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The Norwegian fishery for northern shrimp (*Pandalus borealis*)
in the Barents Sea and round Svalbard 1970-2016

by

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Abstract

The resource of northern shrimp (*Pandalus borealis*) in the Barents Sea is considered as one stock unit. The fishery is multinational. Catches have ranged between 17 and 128 ktons since the mid-1970s. Historically Norway has accounted for the major part (~75-95%) of the landings, however, in the recent 5-year period the Norwegian proportion has decreased to about 50%. The fishery is managed by effort control. Discard of small shrimp and by-catch of other species is believed to be low.

Overall catches have declined from 80 ktons in 2000 to 20 ktons in 2014 partly due to a downturn in market prices for shrimp products, and a major restructuring of the fleet. The bulk of the landings have been taken more easterly recent years than seen earlier in the 2000s and the recent decreases in catches can also be attributed to the displacement of shrimp biomass eastwards requiring new fishing grounds to be developed. Since 2013 catches have started to increase again and is projected to reach about 36000 tons in 2016

A standardised catch-per-unit-effort series derived from Norwegian logbook data (and used as an index of fishable stock biomass dynamics) have been fluctuating at a relatively high level since 2005 however the 2012-15 values are lower, below the average of the time series.

Introduction

The resource of northern shrimp (*Pandalus borealis*) in the Barents Sea and in the Svalbard zone (ICES Div I and II) is for assessment purposes considered as one stock (Fig. 1). Norwegian and Russian vessels exploit the stock in the entire area while vessels from other nations are restricted to the Svalbard fisheries zone.

The fishery was initiated in 1970 by Norwegian vessels. As the fishery developed, vessels from several nations joined and catches reached 128 ktons in 1984 (Fig. 2). During the recent 10-year period annual yields have declined reaching 20 ktons in 2013; Norwegian vessels accounted for around 46-92% of the total catches in that period and vessels from Russia, Iceland, Greenland and the EU for the rest (Table 1).

The fishery is regulated by effort control: licences are required for the Russian and Norwegian vessels and the fleets operating in the Svalbard zone are regulated by number of effective fishing days and number of vessels by country. Minimum cod-end mesh size is 35 mm. Other species and small shrimp are protected by mandatory sorting grids and by the temporary closing of areas with excessive by-catch of juvenile cod,

haddock, Greenland halibut, redfish and shrimp <15 mm carapace length (measured in catch samples taken by independent observers).

A major restructuring of the fleet towards fewer and larger vessels has taken place mid 1990s to late 2010s. The fleet is now largely composed of a few large factory trawlers (>3000HP (HP=engine horsepower)) and a small group of <500HP vessels. Trawling is mainly performed using two or three trawls simultaneously.

The present paper updates available information derived from catch statistics, logbooks and catch sampling from the Norwegian trawl fishery for shrimp in the Barents Sea (ICES Div. I and II).

Materials and methods

Logbook data from Norwegian vessels were analysed to show the spatial and temporal distribution of the fishery and fleet composition. Derived catch-per-unit-effort (CPUE) data were used in multiplicative models to calculate standardised annual catch rate indices (Hvingel *et al.*, 2000).

The CPUE indices included the following variables: (1) vessel fishing power, (2) seasonal availability of shrimp, (3) spatial availability of shrimp, (4) gear type (single, double or triple trawl) and (5) annual mean CPUE. The calculations were done using the SAS statistical software (Anon., 1988). The area definition used is similar to the stratification used in the 1980-2004 survey (Hvingel, 2007). The multiplicative model was represented in logarithmic form as:

$$\ln(CPUE_{kjmh}) = \ln(u) + \ln(V_k) + \ln(S_j) + \ln(A_m) + \ln(G_h) + \ln(Y_i) + e_{kjmh}$$

Where $CPUE_{kjmh}$ is the mean CPUE for vessel k, fishing in area m in month j during year i with geartype h ($k = 1, \dots, n$; $m = 1, \dots, a$; $j = 1, \dots, s$; $i = 1, \dots, y$; $h=1,2,3$); $\ln(u)$ is overall mean $\ln(CPUE)$; V_k is the effect of the k^{th} vessel; S_j is the effect of the j^{th} month; A_m is effect of the m^{th} area; G_h is the effect of gear type h; Y_i is the effect of the i^{th} year; e_{kjmh} is the error term assumed to be normally distributed $N(0, \sigma^2/n)$ where n is the number of observations in the cell. The standardised CPUE indices are the antilog of the year coefficients.

Results

Spatial and seasonal distribution

The fishery has mainly been conducted in the Hopen area (central Barents Sea) which, along with the Svalbard shelf, and on the Goosebank (south east Barents Sea) is considered the most important fishing ground (Fig. 1 and 3). However, since 2008 logbook data show a decreased activity in the Hopen Deep, coupled with increased effort further east in international waters in the so-called "Loop Hole". Information from the industry points to higher densities of shrimp in this area and area closures in the traditional Hopen Deep due to bycatch of juvenile fish as the main reasons for the change in fishing pattern. In recent years several fish stocks have increased substantially in the Barents Sea and as a consequence the by-catch restrictions (area closures) have had an increasing effect on the distribution of the shrimp fishery.

The fishery takes place in all months but may in certain years be restricted by ice conditions. The lowest intensity is generally seen in October through March, the highest in April to August (Fig. 4). In 2014-15 seasonal effort distribution is similar to the 2004-2013 average.

Landings

Fishery in offshore areas began in 1970 and catches increased over the following 15 years from 5 to 128 ktons (Fig 2). Catches then declined rapidly. A new peak was seen in 1990 and again in 2000 at 83 ktons. Since 2000 catches have declined to 20 ktons in 2013. Based on data until July (logbooks and information from the industry) the total catch of 2016 is estimated at 36 ktons. The recent decline in catches is partly attributed to reduced market prices for shrimp products, and a major restructuring of the fleet. The bulk of the landings have been taken more easterly recent years than seen earlier in the 2000s and the recent decreases in catches can also be attributed to the displacement of shrimp biomass eastwards requiring new fishing grounds to be developed. The increase in catch after 2013 follows an increase in prices for shrimp products.

Discards and bycatch. Discard of shrimp cannot be quantified but is believed to be small as the fishery is not limited by quotas. Bycatch rates of other species are estimated from at-sea inspections and research surveys and are corrected for differences in gear selection pattern (AFWG 2016). Area-specific bycatch rates are then multiplied by the corresponding shrimp catches from logbooks to give an overall bycatch estimate. Revised and updated discards estimates (1983–2015) of cod, haddock and redfish juveniles in the commercial shrimp fishery in the Barents Sea were available in 2016 (Table 2). Since the introduction of the Nordmøre sorting grid in 1992, only small individuals of cod, haddock, Greenland halibut, and redfish, in the 5–25 cm size range, are caught as bycatch.

Fleet composition and gear

A major restructuring of the fleet towards fewer and larger vessels has taken place from the mid-1990s to late 2010s. An average vessel had before that period around 1000 HP. By the end of the 2010s this value had increased to about 6000 HP (Fig. 5). This fishery was originally a “single-trawl-fishery”. Since the early 2000s most fishery has been conducted by using two or three trawls simultaneously.

Standardised CPUE

The fishery dependent index of stock density in the fished areas – the standardised CPUE – is indicative of shrimp greater than 16 mm cpl., i.e. of the older male and the female stock combined (Hvingel and Thangstad 2008). The standardised CPUE declined by 60% from a maximum in 1984 to the lowest value of the time series in 1987 (Table 3, Fig. 7). Since then it has shown an overall increasing trend until 2005. Since 2005 it has fluctuated above the average of the time series, but the 2012–16 values are down below the average. Details and diagnostics of the GLM model fit are given in appendix 1.

References

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Table 1. Nominal landings ('000 tons) by nation (2016 catch is estimated based on data until July).

Year	Norway	Russia	Others	Total
1970	5.508	0	0	5.508
1971	5.116	0	0.026	5.142
1972	6.772	0	0	6.772
1973	6.921	0	0	6.921
1974	8.008	0	0	8.008
1975	8.197	0	0.002	8.199
1976	9.752	0	0	9.752
1977	14.700	0	4.854	19.554
1978	20.484	18.27	0.189	38.943
1979	25.435	10.474	0.39	36.299
1980	35.061	11.219	0	46.280
1981	32.713	9.886	1.011	43.610
1982	43.451	15.552	3.835	62.838
1983	70.798	29.105	4.903	104.806
1984	76.636	43.180	8.246	128.062
1985	82.123	32.104	10.262	124.489
1986	48.569	10.216	6.538	65.323
1987	31.353	6.690	5.324	43.367
1988	32.021	12.32	4.348	48.689
1989	47.064	12.252	3.432	62.748
1990	54.182	20.295	6.687	81.164
1991	39.663	29.434	6.156	75.253
1992	39.657	20.944	8.021	68.622
1993	32.663	22.397	0.806	55.866
1994	20.162	7.108	1.063	28.333
1995	19.337	3.564	2.319	25.220
1996	25.445	5.747	3.320	34.512
1997	29.079	1.493	5.163	35.735
1998	44.792	4.895	6.103	55.790
1999	52.612	10.765	12.293	75.670
2000	55.333	19.596	5.768	80.697
2001	43.031	5.846	8.408	57.285
2002	48.799	3.790	8.899	61.488
2003	34.172	2.776	2.277	39.225
2004	35.918	2.410	4.406	42.734
2005	37.253	0.435	4.930	42.618
2006	27.352	0.004	2.271	29.627
2007	25.558	0.192	4.181	29.931
2008	20.662	0.417	7.109	28.188
2009	19.784	0.000	7.488	27.272
2010	16.779	0.000	8.419	25.198
2011	19.928	0.000	10.298	30.226
2012	14.158	0.000	10.598	24.756
2013	8.846	1.067	9.336	19.249
2014	10.234	0.741	9.989	20.964
2015	16.839	1.151	15.634	33.624
2016	18.000	2.000	16.000	36.000

Table 2. Estimated bycatch (no. in millions) and index of bycatch (bycatch number/total shrimp catch in weight). No data for polar cod, data for Greenland halibut not updated. (Source Arctic Fisheries Working Group, ICES)

Year	Absolute # in millions				index (#bycatch/shrimp catch in weight)					
	Cod	Redfish	Haddock Gr.	Halibut	Polar cod	Cod	Redfish	Haddock Gr.	Halibut	Polar cod
1982	9.23	316.66	0.18			0.21	7.29	0.00		
1983	16.46	298.04	82.90			0.23	4.21	1.17		
1984	8.20	641.96	59.46			0.11	8.38	0.78		
1985	86.00	439.63	53.88			1.05	5.35	0.66		
1986	24.03	458.55	24.20			0.49	9.44	0.50		
1987	24.67	105.23	0.64			0.79	3.36	0.02		
1988	6.91	58.40	2.94			0.22	1.82	0.09		
1989	13.98	109.14	8.05			0.30	2.32	0.17		
1990	22.44	134.19	18.95			0.41	2.48	0.35		
1991	23.53	289.71	34.33			0.59	7.30	0.87		
1992	24.30	387.43	18.50			0.61	9.77	0.47		
1993	30.90	98.75	1.91			0.95	3.02	0.06		
1994	19.00	137.60	9.00			0.94	6.82	0.45		
1995	34.96	23.70	2.31			1.81	1.23	0.12		
1996	114.86	188.86	2.50			4.51	7.42	0.10		
1997	156.98	23.06	3.72			5.40	0.79	0.13		
1998	73.12	65.13	4.85			1.63	1.45	0.11		
1999	39.32	4.98	4.21			0.75	0.09	0.08		
2000	65.39	27.56	44.58	13.94		1.18	0.50	0.81	0.25	
2001	23.43	10.09	2.70	7.57		0.54	0.23	0.06	0.18	
2002	21.54	15.83	4.07	0.19		0.44	0.32	0.08	0.00	
2003	11.91	7.49	6.21	0.59		0.35	0.22	0.18	0.02	
2004	14.20	6.60	77.48	0.33		0.40	0.18	2.16	0.01	
2005	17.60	2.84	110.63			0.47	0.08	2.97		
2006	29.27	75.99	53.46			1.07	2.78	1.95		
2007	39.71	13.42	259.07			1.55	0.52	10.14		
2008	63.04	8.72	190.09			3.05	0.42	9.20		
2009	5.80	43.64	24.01			0.29	2.21	1.21		
2010	11.21	4.96	65.71			0.67	0.30	3.92		
2011	2.85	12.62	13.57			0.14	0.63	0.68		
2012	9.53	1.67	24.58			0.67	0.12	1.74		
2013	4.52	1.99	10.09			0.51	0.22	1.14		
2014	17.85	12.34	44.94			1.74	1.21	4.39		
2015	23.61	31.45	101.07			1.40	1.87	6.00		

Table 3. Realised catch-per-unit-effort (CPUE) and effort (hrs trawled), and standardised (se text) CPUE and effort as proxies for fishable biomass and fishing mortality respectively. Based on Norwegian logbook data (2016 values are estimated based on data until July).

year	Absolute		Standardised	
	CPUE kg/hr	Effort '000 hrs	CPUE index	Effort index
1980	186	189	1.00	1.00
1981	216	152	1.19	0.79
1982	198	219	1.15	1.18
1983	231	306	1.31	1.73
1984	250	306	1.38	2.00
1985	231	356	1.14	2.35
1986	154	315	0.68	2.08
1987	116	270	0.53	1.76
1988	113	282	0.57	1.84
1989	143	330	0.72	1.88
1990	150	361	0.74	2.38
1991	171	230	0.78	2.09
1992	211	188	0.90	1.64
1993	209	159	0.97	1.24
1994	173	116	0.80	0.77
1995	150	129	0.67	0.82
1996	191	133	0.84	0.89
1997	228	127	0.80	0.97
1998	294	153	0.97	1.24
1999	295	178	1.02	1.60
2000	283	195	0.90	1.93
2001	356	121	0.91	1.36
2002	412	119	0.90	1.48
2003	386	88	0.88	0.96
2004	402	89	0.75	1.23
2005	611	61	1.03	0.89
2006	754	36	1.13	0.57
2007	840	30	1.02	0.64
2008	801	26	1.03	0.59
2009	794	25	1.06	0.56
2010	841	20	0.98	0.56
2011	777	26	1.09	0.60
2012	605	23	0.75	0.71
2013	534	17	0.61	0.68
2014	478	21	0.63	0.72
2015	476	35	0.70	1.04
2016	516	35	0.80	0.97

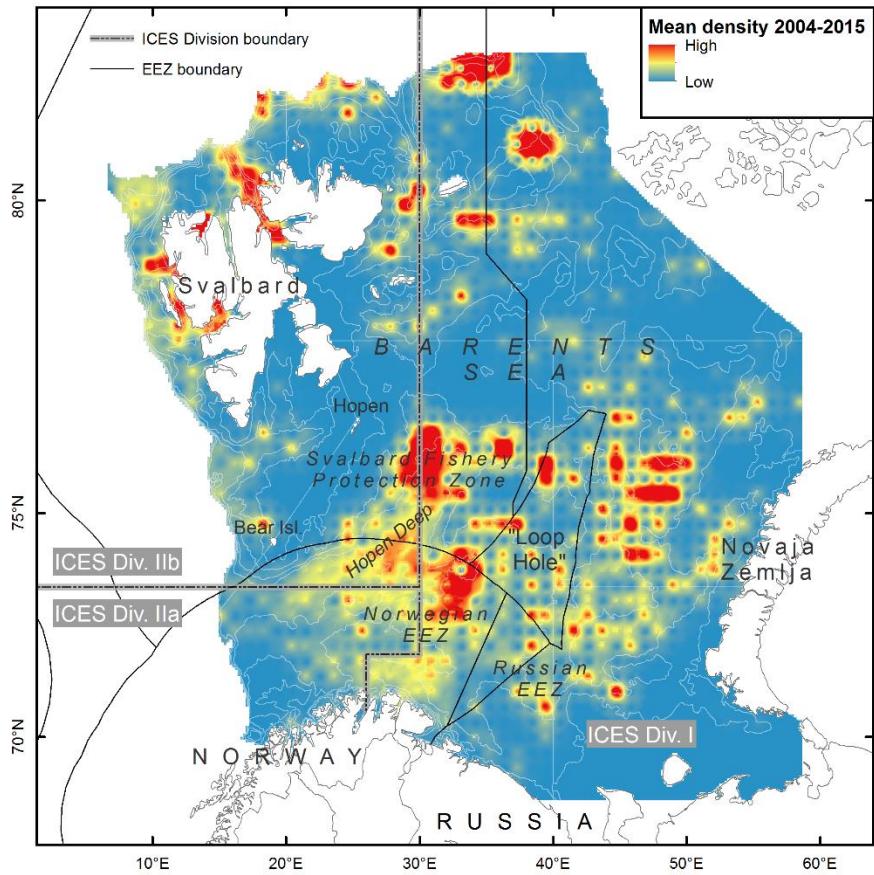


Fig. 1. Shrimp in the Barents Sea: stock distribution. Survey density index (kg/km²), mean of recent 10 years of data.

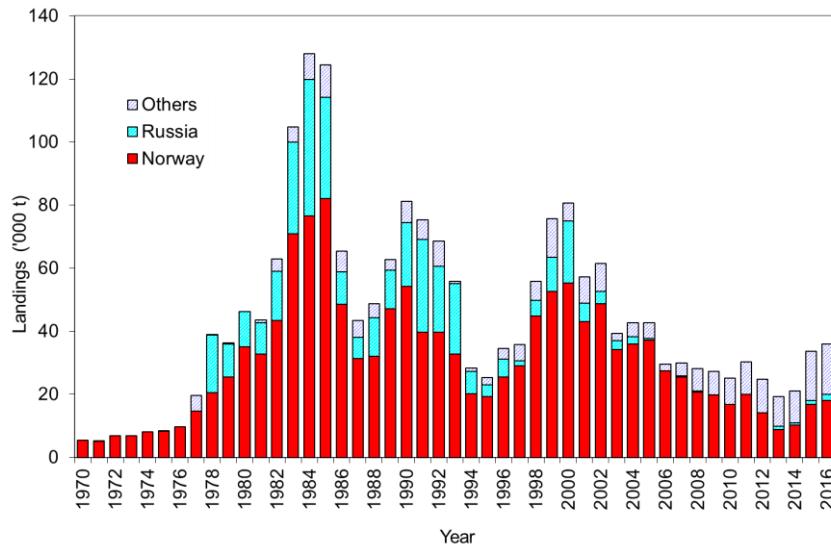


Fig. 2. Shrimp in the Barents Sea: Total annual landings. The 2016 projected value is estimated based on data until July and information from the industry.

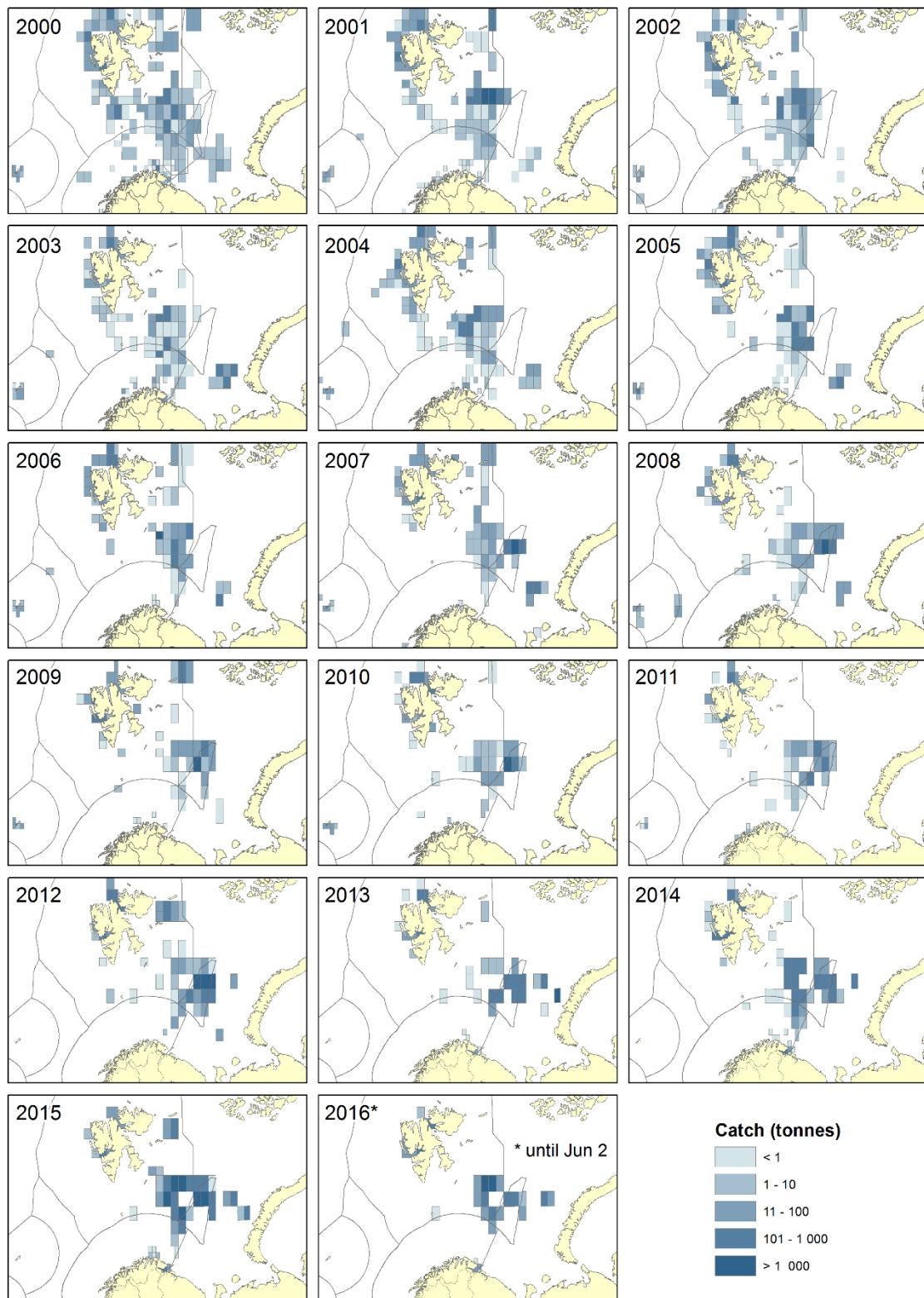


Fig. 3. Distribution of catches by Norwegian vessels since 2000 based on logbook information. (2016 only data until June)

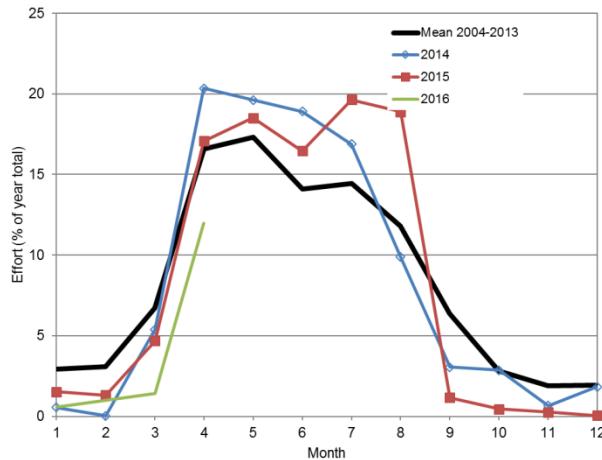


Fig. 4. Shrimp in the Barents Sea: Seasonal distribution of Norwegian fishing effort (hours trawled in a month as a percentage of total effort of the year) 2014-2016 and mean 2004-2013.

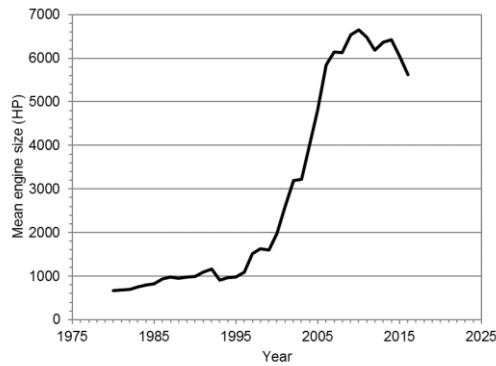


Fig. 5. Shrimp in the Barents Sea: Mean engine size (horse powers) pr. hour of trawled since 1980.

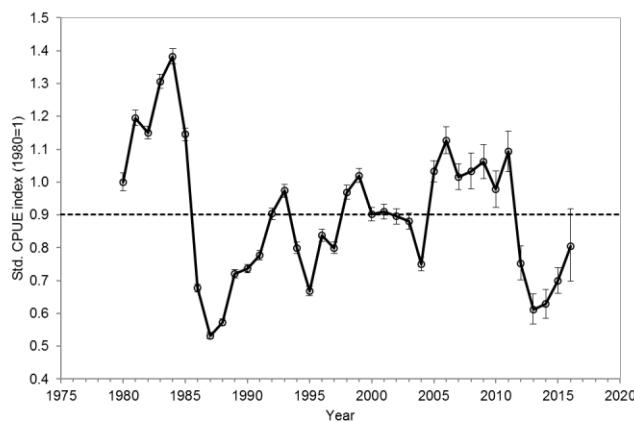


Fig 6. Shrimp in the Barents Sea: Standardised CPUE +/- one standard error.

Appendix 1. Output from GLM-run of the Barents Sea index. Gear 55=single trawl, gear 58=double trawl, gear 59= triple trawl. Strata definitions see Hvingel 2007. Vessels are individual vessel identification code.

		The GLM Procedure	Class Level Information	
Class	Levels	Values		
strata	8	A B C D E F G H		
gear	4	55 58 59 61		
vessel	433	A 0003O AA0023HS F 0001BD F 0001BDN F 0001L F 0001SV F 0002BD F 0003V F 0004V F 0007LB F 0007M F 0009V F 0010BD F 0017BD F 0018NK F 0018NKN F 0019BD F 0020BD F 0020NK F 0023HV F 0024BD F 0025A F 0025M F 0025NK F 0026LB F 0027M F 0032BD F 0032LB F 0034BD F 0038L F 0040V F 0042NK F 0044VS F 0055G F 0056B F 0057NK F 0060NK F 0061NK F 0062HV F 0077NK F 0080G F 0086NK F 0090BDN F 0090KD F 0091LB F 0092B F 0092NK F 0096V F 0097L F 0100M F 0100NK F 0101L F 0107VS F 0109HV F 0110L F 0111H F 0112M F 0125BD F 0128NK F 0136HV F 0144H F 0144S F 0148P F 0156V F 0156W N F 0157S F 0178NK F 0180G F 0180NK F 0184VS F 0197HV F 0200SV F 0202M F 0220BD F 0220M F 0221A F 0234NK F 0250NK F 0270NK F 0300M F 0300NK F 0301L N F 0321A F 0330NK F 0394L F 0415NK F 0415NKN H 0001B H 0010FE H 0020L H 0090AV M 0001A M 0001VN M 0002HØ M 0002VD M 0003A M 0003SM M 0006MD M 0007HØ M 0008SM 0010H • N M 0014H • M 0016A N M 0019A M 0019H • M 0020G M 0020H • M 0020S M 0023HØ M 0023VD M 0028VD M 0031G M 0032VD M 0033VN M 0034FIM 0037G M 0043H • M 0043VD M 0049H M 0053H • M 0059H M 0070M M 0071H • M 0079HØ M 0081H • M 0081H • N M 0081VD M 0088HØ M 0096H • M 0099AV M 0099H • M 0100AE M 0102S M 0106H M 0114F M 0114S • M 0165G M 0170A M 0199H • M 0206H M 0300HØ M 0306HØ M 0360HØ M 0402H M 0444H • M 0450SM M 0450SMN M 0490SM M 0553H • N 0001H N 0001 • N 0002BRN N 0002H N 0002LN N 0002V N 0004AH N 0004V N 0005BRN N 0005BRN N 0006H N 0007TN N 0007VV N 0007 • N 0008A N 0009VV N 0010H N 0010MS N 0012V N 0014TS N 0014TSN N 0015TS N 0016MEN 0017BR N 0017BRN N 0017VV N 0020VR N 0021BR N 0021L N 0022V N 0025VV N 0026MEN 0026 • N 0030H N 0030H N N 0033H N 0034HR N 0035H N 0037MS N 0038V N 0041V N 0043V N 0044RT N 0045H N 0045H N N 0050H N 0055H N 0062H N 0062VV N 0068V N 0072MS N 0077F N 0077F N 0078H N 0080A N 0081B • N 0085 • N 0094LF N 0100 • N 0100Ø N 0110RT N 0111VR N 0111 • N 0120 • N 0148VV N 0148VVN N 0160VV N 0160VVN N 0165MS N 0173MSN 0180L N 0183ME N 0210A N 0230A N 0266V N 0271 • N 0294V N 0300VV N 0415V N 0415V N N 0431A N 0540MEN 0550SG NT0008V NT0150V NT0177V NT0444V NT0480V R 0001ESN R 0009ES R 0010ESN R 0045U R 0048U R 0051U R 0064B R 0091K R 0116K ST0041R ST0048HE ST0050R ST0086O ST0086O N ST0092O ST0183F T 0001H T 0001I N T 0001K T 0001K N T 0001S T 0001T T 0002H T 0002H N T 0002K T 0002LK T 0002LKN T 0002T T 0003LK T 0004SA T 0005K T 0005LK T 0005T T 0006L T 0006LK T 0006S T 0006T T 0006T N T 0007T T 0007TK T 0008S T 0008S N T 0008T T 0008TK T 0009LK T 0009T N T 0010LKN T 0011K T 0012I T 0012K T 0015T T 0016T T 0017T N T 0018LK T 0018T T 0020K T 0020SA T 0022I T 0022T T 0023T T 0024T T 0028BG T 0028LK T 0028TN T 0029LK T 0029LKN T 0031I T 0031L T 0031SK T 0033B T 0033T T 0035T T 0036LK T 0036T T 0037S T 0038T T 0039H T 0039T T 0040LK T 0040T T 0041L T 0041T T 0042BG T 0042T T 0044T N T 0045T T 0046BG T 0047LK T 0048T T 0049L T 0050B T 0050K T 0050L T 0051LK T 0052S T 0055G T 0058T T 0058T N T 0060I T 0060K T 0061T T 0061T N T 0062T T 0063BG T 0064SA T 0068G T 0070LK T 0070SK T 0070T T 0070T N T 0077T T 0080LK T 0081L T 0081T T 0086T T 0088B T 0088L T 0090T T 0092S N T 0094I T 0095LK T 0097L T 0097T T 0099T T 0099T N T 0100D T 0100D N T 0100I T 0102BG T 0106T T 0111BG T 0122LKN T 0122LKN T 0124LK T 0133T T 0137BG T 0137BGN T 0138TN T 0145LK T 0150BG T 0150T T 0150T N T 0156BG T 0160L T 0161N T 0165T N T 0170L T 0170T T 0170TK T 0171K T 0181K T 0182BG T 0183T T 0195L T 0198LK T 0200N T 0201BG T 0207BG T 0225N T 0228KD T 0228LK T 0230T T 0242T N T 0245LK T 0303T T 0320S T 0320T T 0320T N T 0345LK T 0350T T 0359T T 0360LK T 0429T N T 0440K T 0566S T 0569LK T 0805T T 0854T VA0002K VA0016S VA0034K VA0041K VA0046K VA0057K VA0066K VA0079K VA0087K VA0090FS VA0095K N VA0120K VA0156K • 0001H • 0061H • 0199H		
year	37	1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020		
month	12	1 2 3 4 5 6 7 8 9 10 11 12		

Number of Observations Read 210369

Number of Observations Used 210369

Dependent Variable: Incpue
 Weight: effort

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	491	1031278.871	2100.364	548.99	<.0001
Error	209877	802967.628		3.826	
Corrected Total	210368	1834246.499			

R-Square	Coeff Var	Root MSE	Incpue Mean
0.562236	37.53019	1.955990	5.211777

Source	DF	Type I SS	Mean Square	F Value	Pr > F
strata	7	220720.9450	31531.5636	8241.61	<.0001
year	36	466255.7632	12951.5490	3385.23	<.0001
gear	4	29651.2142	7412.8036	1937.53	<.0001
vessel	433	255989.0335	591.1987	154.53	<.0001
month	11	58661.9151	5332.9014	1393.90	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
strata	7	16680.2213	2382.8888	622.83	<.0001
year	36	148309.1617	4119.6989	1076.79	<.0001
gear	4	0.0482	0.0121	0.00	1.0000
vessel	433	2247.7966	5.1912	1.36	<.0001
month	11	58661.9151	5332.9014	1393.90	<.0001

Parameter	Estimate	Standard Error	t Value	Pr > t
Intercept	3.656453453	B	8823.258203	0.00 0.9997
strata A	-0.093521447	B	0.005463	-17.12 <.0001
strata B	0.060335921	B	0.004840	12.47 <.0001
strata C	0.064245123	B	0.004510	14.25 <.0001
strata D	0.016886036	B	0.009479	1.78 0.0749
strata E	0.188188160	B	0.003761	50.04 <.0001
strata F	0.026379145	B	0.009835	2.68 0.0073
strata G	0.010618343	B	0.005590	1.90 0.0575
strata H	0.000000000	B	.	.
year 1981	0.177957502	B	0.009786	18.18 <.0001
year 1982	0.139728834	B	0.008574	16.30 <.0001
year 1983	0.267185778	B	0.008304	32.17 <.0001
year 1984	0.324082317	B	0.008526	38.01 <.0001
year 1985	0.135339019	B	0.008644	15.66 <.0001
year 1986	-0.389838819	B	0.008922	-43.69 <.0001
year 1987	-0.630146613	B	0.009466	-66.57 <.0001

Parameter	Estimate	Standard Error	t Value	Pr > t
year 1988	-0.556424472	B	0.009159	-60.75 <.0001
year 1989	-0.326386919	B	0.008815	-37.02 <.0001
year 1990	-0.306764921	B	0.008767	-34.99 <.0001
year 1991	-0.251686681	B	0.009256	-27.19 <.0001
year 1992	-0.101874223	B	0.009544	-10.67 <.0001
year 1993	-0.026869916	B	0.010003	-2.69 0.0072
year 1994	-0.224303435	B	0.011058	-20.28 <.0001
year 1995	-0.402966898	B	0.011092	-36.33 <.0001
year 1996	-0.177388649	B	0.010751	-16.50 <.0001
year 1997	-0.223850738	B	0.010955	-20.43 <.0001
year 1998	-0.031454997	B	0.010711	-2.94 0.0033
year 1999	0.019816482	B	0.010545	1.88 0.0602
year 2000	-0.102845784	B	0.011063	-9.30 <.0001
year 2001	-0.094295785	B	0.012404	-7.60 <.0001
year 2002	-0.109955903	B	0.012981	-8.47 <.0001
year 2003	-0.127621597	B	0.014071	-9.07 <.0001
year 2004	-0.287120450	B	0.014040	-20.45 <.0001
year 2005	0.031566844	B	0.015747	2.00 0.0450
year 2006	0.118899435	B	0.018287	6.50 <.0001
year 2007	0.015740451	B	0.019478	0.81 0.4190
year 2008	0.032212643	B	0.026685	1.21 0.2274
year 2009	0.059874791	B	0.024613	2.43 0.0150
year 2010	-0.022392376	B	0.028228	-0.79 0.4276
year 2011	0.089184678	B	0.028084	3.18 0.0015
year 2012	-0.284658334	B	0.034270	-8.31 <.0001
year 2013	-0.490956382	B	0.037142	-13.22 <.0001
year 2014	-0.464776641	B	0.035454	-13.11 <.0001
year 2015	-0.356349965	B	0.027820	-12.81 <.0001
year 2016	-0.218330973	B	0.068428	-3.19 0.0014
year 2080	0.000000000	B	.	.
gear 55	-0.030100318		9314.200124	-0.00 1.0000
gear 58	0.027971193		9314.200124	0.00 1.0000
gear 59	0.107349709		9314.200124	0.00 1.0000
gear 61	0.081512666		9314.200177	0.00 1.0000
vessel A 0003O	-0.792556536		2991.001216	-0.00 0.9998
vessel AA0023HS	1.140090227		2991.001192	0.00 0.9997
vessel F 0001BD	1.335468602		2991.001192	0.00 0.9996
vessel F 0001BDN	1.561180804		2991.001192	0.00 0.9996

Parameter	Estimate	Standard Error	t Value	Pr > t
vessel F 0001L	2.428683763	2991.001192	0.00	0.9994
vessel F 0001SV	1.645521652	2991.001192	0.00	0.9996
vessel F 0002BD	1.692980453	2991.001192	0.00	0.9995
vessel F 0003V	1.190005431	2991.001192	0.00	0.9997
vessel F 0004V	1.136604074	2991.001192	0.00	0.9997
vessel F 0007LB	1.361933152	2991.001192	0.00	0.9996
vessel F 0007M	1.581658087	2991.001192	0.00	0.9996
vessel F 0009V	1.315666590	2991.001192	0.00	0.9996
vessel F 0010BD	2.038038352	2991.001192	0.00	0.9995
vessel F 0017BD	2.317619156	2991.001192	0.00	0.9994
vessel F 0018NK	1.380527480	2991.001192	0.00	0.9996
vessel F 0018NKN	1.073250325	2991.001192	0.00	0.9997
vessel F 0019BD	1.125257934	2991.001192	0.00	0.9997
vessel F 0020BD	0.845858712	2991.001192	0.00	0.9998
vessel F 0020NK	0.928784487	2991.001192	0.00	0.9998
vessel F 0023HV	0.856334113	2991.001192	0.00	0.9998
vessel F 0024BD	1.697160887	2991.001192	0.00	0.9995
vessel F 0025A	3.011251295	2991.001193	0.00	0.9992
vessel F 0025M	1.529680355	2991.001192	0.00	0.9996
vessel F 0025NK	0.788964535	2991.001192	0.00	0.9998
vessel F 0026LB	1.555000973	2991.001192	0.00	0.9996
vessel F 0027M	1.527333044	2991.001192	0.00	0.9996
vessel F 0032BD	0.977964928	2991.001192	0.00	0.9997
vessel F 0032LB	0.748670890	2991.001193	0.00	0.9998
vessel F 0034BD	2.192631478	2991.001192	0.00	0.9994
vessel F 0038L	1.013214560	2991.001192	0.00	0.9997
vessel F 0040V	1.246918692	2991.001192	0.00	0.9997
vessel F 0042NK	1.220040137	2991.001192	0.00	0.9997
vessel F 0044VS	1.068541556	2991.001192	0.00	0.9997
vessel F 0055G	1.379432138	2991.001192	0.00	0.9996
vessel F 0056B	1.248569296	2991.001192	0.00	0.9997
vessel F 0057NK	0.727191098	2991.001192	0.00	0.9998
vessel F 0060NK	1.401350066	2991.001192	0.00	0.9996
vessel F 0061NK	1.016070999	2991.001192	0.00	0.9997
vessel F 0062HV	1.821534008	2991.001192	0.00	0.9995
vessel F 0077NK	1.327259239	2991.001192	0.00	0.9996
vessel F 0080G	1.625724007	2991.001192	0.00	0.9996
vessel F 0086NK	0.988822555	2991.001192	0.00	0.9997

Parameter	Estimate	Standard Error	t Value	Pr > t
vessel F 0090BDN	1.472905042	2991.001192	0.00	0.9996
vessel F 0090KD	1.192460508	2991.001192	0.00	0.9997
vessel F 0091LB	1.093762144	2991.001192	0.00	0.9997
vessel F 0092B	1.451379928	2991.001192	0.00	0.9996
vessel F 0092NK	1.447477490	2991.001192	0.00	0.9996
vessel F 0096V	1.527794911	2991.001192	0.00	0.9996
vessel F 0097L	1.323715290	2991.001192	0.00	0.9996
vessel F 0100M	1.678897454	2991.001192	0.00	0.9996
vessel F 0100NK	1.334292343	2991.001192	0.00	0.9996
vessel F 0101L	0.976026800	2991.001192	0.00	0.9997
vessel F 0107VS	1.031731133	2991.001193	0.00	0.9997
vessel F 0109HV	1.239687044	2991.001192	0.00	0.9997
vessel F 0110L	1.251314754	2991.001192	0.00	0.9997
vessel F 0111H	1.350638523	2991.001192	0.00	0.9996
vessel F 0112M	1.139958936	2991.001192	0.00	0.9997
vessel F 0125BD	1.006673819	2991.001192	0.00	0.9997
vessel F 0128NK	1.335858028	2991.001192	0.00	0.9996
vessel F 0136HV	1.712019176	2991.001192	0.00	0.9995
vessel F 0144H	0.707514553	2991.001192	0.00	0.9998
vessel F 0144S	0.822540157	2991.001192	0.00	0.9998
vessel F 0148P	1.119083863	2991.001192	0.00	0.9997
vessel F 0156V	1.604310872	2991.001192	0.00	0.9996
vessel F 0156VN	1.559692831	2991.001192	0.00	0.9996
vessel F 0157S	1.146710163	2991.001192	0.00	0.9997
vessel F 0178NK	1.351645859	2991.001192	0.00	0.9996
vessel F 0180G	1.734636632	2991.001192	0.00	0.9995
vessel F 0180NK	1.731768909	2991.001192	0.00	0.9995
vessel F 0184VS	1.497143835	2991.001192	0.00	0.9996
vessel F 0197HV	1.035679667	2991.001192	0.00	0.9997
vessel F 0200SV	1.744257154	2991.001192	0.00	0.9995
vessel F 0202M	1.317843313	2991.001192	0.00	0.9996
vessel F 0220BD	2.262154120	2991.001192	0.00	0.9994
vessel F 0220M	1.443653775	2991.001192	0.00	0.9996
vessel F 0221A	2.385159264	2991.001192	0.00	0.9994
vessel F 0234NK	1.006531905	2991.001192	0.00	0.9997
vessel F 0250NK	0.928274072	2991.001192	0.00	0.9998
vessel F 0270NK	1.313341918	2991.001192	0.00	0.9996
vessel F 0300M	1.224636192	2991.001192	0.00	0.9997

Parameter	Estimate	Standard Error	t Value	Pr > t
vessel F 0300NK	1.034197118	2991.001192	0.00	0.9997
vessel F 0301L N	0.768759719	2991.001193	0.00	0.9998
vessel F 0321A	2.658011650	2991.001192	0.00	0.9993
vessel F 0330NK	0.748704482	2991.001192	0.00	0.9998
vessel F 0394L	1.383505302	2991.001192	0.00	0.9996
vessel F 0415NK	0.916727318	2991.001192	0.00	0.9998
vessel F 0415NKN	1.152277290	2991.001192	0.00	0.9997
vessel H 0001B	0.664666676	2991.001193	0.00	0.9998
vessel H 0010FE	0.833391228	2991.001192	0.00	0.9998
vessel H 0020L	1.658027274	2991.001192	0.00	0.9996
vessel H 0090AV	1.761799528	2991.001192	0.00	0.9995
vessel M 0001A	2.033822857	2991.001192	0.00	0.9995
vessel M 0001VN	1.858337786	2991.001192	0.00	0.9995
vessel M 0002HØ	2.629913264	2991.001192	0.00	0.9993
vessel M 0002VD	-0.295874394	2991.001200	-0.00	0.9999
vessel M 0003A	1.625961300	2991.001192	0.00	0.9996
vessel M 0003SM	1.865122394	2991.001192	0.00	0.9995
vessel M 0006MD	1.283156666	2991.001192	0.00	0.9997
vessel M 0007HØ	2.481635588	2991.001192	0.00	0.9993
vessel M 0008S	1.442738772	2991.001192	0.00	0.9996
vessel M 0010H • N	1.524144763	2991.001192	0.00	0.9996
vessel M 0014H •	1.897110697	2991.001192	0.00	0.9995
vessel M 0016A N	1.431700640	2991.001192	0.00	0.9996
vessel M 0019A	2.078545551	2991.001193	0.00	0.9994
vessel M 0019H •	1.228505826	2991.001192	0.00	0.9997
vessel M 0020G	1.193581267	2991.001192	0.00	0.9997
vessel M 0020H •	1.786848380	2991.001192	0.00	0.9995
vessel M 0020S	1.316148929	2991.001193	0.00	0.9996
vessel M 0023HØ	2.477083363	2991.001192	0.00	0.9993
vessel M 0023VD	2.293605967	2991.001192	0.00	0.9994
vessel M 0028VD	1.482913930	2991.001192	0.00	0.9996
vessel M 0031G	1.267124611	2991.001193	0.00	0.9997
vessel M 0032VD	1.555348657	2991.001192	0.00	0.9996
vessel M 0033VN	2.612886011	2991.001192	0.00	0.9993
vessel M 0034FI	1.165741111	2991.001192	0.00	0.9997
vessel M 0037G	2.162724328	2991.001192	0.00	0.9994
vessel M 0043H •	2.212034351	2991.001192	0.00	0.9994
vessel M 0043VD	2.133641152	2991.001192	0.00	0.9994

Parameter	Estimate	Standard Error	t Value	Pr > t
vessel M 0049H	0.771512651	2991.001193	0.00	0.9998
vessel M 0053H •	1.852538691	2991.001192	0.00	0.9995
vessel M 0059H	2.413252696	2991.001192	0.00	0.9994
vessel M 0070M	1.296939034	2991.001192	0.00	0.9997
vessel M 0071H •	0.940246365	2991.001193	0.00	0.9997
vessel M 0079HØ	2.195233764	2991.001192	0.00	0.9994
vessel M 0081H •	1.837085988	2991.001192	0.00	0.9995
vessel M 0081H •N	2.503469518	2991.001192	0.00	0.9993
vessel M 0081VD	1.836264502	2991.001192	0.00	0.9995
vessel M 0088HØ	2.272065172	2991.001192	0.00	0.9994
vessel M 0096H •	2.070135995	2991.001192	0.00	0.9994
vessel M 0099AV	1.031853633	2991.001192	0.00	0.9997
vessel M 0099H •	2.136142724	2991.001192	0.00	0.9994
vessel M 0100AE	1.283372572	2991.001193	0.00	0.9997
vessel M 0102S	2.325746028	2991.001192	0.00	0.9994
vessel M 0106H	2.237626320	2991.001192	0.00	0.9994
vessel M 0114F	1.107262477	2991.001204	0.00	0.9997
vessel M 0114S •	1.405558364	2991.001192	0.00	0.9996
vessel M 0165G	0.985566334	2991.001193	0.00	0.9997
vessel M 0170A	1.302422544	2991.001192	0.00	0.9997
vessel M 0199H •	1.356995565	2991.001192	0.00	0.9996
vessel M 0206H	1.714331560	2991.001192	0.00	0.9995
vessel M 0300HØ	2.657695780	2991.001192	0.00	0.9993
vessel M 0306HØ	2.610153209	2991.001192	0.00	0.9993
vessel M 0360HØ	2.474443304	2991.001192	0.00	0.9993
vessel M 0402H	1.681381168	2991.001192	0.00	0.9996
vessel M 0444H •	1.514042458	2991.001192	0.00	0.9996
vessel M 0450SM	2.921977427	2991.001194	0.00	0.9992
vessel M 0450SMN	1.702523806	2991.001192	0.00	0.9995
vessel M 0490SM	1.552555437	2991.001192	0.00	0.9996
vessel M 0553H •	1.827792830	2991.001192	0.00	0.9995
vessel N 0001H	1.208006294	2991.001192	0.00	0.9997
vessel N 0001 •	1.088028222	2991.001193	0.00	0.9997
vessel N 0002BRN	0.931446255	2991.001193	0.00	0.9998
vessel N 0002H	1.970628151	2991.001192	0.00	0.9995
vessel N 0002LN	1.164340753	2991.001192	0.00	0.9997
vessel N 0002V	1.137586247	2991.001192	0.00	0.9997
vessel N 0004AH	0.878922143	2991.001192	0.00	0.9998

Parameter	Estimate	Standard Error	t Value	Pr > t
vessel N 0004V	0.995442969	2991.001192	0.00	0.9997
vessel N 0005BR	1.336977556	2991.001192	0.00	0.9996
vessel N 0005BRN	1.181241378	2991.001192	0.00	0.9997
vessel N 0006H	0.842389408	2991.001192	0.00	0.9998
vessel N 0007TN	1.201829389	2991.001192	0.00	0.9997
vessel N 0007VV	2.273432247	2991.001192	0.00	0.9994
vessel N 0007•	1.451929349	2991.001192	0.00	0.9996
vessel N 0008A	2.315101239	2991.001192	0.00	0.9994
vessel N 0009VV	1.378300004	2991.001192	0.00	0.9996
vessel N 0010H	2.423107921	2991.001193	0.00	0.9994
vessel N 0010MS	1.101752929	2991.001193	0.00	0.9997
vessel N 0012V	1.305767006	2991.001192	0.00	0.9997
vessel N 0014TS	1.515328546	2991.001192	0.00	0.9996
vessel N 0014TSN	1.771942238	2991.001192	0.00	0.9995
vessel N 0015TS	1.655271343	2991.001192	0.00	0.9996
vessel N 0016ME	1.034114697	2991.001192	0.00	0.9997
vessel N 0017BR	1.170902672	2991.001192	0.00	0.9997
vessel N 0017BRN	1.877290181	2991.001192	0.00	0.9995
vessel N 0017VV	0.869749718	2991.001192	0.00	0.9998
vessel N 0020VR	1.096585173	2991.001193	0.00	0.9997
vessel N 0021BR	1.058990145	2991.001192	0.00	0.9997
vessel N 0021L	1.341408131	2991.001192	0.00	0.9996
vessel N 0022V	1.145774598	2991.001192	0.00	0.9997
vessel N 0025VV	1.550643117	2991.001192	0.00	0.9996
vessel N 0026ME	1.266431952	2991.001192	0.00	0.9997
vessel N 0026•	1.415503589	2991.001192	0.00	0.9996
vessel N 0030H	1.920362017	2991.001192	0.00	0.9995
vessel N 0030H N	2.554898466	2991.001192	0.00	0.9993
vessel N 0033H	0.962915939	2991.001192	0.00	0.9997
vessel N 0034HR	1.177270817	2991.001192	0.00	0.9997
vessel N 0035H	2.172219686	2991.001192	0.00	0.9994
vessel N 0037MS	1.212124786	2991.001192	0.00	0.9997
vessel N 0038V	0.948642094	2991.001192	0.00	0.9997
vessel N 0041V	1.413583631	2991.001192	0.00	0.9996
vessel N 0043V	1.498203028	2991.001192	0.00	0.9996
vessel N 0044RT	1.696083414	2991.001193	0.00	0.9995
vessel N 0045H	1.007135697	2991.001192	0.00	0.9997
vessel N 0045H N	2.070960240	2991.001192	0.00	0.9994

Parameter	Estimate	Standard Error	t Value	Pr > t
vessel N 0050H	2.773520991	2991.001192	0.00	0.9993
vessel N 0055H	1.280561886	2991.001192	0.00	0.9997
vessel N 0062H	1.845681400	2991.001192	0.00	0.9995
vessel N 0062VV	1.403818311	2991.001192	0.00	0.9996
vessel N 0068V	1.204988563	2991.001192	0.00	0.9997
vessel N 0072MS	1.043323111	2991.001192	0.00	0.9997
vessel N 0077F	1.254840129	2991.001192	0.00	0.9997
vessel N 0077F N	1.065738474	2991.001192	0.00	0.9997
vessel N 0078H	0.873749531	2991.001192	0.00	0.9998
vessel N 0080A	1.998683084	2991.001192	0.00	0.9995
vessel N 0081B •	1.015271457	2991.001192	0.00	0.9997
vessel N 0085 •	0.987367321	2991.001192	0.00	0.9997
vessel N 0094LF	1.072509536	2991.001192	0.00	0.9997
vessel N 0100 •	1.518561239	2991.001192	0.00	0.9996
vessel N 0100Ø	2.366885955	2991.001192	0.00	0.9994
vessel N 0110RT	1.538320338	2991.001192	0.00	0.9996
vessel N 0111VR	1.191046070	2991.001193	0.00	0.9997
vessel N 0111 •	1.448745279	2991.001192	0.00	0.9996
vessel N 0120 •	1.673686107	2991.001192	0.00	0.9996
vessel N 0148VV	1.224284770	2991.001192	0.00	0.9997
vessel N 0148VVN	1.174087272	2991.001192	0.00	0.9997
vessel N 0160VV	0.913688485	2991.001192	0.00	0.9998
vessel N 0160VVN	1.120102089	2991.001192	0.00	0.9997
vessel N 0165MS	0.719261408	2991.001192	0.00	0.9998
vessel N 0173MS	0.855905138	2991.001192	0.00	0.9998
vessel N 0180L	0.830163692	2991.001192	0.00	0.9998
vessel N 0183ME	0.995163754	2991.001192	0.00	0.9997
vessel N 0210A	0.968188756	2991.001193	0.00	0.9997
vessel N 0230A	1.795489144	2991.001192	0.00	0.9995
vessel N 0266V	0.883766240	2991.001192	0.00	0.9998
vessel N 0271 •	1.337836690	2991.001192	0.00	0.9996
vessel N 0294V	1.071079444	2991.001192	0.00	0.9997
vessel N 0300VV	1.131800168	2991.001192	0.00	0.9997
vessel N 0415V	1.298218933	2991.001192	0.00	0.9997
vessel N 0415V N	1.201134242	2991.001192	0.00	0.9997
vessel N 0431A	1.785211243	2991.001192	0.00	0.9995
vessel N 0540ME	1.526914728	2991.001192	0.00	0.9996
vessel N 0550S G	1.554684274	2991.001193	0.00	0.9996

Parameter	Estimate	Standard Error	t Value	Pr > t
vessel NT0008V	1.699194291	2991.001192	0.00	0.9995
vessel NT0150V	1.394366502	2991.001193	0.00	0.9996
vessel NT0177V	1.146248859	2991.001192	0.00	0.9997
vessel NT0444V	1.283113956	2991.001192	0.00	0.9997
vessel NT0480V	1.414987974	2991.001192	0.00	0.9996
vessel R 0001ESN	-0.522996785	2991.001222	-0.00	0.9999
vessel R 0009ES	0.520425046	2991.001197	0.00	0.9999
vessel R 0010ESN	2.382255594	2991.001483	0.00	0.9994
vessel R 0045U	1.255285062	2991.001192	0.00	0.9997
vessel R 0048U	1.502534737	2991.001192	0.00	0.9996
vessel R 0051U	0.799853603	2991.001193	0.00	0.9998
vessel R 0064B	0.059173058	2991.001219	0.00	1.0000
vessel R 0091K	1.182215689	2991.001192	0.00	0.9997
vessel R 0116K	0.917837416	2991.001192	0.00	0.9998
vessel ST0041R	1.430975683	2991.001192	0.00	0.9996
vessel ST0048HE	1.397511923	2991.001192	0.00	0.9996
vessel ST0050R	1.312207039	2991.001193	0.00	0.9996
vessel ST0086O	1.489934614	2991.001192	0.00	0.9996
vessel ST0086O N	1.339032314	2991.001192	0.00	0.9996
vessel ST0092O	1.538464845	2991.001192	0.00	0.9996
vessel ST0183F	1.319924539	2991.001192	0.00	0.9996
vessel T 0001H	2.310666427	2991.001192	0.00	0.9994
vessel T 0001I N	1.347925585	2991.001192	0.00	0.9996
vessel T 0001K	1.190375972	2991.001192	0.00	0.9997
vessel T 0001K N	1.554166883	2991.001192	0.00	0.9996
vessel T 0001S	1.194154919	2991.001192	0.00	0.9997
vessel T 0001T	1.535231560	2991.001192	0.00	0.9996
vessel T 0002H	1.679317786	2991.001192	0.00	0.9996
vessel T 0002H N	2.189640577	2991.001192	0.00	0.9994
vessel T 0002K	1.313059156	2991.001192	0.00	0.9996
vessel T 0002LK	1.333498882	2991.001192	0.00	0.9996
vessel T 0002LKN	2.403832086	2991.001192	0.00	0.9994
vessel T 0002T	1.311907570	2991.001193	0.00	0.9997
vessel T 0003LK	1.916949403	2991.001192	0.00	0.9995
vessel T 0004SA	1.543387981	2991.001192	0.00	0.9996
vessel T 0005K	1.095839346	2991.001192	0.00	0.9997
vessel T 0005LK	2.155944441	2991.001192	0.00	0.9994
vessel T 0005T	1.288459576	2991.001192	0.00	0.9997

Parameter	Estimate	Standard Error	t Value	Pr > t
vessel T 0006L	1.185034552	2991.001192	0.00	0.9997
vessel T 0006LK	2.020098156	2991.001192	0.00	0.9995
vessel T 0006S	1.124598718	2991.001192	0.00	0.9997
vessel T 0006T	1.626998446	2991.001192	0.00	0.9996
vessel T 0006T N	1.638583962	2991.001192	0.00	0.9996
vessel T 0007T	2.317169835	2991.001192	0.00	0.9994
vessel T 0007TK	1.354914639	2991.001192	0.00	0.9996
vessel T 0008S	1.488204706	2991.001192	0.00	0.9996
vessel T 0008S N	1.315488326	2991.001192	0.00	0.9996
vessel T 0008T	1.942026432	2991.001192	0.00	0.9995
vessel T 0008TK	1.624296657	2991.001192	0.00	0.9996
vessel T 0009LK	1.491331963	2991.001192	0.00	0.9996
vessel T 0009T N	2.024206619	2991.001192	0.00	0.9995
vessel T 0010LKN	1.940517586	2991.001192	0.00	0.9995
vessel T 0011K	1.371477808	2991.001192	0.00	0.9996
vessel T 0012I	1.415738084	2991.001192	0.00	0.9996
vessel T 0012K	1.201091106	2991.001192	0.00	0.9997
vessel T 0015T	1.808326395	2991.001192	0.00	0.9995
vessel T 0016T	1.319700709	2991.001192	0.00	0.9996
vessel T 0017T	1.435803497	2991.001192	0.00	0.9996
vessel T 0017T N	1.904020045	2991.001192	0.00	0.9995
vessel T 0018LK	1.519421922	2991.001192	0.00	0.9996
vessel T 0018T	1.420829104	2991.001192	0.00	0.9996
vessel T 0020K	1.367553674	2991.001192	0.00	0.9996
vessel T 0020SA	1.509259497	2991.001192	0.00	0.9996
vessel T 0022I	1.552090916	2991.001192	0.00	0.9996
vessel T 0022T	1.973787531	2991.001192	0.00	0.9995
vessel T 0023T	1.758929309	2991.001192	0.00	0.9995
vessel T 0024T	1.800080595	2991.001192	0.00	0.9995
vessel T 0028BG	1.079680945	2991.001193	0.00	0.9997
vessel T 0028LK	2.079838010	2991.001192	0.00	0.9994
vessel T 0028TN	1.165415597	2991.001192	0.00	0.9997
vessel T 0029LK	1.207961991	2991.001192	0.00	0.9997
vessel T 0029LKN	1.076222477	2991.001192	0.00	0.9997
vessel T 0031I	1.256444338	2991.001192	0.00	0.9997
vessel T 0031L	0.984775492	2991.001192	0.00	0.9997
vessel T 0031SK	1.435945381	2991.001192	0.00	0.9996
vessel T 0033B	1.490242488	2991.001192	0.00	0.9996

Parameter	Estimate	Standard Error	t Value	Pr > t
vessel T 0033T	1.679206456	2991.001192	0.00	0.9996
vessel T 0035T	2.605906252	2991.001192	0.00	0.9993
vessel T 0036LK	1.434404281	2991.001192	0.00	0.9996
vessel T 0036T	1.239940468	2991.001192	0.00	0.9997
vessel T 0037S	1.642560633	2991.001192	0.00	0.9996
vessel T 0038T	1.298273913	2991.001192	0.00	0.9997
vessel T 0039H	1.351118036	2991.001192	0.00	0.9996
vessel T 0039T	1.022743201	2991.001192	0.00	0.9997
vessel T 0040LK	1.165787722	2991.001192	0.00	0.9997
vessel T 0040T	1.189596011	2991.001192	0.00	0.9997
vessel T 0041L	1.493926641	2991.001192	0.00	0.9996
vessel T 0041T	1.107995759	2991.001192	0.00	0.9997
vessel T 0042BG	1.449691815	2991.001192	0.00	0.9996
vessel T 0042T	1.141174535	2991.001192	0.00	0.9997
vessel T 0044T N	1.462741694	2991.001192	0.00	0.9996
vessel T 0045T	2.510284683	2991.001192	0.00	0.9993
vessel T 0046BG	1.283640428	2991.001192	0.00	0.9997
vessel T 0047LK	1.630903979	2991.001192	0.00	0.9996
vessel T 0048T	1.368599754	2991.001192	0.00	0.9996
vessel T 0049L	1.169085166	2991.001192	0.00	0.9997
vessel T 0050B	1.131090885	2991.001192	0.00	0.9997
vessel T 0050K	1.547031693	2991.001192	0.00	0.9996
vessel T 0050L	1.240755478	2991.001192	0.00	0.9997
vessel T 0051LK	1.340134902	2991.001192	0.00	0.9996
vessel T 0052S	1.201142441	2991.001192	0.00	0.9997
vessel T 0055G	1.523991859	2991.001192	0.00	0.9996
vessel T 0058T	1.201514879	2991.001192	0.00	0.9997
vessel T 0058T N	1.244647391	2991.001192	0.00	0.9997
vessel T 0060I	1.294308615	2991.001192	0.00	0.9997
vessel T 0060K	1.314395436	2991.001192	0.00	0.9996
vessel T 0061T	1.414998923	2991.001192	0.00	0.9996
vessel T 0061T N	1.696067675	2991.001192	0.00	0.9995
vessel T 0062T	1.316688316	2991.001192	0.00	0.9996
vessel T 0063BG	1.390636095	2991.001192	0.00	0.9996
vessel T 0064SA	1.575173629	2991.001192	0.00	0.9996
vessel T 0068G	1.535275453	2991.001192	0.00	0.9996
vessel T 0070LK	1.378294658	2991.001192	0.00	0.9996
vessel T 0070SK	1.627451270	2991.001192	0.00	0.9996

Parameter	Estimate	Standard Error	t Value	Pr > t
vessel T 0070T	1.509645478	2991.001192	0.00	0.9996
vessel T 0070T N	1.548586597	2991.001192	0.00	0.9996
vessel T 0077T	1.486346677	2991.001192	0.00	0.9996
vessel T 0080LK	1.515263515	2991.001192	0.00	0.9996
vessel T 0081L	-1.062560674	2991.001229	-0.00	0.9997
vessel T 0081T	1.067368480	2991.001192	0.00	0.9997
vessel T 0086T	1.427898889	2991.001192	0.00	0.9996
vessel T 0088B	1.289215635	2991.001192	0.00	0.9997
vessel T 0088L	1.329524794	2991.001192	0.00	0.9996
vessel T 0090T	1.394199615	2991.001192	0.00	0.9996
vessel T 0092S	1.341444457	2991.001192	0.00	0.9996
vessel T 0092S N	1.388708112	2991.001192	0.00	0.9996
vessel T 0094I	1.234603455	2991.001192	0.00	0.9997
vessel T 0095LK	1.581362920	2991.001192	0.00	0.9996
vessel T 0097L	1.229979062	2991.001192	0.00	0.9997
vessel T 0097T	1.241010723	2991.001192	0.00	0.9997
vessel T 0099T	1.620256584	2991.001192	0.00	0.9996
vessel T 0099T N	1.532251685	2991.001192	0.00	0.9996
vessel T 0100D	1.295187684	2991.001192	0.00	0.9997
vessel T 0100D N	1.470836094	2991.001192	0.00	0.9996
vessel T 0100I	1.653536106	2991.001192	0.00	0.9996
vessel T 0102BG	1.307446749	2991.001192	0.00	0.9997
vessel T 0106T	1.467306970	2991.001192	0.00	0.9996
vessel T 0111BG	1.353197983	2991.001192	0.00	0.9996
vessel T 0122LK	1.196732608	2991.001192	0.00	0.9997
vessel T 0122LKN	0.962511604	2991.001192	0.00	0.9997
vessel T 0124LK	1.167943948	2991.001192	0.00	0.9997
vessel T 0133T	1.073008503	2991.001192	0.00	0.9997
vessel T 0137BG	1.416766541	2991.001192	0.00	0.9996
vessel T 0137BGN	1.435134806	2991.001192	0.00	0.9996
vessel T 0138TN	1.391294890	2991.001192	0.00	0.9996
vessel T 0145LK	1.583644372	2991.001192	0.00	0.9996
vessel T 0150BG	2.082055793	2991.001192	0.00	0.9994
vessel T 0150T	1.128944765	2991.001193	0.00	0.9997
vessel T 0150T N	1.031002354	2991.001192	0.00	0.9997
vessel T 0156BG	1.210747588	2991.001192	0.00	0.9997
vessel T 0160L	1.140067834	2991.001192	0.00	0.9997
vessel T 0161N	1.324165467	2991.001192	0.00	0.9996

Parameter	Estimate	Standard Error	t Value	Pr > t
vessel T 0165T N	1.379890362	2991.001192	0.00	0.9996
vessel T 0170L	1.463056465	2991.001192	0.00	0.9996
vessel T 0170T	0.907467743	2991.001192	0.00	0.9998
vessel T 0170TK	1.468613283	2991.001192	0.00	0.9996
vessel T 0171K	1.206369400	2991.001192	0.00	0.9997
vessel T 0181K	1.368870990	2991.001192	0.00	0.9996
vessel T 0182BG	1.223435494	2991.001192	0.00	0.9997
vessel T 0183T	1.371073984	2991.001192	0.00	0.9996
vessel T 0195L	0.823692080	2991.001193	0.00	0.9998
vessel T 0198LK	1.123360703	2991.001192	0.00	0.9997
vessel T 0200N	0.045897214	2991.001200	0.00	1.0000
vessel T 0201BG	1.101502057	2991.001192	0.00	0.9997
vessel T 0207BG	0.953692609	2991.001193	0.00	0.9997
vessel T 0225N	0.981030782	2991.001192	0.00	0.9997
vessel T 0228KD	1.566966840	2991.001192	0.00	0.9996
vessel T 0228LK	1.500786337	2991.001192	0.00	0.9996
vessel T 0230T	1.305436682	2991.001192	0.00	0.9997
vessel T 0242T N	1.003541033	2991.001192	0.00	0.9997
vessel T 0245LK	1.438868738	2991.001192	0.00	0.9996
vessel T 0303T	1.596149443	2991.001192	0.00	0.9996
vessel T 0320S	1.054284546	2991.001192	0.00	0.9997
vessel T 0320T	1.014202567	2991.001192	0.00	0.9997
vessel T 0320T N	1.057217391	2991.001192	0.00	0.9997
vessel T 0345LK	1.423246969	2991.001192	0.00	0.9996
vessel T 0350T	0.987462282	2991.001192	0.00	0.9997
vessel T 0359T	1.352695279	2991.001192	0.00	0.9996
vessel T 0360LK	1.050018663	2991.001192	0.00	0.9997
vessel T 0429T N	1.283848694	2991.001192	0.00	0.9997
vessel T 0440K	-0.210925564	2991.001256	-0.00	0.9999
vessel T 0566S	1.005360812	2991.001192	0.00	0.9997
vessel T 0569LK	0.862758044	2991.001192	0.00	0.9998
vessel T 0805T	1.285523935	2991.001192	0.00	0.9997
vessel T 0854T	1.658714048	2991.001192	0.00	0.9996
vessel VA0002K	1.385882792	2991.001193	0.00	0.9996
vessel VA0016S	-0.590578033	2991.001193	-0.00	0.9998
vessel VA0034K	0.952911434	2991.001195	0.00	0.9997
vessel VA0041K	0.841349328	2991.001199	0.00	0.9998
vessel VA0046K	-1.091516791	2991.001212	-0.00	0.9997

Parameter	Estimate	Standard Error	t Value	Pr > t
vessel VA0057K	0.835702084	2991.001193	0.00	0.9998
vessel VA0066K	0.622266660	2991.001192	0.00	0.9998
vessel VA0079K	0.882292292	2991.001195	0.00	0.9998
vessel VA0087K	0.780437974	2991.001194	0.00	0.9998
vessel VA0090FS	0.682412180	2991.001198	0.00	0.9998
vessel VA0095K N	0.039582391	2991.001221	0.00	1.0000
vessel VA0120K	1.153499487	2991.001192	0.00	0.9997
vessel VA0156K	-0.240196445	2991.001209	-0.00	0.9999
vessel • 0001H	0.769109893	2991.001194	0.00	0.9998
vessel • 0061H	0.729418279	2991.001193	0.00	0.9998
vessel • 0199H	0.226679938	2991.001212	0.00	0.9999
month 1	0.224262335 B	0.009152	24.51	<.0001
month 2	0.180699193 B	0.009524	18.97	<.0001
month 3	0.295092457 B	0.008910	33.12	<.0001
month 4	0.222985774 B	0.008069	27.63	<.0001
month 5	0.152052644 B	0.007669	19.83	<.0001
month 6	0.144704715 B	0.007639	18.94	<.0001
month 7	0.090910536 B	0.007687	11.83	<.0001
month 8	0.030486198 B	0.007721	3.95	<.0001
month 9	-0.143377792 B	0.007939	-18.06	<.0001
month 10	-0.373461990 B	0.008620	-43.33	<.0001
month 11	-0.180143953 B	0.008377	-21.50	<.0001
month 12	0.000000000 B	.	.	.

Note: The X'X matrix has been found to be singular, and a generalized inverse was used to solve the normal equations. Terms whose estimates are followed by the letter 'B' are not uniquely estimable.

