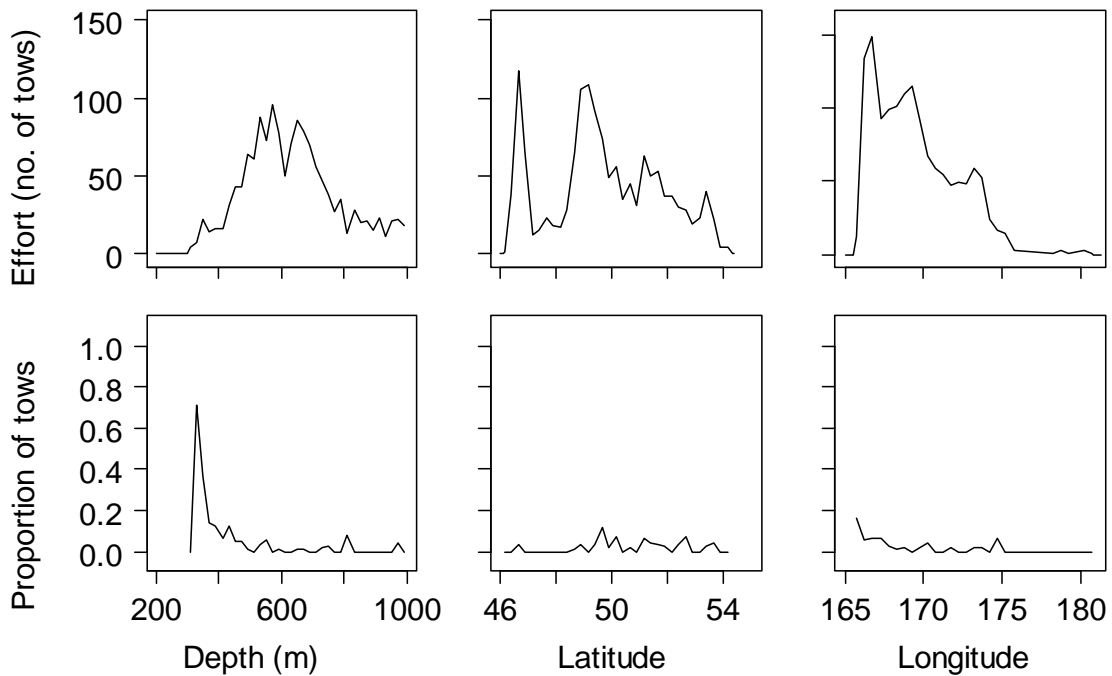
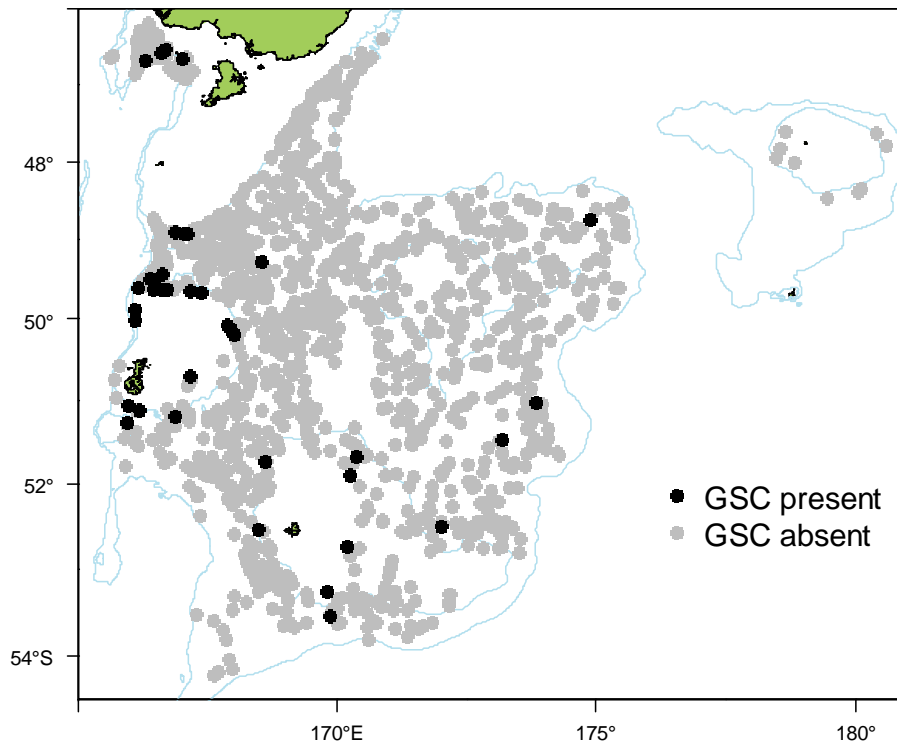


GSC	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	10
Total catch weight (kg):	102.1
Number measured	0
Length range (mean) (cm)	–
Number weighed	0
Length-weight parameters a, b (r^2)	–
SSC	
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	9
Total catch weight (kg):	162.1
Number measured	0
Length range (mean) (cm)	–
Number weighed	0
Length-weight parameters a, b (r^2)	–

This group **has** been well identified during the time series. The two codes have been combined as SSC was coded as GSC in 1991 with 150.6 kgs of SCC. It is found **shallower than 300 m**. The core survey area and depth range **is** appropriate for this group. Distribution **does not extend** to strata 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 area. Biomass **shows no clear trend** since the start of the time series.

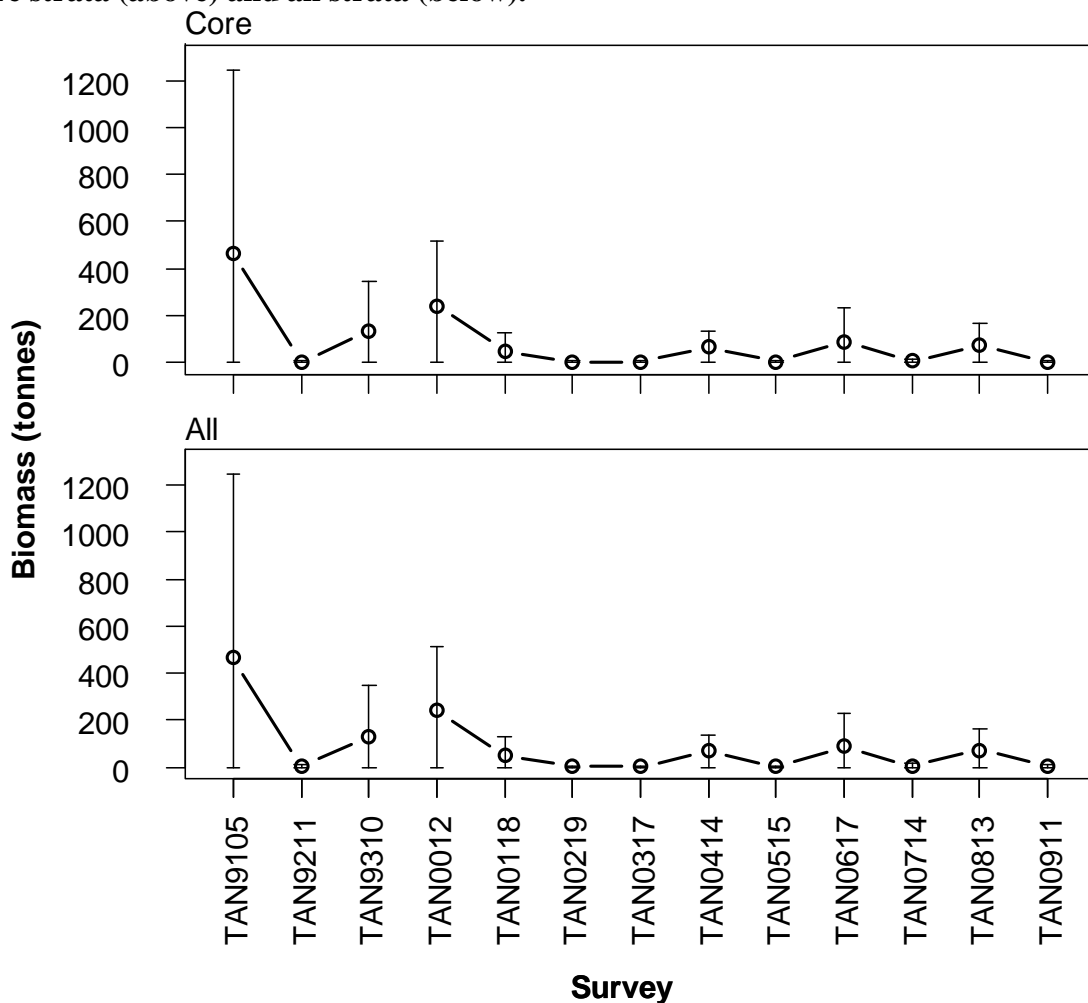
Distribution of *Jacquinotia edwardsii* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Jacquintia edwardsii* 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	464	86	NA	NA	NA	NA	NA	NA	464	86
TAN9211	4	82	NA	NA	NA	NA	0	0	4	82
TAN9310	130	85	NA	NA	NA	NA	0	0	130	85
TAN0012	241	58	0	0	0	0	NA	NA	241	58
TAN0118	48	85	0	0	0	0	NA	NA	48	85
TAN0219	3	48	0	0	0	0	NA	NA	3	48
TAN0317	2	71	0	0	NA	NA	NA	NA	2	71
TAN0414	67	51	0	0	NA	NA	NA	NA	67	51
TAN0515	3	71	0	0	0	0	NA	NA	3	71
TAN0617	88	82	0	0	NA	NA	NA	NA	88	82
TAN0714	5	100	0	0	0	0	NA	NA	5	100
TAN0813	73	63	0	0	0	0	NA	NA	73	63
TAN0911	3	100	0	0	0	0	NA	NA	3	100

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





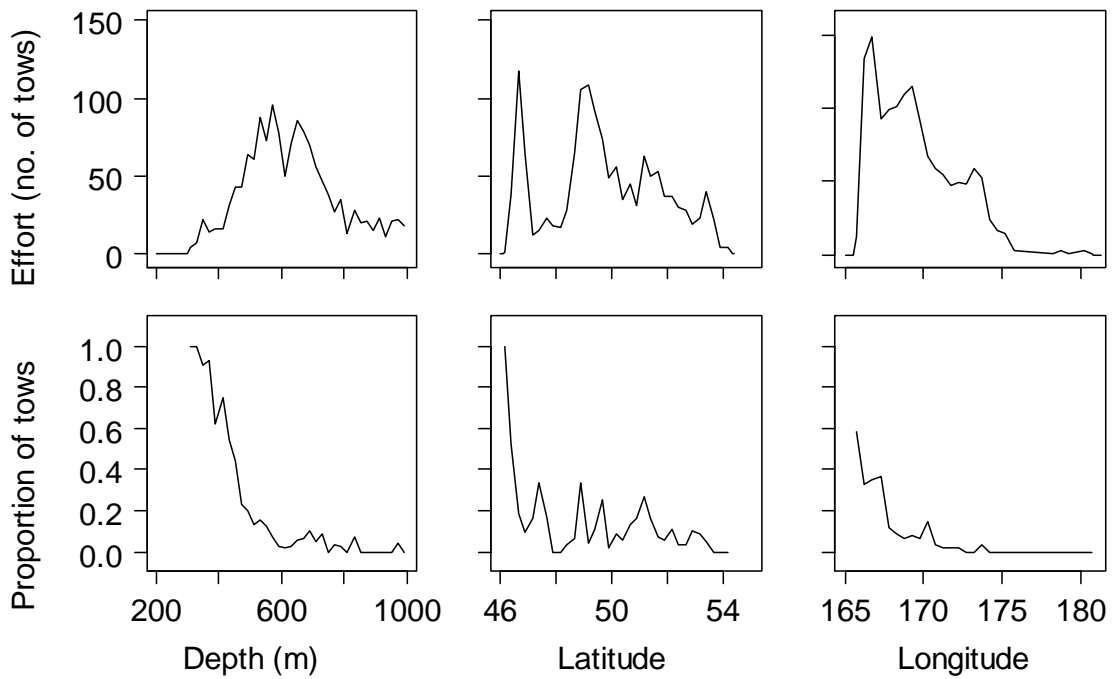
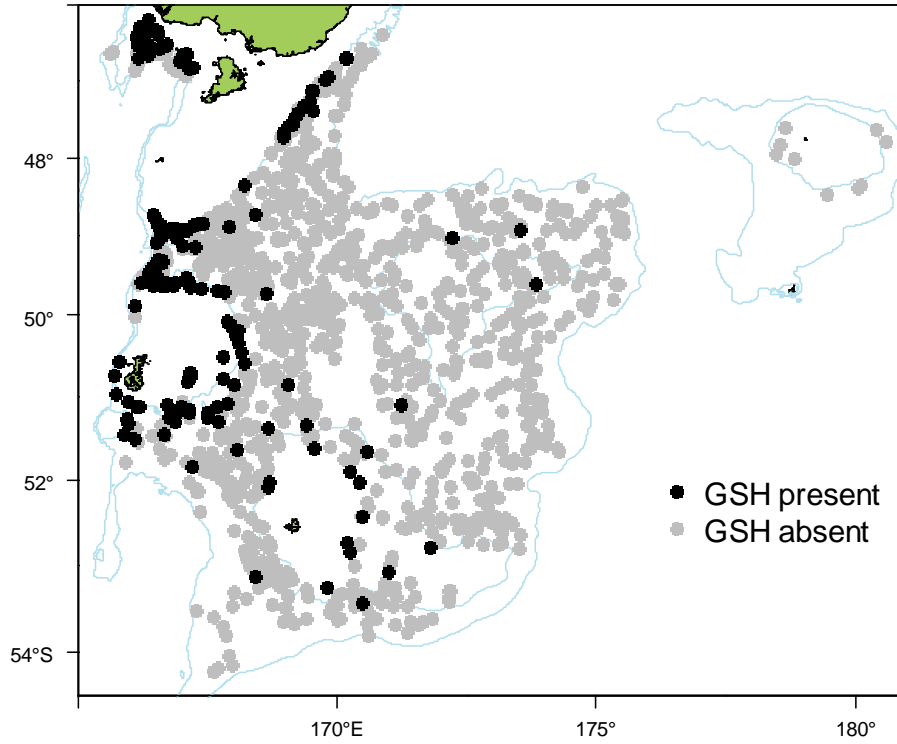
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	4 720.3
Number measured	4 004
Length range (mean) (cm)	25–74 (55.8)
Number weighed	2 217
Length-weight parameters a, b (r^2)	0.001853226, 3.299367 (97.55)

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. Catch rates are highest in shallower depths to the **north** at Puysegur and **west** around the Auckland Islands and 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 **immature to mature**.

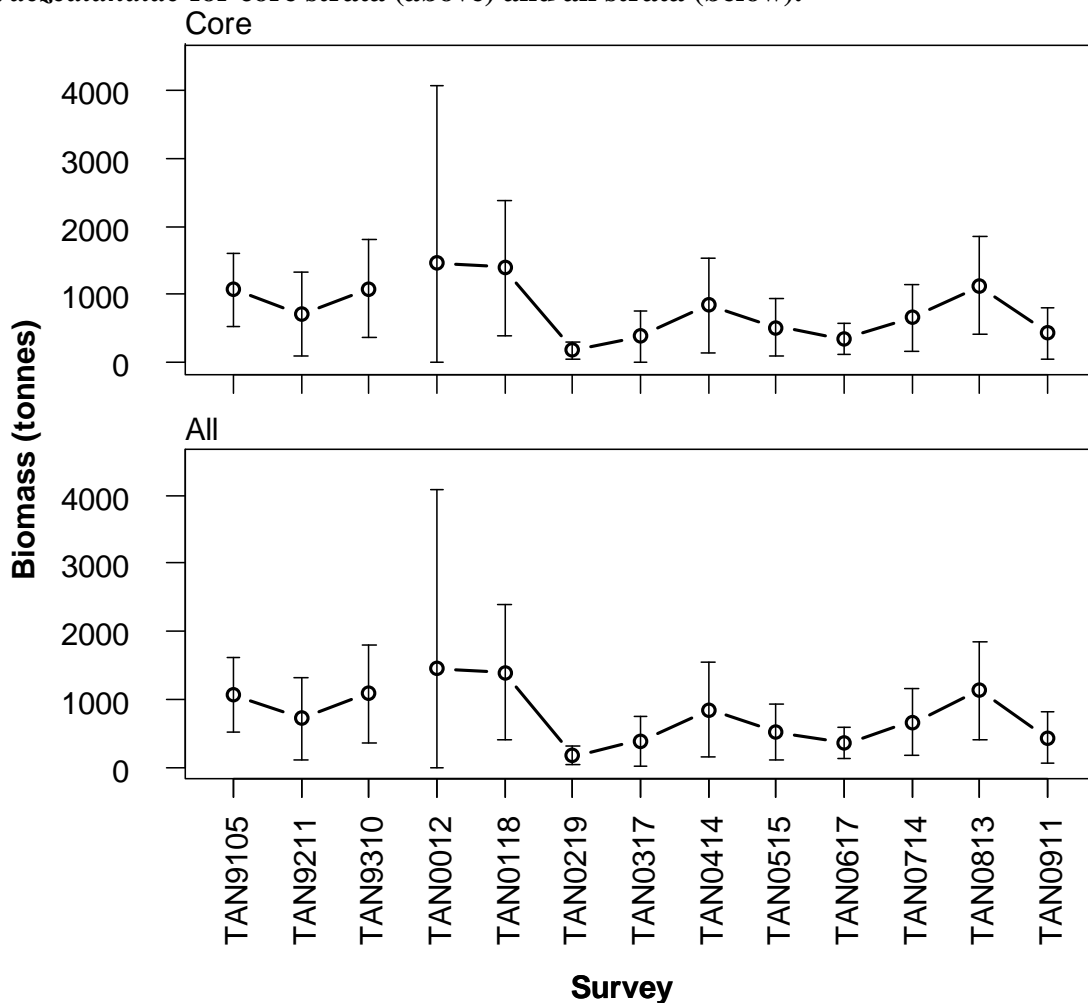
Distribution of *Hydrolagus novaezealandiae* from all summer surveys. Valid biomass stations only.



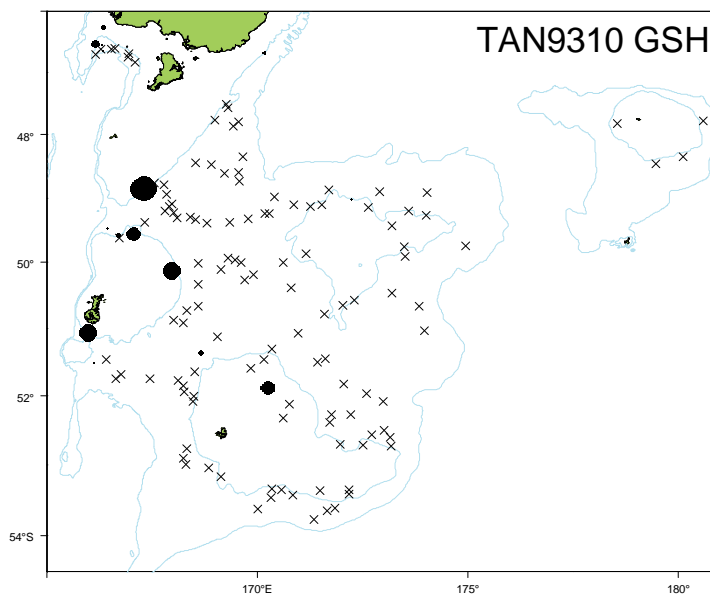
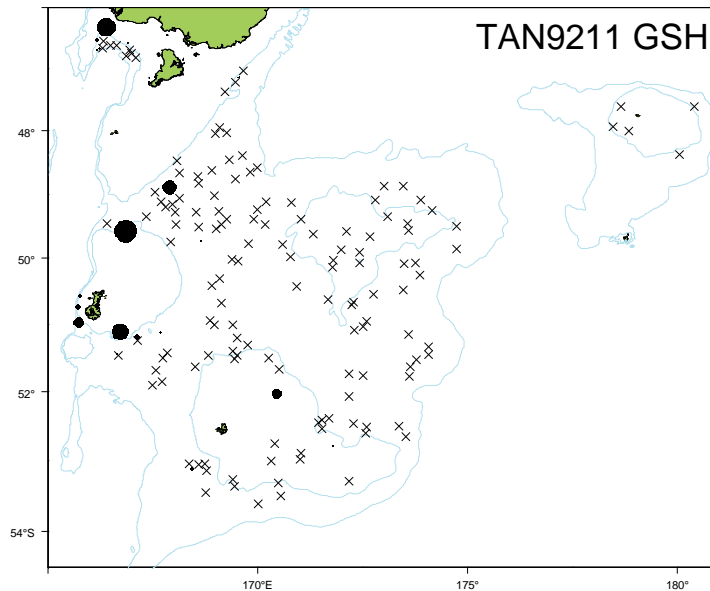
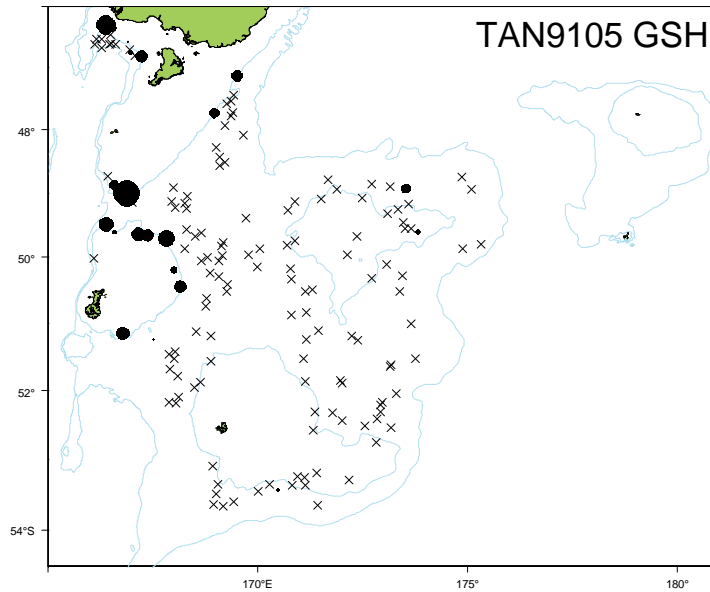
Relative biomass estimates (t) and c.v.s (%) of *Hydrolagus novaezealandiae* for core strata, strata outside the core area and all strata.

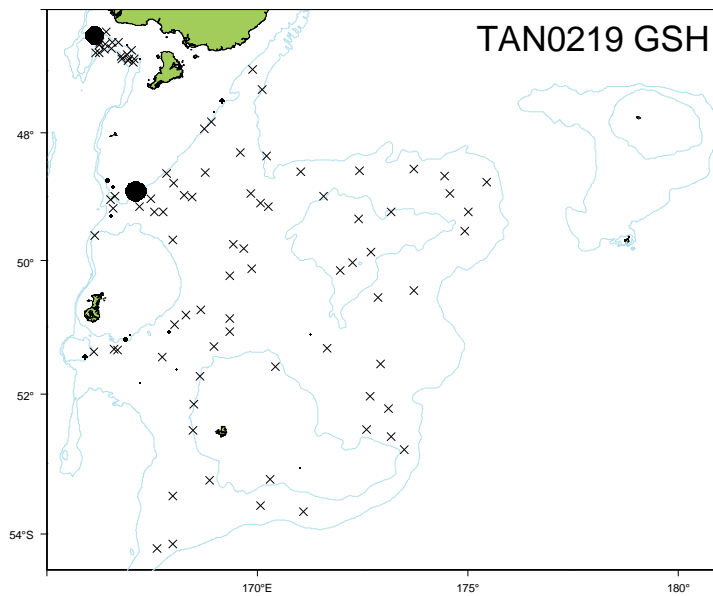
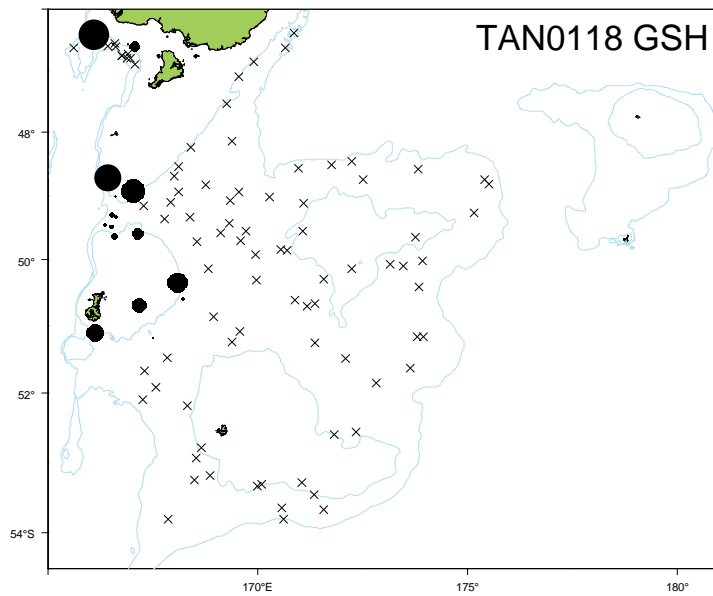
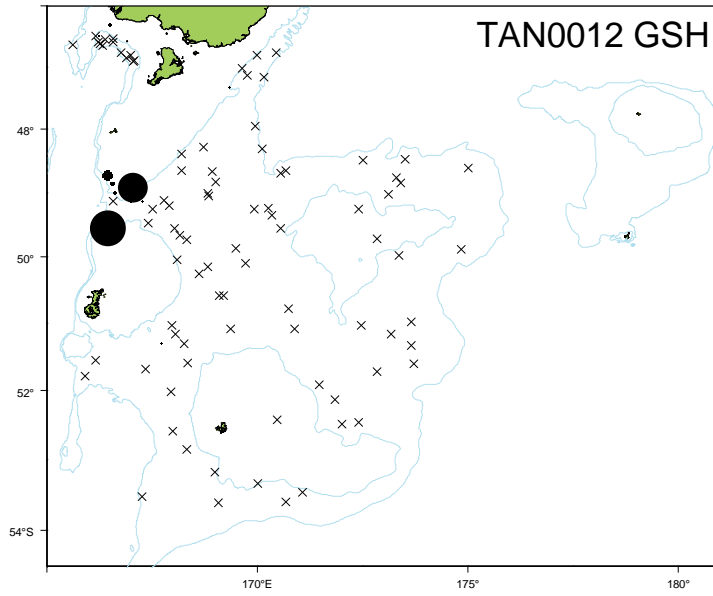
Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	1067	26	NA	NA	NA	NA	NA	NA	1067	26
TAN9211	716	43	NA	NA	NA	NA	0	0	716	43
TAN9310	1086	33	NA	NA	NA	NA	0	0	1086	33
TAN0012	1459	90	0	0	0	0	NA	NA	1459	90
TAN0118	1391	36	0	0	0	0	NA	NA	1391	36
TAN0219	175	38	0	0	0	0	NA	NA	175	38
TAN0317	382	49	0	0	NA	NA	NA	NA	382	49
TAN0414	843	42	0	0	NA	NA	NA	NA	843	42
TAN0515	517	40	0	0	0	0	NA	NA	517	40
TAN0617	354	32	0	0	NA	NA	NA	NA	354	32
TAN0714	659	37	0	0	0	0	NA	NA	659	37
TAN0813	1128	32	0	0	0	0	NA	NA	1128	32
TAN0911	433	43	0	0	0	0	NA	NA	433	43

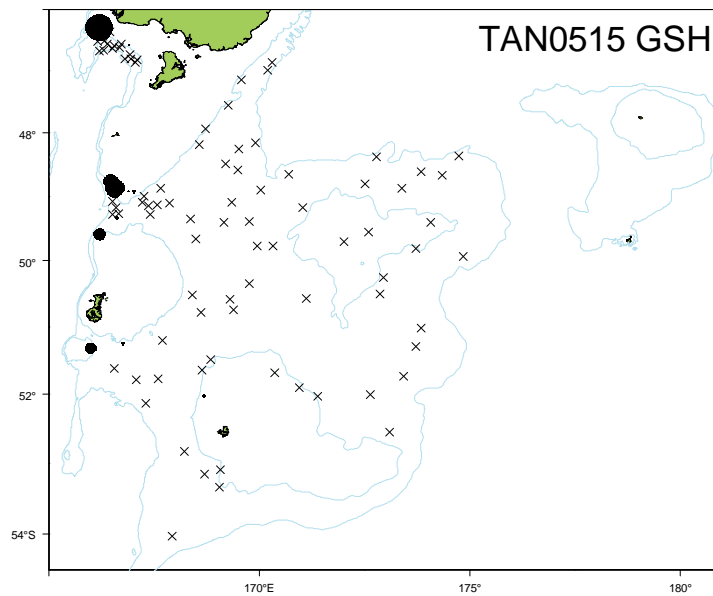
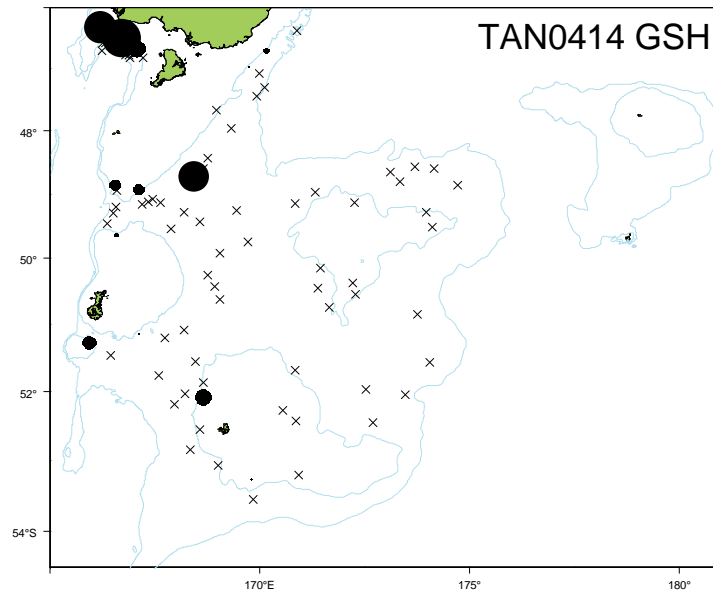
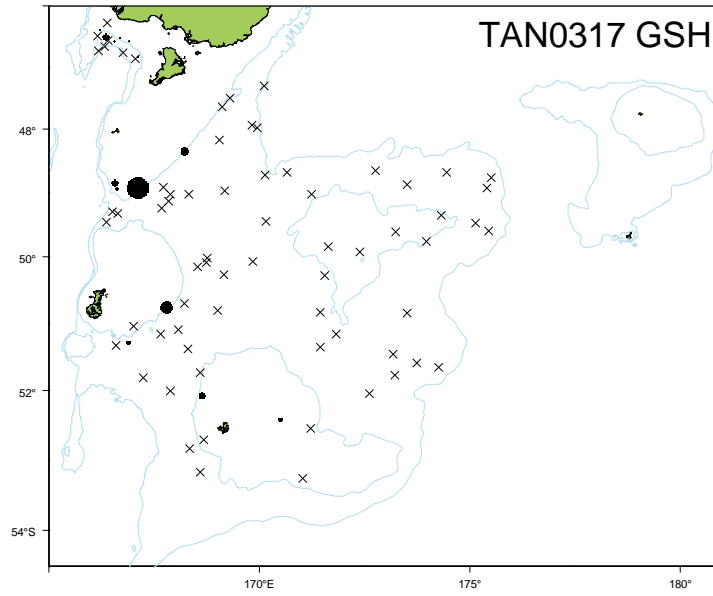
Trends in relative biomass estimates (± 2 standard errors) of *Hydrolagus novaezealandiae* for core strata (above) and all strata (below).

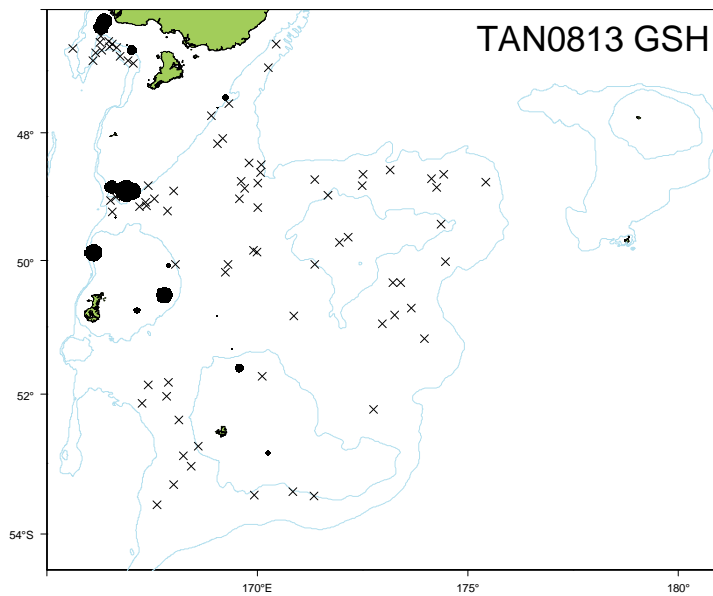
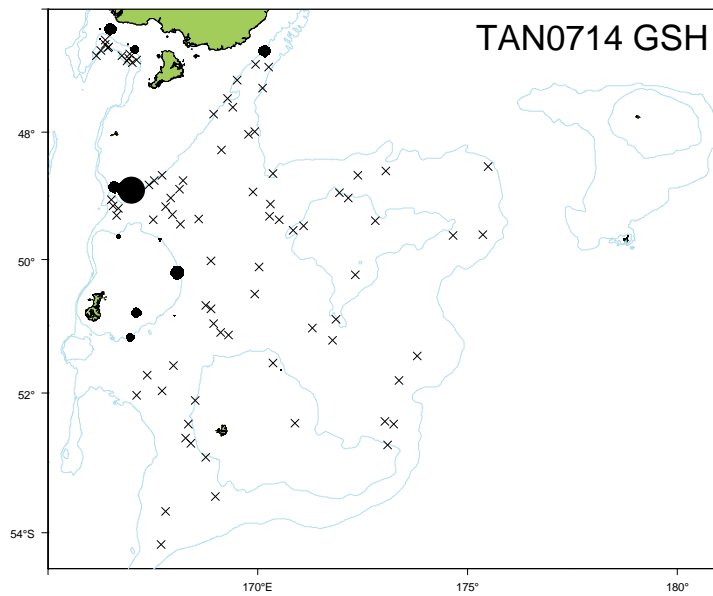
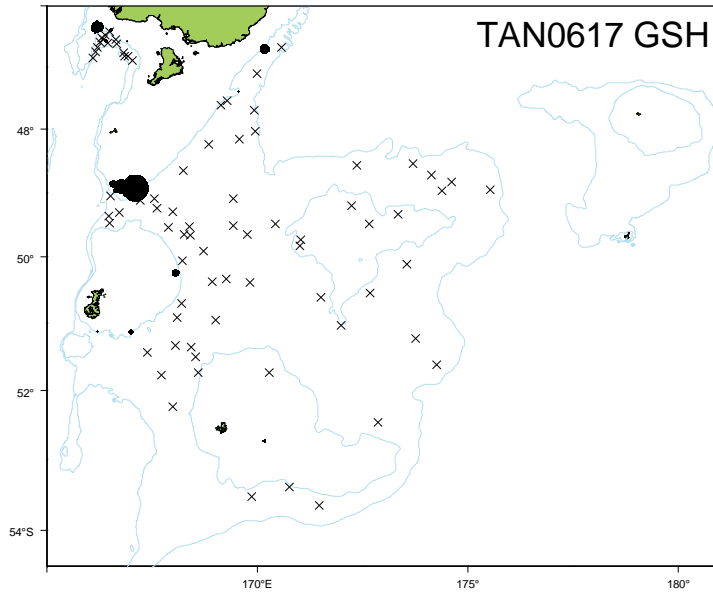


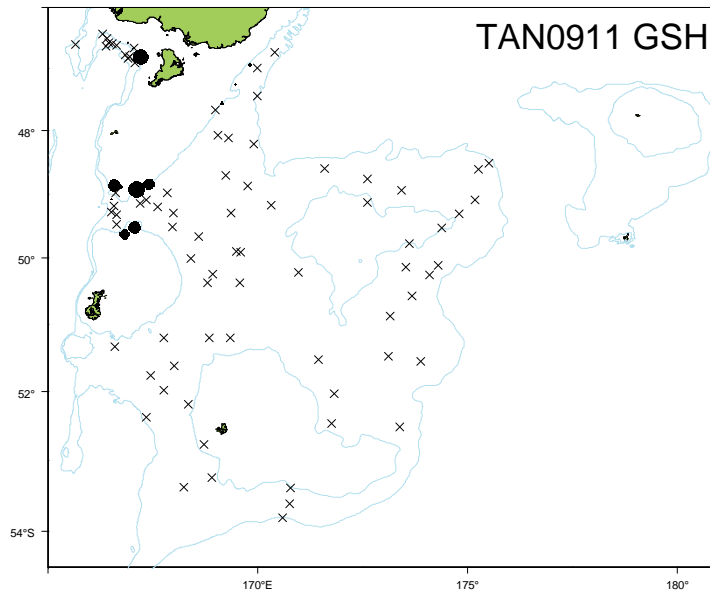
Catchrates of *Hydrolagus novaezealandiae*. Circle area is proportional to the maximum catchrate from all surveys (see Table 5)..









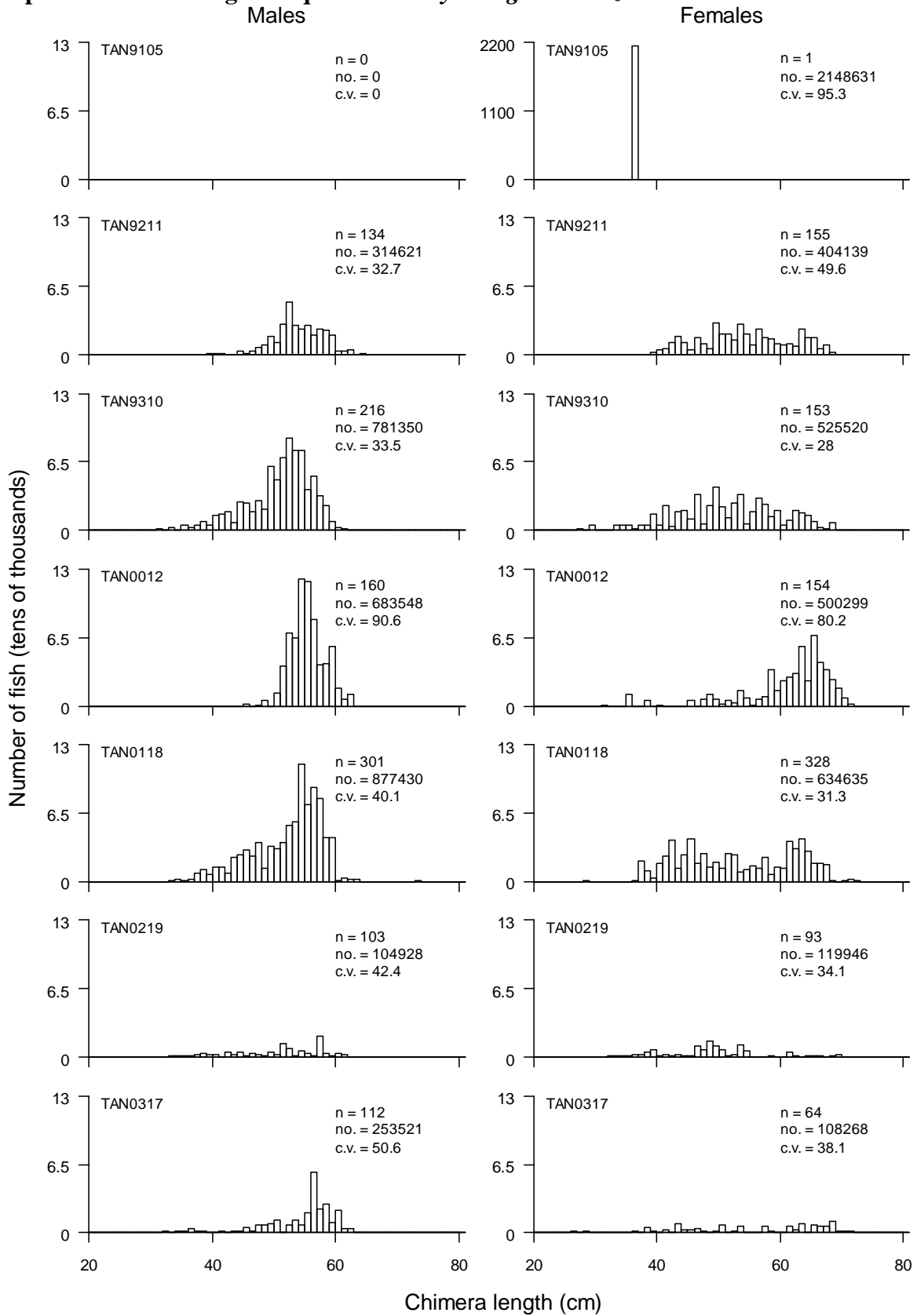


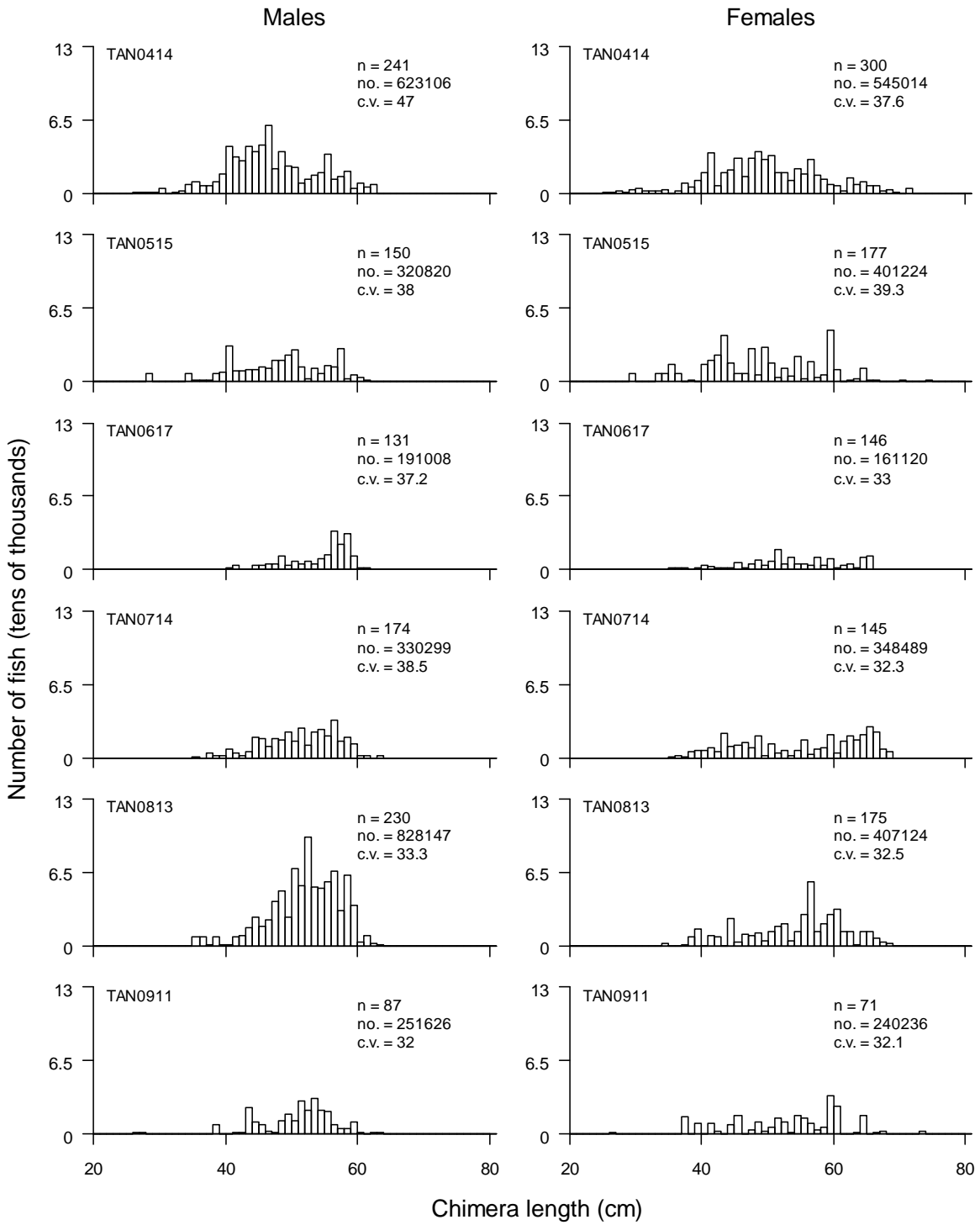
Length summaries

Survey	Minimum length (cm)	Maximum length (cm)	Mean length (cm)	Number measured
TAN9105	36	36	36.0	1
TAN9211	39	68	54.1	290
TAN9310	27	68	50.8	369
TAN0012	31	71	57.9	314
TAN0118	28	73	51.2	629
TAN0219	31	70	49.3	196
TAN0317	25	73	49.6	176
TAN0414	25	71	48.8	542
TAN0515	28	74	50.2	327
TAN0617	33	70	51.9	278
TAN0714	35	68	51.7	319
TAN0813	34	68	53.0	405
TAN0911	26	73	52.3	158

Note: TAN9105 used total length and not chimeara length as the measurement method.

Population scaled length frequencies of *Hydrolagus novaezealandiae* for all strata.





Gonad stage summaries by sex for *Hydrolagus novaezealandiae*. 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	23	23	53	44	40	14	1	0	0
ALL	23	23	53	44	40	14	1	0	0



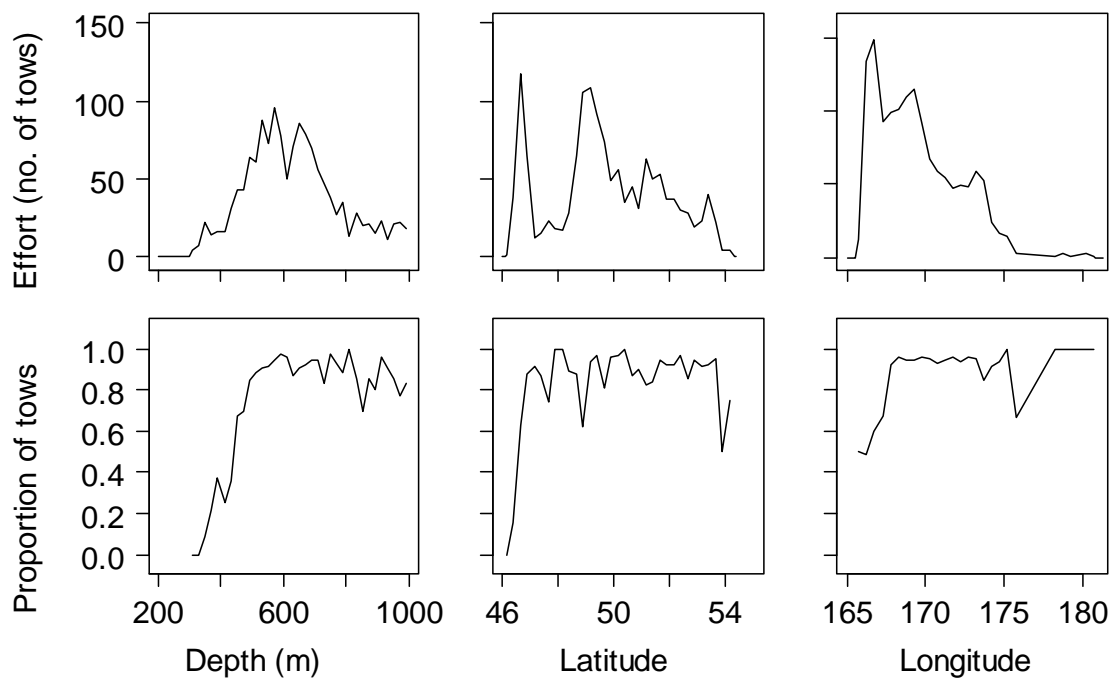
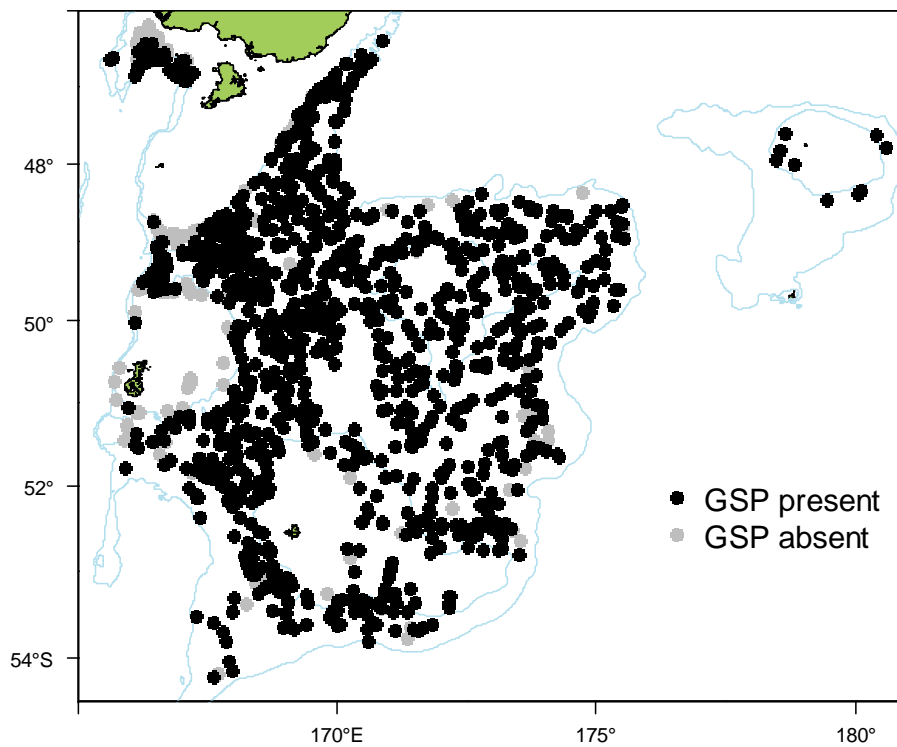
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	28 903.9
Number measured	14 919
Length range (mean) (cm)	19–105 (64.4)
Number weighed	9 578
Length-weight parameters a, b (r^2)	0.01173803, 2.829785 (97.1)

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** 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 **well** estimated. Catches are taken in the **northern** part of the survey area.

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 **maturing to mature**.

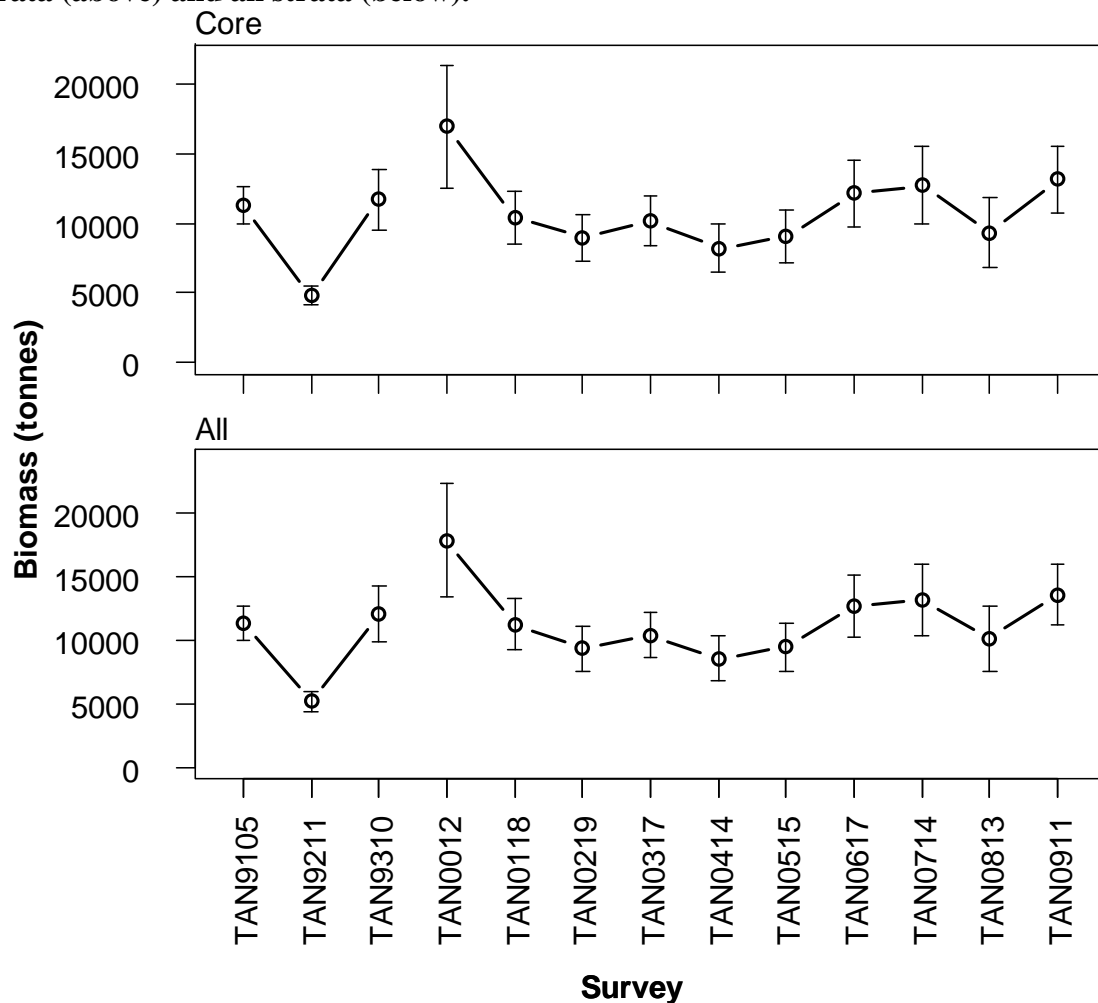
Distribution of *Hydrolagus bemisi* from all summer surveys. Valid biomass stations only.



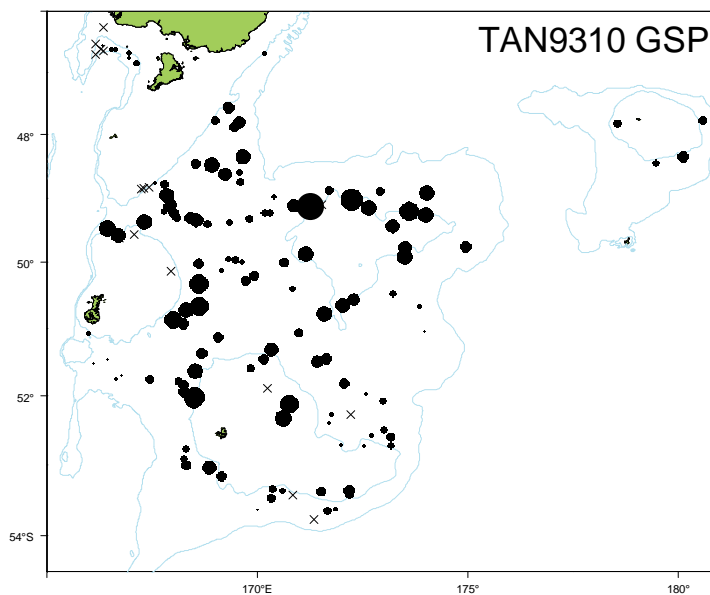
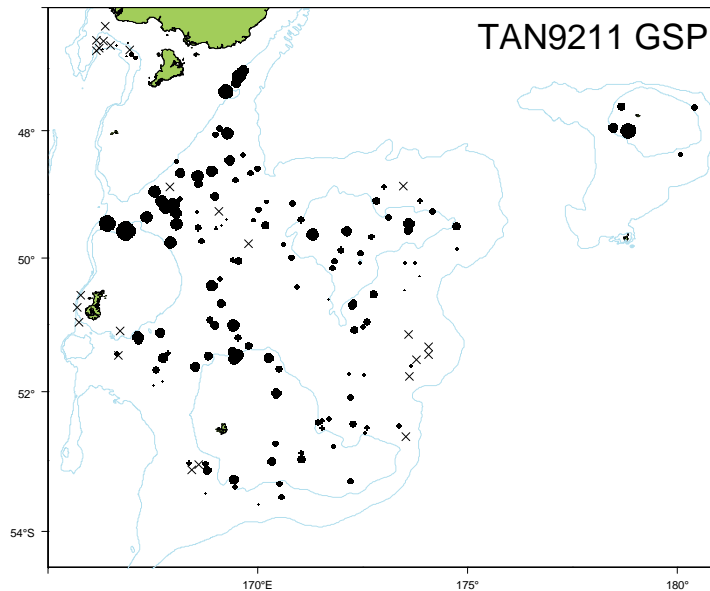
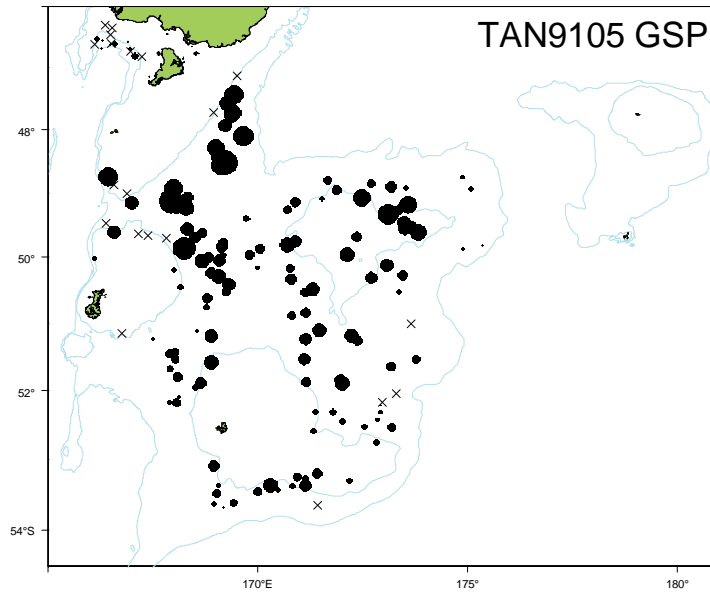
Relative biomass estimates (t) and c.v.s (%) of *Hydrolagus bemisi* for core strata, strata outside the core area and all strata.

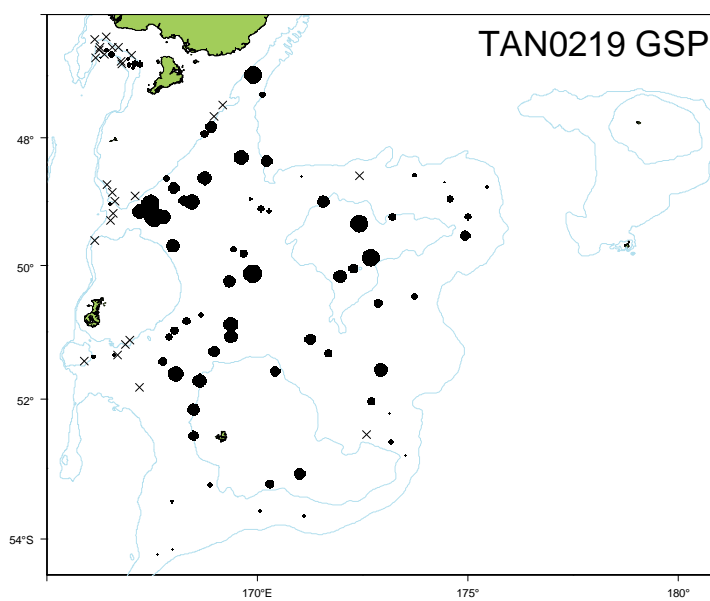
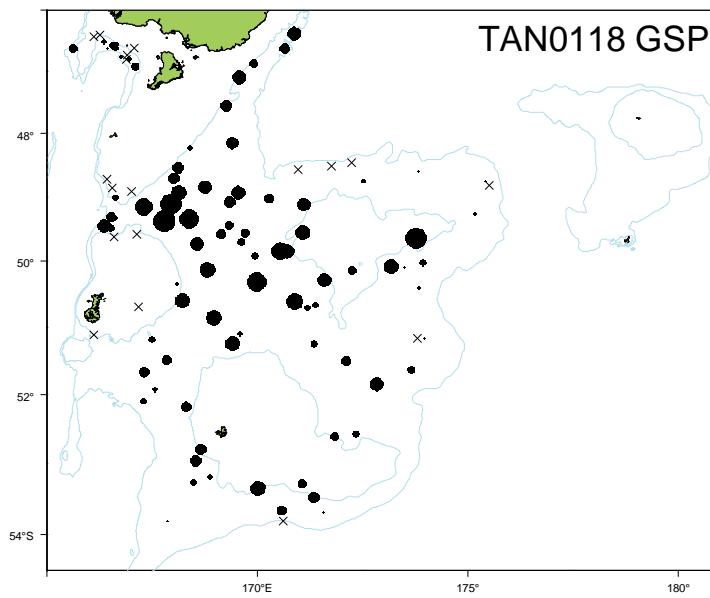
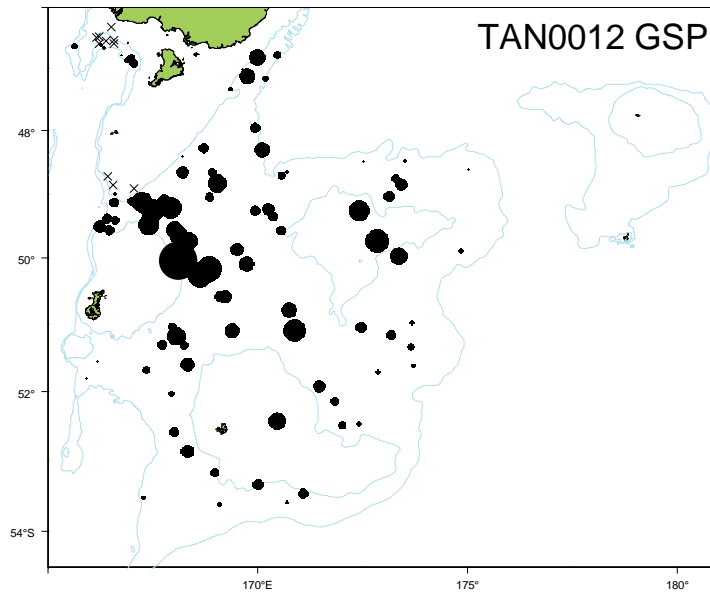
Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	11291	6	NA	NA	NA	NA	NA	NA	11291	6
TAN9211	4797	7	NA	NA	NA	NA	361	42	5158	7
TAN9310	11706	9	NA	NA	NA	NA	301	23	12007	9
TAN0012	16955	13	418	34	451	68	NA	NA	17823	12
TAN0118	10420	9	465	14	334	66	NA	NA	11219	9
TAN0219	8977	10	208	51	112	22	NA	NA	9297	9
TAN0317	10175	9	186	32	NA	NA	NA	NA	10360	9
TAN0414	8220	11	328	31	NA	NA	NA	NA	8549	10
TAN0515	9079	10	187	16	151	64	NA	NA	9416	10
TAN0617	12151	10	468	41	NA	NA	NA	NA	12619	10
TAN0714	12744	11	187	21	176	80	NA	NA	13107	11
TAN0813	9341	13	301	21	455	51	NA	NA	10097	13
TAN0911	13155	9	263	16	135	59	NA	NA	13553	9

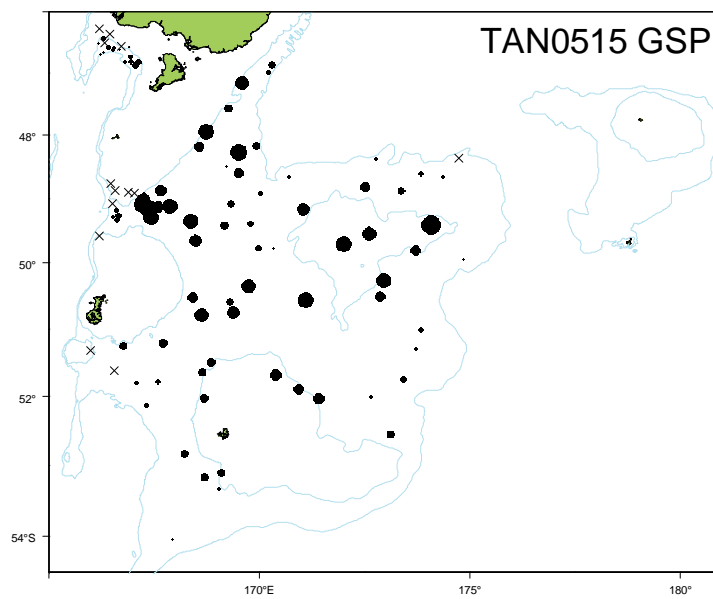
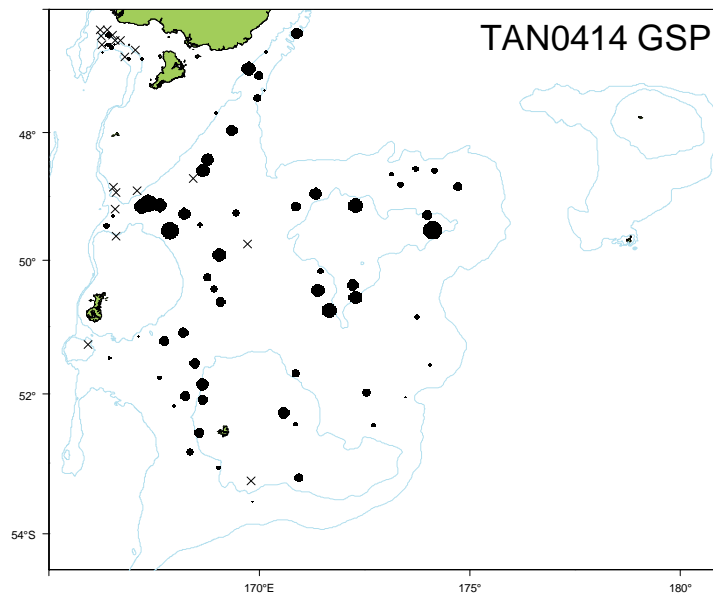
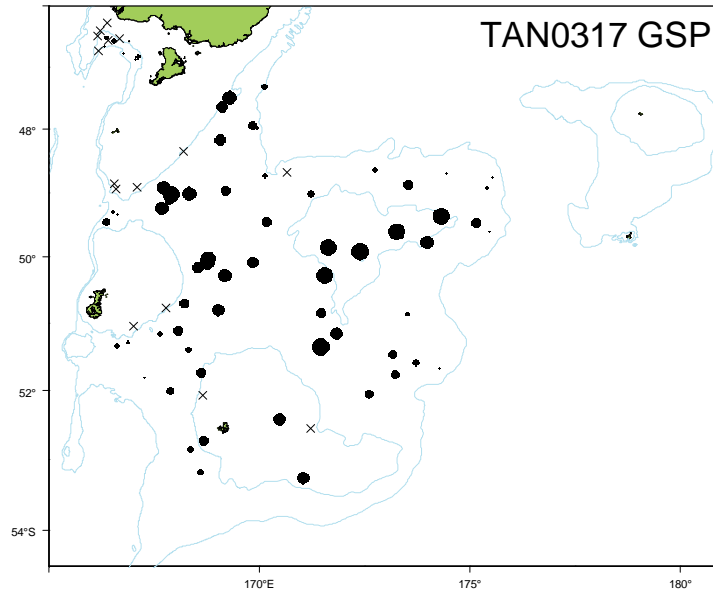
Trends in relative biomass estimates (± 2 standard errors) of *Hydrolagus bemisi* for core strata (above) and all strata (below).

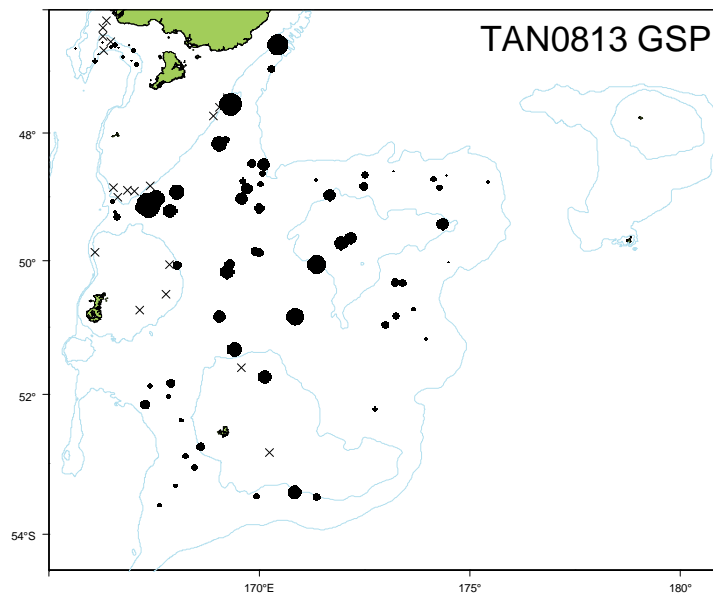
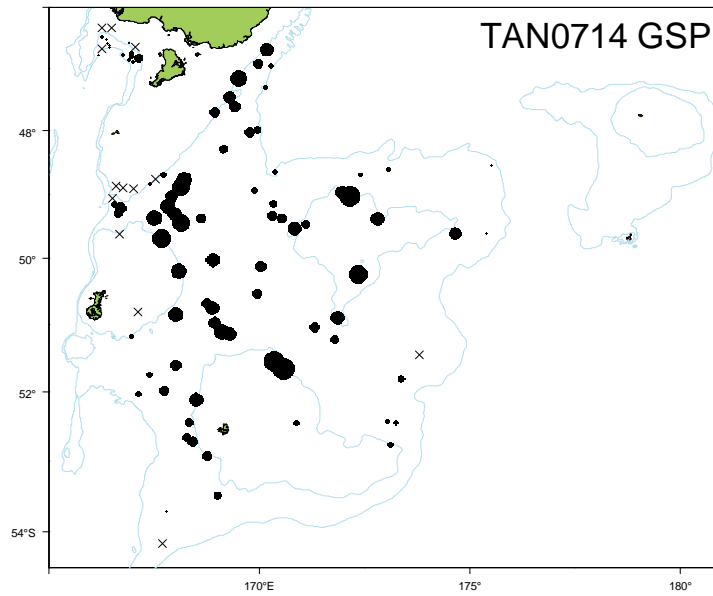
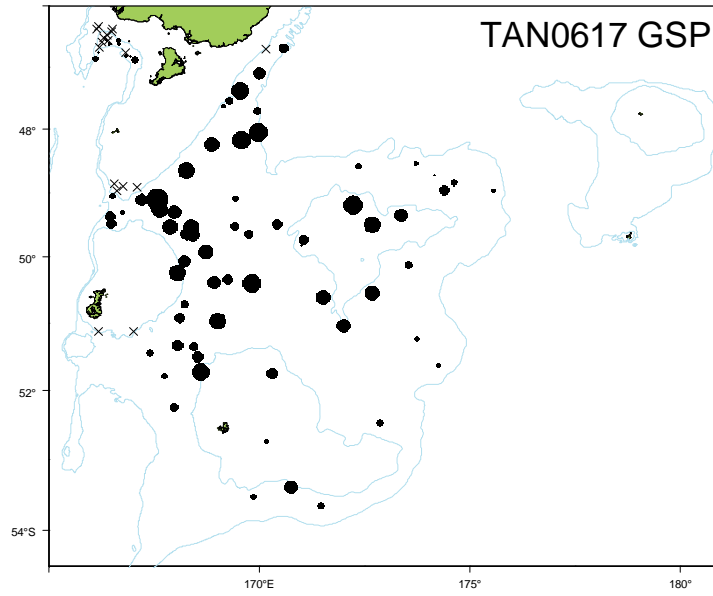


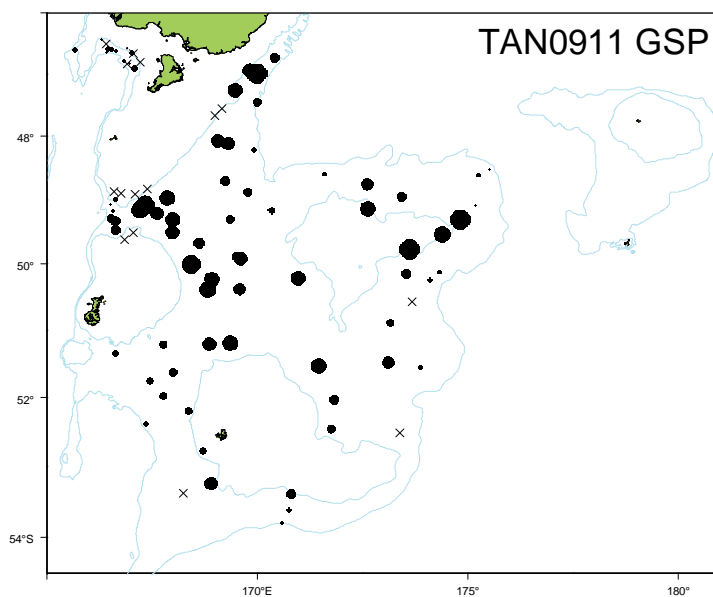
Catchrates of *Hydrolagus bemisi*. Circle area is proportional to the maximum catchrate from all surveys (see Table 5).









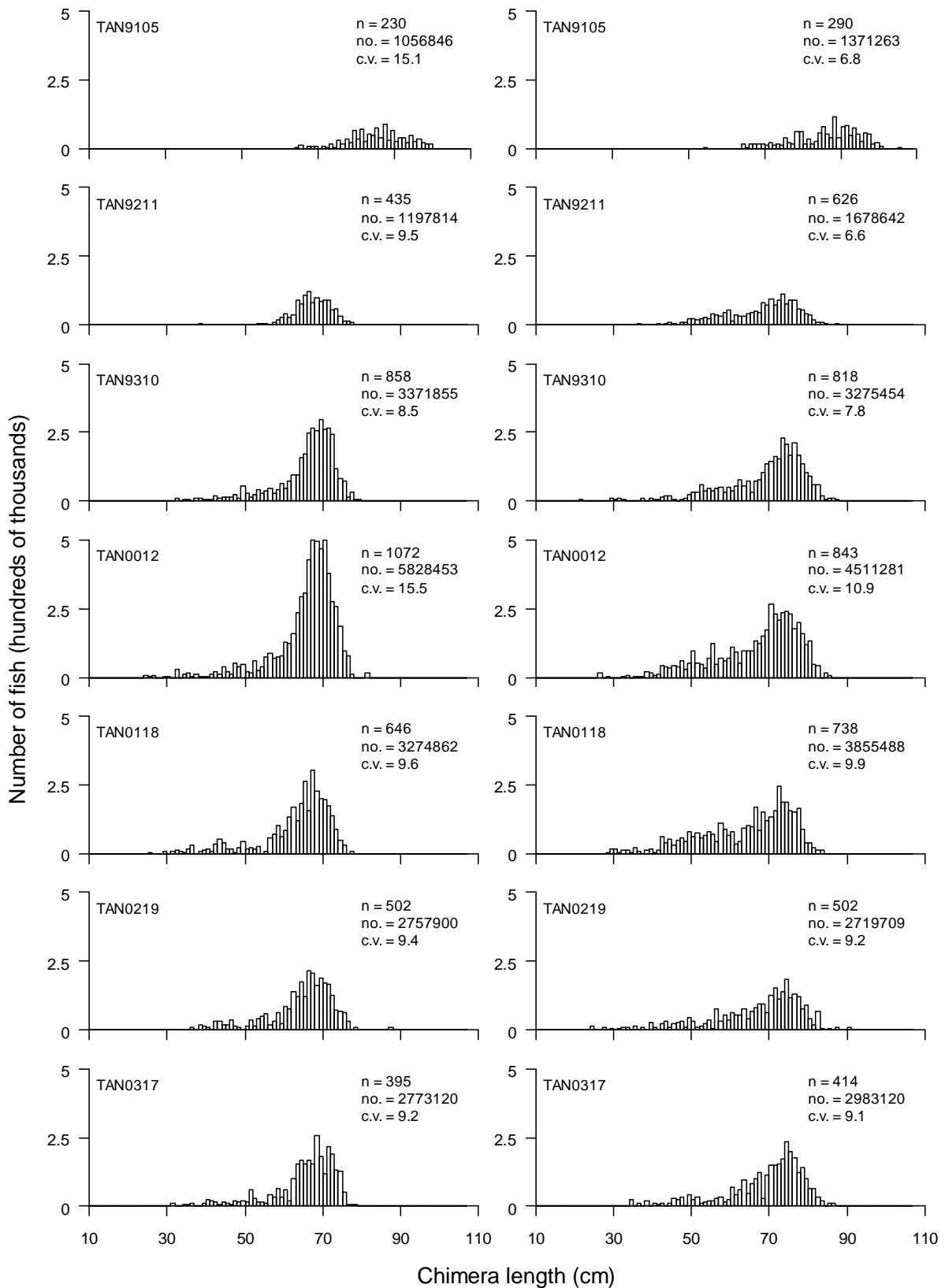


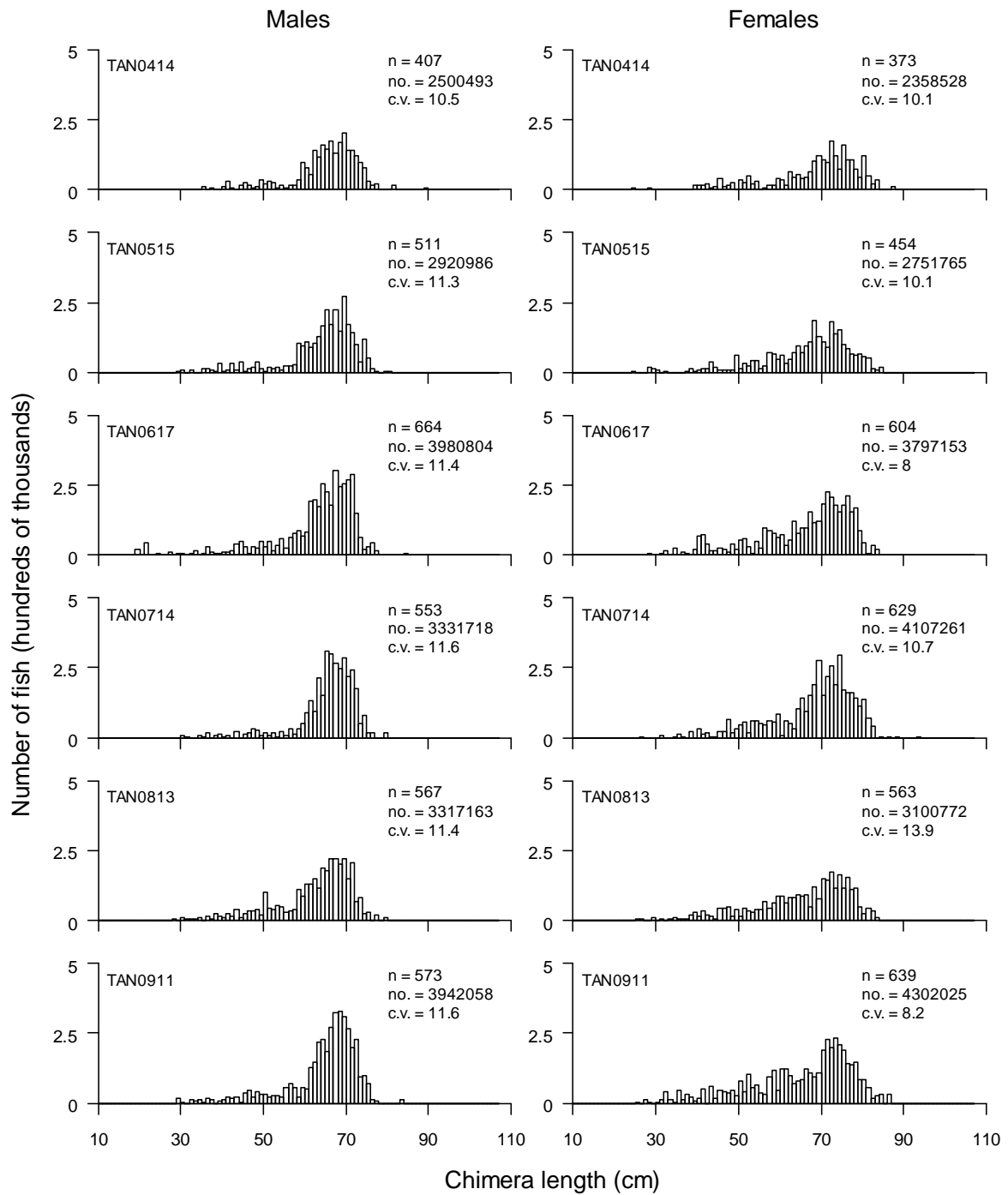
Length summaries

Survey	Minimum length (cm)	Maximum length (cm)	Mean length (cm)	Number measured
TAN9105*	48	105	84.6	520
TAN9211	20	87	66.3	1061
TAN9310	21	88	66.3	1678
TAN0012	24	85	65.4	1915
TAN0118	25	83	63.3	1385
TAN0219	24	90	64.7	1005
TAN0317	23	86	66.7	811
TAN0414	24	89	64.8	783
TAN0515	24	84	63.1	967
TAN0617	19	84	64.0	1269
TAN0714	26	93	65.4	1182
TAN0813	25	83	62.4	1130
TAN0911	22	86	63.5	1213

Note: TAN9105 used total length and not chimeara length as the measurement method.

Population scaled length frequencies of *Hydrolagus bemisi* for all strata.





Gonad stage summaries by sex for *Hydrolagus bemisi*. 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	9	12	79	42	38	20	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	19	5	77	23	51	24	2	0	0
ALL	17	6	77	25	49	24	2	0	0



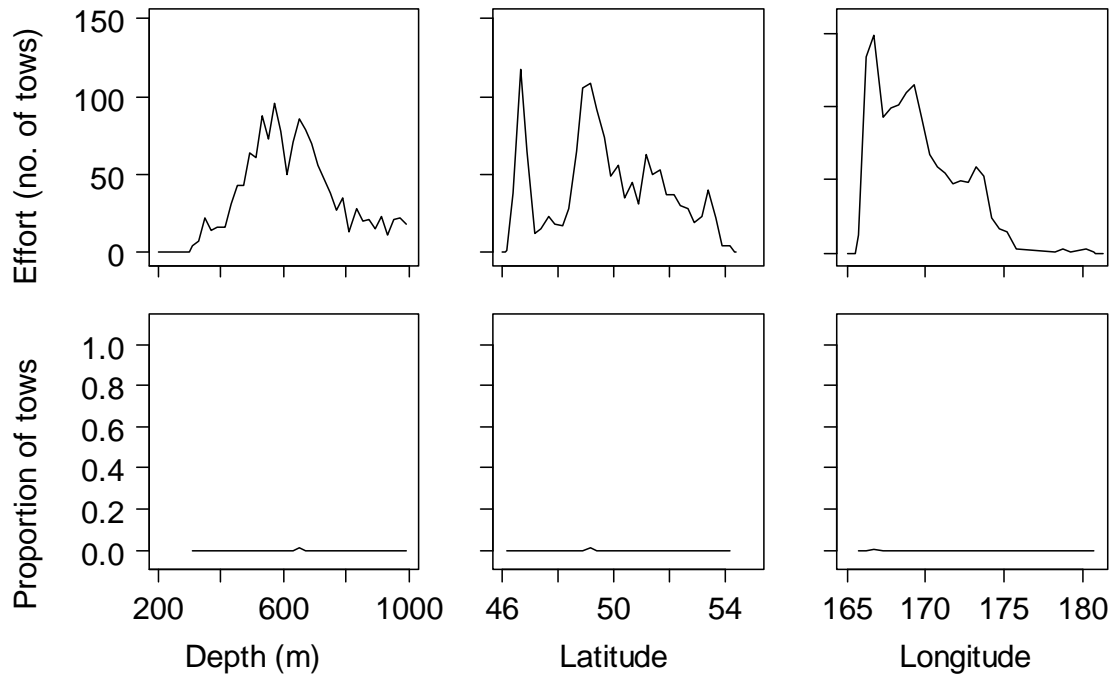
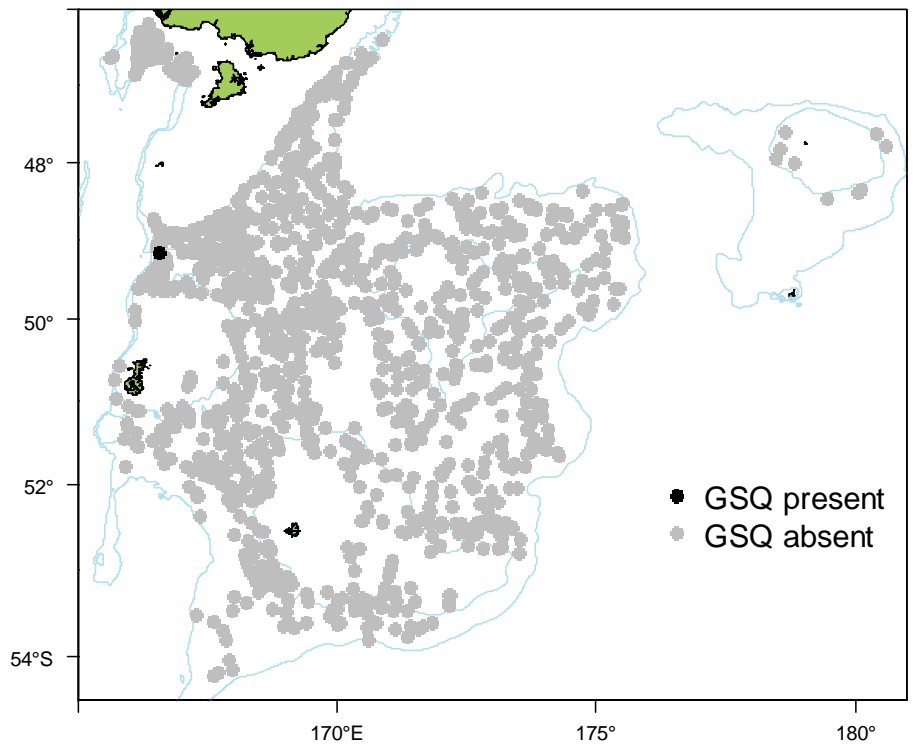
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	120.0
Number measured	0
Length range (mean) (cm)	–
Number weighed	0
Length-weight parameters a, b (r^2)	–

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

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.

There is no length or gonad stage information.

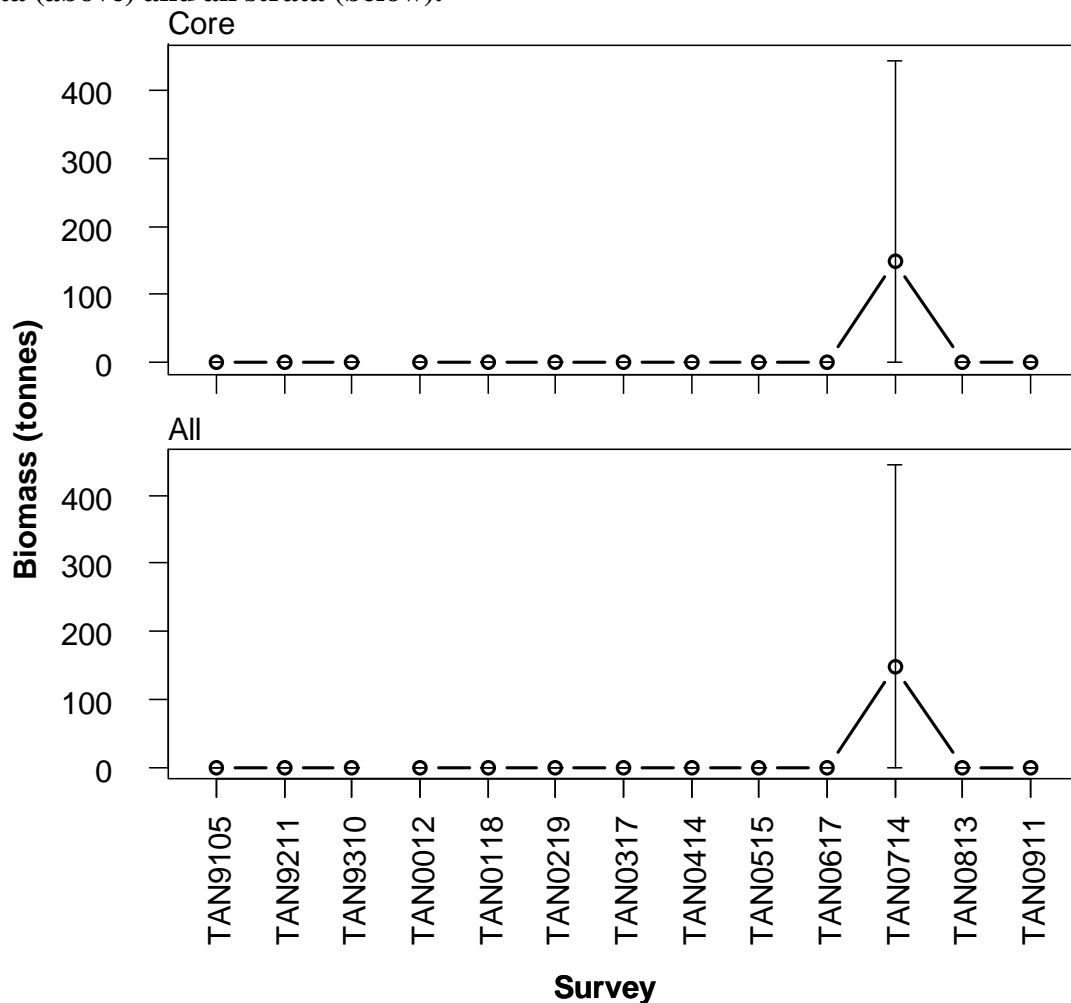
Distribution of *Architeuthis* spp. from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Architeuthis* spp. 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	148	100	0	0	0	0	NA	NA	148	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 *Architeuthis* spp. for core strata (above) and all strata (below).





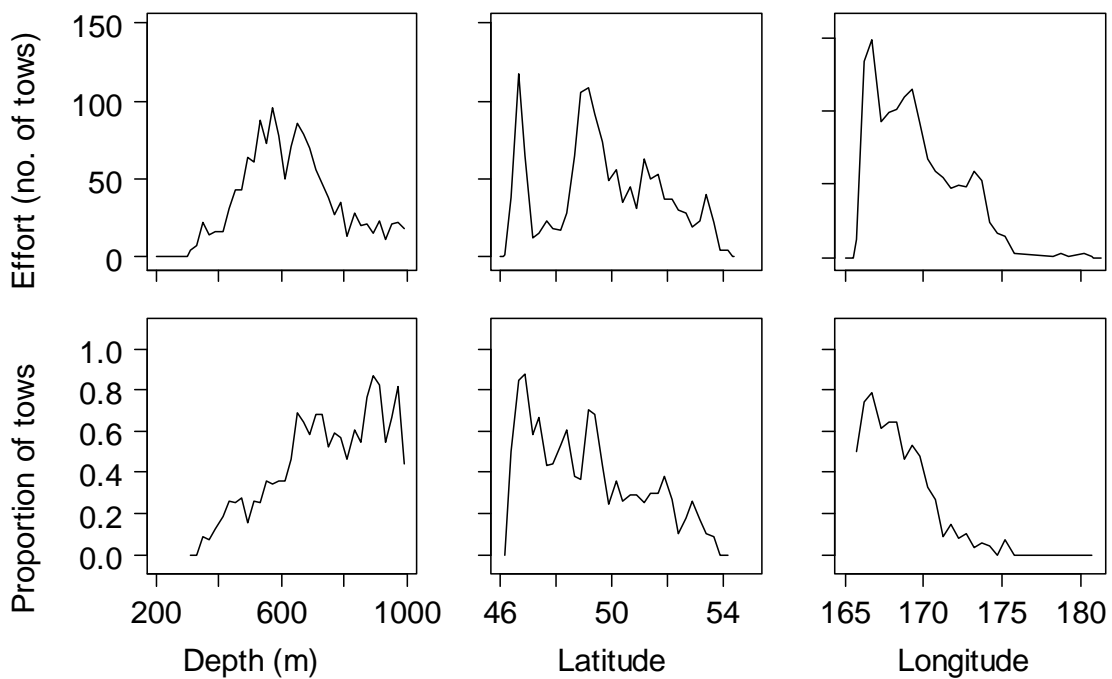
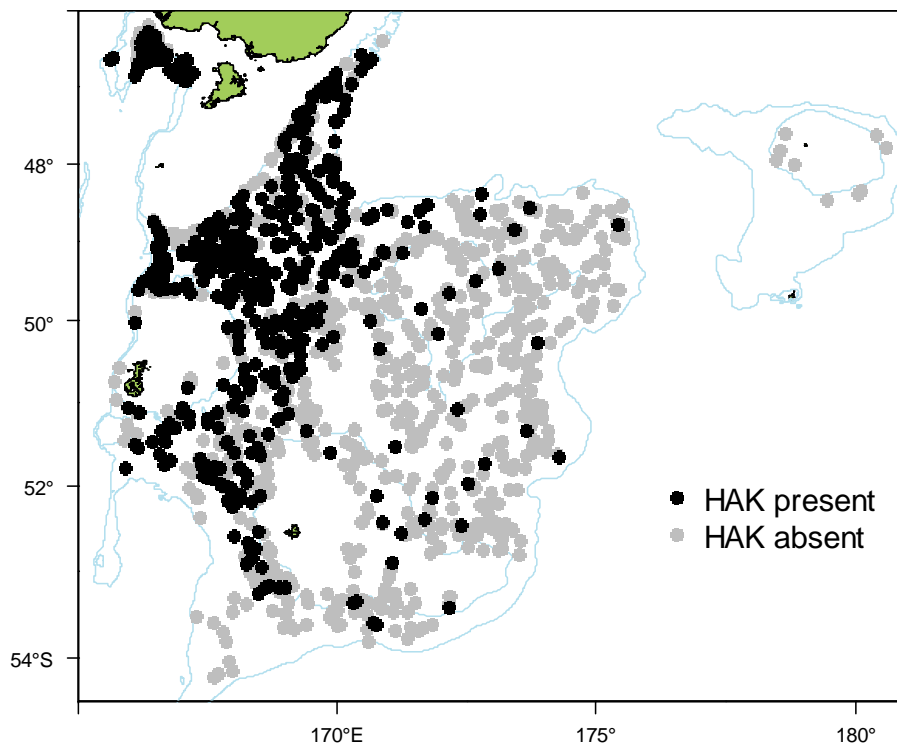
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	27 751.0
Number measured	7 721
Length range (mean) (cm)	41–128 (78.4)
Number weighed	6 782
Length-weight parameters a, b (r^2)	0.00213618, 3.277882 (97.81)

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

Biomass of this species is **very well** estimated by the core survey. Biomass has **decreased** 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 **southwest** of the Stewart/Snares Shelf and in the **northwest** at Puysegur. Catches in the eastern part of the survey area are infrequent.

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 **immature and resting** with evidence of some spawning activity.

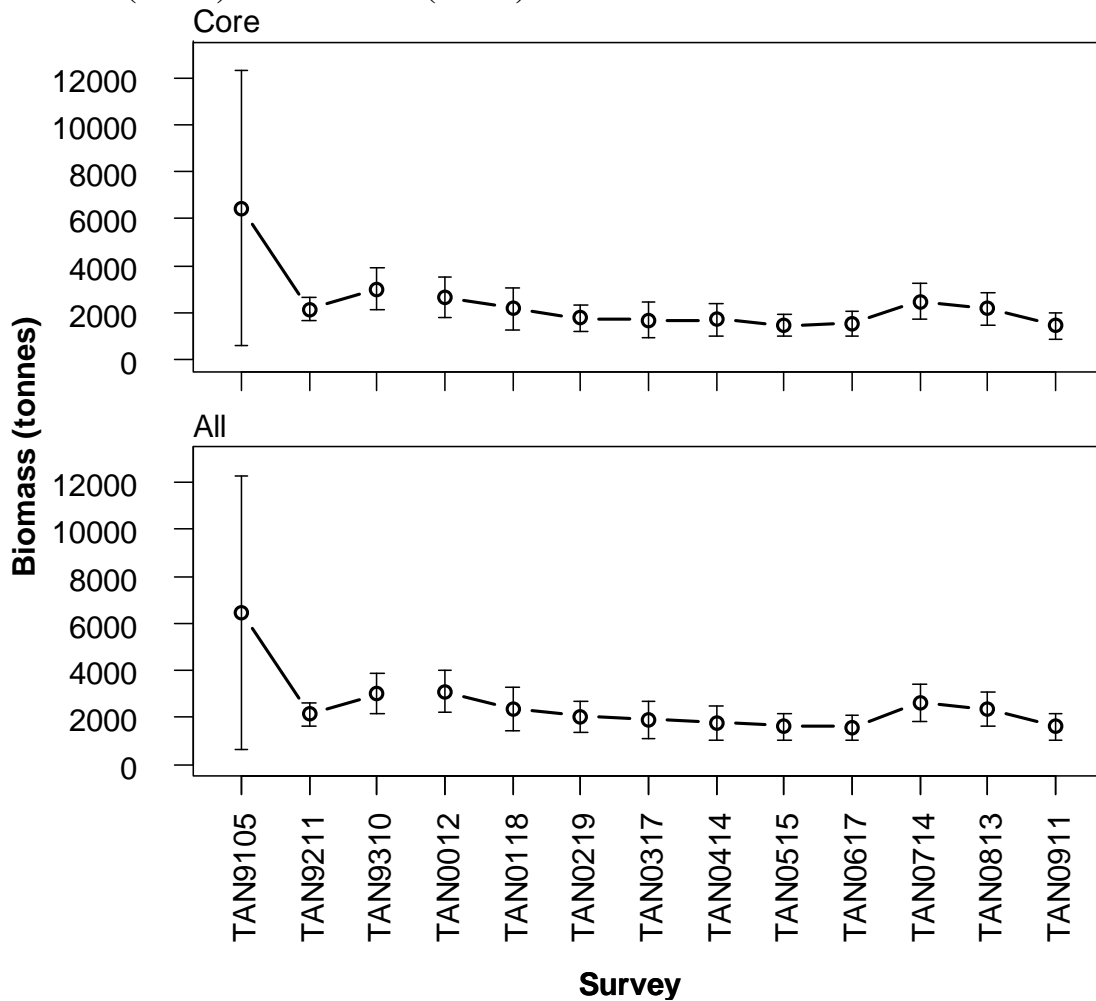
Distribution of *Merluccius australis* from all summer surveys. Valid biomass stations only.



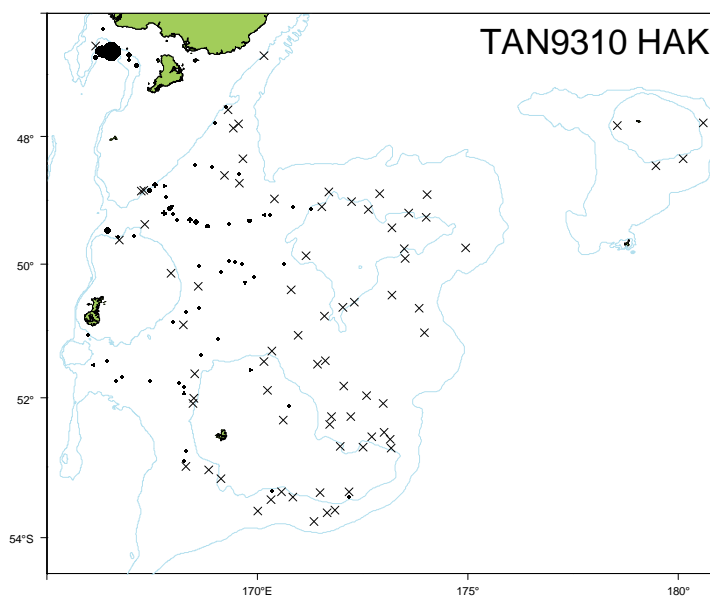
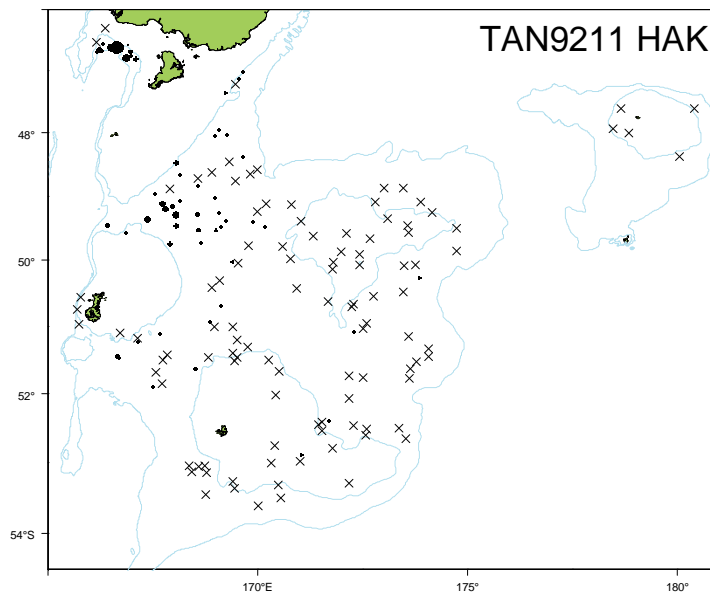
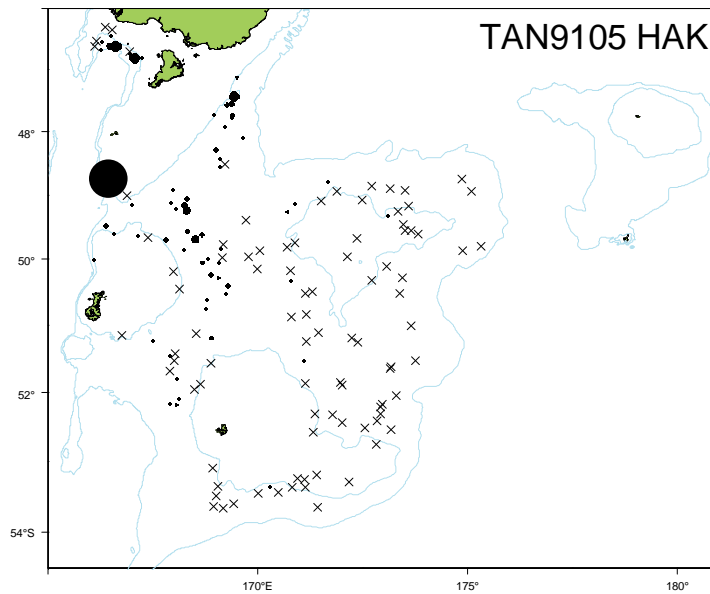
Relative biomass estimates (t) and c.v.s (%) of *Merluccius australis* for core strata, strata outside the core area and all strata.

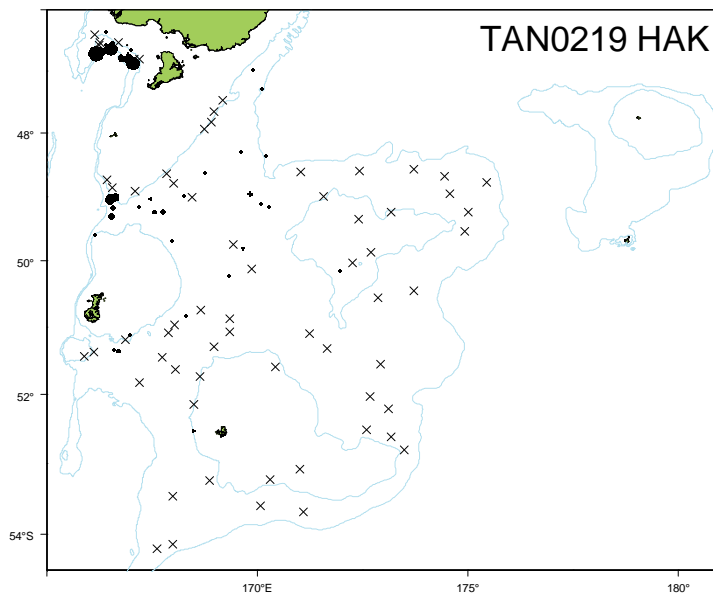
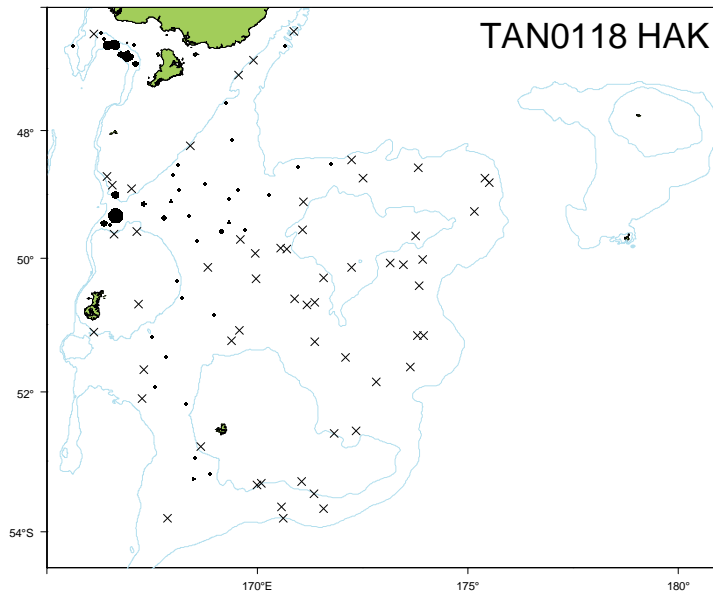
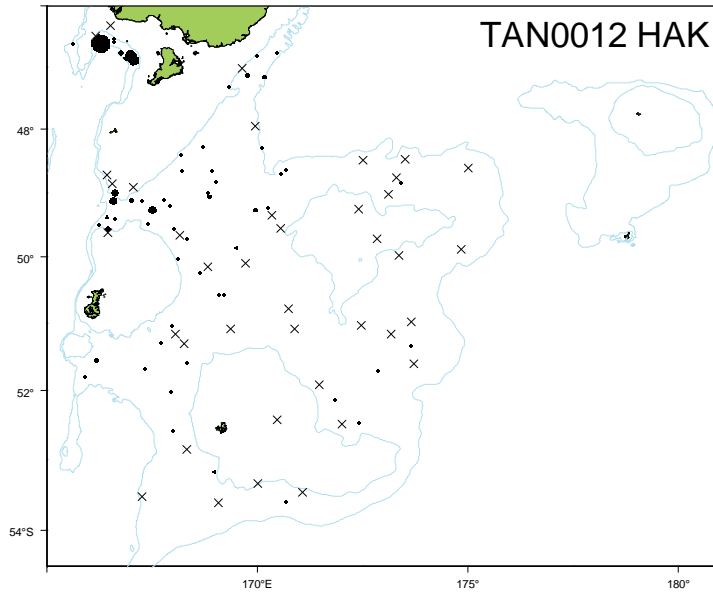
Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	6447	45	NA	NA	NA	NA	NA	NA	6447	45
TAN9211	2146	12	NA	NA	NA	NA	0	0	2146	12
TAN9310	3007	15	NA	NA	NA	NA	0	0	3007	15
TAN0012	2657	16	254	44	191	55	NA	NA	3102	14
TAN0118	2170	20	191	41	0	0	NA	NA	2360	19
TAN0219	1777	16	260	68	0	0	NA	NA	2037	16
TAN0317	1672	23	226	37	NA	NA	NA	NA	1898	21
TAN0414	1694	21	80	82	NA	NA	NA	NA	1774	20
TAN0515	1459	17	166	83	0	0	NA	NA	1624	17
TAN0617	1530	17	58	52	NA	NA	NA	NA	1588	17
TAN0714	2471	16	151	78	0	0	NA	NA	2622	15
TAN0813	2162	16	193	47	0	0	NA	NA	2354	16
TAN0911	1442	20	159	45	0	0	NA	NA	1602	18

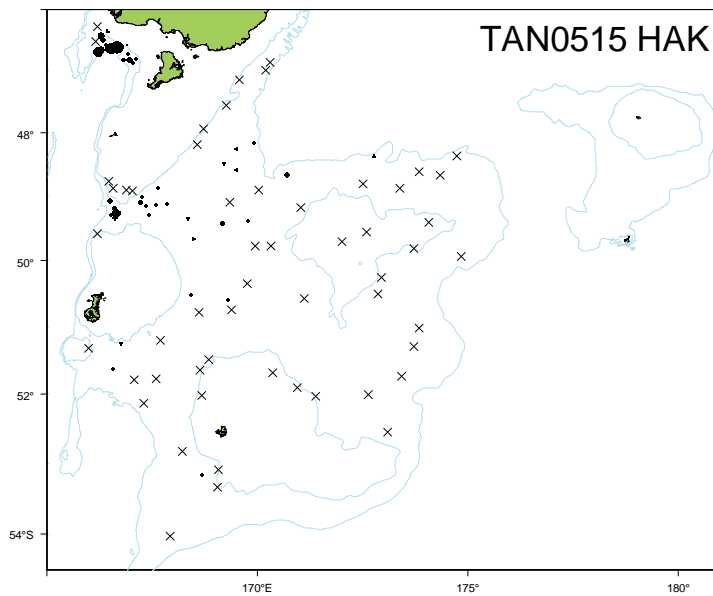
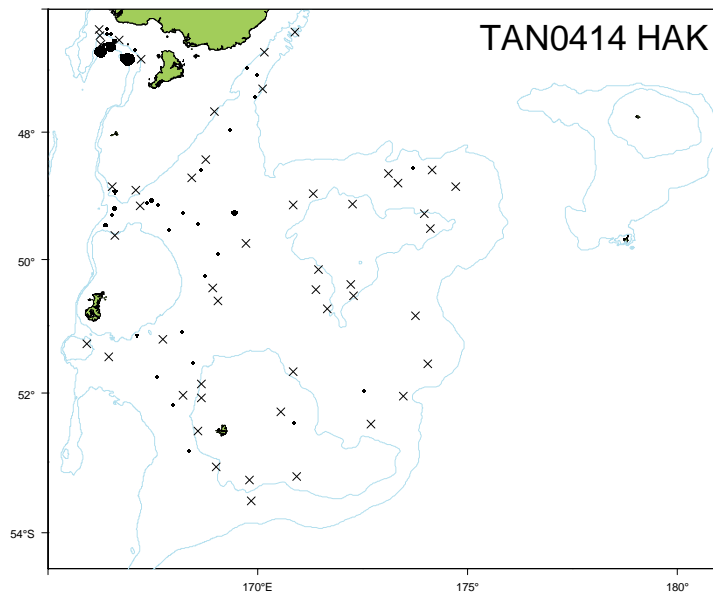
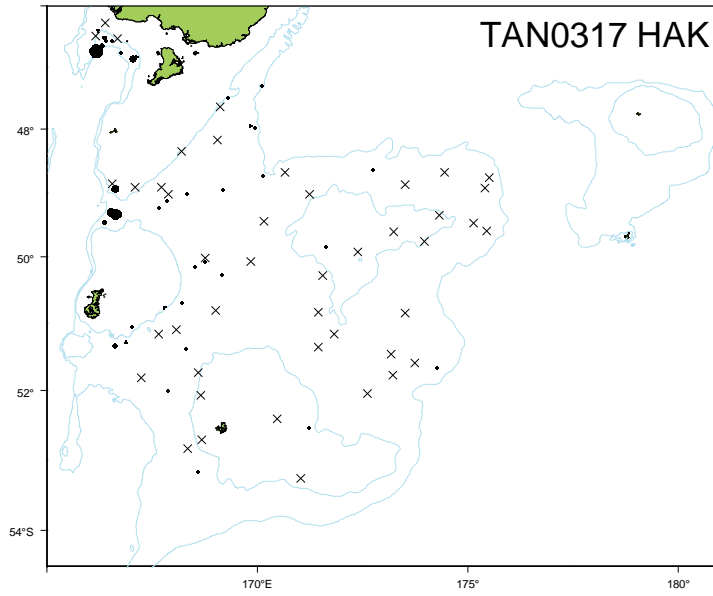
Trends in relative biomass estimates (± 2 standard errors) of *Merluccius australis* for core strata (above) and all strata (below).

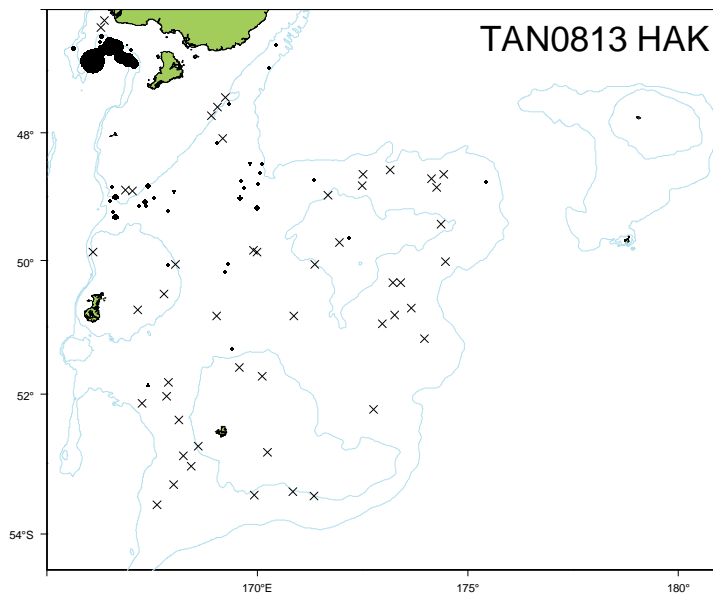
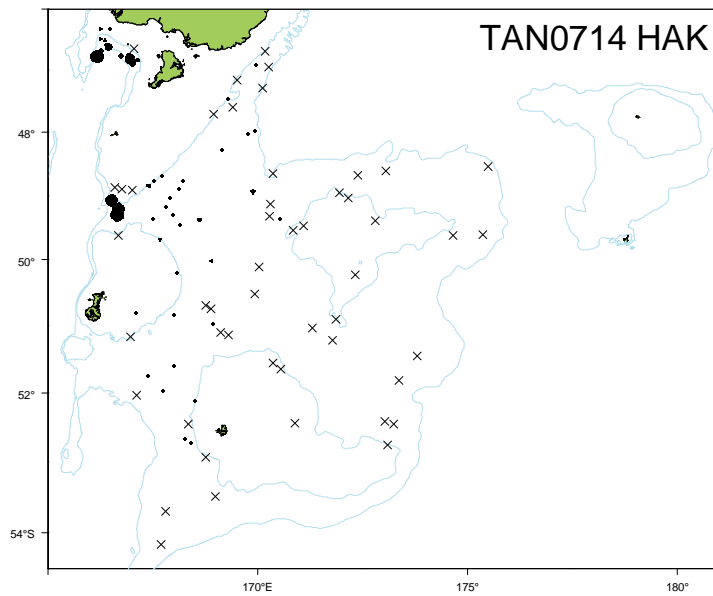
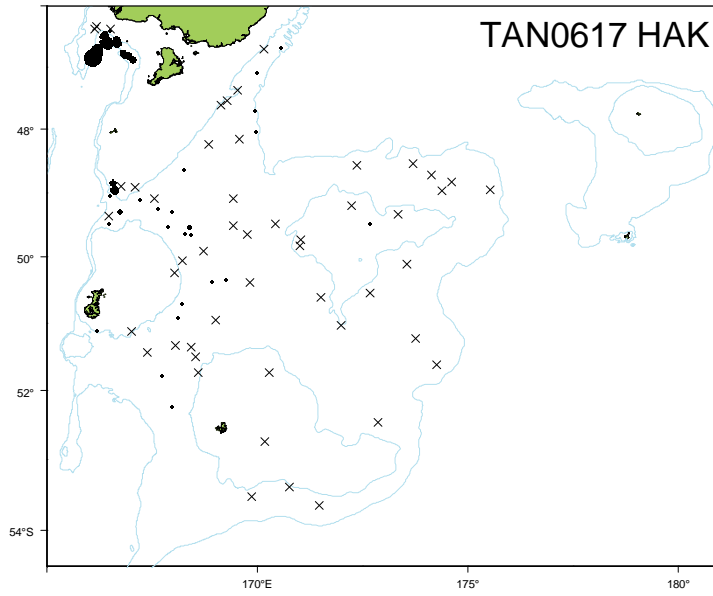


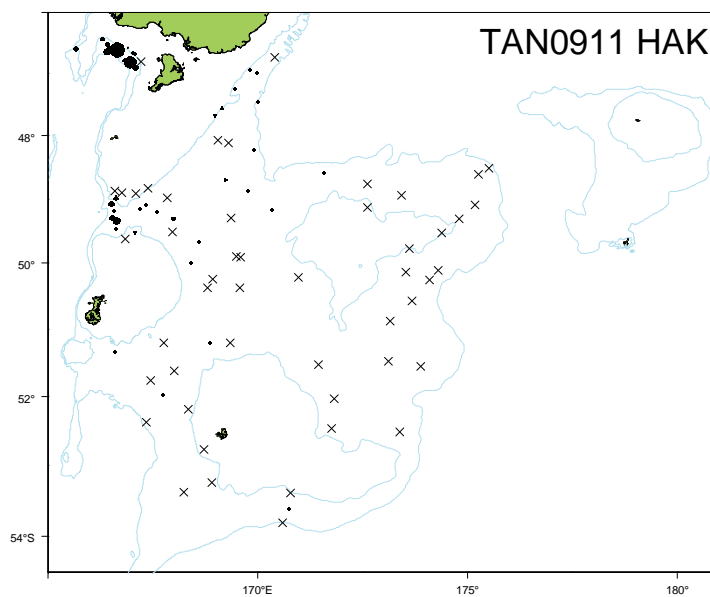
Catchrates of *Merluccius australis*. Circle area is proportional to the maximum catchrate from all surveys (see Table 5).







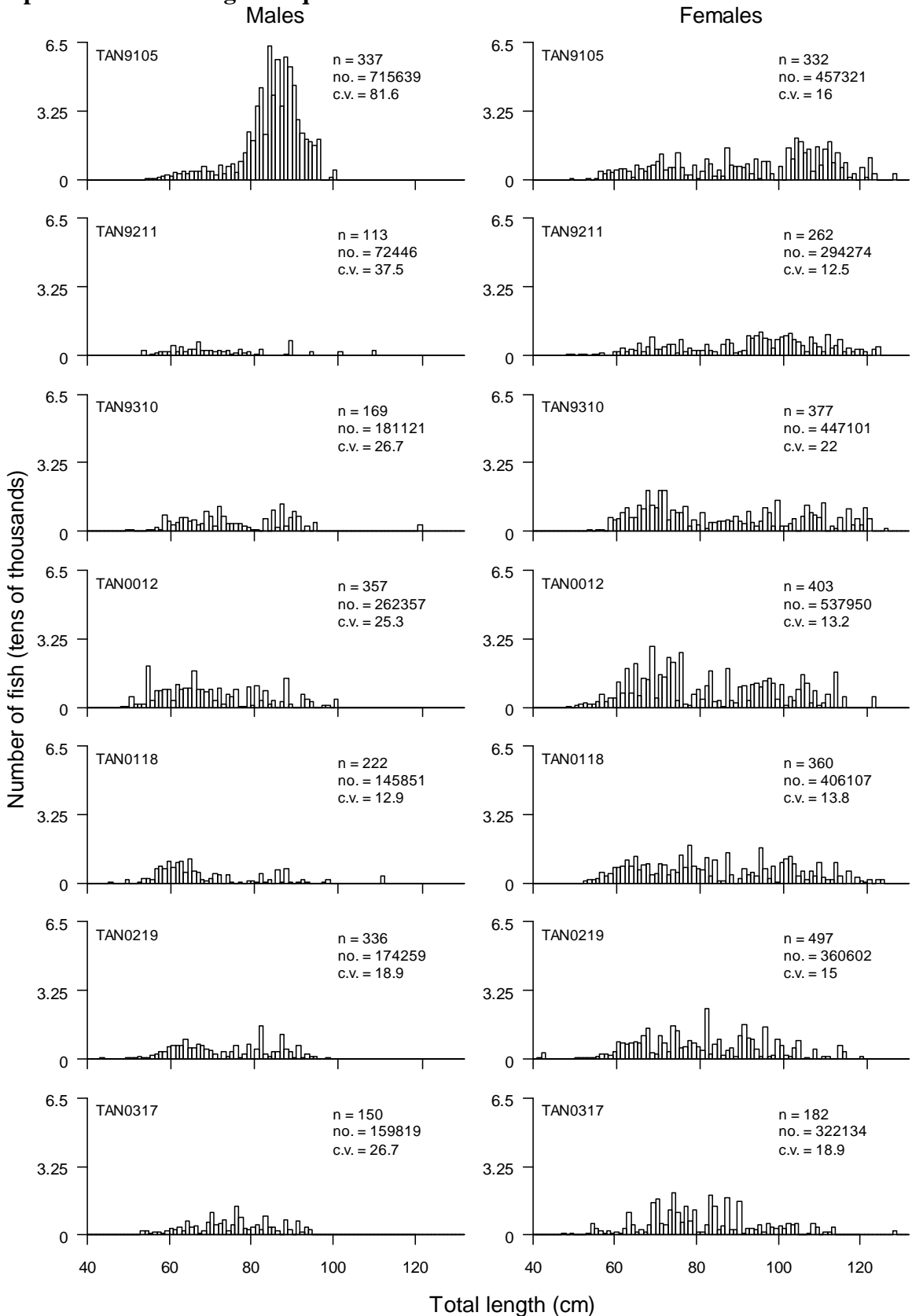


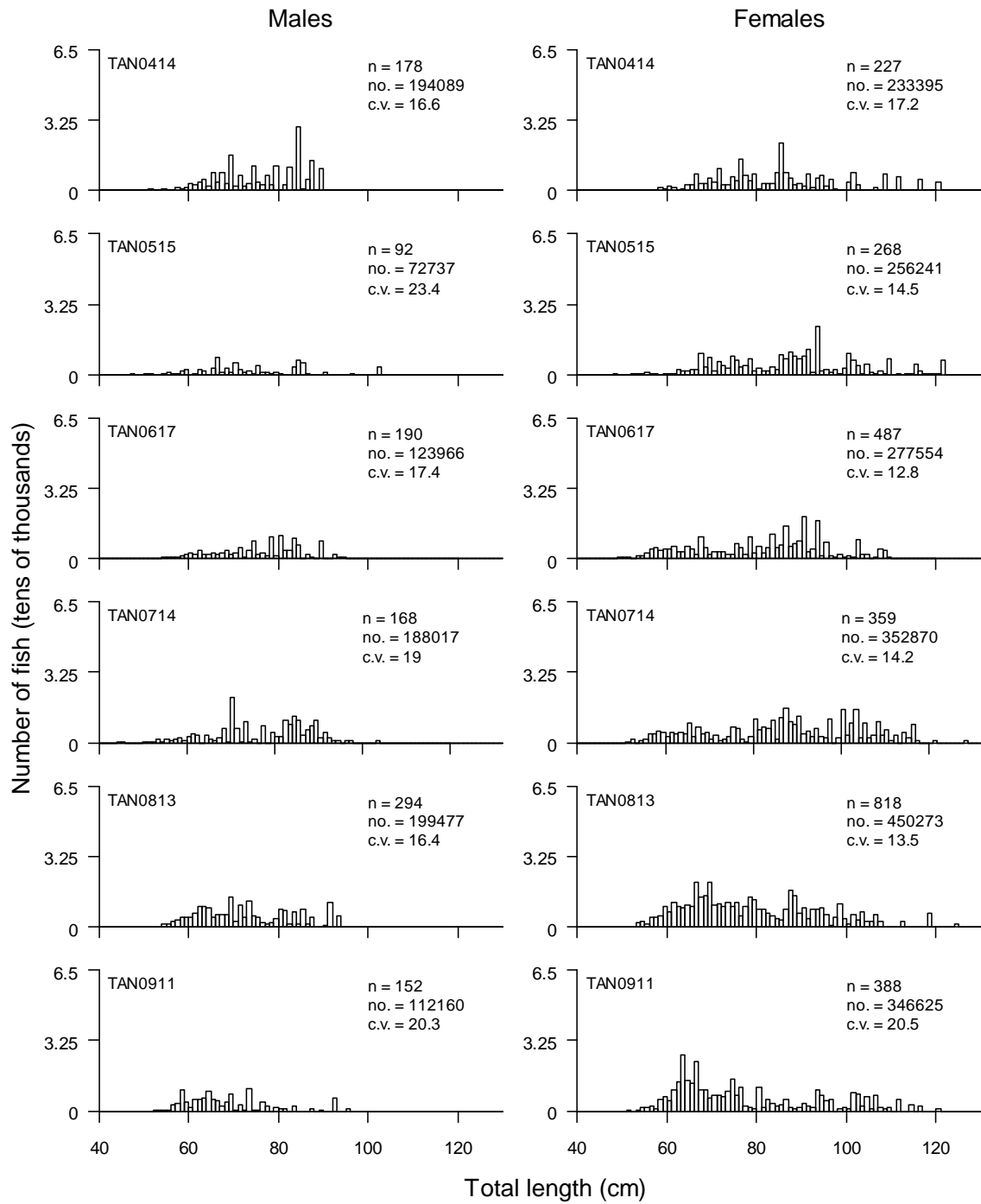


Length summaries

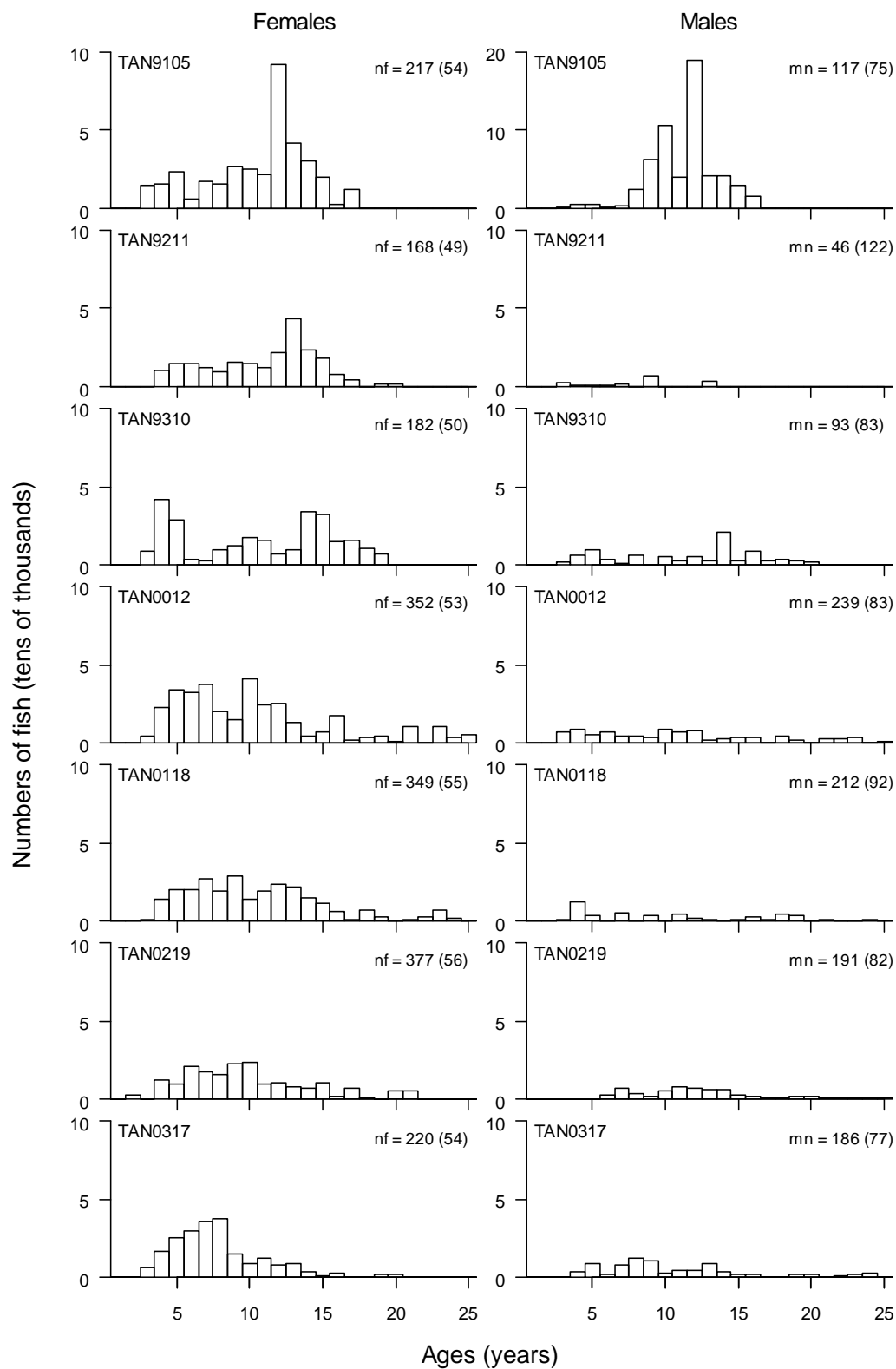
Survey	Minimum length (cm)	Maximum length (cm)	Mean length (cm)	Number measured
TAN9105	49	128	83.1	669
TAN9211	48	122	79.1	377
TAN9310	49	124	75.6	546
TAN0012	48	121	69.4	760
TAN0118	45	123	70.3	582
TAN0219	41	118	70.7	833
TAN0317	47	128	75.8	332
TAN0414	49	120	74.6	405
TAN0515	47	121	78.2	360
TAN0617	47	117	74.4	678
TAN0714	44	128	76.0	527
TAN0813	44	124	72.4	1112
TAN0911	51	120	70.6	540

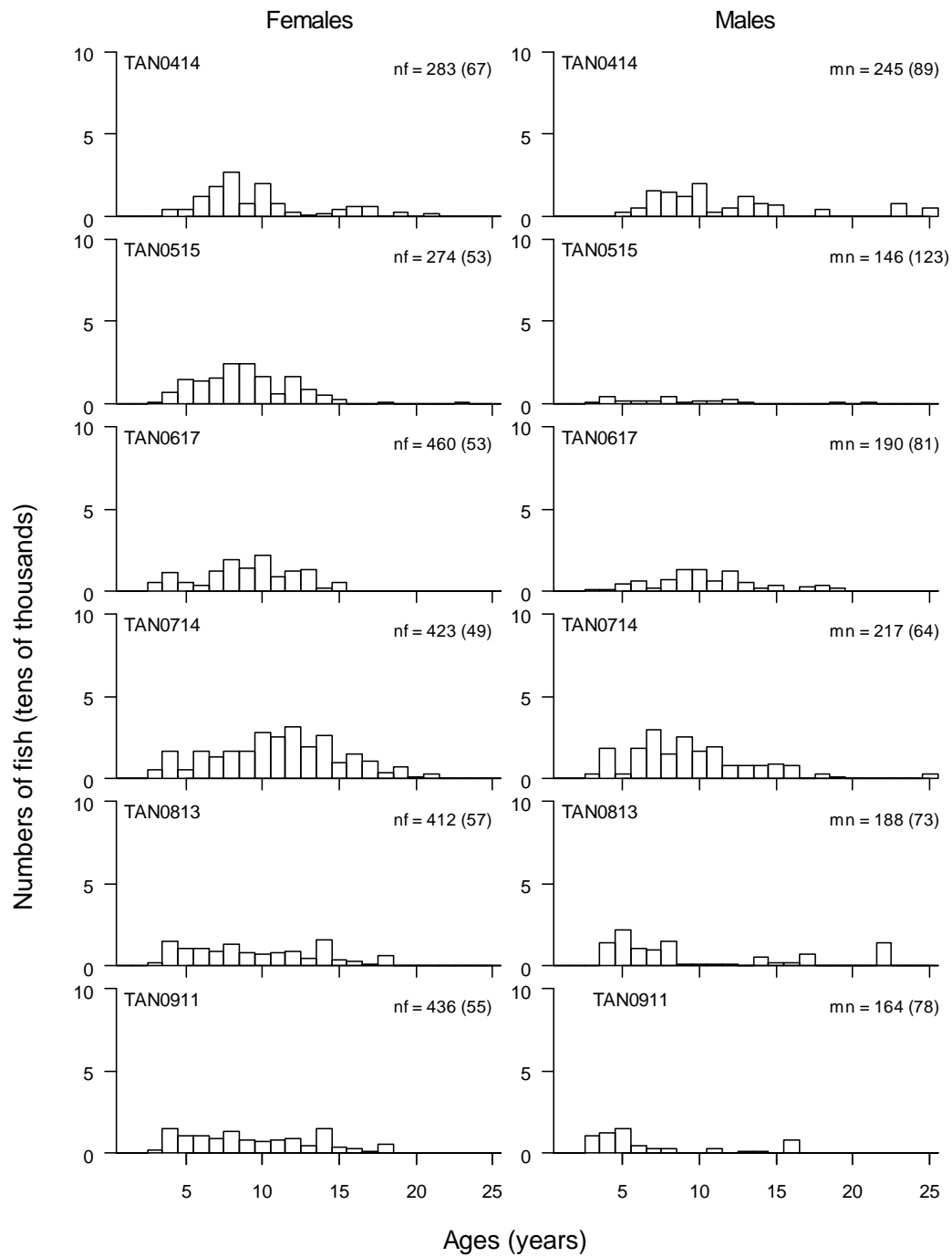
Population scaled length frequencies of *Merluccius australis* for all strata.





Population scaled age frequencies of *Merluccius australis* for all strata.





Gonad stage summaries by sex for *Merluccius 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	7	40	6	38	8	1	0	1	40	11	1	0	0	47
TAN9211	5	71	5	2	2	14	0	1	46	21	1	0	3	29
TAN9310	49	18	1	14	5	12	0	53	24	11	0	0	3	8
TAN0012	31	52	4	6	4	2	0	29	47	16	2	0	1	5
TAN0118	50	39	5	3	3	0	0	52	25	16	0	0	2	4
TAN0219	40	37	2	6	9	5	0	40	38	17	0	0	1	3
TAN0317	26	23	6	10	35	0	0	39	22	35	0	0	1	3
TAN0414	38	31	6	11	11	2	1	27	27	42	0	0	0	4
TAN0515	37	38	2	7	9	7	1	36	36	20	0	0	1	6
TAN0617	32	23	12	16	16	1	0	37	31	28	0	0	1	2
TAN0714	39	16	4	20	20	0	0	49	23	24	2	0	1	1
TAN0813	62	12	4	9	8	4	1	61	14	17	1	0	1	6
TAN0911	22	61	3	1	3	10	0	49	30	20	0	0	0	1
ALL	38	34	5	10	10	3	0	41	29	21	1	0	1	7



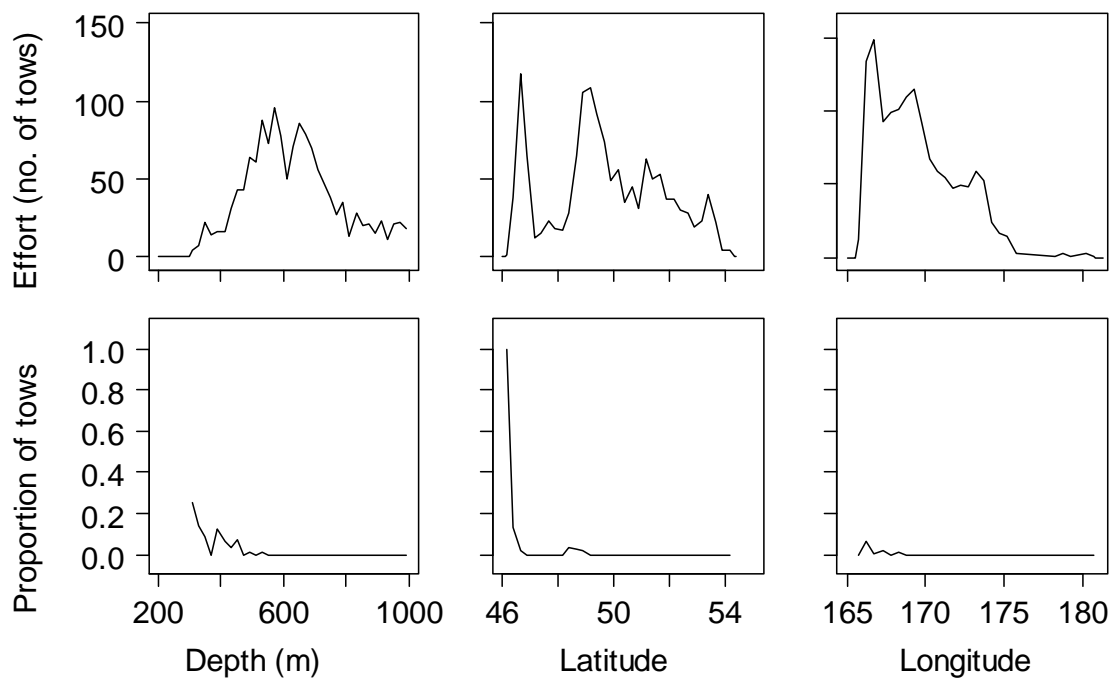
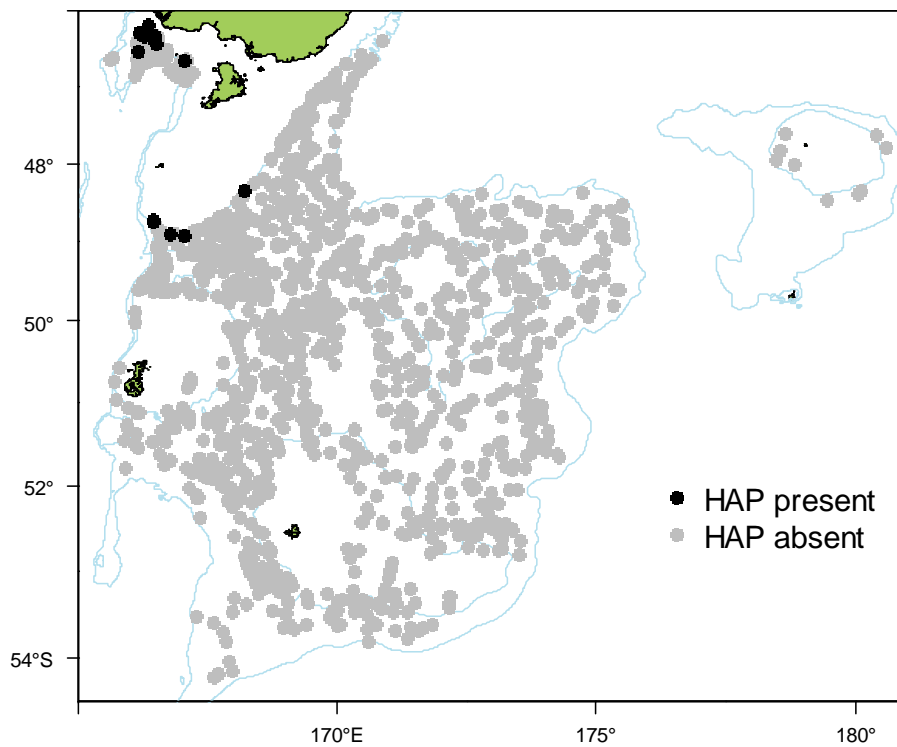
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	186.9
Number measured	20
Length range (mean) (cm)	65–105 (87.4)
Number weighed	17
Length-weight parameters a, b (r^2)	–

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. 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. Catch rates are highest in the **northwest**.

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

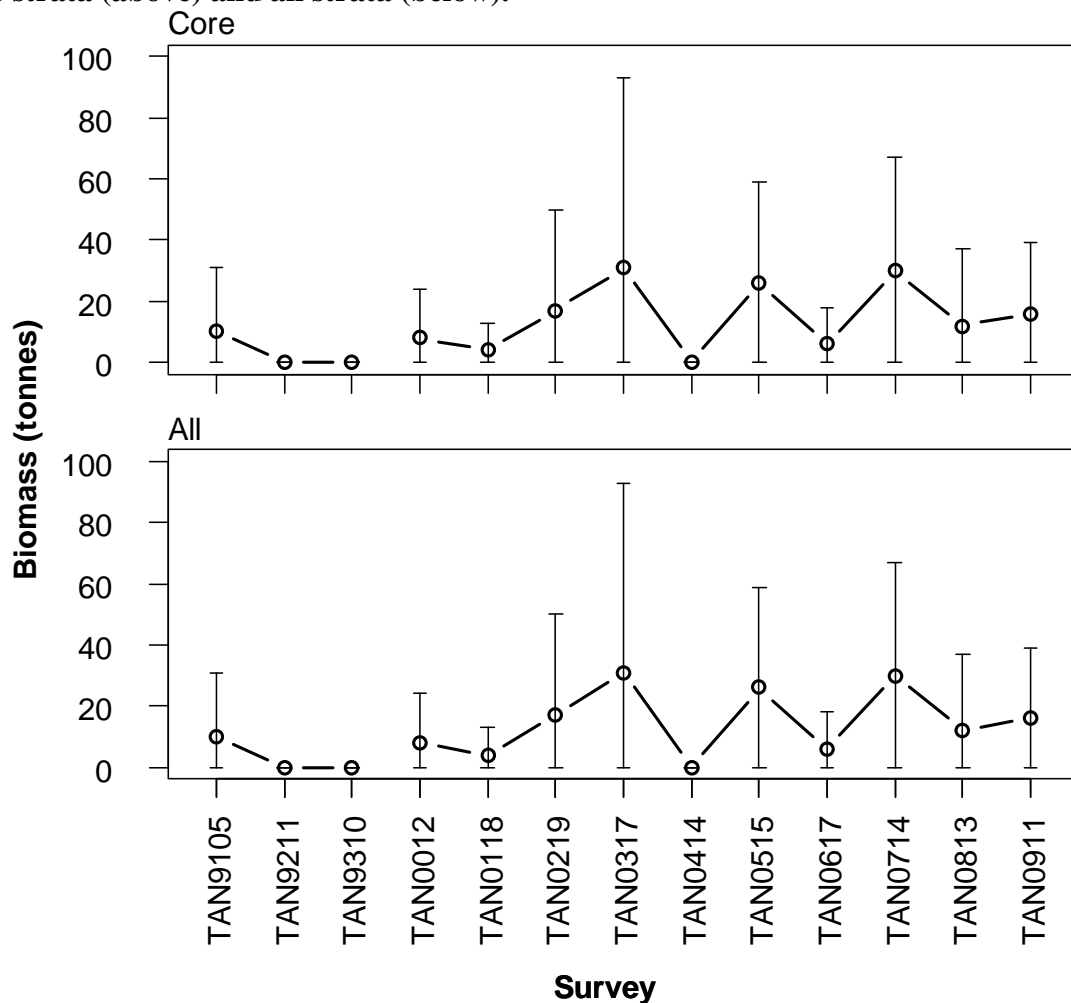
Distribution of *Polyprion oxygeneios* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Polyprion oxygeneios* 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	10	100	NA	NA	NA	NA	NA	NA	10	100
TAN9211	0	0	NA	NA	NA	NA	0	0	0	0
TAN9310	0	0	NA	NA	NA	NA	0	0	0	0
TAN0012	8	100	0	0	0	0	NA	NA	8	100
TAN0118	4	100	0	0	0	0	NA	NA	4	100
TAN0219	17	100	0	0	0	0	NA	NA	17	100
TAN0317	31	100	0	0	NA	NA	NA	NA	31	100
TAN0414	0	0	0	0	NA	NA	NA	NA	0	0
TAN0515	26	65	0	0	0	0	NA	NA	26	65
TAN0617	6	100	0	0	NA	NA	NA	NA	6	100
TAN0714	30	63	0	0	0	0	NA	NA	30	63
TAN0813	12	100	0	0	0	0	NA	NA	12	100
TAN0911	16	75	0	0	0	0	NA	NA	16	75

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



Gonad stage summaries by sex for *Polyprion oxygeneios*. 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	100	0	0	0	0	0	0
TAN0219	100	0	0	0	0	0	0	100	0	0	0	0	0	0
TAN0317	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	0	0	100
TAN0414	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0515	0	67	0	0	0	0	33	NA	NA	NA	NA	NA	NA	NA
TAN0617	NA	NA	NA	NA	NA	NA	NA	0	100	0	0	0	0	0
TAN0714	0	0	0	100	0	0	0	0	0	0	0	100	0	0
TAN0813	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	0	0	100
TAN0911	NA	NA	NA	NA	NA	NA	NA	0	50	0	0	0	0	50
ALL	33	33	0	17	0	0	17	40	20	0	0	10	0	30



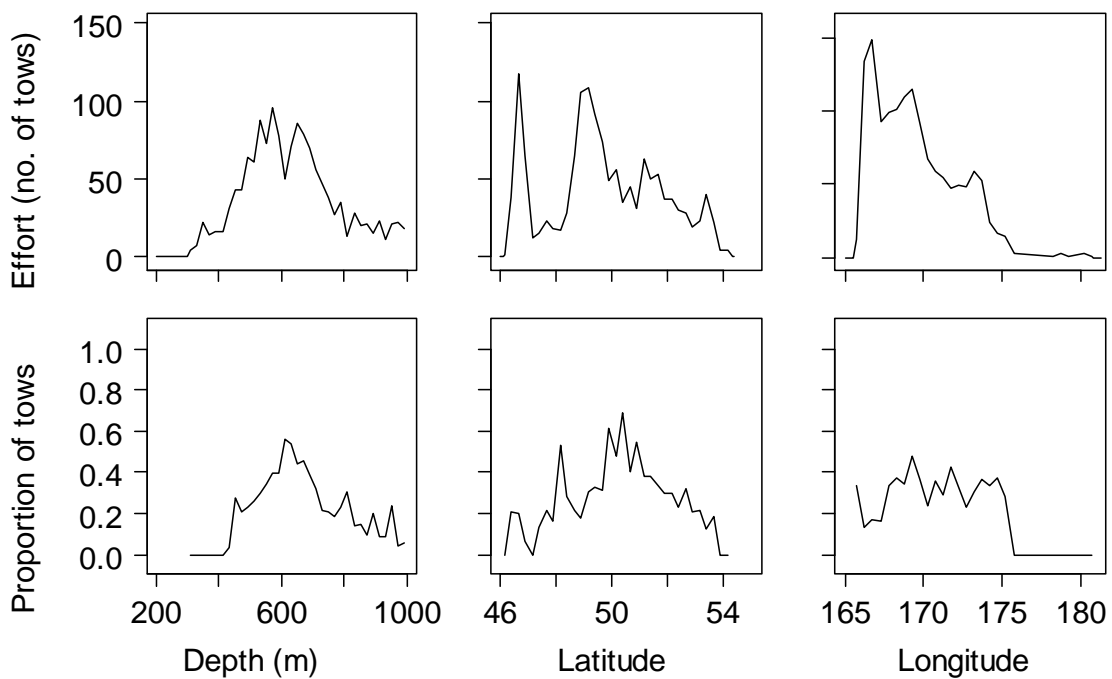
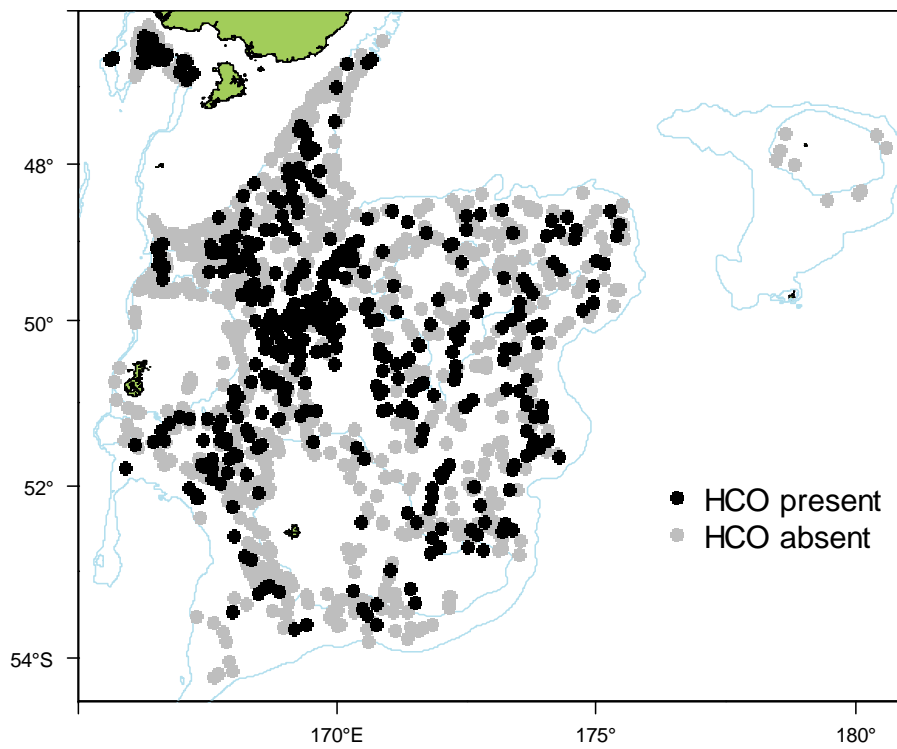
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	1103.1
Number measured	103
Length range (mean) (cm)	24–91 (73.9)
Number weighed	91
Length-weight parameters a, b (r^2)	–

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 strata deeper than 800 m surveyed from 2000 to 2009. It **was not** 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.

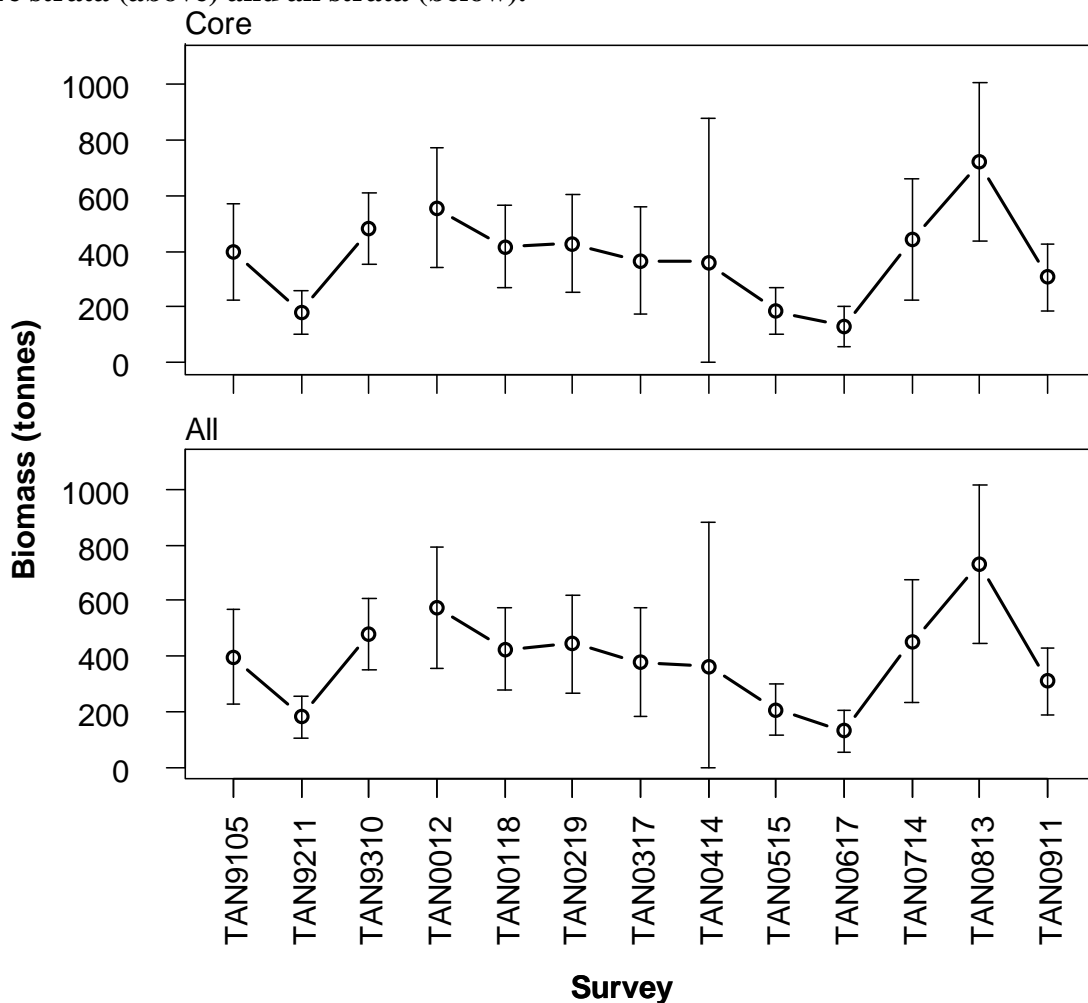
Distribution of *Bassanago hirsutus* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Bassanago hirsutus* 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	397	22	NA	NA	NA	NA	NA	NA	397	22
TAN9211	181	21	NA	NA	NA	NA	0	0	181	21
TAN9310	480	13	NA	NA	NA	NA	0	0	480	13
TAN0012	556	19	2	100	16	86	NA	NA	574	19
TAN0118	417	18	1	100	6	100	NA	NA	425	18
TAN0219	427	21	8	55	8	100	NA	NA	443	20
TAN0317	366	26	12	66	NA	NA	NA	NA	378	26
TAN0414	360	72	2	100	NA	NA	NA	NA	361	72
TAN0515	184	22	0	0	21	100	NA	NA	206	23
TAN0617	129	29	0	0	NA	NA	NA	NA	130	29
TAN0714	440	25	0	0	13	100	NA	NA	453	24
TAN0813	721	20	5	100	5	100	NA	NA	731	20
TAN0911	306	20	3	100	0	0	NA	NA	309	20

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





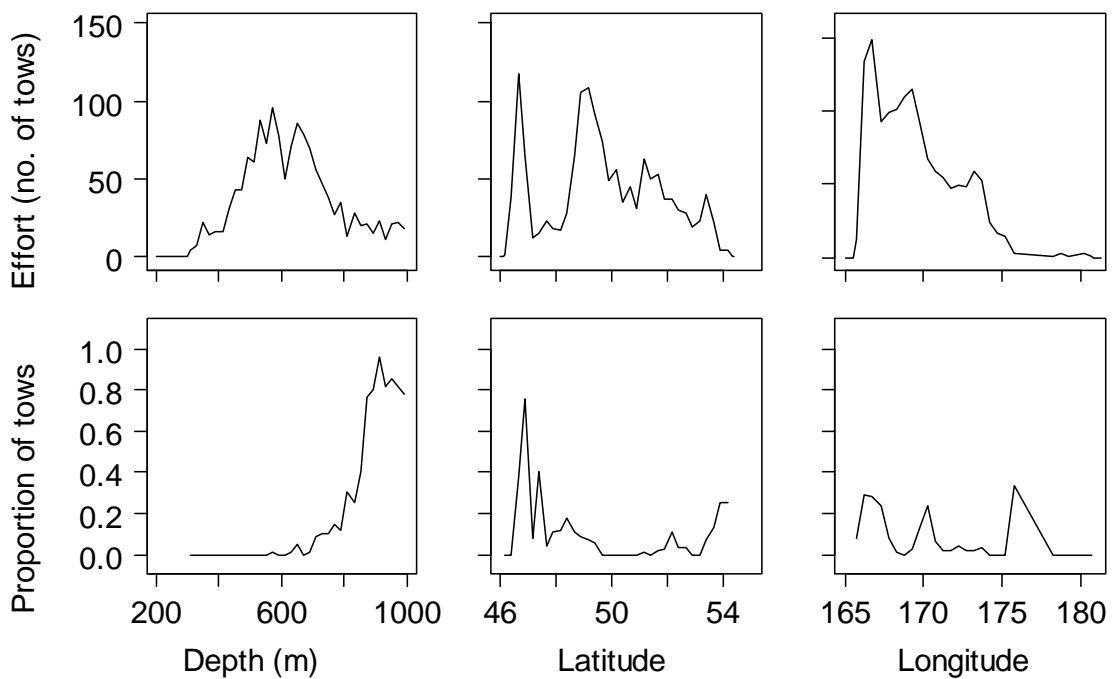
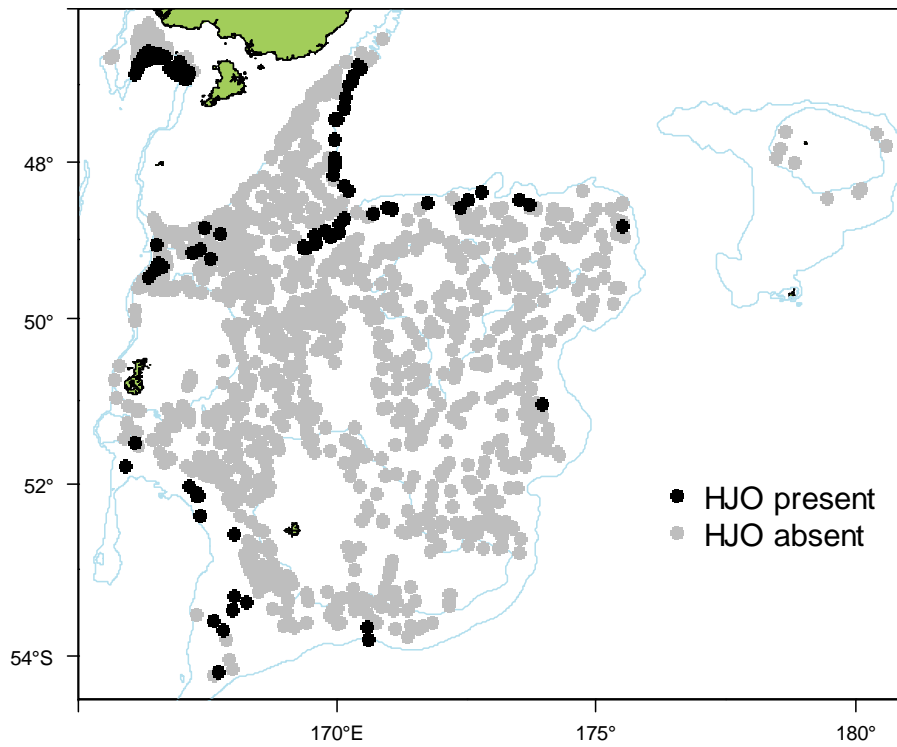
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	12
Total catch weight (kg):	296.2
Number measured	331
Length range (mean) (cm)	24–52 (34.9)
Number weighed	173
Length-weight parameters a, b (r^2)	–

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 **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 **poorly** estimated. Catches are recorded from areas close to and deeper than 800 m.

There is no length or gonad stage information presented.

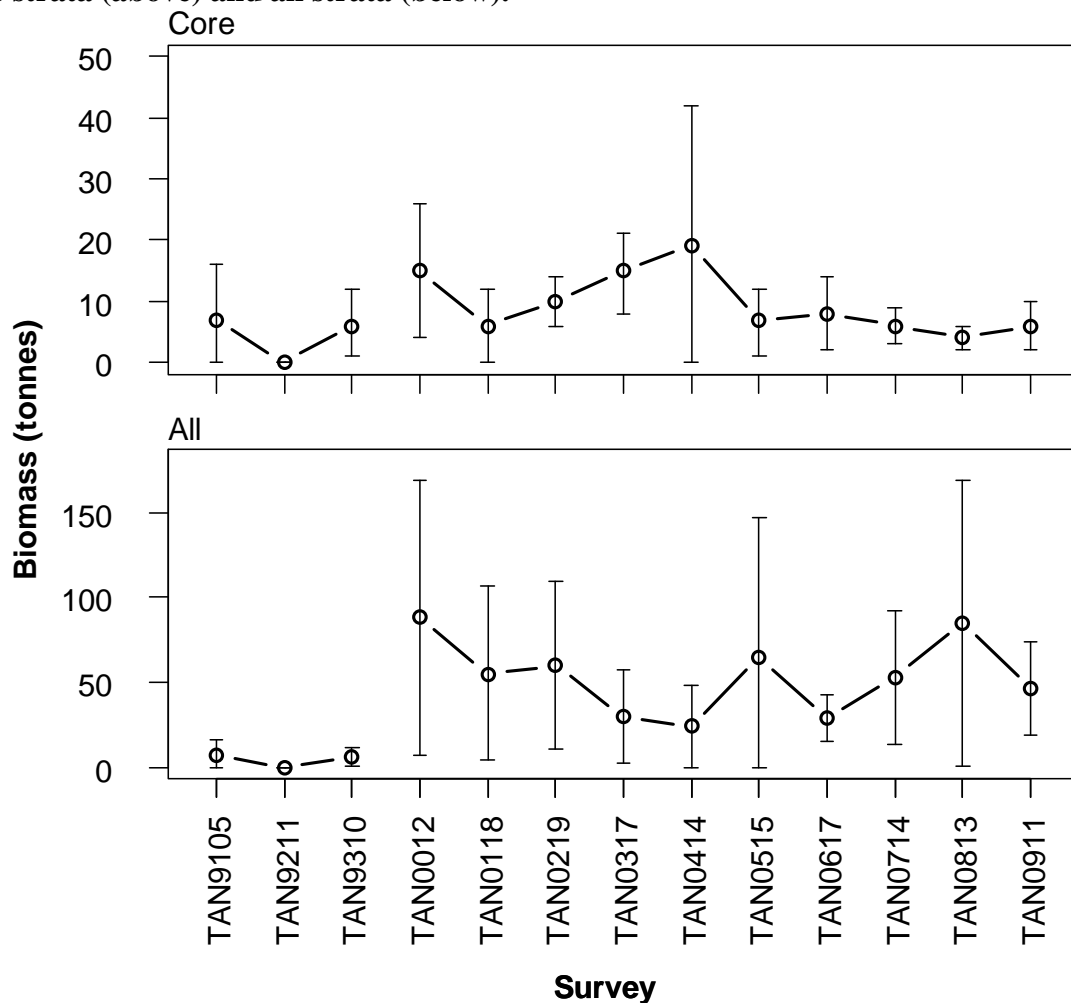
Distribution of *Halargyreus johnsonii* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Halargyreus johnsonii* 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	7	62	NA	NA	NA	NA	NA	NA	7	62
TAN9211	0	0	NA	NA	NA	NA	0	0	0	0
TAN9310	6	46	NA	NA	NA	NA	0	0	6	46
TAN0012	15	36	16	37	57	70	NA	NA	88	46
TAN0118	6	47	7	50	42	60	NA	NA	55	46
TAN0219	10	20	33	53	17	100	NA	NA	60	41
TAN0317	15	22	15	88	NA	NA	NA	NA	30	46
TAN0414	19	62	5	57	NA	NA	NA	NA	24	50
TAN0515	7	41	18	31	40	100	NA	NA	65	63
TAN0617	8	39	21	30	NA	NA	NA	NA	29	24
TAN0714	6	28	15	45	32	58	NA	NA	53	38
TAN0813	4	28	14	65	67	62	NA	NA	85	49
TAN0911	6	32	5	35	35	38	NA	NA	46	30

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





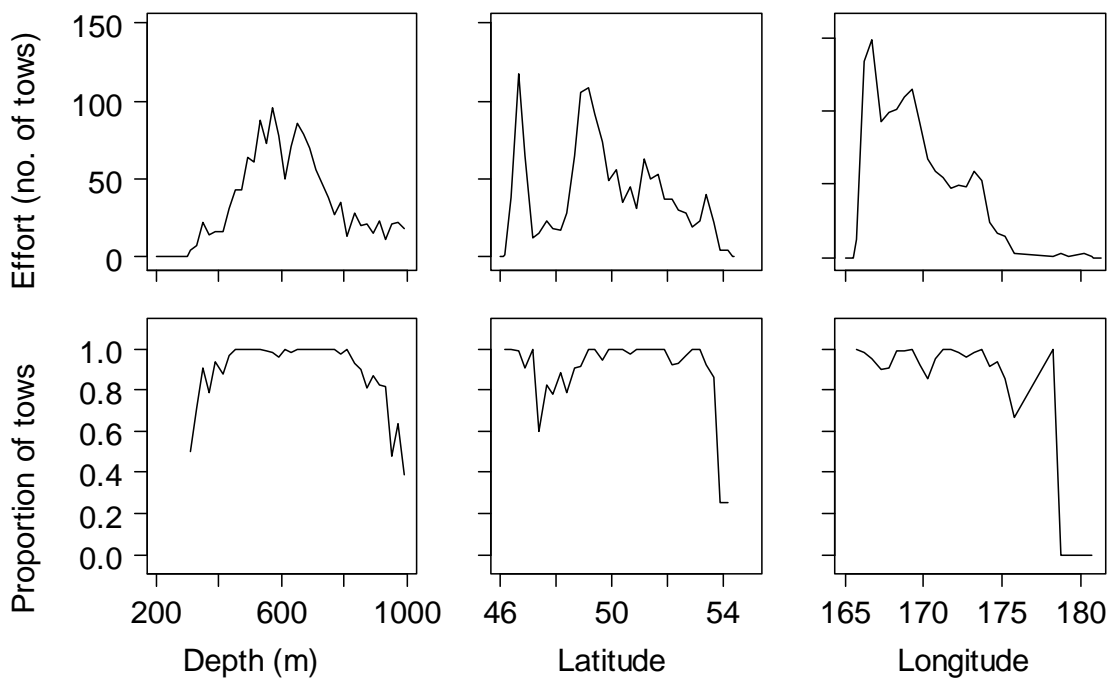
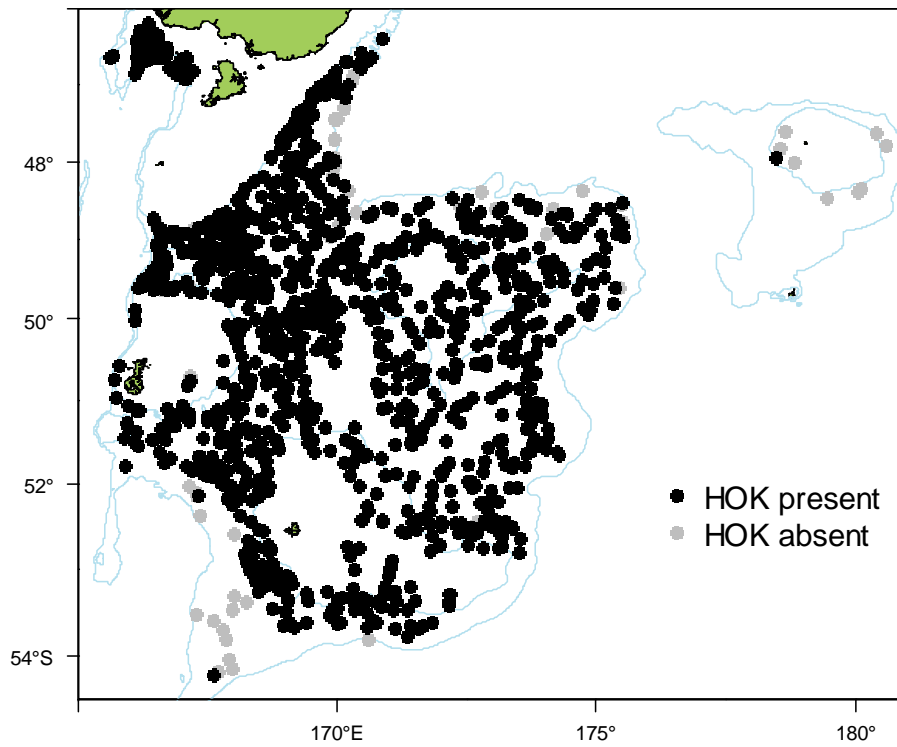
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	222 407.1
Number measured	109 426
Length range (mean) (cm)	18–115 (78.9)
Number weighed	20 637
Length-weight parameters a, b (r^2)	0.0045395, 2.893107 (97.48)

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

Biomass of this species is **very well** estimated by the core survey. Biomass has **decreased** 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**.

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 **immature and resting**.

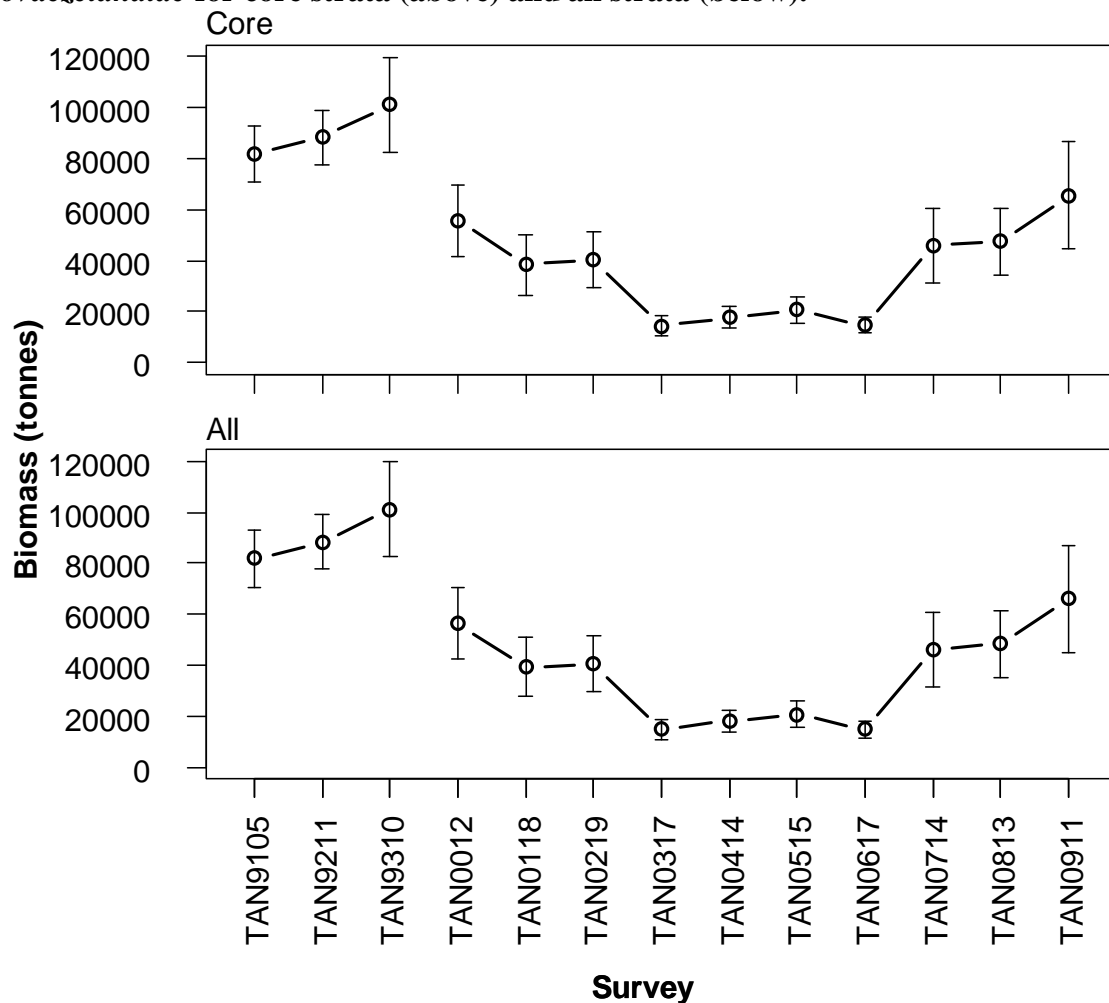
Distribution of *Macruronus novaezelandiae* from all summer surveys. Valid biomass stations only.



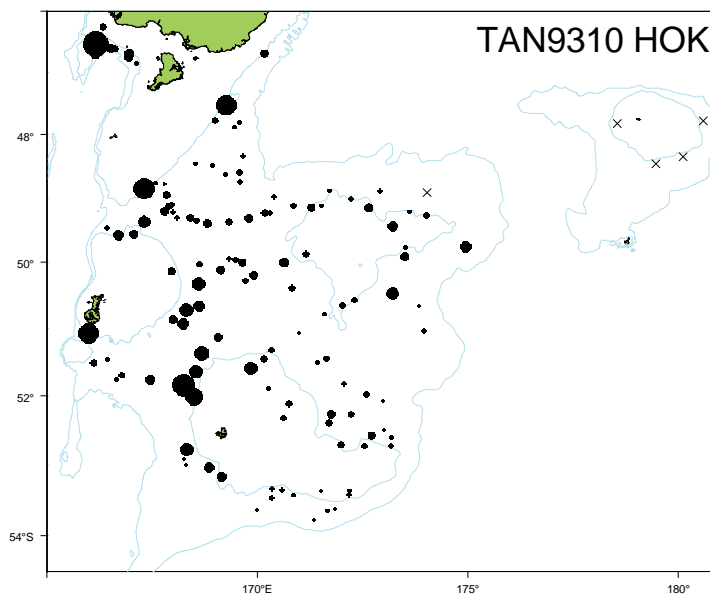
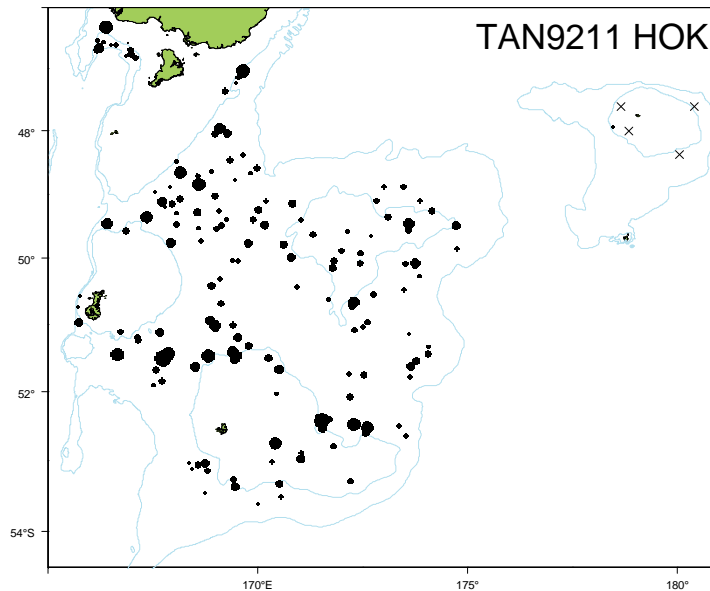
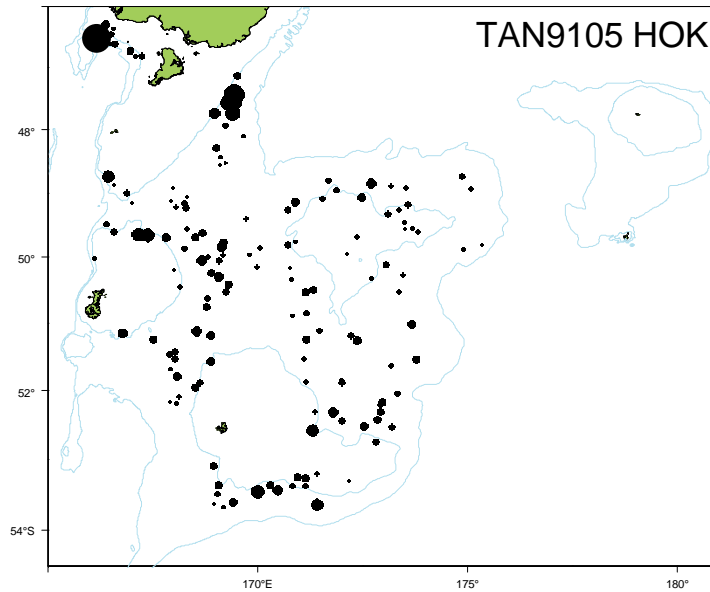
Relative biomass estimates (t) and c.v.s (%) of *Macruronus novaezelandiae* for core strata, strata outside the core area and all strata.

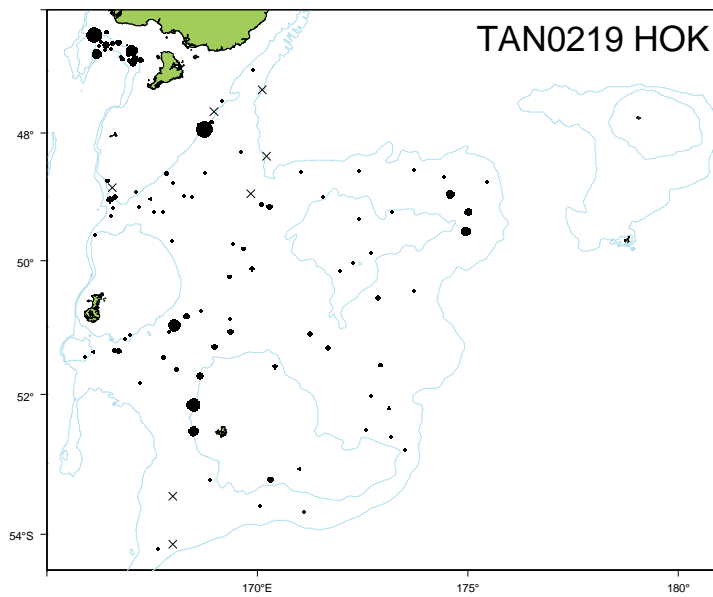
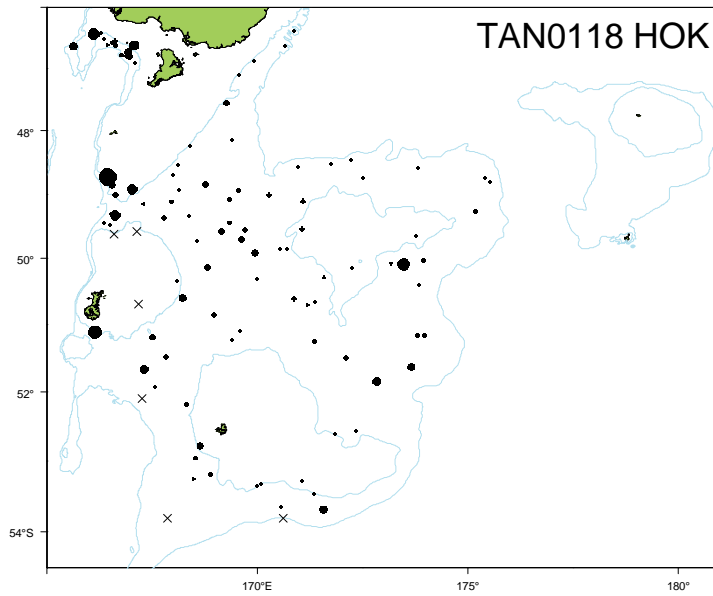
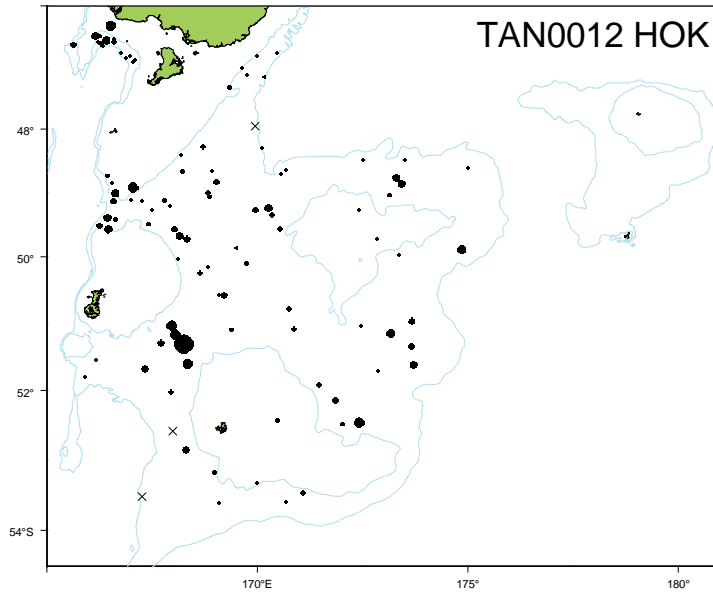
Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	81816	7	NA	NA	NA	NA	NA	NA	81816	7
TAN9211	88384	6	NA	NA	NA	NA	7	100	88390	6
TAN9310	101112	9	NA	NA	NA	NA	0	0	101112	9
TAN0012	55761	13	470	42	177	100	NA	NA	56407	12
TAN0118	38369	15	996	26	32	100	NA	NA	39396	15
TAN0219	40125	14	288	15	89	100	NA	NA	40502	14
TAN0317	14390	13	333	48	NA	NA	NA	NA	14723	13
TAN0414	17665	12	449	60	NA	NA	NA	NA	18114	12
TAN0515	20517	13	101	55	62	100	NA	NA	20680	13
TAN0617	14488	11	259	80	NA	NA	NA	NA	14747	10
TAN0714	45958	16	45	64	0	0	NA	NA	46003	16
TAN0813	47489	14	852	34	0	0	NA	NA	48341	14
TAN0911	65423	16	734	45	0	0	NA	NA	66157	16

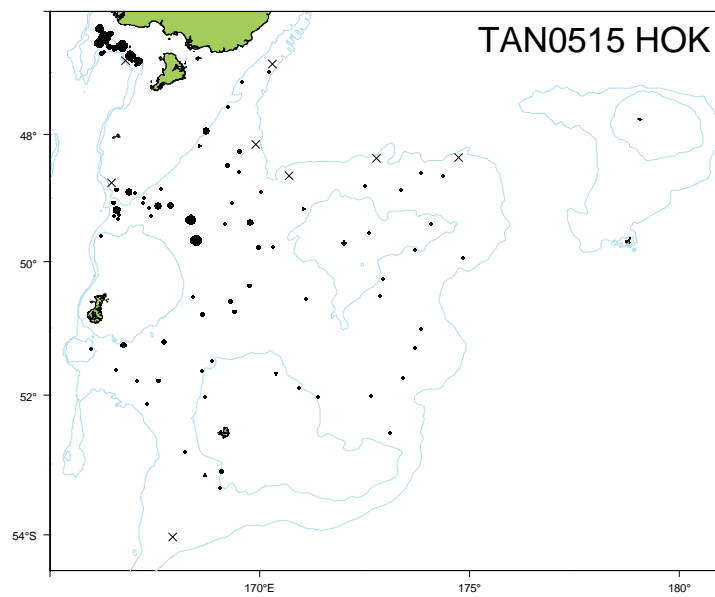
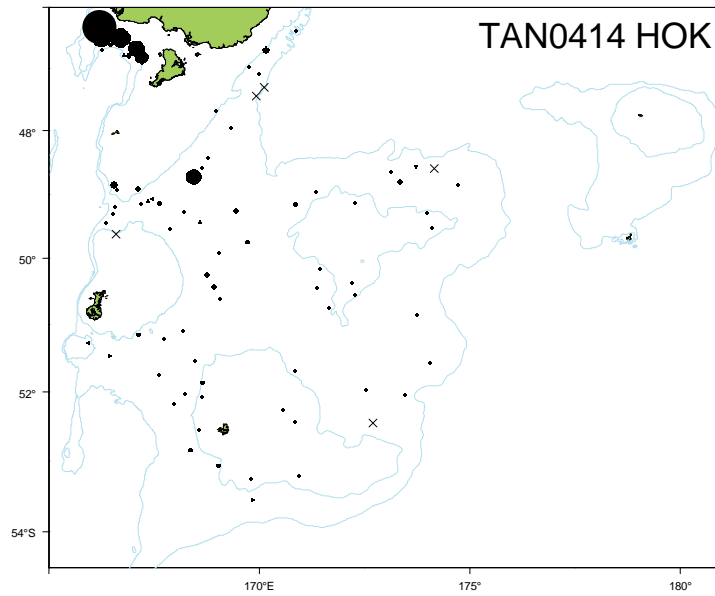
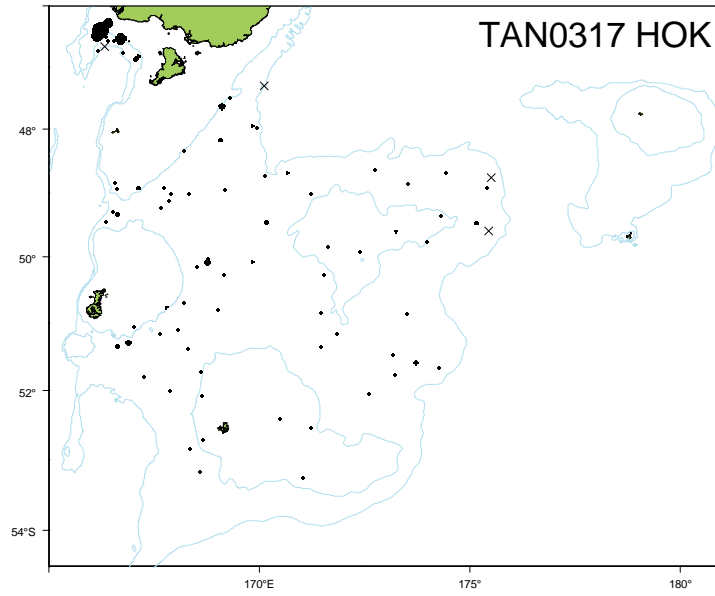
Trends in relative biomass estimates (± 2 standard errors) of *Macruronus novaezelandiae* for core strata (above) and all strata (below).

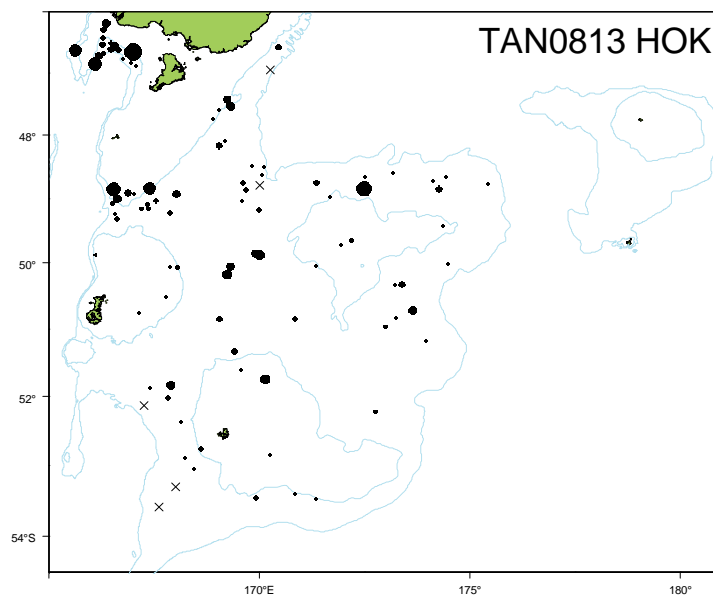
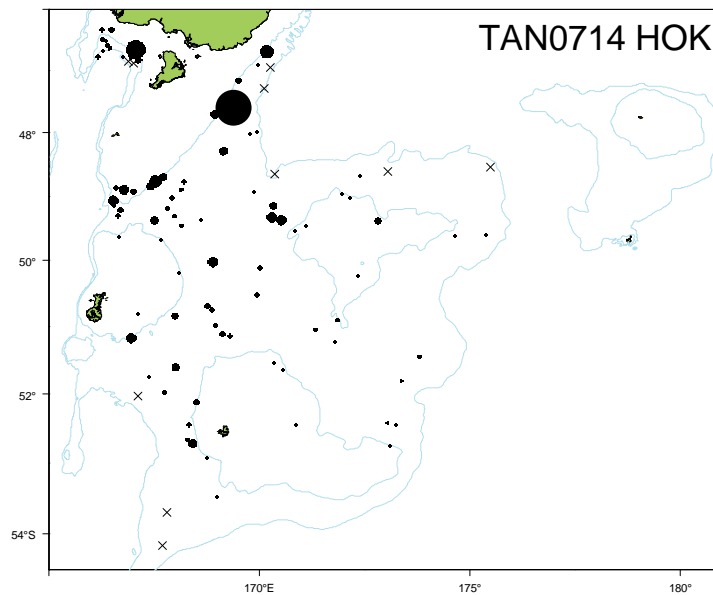
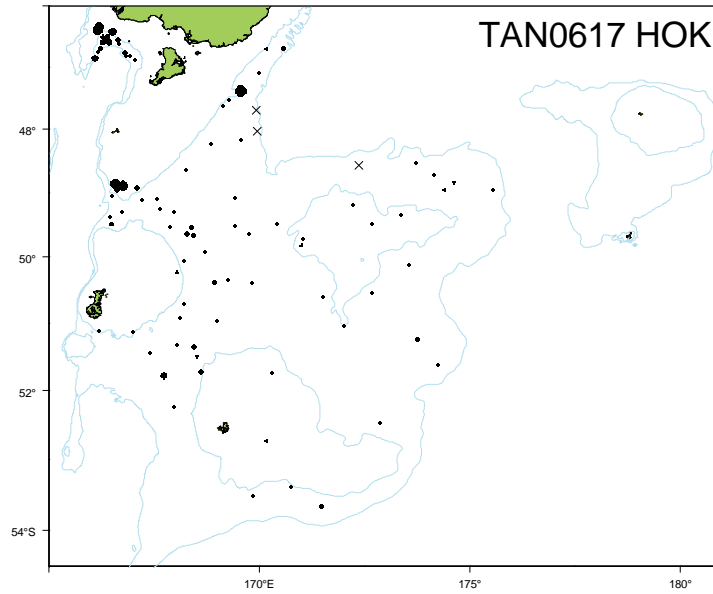


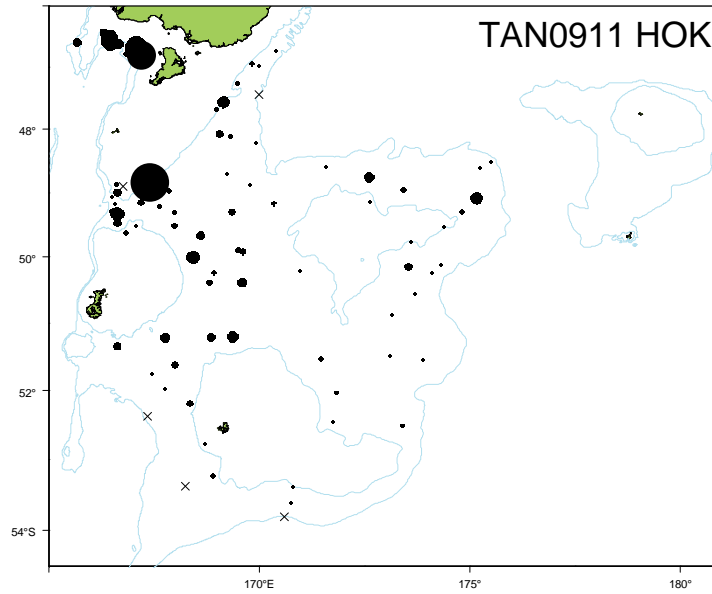
Catchrates of *Macruronus novaezelandiae*. Circle area is proportional to the maximum catchrate from all surveys (see Table 5).







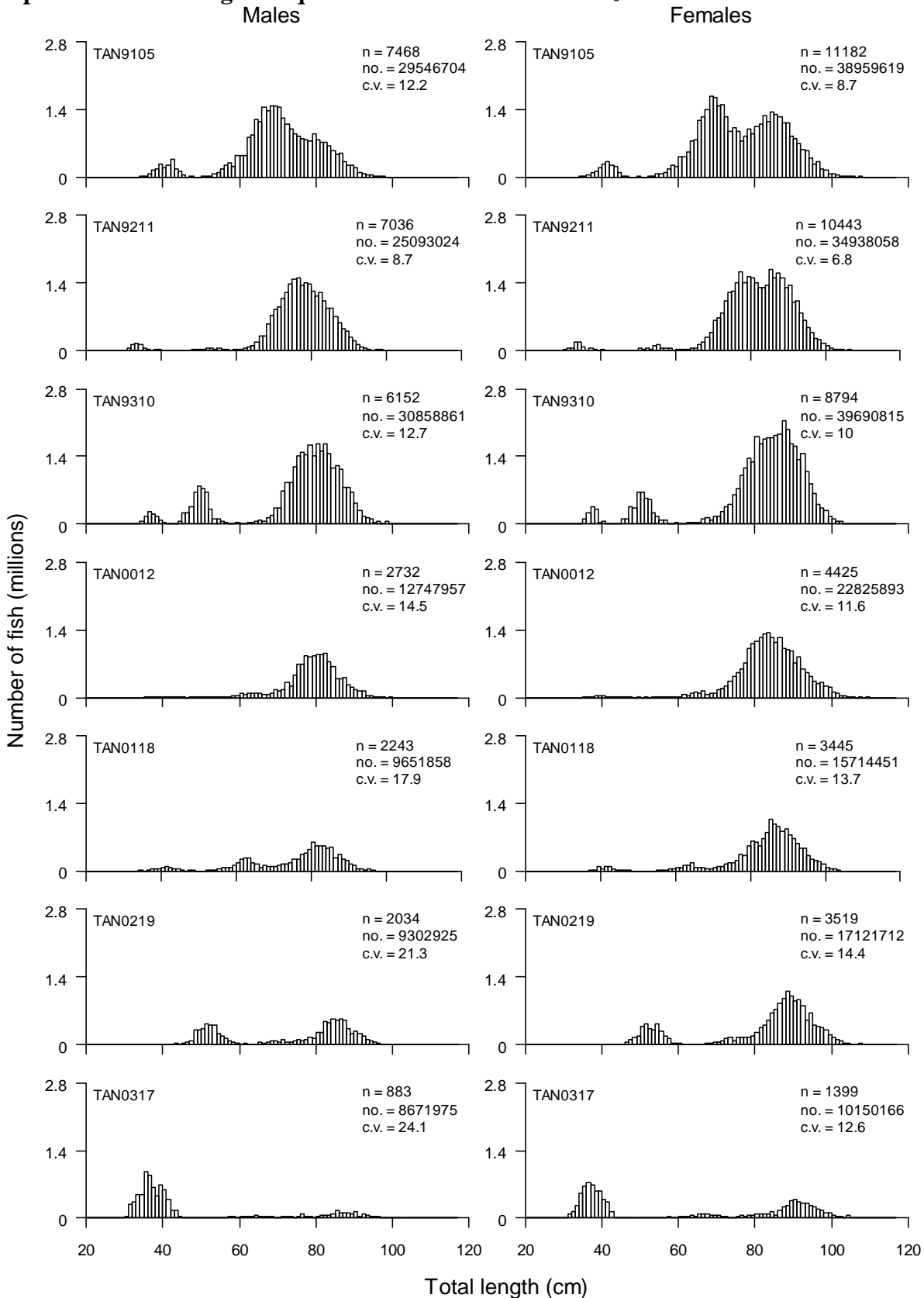


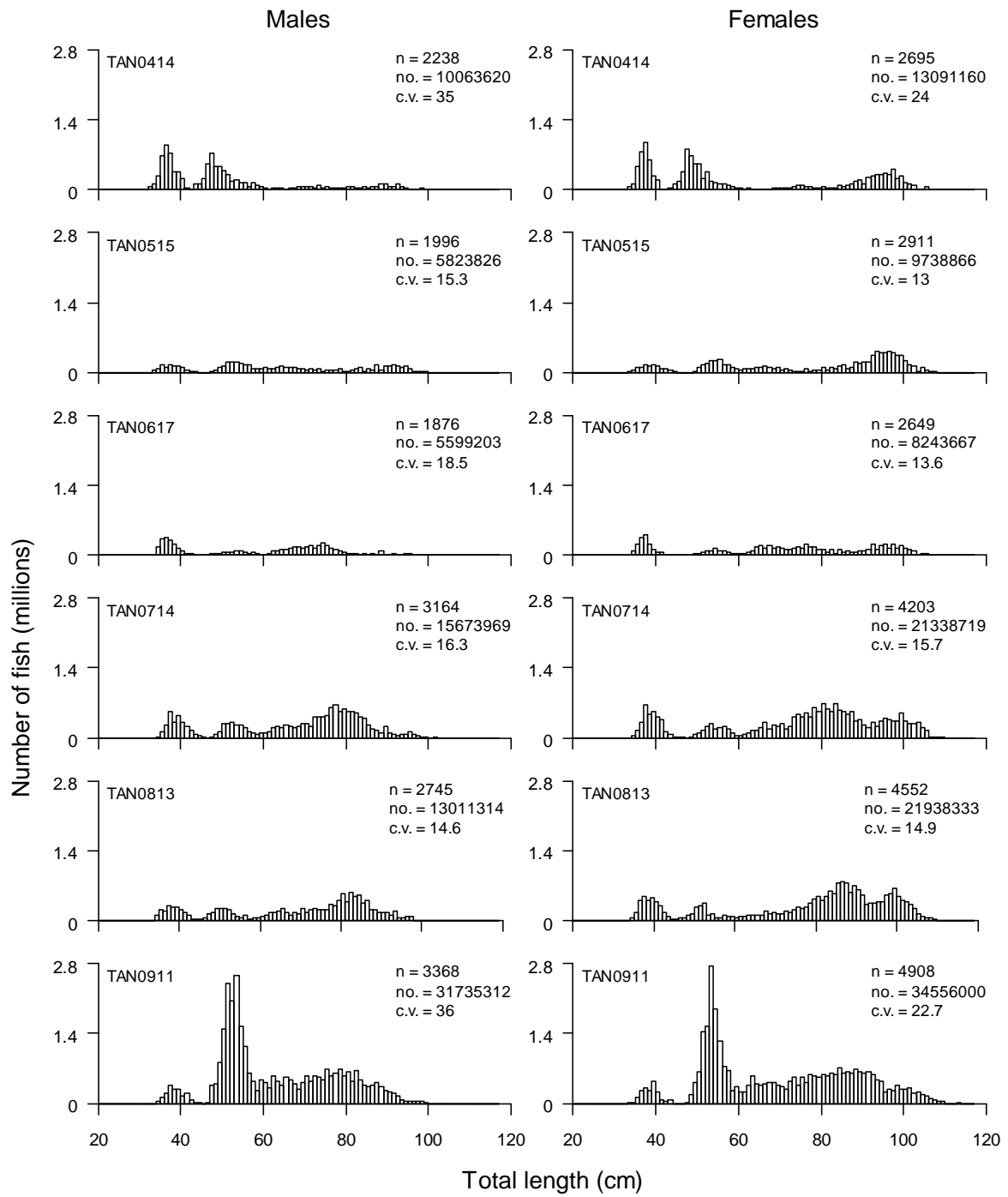


Length summaries

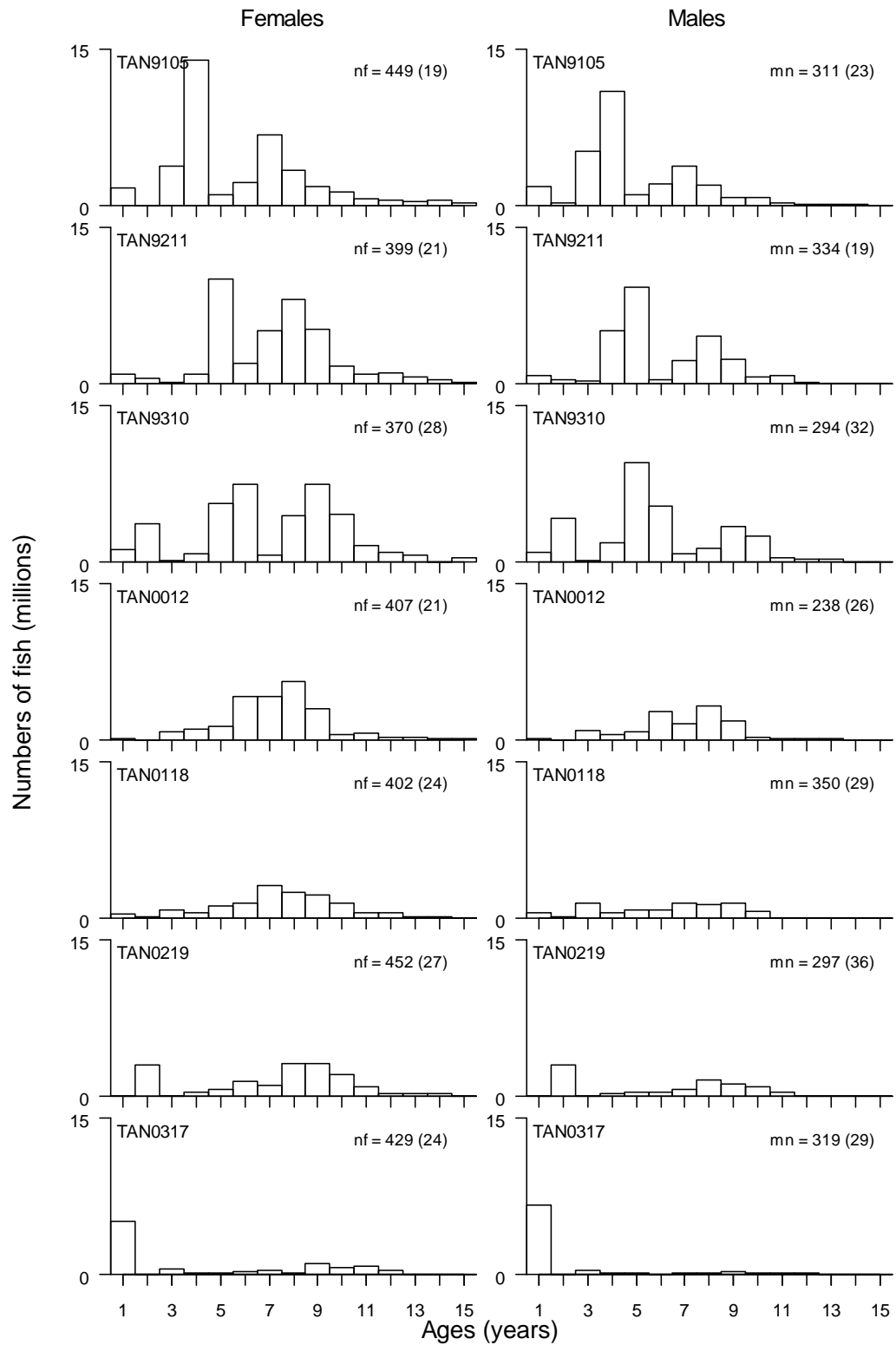
Survey	Minimum length (cm)	Maximum length (cm)	Mean length (cm)	Number measured
TAN9105	29	112	74.9	18659
TAN9211	30	115	79.1	17802
TAN9310	32	113	79.6	14952
TAN0012	35	109	78.8	7159
TAN0118	34	115	77.9	5689
TAN0219	38	108	75.9	5554
TAN0317	30	107	70.1	2284
TAN0414	24	110	61.3	4938
TAN0515	31	112	66.3	4907
TAN0617	32	112	63.3	4534
TAN0714	33	111	70.1	7369
TAN0813	32	115	71.6	7298
TAN0911	32	113	71.7	8280

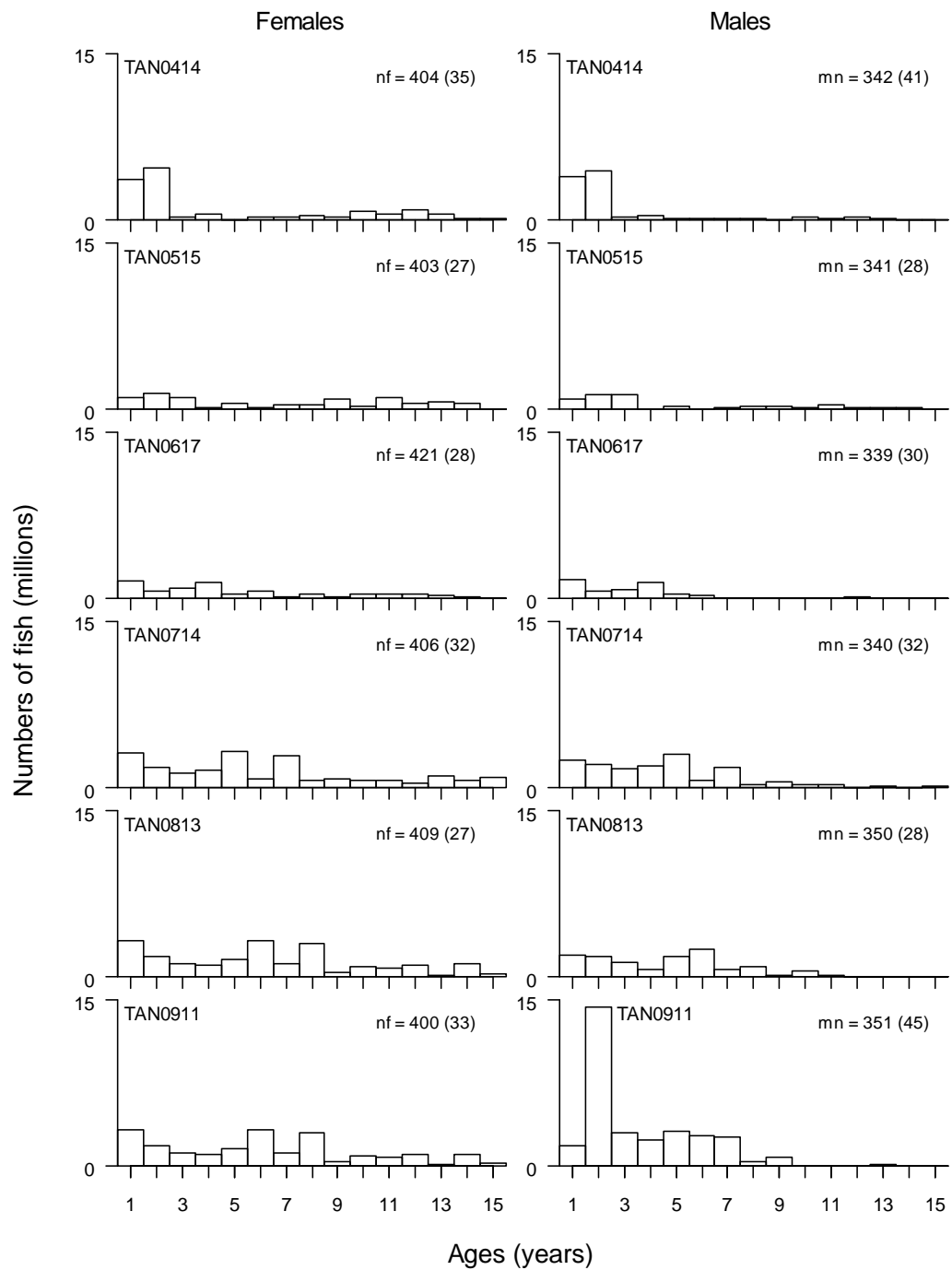
Population scaled length frequencies of *Macruronus novaezelandiae* for all strata.





Population scaled age frequencies of *Macruronus novaezelandiae* for all strata.





Gonad stage summaries by sex for *Macruronus novaezelandiae*. 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	10	89	0	0	0	0	0	1	98	0	0	0	0	0
TAN9211	3	84	0	0	0	0	12	0	99	0	0	0	0	1
TAN9310	15	75	0	0	0	5	5	8	90	0	0	0	0	2
TAN0012	7	78	0	0	0	6	9	3	87	0	0	0	0	9
TAN0118	18	71	1	0	0	7	3	7	82	1	0	0	0	9
TAN0219	35	45	0	0	0	15	5	21	72	0	0	0	0	7
TAN0317	42	36	0	0	0	20	2	24	72	1	0	0	0	3
TAN0414	65	31	0	0	0	4	0	46	51	0	0	0	0	2
TAN0515	62	27	0	0	0	8	3	50	42	0	0	0	0	8
TAN0617	49	43	1	0	0	4	2	36	60	1	0	0	0	3
TAN0714	33	56	0	0	0	7	3	21	73	0	0	0	1	5
TAN0813	33	59	0	0	0	7	1	22	75	1	0	0	0	2
TAN0911	21	69	0	0	0	6	3	9	85	1	0	0	0	4
ALL	33	56	0	0	0	7	3	20	74	0	0	0	0	5

**Coded as BAM**

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	4
Total catch weight (kg):	1.5

Coded as HTH

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	7
Total catch weight (kg):	286.0

Coded as PAM

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.3

Coded as PMO

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	4
Total catch weight (kg):	202.9

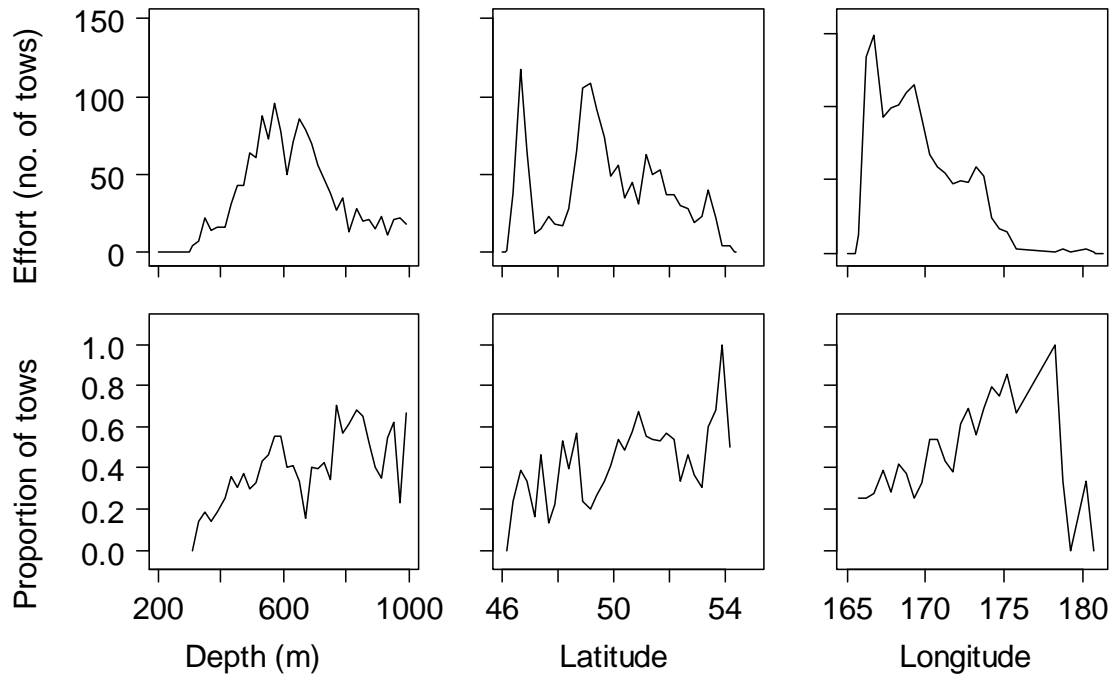
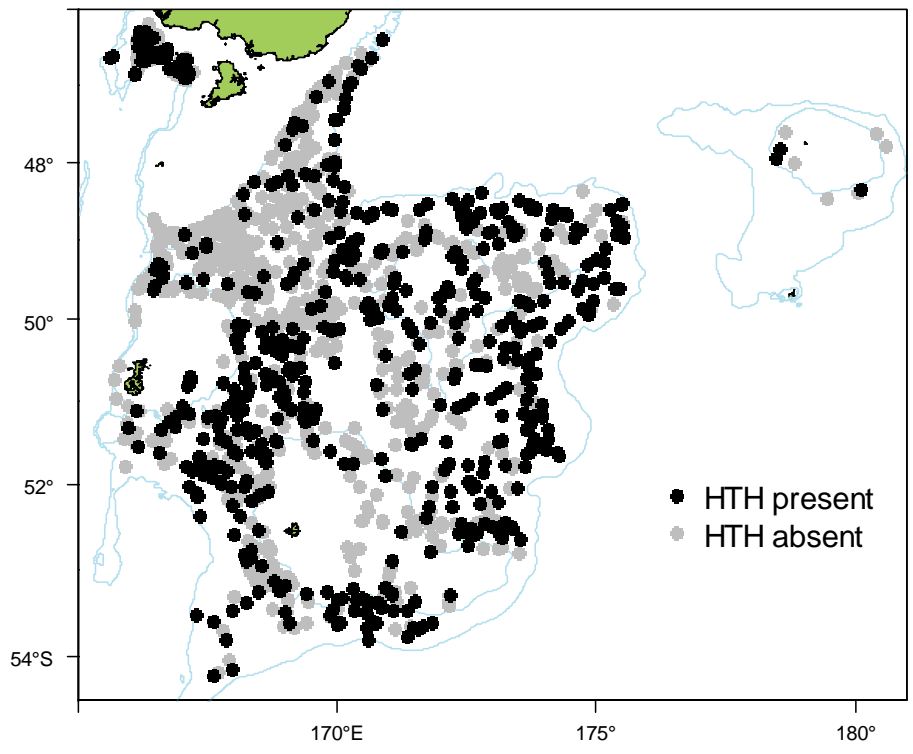
Coded as SCC

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	6
Total catch weight (kg):	505.9

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 **well** estimated by the core area. Biomass **shows no clear trend** since 2000. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is moderately **well** estimated.

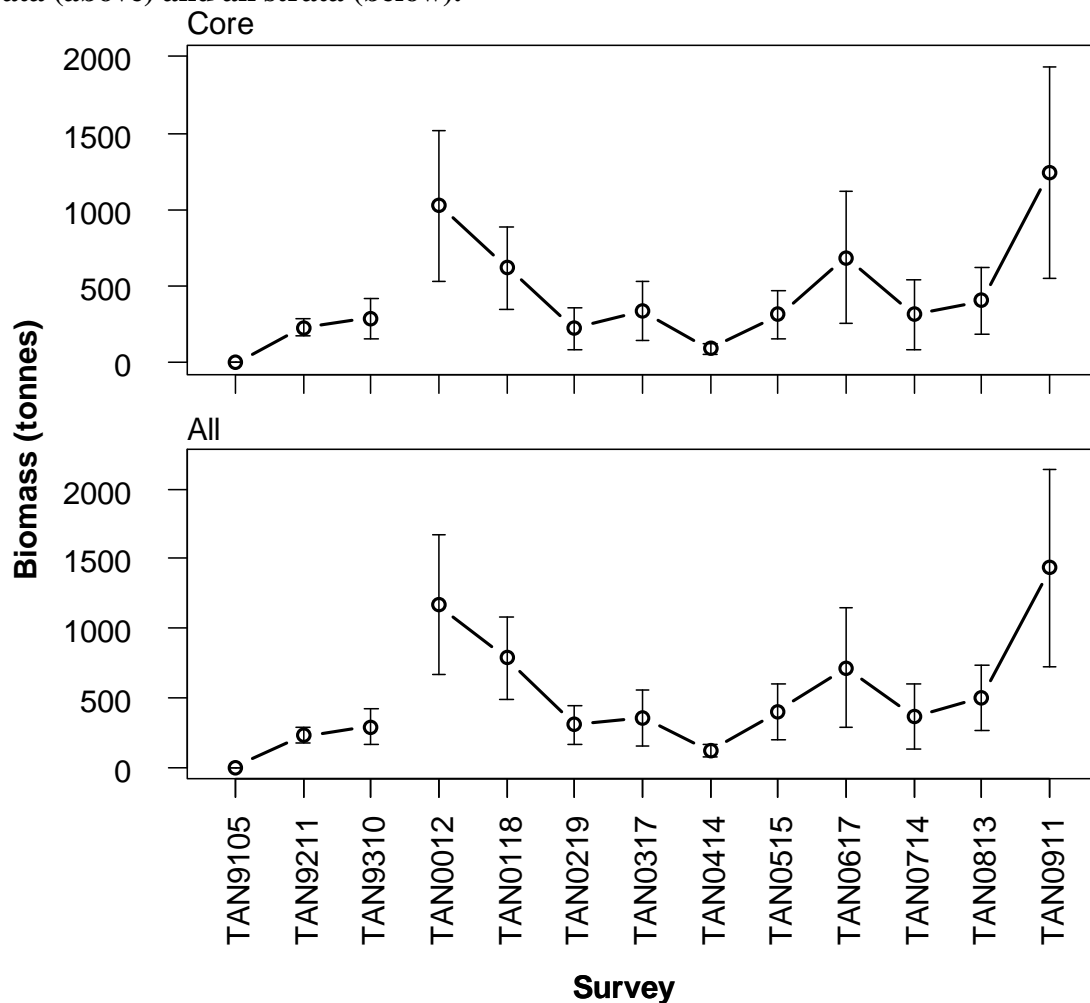
Distribution of Holothurians from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of Holothurians 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	230	13	NA	NA	NA	NA	1	100	231	13
TAN9310	287	23	NA	NA	NA	NA	2	59	289	23
TAN0012	1026	24	49	36	92	50	NA	NA	1167	22
TAN0118	619	22	23	34	144	42	NA	NA	785	19
TAN0219	220	31	49	22	37	59	NA	NA	306	24
TAN0317	335	30	18	66	NA	NA	NA	NA	354	28
TAN0414	89	22	30	29	NA	NA	NA	NA	119	18
TAN0515	313	26	21	43	64	100	NA	NA	400	26
TAN0617	685	32	28	28	NA	NA	NA	NA	713	31
TAN0714	313	37	20	22	32	100	NA	NA	365	33
TAN0813	406	28	43	37	53	72	NA	NA	501	24
TAN0911	1242	28	36	29	155	50	NA	NA	1434	25

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





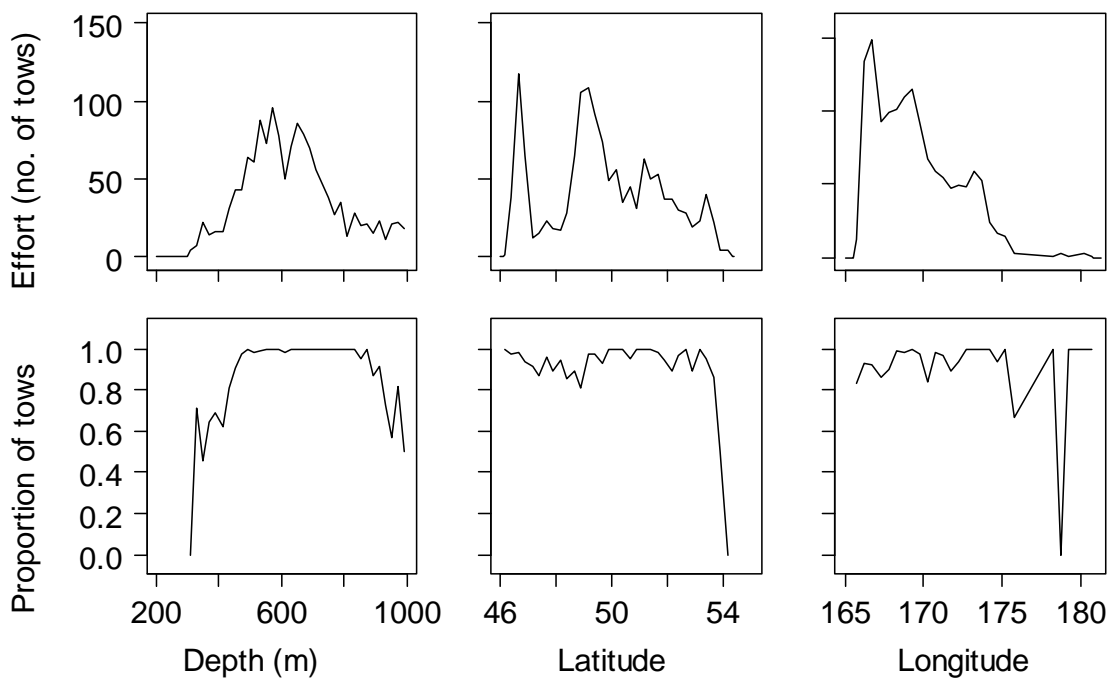
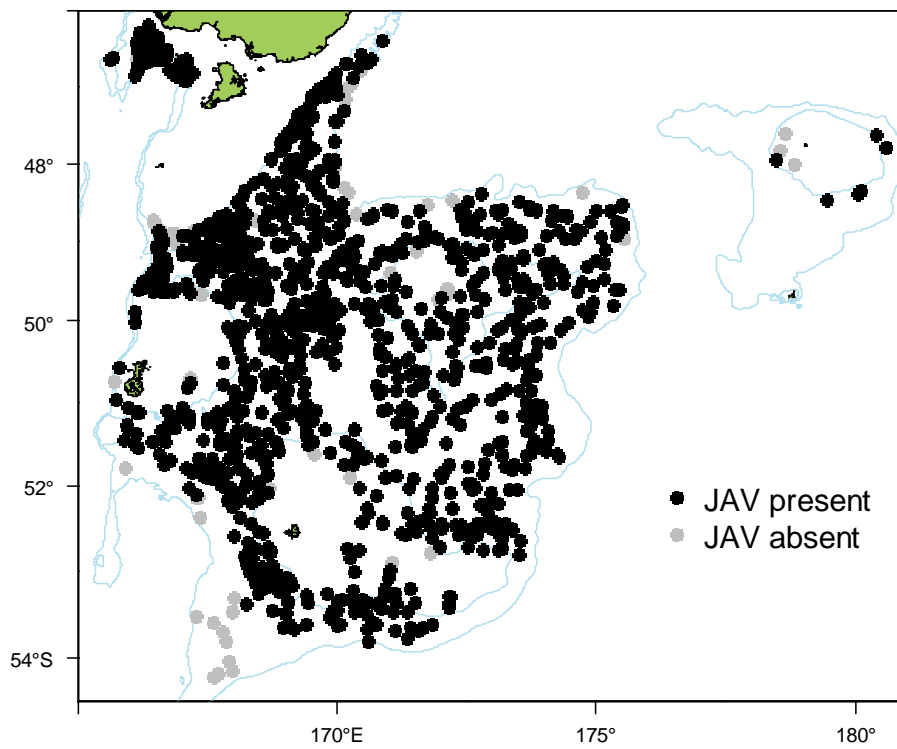
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	54 876.8
Number measured	56 703
Length range (mean) (cm)	6–68 (39.2)
Number weighed	8 007
Length-weight parameters a, b (r^2)	0.00090198, 3.245694 (96.7)

This species **has** been well identified during the time series. It is found **shallower than 300 m** and **deeper than 1000 m**. The core survey area and depth range **is** appropriate for this species. Distribution **extends** to strata deeper than 800 m surveyed from 2000 to 2009. It **was** 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. High catch rates have been taken throughout the survey area.

Length frequencies are usually **bimodal** which may represent larger females and smaller males. Mean length **shows no clear trend** since 2001. Gonad stage data indicate that most fish are **resting, maturing and mature**.

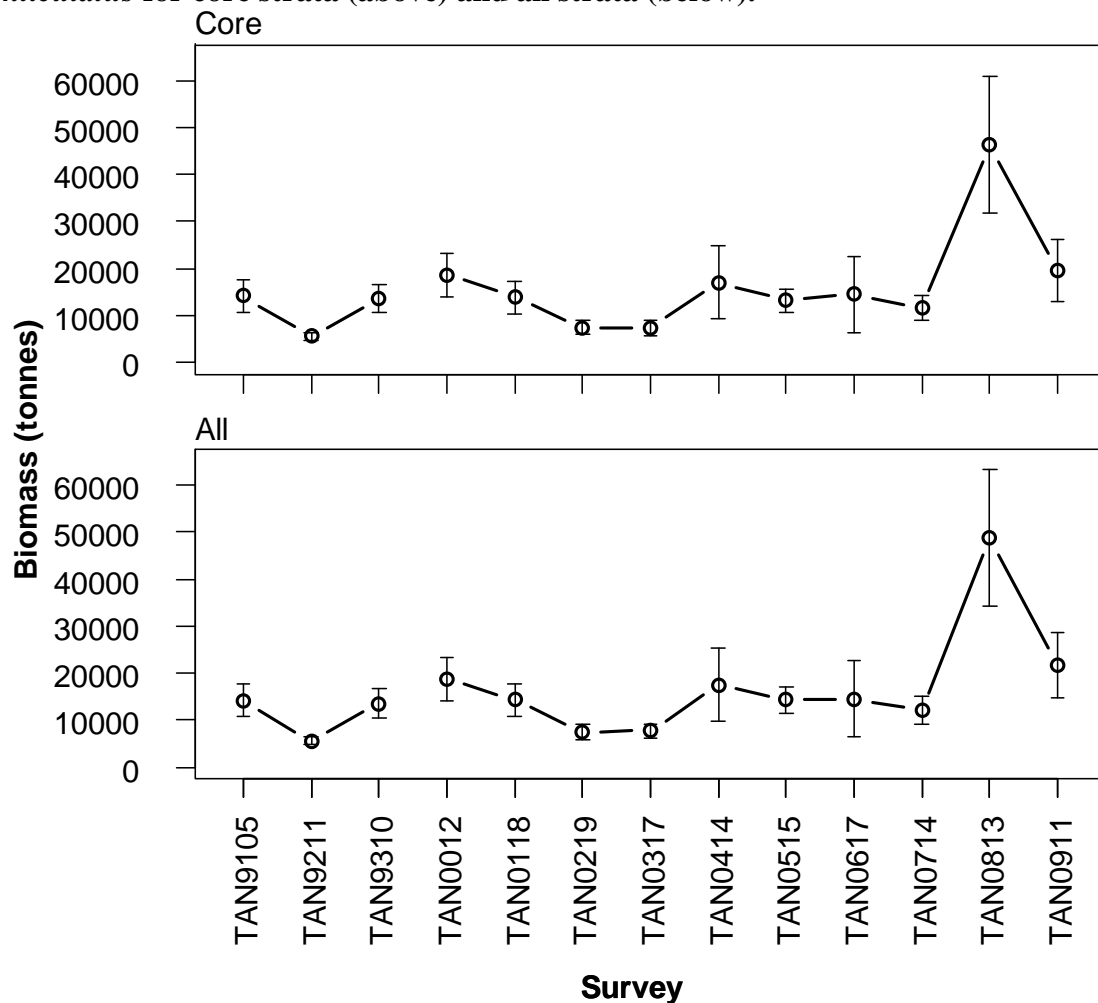
Distribution of *Lepidorhynchus denticulatus* from all summer surveys. Valid biomass stations only.



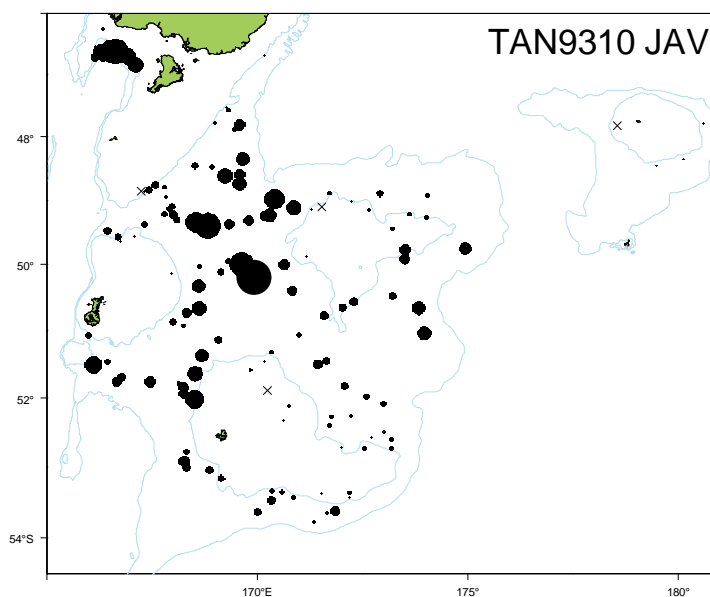
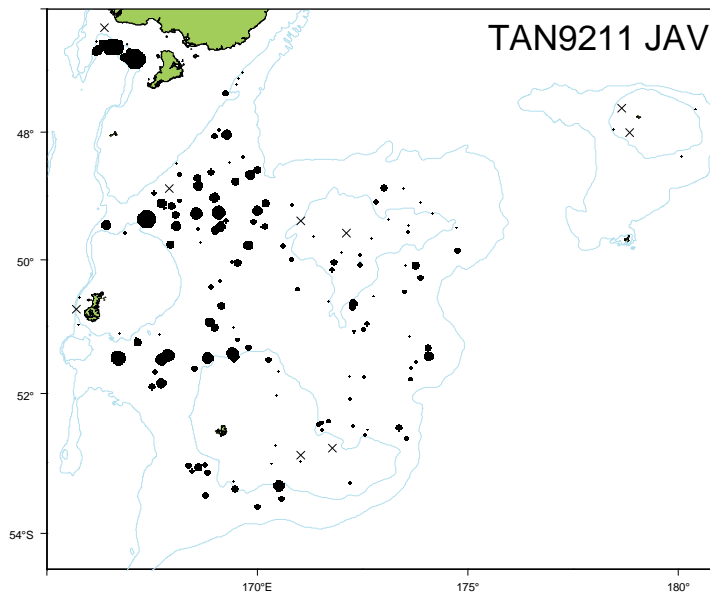
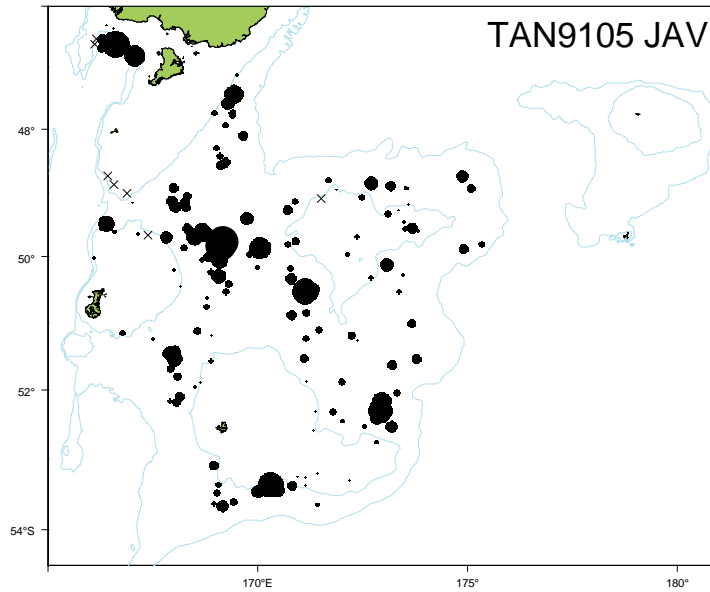
Relative biomass estimates (t) and c.v.s (%) of *Lepidorhynchus denticulatus* for core strata, strata outside the core area and all strata.

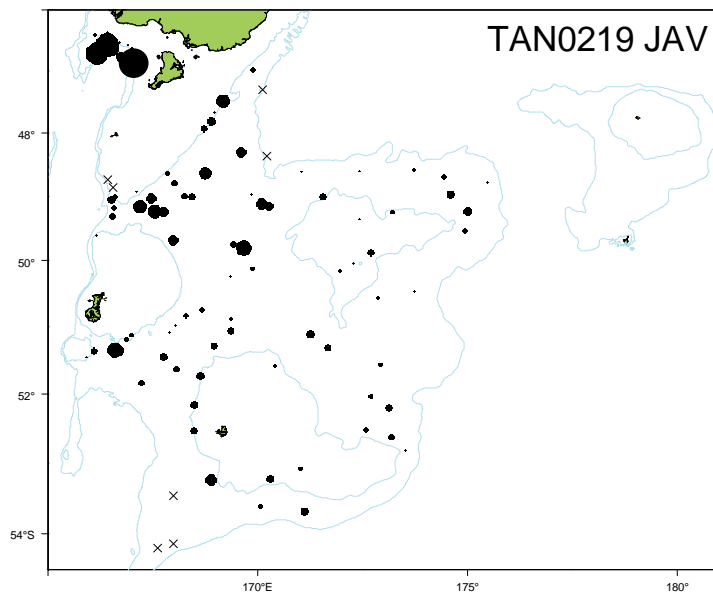
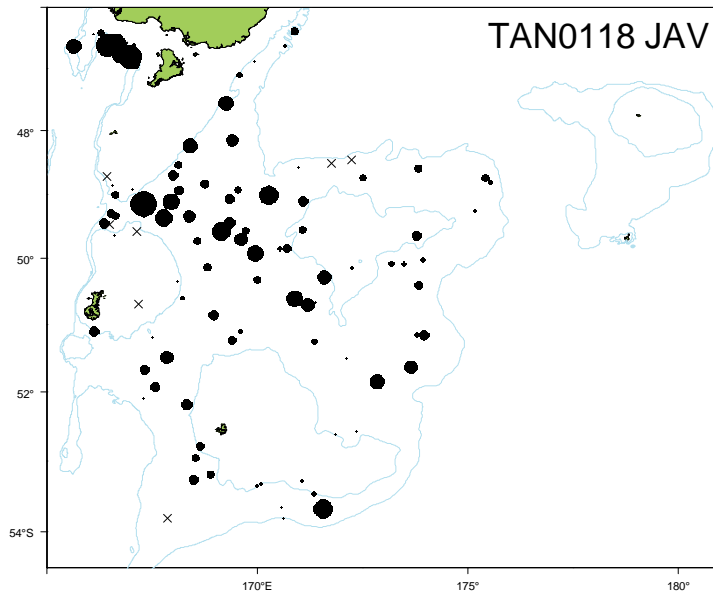
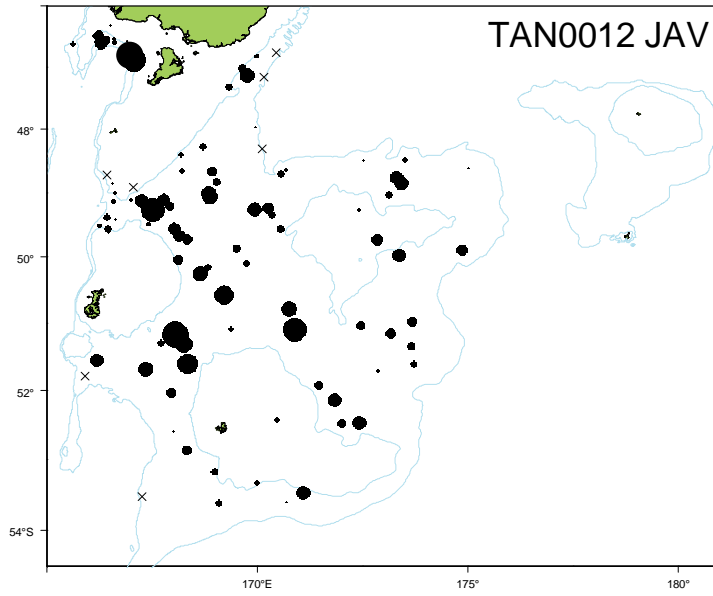
Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	14118	12	NA	NA	NA	NA	NA	NA	14118	12
TAN9211	5517	8	NA	NA	NA	NA	9	65	5526	8
TAN9310	13558	11	NA	NA	NA	NA	20	34	13578	11
TAN0012	18631	12	139	48	3	100	NA	NA	18773	12
TAN0118	13872	12	434	27	6	50	NA	NA	14313	12
TAN0219	7440	11	84	42	0	0	NA	NA	7525	11
TAN0317	7358	10	355	35	NA	NA	NA	NA	7713	10
TAN0414	16940	23	576	31	NA	NA	NA	NA	17517	22
TAN0515	13141	10	1249	45	0	0	NA	NA	14390	10
TAN0617	14444	28	129	44	NA	NA	NA	NA	14573	28
TAN0714	11609	12	454	80	3	100	NA	NA	12065	12
TAN0813	46199	16	2497	18	0	0	NA	NA	48695	15
TAN0911	19538	17	2085	45	40	100	NA	NA	21663	16

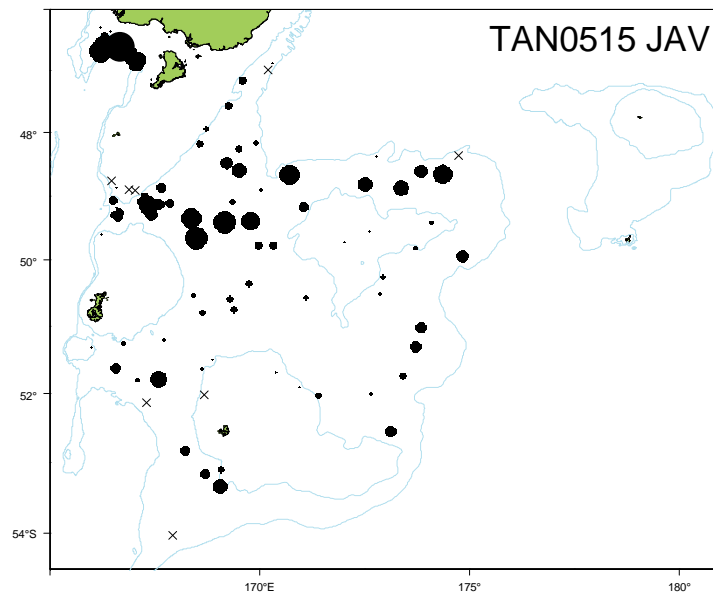
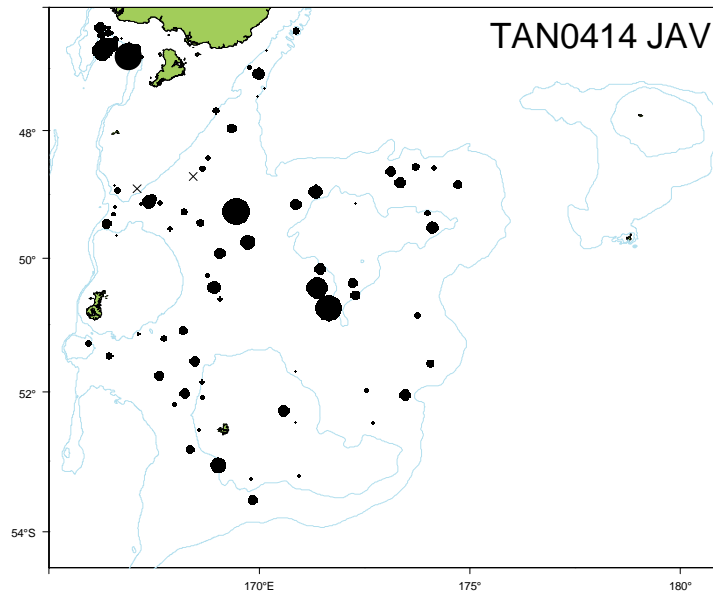
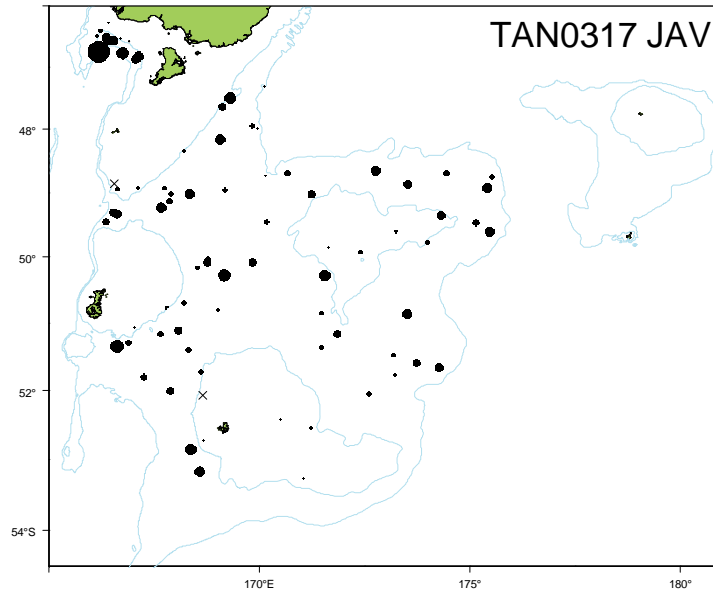
Trends in relative biomass estimates (± 2 standard errors) of *Lepidorhynchus denticulatus* for core strata (above) and all strata (below).

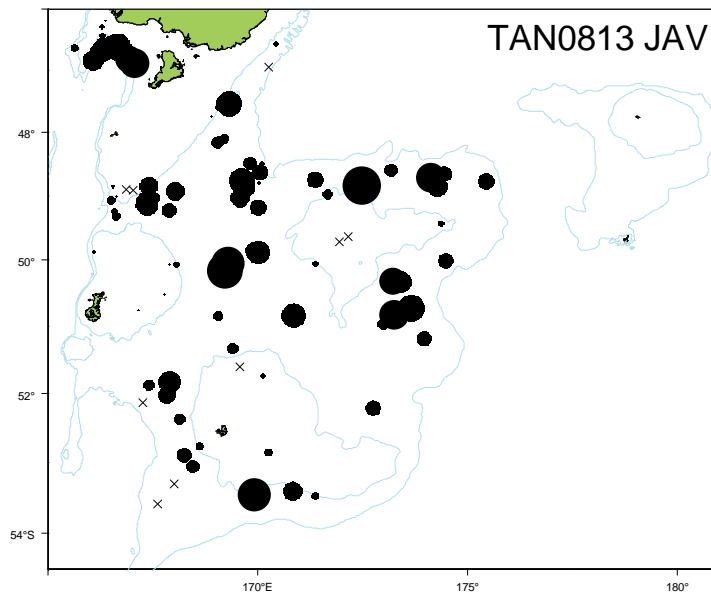
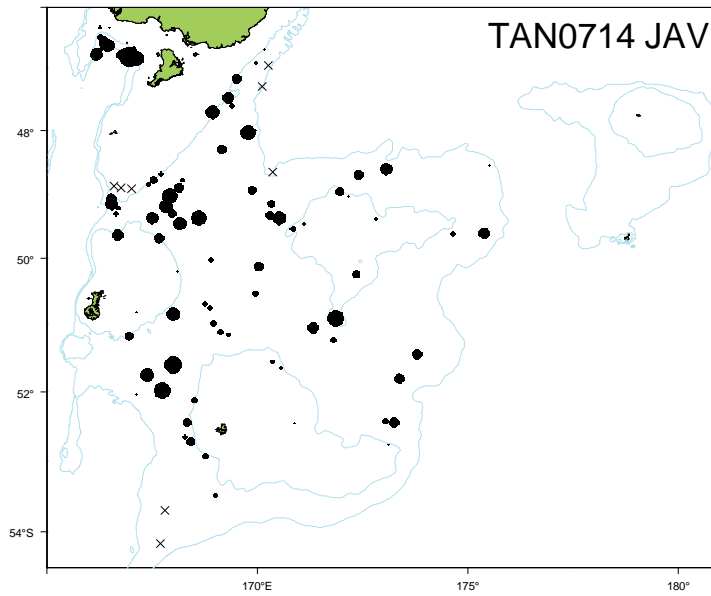
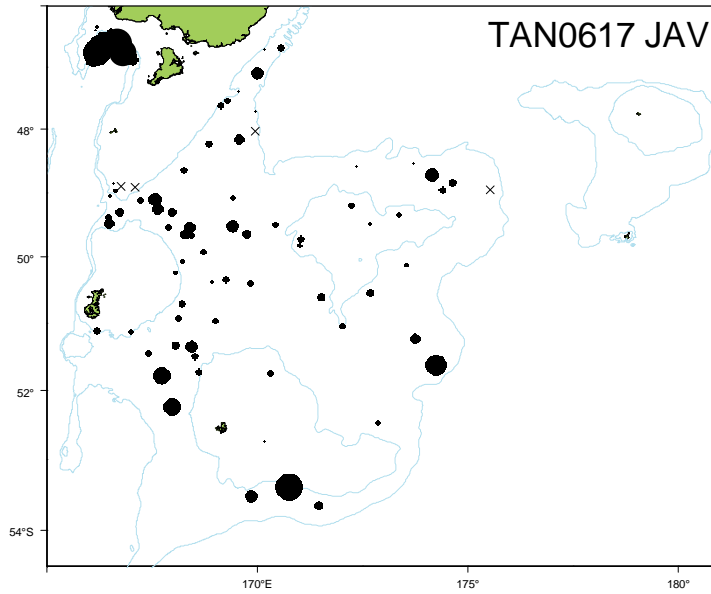


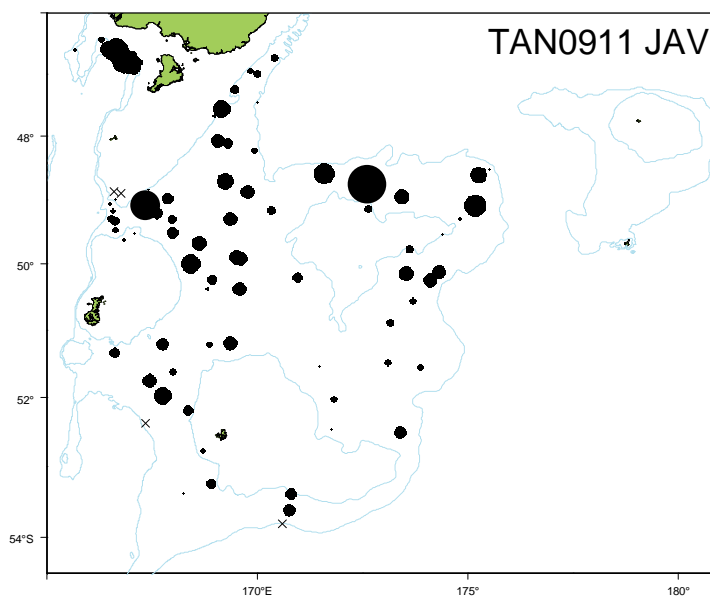
Catchrates of *Lepidorhynchus denticulatus*. Circle area is proportional to the maximum catchrate from all surveys (see Table 5).







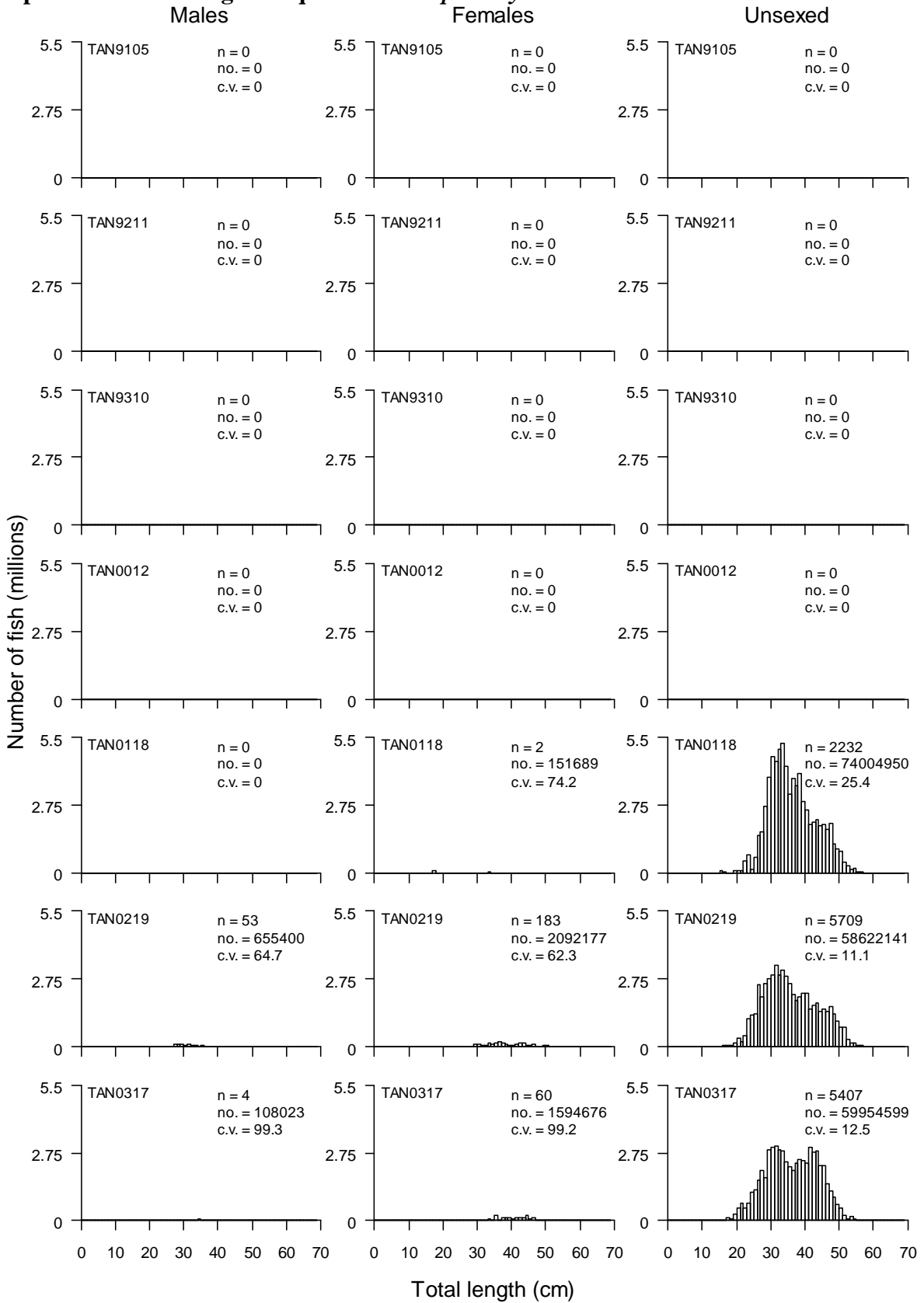


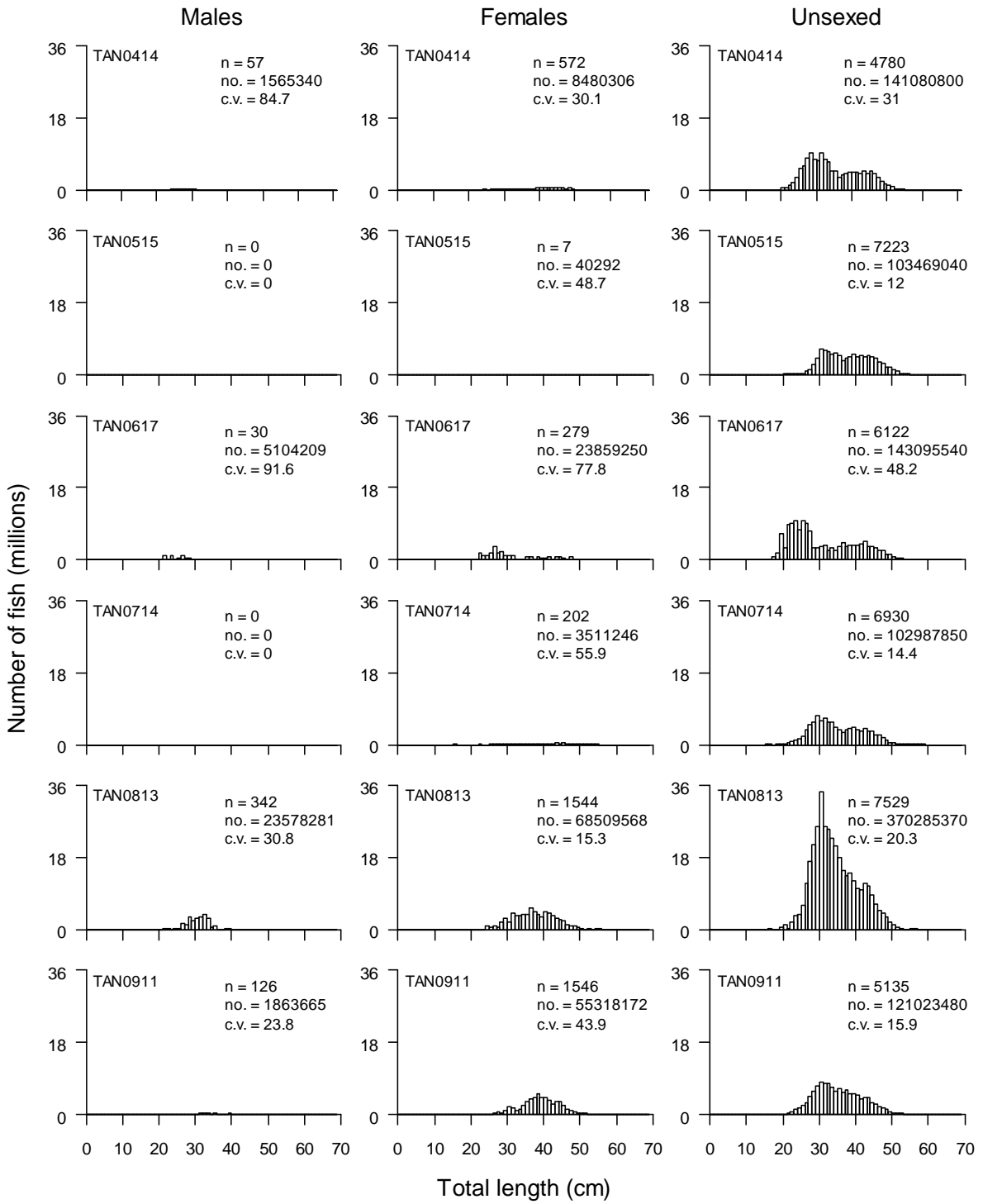


Length summaries

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	16	59	38.2	2234
TAN0219	14	64	37.0	5945
TAN0317	16	58	37.4	5471
TAN0414	18	68	38.6	5409
TAN0515	18	61	38.9	7230
TAN0617	6	61	37.6	6431
TAN0714	16	65	37.1	7132
TAN0813	14	63	38.3	9415
TAN0911	14	66	38.5	6807

Population scaled length frequencies of *Lepidorhynchus denticulatus* for all strata.





Gonad stage summaries by sex for *Lepidorhynchus denticulatus*. 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	NA	NA	NA	NA	NA	NA	NA
TAN0515	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0617	14	86	0	0	0	0	0	17	77	0	0	0	0	6
TAN0714	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TAN0813	24	2	74	0	0	0	0	8	81	12	0	0	0	0
TAN0911	60	40	0	0	0	0	0	39	61	0	0	0	0	0
ALL	25	10	65	0	0	0	0	21	72	5	0	0	0	1

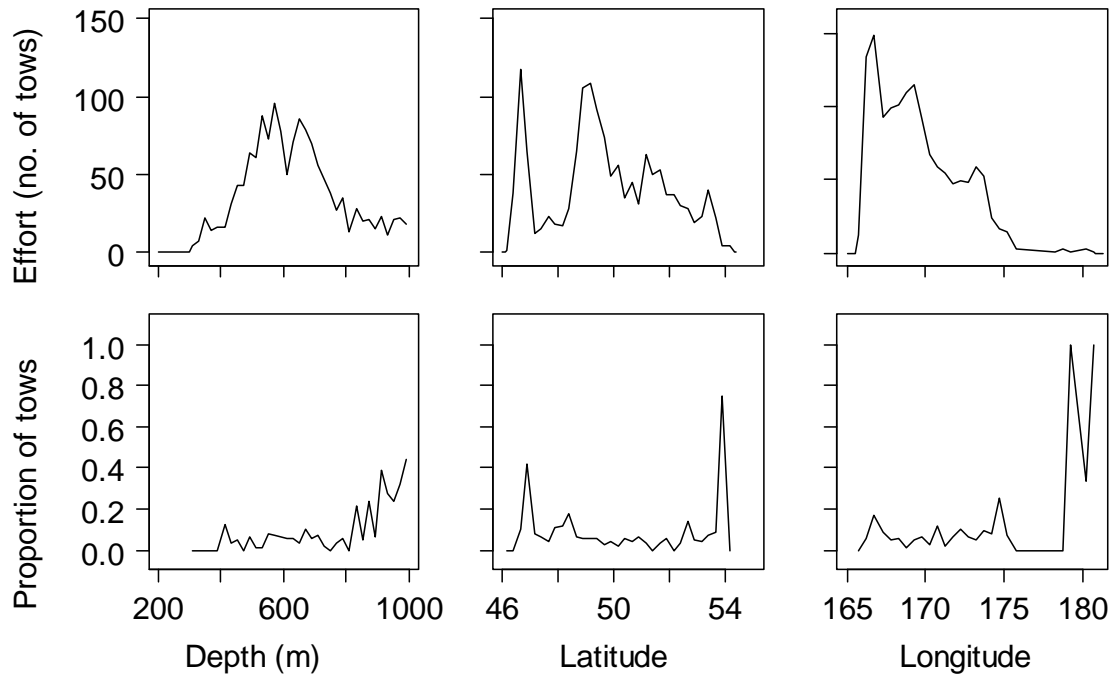
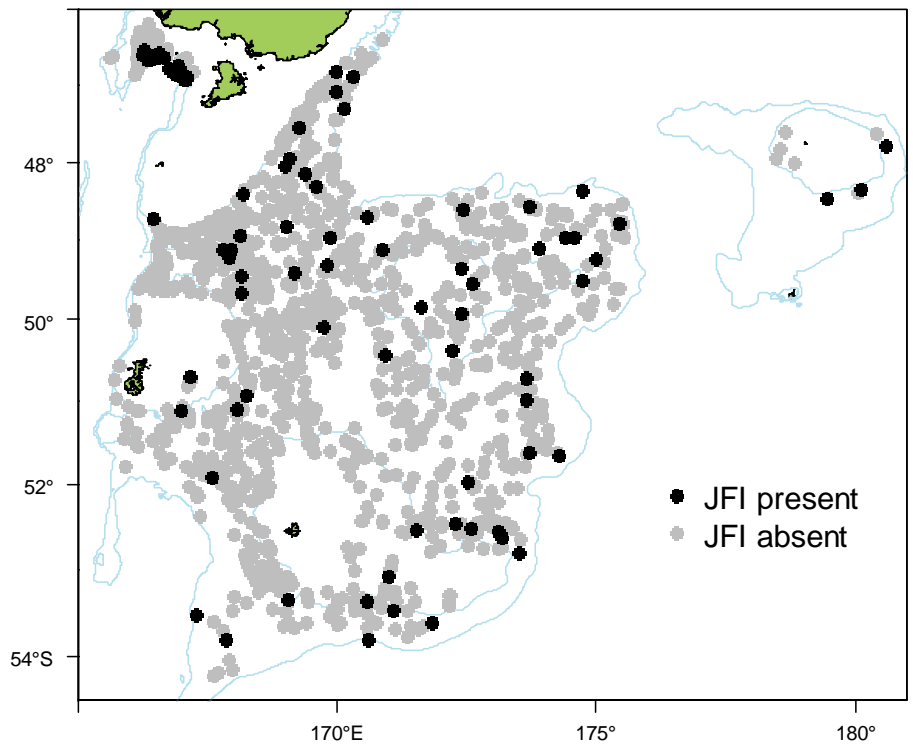


Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	12
Total catch weight (kg):	386.0
Number measured	0
Length range (mean) (cm)	–
Number weighed	0

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, deeper than 1000 m and are pelagic**. 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 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.

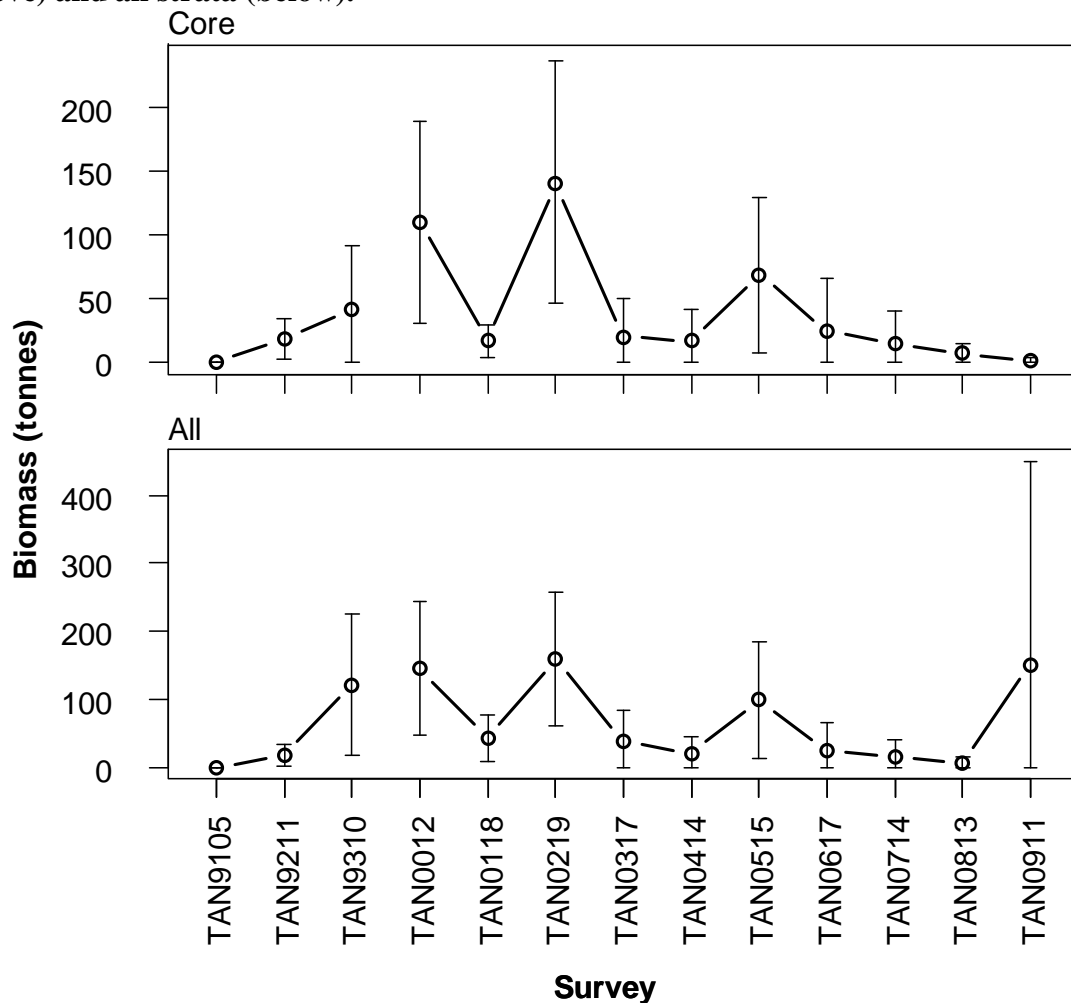
Distribution of Jellyfish from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of Jellyfish 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	18	43	NA	NA	NA	NA	0	0	18	43
TAN9310	42	59	NA	NA	NA	NA	79	58	121	43
TAN0012	110	36	7	100	28	100	NA	NA	145	34
TAN0118	17	38	0	0	26	60	NA	NA	43	39
TAN0219	141	34	18	55	0	0	NA	NA	160	30
TAN0317	20	77	17	100	NA	NA	NA	NA	37	62
TAN0414	17	72	3	100	NA	NA	NA	NA	20	64
TAN0515	69	45	31	97	0	0	NA	NA	99	43
TAN0617	24	88	0	0	NA	NA	NA	NA	24	88
TAN0714	15	87	0	0	0	0	NA	NA	15	87
TAN0813	7	63	0	0	0	0	NA	NA	7	63
TAN0911	1	73	0	0	149	100	NA	NA	151	99

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



Mesopelagic fish

LAN



Coded as DIA

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	3
Total catch weight (kg):	0.4
Number measured	0

Coded as GYM

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	3
Total catch weight (kg):	1.8
Number measured	0

Coded as GYP

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.1
Number measured	0

Coded as LAN

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	11
Total catch weight (kg):	12.8
Number measured	0

Coded as LHE

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	0.2
Number measured	0

Coded as LPA

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	6
Total catch weight (kg):	7.2
Number measured	0

Coded as LPD

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	0.4
Number measured	0

Coded as PHO

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	12
Total catch weight (kg):	31.0
Number measured	1

Coded as PRO

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	2
Total catch weight (kg):	0.2
Number measured	0

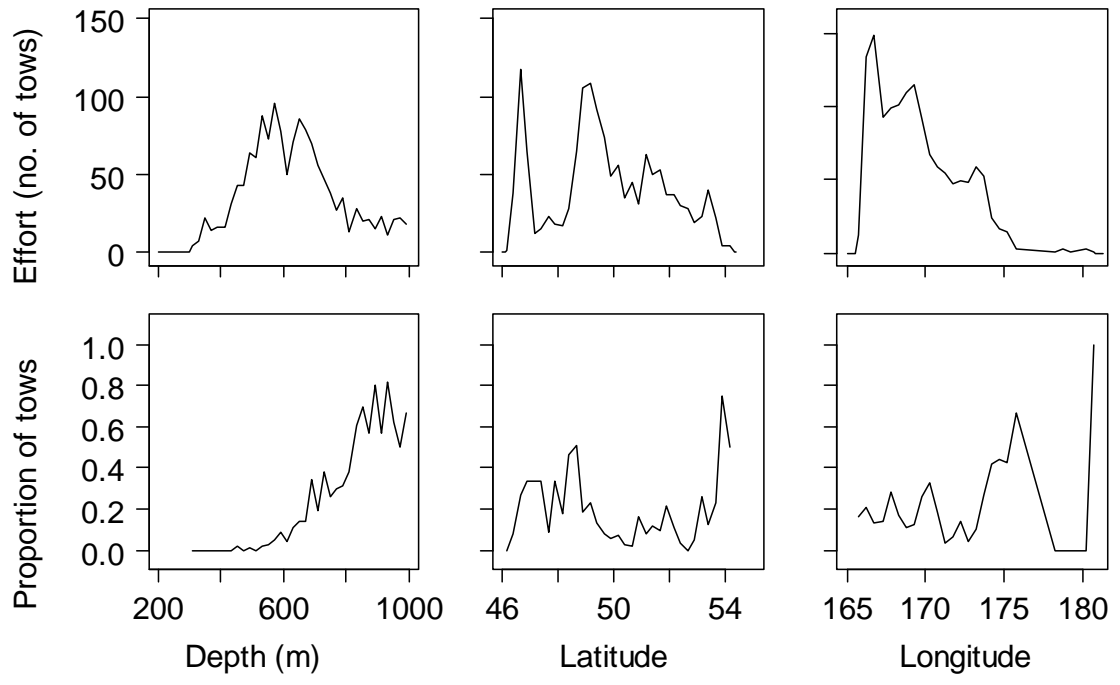
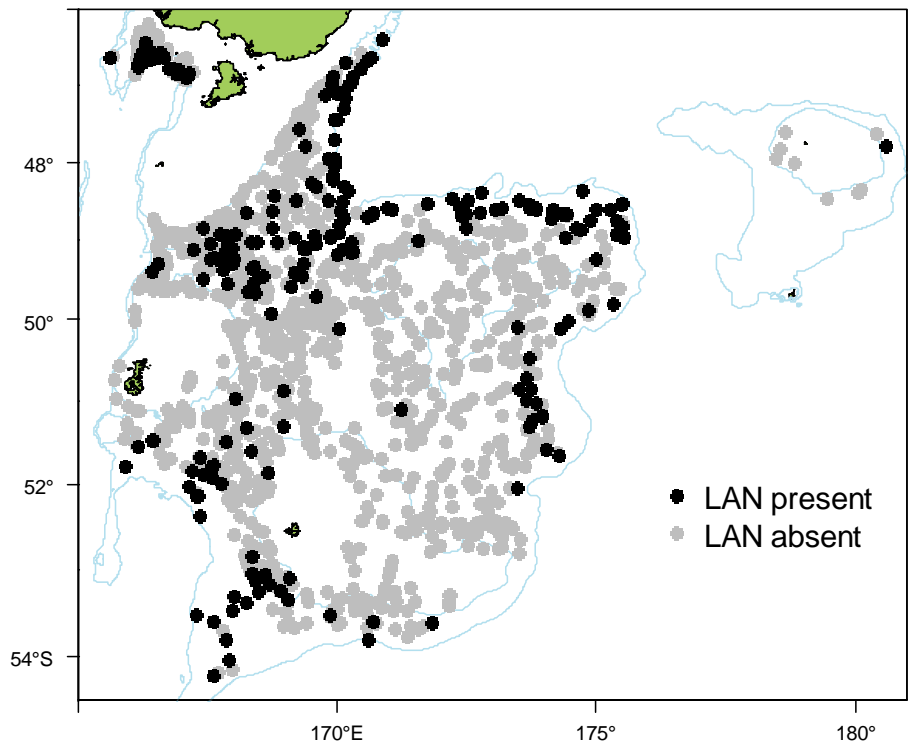
Coded as SYM

Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	0.1
Number measured	0

This group **has not** been well identified during the time series, particularly on early surveys in 1991 and 1992. Members of this group are **pelagic**. 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 area. Biomass in the areas deeper than 800 m surveyed from 2000 to 2009 is **well** estimated. Biomass **shows an increase then decrease** since the start of the time series.

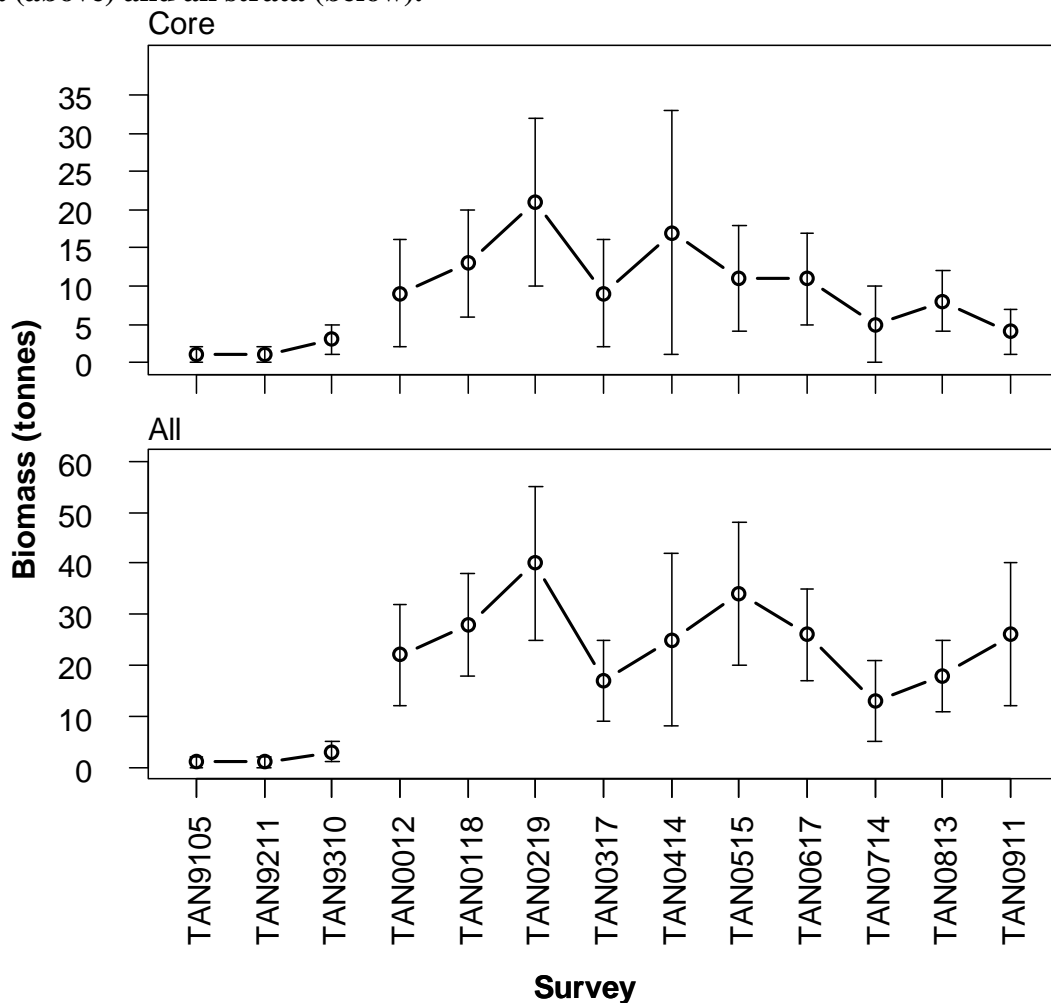
Distribution of Mesopelagic fish from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of Mesopelagic fish 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		
			biomass	(c.v.)	biomass	(c.v.)	biomass	(c.v.)	biomass	(c.v.)
TAN9105	1	55	NA	NA	NA	NA	NA	NA	1	55
TAN9211	1	51	NA	NA	NA	NA	0	0	1	51
TAN9310	3	37	NA	NA	NA	NA	0	0	3	33
TAN0012	9	38	12	28	4	71	NA	NA	22	22
TAN0118	13	27	12	20	3	75	NA	NA	28	18
TAN0219	21	26	5	35	14	37	NA	NA	40	19
TAN0317	9	39	8	25	NA	NA	NA	NA	17	24
TAN0414	17	48	6	20	NA	NA	NA	NA	25	35
TAN0515	11	30	13	20	9	64	NA	NA	34	21
TAN0617	11	29	15	22	NA	NA	NA	NA	26	17
TAN0714	5	54	7	33	2	100	NA	NA	13	30
TAN0813	8	27	4	38	6	45	NA	NA	18	20
TAN0911	4	37	6	45	15	42	NA	NA	26	28

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





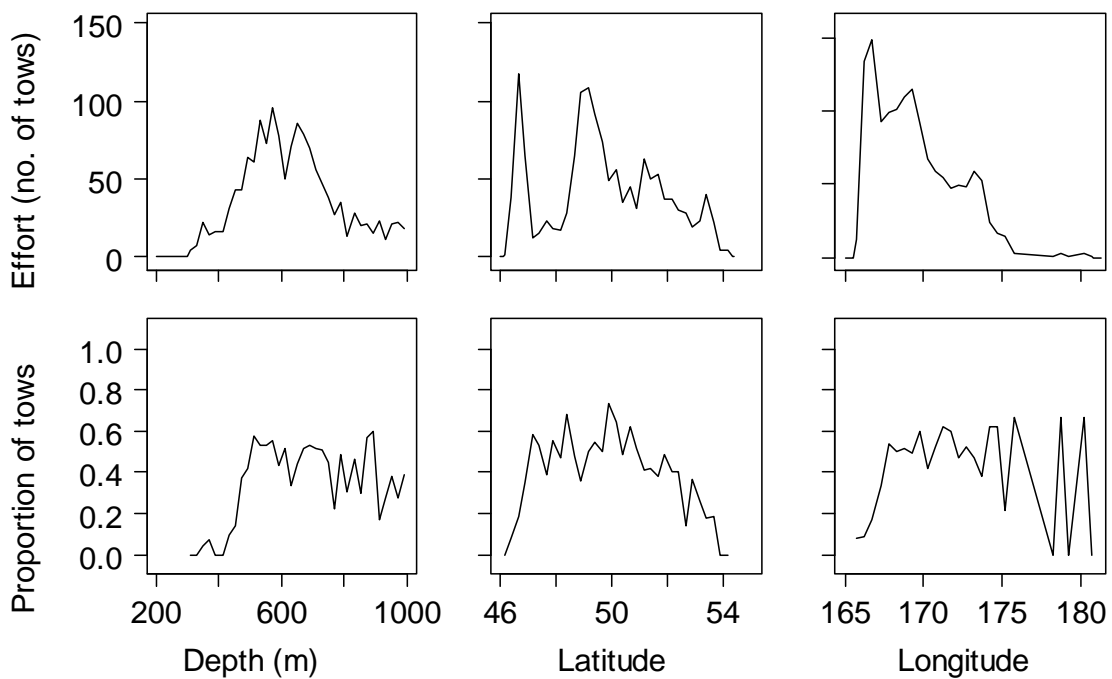
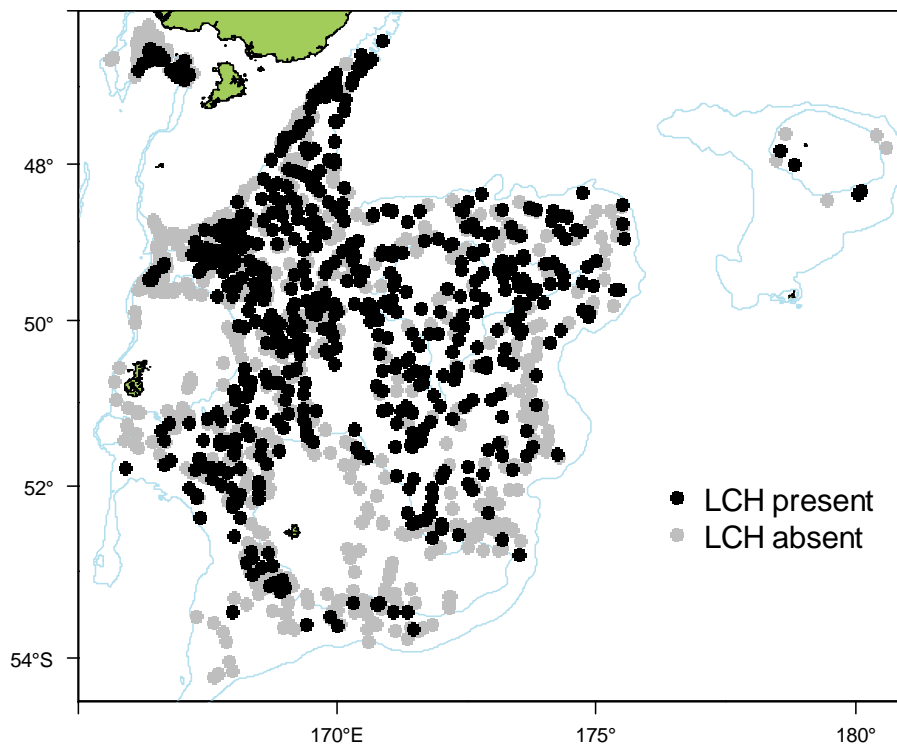
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	2550.9
Number measured	560
Length range (mean) (cm)	23–104 (69.9)
Number weighed	508
Length-weight parameters a, b (r^2)	0.003210174, 2.998108 (97.78)

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 **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 **northeast** around the Pukaki Rise.

Length frequencies **have multiple modes which may contain information about year-class strength**. Mean length **shows no clear trend** since 2001. Gonad stage data indicate that most fish are **resting to mature**.

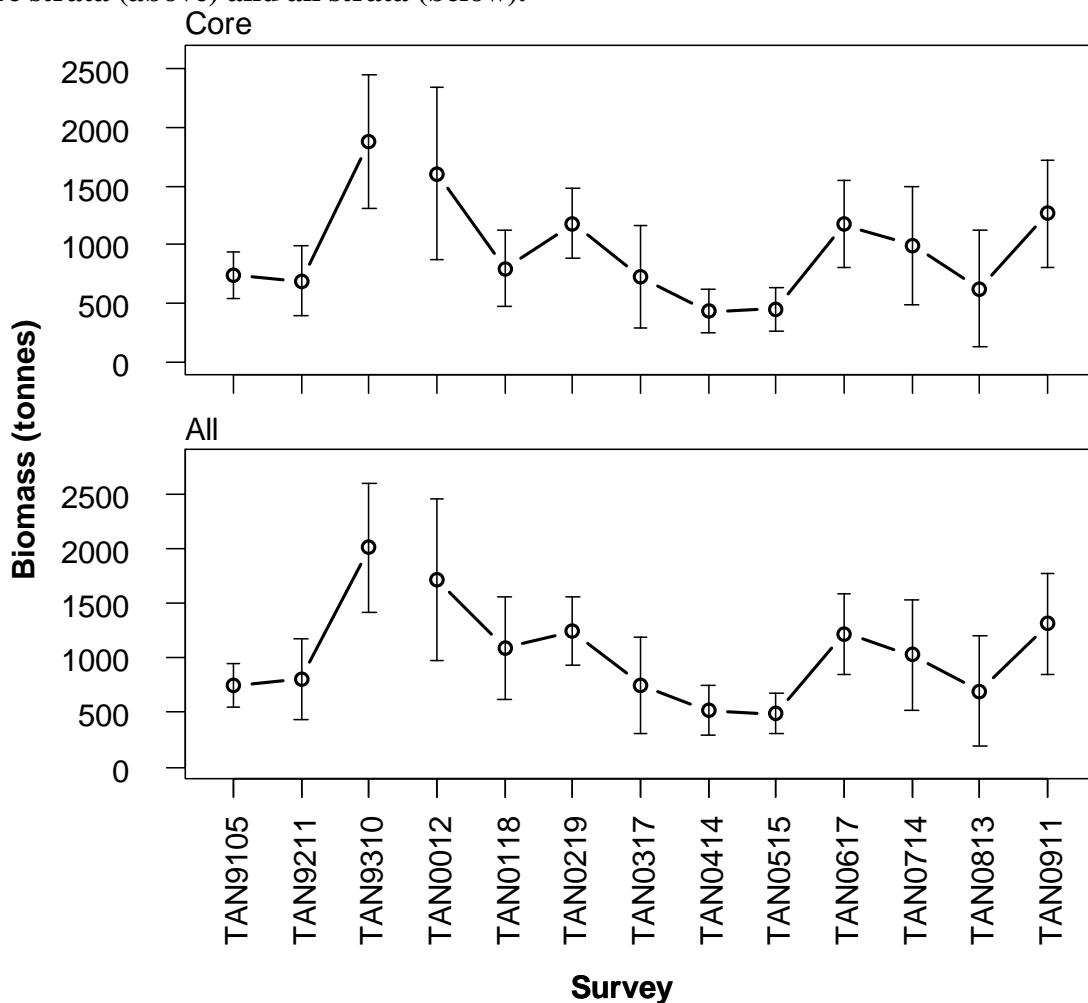
Distribution of *Harriotta raleighana* from all summer surveys. Valid biomass stations only.



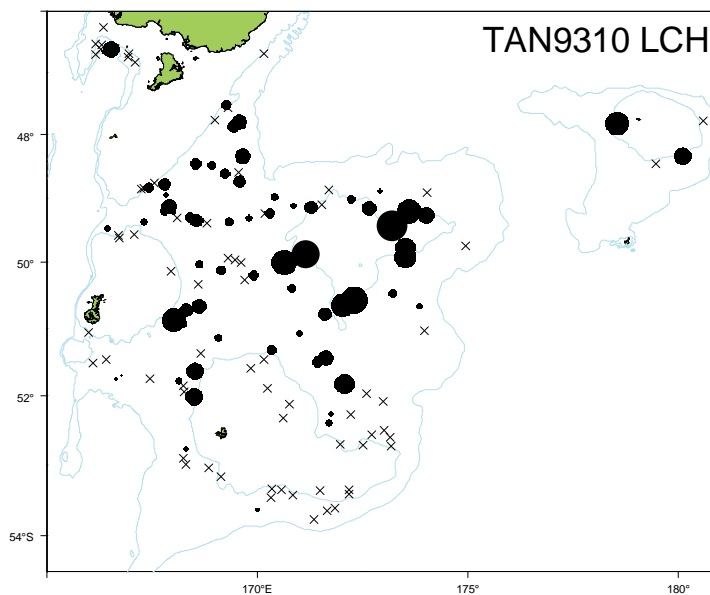
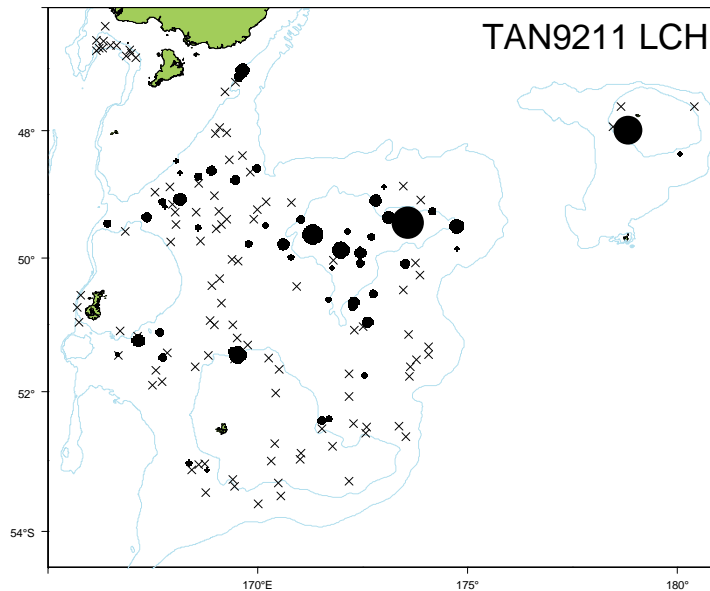
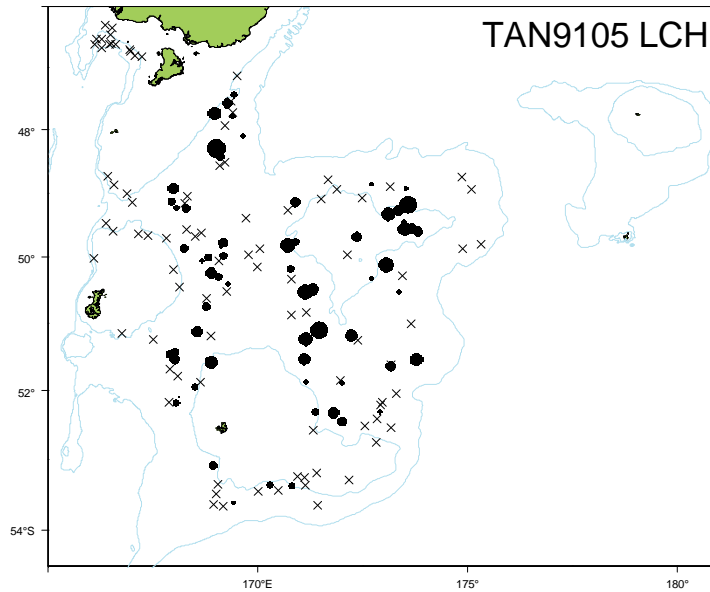
Relative biomass estimates (t) and c.v.s (%) of *Harriotta raleighana* for core strata, strata outside the core area and all strata.

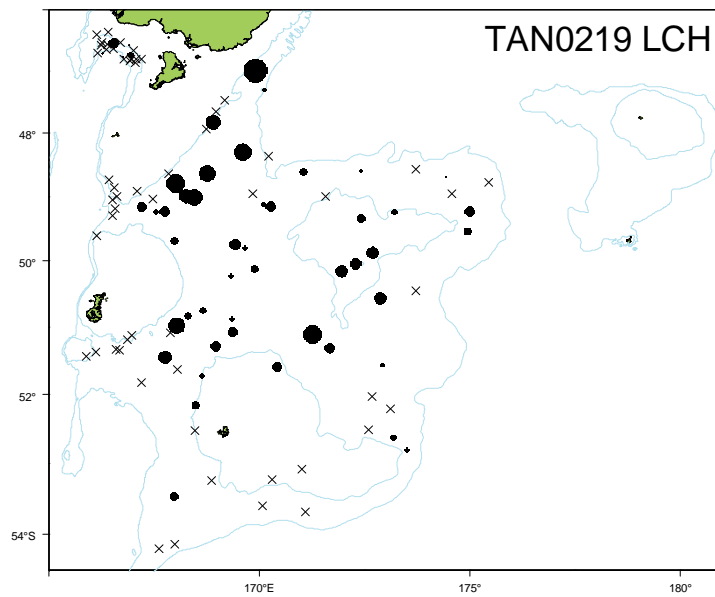
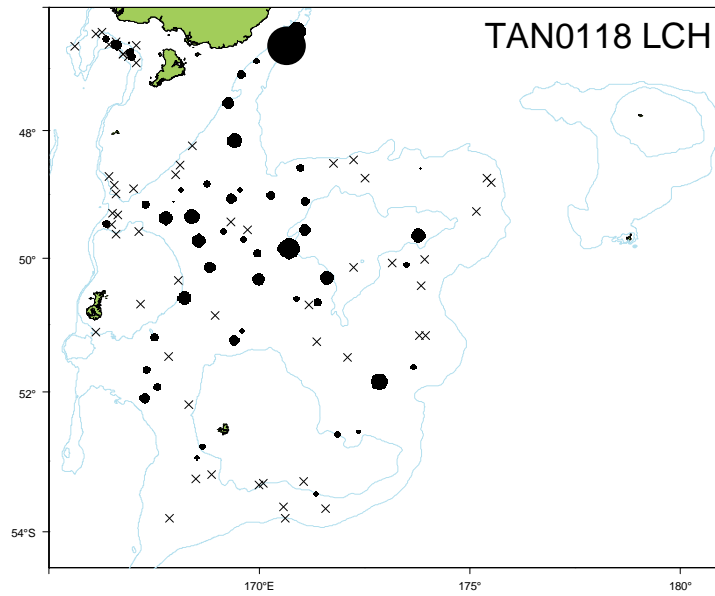
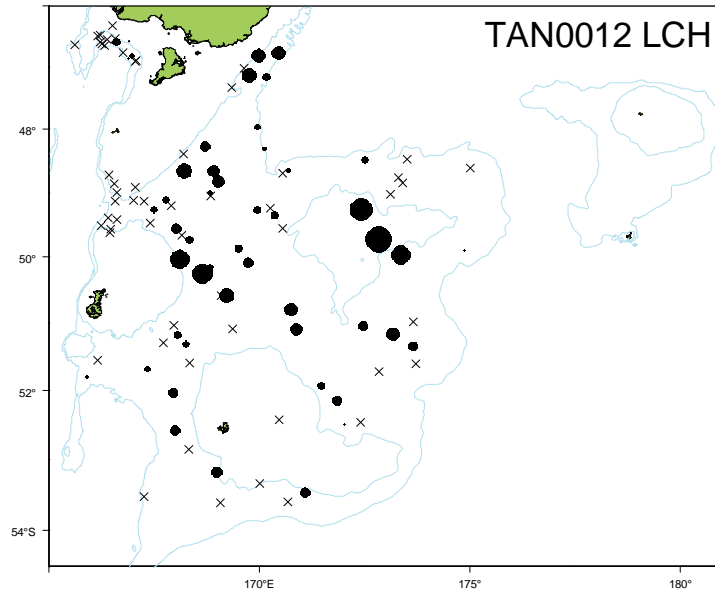
Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	746	13	NA	NA	NA	NA	NA	NA	746	13
TAN9211	694	21	NA	NA	NA	NA	117	96	812	23
TAN9310	1875	15	NA	NA	NA	NA	138	62	2013	15
TAN0012	1606	23	46	41	68	87	NA	NA	1720	22
TAN0118	798	20	243	68	49	100	NA	NA	1090	22
TAN0219	1179	13	14	63	49	100	NA	NA	1242	13
TAN0317	727	30	25	50	NA	NA	NA	NA	751	29
TAN0414	435	21	83	76	NA	NA	NA	NA	517	22
TAN0515	453	20	35	34	0	0	NA	NA	488	19
TAN0617	1179	16	40	64	NA	NA	NA	NA	1219	15
TAN0714	994	25	13	72	21	100	NA	NA	1028	25
TAN0813	625	40	35	31	37	100	NA	NA	697	36
TAN0911	1264	18	36	40	16	100	NA	NA	1316	18

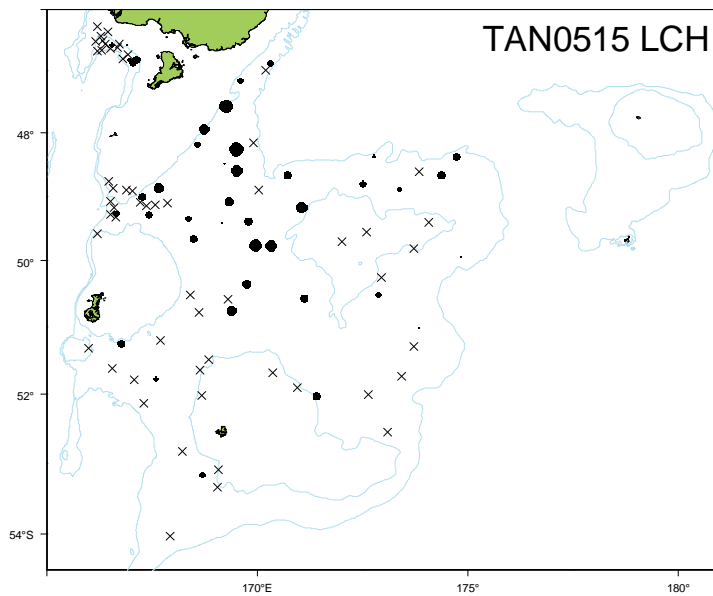
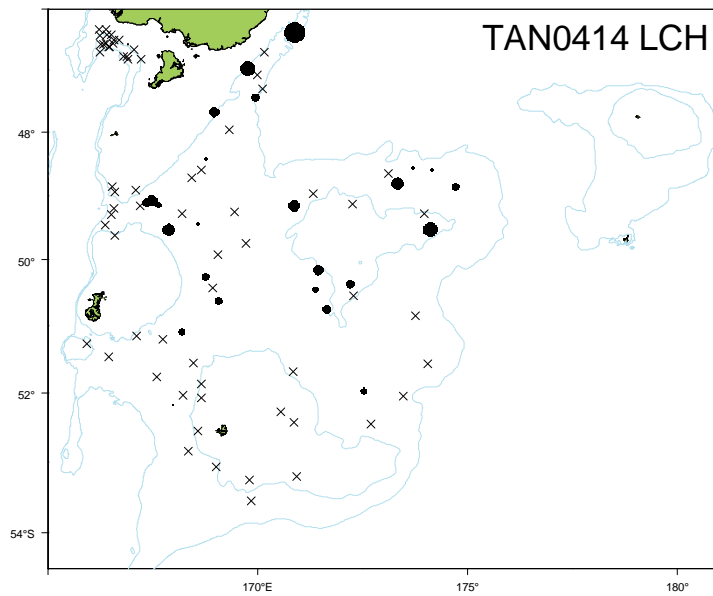
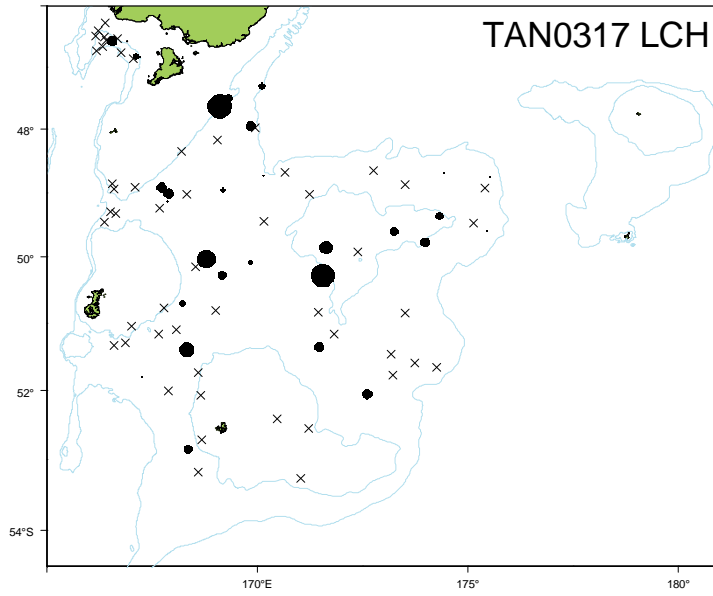
Trends in relative biomass estimates (± 2 standard errors) of *Harriotta raleighana* for core strata (above) and all strata (below).

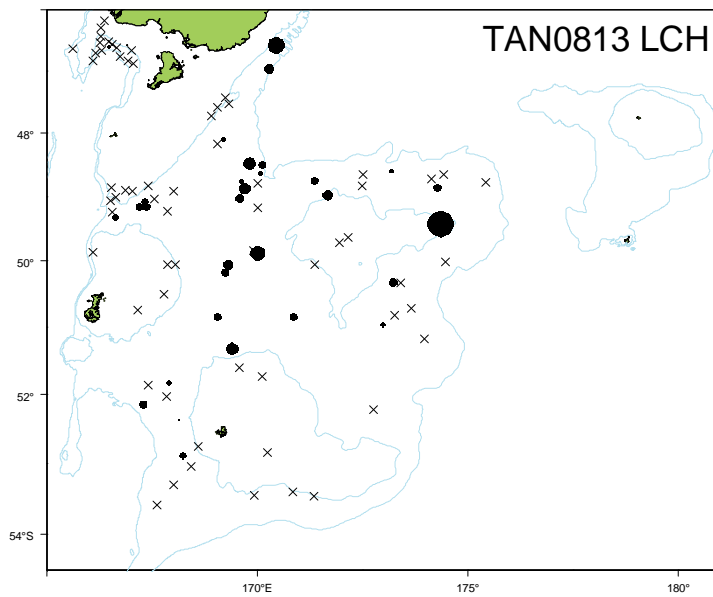
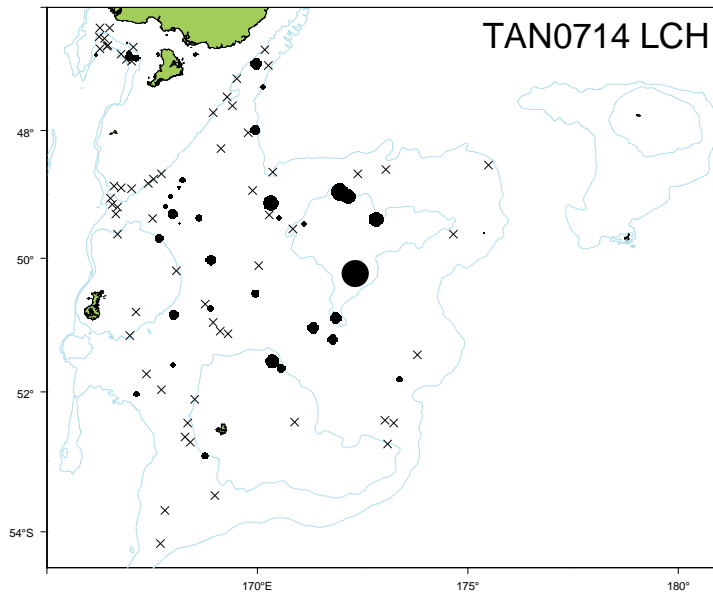
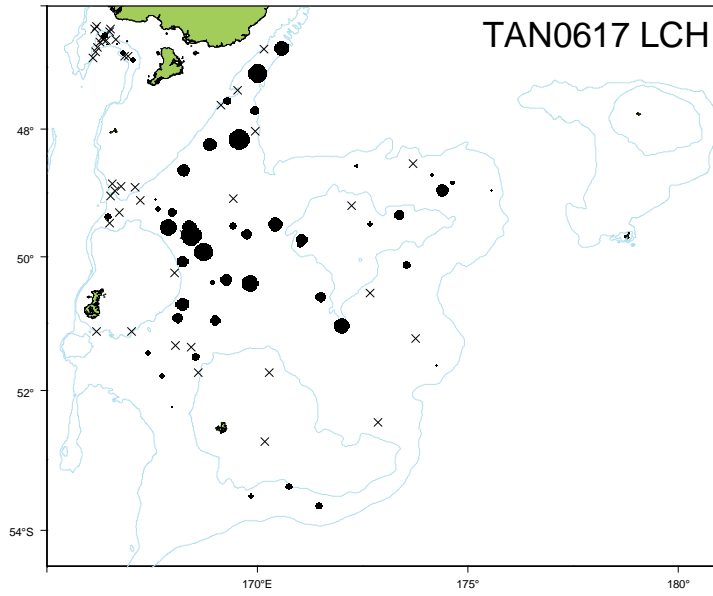


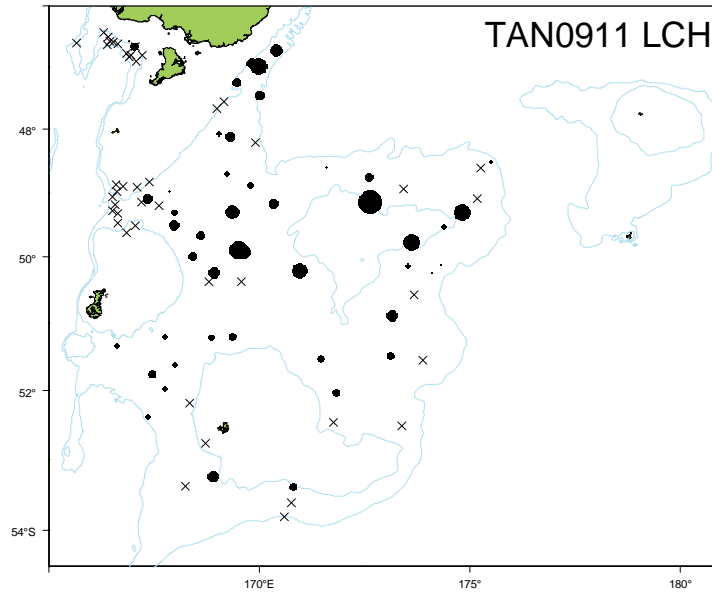
Catchrates of *Harriotta raleighana*. Circle area is proportional to the maximum catchrate from all surveys (see Table 5).







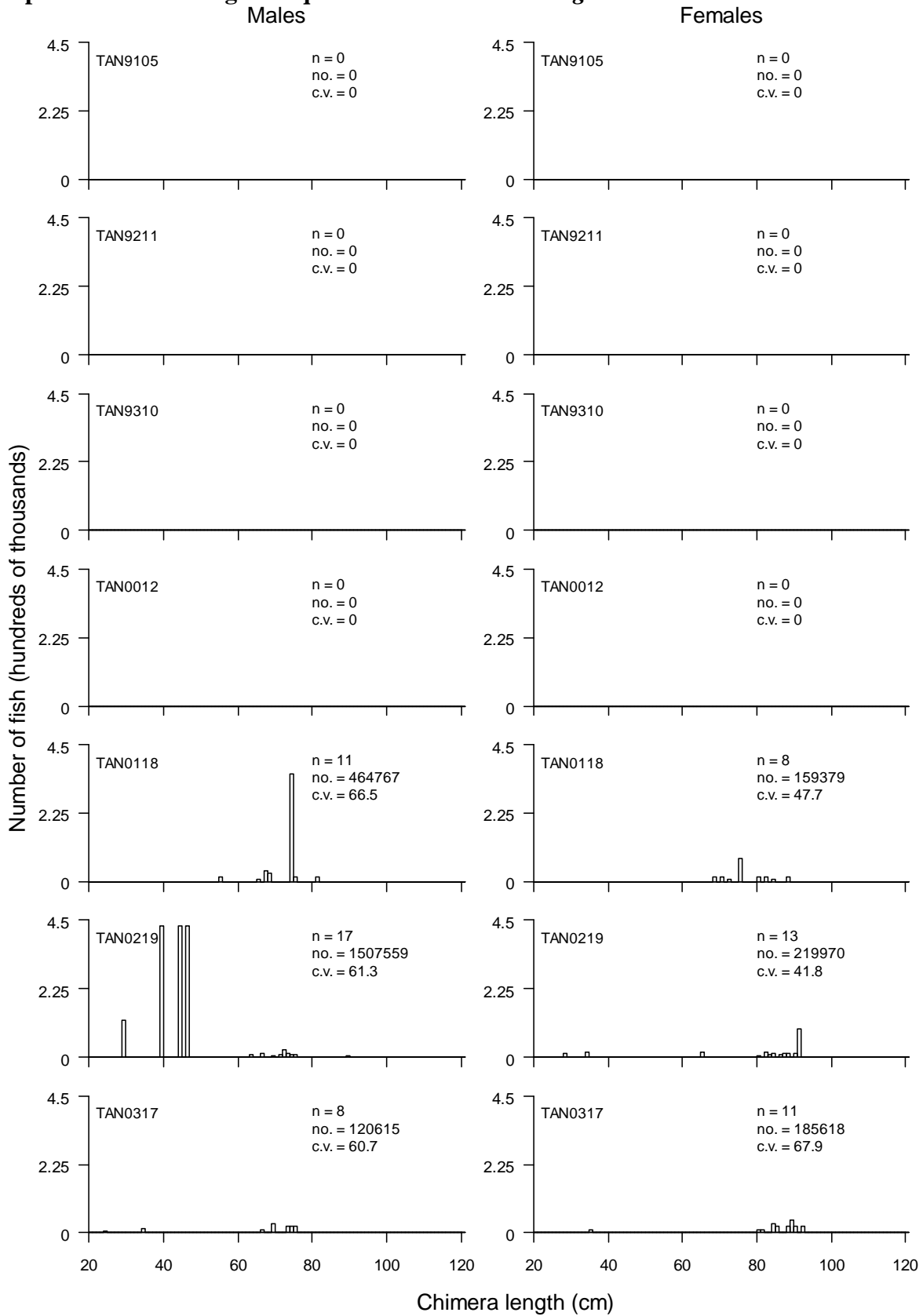


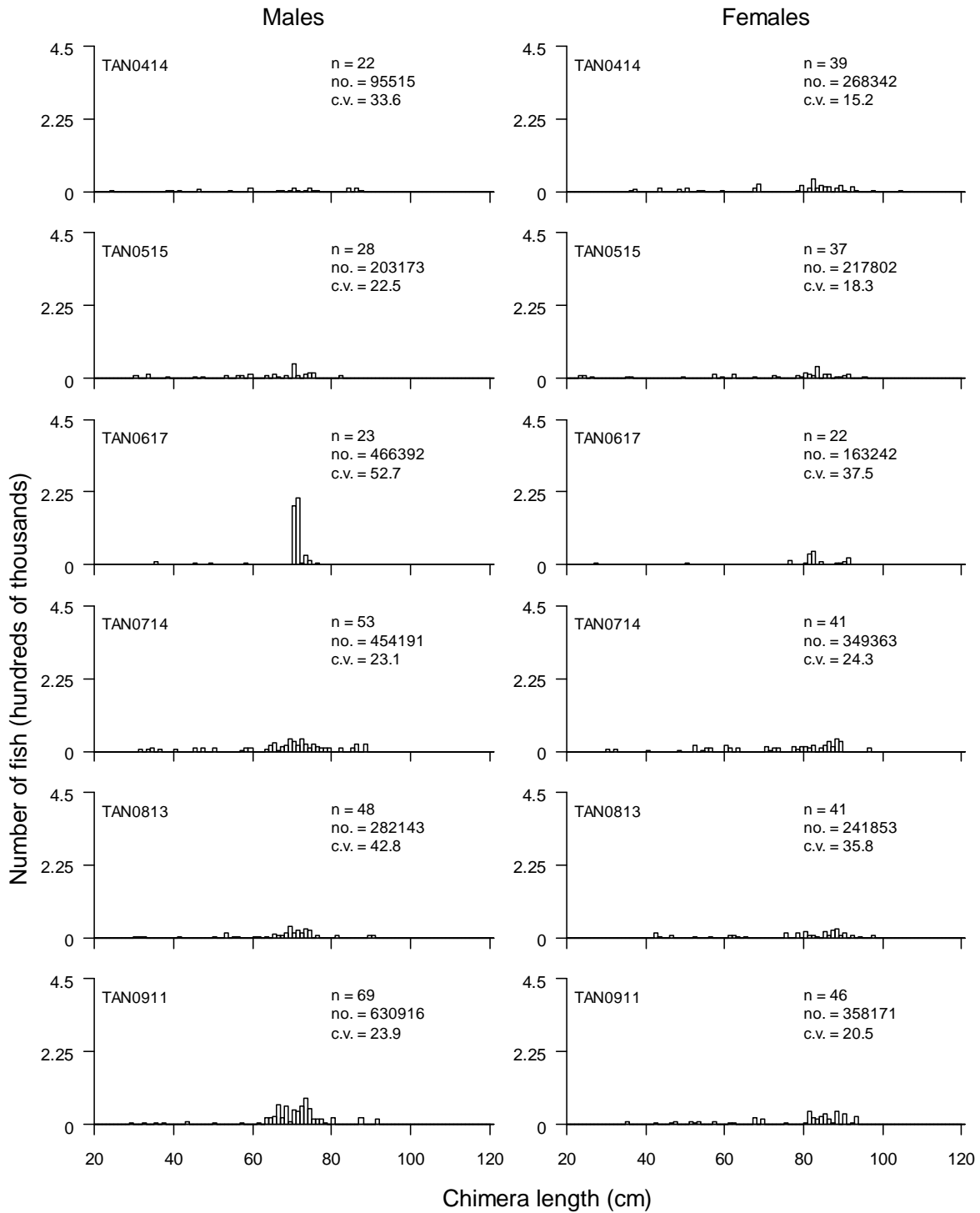


Length summaries

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	55	88	72.6	19
TAN0219	28	91	69.6	30
TAN0317	24	92	72.7	19
TAN0414	24	104	71.4	61
TAN0515	23	95	67.3	65
TAN0617	27	91	70.0	45
TAN0714	30	96	69.6	94
TAN0813	24	97	69.3	89
TAN0911	29	93	71.4	116

Population scaled length frequencies of *Harriotta raleighana* for all strata.





Gonad stage summaries by sex for *Harriotta raleighana*. 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	0	0	100	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	20	7	73	18	27	45	9	0	0
ALL	19	6	75	18	27	45	9	0	0



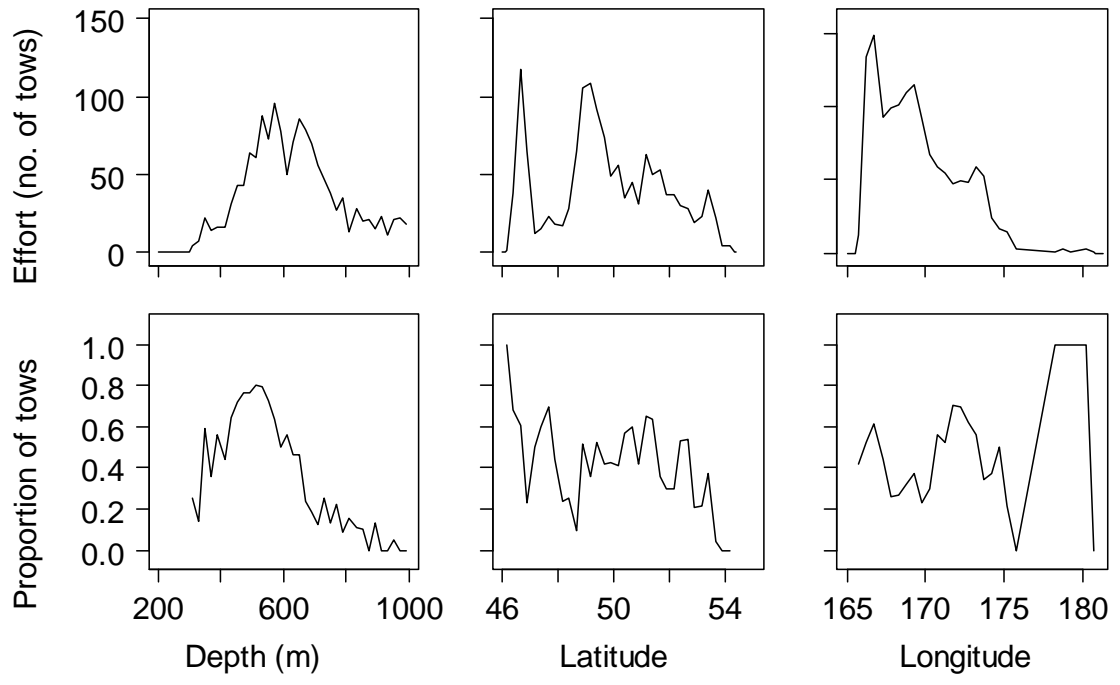
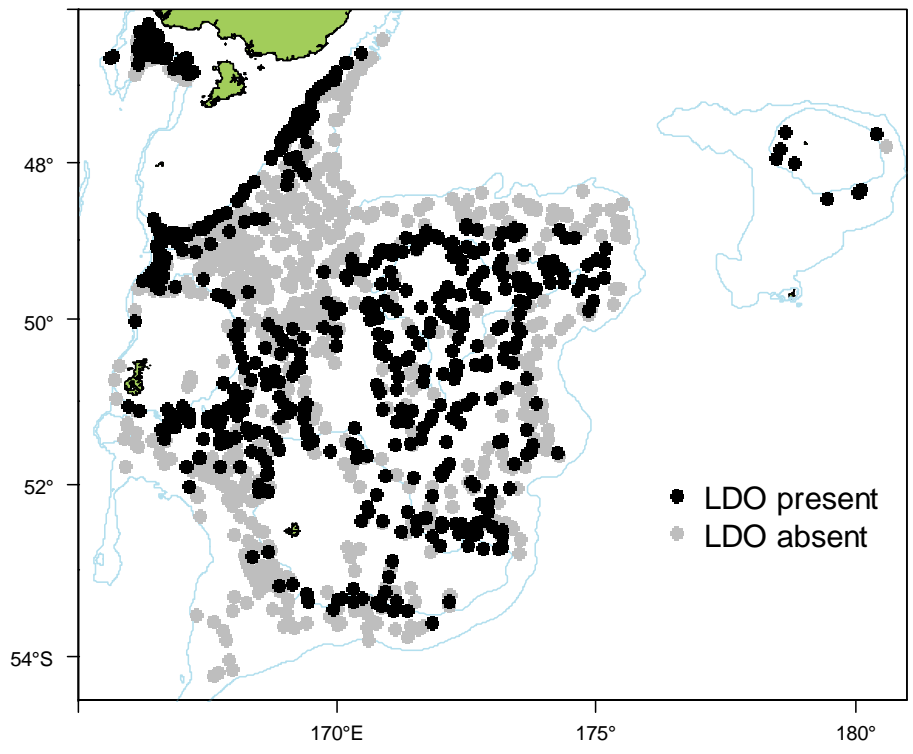
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	2 646.3
Number measured	2 196
Length range (mean) (cm)	11–58 (35.1)
Number weighed	1 403
Length-weight parameters a, b (r^2)	0.02704666, 2.964245 (97.80)

This species has been **well** identified during the time series. It is not found **deeper than 800 m**. The core survey area and depth range **is** appropriate for this species. Distribution **does** rarely 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 **well** estimated by the core survey. Biomass has **increased then decreased** since the start of the time series. Catch rates are highest in shallower depths throughout the survey area, except southernmost strata and the Bounty Platform.

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

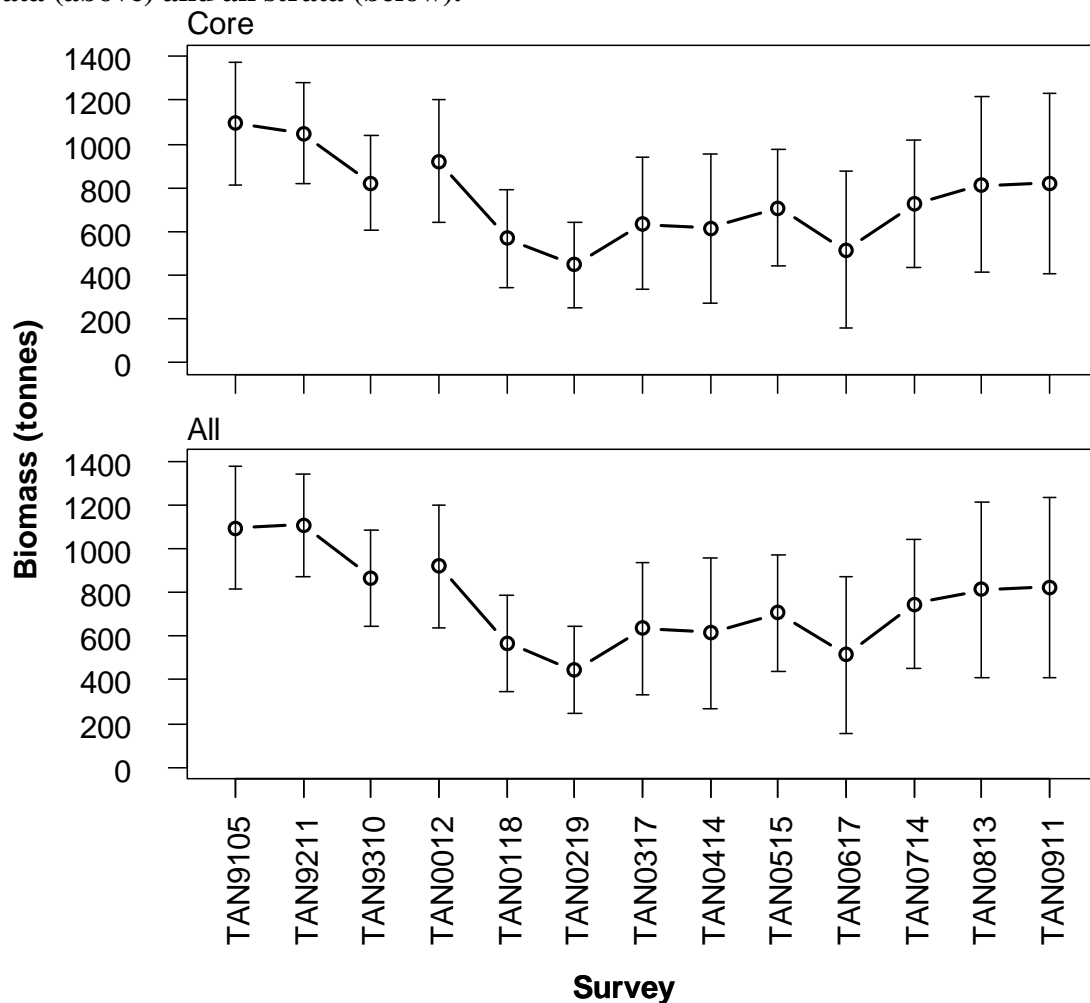
Distribution of *Cyttus traversi* from all summer surveys. Valid biomass stations only.



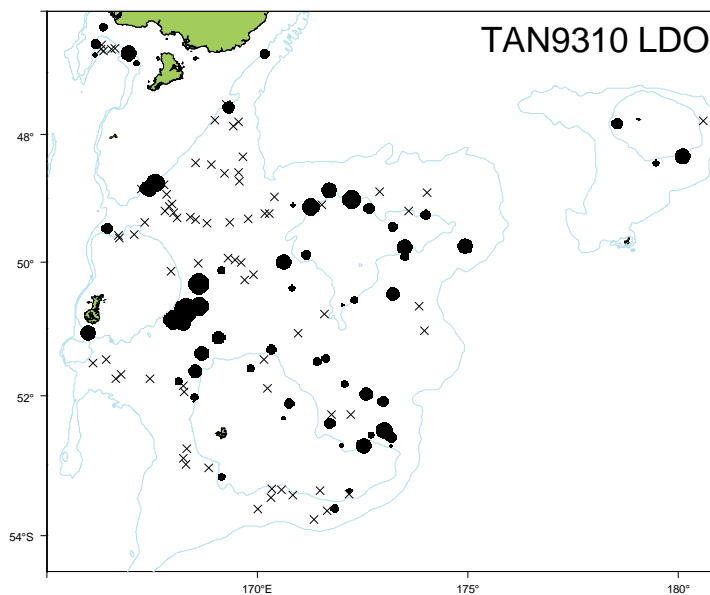
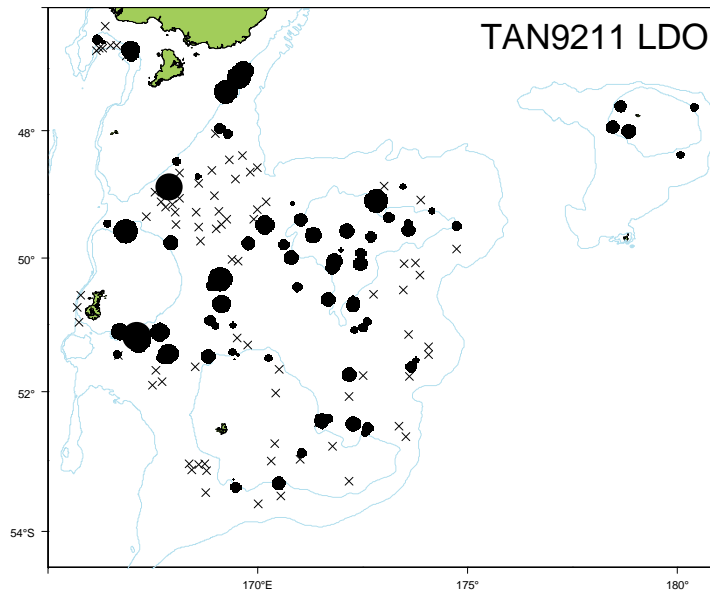
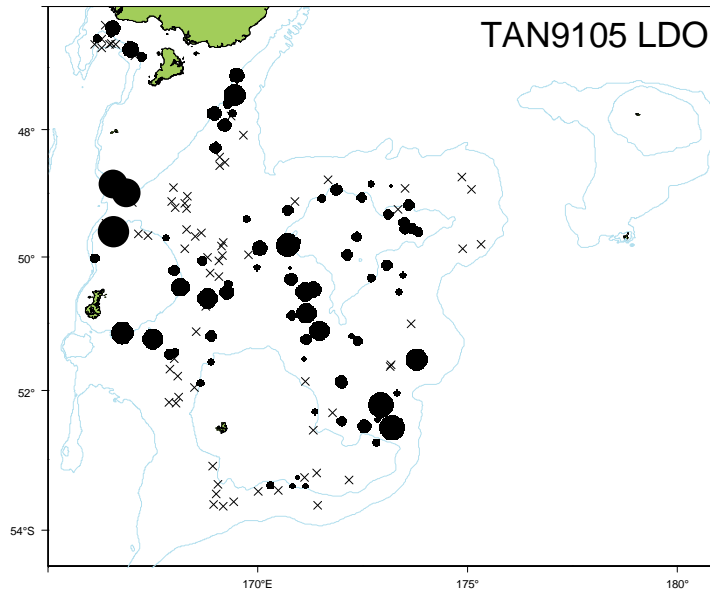
Relative biomass estimates (t) and c.v.s (%) of *Cyttus traversi* for core strata, strata outside the core area and all strata.

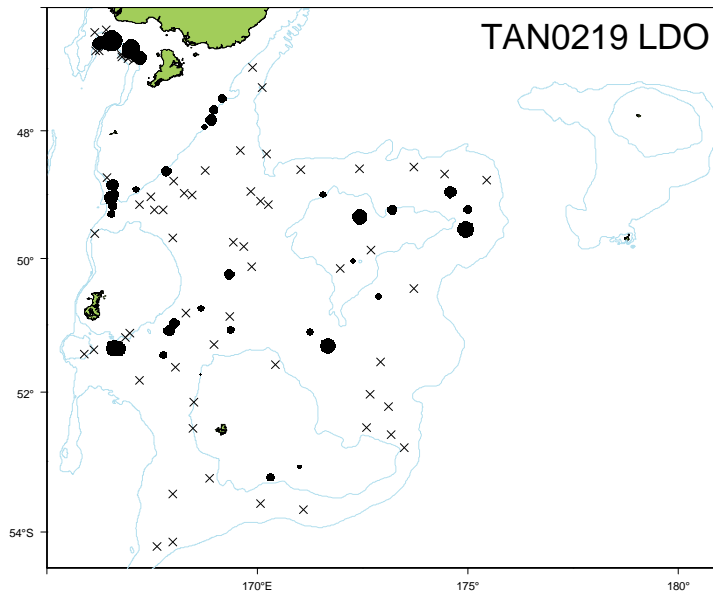
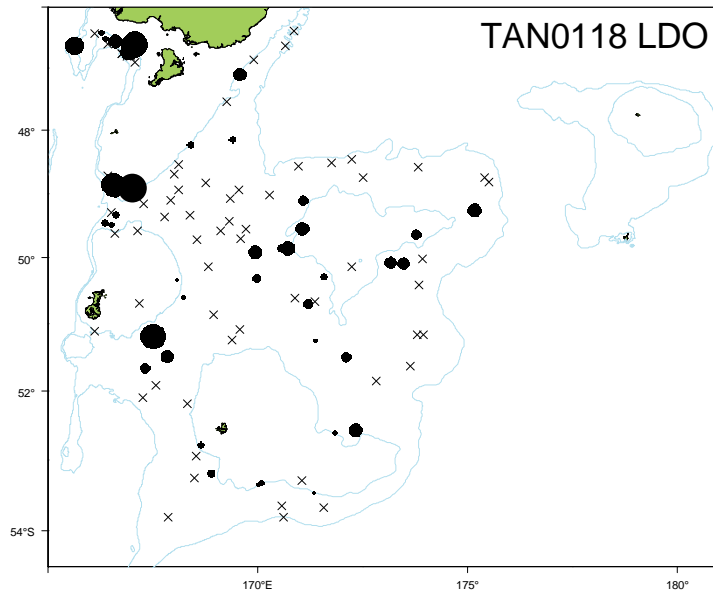
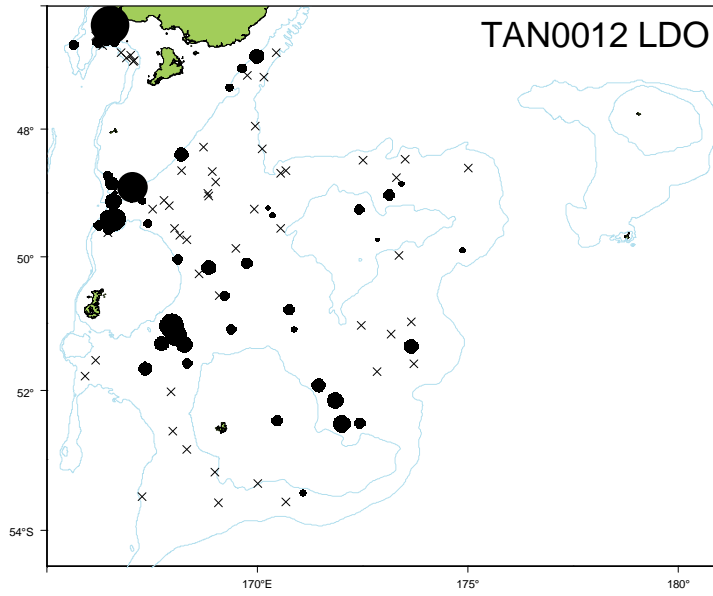
Survey	Core		Strata		Stratum		Stratum		Total biomass	Total (c.v.)
	biomass	(c.v.)	27+28 biomass	27+28 (c.v.)	26 biomass	26 (c.v.)	17 biomass	17 (c.v.)		
TAN9105	1095	13	NA	NA	NA	NA	NA	NA	1095	13
TAN9211	1048	11	NA	NA	NA	NA	62	24	1109	10
TAN9310	821	13	NA	NA	NA	NA	47	50	868	13
TAN0012	921	15	0	0	0	0	NA	NA	921	15
TAN0118	567	20	0	0	0	0	NA	NA	567	20
TAN0219	446	22	0	0	0	0	NA	NA	446	22
TAN0317	636	24	0	0	NA	NA	NA	NA	636	24
TAN0414	614	28	0	0	NA	NA	NA	NA	614	28
TAN0515	707	19	0	0	0	0	NA	NA	707	19
TAN0617	514	35	0	0	NA	NA	NA	NA	514	35
TAN0714	725	20	0	0	22	100	NA	NA	748	20
TAN0813	813	25	0	0	0	0	NA	NA	813	25
TAN0911	822	25	0	0	0	0	NA	NA	822	25

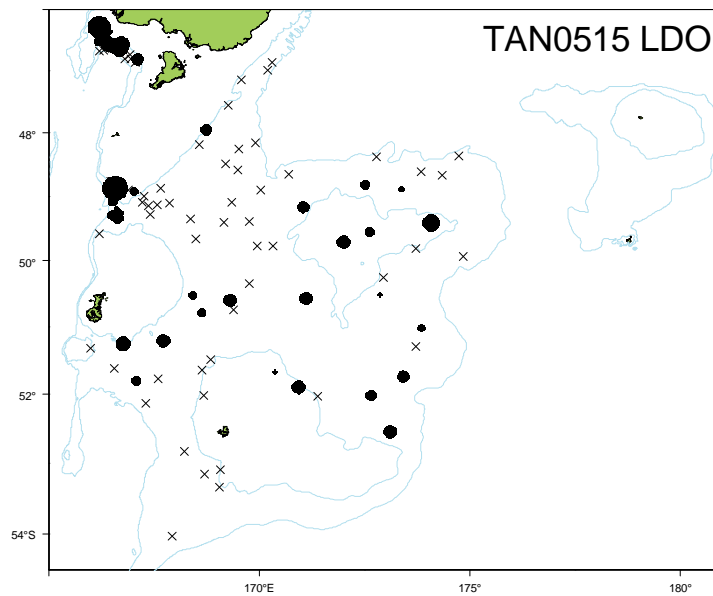
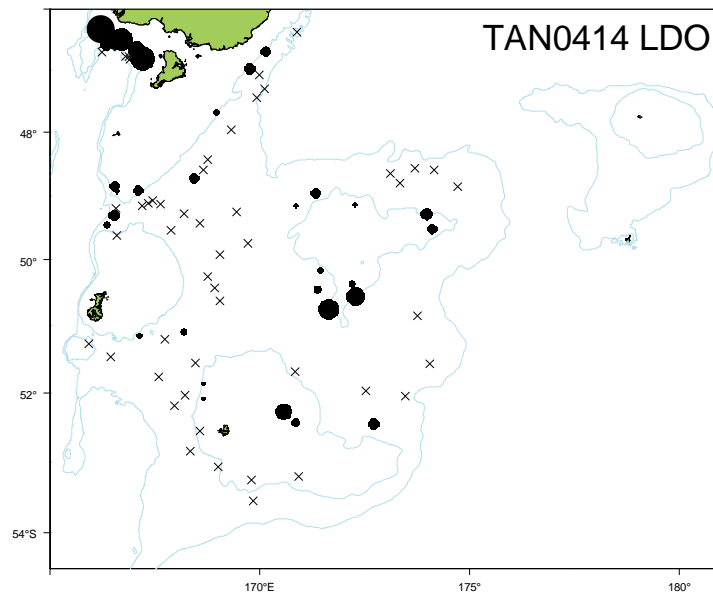
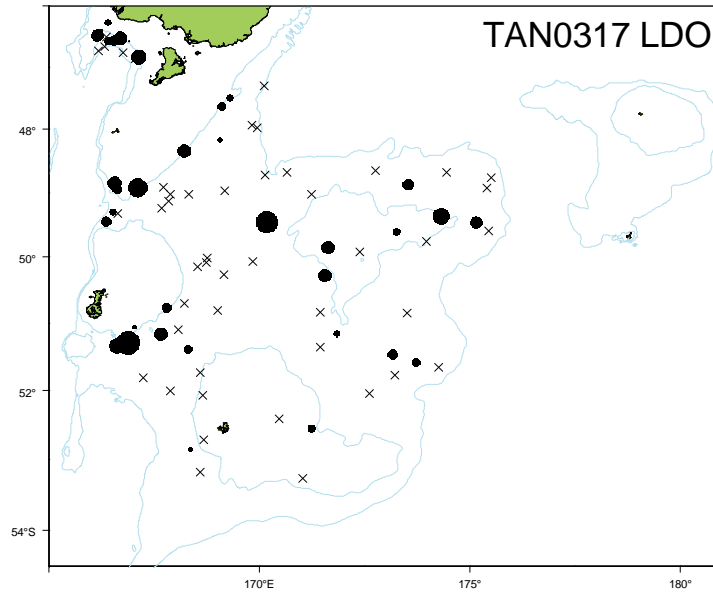
Trends in relative biomass estimates (± 2 standard errors) of *Cyttus traversi* for core strata (above) and all strata (below).

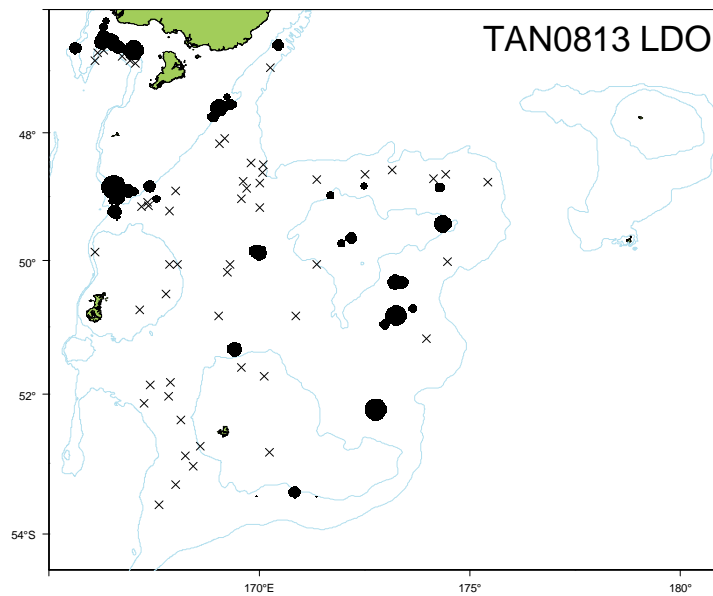
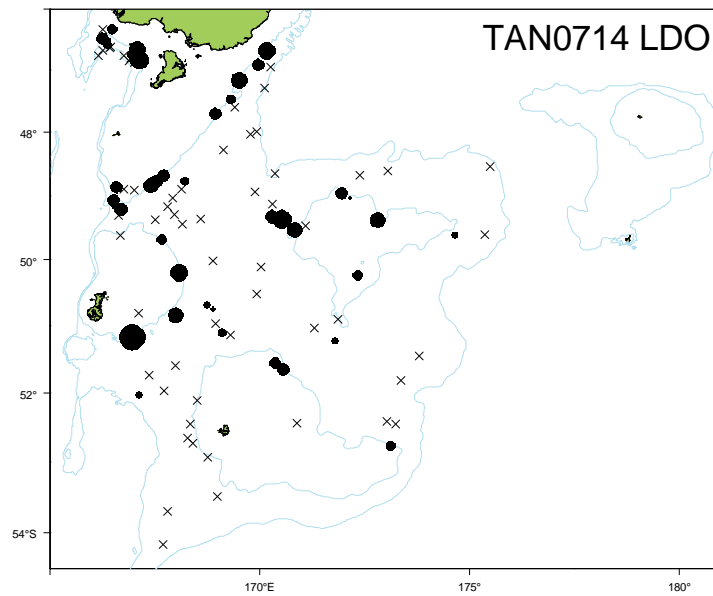
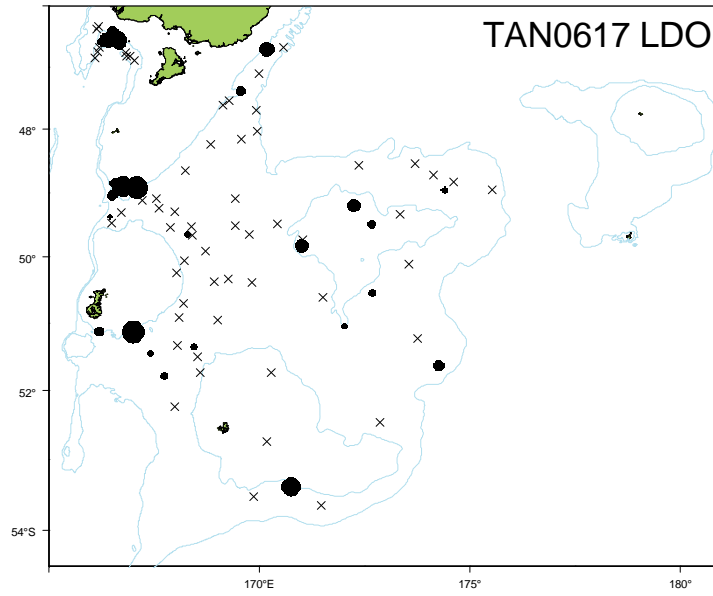


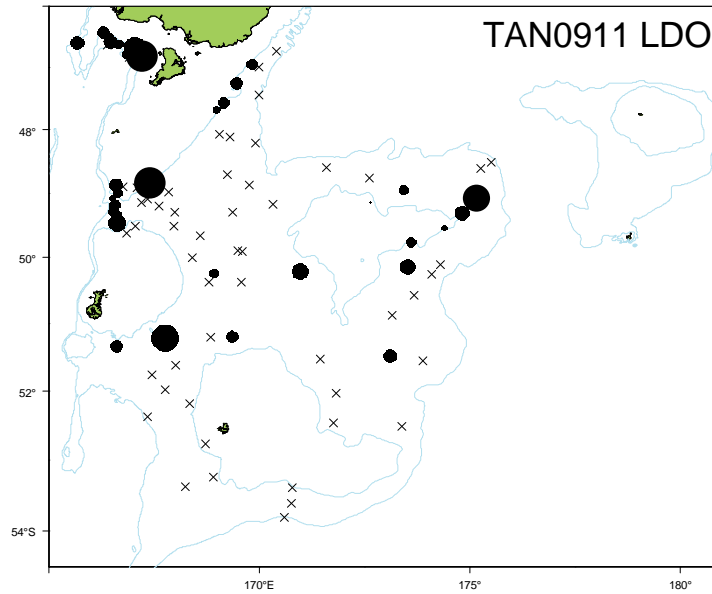
Catchrates of *Cyttus traversi*. Circle area is proportional to the maximum catchrate from all surveys (see Table 5).







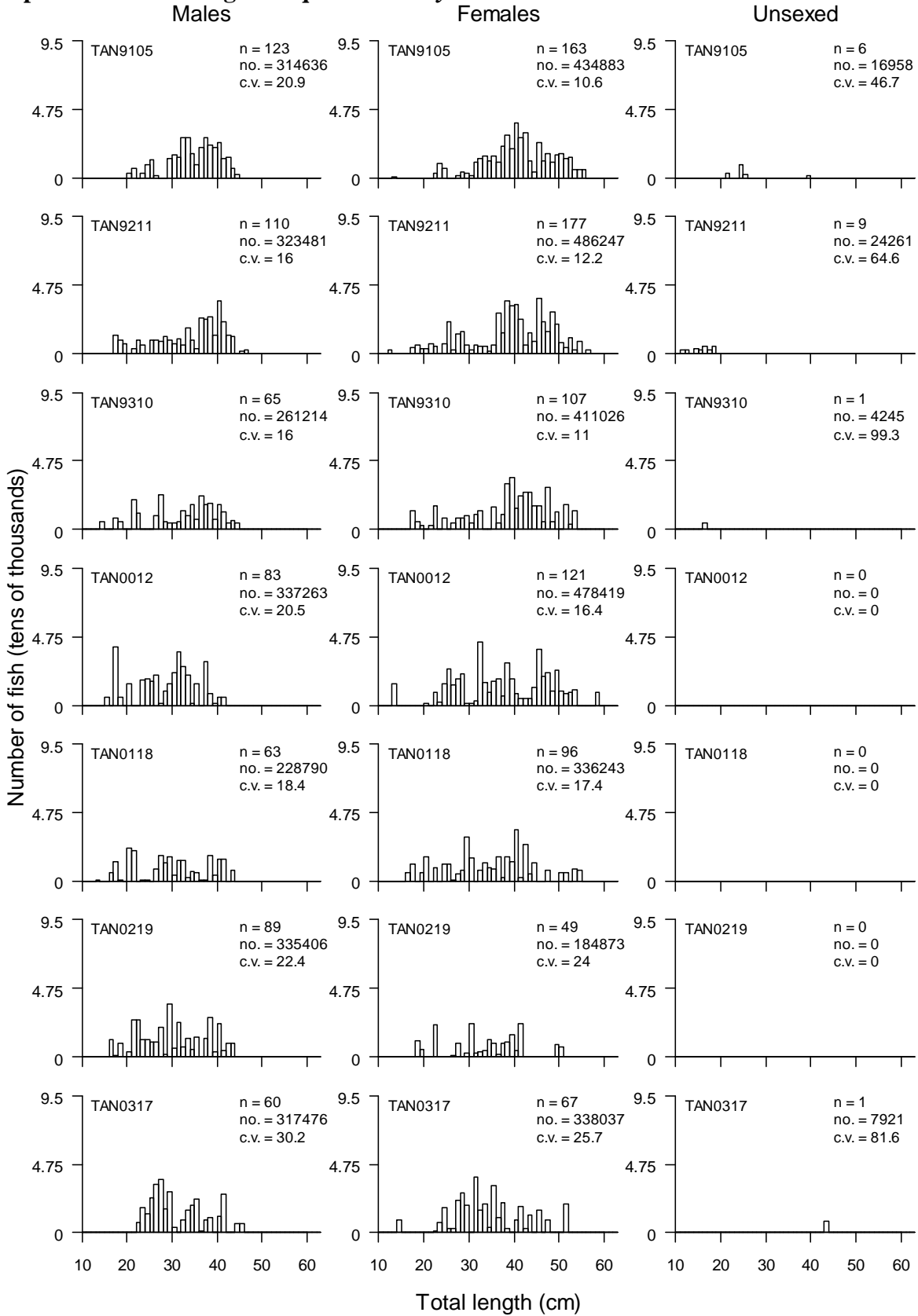


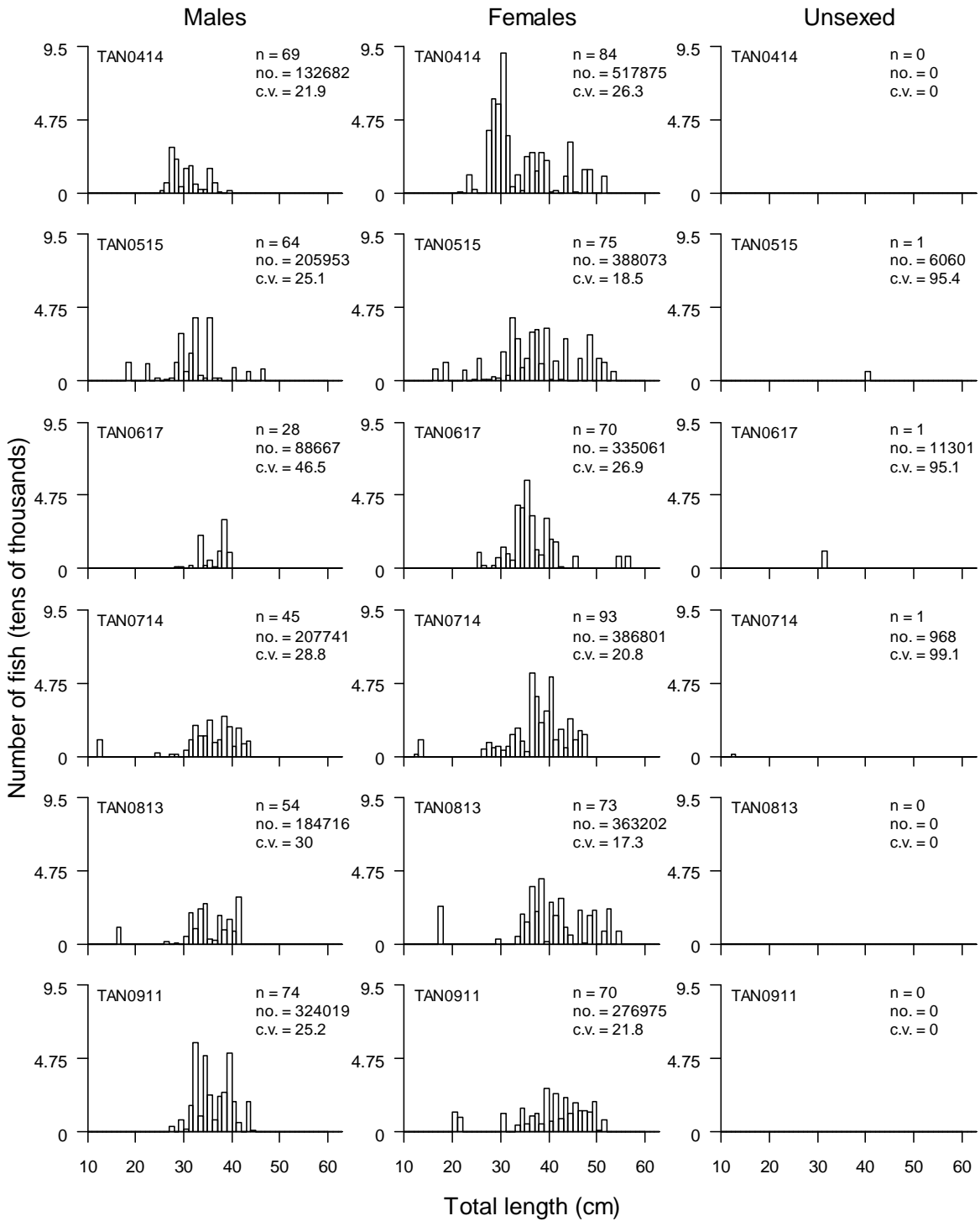


Length summaries

Survey	Minimum length (cm)	Maximum length (cm)	Mean length (cm)	Number measured
TAN9105	13	55	37.4	292
TAN9211	11	56	36.3	296
TAN9310	14	53	35.7	173
TAN0012	13	58	34.0	204
TAN0118	13	54	32.5	159
TAN0219	16	50	32.0	138
TAN0317	14	51	32.8	128
TAN0414	21	51	32.5	153
TAN0515	16	53	33.5	140
TAN0617	25	56	34.6	99
TAN0714	12	47	35.2	139
TAN0813	16	54	36.7	127
TAN0911	20	51	37.0	144

Population scaled length frequencies of *Cyttus traversi* for all strata.





Gonad stage summaries by sex for *Cyttus traversi*. 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	22	59	15	4	0	0	0	10	12	58	0	0	9	10
TAN0118	0	33	17	33	0	0	17	33	0	0	0	0	33	33
TAN0219	30	40	20	10	0	0	0	17	17	50	0	0	17	0
TAN0317	0	29	32	39	0	0	0	11	27	35	8	0	8	11
TAN0414	0	5	5	68	0	21	0	14	36	21	0	0	29	0
TAN0515	14	57	29	0	0	0	0	17	4	48	0	0	13	17
TAN0617	0	36	9	55	0	0	0	8	12	71	0	0	0	10
TAN0714	2	55	16	16	0	7	5	4	26	54	6	0	4	6
TAN0813	2	57	10	30	0	0	0	6	12	72	6	0	4	0
TAN0911	2	64	5	29	0	0	0	2	31	56	2	0	2	7
ALL	6	48	15	27	0	3	1	8	19	56	3	0	6	8



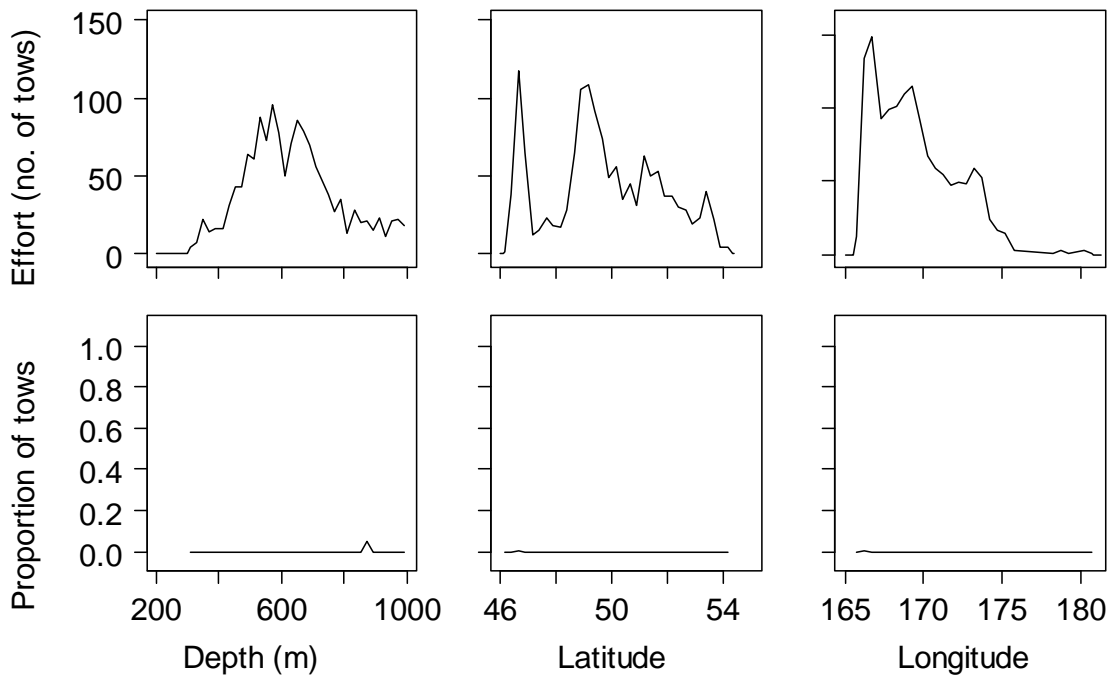
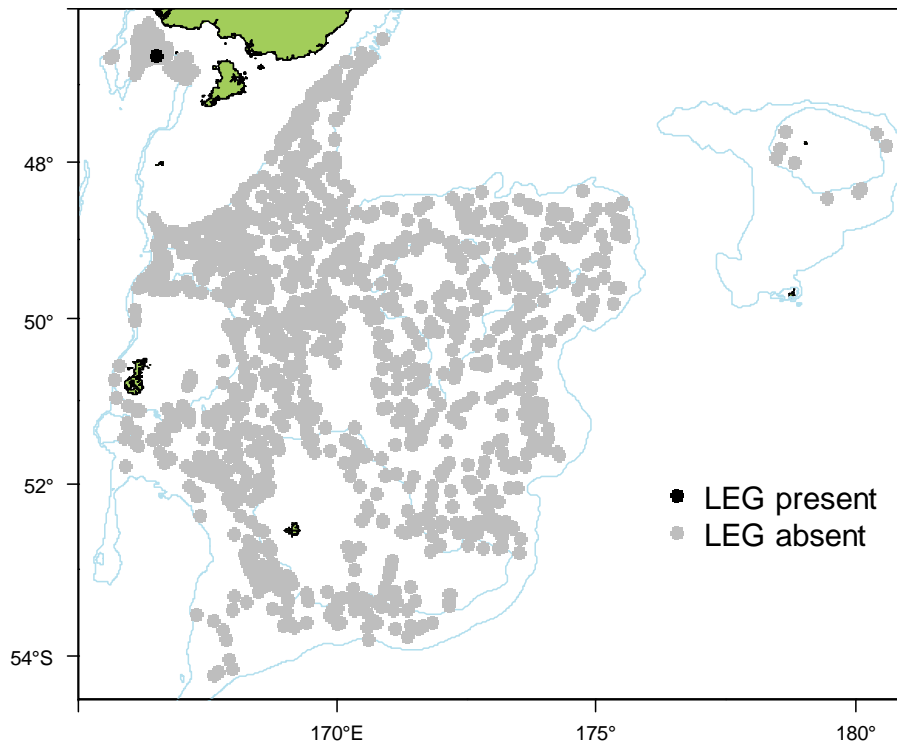
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	1
Total catch weight (kg):	17.2
Number measured	0
Length range (mean) (cm)	–
Number weighed	0

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 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.

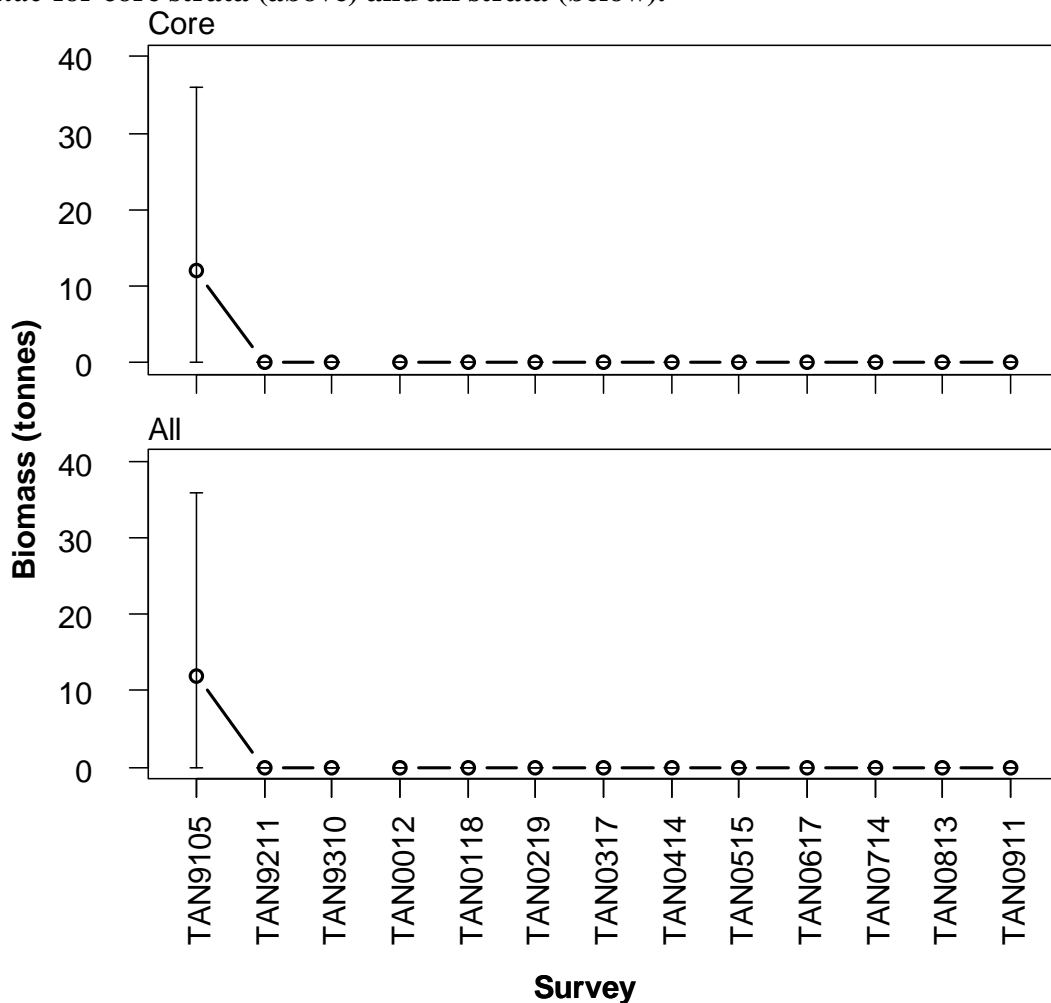
Distribution of *Lepidion schmidti* & *L. inosimae* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Lepidion schmidti* & *L. inosimae* 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	12	100	NA	NA	NA	NA	NA	NA	12	100
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	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 *Lepidion schmidti* & *L. inosimae* for core strata (above) and all strata (below).



Omega prawn (*Lipkius holthuisi*)

LHO



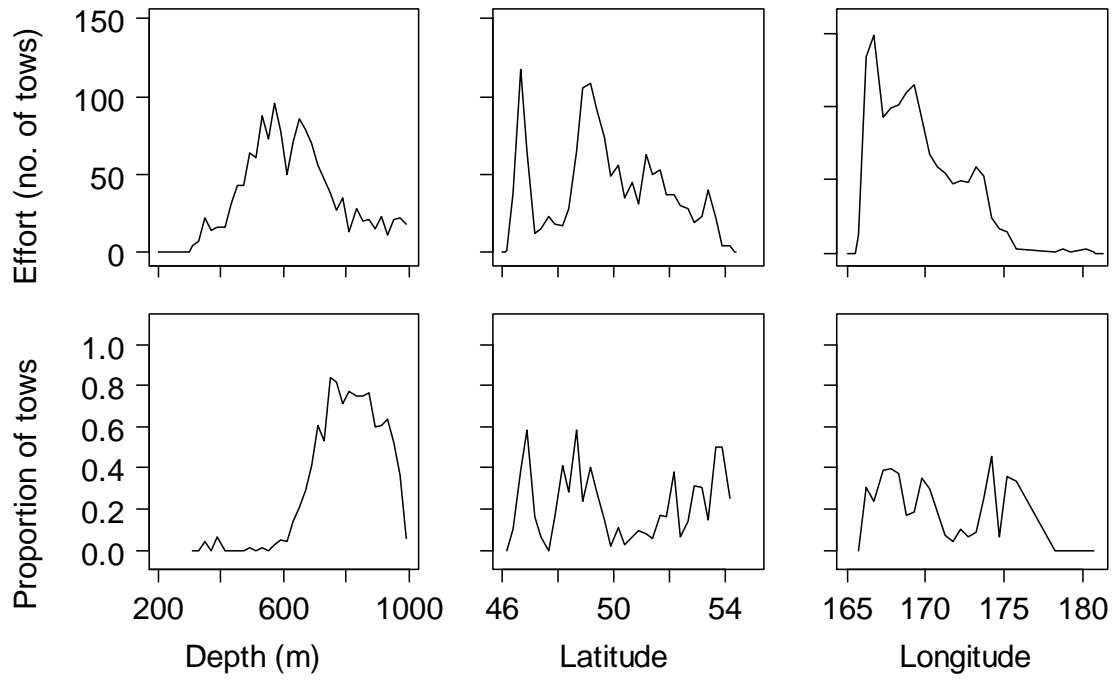
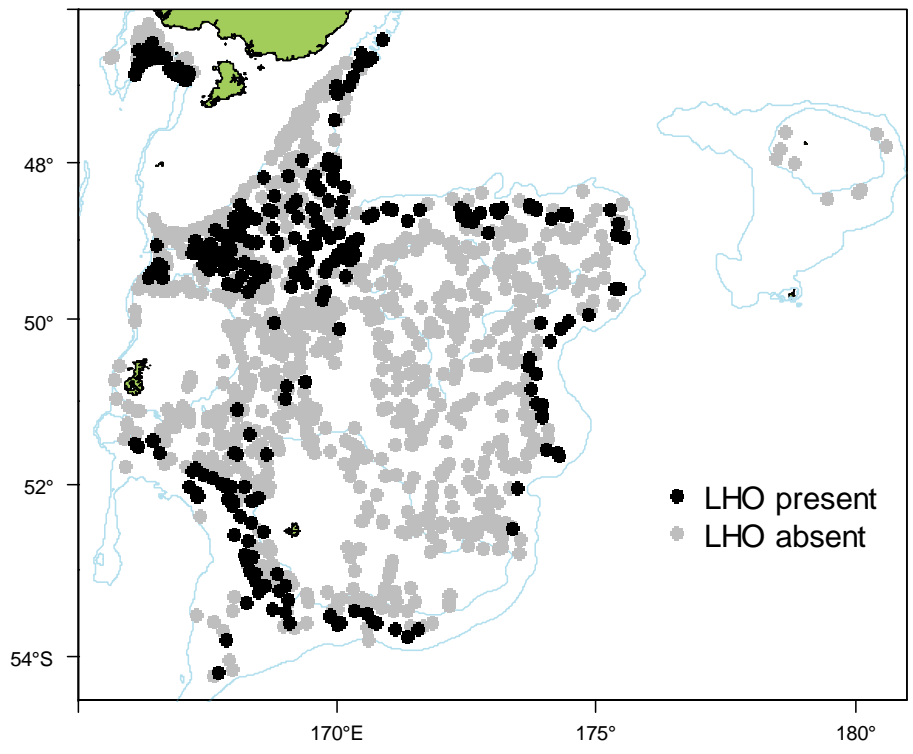
Number of surveys caught 1991–93 and 2000 to 2009 (out of 13):	13
Total catch weight (kg):	34.9
Number measured	0
Length range (mean) (cm)	–
Number weighed	0
Length-weight parameters a, b (r ²)	–

This species **has not** been well identified during the time series, particularly on the early surveys in the 1990s. 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 **well** estimated by the core survey area. Biomass has **decreased** since the start 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 most areas close to and deeper than 800 m.

There is no length or stage information presented.

Distribution of *Lipkius holthuisi* from all summer surveys. Valid biomass stations only.



Relative biomass estimates (t) and c.v.s (%) of *Lipkius holthuisi* 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	71	NA	NA	NA	NA	NA	NA	1	71
TAN9211	2	38	NA	NA	NA	NA	0	0	2	38
TAN9310	9	25	NA	NA	NA	NA	0	0	9	25
TAN0012	15	25	1	100	2	100	NA	NA	17	24
TAN0118	20	28	8	57	4	65	NA	NA	32	24
TAN0219	28	31	2	50	0	0	NA	NA	31	29
TAN0317	33	32	4	44	NA	NA	NA	NA	36	29
TAN0414	33	18	3	39	NA	NA	NA	NA	37	17
TAN0515	29	22	9	30	5	100	NA	NA	43	20
TAN0617	37	37	5	28	NA	NA	NA	NA	42	32
TAN0714	29	27	1	100	3	50	NA	NA	33	25
TAN0813	39	14	7	16	2	100	NA	NA	48	12
TAN0911	22	23	6	42	5	100	NA	NA	34	23

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

