

Preliminary tables of individual harbor seal characteristics

Nina Hille Bringsdal (MSc student at the University of Agder)

All haul-out data retrieved from the Sea Mammal Research Unit. Biological data retrieved from Carla Freitas, Michael Poltermann, Virgine Ramasco's MSc and dissertation, and article by Ramasco, Biuw, and Nilssen (2014).

The Jomfruland biological data was retrieved from a spread sheet retrieved from Carla Freitas. I was in the field when the tags were deployed on 4 seals in November of 2020. One seal was tagged earlier, in September of 2020. Start- and end dates, number of days the tags sent data and number of summary observations per seal was retrieved and calculated from raw data from SMRU

Table 1: Jomfruland 2020-21

Individual Jomfruland 2020-21	Sex	Weight (kg)	Length (cm)	Start date	End date	Days	Observations
pv74-F46-Olivia-20	F	46	112	14-Nov-20	16-Mar-21	122	485
pv74-M62-Gamle-Erik-20	M	62	128	19-Sep-20	03-Jan-21	106	421
pv74-M70-Osito-20	M	70	137	14-Nov-20	20-Mar-21	126	503
pv74-M86-Bjorn-20	M	86	156	14-Nov-20	12-Feb-21	90	361
pv74-M88-Diego-20	M	88	135	14-Nov-20	02-Apr-21	139	555

The Bolærne biological data was retrieved from a spread sheet retrieved from Carla Freitas. Tags were deployed on 5 seals in November of 2019. Start- and end dates, number of days the tags sent data and number of summary observations per seal was retrieved and calculated from raw data from SMRU

Table 2: Bolærne 2019-20

Individual Bolærne 2019-20	Sex	Weight (kg)	Length (cm)	Start date	End date	Days	Observations
pv68-F53-Iris-14	F	53	120	14-Nov-19	28-Mar-20	135	1600
pv68-F56-Karin-14	F	56	125	14-Nov-19	21-Mar-20	128	1516
pv68-M40-Pedro-14	M	40	113	14-Nov-19	12-Mar-20	119	1408
pv68-M42-Einar-14	M	42	116	14-Nov-19	27-Feb-20	105	1256
pv68-M47-Vemund-14	M	47	122	14-Nov-19	25-Dec-19	41	492

The Jomfruland 2017 (or Portør) biological data was retrieved from a spread sheet retrieved from Michael Poltermann. Tags were deployed on 6 seals August 25. 2 of the seals started sending good data after actual tagging date (on August 28 and August 29, respectively). Start- and end dates, number of days the tags sent data and number of summary observations per seal was retrieved and calculated from raw data from SMRU

Table 3: Jomfruland 2017

Individual Portør 2017	Sex	Weight (kg)	Length (cm)	Start date	End date	Days	Observations
pv35b-04-11	M	85	162	25-Aug-17	27-Aug-17	2	27
pv35b-05-11	F	62	137	25-Aug-17	31-Dec-17	128	1539
pv35b-06-11	M	75	149	25-Aug-17	16-Sep-17	22	270
pv35b-08-11	M	75	149	29-Aug-17	04-Sep-17	6	45
pv35b-09-11	M	90	150	25-Aug-17	26-Aug-17	1	18
pv35b-10-11	F	34	115	28-Aug-17	20-Sep-17	23	54

The Porsangen biological data (2009 - 2013) was retrieved from Ramasco, Biuw & Nilssen (2013). Tags were deployed on 13 seals (12 harbor seals and one grey seal - which I have removed from the main data) + 3 seals. 5 individuals were tagged Sept-09, 1 individual in Oct-09, 1 individual in August-10, 5 individuals in Sept-10, 1 individual in Sept-11 and 2 individuals in Sept-12. Start- and end dates, number of days the tags sent data and number of summary observations per seal was retrieved and calculated from raw data from SMRU

Table 4: Porsangen 2009-13

Individual Porsangen 2009-13	Sex	Weight (kg)	Length (cm)	Start date	End date	Days	Observations
pv35-01-11	M	34	115	01-Sep-12	29-Dec-13	484	5814
pv35-02-11	M	24	85	03-Sep-12	22-Oct-12	49	594
pv35-03-11	M	22	96	01-Sep-11	22-Oct-11	51	666
pv30-01-09	M	21	87	01-Sep-09	09-Jul-10	311	3564
pv30-02-09	M	24	94	20-Sep-10	10-Jan-11	112	1224
pv30-03-09	M	41	108	31-Aug-10	30-Jan-11	152	1836
pv30-05-09	M	30	105	04-Sep-09	30-Mar-10	207	2484
pv30-06-09	F	31	104	01-Sep-09	27-May-10	268	3192
pv30-07-09	M	29	96	21-Oct-09	28-Jan-10	99	1184
pv30-08-09	M	25	101	05-Sep-10	19-Jun-11	287	3444
pv30-09-09	F	29	90	03-Sep-10	11-Jul-11	311	3552
pv30-10-09	M	28	100	21-Sep-10	13-Oct-10	22	264
pv30-11-09	F	22	93	06-Sep-09	07-Jun-10	274	3288
pv30-12-09	M	24	100	08-Sep-09	19-Dec-09	102	1224
pv30-13-09	F	28	101	22-Sep-10	03-Jun-11	254	2928

The Øksnes (stø 2007) biological data was retrieved from Virgine Ramasco's Master thesis (Habitat use and feeding behavior of harbor seals (*Phoca vitulina*) in Vesterålen, May 2008). Tags were deployed on 5 seals (all females) between Aug. 30 and Aug. 31, 2007. Start- and end dates, number of days the tags sent data and number of summary observations per seal was retrieved and calculated from raw data from SMRU

Table 5: Øksnes 2007-08

Individual Øksnes 2007-08	Sex	Weight (kg)	Length (cm)	Start date	End date	Days	Observations
gp10-641-07	F	23	86	30-Aug-07	01-Apr-07	215	2064
gp10-655-07	F	22	92	30-Aug-07	03-Dec-07	95	876
gp10-683-07	F	22	90	30-Aug-07	13-Mar-08	196	2352
gp10-684-07	F	32	108	30-Aug-07	26-Mar-08	209	2472
gp10-685-07	F	20	90	31-Aug-07	17-Feb-08	170	1884

Table 6: List of All Variables

Variable	Description	Type
REF	Individual ID	ID (categorical)
CEN.DATE	Position in time between start date and end date of summary period	Continuous
Month	Month of observation	Continuous
fMonth	Month of observation	Categorical
decimal_day	Decimal day of observation	Continuous
HAUL.TM*	Percent time hauled out during summary period	Proportion (continuous)
binary_HAUL.TM*	0 = < 75%, 1 = > 75%	Binary (categorical)
beta_HAUL.TM*	HAUL.TM calculated between 0 and 1 (percent)	Proportion
water_level	Observed mean water level during period fit to CEN.DATE	Continuous
Tide_cat	Observed mean water level in categories from low to high tide	Categorical (12)
Tide_cat_abbr	Same as above, but with abbreviation of tide level definition	Categorical (12)
Air_Temperature	Measured temperature, averaged between ports in location	Continuous
Windspeed	Measured windspeed, averaged between ports in location	Continuous
Precipitation	Amount of precipitation, averaged between ports in location	Continuous
Solar_Elevation	Calculated solar azimuth angle (in degrees from North), and elevation	Continuous
Night_Day	Positive solar elevation = Day, Negative solar elevation = Night	Categorical (2)
Light_cat	Night, Dusk, Day, Dawn calculated by solar elevation	Categorical (4)
moon_phase	Fraction of moon illuminated. Full moon: k = 1, New moon: k = 0	Continuous
Moon_cat	Full Moon, First Quarter, Last Quarter, New Moon	Categorical (4)
Sex	Gender of individual	Categorical (2)
Weight	Body mass in kg of individual	Continuous
Length	Length in cm of individual	Continuous

NB: Remember to mention in text that 2019 water level observations are retrieved from the secondary port of Viken, but with the same tide level heights. Jomfruland 2017 tide data was retrieved from standard port of Helgeroa. All Porsangen tide data was retrieved from the standard port of Honningsvåg. The Øksnes/Stø (2008) tide data was retrieved from the secondary port of Andenes, with standard port Tromsø. The information needed to create table and the categorical variable was taken from Kartverkets Tidevannstabell-report and water level observations from the Norwegian Mapping Authority, Hydrographic Service. Create reference to web page. Already have reference of the report.

Table 7: Tide levels and extreme values at the standard ports of Helgeroa, Honningsvåg and Tromsø. Heights are in cm above Chart Datum. Norwegian Hydrographic Service

Tide level	Helgeroa	Honningsvåg	Tromsø
High tide with 1 year repetition interval	140	335	337
HAT (Highest Astronomical Tide)	80	321	318
MHWS (Mean High Water Springs)	64	277	274
MHW (Mean High Water)	61	251	247
NN1954 (Normal zero 1954)	59	177	169
MHWN (Mean High Water Neaps)	58	226	219
NN2000 (Normal zero 2000)	56	186	180
MSL (1996-2014) (Mean Sea Level 1996-2014)	50	164	162
MLWN (Mean Low Water Neaps)	42	103	106
MLW (Mean Low Water)	39	78	51
MLWS (Mean Low Water Springs)	36	52	51
LAT (Lowest Astronomical Tide)	20	0	0
Low tide with 1 year repetition interval	-14	-7	-12