

Supplementary Appendix S4 – Background material for Ecopath and Ecosim models

This supplements consist of seven parts A to G:

Part A. Overview of time series used in Ecosim model simulations for the Barents Sea

Part B. Overview of time-series data

Part C. Overview on diet input data for the 1950-model

Part D. Pre-balance diagnostics

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Part F. Overview of initial and balanced Ecopath model values for year 2000 and year 1950

Part G. Results from simulations with variable or with constant ice-algae production

Part A - Overview of time series used in Ecosim model simulations for the Barents Sea

Overview

Many time-series were available as number of individuals and carbon biomasses were calculated by multiplying number of individuals by body mass and carbon/wet mass ratios (see Tables S2 1-108). Many of the time-series for some mammal and bird groups only had one biomass value that was assigned to a specific year. For groups that had initial biomass values that not could be related to a specific year (or average of few years), values were not considered as time-series here.

Calculation of phytoplankton primary-production proxy

As an alternative to a constant phytoplankton primary production during the time period 1950-2013, a forcing time-serie was based on the relationship between satellite measured primary production and open water area for the time-period 1998-2015 Dalpadado et al. (2020). Values for open water area (OW) for the period 1950-2015 were calculated from digitized ice-coverage data given by Onarheim et al. (2015) as total area of Barents Sea LME (2010000 km²) minus the ice-covered area. The ice-coverage in the Barents Sea has been measured in June-July (Onarheim et al. 2015), and has been strongly negatively correlated with satellite estimated phytoplankton primary production for the time period 1998-2017 (Dalpadado et al. 2014, Dalpadado et al. 2020). When ice coverage decrease and open water area increase, phytoplankton primary production increases because there is more light and also more nutrients available for phytoplankton resulting in increased primary production (Dalpadado et al. 2020). According to Dalpadado et al. (2020), the satellite measured primary production for the Barents Sea gives estimates closer to new production than gross primary production. The PPR-proxy was implemented in Ecosim by forcing the biomasses (B) and hence the production ($P = B \cdot (P/B)$) of diatoms and autotrophic flagellates. The biomasses of diatoms and autotroph flagellates in year i were calculated as:

$B_{diat,i} = B_{diat,2000} * NPP_i / NPP_{2000}$ and $B_{flag,i} = B_{flag,2000} * NPP_i / NPP_{2000}$. NPP_i and NPP_{2000} are the new phytoplankton primary production in year i and 2000, respectively. The new phytoplankton primary production in year i was calculated as follows from the linear regression: $NPP_i = -162.2 + 0.000133 * OWA_i$ ($r^2 = 0.44$), where OWA_i is open water area (km^2). The model was fitted to data from 1998-2015 ($n = 18$). The PPR-proxy time series from 1950-2013 had a similar U-shaped trend as the Kola-section temperature with a U-shaped dip in the period from 1965 to ca. year 2000.

Calculation of capelin (0-2) mortality proxy due to predation from small herring

The effect of predation from juvenile herring on capelin larvae is an important factor for capelin recruitment (Hallfredsson & Pedersen 2007, Gjøsæter et al. 2015). It was not possible to simulate this interaction realistically by specifying proportions of capelin age 0-2 in the small herring diet, and we simulated the mortality effect by forcing other mortality of capelin age 0-2 by a time serie representing mortality proportional to small herring biomass. The forcing mortality (M_{he-cap}) from small herring biomass (B_{herr} , g C m⁻²) on capelin age 0-2 was estimated as the slope ($M_{he-cap} = 10.59*B_{herr}$) of the linear regression $M_{cap0-1} = 3.17 + 10.59*B_{herr}$ (period 1981-2006, n = 24, P for slope = 0.003). M_{cap0-1} is the natural mortality rate between the early larval stage and the 1-group stage (Gjøsæter et al. 2015).

Calculation of ice-algae primary production proxy

This proxy was calculated to simulate the dependence of ice-algae primary production on variability in ice-coverage. The time-serie for digitized ice-coverage data for June –July given by Onarheim et al. (2015) was used to force ice-algae biomass in year i ($B_{icalg,i}$) (and hence production $P = (P/B)*B$) in direct proportion to the ice-coverage in June-July:

$$B_{icalg,i} = B_{icalg,2000} * Icecov_i / Icecov_{2000}$$

where $B_{icalg,2000}$ is the ice-algae biomass in year 2000, and $Icecov_i$ and $Icecov_{2000}$ are the ice-coverages in year i and year 2000, respectively.

This is likely to overestimate the effect of ice-coverage on ice-algae production since ice-algae production also occurs earlier in the season when the ice-cover is larger than in June-July.

Table Part A-1. Overview of time-series used in the time-series fitting and calibration of the 1950-model for the period 1950-1996 and for the prediction period from 1997-2013. Time-series for snow crab and red king crab biomass and catches used to force year 2000 model for the time period 2000 -2013 are shown (serie no 89-90). A minimum requirement for data to be considered as a time-serie was that the data could be assigned to a specific year or time-period

Gr. no	Group name	Variable	Ser. no.	Time-periode	Description and source
1	Polar bear	Biom.	1	1950-2013	Ecopath model biomass is forced by a time series constructed by assuming a population size of 5300 individuals in 1950 (Larsen 1986), and a constant reduction by 124 ind. per year to a level of 2650 ind. in 1973 and then a constant number of 2650 ind. after 1973 (Aars et al. 2009)
		Catch	2	1950-2013	http://www.mosj.no/no/pavirkning/jakt-fangst/uttak-isbjorn.html
2	Minke whale	Biom.	3	1950-2009	Modelled population abundance (Bøthun et al. 2009)
		Biom.	4		“Point estimates” from sighting survey; 1989. 1995, 1996-2001, 2002- 2007, 2008-2013 See table SM2-2
		Catch	5	1950-2013	For 1950-1971, catch data from Bøthun et al. (2009) multiplied by 0.83 (average proportion caught in the Barents Sea) were used. For the period 1971-2009, a time-serie on catch from Johannessen et al. (2012) was used. For the period after 2009, data were from: https://www.regjeringen.no/no/aktuelt/uendret-vagehvalkvote-i-2019/id2626934/
		F	6	1950-2009	F = catch/biomass
3	Fin whale	Biom.	7		“Point estimates” from sighting survey; 1995, 1996-2001, 2002- 2007, 2008-2013, 2014-2018 See table SM2-3 (Øien 2009, Leonard & Øien 2020a, Leonard & Øien 2020b)
6	Humpback whale	Biom.	8		“Point estimates” from sighting survey; 1995, 1996-2001, 2002- 2007, 2008-2013, 2014-2018 See table SM2-6 (Øien 2009) (Leonard & Øien 2020a, Leonard & Øien 2020b)
9	Dolphins	Biom.	9		“Point estimates” from sighting surveys; 1989, 1995, 1996-2001, 2002- 2007, 2008-2013, 2014-2018 See table SM2-9 (Øien 1996, Leonard & Øien 2020a, Leonard & Øien 2020b)
10	Harbour porpoise	Biom.	10		“Point estimates” from sighting surveys; 1989, 2002- 2007, 2008-2013, 2014-2018 See table SM2-10 (Leonard & Øien 2020a, Leonard & Øien 2020b) (Bjørge et al. 1991)
11	Killer whale	Biom.	11	1987-2001	Point value (Foote et al. 2007)
		Catch	12	1950-1981	(Øien 1988)
12	Sperm whale	Biom.	13		“Point estimates” from sighting surveys; 1995, 1996-2001, 2002- 2007, 2008-2013, 2014-2018 See table SM2-12 (Øien 2009, Leonard & Øien 2020a, Leonard & Øien 2020b)
13	Harp seal (1+)	Biom.	14	1950-2013	(ICES 2019c)

		Catch	15	1950-2014	M. Biuw, Institute of Marine Research, Tromsø, Norway, pers. Comm. Total catch of age 1+ and age 0.
		F	16	1950-2013	F = catch/biomass
14	Harbour seal	Biom.	17	2010	Point estimate from sighting surveys (Nilssen & Bjørge 2015)
		Catch	18	1997-2013	(NAMMCO 2016) (Nilssen & Bjørge 2015)
15	Grey seal	Biom.	19	2001-2010	Point value; (Haug et al. 1994, Ziryanov & Mishin 2007, Øigård et al. 2012, Nilssen & Bjørge 2015)
		Catch	20	1979-2013	(Øigård et al. 2012, Nilssen & Bjørge 2015)
16	Ringed	Biom.	21	2009	Point value (Kovacs et al. 2009)
17	Bearded seal	Biom.	22	2009	Point value (Kovacs et al. 2009)
18	Walrus	Biom.	23	2011	Point value (Kovacs et al. 2014) (Lydersen et al. 2012)
19-27	Bird groups	Biom.	23-32	1992	(Barrett et al. 2002), calculated from abundance for the 1990'ies, average body mass and carbon-wet weight ratios. Value assigned to year 1992
29	Northeast Arctic cod (3+)	Biom.	33	1950-2014	(ICES 2019a) SAM (State-space assessment model)
		Catch	34	1950-2014	(ICES 2019a)
		F	35	1950-2014	Calculated from catch and biomass
30	Northeast Arctic cod (0-2)	Rel biom.	36	1950-2014	Numbers at age 3 (recruitment) with lag -1 year was used as time-series for relative biomass for age 0-2 year (ICES 2019a).
31	Coastal cod (2+)	Biom.	37	1984-2014	Virtual Population Analysis (VPA) (ICES 2019a)
		Catch.	38	1984-2014	(ICES 2019a)
		F	39	1984-2014	Calculated from catch and biomass (F= C/B)
32	Coastal cod (0-1)	Rel biom.	40	1984-2014	Numbers at age 2 from VPA (recruitment) with lag -1 year was used as time-series for relative biomass for age 0-1 year (ICES 2019a)
33	Saithe (3+)	Biom.	41	1960-2014	(ICES 2019a)
		Catch	42	1951-2014	(ICES 2019a)
		F	43	1950-2014	Calculated from catch and biomass, F for the period 1950 to 1959 set to 0.15 year ⁻¹
34	Saithe (0-2)	Rel biom.	44	1958-2014	Numbers at age 3 (recruitment) with lag -1 year was used as time-series for relative biomass for age 0-2 year (ICES 2019a)
35	Haddock (3+)	Biom.	45	1950-2014	(ICES 2019a)
		Catch	46	1950-2014	(ICES 2019a)
		F	47	1950-2014	Calculated from catch and biomass
36	Haddock (0-2)	Rel biom.	48	1950-2014	Numbers at age 3 (recruitment) with lag -1 year was used as time-series for relative biomass for age 0-2 year (ICES 2019a)

38	Greenland halibut (≥ 45 cm)	Biom.	49	1992-2018	Biomass from Gadget model (ICES 2019a)
		Rel biom.	50	1964-2014	Standardized CPUE (1964-2014)
		Catch	51	1950-2015	(ICES 2019a)
		F	52	1992-2018	Calculated from catch and biomass
41	Wolffishes	Biom.	53	2007-2013	Trawl survey swept area estimate (Prozorkevich et al. 2018)
		Catch	54	1950 2000-2013	(Huse & Bakkevig 2018) (ICES 2019d)
		F	55	1950-2013	Assumed equal to F for Northeast arctic cod
46	Long rough dab	Biom.	56	1989-2013	Winter bottom trawl survey (Mehl et al. 2014)
48	Large herring	Biom.	57	1950-2013	1950-1988, values are equal to spawning stock estimates from (Torensen & Østvedt 2000). For 1989-2014, values are equal to spawning stock estimates from (ICES 2019b).
		F	58	1995-2013	Calculated as $F = \text{catch}/\text{biomass}$ from series above
49	Small herring	Biom.	59	1950-2013	For 1950-1971 (Torensen & Østvedt 2000), from 1972-2013 (ICES 2019a)
		Catch	60	1950-2013	(Torensen & Østvedt 2000)
		F	61	1950-2013	Calculated as $F = \text{catch}/\text{biomass}$ from series above
50	Capelin (3+)	Biom.	62	1950-2013	1950-1972 Reconstructed proxy from frequency of occurrence in cod stomachs (Gjøsæter 1998) 1973-2014 Acoustic estimates (ICES 2019a)
		Catch	63	1950-2013	1950-1964 (Gjøsæter 1998), 1965-2014 (ICES 2019a)
		F	64	1950-2013	Calculated as $F = \text{catch}/\text{biomass}$ from series above
51	Capelin (0-2)	Biom.	65	1973-2013	1950-1972 Reconstructed proxy from frequency of occurrence in cod stomachs (Gjøsæter 1998). 1973-2014 Acoustic estimates (ICES 2019a).
52	Polar cod (2+)	Biom.	66	1986-2013	Acoustic survey (Prozorkevich & Sunnanå 2017)
		Catch	67	1950-2010	ICES catch data (http://ices.dk/marine-data)
		F	68	1986-2010	Calculated as $F = \text{catch}/\text{biomass}$ from series above
53	Polar cod (0-1)	Biom.	69	1986-2013	Acoustic survey (Prozorkevich & Sunnanå 2017)
57	Lumpfish	Biom.	70	1990-2013	(Eriksen et al. 2014) and https://heima.hafro.is/~jim/project/populations/
		Catch	71	1970-2010	ICES catch data (http://ices.dk/marine-data)
		F	72	1970-2010	Calculated as $F = \text{catch}/\text{biomass}$ from series above
59	Large redfish	Biom.	73	1992-2013	Sum of stock biomass of <i>S. mentella</i> and <i>S. norvegicus</i> used as biomass (ICES 2019a)
		Catch	74	1950-2013	<i>S. mentella</i> and <i>S. norvegicus</i> (ICES 2019a)
		F	75	1992-2013	Calculated as $F = \text{catch}/\text{biomass}$ from series above
60	Small redfish	Rel biom.	76	1992-2013	Age 2 recruitment for <i>S. mentella</i> (ICES 2019a)
65	Schypomedusae	Rel. biom.	77	1980-2009	Pelagic trawl (Eriksen et al. 2012, Prozorkevich & Sunnanå 2017)
67	<i>Thysanoessa</i>	Rel biom.	78	1952-2005	Time-serie from pelagic trawl 0-group survey (Eriksen & Dalpadado 2011)

		Rel biom.	79	1952-2005	Time-serie from plankton net attached to bottom trawl, data for 1952-1992 (Drobysheva 1994) and for 1993-2005 (Johannessen et al. 2012)
70	Pelagic amphipods	Rel biom.	80	1985-2015	Time-serie from pelagic trawl survey (Stige et al. 2019)
71	Medium sized copepods	Biom.		1985-2015	Time-serie from net hauls, total mesozooplankton (Stige et al. 2019). Time-serie not used in fitting, but to compare with output
79	Deep-water shrimp	Biom.	81	1970-2015	Bottom trawl swept area index (Hvingel 2016)
		Catch	82	1950-2015	Catch data from 1970-2015 (Hvingel 2016). Catch in the period 1950-1970 was set to 3000 t WW
97	Diatoms	Forcing functions	83	1950-2013	PPR-proxy (PPS _i). Calculated from relationship between open water area and phytoplankton primary production, see explanation above, forcing biomass of biomass of diatoms
98	Autotroph flagellates	Forcing functions	84	1950-2013	PPR-proxy (PPS _i). Calculated from relationship between open water area and phytoplankton primary production, see explanation above, forcing biomass of biomass of autotroph flagellates
97	Diatoms	Forcing function	85	1950-2013	Constant PPR forcing functions forcing biomass of phytoplankton groups (diatoms), see explanation above
98	Autotroph flagellates	Forcing function	86	1950-2013	Constant PPR forcing functions forcing biomass of phytoplankton groups (autotroph flagellates), see explanation above
93	Ice-algae	Forcing function	87	1950-2013	Forcing function for ice-algae biomass and production. Calculated from ice-coverage area in June-July, see text above
84	Capelin age 0-2 other mortality	Forcing function	88	2000-2013	This forcing function is used to force other mortality of Capelin age 0-2 to simulate predation mortality from juvenile herring on capelin larvae, see explanation above
101	Snow-crab	Biom. Forcing function	89	2000-2013	Biomass of snow-crab. Biomass set to 1000 t C for 2000-2004, and from 2005-2013 biomasses were taken from ICES (2019d)
102	Large red king crab	Biom. Forcing function	90	2000-2013	Calculated from catches assuming a Catch/biomass ratio of 0.152 calculated from data from 2006-2016 and catches from 2000-2013 (ICES 2019d, Sundet et al. 2019)
		Catch	91	2000-2013	Catches of red king crab (ICES 2019d, Sundet et al. 2019)
		F	92	2000-2013	Fishing mortality = catch/biomass

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Part B - Overview of time-series data

Pool code refer to functional group number. Serie number (Ser. No.) refer to time-series number in Supplementary Appendix S4 Part A.

Type refer to data type of time series

- 1 Forced biomass (forcing)
- 0 Relative biomasses
- 1 Absolute biomass
- 2 Time forcing data (forcing)
- 4 Fishing mortality, (F) by pool (forcing)
- 6 Forced catches (forcing)
- 6 Catches

Ser. No	1	2	3	4	5	6	7	8	9	10
Name	PBEAR	C_PBEAR	MINKE1	MINKE2	CMINKE	FMINKE	FINW	HUMP	DOLP	HPORP
Pool code	1	1	2	2	2	2	3	6	9	10
Type	-1	-6	1	1	6	4	1	1	1	1
1950	3.3E-04	3.2E-05	1.1E-02		5.3E-04	4.9E-02				
1951	3.2E-04	2.2E-05	1.1E-02		7.4E-04	6.8E-02				
1952	3.1E-04	9.1E-06	1.1E-02		8.9E-04	8.4E-02				
1953	3.1E-04	2.1E-05	1.0E-02		6.5E-04	6.3E-02				
1954	3.0E-04	1.3E-05	1.0E-02		9.4E-04	9.0E-02				
1955	2.9E-04	2.8E-05	1.0E-02		1.2E-03	1.1E-01				
1956	2.9E-04	2.0E-05	1.0E-02		9.8E-04	9.8E-02				
1957	2.8E-04	1.8E-05	9.6E-03		9.7E-04	1.0E-01				
1958	2.7E-04	9.6E-06	9.3E-03		1.2E-03	1.2E-01				
1959	2.6E-04	2.0E-05	9.1E-03		8.2E-04	9.0E-02				
1960	2.6E-04	1.0E-05	9.0E-03		8.7E-04	9.6E-02				
1961	2.5E-04	7.6E-06	8.8E-03		8.3E-04	9.4E-02				
1962	2.4E-04	1.1E-05	8.8E-03		8.0E-04	9.1E-02				
1963	2.3E-04	1.9E-05	8.7E-03		8.2E-04	9.5E-02				
1964	2.3E-04	2.6E-05	8.6E-03		6.6E-04	7.7E-02				
1965	2.2E-04	2.6E-05	8.5E-03		5.7E-04	6.7E-02				
1966	2.1E-04	1.0E-05	8.5E-03		5.1E-04	6.0E-02				
1967	2.0E-04	1.6E-05	8.5E-03		4.7E-04	5.5E-02				
1968	2.0E-04	1.6E-05	8.5E-03		5.3E-04	6.3E-02				
1969	1.9E-04	2.1E-05	8.5E-03		5.4E-04	6.3E-02				
1970	1.8E-04	3.1E-05	8.4E-03		4.1E-04	4.8E-02				
1971	1.7E-04	7.0E-06	8.4E-03		4.1E-04	4.8E-02				
1972	1.7E-04	3.7E-06	8.4E-03		5.9E-04	7.0E-02				
1973	1.6E-04	2.5E-06	8.4E-03		4.1E-04	4.9E-02				
1974	1.6E-04	2.4E-07	8.5E-03		3.7E-04	4.4E-02				
1975	1.6E-04	1.8E-07	8.5E-03		3.8E-04	4.4E-02				
1976	1.6E-04	1.8E-07	8.5E-03		5.4E-04	6.3E-02				
1977	1.6E-04	1.8E-07	8.4E-03		5.1E-04	6.0E-02				
1978	1.6E-04	1.8E-07	8.5E-03		4.2E-04	4.9E-02				
1979	1.6E-04	3.6E-07	8.5E-03		5.4E-04	6.4E-02				
1980	1.6E-04	2.4E-07	8.5E-03		5.1E-04	5.9E-02				
1981	1.6E-04	6.0E-08	8.5E-03		5.1E-04	6.0E-02				
1982	1.6E-04	2.4E-07	8.5E-03		5.1E-04	6.0E-02				
1983	1.6E-04	3.6E-07	8.5E-03		4.9E-04	5.8E-02				
1984	1.6E-04	2.4E-07	8.5E-03		1.8E-04	2.1E-02				
1985	1.6E-04	1.2E-07	8.7E-03		1.6E-04	1.8E-02				
1986	1.6E-04	1.8E-07	8.8E-03		6.1E-05	6.9E-03				
1987	1.6E-04	5.4E-07	9.0E-03		8.2E-05	9.1E-03				
1988	1.6E-04	4.2E-07	9.2E-03		8.7E-06	9.5E-04				
1989	1.6E-04	1.2E-07	9.3E-03	7.7E-03	4.5E-06	4.8E-04			1.0E-03	4.7E-05
1990	1.6E-04	1.8E-07	9.5E-03		1.6E-06	1.7E-04				
1991	1.6E-04	6.0E-08	9.6E-03		1.0E-08	1.0E-06				
1992	1.6E-04	2.4E-07	9.8E-03		2.3E-05	2.4E-03				
1993	1.6E-04	3.6E-07	1.0E-02		4.6E-05	4.6E-03				
1994	1.6E-04	1.2E-07	1.0E-02		6.4E-05	6.3E-03				
1995	1.6E-04	4.8E-07	1.0E-02	1.3E-02	4.9E-05	4.8E-03	4.5E-03	9.2E-04	9.7E-04	
1996	1.6E-04	6.0E-08	1.0E-02		9.5E-05	9.3E-03				
1997	1.6E-04	5.0E-16	1.0E-02		1.2E-04	1.2E-02				
1998	1.6E-04	3.0E-07	1.1E-02	1.0E-02	1.1E-04	1.1E-02	2.8E-03	8.5E-04		
1999	1.6E-04	5.0E-16	1.1E-02		1.2E-04	1.1E-02				
2000	1.6E-04	2.4E-07	1.1E-02		8.8E-05	8.3E-03				
2001	1.6E-04	1.2E-07	1.1E-02		1.2E-04	1.1E-02				
2002	1.6E-04	3.0E-07	1.1E-02		1.3E-04	1.2E-02				
2003	1.6E-04	1.8E-07	1.1E-02		1.6E-04	1.4E-02				
2004	1.6E-04	3.0E-07	1.1E-02		1.3E-04	1.1E-02				
2005	1.6E-04	6.0E-08	1.1E-02	1.1E-02	1.9E-04	1.7E-02		7.4E-03	2.2E-03	2.3E-04
2006	1.6E-04	6.0E-08	1.1E-02		1.2E-04	1.1E-02				
2007	1.6E-04	6.0E-08	1.1E-02		1.3E-04	1.2E-02				
2008	1.6E-04	1.2E-07	1.1E-02		1.1E-04	9.3E-03				
2009	1.6E-04	1.2E-07	1.1E-02		1.6E-04	1.4E-02				
2010	1.6E-04	1.2E-07		7.6E-03	1.5E-04		6.5E-03	9.8E-03	1.9E-03	9.9E-05
2011	1.6E-04	6.0E-08			1.7E-04					
2012	1.6E-04	5.0E-16			1.5E-04					
2013	1.6E-04	1.8E-07			1.9E-04					

	11	12	13	14	15	16	17	18	19	20
Name	KILL	CKILL	SPERM	HARP	CHARP	FHARP	HARBS	CHARBS	GREY	CGREY
Pool code	11	11	12	13	13	13	14	14	15	15
Type	1	-6	1	1	6	4	1	-6	1	-6
1950		1.8E-07		3.7E-02	4.1E-03	1.1E-01				
1951		2.4E-06		3.6E-02	3.5E-03	9.5E-02				
1952		1.3E-06		3.6E-02	3.5E-03	9.7E-02				
1953		6.1E-07		3.5E-02	2.2E-03	6.2E-02				
1954		8.8E-07		3.4E-02	3.9E-03	1.1E-01				
1955		4.4E-07		3.3E-02	2.7E-03	8.2E-02				
1956		2.1E-06		3.2E-02	2.2E-03	6.7E-02				
1957		1.7E-06		3.2E-02	3.0E-03	9.5E-02				
1958		3.7E-06		3.1E-02	3.1E-03	9.8E-02				
1959		4.8E-06		3.0E-02	2.5E-03	8.3E-02				
1960		4.0E-06		2.9E-02	2.4E-03	8.1E-02				
1961		2.4E-06		2.9E-02	2.5E-03	8.6E-02				
1962		2.9E-06		2.8E-02	2.8E-03	9.7E-02				
1963		5.0E-06		2.8E-02	1.8E-03	6.5E-02				
1964		1.8E-06		2.8E-02	1.9E-03	6.7E-02				
1965		1.8E-06		2.8E-02	6.4E-04	2.3E-02				
1966		6.4E-06		2.8E-02	7.8E-04	2.8E-02				
1967		6.1E-07		2.9E-02	7.6E-04	2.6E-02				
1968		7.0E-07		3.0E-02	8.4E-04	2.8E-02				
1969		1.1E-06		3.0E-02	8.2E-04	2.7E-02				
1970		2.0E-06		3.1E-02	9.2E-04	2.9E-02				
1971		4.4E-07		3.2E-02	8.7E-04	2.7E-02				
1972		6.1E-07		3.3E-02	1.0E-03	3.2E-02				
1973		8.8E-08		3.4E-02	1.0E-03	3.1E-02				
1974		4.4E-07		3.4E-02	8.8E-04	2.6E-02				
1975		8.8E-08		3.5E-02	9.7E-04	2.8E-02				
1976		0.0E+00		3.5E-02	1.0E-03	2.9E-02				
1977		6.1E-07		3.5E-02	1.0E-03	2.8E-02				
1978		5.7E-06		3.5E-02	8.7E-04	2.5E-02				
1979		1.9E-05		3.5E-02	1.2E-03	3.3E-02				
1980		4.6E-06		3.6E-02	1.2E-03	3.5E-02				1.7E-06
1981		9.6E-07		3.6E-02	1.5E-03	4.1E-02				1.7E-06
1982		8.0E-05		3.6E-02	1.8E-03	5.1E-02				1.7E-06
1983		5.6E-06		3.6E-02	2.0E-03	5.5E-02				1.7E-06
1984		2.5E-06		3.5E-02	1.8E-03	5.0E-02				1.7E-06
1985		1.8E-09		3.5E-02	1.9E-03	5.5E-02				1.7E-06
1986		1.0E-10		3.4E-02	1.9E-03	5.6E-02				2.0E-06
1987		1.0E-10		3.4E-02	1.6E-03	4.6E-02				2.0E-06
1988		1.0E-10		3.3E-02	1.7E-03	5.2E-02				2.0E-06
1989		1.0E-10		3.1E-02	1.0E-03	3.3E-02				2.0E-06
1990		1.0E-10		3.0E-02	1.0E-03	3.4E-02				2.3E-07
1991		1.0E-10		2.9E-02	1.0E-03	3.4E-02				2.3E-07
1992		1.0E-10		2.9E-02	8.8E-04	3.0E-02				2.3E-07
1993		1.0E-10		2.9E-02	9.6E-04	3.4E-02				2.3E-07
1994	2.7E-04	1.0E-10		2.8E-02	1.0E-03	3.5E-02				2.3E-07
1995		1.0E-10	4.4E-04	2.8E-02	8.7E-04	3.1E-02				2.3E-07
1996		1.0E-10		2.8E-02	9.8E-04	3.5E-02				2.3E-07
1997		1.0E-10		2.8E-02	8.7E-04	3.2E-02		9.9E-08		2.3E-07
1998		1.0E-10	3.8E-04	2.7E-02	3.4E-04	1.2E-02				2.3E-07
1999		1.0E-10		2.7E-02	8.6E-04	3.2E-02		6.3E-07		1.6E-06
2000		1.0E-10		2.7E-02	1.1E-03	4.0E-02		6.6E-07		7.2E-07
2001		1.0E-10		2.7E-02	1.1E-03	4.0E-02		6.3E-07		3.4E-07
2002		1.0E-10		2.6E-02	8.7E-04	3.4E-02		6.3E-07	1.3E-04	6.9E-07
2003		1.0E-10		2.5E-02	1.0E-03	4.1E-02		6.3E-07		1.7E-06
2004		1.0E-10		2.5E-02	7.9E-07	3.1E-05		2.2E-06		2.8E-06
2005		1.0E-10	2.0E-04	2.5E-02	5.9E-04	2.4E-02		3.3E-06		4.0E-06
2006		1.0E-10		2.5E-02	4.1E-04	1.7E-02		1.8E-06		4.8E-06
2007		1.0E-10		2.5E-02	2.8E-04	1.1E-02		2.3E-06	1.4E-04	6.0E-06
2008		1.0E-10		2.4E-02	3.2E-04	1.3E-02		2.4E-06		6.9E-06
2009		1.0E-10		2.5E-02	0.0E+00	0.0E+00		2.4E-06		6.9E-06
2010		1.0E-10	6.1E-04	2.5E-02	2.9E-06	1.1E-04	5.0E-05	3.1E-07	1.6E-04	6.5E-06
2011		1.0E-10		2.6E-02	4.8E-06	1.9E-04		1.1E-06		0.0E+00
2012		1.0E-10		2.6E-02	2.2E-07	8.3E-06		1.2E-06		2.6E-07
2013		1.0E-10		2.7E-02	0.0E+00	0.0E+00		1.4E-06		2.0E-06

	21	22	23	24	25	26	27	28	29	30
Name	RINGED	BEARDED	WALRUS	FULM	KITTI	OGULL	LAUK	BRUGUILL	CGUILL	PUFF
Pool code	16	17	18	19	20	21	22	23	24	25
Type	1	1	1	1	1	1	1	1	1	1
1950										
1951										
1952										
1953										
1954										
1955										
1956										
1957										
1958										
1959										
1960										
1961										
1962										
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1981										
1982										
1983										
1984										
1985										
1986										
1987										
1988										
1989										
1990										
1991										
1992				9.2E-05	5.5E-05	2.8E-05	2.3E-05	3.3E-04	2.5E-05	6.4E-05
1993										
1994										
1995										
1996										
1997										
1998										
1999										
2000										
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009	6.4E-04	3.5E-04								
2010										
2011			1.5E-03							
2012										
2013										

	31	32	33	34	35	36	37	38	39	40
Name	BPISCBI	BINVBI	NEAC3+	CNEAC3+	FNEAC3-6	NEAC0-2	NCC2+	CNCC	F_NCC	NCC 0-1
Pool code	26	27	29	29	29	30	31	31	31	32
Type	1	1	1	6	4	0	1	6	4	0
1950			1.4E-01	3.7E-02	2.6E-01	2.2E+06			2.6E-01	
1951			1.9E-01	4.2E-02	2.2E-01	3.0E+06			2.2E-01	
1952			2.0E-01	4.4E-02	2.2E-01	8.3E+05			2.2E-01	
1953			2.1E-01	3.5E-02	1.7E-01	3.6E+05			1.7E-01	
1954			2.2E-01	4.2E-02	1.9E-01	7.3E+05			1.9E-01	
1955			1.8E-01	5.8E-02	3.2E-01	1.5E+06			3.2E-01	
1956			1.7E-01	6.7E-02	4.0E-01	1.0E+06			4.0E-01	
1957			1.4E-01	4.0E-02	2.8E-01	1.3E+06			2.8E-01	
1958			1.2E-01	3.9E-02	3.2E-01	1.6E+06			3.2E-01	
1959			1.4E-01	3.7E-02	2.7E-01	1.6E+06			2.7E-01	
1960			1.2E-01	3.1E-02	2.6E-01	1.3E+06			2.6E-01	
1961			1.2E-01	3.9E-02	3.2E-01	8.3E+05			3.2E-01	
1962			1.1E-01	4.6E-02	4.1E-01	4.3E+05			4.1E-01	
1963			1.0E-01	3.9E-02	3.9E-01	8.7E+05			3.9E-01	
1964			7.3E-02	2.2E-02	3.0E-01	2.2E+06			3.0E-01	
1965			7.3E-02	2.2E-02	3.1E-01	1.5E+06			3.1E-01	
1966			1.2E-01	2.4E-02	2.0E-01	1.7E+05			2.0E-01	
1967			1.5E-01	2.9E-02	1.9E-01	9.5E+04			1.9E-01	
1968			1.8E-01	5.4E-02	3.1E-01	2.2E+05			3.1E-01	
1969			1.5E-01	6.0E-02	4.1E-01	3.8E+05			4.1E-01	
1970			1.1E-01	4.7E-02	4.4E-01	9.4E+05			4.4E-01	
1971			8.2E-02	3.5E-02	4.2E-01	2.2E+05			4.2E-01	
1972			8.1E-02	2.8E-02	3.5E-01	5.8E+05			3.5E-01	
1973			1.2E-01	4.0E-02	3.3E-01	5.7E+05			3.3E-01	
1974			1.2E-01	5.5E-02	4.8E-01	6.9E+05			4.8E-01	
1975			1.0E-01	4.2E-02	4.0E-01	3.4E+05			4.0E-01	
1976			1.0E-01	4.4E-02	4.4E-01	7.2E+05			4.4E-01	
1977			9.9E-02	4.5E-02	4.6E-01	1.9E+05			4.6E-01	
1978			8.1E-02	3.5E-02	4.4E-01	1.2E+05			4.4E-01	
1979			5.6E-02	2.2E-02	3.9E-01	1.5E+05			3.9E-01	
1980			4.3E-02	1.9E-02	4.4E-01	2.0E+05			4.4E-01	
1981			4.8E-02	2.0E-02	4.1E-01	1.5E+05			4.1E-01	
1982			3.8E-02	1.8E-02	4.8E-01	3.9E+05			4.8E-01	
1983			3.7E-02	1.5E-02	3.9E-01	6.2E+05			3.9E-01	
1984			4.1E-02	1.4E-02	3.4E-01	1.0E+06	8.5E-03	3.9E-03	4.6E-01	6.4E+04
1985			5.2E-02	1.5E-02	3.0E-01	3.2E+05	9.5E-03	3.8E-03	4.0E-01	1.7E+04
1986			7.0E-02	2.2E-02	3.1E-01	2.9E+05	9.8E-03	3.5E-03	3.6E-01	2.1E+04
1987			6.2E-02	2.6E-02	4.3E-01	1.9E+05	9.2E-03	3.1E-03	3.4E-01	3.4E+04
1988			4.9E-02	2.2E-02	4.4E-01	1.6E+05	9.0E-03	3.5E-03	3.9E-01	3.8E+04
1989			4.8E-02	1.7E-02	3.5E-01	3.8E+05	8.2E-03	2.8E-03	3.4E-01	3.6E+04
1990			4.9E-02	1.1E-02	2.2E-01	8.0E+05	8.6E-03	1.8E-03	2.1E-01	4.5E+04
1991			7.6E-02	1.6E-02	2.1E-01	8.9E+05	1.0E-02	2.0E-03	2.0E-01	3.2E+04
1992	9.1E-06	4.5E-05	9.5E-02	2.6E-02	2.7E-01	7.0E+05	1.2E-02	2.7E-03	2.3E-01	1.7E+04
1993			1.2E-01	2.9E-02	2.5E-01	4.9E+05	1.2E-02	3.3E-03	2.7E-01	1.5E+04
1994			1.1E-01	3.9E-02	3.7E-01	4.5E+05	1.2E-02	3.3E-03	2.8E-01	2.0E+04
1995			9.0E-02	3.7E-02	4.2E-01	6.8E+05	1.1E-02	4.0E-03	3.8E-01	2.7E+04
1996			8.3E-02	3.7E-02	4.4E-01	1.1E+06	9.2E-03	2.8E-03	3.1E-01	2.9E+04
1997			7.6E-02	3.8E-02	5.0E-01	5.3E+05	7.3E-03	3.3E-03	4.5E-01	2.9E+04
1998			6.5E-02	3.0E-02	4.6E-01	6.3E+05	6.9E-03	2.3E-03	3.3E-01	2.9E+04
1999			5.9E-02	2.4E-02	4.1E-01	5.8E+05	7.6E-03	2.5E-03	3.3E-01	2.6E+04
2000			6.0E-02	2.1E-02	3.5E-01	3.9E+05	7.1E-03	2.4E-03	3.4E-01	2.6E+04
2001			7.3E-02	2.1E-02	2.9E-01	7.4E+05	7.5E-03	2.0E-03	2.7E-01	2.4E+04
2002			8.1E-02	2.7E-02	3.3E-01	2.5E+05	8.7E-03	2.5E-03	2.9E-01	2.4E+04
2003			8.5E-02	2.8E-02	3.3E-01	6.1E+05	7.5E-03	2.5E-03	3.3E-01	2.2E+04
2004			8.1E-02	3.0E-02	3.8E-01	5.5E+05	7.9E-03	2.4E-03	3.0E-01	2.1E+04
2005			7.9E-02	3.2E-02	4.1E-01	1.5E+06	8.1E-03	2.1E-03	2.6E-01	2.1E+04
2006			7.8E-02	2.7E-02	3.5E-01	1.2E+06	9.3E-03	2.6E-03	2.8E-01	2.7E+04
2007			9.9E-02	2.4E-02	2.5E-01	6.8E+05	9.4E-03	2.1E-03	2.3E-01	2.9E+04
2008			1.4E-01	2.3E-02	1.7E-01	2.9E+05	9.7E-03	2.4E-03	2.5E-01	2.6E+04
2009			1.7E-01	2.6E-02	1.5E-01	4.5E+05	9.1E-03	2.1E-03	2.4E-01	2.6E+04
2010			1.9E-01	3.1E-02	1.6E-01	5.7E+05	9.8E-03	2.7E-03	2.7E-01	3.2E+04
2011			2.0E-01	3.6E-02	1.8E-01	6.3E+05	9.8E-03	2.5E-03	2.5E-01	2.4E+04
2012			2.1E-01	3.7E-02	1.8E-01	7.7E+05	9.9E-03	2.4E-03	2.4E-01	2.6E+04
2013			2.3E-01	4.9E-02	2.2E-01	4.5E+05	9.5E-03	2.2E-03	2.3E-01	2.3E+04

	41	42	43	44	45	46	47	48	49	50
Name	SAI3+	CSAI	FSAI4	SAI0-2	HAD3+	CHAD3+	FHAD3+	HAD0-2	GHAI	CPUE_GRI
Pool code	33	33	33	34	35	35	35	36	38	38
Type	1	6	4	0	1	6	4	0	1	0
1950		0.0E+00	1.5E-01		1.9E-02	6.6E-03	3.4E-01	6.4E+05		
1951		3.1E-03	1.5E-01		2.2E-02	6.0E-03	2.8E-01	9.6E+04		
1952		3.6E-03	1.5E-01		2.1E-02	6.4E-03	3.0E-01	1.1E+06		
1953		3.7E-03	1.5E-01		3.4E-02	6.2E-03	1.8E-01	1.3E+05		
1954		3.1E-03	1.5E-01		3.8E-02	7.9E-03	2.1E-01	5.5E+04		
1955		3.1E-03	1.5E-01		3.7E-02	1.0E-02	2.8E-01	2.3E+05		
1956		3.4E-03	1.5E-01		3.2E-02	1.1E-02	3.4E-01	5.8E+04		
1957		3.9E-03	1.5E-01		2.2E-02	6.2E-03	2.8E-01	6.6E+04		
1958		3.4E-03	1.5E-01	8.5E+04	1.6E-02	5.7E-03	3.6E-01	3.8E+04		
1959		4.1E-03	1.5E-01	1.1E+05	1.7E-02	4.4E-03	2.7E-01	3.3E+05		
1960	2.1E-02	4.1E-03	1.9E-01	2.0E+05	2.1E-02	7.8E-03	3.7E-01	1.5E+05		
1961	2.0E-02	3.2E-03	1.6E-01	2.7E+05	2.0E-02	9.7E-03	4.8E-01	3.1E+05		
1962	2.2E-02	3.7E-03	1.7E-01	8.1E+04	1.9E-02	9.4E-03	5.0E-01	3.2E+05		
1963	2.6E-02	4.6E-03	1.8E-01	2.5E+05	1.8E-02	7.3E-03	4.1E-01	1.2E+05		
1964	2.5E-02	6.1E-03	2.4E-01	1.3E+05	1.9E-02	5.0E-03	2.6E-01	3.0E+05		2.01E+00
1965	2.6E-02	5.7E-03	2.2E-01	1.8E+05	1.8E-02	6.0E-03	3.2E-01	3.1E+05		1.42E+00
1966	2.5E-02	6.2E-03	2.5E-01	1.4E+05	2.1E-02	8.1E-03	3.8E-01	1.6E+04		1.28E+00
1967	2.4E-02	5.6E-03	2.3E-01	2.6E+05	2.2E-02	6.9E-03	3.1E-01	2.1E+04		1.46E+00
1968	2.3E-02	3.4E-03	1.5E-01	2.2E+05	2.0E-02	9.1E-03	4.5E-01	2.0E+05		1.60E+00
1969	2.7E-02	4.3E-03	1.6E-01	2.3E+05	1.5E-02	6.6E-03	4.3E-01	9.4E+04		1.68E+00
1970	3.0E-02	8.1E-03	2.7E-01	1.5E+05	1.4E-02	4.4E-03	3.2E-01	9.4E+04		1.31E+00
1971	2.9E-02	7.4E-03	2.5E-01	2.0E+05	1.2E-02	4.0E-03	3.2E-01	1.1E+06		9.10E-01
1972	2.7E-02	6.6E-03	2.4E-01	1.0E+05	3.0E-02	1.3E-02	4.4E-01	3.2E+05		7.70E-01
1973	2.6E-02	6.6E-03	2.5E-01	1.7E+05	3.4E-02	1.6E-02	4.8E-01	7.1E+04		9.10E-01
1974	2.2E-02	8.1E-03	3.6E-01	2.2E+05	2.6E-02	1.1E-02	4.3E-01	6.1E+04		9.80E-01
1975	1.9E-02	7.2E-03	3.8E-01	2.0E+05	1.9E-02	8.8E-03	4.7E-01	6.6E+04		8.00E-01
1976	1.7E-02	7.4E-03	4.5E-01	1.4E+05	1.4E-02	6.9E-03	4.9E-01	1.3E+05		6.20E-01
1977	1.5E-02	5.6E-03	3.8E-01	2.0E+05	1.0E-02	5.5E-03	5.5E-01	2.1E+05		4.70E-01
1978	1.3E-02	4.8E-03	3.7E-01	1.2E+05	9.9E-03	4.8E-03	4.8E-01	1.5E+05		5.50E-01
1979	1.3E-02	5.0E-03	4.0E-01	2.3E+05	1.0E-02	5.2E-03	5.1E-01	1.9E+04		6.60E-01
1980	1.2E-02	4.4E-03	3.7E-01	1.3E+05	1.0E-02	4.4E-03	4.3E-01	9.2E+03		6.60E-01
1981	1.4E-02	5.4E-03	3.9E-01	1.0E+05	8.1E-03	3.9E-03	4.8E-01	1.6E+04		1.06E+00
1982	1.2E-02	5.2E-03	4.2E-01	9.3E+04	6.0E-03	2.4E-03	3.9E-01	9.9E+03		1.09E+00
1983	1.3E-02	4.8E-03	3.8E-01	1.0E+05	4.5E-03	1.2E-03	2.8E-01	1.5E+04		9.40E-01
1984	9.9E-03	4.9E-03	4.9E-01	1.8E+05	3.6E-03	1.1E-03	2.9E-01	3.3E+05		9.80E-01
1985	8.3E-03	3.3E-03	4.0E-01	1.4E+05	9.1E-03	2.3E-03	2.5E-01	4.6E+05		1.20E+00
1986	8.2E-03	2.1E-03	2.5E-01	8.1E+04	1.8E-02	5.1E-03	2.8E-01	8.3E+04		1.02E+00
1987	8.7E-03	2.8E-03	3.2E-01	7.7E+04	1.7E-02	7.8E-03	4.7E-01	3.8E+04		9.10E-01
1988	9.2E-03	3.5E-03	3.8E-01	8.6E+04	1.2E-02	4.8E-03	3.8E-01	3.2E+04		8.40E-01
1989	8.7E-03	3.8E-03	4.3E-01	2.2E+05	9.6E-03	2.9E-03	3.1E-01	3.9E+04		7.70E-01
1990	8.3E-03	2.9E-03	3.5E-01	2.8E+05	7.9E-03	1.4E-03	1.7E-01	1.0E+05		5.80E-01
1991	1.1E-02	3.3E-03	3.0E-01	2.1E+05	9.3E-03	1.8E-03	2.0E-01	3.1E+05		5.10E-01
1992	1.4E-02	3.9E-03	2.7E-01	1.5E+05	1.5E-02	3.0E-03	2.0E-01	8.5E+05	3.3E-02	
1993	1.6E-02	4.7E-03	2.9E-01	2.8E+05	2.8E-02	4.1E-03	1.5E-01	3.0E+05	4.0E-02	
1994	1.5E-02	4.5E-03	3.0E-01	1.6E+05	3.2E-02	6.8E-03	2.1E-01	7.9E+04	4.5E-02	
1995	1.8E-02	5.2E-03	2.9E-01	1.6E+05	3.2E-02	7.2E-03	2.3E-01	9.4E+04	4.9E-02	
1996	2.1E-02	5.3E-03	2.5E-01	1.0E+05	2.7E-02	9.0E-03	3.3E-01	9.7E+04	5.0E-02	7.60E-01
1997	2.2E-02	4.4E-03	2.0E-01	2.4E+05	2.0E-02	7.8E-03	3.9E-01	6.5E+04	5.1E-02	8.90E-01
1998	2.5E-02	4.7E-03	1.9E-01	1.6E+05	1.4E-02	5.1E-03	3.6E-01	2.0E+05	5.1E-02	9.20E-01
1999	2.5E-02	4.6E-03	1.9E-01	2.2E+05	1.3E-02	4.2E-03	3.2E-01	8.2E+04	5.1E-02	1.08E+00
2000	2.5E-02	4.2E-03	1.6E-01	3.5E+05	1.2E-02	3.5E-03	3.0E-01	3.5E+05	5.0E-02	1.04E+00
2001	2.7E-02	4.2E-03	1.5E-01	1.5E+05	1.5E-02	4.5E-03	3.1E-01	3.6E+05	5.0E-02	1.35E+00
2002	3.2E-02	4.7E-03	1.5E-01	1.5E+05	2.1E-02	5.8E-03	2.8E-01	2.5E+05	5.0E-02	9.20E-01
2003	3.1E-02	5.0E-03	1.6E-01	4.2E+05	2.4E-02	7.0E-03	2.9E-01	2.2E+04	5.0E-02	9.60E-01
2004	3.1E-02	5.0E-03	1.6E-01	7.3E+04	2.4E-02	8.0E-03	3.4E-01	3.5E+05	5.0E-02	5.70E-01
2005	3.4E-02	5.5E-03	1.6E-01	1.1E+05	2.5E-02	8.0E-03	3.2E-01	1.6E+05	5.0E-02	6.10E-01
2006	2.9E-02	6.5E-03	2.3E-01	1.9E+05	2.2E-02	7.7E-03	3.6E-01	8.8E+05	5.1E-02	5.50E-01
2007	2.7E-02	6.1E-03	2.2E-01	1.4E+05	3.0E-02	8.1E-03	2.7E-01	1.3E+06	5.3E-02	5.50E-01
2008	2.3E-02	5.7E-03	2.5E-01	2.6E+05	4.4E-02	7.8E-03	1.8E-01	1.0E+06	5.6E-02	5.50E-01
2009	2.1E-02	5.0E-03	2.4E-01	1.1E+05	5.6E-02	1.0E-02	1.8E-01	3.1E+05	6.0E-02	1.01E+00
2010	2.1E-02	6.0E-03	2.8E-01	1.5E+05	6.5E-02	1.3E-02	1.9E-01	1.1E+05	6.4E-02	1.20E+00
2011	1.8E-02	4.8E-03	2.7E-01	2.1E+05	5.9E-02	1.6E-02	2.6E-01	2.9E+05	6.7E-02	1.88E+00
2012	1.8E-02	4.9E-03	2.7E-01	1.1E+05	5.5E-02	1.6E-02	2.9E-01	1.1E+05	6.9E-02	1.37E+00
2013	1.9E-02	4.0E-03	2.1E-01	1.6E+05	4.8E-02	9.7E-03	2.0E-01	3.3E+05	7.0E-02	1.24E+00

	51	52	53	54	55	56	57	58	59
Name	CGRHAL	FCGRHAL	BWOLFF	FWOLFF	CWOLFF	LRD	B_LHERR	F_LHERR	HERR1-2A
Pool code	38	38	41	41	41	46	48	48	49
Type	-6	4	0	4	6	0	-1	4	-1
1950	1.8E-04			2.63E-01	7.03E-04		3.14E-01	6.67E-02	6.63E-02
1951	2.5E-04			2.24E-01			2.80E-01	1.03E-01	2.15E-01
1952	2.6E-04			2.19E-01			2.58E-01	1.09E-01	4.50E-01
1953	2.3E-04			1.66E-01			2.42E-01	1.01E-01	7.83E-02
1954	3.6E-04			1.90E-01			2.17E-01	1.71E-01	5.12E-02
1955	2.9E-04			3.16E-01			2.35E-01	1.30E-01	3.52E-02
1956	3.5E-04			3.99E-01			2.70E-01	1.38E-01	1.25E-02
1957	4.1E-04			2.85E-01			2.33E-01	1.27E-01	1.05E-02
1958	3.7E-04			3.20E-01			2.14E-01	1.04E-01	9.39E-03
1959	7.1E-04			2.71E-01			1.69E-01	1.48E-01	7.51E-03
1960	9.8E-04			2.59E-01			1.34E-01	1.85E-01	9.81E-02
1961	1.1E-03			3.24E-01			9.76E-02	1.91E-01	2.37E-01
1962	1.2E-03			4.10E-01			8.11E-02	2.35E-01	8.35E-02
1963	1.3E-03			3.91E-01			6.15E-02	3.60E-01	3.28E-02
1964	3.6E-03			3.01E-01			7.24E-02	3.98E-01	4.24E-02
1965	3.1E-03			3.05E-01			8.25E-02	4.22E-01	1.10E-01
1966	2.3E-03			2.00E-01			6.32E-02	6.95E-01	4.42E-02
1967	2.2E-03			1.92E-01			3.07E-02	1.23E+00	1.24E-02
1968	2.3E-03			3.06E-01			5.78E-03	2.77E+00	5.03E-03
1969	3.9E-03			4.10E-01			1.93E-03	7.79E-01	1.50E-03
1970	8.0E-03			4.37E-01			8.10E-04	1.72E+00	1.73E-03
1971	7.0E-03			4.21E-01			2.25E-04	2.10E+00	7.06E-03
1972	3.8E-03			3.53E-01			4.50E-05	6.50E+00	1.50E-04
1973	2.7E-03			3.27E-01			1.73E-03	9.09E-02	1.50E-04
1974	3.4E-03			4.77E-01			1.98E-03	8.66E-02	3.61E-03
1975	3.4E-03			3.98E-01			2.16E-03	1.43E-01	5.56E-03
1976	3.2E-03			4.37E-01			3.37E-03	6.96E-02	2.93E-03
1977	2.6E-03			4.59E-01			6.54E-03	7.80E-02	3.46E-03
1978	2.2E-03			4.35E-01			8.19E-03	5.45E-02	3.91E-03
1979	1.5E-03			3.92E-01			8.88E-03	3.26E-02	2.93E-03
1980	1.2E-03			4.42E-01			1.08E-02	3.87E-02	4.96E-03
1981	1.3E-03			4.14E-01			1.16E-02	2.67E-02	3.53E-03
1982	1.5E-03			4.84E-01			1.16E-02	3.22E-02	6.76E-04
1983	2.0E-03			3.93E-01			1.32E-02	3.94E-02	9.01E-04
1984	1.9E-03			3.37E-01			1.38E-02	8.73E-02	1.10E-01
1985	1.8E-03			2.99E-01			1.18E-02	3.25E-01	1.98E-01
1986	2.0E-03			3.10E-01			1.02E-02	4.96E-01	1.43E-02
1987	1.7E-03			4.27E-01			2.32E-02	1.23E-01	2.16E-02
1988	1.7E-03			4.42E-01			7.47E-02	4.07E-02	4.21E-03
1989	1.8E-03			3.48E-01		6.42E+01	7.38E-02	3.16E-02	1.17E-02
1990	2.1E-03			2.19E-01		5.30E+01	7.98E-02	2.43E-02	3.51E-02
1991	3.0E-03			2.11E-01		7.88E+01	7.47E-02	2.55E-02	7.17E-02
1992	7.7E-04	2.32E-02		2.71E-01		8.22E+01	7.54E-02	3.12E-02	1.53E-01
1993	1.1E-03	2.65E-02		2.51E-01		1.36E+02	7.47E-02	7.00E-02	2.74E-01
1994	8.2E-04	1.81E-02		3.65E-01		1.07E+02	7.76E-02	1.39E-01	2.25E-01
1995	1.0E-03	2.15E-02		4.15E-01		9.90E+01	7.92E-02	2.57E-01	6.17E-02
1996	1.3E-03	2.53E-02		4.42E-01		1.10E+02	9.24E-02	2.97E-01	2.25E-02
1997	8.4E-04	1.64E-02		5.01E-01		7.36E+01	1.21E-01	2.65E-01	2.62E-02
1998	1.1E-03	2.07E-02		4.56E-01		6.99E+01	1.34E-01	2.06E-01	4.66E-02
1999	1.7E-03	3.42E-02		4.11E-01		1.23E+02	1.31E-01	2.12E-01	8.11E-02
2000	1.3E-03	2.55E-02	1.58E-03	3.50E-01		1.40E+02	1.09E-01	2.49E-01	1.60E-01
2001	1.5E-03	2.92E-02	1.83E-03	2.92E-01		1.78E+02	9.43E-02	1.83E-01	1.16E-01
2002	1.2E-03	2.37E-02	1.29E-03	3.33E-01		1.68E+02	1.19E-01	1.53E-01	4.99E-02
2003	1.2E-03	2.40E-02	9.85E-04	3.26E-01		1.21E+02	9.43E-02	1.88E-01	1.27E-01
2004	1.7E-03	3.36E-02	1.09E-03	3.77E-01		1.27E+02	1.19E-01	1.50E-01	2.33E-01
2005	1.7E-03	3.32E-02	1.11E-03	4.08E-01		1.08E+02	1.22E-01	1.85E-01	1.58E-01
2006	1.6E-03	3.14E-02	8.24E-04	3.46E-01		1.59E+02	1.21E-01	1.80E-01	1.62E-01
2007	1.4E-03	2.58E-02	7.29E-04	1.86E-01	3.92E-03	1.29E+02	1.56E-01	1.82E-01	6.88E-02
2008	1.2E-03	2.19E-02	6.83E-04	1.56E-01	4.37E-03	1.12E+02	1.59E-01	2.19E-01	6.50E-02
2009	1.2E-03	1.94E-02	1.01E-03	2.30E-01	4.37E-03	1.52E+02	1.58E-01	2.40E-01	2.82E-02
2010	1.4E-03	2.12E-02	8.54E-04	2.15E-01	3.97E-03	1.20E+02	1.40E-01	2.34E-01	4.35E-02
2011	1.5E-03	2.21E-02	9.55E-04	1.86E-01	5.13E-03	1.37E+02	1.32E-01	1.69E-01	6.33E-02
2012	1.8E-03	2.63E-02	1.04E-03	1.51E-01	6.88E-03	8.68E+01	1.28E-01	1.45E-01	2.96E-02
2013	2.0E-03	2.82E-02	1.22E-03	1.46E-01	8.34E-03	1.24E+02	1.20E-01	1.29E-01	3.52E-02

	60	61	62	63	64	65	66	67	68	69
Name	C_HERR1-	FHERR1-2	CAP3	CCAP3	FCAP3	CAPO-2	PCOD2+	CPCOD	FPCOD	PCOD0-1
Pool code	49	49	50	50	50	51	52	52	52	53
Type	6	4	1	6	4	1	0	-6	4	0
1950	5.5E-03	8.3E-02	1.3E-01	3.4E-04	2.7E-03	1.7E-01		0.0E+00		
1951	1.6E-02	7.2E-02	1.7E-01	6.8E-04	3.9E-03	2.3E-01		0.0E+00		
1952	2.3E-02	5.1E-02	1.1E-01	1.0E-03	9.0E-03	1.5E-01		0.0E+00		
1953	1.2E-02	1.5E-01	1.2E-01	2.0E-03	1.7E-02	1.5E-01		0.0E+00		
1954	1.6E-02	3.1E-01	1.8E-01	3.1E-03	1.7E-02	2.4E-01		0.0E+00		
1955	7.7E-03	2.2E-01	1.5E-01	3.9E-03	2.6E-02	1.9E-01		0.0E+00		
1956	7.1E-03	5.7E-01	1.8E-01	5.8E-03	3.2E-02	2.3E-01		0.0E+00		
1957	9.7E-03	9.3E-01	1.3E-01	5.3E-03	4.0E-02	1.7E-01		0.0E+00		
1958	1.1E-02	1.2E+00	9.4E-02	6.1E-03	6.5E-02	1.2E-01		0.0E+00		
1959	1.4E-02	1.8E+00	7.5E-02	5.7E-03	7.6E-02	9.7E-02		0.0E+00		
1960	1.7E-02	1.8E-01	8.4E-02	6.3E-03	7.4E-02	1.1E-01		0.0E+00		
1961	1.8E-02	7.7E-02	6.1E-02	1.5E-02	2.5E-01	7.9E-02		0.0E+00		
1962	1.0E-02	1.2E-01	6.6E-02	0.0E+00	0.0E+00	8.5E-02		0.0E+00		
1963	1.3E-02	4.0E-01	1.4E-01	2.0E-03	1.5E-02	1.8E-01		0.0E+00		
1964	8.0E-03	1.9E-01	1.6E-01	1.7E-03	1.0E-02	2.1E-01		0.0E+00		
1965	8.8E-03	8.0E-02	1.1E-01	1.5E-02	1.4E-01	1.5E-01		0.0E+00		
1966	5.9E-03	1.3E-01	9.4E-02	2.7E-02	2.8E-01	1.2E-01		6.1E-05		
1967	8.0E-03	6.5E-01	3.3E-02	2.8E-02	8.5E-01	4.3E-02		2.5E-04		
1968	2.0E-03	3.9E-01	7.0E-02	3.7E-02	5.2E-01	9.1E-02		1.6E-04		
1969	1.1E-03	7.2E-01	8.4E-02	4.6E-02	5.5E-01	1.1E-01		9.7E-03		
1970	2.8E-03	1.6E+00	1.0E-01	9.0E-02	8.7E-01	1.3E-01		1.8E-02		
1971	8.4E-05	1.2E-02	1.7E-01	9.5E-02	5.5E-01	2.2E-01		2.5E-02		
1972	1.0E-06	6.7E-03	2.3E-01	1.1E-01	4.8E-01	2.9E-01		1.2E-02		
1973	1.0E-06	6.7E-03	7.8E-02	9.1E-02	1.2E+00	2.7E-01		6.0E-03		
1974	1.0E-06	2.8E-04	1.1E-01	7.8E-02	7.2E-01	2.8E-01		9.0E-03		
1975	1.0E-06	1.8E-04	3.2E-01	9.8E-02	3.0E-01	2.1E-01		4.6E-03		
1976	1.0E-06	3.4E-04	2.5E-01	1.8E-01	7.0E-01	1.8E-01		8.8E-04		
1977	1.0E-06	2.9E-04	1.8E-01	2.0E-01	1.1E+00	1.5E-01		5.8E-04		
1978	1.0E-06	2.6E-04	9.5E-02	1.3E-01	1.4E+00	1.9E-01		3.7E-04		
1979	1.0E-06	3.4E-04	1.1E-01	1.2E-01	1.1E+00	1.7E-01		1.9E-05		
1980	1.0E-06	2.0E-04	2.5E-01	1.1E-01	4.5E-01	2.1E-01		4.2E-06		
1981	1.0E-06	2.8E-04	7.8E-02	1.4E-01	1.7E+00	1.9E-01		6.7E-04		
1982	1.0E-06	1.5E-03	8.4E-02	1.2E-01	1.4E+00	1.7E-01		6.5E-03		
1983	1.0E-06	1.1E-03	5.0E-02	1.6E-01	3.2E+00	2.4E-01		2.7E-03		
1984	1.0E-06	9.1E-06	6.5E-02	1.0E-01	1.5E+00	1.4E-01		4.0E-04		
1985	1.0E-06	5.0E-06	1.9E-02	5.9E-02	3.1E+00	3.9E-02		8.1E-04		
1986	1.0E-06	7.0E-05	3.4E-03	8.4E-03	2.5E+00	4.8E-03	1.0E-02	4.3E-05	4.3E-03	1.2E-02
1987	1.0E-06	4.6E-05	1.0E-06	0.0E+00	0.0E+00	6.8E-03	1.9E-02	1.0E-05	5.6E-04	9.1E-03
1988	1.0E-06	2.4E-04	1.0E-06	0.0E+00	1.0E-03	2.9E-02	3.5E-03	0.0E+00	0.0E+00	2.7E-03
1989	1.0E-06	8.5E-05	3.4E-03	0.0E+00	0.0E+00	5.5E-02	3.8E-03	1.6E-05	4.1E-03	1.1E-02
1990	1.0E-06	2.9E-05	3.0E-02	0.0E+00	0.0E+00	3.7E-01	6.4E-03	4.6E-06	7.2E-04	2.9E-03
1991	1.0E-06	1.4E-05	4.6E-02	6.4E-02	1.4E+00	4.5E-01	1.2E-02	8.2E-06	6.8E-04	1.6E-02
1992	1.0E-06	6.5E-06	1.5E-01	7.7E-02	5.1E-01	2.0E-01	2.9E-02	1.5E-03	5.2E-02	1.4E-02
1993	1.0E-06	3.6E-06	2.1E-02	4.0E-02	1.9E+00	3.3E-02	3.5E-02	3.7E-03	1.1E-01	9.6E-03
1994	1.0E-06	4.4E-06	4.8E-03	0.0E+00	0.0E+00	8.9E-03	2.5E-02	4.4E-04	1.7E-02	1.4E-02
1995	1.0E-06	1.6E-05	2.7E-03	0.0E+00	0.0E+00	1.1E-02	1.3E-02	1.7E-03	1.4E-01	1.8E-02
1996	1.0E-06	4.4E-05	3.4E-03	0.0E+00	0.0E+00	3.1E-02	2.5E-02	1.5E-03	6.1E-02	1.1E-02
1997	1.0E-06	3.8E-05	2.7E-03	6.8E-05	2.5E-02	5.9E-02	1.9E-02	4.9E-04	2.6E-02	9.9E-03
1998	1.0E-06	2.1E-05	1.8E-02	2.0E-04	1.1E-02	1.2E-01	2.4E-02	2.6E-04	1.1E-02	3.7E-02
1999	1.0E-06	1.2E-05	5.0E-02	7.2E-03	1.4E-01	1.4E-01	5.4E-02	1.6E-03	3.0E-02	2.9E-02
2000	1.0E-06	6.2E-06	7.0E-02	2.8E-02	4.0E-01	2.2E-01	7.8E-02	2.9E-03	3.8E-02	2.0E-02
2001	1.0E-06	8.6E-06	5.8E-02	3.9E-02	6.8E-01	1.9E-01	8.4E-02	2.9E-03	3.4E-02	5.1E-02
2002	1.0E-06	2.0E-05	7.2E-02	4.5E-02	6.2E-01	7.8E-02	9.6E-02	2.7E-03	2.8E-02	4.1E-03
2003	1.0E-06	7.9E-06	1.6E-02	1.9E-02	1.2E+00	2.0E-02	4.6E-02	2.8E-03	6.2E-02	1.8E-02
2004	1.0E-06	4.3E-06	9.5E-03	0.0E+00	0.0E+00	3.3E-02	3.7E-02	1.2E-04	3.2E-03	4.6E-02
2005	1.0E-06	6.3E-06	2.7E-03	6.8E-05	2.5E-02	2.0E-02	8.5E-02	1.6E-03	1.9E-02	4.6E-02
2006	1.0E-06	6.2E-06	1.0E-02	0.0E+00	0.0E+00	4.4E-02	1.3E-01	1.2E-03	9.3E-03	1.3E-02
2007	1.0E-06	1.5E-05	6.8E-03	2.7E-04	4.0E-02	1.2E-01	6.6E-02	1.9E-03	3.0E-02	2.3E-02
2008	1.0E-06	1.5E-05	4.5E-02	8.2E-04	1.8E-02	2.6E-01	5.8E-02	6.0E-04	1.0E-02	3.1E-02
2009	1.0E-06	3.5E-05	1.0E-01	2.1E-02	2.0E-01	1.5E-01	5.7E-02	1.2E-03	2.2E-02	7.3E-03
2010	1.0E-06	2.3E-05	9.9E-02	2.2E-02	2.2E-01	1.4E-01	8.7E-02	2.0E-03	2.3E-02	1.7E-02
2011	1.0E-06	1.6E-05	9.8E-02	2.5E-02	2.5E-01	1.5E-01	4.2E-02	0.0E+00	0.0E+00	2.1E-02
2012	1.0E-06	3.4E-05	1.1E-01	2.0E-02	1.8E-01	1.3E-01	1.5E-02	0.0E+00	0.0E+00	8.3E-03
2013	1.0E-06	2.8E-05	7.5E-02	1.2E-02	1.6E-01	1.9E-01	2.3E-02	0.0E+00	0.0E+00	1.3E-03

	70	71	72	73	74	75	76	77	78	79
Name	LUMP	CLUMP	FLUMP	REDFI	CREDFI	FREDFI	SMREDFI	SCHYPO	ThysaA	ThysaB
Pool code	57	57	57	59	59	59	60	63	65	65
Type	0	-6	4	1	-6	4	0	0	0	0
1950					1.5E-03					
1951					2.6E-03					
1952					3.6E-03					
1953					2.5E-03				6.2E+02	
1954					3.3E-03				1.1E+02	
1955					3.6E-03				2.0E+02	
1956					4.1E-03				1.2E+02	
1957					5.8E-03				7.6E+01	
1958					4.0E-03				6.3E+01	
1959					5.5E-03				1.8E+02	
1960					4.7E-03				8.4E+01	
1961					3.5E-03				1.5E+02	
1962					2.2E-03				5.0E+02	
1963					2.4E-03					
1964					3.8E-03				1.3E+02	
1965					2.4E-03				8.7E+01	
1966					2.2E-03				1.8E+02	
1967					1.5E-03				1.1E+02	
1968					1.1E-03				1.1E+02	
1969					2.4E-03				3.2E+02	
1970		1.2E-04			2.1E-03				3.3E+02	
1971		8.3E-05			2.8E-03				2.5E+02	
1972		8.0E-05			2.4E-03				9.5E+02	
1973		2.1E-04			4.0E-03				2.4E+02	
1974		1.6E-04			6.3E-03				1.5E+02	
1975		1.1E-04			1.8E-02				2.2E+03	
1976		8.2E-05			2.0E-02				2.3E+02	
1977		1.4E-04			1.2E-02				4.1E+02	
1978		1.6E-04			7.5E-03				1.4E+02	
1979		7.2E-05			6.6E-03				4.8E+02	
1980		1.3E-04			6.1E-03			2.3E-01	7.2E+02	5.90E+00
1981		1.8E-04			6.2E-03			3.9E-01	5.6E+02	9.10E+00
1982		1.4E-04			7.6E-03			4.9E-01	6.7E+02	5.10E+00
1983		1.8E-04			7.3E-03			6.9E-01	1.9E+02	4.00E-01
1984		7.2E-05			5.9E-03			6.2E-01	3.2E+02	2.10E+00
1985		1.1E-04			5.4E-03			6.8E-02	1.5E+02	9.00E-01
1986		1.6E-04			3.1E-03			1.4E-01	1.3E+03	2.83E+01
1987		3.7E-04			2.0E-03			2.0E-01	5.5E+02	3.80E+00
1988		3.6E-04			2.4E-03			3.7E-01	6.7E+02	1.32E+01
1989		3.3E-04			2.7E-03			1.2E-01	2.7E+02	5.20E+00
1990	1.2E-03	1.2E-04	1.0E-01		3.7E-03			1.3E+00	2.0E+02	1.40E+00
1991	1.2E-03	2.7E-04	2.2E-01		4.0E-03			9.7E-01	4.9E+01	9.20E+00
1992	9.8E-04	1.9E-04	1.9E-01	1.3E-02	1.9E-03	1.5E-01	3.9E+02	1.1E+00	5.0E+01	1.00E+00
1993	2.3E-03	2.3E-04	1.0E-01	1.6E-02	1.7E-03	1.1E-01	2.6E+02	7.2E-01	2.3E+02	2.40E+00
1994	1.1E-03	2.8E-04	2.6E-01	2.0E-02	1.8E-03	9.0E-02	2.0E+02	6.3E-02	2.6E+02	6.90E+00
1995	7.4E-04	2.0E-04	2.7E-01	2.3E-02	1.5E-03	6.6E-02	1.8E+02	3.0E-02	5.8E+02	8.20E+00
1996	1.2E-03	2.2E-04	1.8E-01	4.2E-02	1.5E-03	8.0E-02	1.5E+02	4.9E-01	4.5E+02	1.02E+01
1997	1.5E-03	2.8E-04	1.8E-01	2.4E-02	1.5E-03	6.5E-02	1.2E+02	1.9E-02	1.2E+03	3.40E+00
1998	2.3E-03	6.8E-05	3.0E-02	2.7E-02	1.9E-03	7.3E-02	6.1E+01	2.1E-01	3.9E+02	5.70E+00
1999	2.5E-03	1.0E-04	4.1E-02	3.0E-02	1.8E-03	5.8E-02	4.7E+01	5.2E-01	4.0E+02	4.50E+00
2000	3.6E-03	1.2E-04	3.3E-02	3.5E-02	1.4E-03	4.1E-02	3.7E+01	1.3E+00	8.5E+02	4.10E+00
2001	2.3E-03	2.6E-04	1.1E-01	3.3E-02	1.7E-03	5.1E-02	2.9E+01	4.9E+00	7.4E+02	6.80E+00
2002	2.9E-03	3.0E-04	1.0E-01	3.7E-02	9.8E-04	2.6E-02	3.8E+01	2.9E+00	1.2E+03	3.30E+00
2003	5.1E-03	2.3E-04	4.5E-02	4.1E-02	6.1E-04	1.5E-02	3.9E+01	2.7E+00	8.8E+02	7.40E+00
2004	3.5E-03	2.2E-04	6.2E-02	4.2E-02	7.5E-04	1.8E-02	5.2E+01	1.5E+00	4.0E+02	1.23E+01
2005	5.6E-03	1.6E-04	2.8E-02	4.5E-02	9.1E-04	2.0E-02	9.8E+01	1.4E+00	6.1E+02	1.04E+01
2006	5.6E-03	1.2E-04	2.1E-02	4.4E-02	2.4E-03	5.4E-02	2.2E+02	1.2E+00		1.04E+01
2007	7.1E-03	1.1E-04	1.5E-02	5.2E-02	1.6E-03	3.1E-02	4.0E+02	1.2E+00		1.17E+01
2008	5.6E-03	2.3E-04	4.2E-02	4.9E-02	9.8E-04	2.0E-02	3.8E+02	1.2E+00		2.11E+01
2009	3.3E-03	1.4E-04	4.3E-02	5.1E-02	9.8E-04	1.9E-02	3.5E+02	6.6E-01		1.31E+01
2010	2.3E-03	1.3E-04	5.4E-02	4.8E-02	1.1E-03	2.3E-02	5.3E+02	2.8E-01		
2011	3.3E-03			4.7E-02	1.1E-03	2.3E-02	4.7E+02	2.1E+00		
2012	5.3E-03			4.7E-02	9.7E-04	2.1E-02	4.8E+02	1.3E+00		
2013	6.5E-03			4.5E-02	8.9E-04	2.0E-02	1.7E+02	3.1E+00		

	80		81	82	83	84	85	86	87	88
Name	PELAMP	MEDCOP	PAND	C_PAND	PR_DIAT	PR_AFLAG	PR_DIAT	PR_AFLAG	ice_alg	CAPMORT
Pool code	68	71	79	79	97	98	97	98	103	92
Type	0	0	0	-6	-1	-1	-1	-1	-1	2
1950				1.73E-04	1.19E+00	5.06E-01	1.40E+00	5.98E-01	1.3E-01	7.0E-01
1951				1.73E-04	1.12E+00	4.79E-01	1.40E+00	5.98E-01	1.4E-01	2.3E+00
1952				1.73E-04	1.01E+00	4.29E-01	1.40E+00	5.98E-01	1.6E-01	4.7E+00
1953				1.73E-04	9.39E-01	4.00E-01	1.40E+00	5.98E-01	1.7E-01	8.2E-01
1954				1.73E-04	1.16E+00	4.96E-01	1.40E+00	5.98E-01	1.4E-01	5.4E-01
1955				1.73E-04	1.17E+00	4.98E-01	1.40E+00	5.98E-01	1.4E-01	3.7E-01
1956				1.73E-04	1.09E+00	4.65E-01	1.40E+00	5.98E-01	1.5E-01	1.3E-01
1957				1.73E-04	1.12E+00	4.76E-01	1.40E+00	5.98E-01	1.4E-01	1.1E-01
1958				1.73E-04	9.36E-01	3.99E-01	1.40E+00	5.98E-01	1.7E-01	9.9E-02
1959				1.73E-04	9.12E-01	3.89E-01	1.40E+00	5.98E-01	1.7E-01	7.9E-02
1960				1.73E-04	9.78E-01	4.17E-01	1.40E+00	5.98E-01	1.6E-01	1.0E+00
1961				1.73E-04	9.05E-01	3.86E-01	1.40E+00	5.98E-01	1.8E-01	2.5E+00
1962				1.73E-04	9.59E-01	4.09E-01	1.40E+00	5.98E-01	1.7E-01	8.8E-01
1963				1.73E-04	8.63E-01	3.68E-01	1.40E+00	5.98E-01	1.8E-01	3.4E-01
1964				1.73E-04	9.07E-01	3.87E-01	1.40E+00	5.98E-01	1.8E-01	4.5E-01
1965				1.73E-04	1.07E+00	4.57E-01	1.40E+00	5.98E-01	1.5E-01	1.2E+00
1966				1.73E-04	8.08E-01	3.45E-01	1.40E+00	5.98E-01	1.9E-01	4.6E-01
1967				1.73E-04	7.56E-01	3.23E-01	1.40E+00	5.98E-01	2.0E-01	1.3E-01
1968				1.73E-04	8.53E-01	3.64E-01	1.40E+00	5.98E-01	1.8E-01	5.3E-02
1969				1.73E-04	5.38E-01	2.29E-01	1.40E+00	5.98E-01	2.3E-01	1.6E-02
1970				3.17E-04	9.12E-01	3.89E-01	1.40E+00	5.98E-01	1.7E-01	1.8E-02
1971			1.70E+00	2.94E-04	1.01E+00	4.30E-01	1.40E+00	5.98E-01	1.6E-01	7.4E-02
1972			1.77E+00	3.92E-04	9.78E-01	4.17E-01	1.40E+00	5.98E-01	1.6E-01	1.6E-03
1973			1.83E+00	3.98E-04	1.15E+00	4.89E-01	1.40E+00	5.98E-01	1.4E-01	1.6E-03
1974			1.86E+00	4.62E-04	1.05E+00	4.48E-01	1.40E+00	5.98E-01	1.5E-01	3.8E-02
1975			1.91E+00	4.73E-04	1.23E+00	5.26E-01	1.40E+00	5.98E-01	1.3E-01	5.8E-02
1976			1.95E+00	5.66E-04	1.16E+00	4.94E-01	1.40E+00	5.98E-01	1.4E-01	3.1E-02
1977			1.97E+00	1.13E-03	1.12E+00	4.76E-01	1.40E+00	5.98E-01	1.4E-01	3.6E-02
1978			2.00E+00	2.24E-03	1.03E+00	4.40E-01	1.40E+00	5.98E-01	1.6E-01	4.1E-02
1979			2.04E+00	2.09E-03	7.33E-01	3.13E-01	1.40E+00	5.98E-01	2.0E-01	3.1E-02
1980			2.30E+00	2.67E-03	1.08E+00	4.63E-01	1.40E+00	5.98E-01	1.5E-01	5.2E-02
1981		6.46E+00	2.36E+00	2.52E-03	9.62E-01	4.10E-01	1.40E+00	5.98E-01	1.7E-01	3.7E-02
1982			2.68E+00	3.62E-03	9.83E-01	4.19E-01	1.40E+00	5.98E-01	1.6E-01	7.1E-03
1983			2.69E+00	6.05E-03	1.00E+00	4.28E-01	1.40E+00	5.98E-01	1.6E-01	9.5E-03
1984		1.46E+00	2.00E+00	7.39E-03	1.24E+00	5.30E-01	1.40E+00	5.98E-01	1.2E-01	1.2E+00
1985	4.13E-02	5.03E+00	1.40E+00	7.19E-03	1.22E+00	5.20E-01	1.40E+00	5.98E-01	1.3E-01	2.1E+00
1986	7.47E-01	8.23E+00	1.16E+00	3.77E-03	1.11E+00	4.73E-01	1.40E+00	5.98E-01	1.4E-01	1.5E-01
1987	2.19E-01	5.86E+00	1.20E+00	2.50E-03	1.01E+00	4.33E-01	1.40E+00	5.98E-01	1.6E-01	2.3E-01
1988		6.67E+00	1.45E+00	2.81E-03	9.46E-01	4.04E-01	1.40E+00	5.98E-01	1.7E-01	4.4E-02
1989	3.36E-01	6.81E+00	1.70E+00	3.62E-03	9.85E-01	4.20E-01	1.40E+00	5.98E-01	1.6E-01	1.2E-01
1990	1.51E-01	3.40E+00	1.87E+00	4.69E-03	1.14E+00	4.85E-01	1.40E+00	5.98E-01	1.4E-01	3.7E-01
1991	1.18E-01	3.16E+00	1.85E+00	4.35E-03	1.26E+00	5.37E-01	1.40E+00	5.98E-01	1.2E-01	7.5E-01
1992	7.25E-02	4.10E+00	1.83E+00	3.96E-03	1.25E+00	5.34E-01	1.40E+00	5.98E-01	1.2E-01	1.6E+00
1993	1.02E-01	6.53E+00	1.50E+00	3.23E-03	1.19E+00	5.06E-01	1.40E+00	5.98E-01	1.3E-01	2.9E+00
1994	9.39E-02	8.58E+00	1.40E+00	1.63E-03	1.02E+00	4.37E-01	1.40E+00	5.98E-01	1.6E-01	2.4E+00
1995	1.30E-01	1.01E+01	1.70E+00	1.45E-03	1.19E+00	5.09E-01	1.40E+00	5.98E-01	1.3E-01	6.5E-01
1996	2.00E-01	7.73E+00	1.85E+00	1.99E-03	1.17E+00	4.98E-01	1.40E+00	5.98E-01	1.4E-01	2.4E-01
1997	1.33E-01	7.11E+00	2.05E+00	2.06E-03	1.13E+00	4.80E-01	1.40E+00	5.98E-01	1.4E-01	2.8E-01
1998	6.70E-02	6.81E+00	2.14E+00	3.22E-03	1.01E+00	4.31E-01	1.40E+00	5.98E-01	1.6E-01	4.9E-01
1999	1.02E-01	5.25E+00	1.89E+00	4.37E-03	1.02E+00	4.34E-01	1.40E+00	5.98E-01	1.6E-01	8.5E-01
2000	5.66E-02	5.86E+00	1.67E+00	4.66E-03	1.40E+00	5.98E-01	1.40E+00	5.98E-01	1.0E-01	1.7E+00
2001	3.52E-02	3.92E+00	1.70E+00	3.31E-03	1.41E+00	6.00E-01	1.40E+00	5.98E-01	9.9E-02	1.2E+00
2002	3.69E-02	5.03E+00	1.65E+00	3.55E-03	1.40E+00	5.98E-01	1.40E+00	5.98E-01	1.0E-01	5.2E-01
2003	1.91E-01	7.26E+00	1.45E+00	2.26E-03	1.10E+00	4.68E-01	1.40E+00	5.98E-01	1.5E-01	1.3E+00
2004	6.01E-02	7.26E+00	1.90E+00	2.46E-03	1.15E+00	4.90E-01	1.40E+00	5.98E-01	1.4E-01	2.5E+00
2005	9.04E-02	6.12E+00	2.20E+00	2.46E-03	1.45E+00	6.20E-01	1.40E+00	5.98E-01	9.2E-02	1.7E+00
2006	4.83E-02	5.49E+00	2.00E+00	1.71E-03	1.65E+00	7.02E-01	1.40E+00	5.98E-01	6.3E-02	1.7E+00
2007	2.36E-02	4.49E+00	1.90E+00	1.73E-03	1.62E+00	6.91E-01	1.40E+00	5.98E-01	6.7E-02	7.2E-01
2008	2.01E-02	4.10E+00	1.95E+00	1.63E-03	1.61E+00	6.85E-01	1.40E+00	5.98E-01	6.9E-02	6.8E-01
2009	3.38E-02	3.92E+00	2.05E+00	1.58E-03	1.46E+00	6.22E-01	1.40E+00	5.98E-01	9.1E-02	3.0E-01
2010	2.95E-03	3.40E+00	2.06E+00	1.45E-03	1.57E+00	6.69E-01	1.40E+00	5.98E-01	7.5E-02	4.6E-01
2011	1.18E-02	3.74E+00	1.80E+00	1.74E-03	1.49E+00	6.37E-01	1.40E+00	5.98E-01	8.6E-02	6.7E-01
2012	1.15E-02	4.92E+00	1.55E+00	1.43E-03	1.77E+00	7.57E-01	1.40E+00	5.98E-01	4.3E-02	3.1E-01
2013	7.48E-03	2.46E+00	1.40E+00	1.11E-03	1.70E+00	7.25E-01	1.40E+00	5.98E-01	5.5E-02	3.7E-01

0	89	90	91	92
Name	SNOWCR	RKCL	CRKCL	FRKCL
Pool code	101*	102*	102*	102*
Type	-1	-1	6	4
1950				
1951		*) only in year 2000 model		
1952				
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2000	5.0E-04	4.7E-04	7.1E-06	1.5E-02
2001	5.0E-04	1.1E-03	1.7E-05	1.5E-02
2002	5.0E-04	1.1E-03	4.0E-05	3.8E-02
2003	5.0E-04	1.7E-03	6.4E-05	3.8E-02
2004	5.0E-04	1.6E-03	6.0E-05	3.8E-02
2005	2.4E-03	1.7E-03	1.3E-04	7.5E-02
2006	2.4E-03	1.9E-03	3.4E-04	1.8E-01
2007	2.4E-03	1.5E-03	3.1E-04	2.2E-01
2008	1.4E-03	1.1E-03	3.6E-04	3.3E-01
2009	4.3E-03	6.1E-04	1.9E-04	3.1E-01
2010	5.3E-03	5.6E-04	1.2E-04	2.1E-01
2011	8.7E-03	7.5E-04	1.2E-04	1.6E-01
2012	7.0E-03	1.0E-03	1.5E-04	1.5E-01
2013	1.1E-02	1.4E-03	1.6E-04	1.2E-01

Part C - Overview on diet input data for the 1950-model

In the parts a-i of the diet matrix that is input data to the balanced 1950-model, only rows are shown for groups that are prey (i.e. value > 0.0 for all predators) to the predators shown in the columns

Part C-1

[illegible]

Part C-2

Prey		Predators					
Gr. No	Group name	Harp seal	Harbour seal	Grey seal	Ringed seal	Bearded seal	Walrus
		13	14	15	16	17	18
16	Ringed seal	0	0	0	0	0	0.001
29	Northeast arctic cod (3+)	0	0	0	0.001	0.017	0
30	Northeast arctic cod (0-2)	0.022	0.282	0	0	0	0
31	Coastal cod (2+)	0	0.121	0.22	0	0	0
33	Saithe (3+)	0	0	0.137	0	0	0
34	Saithe (0-2)	0	0.321	0	0	0	0
35	Haddock (3+)	0	0	0.046	0	0	0
36	Haddock (0-2)	0.023	0.007	0	0	0	0
37	Other small gadoids	0	0.014	0.046	0	0	0
41	Wolffishes	0	0.033	0.231	0	0	0
42	Stichaidae	0.027	0.004	0.016	0.062	0.150	0
43	Other small bentivorous fishes	0.044	0.09	0.012	0.037	0.041	0
46	Long rough dab	0.012	0.012	0.010	0	0.007	0
47	Other bentivore flatfish	0	0.015	0.066	0	0	0
48	Large herring	0	0	0.068	0	0	0
49	Small herring	0.056	0.041	0	0	0	0
50	Capelin(3+)	0.109	0	0	0	0	0
51	Capelin(0-2)	0.109	0	0	0	0	0
52	Polar cod (2+)	0.104	0.058	0	0.491	0.608	0.103
53	Polar cod (0-1)	0.090	0	0	0.400	0	0
55	Sandeel	0.019	0	0.116	0	0	0
57	Lumpfish	0	0	0.013	0	0	0
60	Redfish small	0	0.002	0.006	0	0	0
61	Salmon	0	0	0.013	0	0	0
62	Cephalopods	0	0	0	0	0.003	0
65	<i>Thysanoessa</i>	0.239	0	0	0	0	0
68	Pelagic amphipods	0.086	0	0	0.009	0	0
79	Northern Shrimps	0.043	0	0	0	0.005	0
80	Crangonid and other shrimps	0.017	0	0	0	0.064	0.082
81	Other large crustaceans	0	0	0	0	0.037	0.067
85	Predatory polychaetes	0	0	0	0	0.045	0.076
86	Other predatory benthic invertebrates	0	0	0	0	0.002	0
87	Detritivorous polychaetes	0	0	0	0	0	0.041
90	Large bivalves	0	0	0	0	0.021	0.611
91	Detritivorous echinoderms	0	0	0	0	0	0.019
	Sum	1.000	1.000	1.000	1.000	1.000	1.000

Part C-3

[illegible]

Part C-4

Gr. No	Prey Group name	Predators											
		Greenland shark	Northeast arctic cod (3+)	Northeast arctic cod (0-2)									
		28	29	30	31	32	33	34	35	36	37	38	39
13	Harp seal	0.052	0	0	0	0	0	0	0	0	0	0	0
16	Ringed seal	0.020	0	0	0	0	0	0	0	0	0	0	0
17	Bearded seal	0.004	0	0	0	0	0	0	0	0	0	0	0
29	Northeast arctic cod (3+)	0.426	0	0	0	0	0	0	0	0	0	0	0
30	Northeast arctic cod (0-2)	0	0.021	0	0	0	0.003	0.001	0.002	0	0	0.027	0.220
31	Coastal cod (2+)	0	0	0	0.030	0	0	0	0	0	0	0	0
32	Coastal cod (0-1)	0	0	0	0.024	0	0	0.002	0	0	0.013	0	0
34	Saithe (0-2)	0	0	0	0.133	0	0	0.004	0	0	0	0	0
35	Haddock (3+)	0.098	0	0	0	0	0	0	0	0	0	0	0
36	Haddock (0-2)	0	0.013	0	0.223	0	0.041	0.010	0	0	0.015	0.009	0
37	Other small gadoids	0	0	0	0.087	0	0.022	0.028	0.001	0	0.025	0	0
38	Large Greenland halibut	0.014	0	0	0	0	0	0	0	0	0	0	0
39	Small Greenland halibut	0	0.005	0	0	0	0	0	0	0	0	0.001	0
41	Wolffishes	0.150	0	0	0.001	0	0	0	0	0	0	0	0
42	Stichaidae	0	0.005	0.002	0.001	0	0	0.005	0	0	0	0	0.005
43	Other small bentivorous fishes	0.014	0.005	0.002	0.001	0.124	0	0	0	0.006	0	0.04	0.021
44	Other large bent inv feed fish	0	0	0	0	0	0	0	0	0	0	0.004	0
45	Thorny skate	0.003	0	0	0.001	0	0	0	0	0	0	0.001	0
46	Long rough dab	0.145	0.006	0.001	0.010	0	0	0	0.016	0	0	0.011	0.020
47	Other bentivore flatfish	0	0	0	0.004	0	0	0	0	0	0	0.003	0
48	Large herring	0	0	0	0.158	0	0.088	0	0	0	0	0.106	0
49	Small herring	0	0.058	0	0.099	0	0.046	0.073	0.01	0.005	0.044	0.200	0.031
50	Capelin(3+)	0	0.218	0	0.003	0	0.086	0	0.044	0	0	0.028	0.038
51	Capelin(0-2)	0	0.170	0.157	0	0	0.086	0.001	0.090	0	0.005	0.014	0
52	Polar cod (2+)	0.033	0.073	0.004	0	0	0.001	0	0	0	0	0.014	0.525
53	Polar cod (0-1)	0	0	0	0	0	0	0	0	0	0	0.047	0
54	Blue whiting	0	0.011	0	0.027	0	0.063	0	0	0	0	0.089	0
55	Sandeel	0	0.010	0.004	0	0	0	0.013	0	0	0	0	0
56	Other pelagic planktivorous fishes	0	0	0	0.012	0	0.001	0	0	0	0	0.001	0
57	Lumpfish	0	0	0	0	0	0	0	0	0	0	0.002	0
59	Redfish large	0.003	0	0	0	0	0	0	0	0	0	0	0
60	Redfish small	0	0.003	0	0	0	0.005	0	0.014	0.023	0	0.022	0.027
62	Cephalopods	0	0	0	0	0	0.017	0	0.006	0	0	0.119	0.010
63	Schypomedusae	0.012	0	0	0	0	0	0	0	0	0	0	0
64	Chaetognaths	0	0	0	0	0	0	0	0	0.002	0	0	0
65	Thysanoessa	0	0.182	0.568	0.02	0.044	0.285	0.288	0.103	0.193	0.453	0	0
66	Large krill	0	0	0	0	0	0.227	0.136	0.114	0.186	0.279	0.004	0
67	Ctenophora	0.001	0	0	0	0	0	0	0	0	0	0	0
68	Pelagic amphipods	0	0.026	0.014	0	0.005	0.015	0.004	0.041	0.035	0.015	0.001	0.022
70	Pteropods	0	0	0	0	0	0	0.024	0	0.043	0	0	0
71	Medium sized copepods	0	0	0.126	0	0.083	0.001	0.235	0	0.070	0.127	0	0
73	Small copepods	0	0	0.020	0	0.066	0	0	0	0.017	0	0	0
74	Other large zooplankton	0	0	0.011	0	0.014	0	0.017	0	0.008	0	0	0
75	Appendicularians	0	0	0	0	0	0	0.051	0	0.079	0	0	0

Continuation part C-4

[illegible]

Part C-5

Gr. No	Prey Group name	Predators												
		Wolffishes	Stichidae	Other small bentivorous fishes	Other large bent inv feed fish	Thorny skate	Long rough dab	Other bentivore flatfish	Large herring	Small herring	Capelin(3+)	Capelin(0-2)	Polar cod (2+)	Polar cod (0-1)
		41	42	43	44	45	46	47	48	49	50	51	52	53
30	Northeast arctic cod (0-2)	0.069	0	0	0	0.110	0.062	0	0	0	0	0	0	0
32	Coastal cod (0-1)	0	0	0.001	0	0	0	0	0	0	0	0	0	0
36	Haddock (0-2)	0.074	0	0	0.044	0.039	0.026	0	0	0	0	0	0	0
39	Small Greenland halibut	0.007	0	0	0	0	0	0	0	0	0	0	0	0
41	Wolffishes	0.012	0	0	0	0	0	0	0	0	0	0	0	0
42	Stichidae	0	0	0.009	0.036	0.032	0.022	0	0.002	0.001	0	0	0.009	0
43	Other small bentivorous fishes	0.006	0	0.040	0.048	0.042	0.040	0	0	0	0.002	0	0.009	0.008
45	Thorny skate	0.001	0	0	0.004	0.004	0	0	0	0	0	0	0	0
46	Long rough dab	0.092	0	0.010	0.049	0.043	0.002	0	0	0	0	0	0.002	0.002
49	Small herring	0	0	0.002	0.011	0.01	0.005	0	0.020	0.010	0	0	0	0
51	Capelin(0-2)	0.026	0	0.113	0.120	0.107	0.482	0.007	0	1E-04	0.007	0	0	0
52	Polar cod (2+)	0.004	0	0.033	0	0	0.064	0	0	0	0	0	0	0
53	Polar cod (0-1)	0	0	0	0.021	0.018	0.08	0	0	0	0	0	0.003	0
54	Blue whiting	0.004	0	0	0.059	0.052	0	0	0	0	0	0	0	0
55	Sandeel	0.001	0	0	0.006	0.005	0.003	0.246	0	0	0	0	0	0
56	Other pelagic planktivorous fish	0	0	0	0.001	0.001	0	0	0	0	0	0	0	0
57	Lumpfish	0.001	0	0	0.001	0.001	0	0	0	0	0	0	0	0
59	Redfish large	0.018	0	0	0.012	0.011	0	0	0	0	0	0	0	0
60	Redfish small	0	0	0	0	0	0.002	0	0.003	0.002	0	0	0	0
62	Cephalopods	0	0	0.007	0.036	0.032	0.002	0.004	0.017	0.001	0	0	0	0
64	Chaetognaths	0	0	0	0	0	0	0	0	0	0	0	0.005	0.005
65	Thysanoessa	0	0.144	0.149	0.05	0.044	0	0.124	0.016	0.336	0.686	0.175	0.196	0.181
66	Large krill	0	0	0	0	0	0	0	0.014	0.024	0.004	0	0	0
67	Ctenophora	0.006	0	0	0	0	0	0	0	0	0	0	0	0
68	Pelagic amphipods	0	0.143	0.088	0.001	0.001	0.003	0.001	0.153	0.015	0.022	0.015	0.259	0.084
69	Symphagic amphipods	0	0	0	0	0	0	0	0	0	0	0	0.083	0.058
70	Pteropods	0	0.001	0.013	0	0	0	0	0.003	0.017	0	0.008	0.003	0.003
71	Medium sized copepods	0	0	0.002	0	0	0	0	0.624	0.421	0.197	0.313	0.207	0.452
72	Large calanoids	0	0	0.004	0	0	0	0	0.012	0.020	0.030	0.143	0.207	0.192
73	Small copepods	0	0	0	0	0	0	0	0.003	0.054	0	0.164	0	0
74	Other large zooplankton	0	0	0	0	0	0	0	0.022	0.040	0.017	0.138	0.009	0.008
75	Appendicularians	0	0.001	0	0	0	0	0.001	0.112	0.058	0.035	0.042	0.003	0.003
79	Northern Shrimps	0.004	0	0.036	0.240	0.215	0.030	0.118	0	0	0	0	0.005	0.004
80	Crangonid and other shrimps	0.003	0	0.058	0.121	0.108	0.014	0.003	0	0	0	0	0	0
81	Other large crustaceans	0.126	0	0.019	0.044	0.039	0.004	0.020	0	0	0	0	0	0
82	Crinoids	0.002	0	0	0	0	0	0.001	0	0	0	0	0	0
83	Predatory asteroids	0.008	0	0	0	0	0	0	0	0	0	0	0	0
84	Predatory gastropods	0.037	0	0.001	0	0	0	0	0	0	0	0	0	0
85	Predatory polychaetes	0.003	0.104	0.024	0.035	0.031	0.008	0.047	0	0	0	0	0	0
86	Other predatory benthic invertebrates	0.009	0	0.021	0.002	0.002	0.008	0.005	0	0	0	0	0	0
87	Detritivorous polychaetes	0.004	0.476	0.059	0.021	0.019	0.02	0.194	0	0	0	0	0	0
88	Small benthic crustaceans	0.005	0.085	0.245	0.035	0.031	0.011	0.023	0	0	0	0	0	0
89	Small molluscs	0.007	0.04	0.032	0.001	0.001	0.020	0.190	0	0	0	0	0	0
90	Large bivalves	0.085	0	0.004	0	0	0	0.005	0	0	0	0.002	0	0
91	Detritivorous echinoderms	0.384	0.006	0.027	0.002	0.002	0.078	0.011	0	0	0	0	0	0
93	Other benthic invertebrates	0	0	0.003	0	0	0	0	0	0	0	0	0	0
94	Meiofauna	0.003	0	0	0	0	0	0	0	0	0	0	0	0
104	Offal	0	0	0	0	0	0.014	0	0	0	0	0	0	0
	Import	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sum	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.999	1.000	1.000	1.000	1.000

Part C-6

Gr. No	Prey Group name	Predators										
		Blue whiting	Sandeel	Other pelagic planktivorous fish	Lumpfish	Mackerel	Redfish large	Redfish small	Salmon	Cephalopods	Schypomedusae	Chaetognaths
		54	55	56	57	58	59	60	61	62	63	64
30	Northeast arctic cod (0-2)	0.003	0	0	0	0	0.002	0.002	0	0	0	0
36	Haddock (0-2)	0.006	0	0	0	0	0.018	0.015	0.038	0	0	0
37	Other small gadoids	0.001	0	0	0	0	0.002	0.002	0	0	0	0
42	Stichaidae	0.012	0.001	0.001	0	0	0	0	0	0	0	0
43	Other small bentivorous fishes	0.001	0	0	0	0	0	0	0	0	0	0
46	Long rough dab	0	0	0	0	0	0.001	0.001	0	0	0	0
49	Small herring	0.012	0.048	0.048	0	0.005	0.012	0.010	0.463	0	0	0
51	Capelin(0-2)	0.064	0	0	0	0	0.385	0.059	0.108	0.070	0	0
53	Polar cod (0-1)	0	0.001	0.001	0	0	0.007	0.002	0	0	0	0
54	Blue whiting	0.062	0	0	0	0	0.004	0.003	0	0	0	0
55	Sandeel	0	0	0	0	0	0	0	0.146	0	0	0
56	Other pelagic planktivorous fish	0.002	0	0	0	0	0.011	0.010	0.176	0.032	0	0
60	Redfish small	0.001	0.004	0.004	0	0	0.001	0.001	0	0.038	0	0
61	Salmon	0	0	0	0	0	0	0	0	0	0	0
62	Cephalopods	0.017	0.002	0.002	0	0	0.079	0.011	0.069	0.008	0	0
63	Schypomedusae	0	0	0	0.004	0	0	0	0	0	0.014	0
64	Chaetognaths	0	0	0	0	0	0.006	0.005	0	0.025	0.010	0
65	Thysanoessa	0.043	0.066	0.066	0.201	0	0.125	0.58	0	0.340	0.107	0
66	Large krill	0.646	0.007	0.007	0.134	0.038	0.083	0.072	0	0.004	0	0
67	Ctenophora	0	0	0	0.297	0	0.001	0.001	0	0	0	0
68	Pelagic amphipods	0.027	0.025	0.025	0.095	0.035	0.06	0.024	0	0.102	0	0
70	Pteropods	0	0.026	0.026	0	0.046	0.001	0.001	0	0.015	0	0
71	Medium sized copepods	0.004	0.642	0.632	0	0.503	0.034	0.142	0	0.036	0.716	0.464
72	Large calanoids	0	0.002	0.002	0	0	0	0	0	0.263	0	0.502
73	Small copepods	0	0.052	0.052	0	0.108	0	0	0	0	0.102	0.034
74	Other large zooplankton	0.004	0.030	0.030	0.269	0.083	0	0	0	0	0.010	0
75	Appendicularians	0	0.094	0.104	0	0.182	0	0	0	0	0	0
79	Northern Shrimps	0.059	0	0	0	0	0.156	0.053	0	0.060	0	0
86	Other predatory benthic invertebrates	0	0	0	0	0	0.001	0.001	0	0	0	0
87	Detritivorous polychaetes	0	0	0	0	0	0	0	0	0	0	0
88	Small benthic crustaceans	0	0	0	0	0	0.005	0.005	0	0	0	0
89	Small molluscs	0	0	0	0	0	0	0	0	0.007	0	0
102	Detritus from other sources	0	0	0	0	0	0	0.001	0	0	0.041	0
104	Offal	0	0	0	0	0	0.006	0	0	0	0	0
	Import	0	0	0	0	0	0	0	0	0	0	0
	Sum	1.000	1.000	1.000	1.000	1.000	1.000	1.001	1.000	1.000	1.000	1.000

Part C-7

[illegible]

Part C-8

[illegible]

Part C-9

[illegible]

Part D - Pre-balance diagnostics

The supplement give an overview of output from the pre-balance procedure (Link 2010), from the year 2000-model for the Barents Sea.

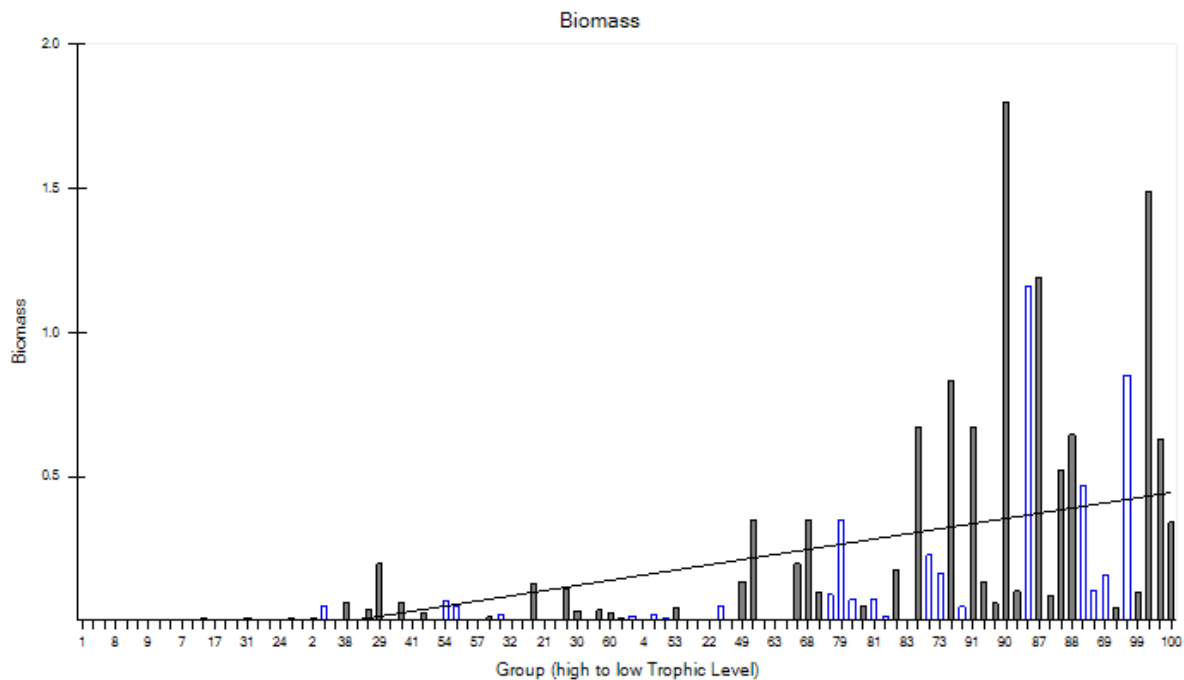


Fig. Part D-1. Overview of biomass (g C m^{-2}) plotted versus trophic level based on output values from the year 2000-model for the Barents Sea. Biomass for groups with open blue bars are estimated by the Ecopath model.

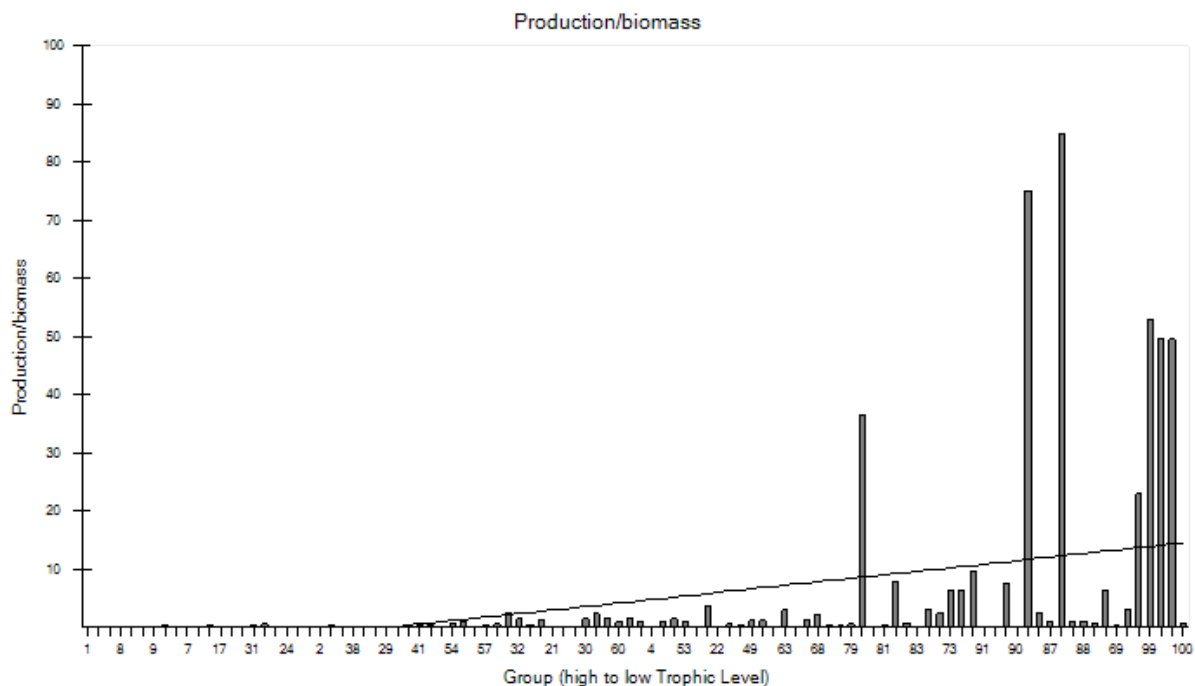


Fig. Part D-2. Overview of production/biomass (year^{-1}) plotted versus trophic level based on output values from the year 2000-model for the Barents Sea.

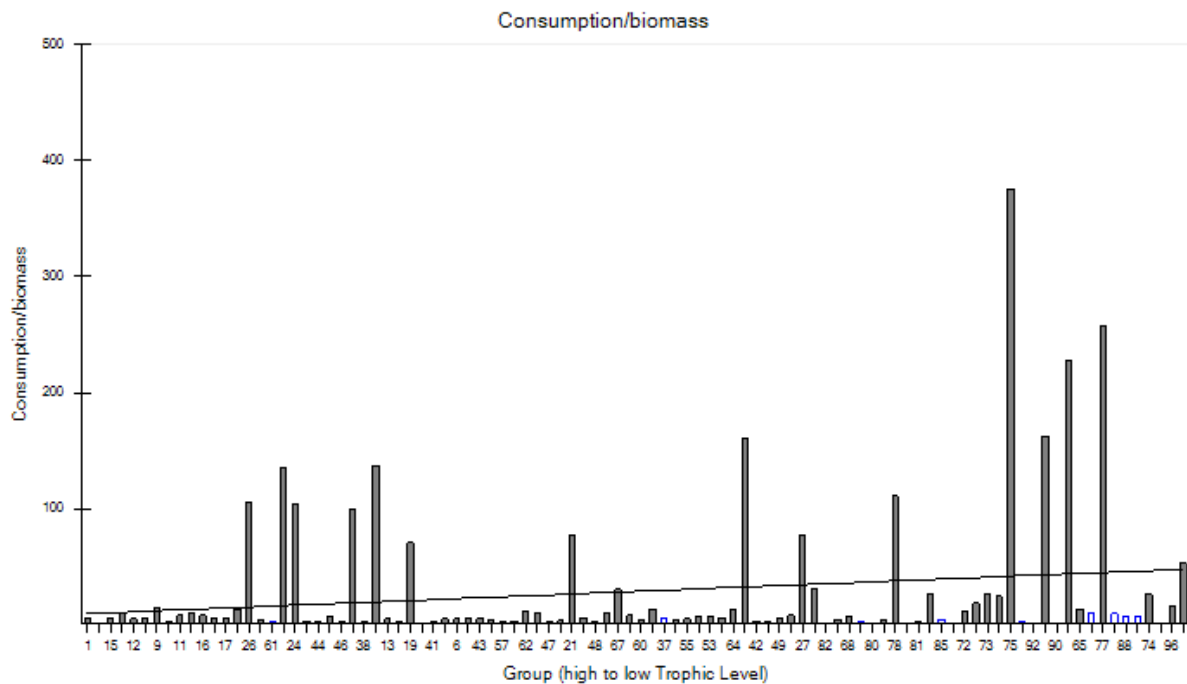


Fig. Part D-3. Overview of consumption/biomass (year⁻¹) plotted versus trophic level based on output values from the year 2000-model for the Barents Sea.

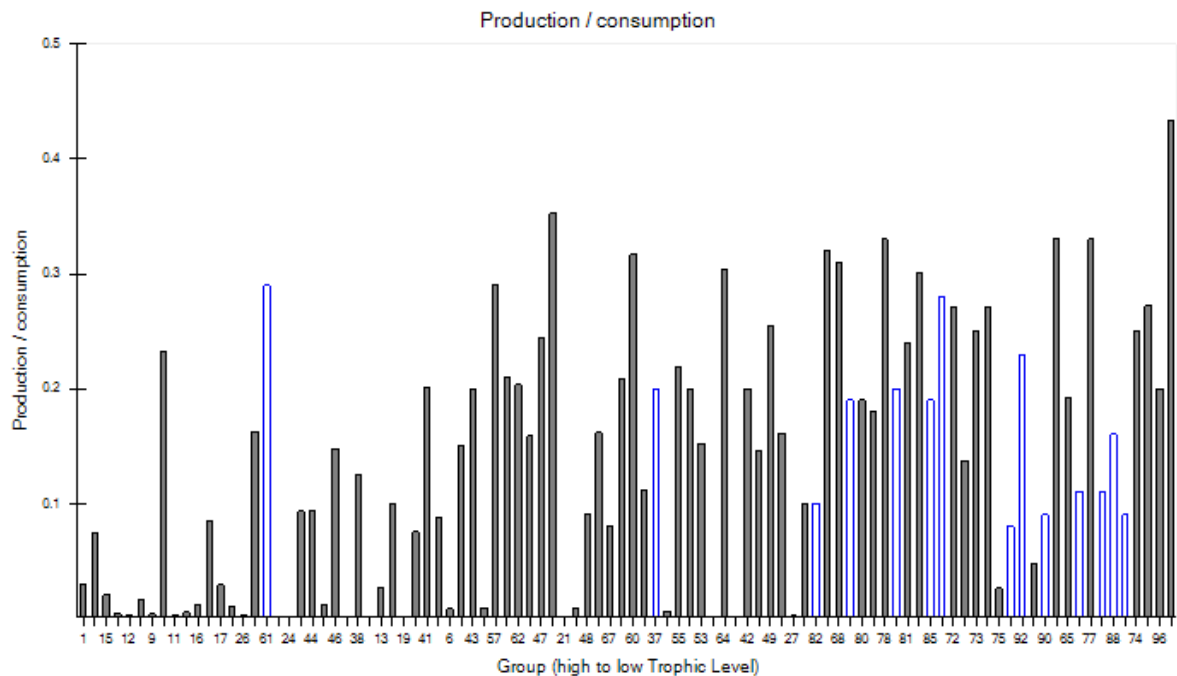


Fig. Part D-4. Overview of production/consumption plotted versus trophic level based on output values from the year 2000-model for the Barents Sea. Biomass for groups with open blue bars are estimated by the Ecopath model.

Part E - Background data and results from simulations from 2000-2013 without and with increase in snow crab and red king crab biomass

The diet proportions of predators on snow-crab were based on published literature (Table S8-1). The snow-crab biomass increased rapidly from year 2000 to 2015 and it was chosen to select a level for Northeast Arctic cod which has the clearly highest number of stomachs sampled and then assess the diet proportions of the other species relative to the “cod-level”. Holt et al. (2021) show that the diet proportion of snow crab in the diet of northeast arctic cod rose between year 2000 to year 2013 and reached a level of ca. 2.5% in 2013. The diet proportions of northeast Arctic cod (0-3) was chosen so the search rates for capelin (3+) and snow-crab became similar at a biomass of snow crab of 0.000498 g C m⁻² in year 2000. The proportion of snow crab in the diet levels for haddock (3+) and long rough dab were set to 1/10 of the cod level. The level for other large benthic invertebrate feeding fishes where *A. hyperborea* is one of the species in the group were set equal to the cod level. The level for thorny skate was also set equal to the cod level (Table S8-1).

Table Part E-1 Overview of background data for diet proportions of snow-crab in predator stomachs

Gr no	Ecopath group (species)	Prop snow crab in diet (%)	No. stomachs	Time period	Source	Model prop. (%) in pred. diet
29	Northeast Arctic cod (3+)	0.46	168857	2001-2014	Sokolov et al. (2016)	1.8*10 ⁻⁵
		5.95	11557*	2015	Eriksen et al. (2020)	
35	Haddock (3+)	0.01	95113	2002-2014	Sokolov et al. (2016)	1.8*10 ⁻⁶
35	Haddock (3+)	0.02	3316	2015	Eriksen et al. (2020)	
41	Wolffishes (<i>A. denticulatus</i> , <i>A. minor</i> , <i>A. anarhichas</i>)	**			Agnalt et al. (2011)	0.9*10 ⁻⁵
		0.0	165	2015	Eriksen et al. (2020)	
43	Other small bentivorous fishes (<i>Gymnocanthus tricuspis</i>)	1.63	353	2004-2014	Sokolov et al. (2016)	1.8*10 ⁻⁶
		0.0	5	2015	Eriksen et al. (2020)	
43	Other small bentivorous fishes (<i>Myoxocephalus scorpius</i>)	0.39	104	2002-2014	Sokolov et al. (2016)	1.8*10 ⁻⁶
		0.0	2	2015	Eriksen et al. (2020)	
44	Other large bent. inv. f. fish (<i>Amblyraja hyperborea</i>)	4.16	563	2002-2014	Sokolov et al. (2016)	1.8*10 ⁻⁵
		0.0	17	2015	Eriksen et al. (2020)	
45	Thorny skate	1.26	5266	2002-2014	Sokolov et al. (2016)	1.8*10 ⁻⁵
		1.97	289	2015	Eriksen et al. (2020)	
46	Long rough dab	0.02	10548	2002-2014	Sokolov et al. (2016)	1.8*10 ⁻⁶
		0.04	1553	2015	Eriksen et al. (2020)	

*) total for species included age 3+ and age 0-2, **) qualitative observation of snow-crab in diet

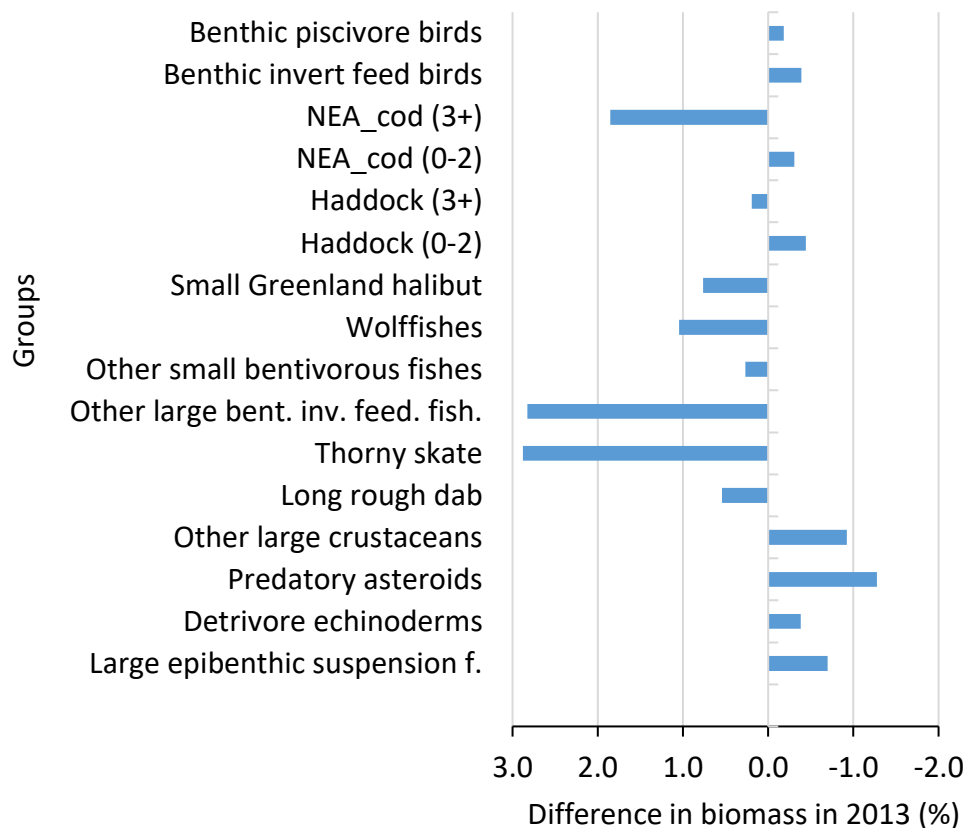


Fig. Part E-1. Overview of differences in biomasses between model simulations from year 2000 to 2013 of various functional groups with and without an increase in biomass of snow-crab and red king crab. Only differences > 0.1 % are shown. Values are positive values for higher biomasses in 2013.

References

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- Eriksen E, Benzik AN, Dolgov AV, Skjoldal HR, Vihtakari M, Johannesen E, Prokhorova TA, Keulder-Stenevik F, Prokopchuk I, Strand E (2020) Diet and trophic structure of fishes in the Barents Sea: The Norwegian-Russian program “Year of stomachs” 2015–Establishing a baseline. Progress in Oceanography 183:102262
- Holt RE, Hvingel C, Agnalt A-L, Dolgov AV, Hjelset AM, Bogstad B (2021) Snow crab (*Chionoecetes opilio*), a new food item for North-east Arctic cod (*Gadus morhua*) in the Barents Sea. ICES Journal of Marine Science
- Sokolov K, Strelkova N, Manushin I, Sennikov A (2016) Snow crab *Chionoecetes opilio* in the Barents and Kara Seas. Murmansk, Russia: PINRO Press.(in Russian)

Part F - Overview of initial and balanced Ecopath model values for year 2000 and year 1950

Table Part F-1. Overview of balanced 2000 model. Values in bold are estimated by the model. Values in brackets are initial values when they differ from the balanced model. Underlined values in italics are for multistanza groups.

Group no.	Group name	Trophic level	Biomass (g m ⁻²)	P/B (year ⁻¹), Z (year ⁻¹)	Q /B (year ⁻¹)	Ecotrophic Efficiency	Production / consumption	Biomass acc. (g m ⁻² year ⁻¹)
1	Polar bear	5.11	0.00016	0.099	5.6	0.00	0.018	
2	Minke whale	4.12	0.0100	0.04	6.8	0.22	0.006	
3	Fin whale	3.61	0.0028	0.04	4.6	0.00	0.009	
4	Blue whale	3.39	0.0005	0.0253	4.1	0.00	0.006	
5	Bowhead	3.39	0.0011	0.01	5.5	0.00	0.002	
6	Humpback whale	3.67	0.0008	0.04	4.9	0.00	0.008	
7	White whale	4.50	0.00101	0.05	9.6	0.00	0.005	
8	Narwhale	4.82	0.00008	0.04	9.7	0.00	0.004	
9	Dolphins	4.62	0.00097	0.051	14.2	0.00	0.004	
10	Harbour porpoise	4.41	0.00005	0.133	12.8	0.00	0.010	
11	Killer whales	4.23	0.00027	0.02	7.7	0.00	0.003	
12	Sperm whale	4.69	0.00044	0.0141	4.8	0.00	0.003	
13	Harp seal	4.08	0.027	0.13	4.8	0.25	0.027	
14	Harbour seal	4.59	0.00005	0.094	5.8	0.14	0.016	
15	Grey seal	4.80	0.00013	0.12	5.9	0.05	0.020	
16	Ringed seal	4.55	0.00064	0.11	7.9	0.78	0.014	
17	Bearded seal	4.44	0.00035	0.14	4.9	0.27	0.029	
18	Walrus	3.51	0.00151	0.05	5.8	0.00	0.009	
19	Northern fulmar	4.02	0.00009	0.05	70.6	0.00	0.001	
20	Black legged kittiwake	4.08	0.00006	0.128	137.0	0.00	0.001	
21	Other gulls and surface feeders	3.53	0.00003	0.127	77.5	0.00	0.002	
22	Little auk	3.38	0.00002	0.139	160.4	0.00	0.001	
23	Brunnich guillemot	4.13	0.00033	0.085	99.4	0.00	0.001	
24	Common guillemot and razorbill	4.29	0.00003	0.088	104.3	0.00	0.001	
25	Atlantic puffin	4.35	0.00006	0.083	134.9	0.00	0.001	
26	Benthic piscivore birds	4.41	0.00001	0.21	105.2	0.00	0.002	
27	Benthic invert feed birds	3.29	0.00005	0.163	77.2	0.00	0.002	
28	Greenland shark	4.99	0.00413	0.0142	0.2	0.00	0.074	
29	Northeast Arctic cod (3+)	4.17	0.05965	<u>0.57</u>	2.5	0.97	0.228	0.00656
30	Northeast Arctic cod (0-2)	3.46	0.03392	<u>1.20</u>	6.6	0.83	0.183	0.00373
31	Coastal cod (2+)	4.31	0.00710	<u>0.55</u>	3.0	0.77	0.183	0.00039
32	Coastal cod (0-1)	3.61	0.00080	<u>1.50</u>	10.1	0.77	0.148	4.4E-05
33	Saithe (3+)	3.79	0.02540	<u>0.36</u>	5.0	0.83	0.072	
34	Saithe (0-2)	3.41	0.00911	<u>1.50</u>	14.3	0.41	0.105	
35	Haddock (3+)	3.62	0.01170	<u>0.55</u>	2.8	0.95	0.195	0.00363
36	Haddock (1-2)	3.44	0.02721	<u>1.50</u>	7.0	0.94	0.214	0.00844

Group no.	Group name	Trophic level	Biomass (g m ⁻²)	P/B (year ⁻¹), Z (year ⁻¹)	Q /B (year ⁻¹)	Ecotrophic Efficiency	Production / consumption	Biomass acc. (g m ⁻² year ⁻¹)
37	Other small gadoids	3.39	0.01400 (0.050)	<u>1.00</u>	5.0	0.90	0.200	
38	Large Greenland halibut	4.11	0.04870	<u>0.13</u>	2.3	0.87	0.056	
39	Small Greenland halibut	4.50	0.00118	<u>0.50</u>	9.0	0.78	0.055	
40	Other piscivorous fish	4.53	0.00013	0.35	2.0	0.57	0.175	
41	Wolffishes	3.85	0.004	0.54	(2.68) 2.0	0.90	0.270	
42	Stichaeidae	3.40	0.040	0.59	3.0	0.90	0.200	
43	Other small bentivorous fishes	3.70	0.040	1.00	5.0	0.90	0.200	
44	Other large benthic invertebrate feeding fishes	4.18	0.002	0.27	2.9	0.90	0.093	
45	Thorny skate	4.21	0.006	0.27	2.9	0.19	0.093	
46	Long rough dab	4.23	0.037	0.34	2.3	0.90	0.148	
47	Other bentivore flatfish	3.60	0.002	0.56	2.3	0.55	0.243	
48	Large herring	3.22	0.082	0.40	2.8	0.75	0.141	
49	Small herring	3.31	0.160	0.90	4.7	0.92	0.191	
50	Capelin (3+)	3.24	0.070	<u>1.60</u>	4.7	0.87	0.340	0.0084
51	Capelin (0-2)	3.28	(0.224) 0.315	<u>1.07</u>	7.9	0.77	0.136	0.03779
52	Polar cod (2+)	3.56	(0.078) 0.125	<u>1.02</u>	3.4	0.79	0.300	
53	Polar cod (0-1)	3.39	(0.020) 0.047	<u>1.10</u>	7.3	0.29	0.151	
54	Blue whiting	3.68	0.078	0.68	(5.77) 5.0	0.90	0.136	
55	Sandeel	3.39	0.013	1.07	(4.7) 7.9	0.90	0.136	
56	Other pelagic planktivorous fish	3.39	0.007	1.51	7.6	0.90	0.200	
57	Lumpfish	3.64	0.0036	0.47	1.6	0.88	0.290	
58	Mackerel	3.35	0.00004 (0.035)	(0.49) 0.34	2.4	0.90	0.145	
59	Large redfish	4.01	0.038	<u>0.10</u>	1.3	0.82	0.077	
60	Small redfish	3.42	0.020	<u>1.00</u>	2.9	0.93	0.343	
61	Atlantic salmon	4.36	0.00043	(0.60) 0.98	(2.07) 3.4	0.27	0.290	
62	Cephalopods	3.62	0.016	2.44	12.0	0.90	0.203	
63	Schypomedusae	3.27	0.003	3	30.0	0.15	0.100	
64	Chaetognaths	3.38	0.004	3.8	12.5	0.80	0.304	
65	Thysanoessa	2.17	0.892	2.5	16.7	0.90	0.150	
66	Large krill	2.39	0.195	2.5	18.3	0.90	0.137	
67	Ctenophora	3.46	(0.091) 0.003	2.4	30.0	0.90	0.080	
68	Pelagic amphipods	3.23	(0.35) 0.137	2.5	7.1	0.91	0.353	

Group no.	Group name	Trophic level	Biomass (g m ⁻²)	P/B (year ⁻¹), Z (year ⁻¹)	Q /B (year ⁻¹)	Ecotrophic Efficiency	Production / consumption	Biomass acc. (g m ⁻² year ⁻¹)
69	Symphagic amphipods	2.00	0.165	0.384	1.6	0.90	0.240	
70	Pteropods	2.82	0.014	7.99	26.6	0.90	0.300	
71	Medium sized copepods	2.31	0.830	6.5	26.0	0.74	0.250	
72	Large calanoids	2.44	0.220	3.25	13.0	0.90	0.250	
73	Small copepods	2.37	(0.061) 0.153	6.5	26.0	0.90	0.250	
74	Other large zooplankton	2.00	0.091	6.5	26.0	0.90	0.250	
75	Appendicularians	2.27	0.029	9.75	375.6	0.90	0.026	
76	Ciliates	2.20	0.100	89.2	270.3	0.67	0.330	
77	Heterotrophic dinoflagellates	2.00	0.089	86.8	263.0	0.55	0.330	
78	Heterotrophic nanoflagellates	2.95	(0.120) 0.067	36.5	110.6	0.95	0.330	
79	Northern shrimp	3.04	0.214	0.68	3.8	0.90	0.180	
80	Crangonid and other shrimps	3.21	0.071	0.3	1.6	0.90	0.190	
81	Other large crustaceans	2.85	0.046	0.5	2.1	0.90	0.240	
82	Crinoids	2.91	0.001	0.07	0.70	0.57	0.100	
83	Predatory asteroids	3.28	0.005	0.066	0.24	0.92	0.280	
84	Predatory gastropods	2.68	0.052	0.219	1.10	0.14	0.200	
85	Predatory polychaetes	2.79	0.178	0.842	4.43	0.48	0.190	
86	Other predatory benthic invertebrates	3.18	0.099	0.498	(2.49) 2.62	0.18	0.190	
87	Detritivorous polychaetes	2.15	1.190	1.117	10.15	0.49	0.110	
88	Small benthic crustaceans	2.04	0.645	1.11	6.94	0.44	0.160	
89	Small benthic molluscs	2.01	0.362	0.636	7.07	0.90	0.090	
90	Large bivalves	2.20	1.804	0.119	1.32	0.18	0.090	
91	Detritivorous echinoderms	2.25	0.671	0.171	2.14	0.65	0.080	
92	Large epibenthic suspension feeders	2.20	0.135	0.095	0.41	0.12	0.230	
93	Other benthic invertebrates	2.08	0.520	1.003	9.12	0.53	0.110	
94	Meiofauna	2.22	0.060	7.63	162.0	0.00	0.047	
95	Bacteria	2.00	(0.84) 0.759	21.2	53.0	0.95	0.400	
96	Benthic foraminifera	2.00	0.050	3.12	15.6	0.16	0.200	
97	Diatoms	1.00	1.500	55		0.77		
98	Autotroph flagellates	1.00	0.500	55		1.00		
99	Ice algae	1.00	0.100	53		0.00		
100	Macroalgae	1.00	0.340	0.63		0.24		

101	Dead carcasses	1.00	1.0			0.38		0.018
102	Detritus from other sources	1.00	67.0			0.86		11.6
103	Detritus ice algae	1.00	1.0			0.98		0.12
104	Offal	1.00	1.0			0.91		0.0007

Table Part F-2. Overview of balanced 1950 model. Values in bold are estimated by the model. Values in brackets are initial values when they differ from the balanced model. Underlined values in italics are for multistanza groups.

Group no.	Group name	Trophic level	Biomass (g m ⁻²)	P/B (year ⁻¹), Z (year ⁻¹)	Q / B (year ⁻¹)	Ecotrophic efficiency	Production/ consumption	Biomass acc. (g m ⁻² year ⁻¹)
1	Polar bear	5.10	0.00032	0.15	5.0	0.67	0.030	
2	Minke whale	4.16	0.0109	0.08	6.8	0.61	0.012	
3	Fin whale	3.65	0.0028	0.04	4.6	0.00	0.009	
4	Blue whale	3.40	0.0005	0.0253	4.1	0.00	0.006	
5	Bowhead	3.37	0.0011	0.01	5.5	0.00	0.002	
6	Humpback whale	3.75	0.0008	0.04	4.9	0.00	0.008	
7	White whale	4.50	0.00101	0.05	9.6	0.00	0.005	
8	Narwhale	4.81	0.00008	0.04	9.7	0.00	0.004	
9	Dolphins	4.59	0.00097	0.051	14.2	0.00	0.004	
10	Harbour porpoise	4.41	0.00005	0.133	12.8	0.00	0.010	
11	Killer whales	4.50	0.00032	0.02	7.7	0.03	0.003	
12	Sperm whale	4.69	0.00044	0.0141	4.8	0.00	0.003	
13	Harp seal	4.07	0.037	0.13	4.8	0.40	0.027	-0.0003
14	Harbour seal	4.60	0.00005	0.094	5.8	0.00	0.016	
15	Grey seal	4.83	0.00013	0.12	5.9	0.00	0.020	
16	Ringed seal	4.48	0.00064	0.091	7.9	0.88	0.012	
17	Bearded seal	4.43	0.00035	0.14	4.9	0.40	0.029	
18	Walrus	3.51	0.00151	0.05	5.8	0.00	0.009	
19	Northern fulmar	4.02	0.00009	0.05	70.6	0.00	0.001	
20	Black legged kittiwake	4.08	0.00005	0.128	137.0	0.00	0.001	
21	Other gulls and surface feeders	3.54	0.00003	0.127	77.5	0.00	0.002	
22	Little auk	3.36	0.00002	0.139	160.4	0.00	0.001	
23	Brunnich guillemot	4.12	0.00033	0.085	99.4	0.00	0.001	
24	Common guillemot and razorbill	4.29	0.00003	0.088	104.3	0.00	0.001	
25	Atlantic puffin	4.35	0.00006	0.083	134.9	0.00	0.001	
26	Benthic piscivore birds	4.41	0.00001	0.21	105.2	0.00	0.002	
27	Benthic invert feed birds	3.29	0.00005	0.163	77.2	0.00	0.002	
28	Greenland shark	4.91	0.00470	0.0142	0.2	0.00	0.074	
29	Northeast Arctic cod (3+)	4.03	(0.140) 0.19654	(0.46) <u>0.25</u>	(2.71) 2.5	0.63	0.100	0.01277
30	Northeast Arctic cod (0-2)	3.47	0.03423	(1.2) <u>1.50</u>	(6.6) 9.3	0.88	0.161	0.00222
31	Coastal cod (2+)	4.37	(0.0071) 0.01020	(0.54) <u>0.55</u>	(3.0) 3.4	0.78	0.163	0.00041
32	Coastal cod (0-1)	3.61	0.00176	<u>1.50</u>	(4.0) 9.5	0.92	0.159	7E-05
33	Saithe (3+)	3.82	0.02500	(0.36) <u>0.43</u>	(5.0) 4.9	0.72	0.088	
34	Saithe (0-2)	3.42	0.01063	<u>1.50</u>	13.4	0.46	0.112	

Group no.	Group name	Trophic level	Biomass (g m ⁻²)	P/B (year ⁻¹), Z (year ⁻¹)	Q/B (year ⁻¹)	Ecotrophic efficiency	Production/consumption	Biomass acc. (g m ⁻² year ⁻¹)
35	Haddock (3+)	3.62	(0.0192) 0.01223	(0.55) <u>0.59</u>	2.8	0.99	0.209	0.00477
36	Haddock (1-2)	3.43	0.03578	(1.5) <u>1.60</u>	7.7	0.87	0.208	0.01395
37	Other small gadoids	3.40	0.01557	(1.0) 1.03	(5.0) 5.2	0.90	0.200	
38	Large Greenland halibut	4.08	(0.05) 0.060	(0.129) <u>0.25</u>	(2.30) 2.0	0.07	0.125	
39	Small Greenland halibut	4.48	0.006	(0.50) <u>0.51</u>	6.0	0.94	0.085	
40	Other piscivorous fish	4.53	(0.00126) 0.00006	(0.35) 0.54	(2.0) 2.3	0.93	0.232	
41	Wolffishes	3.84	0.005	0.54	2.7	0.90	0.201	
42	Stichaidae	3.36	0.049	0.59	3.0	0.90	0.200	
43	Other small bentivorous fishes	3.65	0.052	1.00	5.0	0.90	0.200	
44	Other large benthic invertebrate feeding fish	4.17	0.002	0.27	2.9	0.90	0.093	
45	Thorny skate	4.20	0.006	0.27	2.9	0.19	0.093	
46	Long rough dab	4.16	0.052	0.34	2.3	0.90	0.148	
47	Other bentivore flatfish	3.60	0.002	0.56	2.3	0.49	0.243	
48	Large herring	3.50	0.109	0.26	2.8	0.94	0.091	-0.012
49	Small herring	3.30	(0.066) 0.135	(0.9) 1.20	4.7	0.79	0.255	
50	Capelin (3+)	3.24	(0.128) 0.198	(1.6) <u>1.30</u>	(4.7) 4.1	0.71	0.320	0.0237
51	Capelin (0-2)	3.29	(0.224) 0.350	(1.07) <u>1.25</u>	7.7	0.85	0.161	0.042
52	Polar cod (2+)	3.56	(0.078) 0.125	(1.02) <u>1.20</u>	3.4	0.88	0.353	
53	Polar cod (0-1)	3.39	(0.02) 0.042	(1.0) <u>1.11</u>	7.3	0.79	0.152	
54	Blue whiting	3.68	0.068	(0.68) 0.87	5.8	0.90	0.151	
55	Sandeel	3.40	0.020	(1.07) 1.03	4.7	0.90	0.219	
56	Other pelagic planktivorous fish	3.40	0.009	1.51	7.6	0.90	0.200	
57	Lumpfish	3.64	0.0036	0.47	1.6	0.58	0.290	
58	Mackerel	3.36	0.00002	(0.49) 0.34	2.4	0.90	0.145	
59	Large redfish	4.01	(0.035) 0.060	<u>0.10</u>	1.3	0.38	0.075	
60	Small redfish	3.43	0.027	<u>1.00</u>	3.2	1.00	0.317	
61	Salmon	4.36	0.001	0.6	2.1	0.07	0.290	
62	Cephalopods	3.62	0.020	2.44	12.0	0.90	0.203	
63	Schypomedusae	3.28	0.003	3	30.0	0.15	0.100	
64	Chaetognaths	3.37	0.005	3.8	12.5	0.80	0.304	
65	Thysanoessa	2.17	1.161	2.5	(16.7) 13.0	0.90	0.192	

Group no.	Group name	Trophic level	Biomass (g m ⁻²)	P/B (year ⁻¹), Z (year ⁻¹)	Q / B (year ⁻¹)	Ecotrophic efficiency	Production/ consumption	Biomass acc. (g m ⁻² year ⁻¹)
66	Large krill	2.40	0.226	2.5	18.3	0.90	0.137	
67	Ctenophora	3.45	(0.091) 0.003	2.4	30.0	0.90	0.080	
68	Pelagic amphipods	3.23	0.350	2.2	7.1	0.51	0.310	
69	Symphagic amphipods	2.00	0.159	0.384	(1.6) 1.4	0.90	0.272	
70	Pteropods	2.84	0.015	7.99	26.6	0.90	0.300	
71	Medium sized copepods	2.32	0.830	6.5	(26.0) 24.0	0.91	0.271	
72	Large calanoids	2.41	0.671	3.25	(13.0) 12.0	0.55	0.271	
73	Small copepods	2.38	(0.06) 0.165	6.5	26.0	0.90	0.250	
74	Other large zooplankton	2.00	0.106	6.5	26.0	0.90	0.250	
75	Appendicularians	2.27	0.047	9.75	375.6	0.90	0.026	
76	Ciliates	2.20	0.101	(89.2) 75.1	(270.3) 227.5	0.96	0.330	
77	Heterotrophic dinoflagellates	2.10	(0.089) 0.088	(86.8) 85	(263.0) 257.6	0.64	0.330	
78	Heterotrophic nanoflagellates	2.95	(0.120) 0.074	36.5	110.6	0.95	0.330	
79	Northern shrimp	3.04	0.348	0.68	3.8	0.90	0.180	
80	Crangonid and other shrimps	3.15	0.090	0.3	1.6	0.90	0.190	
81	Other large crustaceans	2.85	0.075	0.5	2.1	0.90	0.240	
82	Crinoids	3.27	0.001	0.07	0.7	0.74	0.100	
83	Predatory asteroids	2.68	0.005	0.066	0.2	0.74	0.280	
84	Predatory gastropods	2.91	0.052	0.219	1.1	0.13	0.200	
85	Predatory polychaetes	2.79	0.178	0.842	4.4	0.47	0.190	
86	Other predatory benthic invertebrates	3.17	0.099	0.498	(2.49) 2.6	0.23	0.190	
87	Detritivorous polychaetes	2.15	1.190	1.117	10.2	0.53	0.110	
88	Small benthic crustaceans	2.04	0.645	1.11	6.9	0.58	0.160	
89	Small benthic molluscs	2.01	0.470	0.636	7.1	0.90	0.090	
90	Large bivalves	2.20	1.800	0.119	1.3	0.19	0.090	
91	Detritivorous echinoderms	2.25	0.671	0.171	2.1	0.70	0.080	
92	Large epibenthic suspension feeders	2.22	0.135	0.095	0.4	0.13	0.230	
93	Other benthic invertebrates	2.08	0.520	1.003	9.1	0.24	0.110	
94	Meiofauna	2.21	0.060	7.63	162.0	0.00	0.047	
95	Bacteria	2.00	(0.84) 0.852	(21.2) 23	53.0	0.95	0.434	
96	Benthic foraminifera	2.00	(0.05) 0.043	3.12	15.6	0.25	0.200	

97	Diatoms	1.00	1.490	49.6		0.89		
98	Autotroph flagellates	1.00	0.630	49.6		0.84		
99	Ice algae	1.00	0.100	53		0.03		
100	Macroalgae	1.00	0.340	0.63		0.27		
101	Dead carcasses	1.00	1.0			0.35		0.0234
102	Detritus from other sources	1.00	67.0			0.99		0.58024
103	Detritus ice algae	1.00	1.0			0.95		0.26391
104	Offal	1.00	1.0			0.88		0.00099

Part G - Results from simulations with variable or with constant ice-algae production

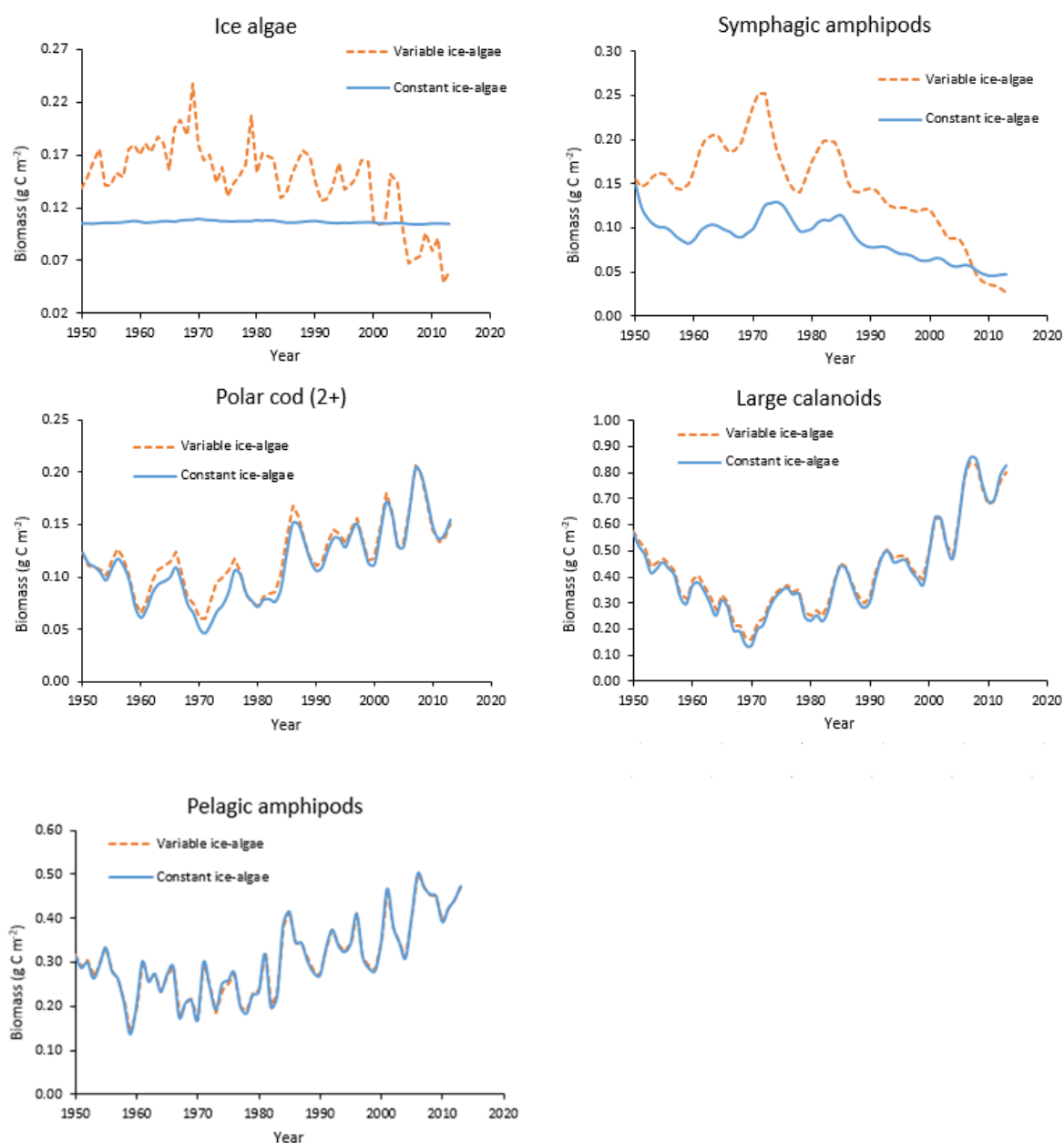


Figure Part G-1. Comparison of biomasses during 1950-2013 for Ecosim simulations without (constant ice-algae) and with variable ice-algae production using model M10 with 26 vulnerabilities estimated. Biomasses shown for ice-algae, symphagic amphipods, polar cod (2+), large calanoids and pelagic amphipods

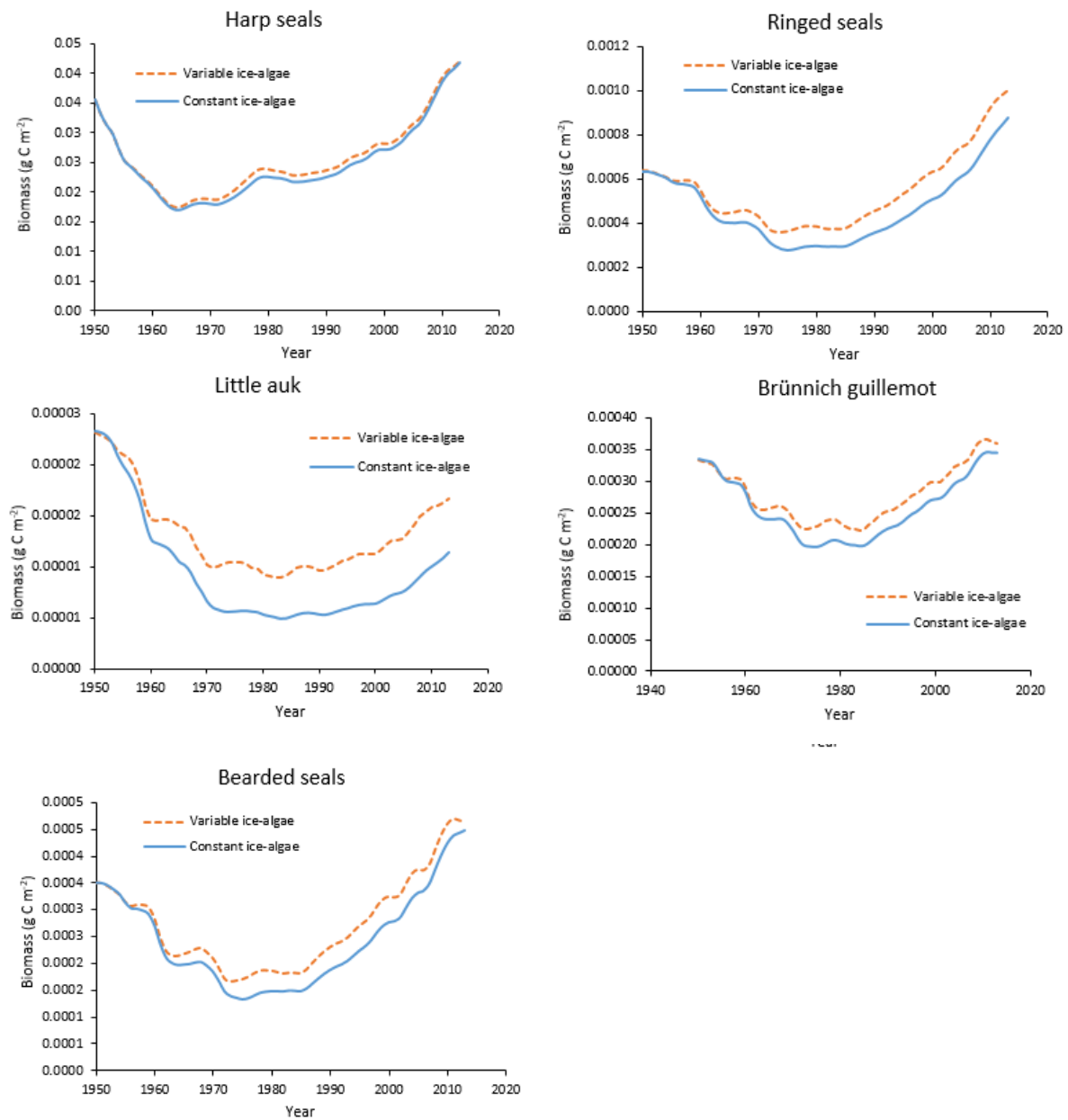


Figure Part G-2. Comparison of biomasses during 1950-2013 for Ecosim simulations without (constant ice-algae) and with variable ice-algae production using model M10 with 26 vulnerabilities estimated. Biomasses shown for Harp seals, Ringed seals, Little auk, Brünnich guillemot and bearded seals