

Internasjonal sporing av felles bestander - SEATRACK

Hallvard Strøm, NP

Francoise Amélineau, NP

Vegard Bråthen, NINA

Sébastien Descamps, NP

Morten Ekker, MDir

Per Fauchald, NINA

Malin Johansen, NP

Børge Moe, NINA

Arnaud Tarroux, NINA

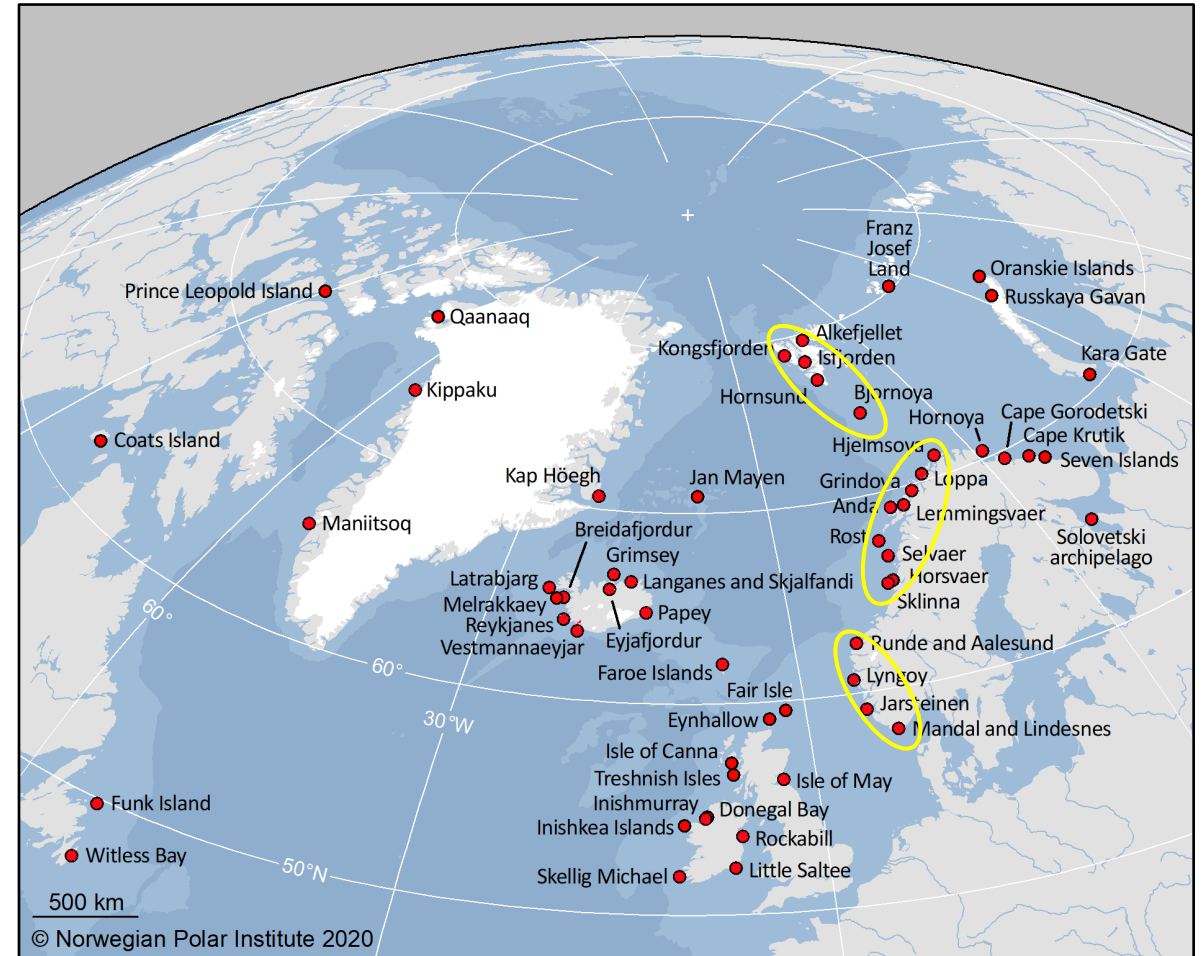


Seminar 8 – Asker 28.-29.9.2022



Main goal

- Map the **non-breeding distribution** of seabirds breeding in colonies encircling the North Atlantic by use of **GLS-loggers**
- How changes in environmental conditions in wintering areas **affect their demography and population trends**
 - **Science component** (*Science plan*)
 - **Management component** (*deliverables*)
- **Phase I** (2014 – 2018)
- **Phase II** (2019 – 2022)
- *Phase III* (2023 – 2026)



Partners



Name	Country
Bergur Olsen	Faroes
Johannis Danielsen	Faroes
Erpur Snær Hansen	Iceland
Gunnar Þór Hallgrímsson	Iceland
Jón Einar Jónsson	Iceland
Sunna Björk Ragnarsdóttir	Iceland
Þorkell Linberg Þórarinsson	Iceland
Aleksey Ezhov	Russia
Ekaterina Tolmacheva	Russia
Grigori Tertitski	Russia
Maria Gavrilov	Russia
Katarzyna Wojczulanis-Jakuba	Polen

Name	Country
Francis Daunt	UK
Paul Thompson	UK
Bob Swann	UK
Robin Ward	UK
Mark Bolton	UK
Arild Breistøl	Norway
Arne Follestad	Norway
Børge Moe	Norway
Geir Helge Systad	Norway
Hallvard Strøm	Norway
Ingar Støyle Bringsvor	Norway
Morten Helberg	Norway

Name	Country
Sebastien Descamps	Norway
Signe Christensen-Dalsgaard	Norway
Nina Dehnhard	Norway
Sveinn Are Hanssen	Norway
Thomas Holm Carlsen	Norway
Tone Kristin Reiertsen	Norway
Kjell Einar Erikstad	Norway
Kate Layton-Matthews	Norway
Tycho Anker-Nilssen	Norway
Annette Fayet	Norway
Jan Ove Bustnes	Norway
Mark Jessopp	Ireland

Name	Country
Olivier Chastel	France/Svalbard
Jerome Fort	France/Greenland
David Gremillet	France/Greenland
Morten Frederiksen	Denmark/Greenland
Flemming Merkel	Denmark/Greenland
Anders Mosbech	Denmark/Greenland
Bill Montevecchi	Canada
April Hedd	Canada
Kyle Elliott	Canada
Grant Gilchrist	Canada
Mark Mallory	Canada

BLACK-LEGGED KITTIWAKE
NORTHERN FULMAR



PELAGIC SURFACE FEEDERS

GLAUCOUS GULL
HERRING GULL
LESSER BLACK-
BACKED GULL



COASTAL SURFACE FEEDERS

COMMON GUILLEMOT
BRÜNNICH'S GUILLEMOT
ATLANTIC PUFFIN
LITTLE AUK



PELAGIC DIVING

COASTAL DIVING



COMMON EIDER
EUROPEAN SHAG

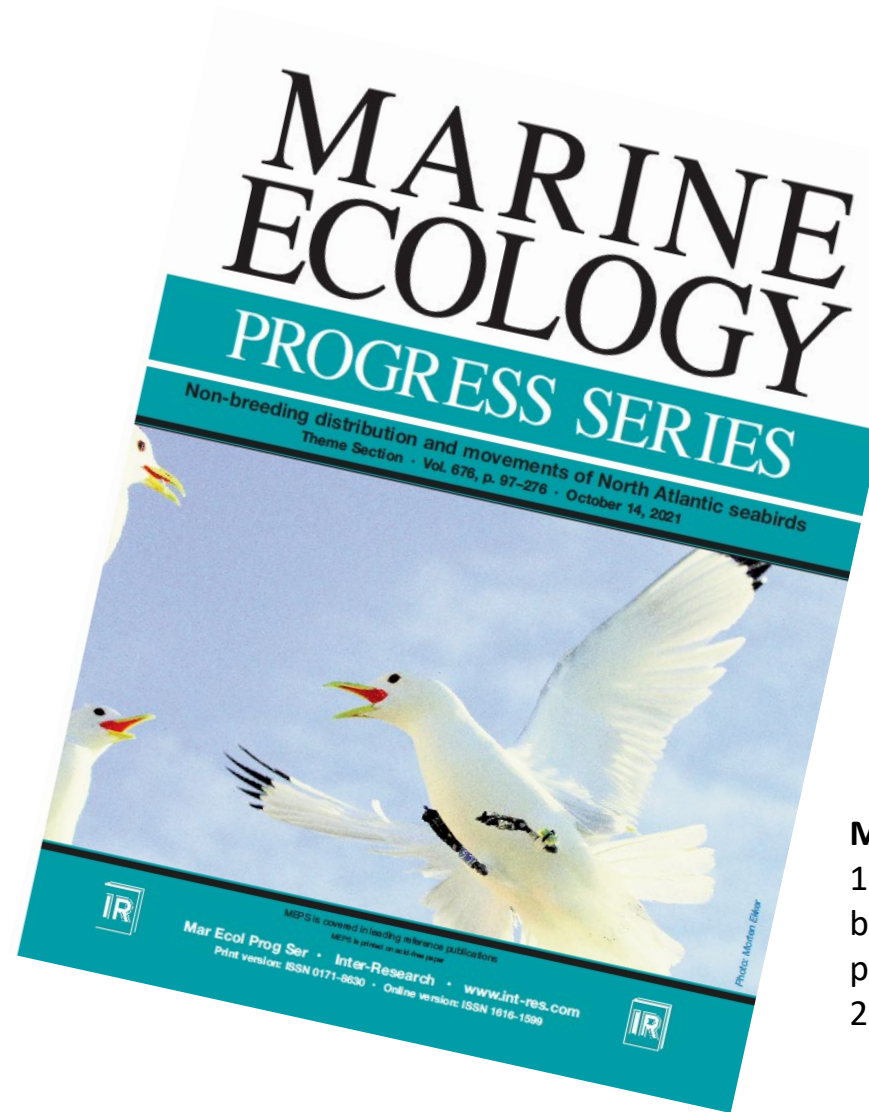
Infrastructure

- **Common protocol**
 - Additional sampling (sexing, SI)
 - Collaboration with ARCTOX
- Centralized and **standardized processing**
- Centralized **database and file archive**
- **Agreement of Understanding**
- **Data Request Form**
- **Science plan**



Research themes

1. Variation in **migration strategies** among **individuals, populations and species**
2. Linkage of **migration strategies** and **winter distribution** to **demography** and **population dynamics**
3. Linkage of **non-breeding distribution** to **contaminants**
4. Use of tracking data in **marine spatial planning**



MEPS Theme Section 2021:
12 original research articles
based on data collected as
part of SEATRACK from
2014 to 2019

Deployments and retrievals (2014-2021) Adults

Species	N loggers deployed	N loggers retrieved	% retrieved *
Common guillemot	1971	1156	59
Atlantic puffin	2484	917	37
Brünnich's guillemot	2131	1027	48
Little Auk	734	342	47
Black-legged kittiwake	3400	1877	55
Lesser black-backed gull	320	57	18
Northern fulmar	1250	618	49
Herring gull	411	73	18
Glaucous gull	489	181	37
European shag	984	446	45
Common eider	1206	573	48
Total	15380	7267	42 %

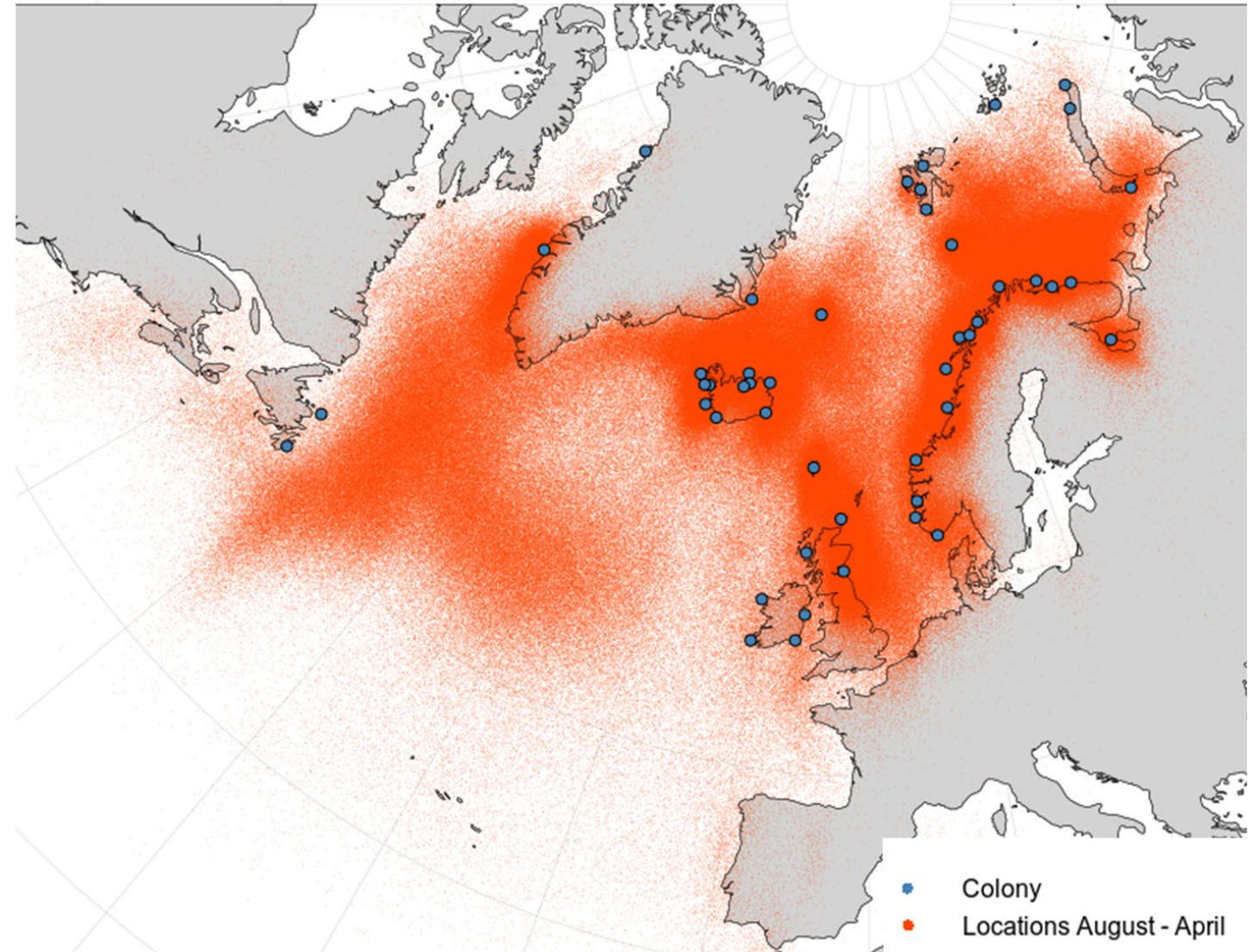
* 2022 not included

Database

Status August 2022 (Pacific not included)

- 3 732 200 positions
- 2 508 200 after filtering
- 7 786 «tracks»
- 3 598 individuals

Accepting pre-SEATRACK data
(re-analysed, not included here)



Product 1: Kernel distribution maps

Kittiwake

Winter (Nov.-Jan.)

2007-2021

Positions: 477 476

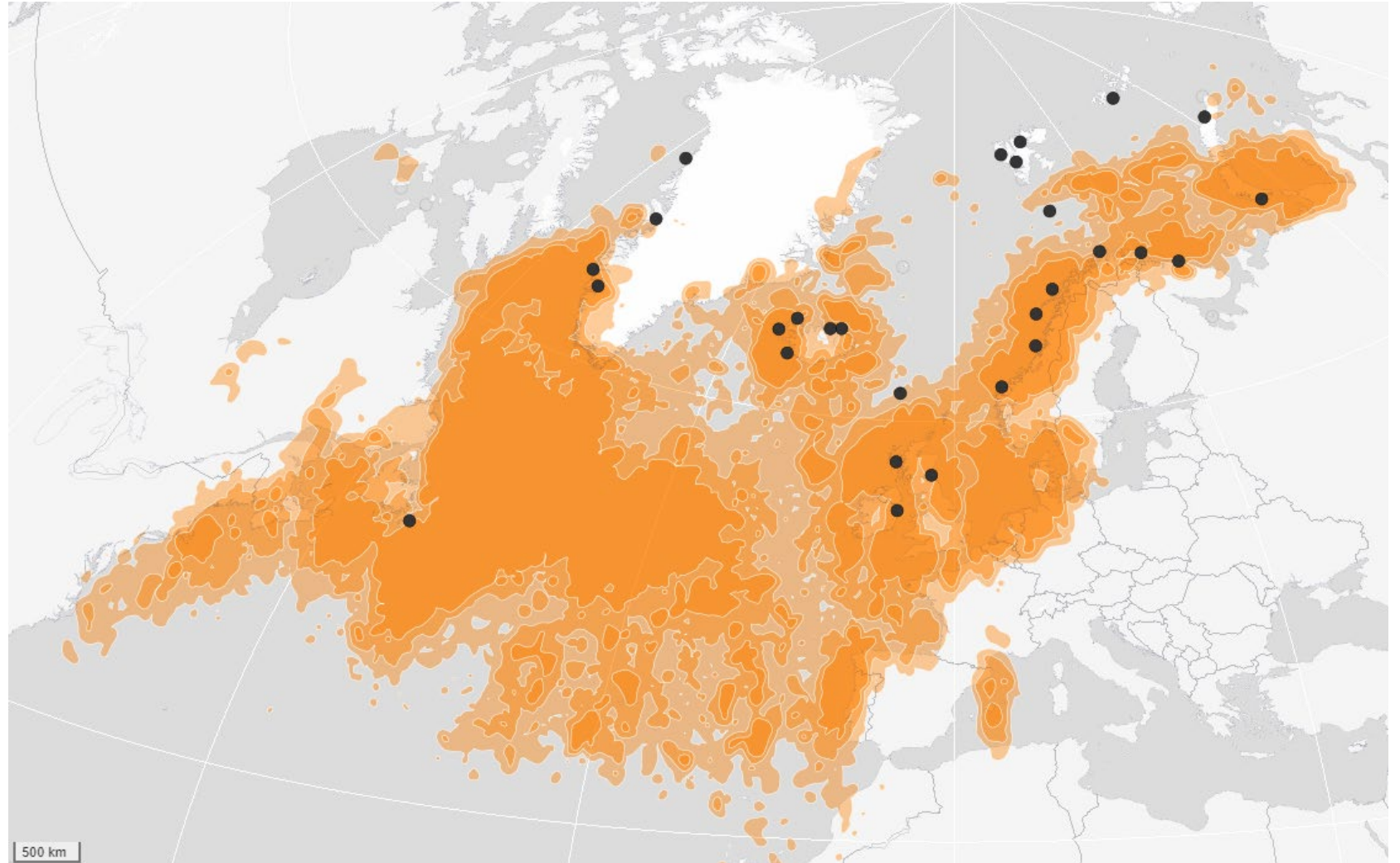
Colonies: 28

Individuals: 1280

Days: 93

Months: 3

25%, 50% and 75% kernel distribution



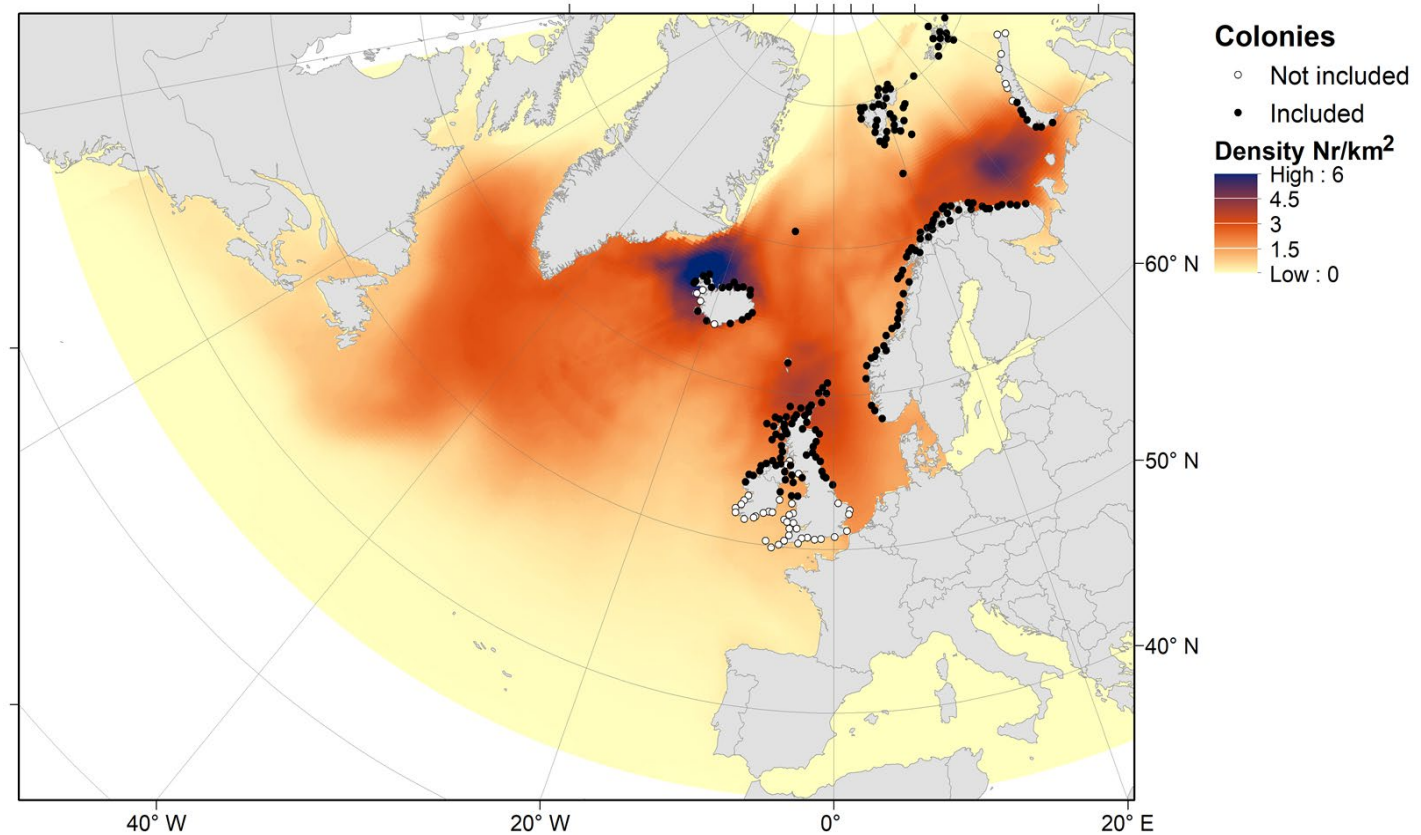
Available at: <http://seatrack.seapop.no/map/>

Product 2: Population distribution maps

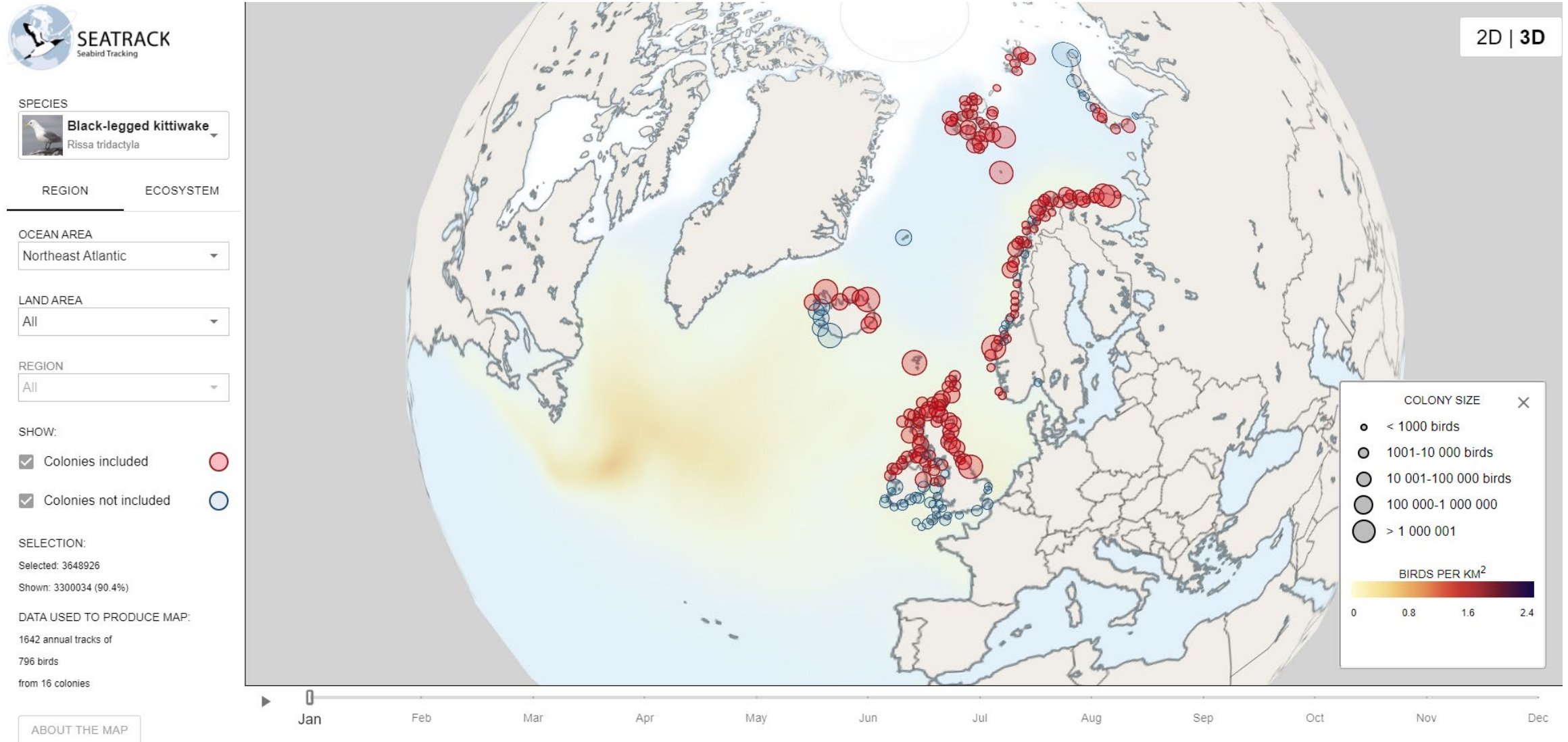
NEAS: North(east) Atlantic Seabird Distribution Dataset

- Combining population size data and tracking data
- Six common pelagic species
(Fulmar, kittiwake, common & Brünnich's guillemot, little auk, Atlantic puffin)
- 4692 raster maps covering the NE Atlantic
- Represents 23.5 mill. adult seabirds
- 87 % of the NE Atlantic populations

NB! 5 more species & NW Atlantic will be included fall/winter 2022-23

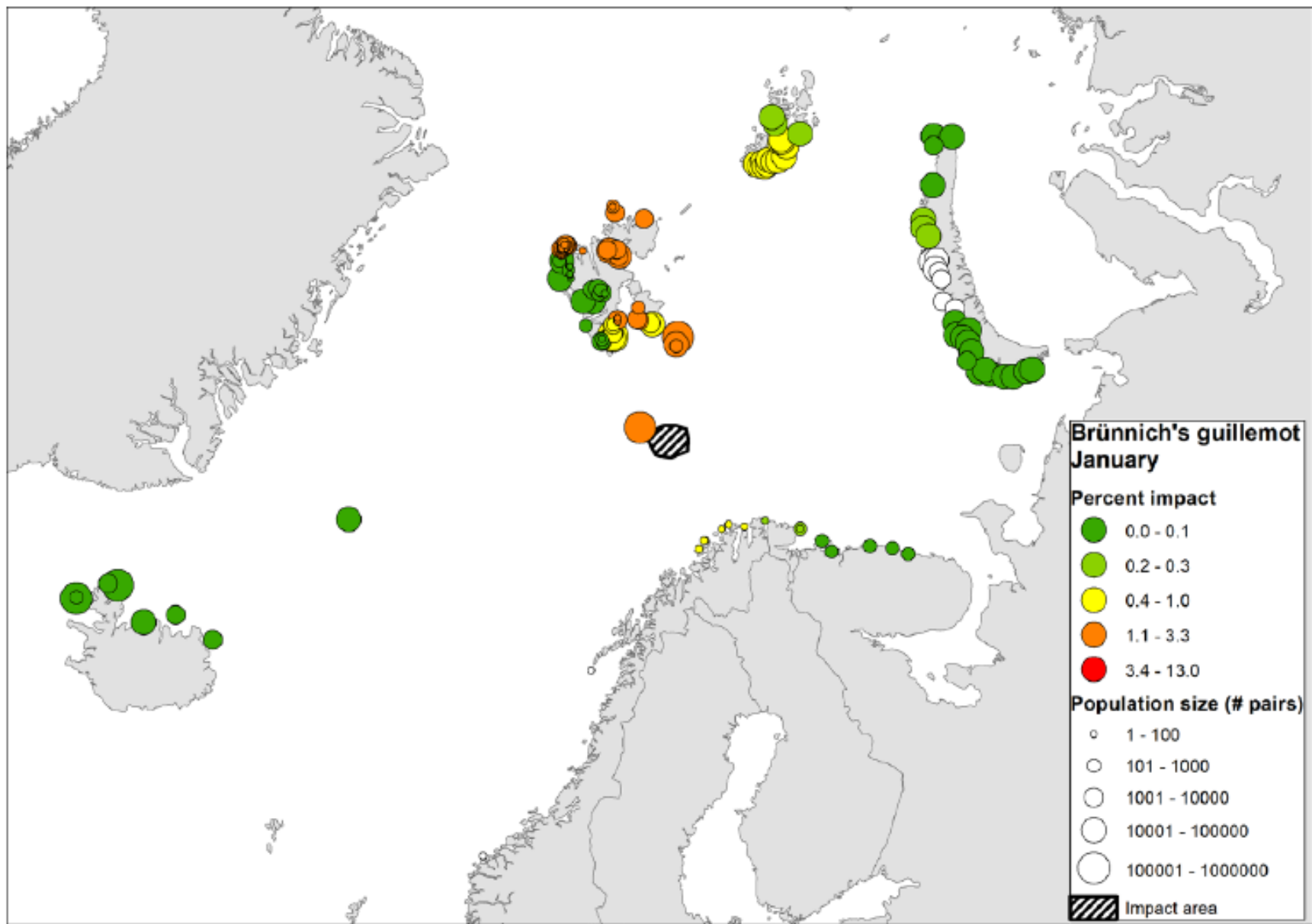


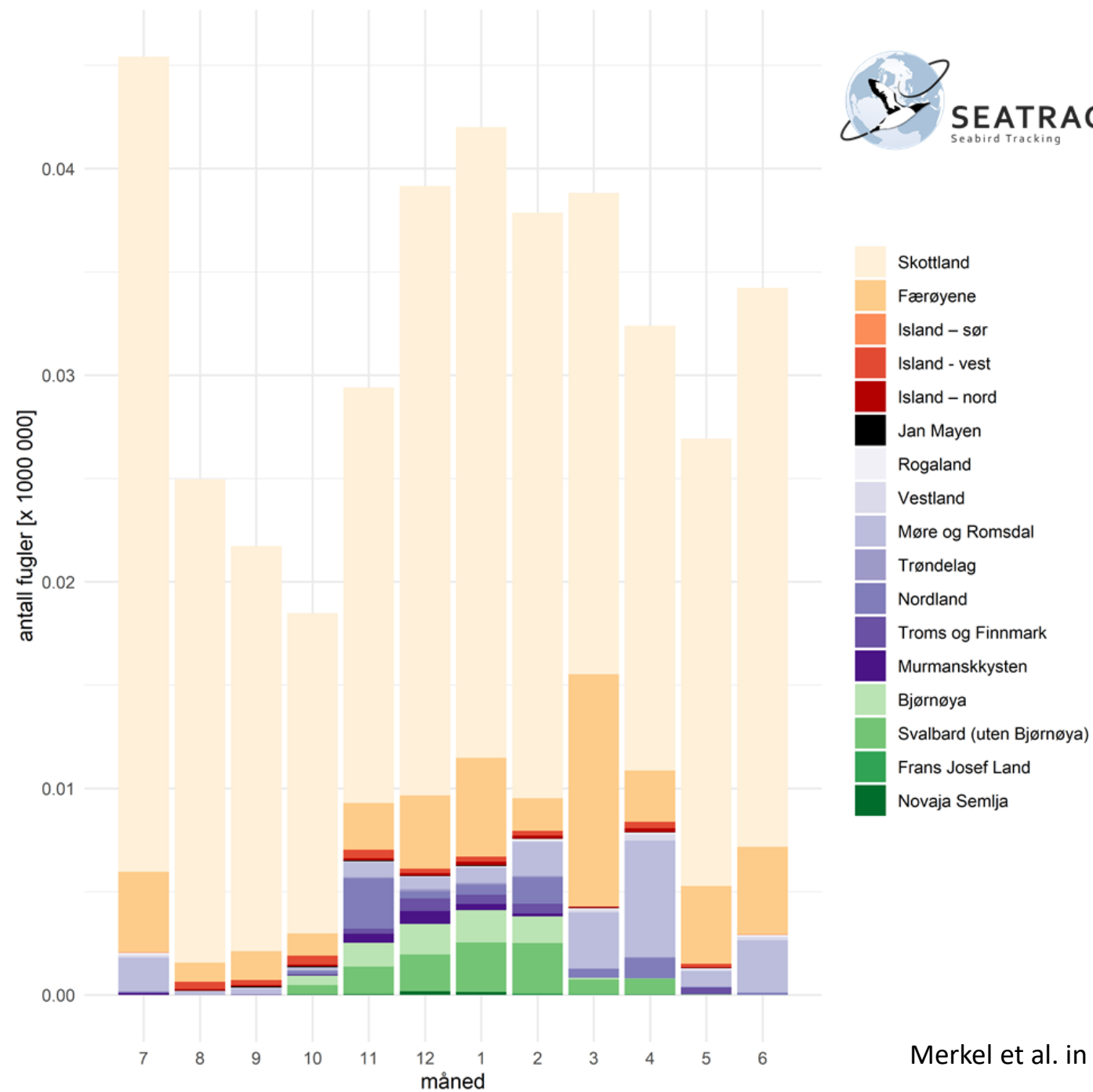
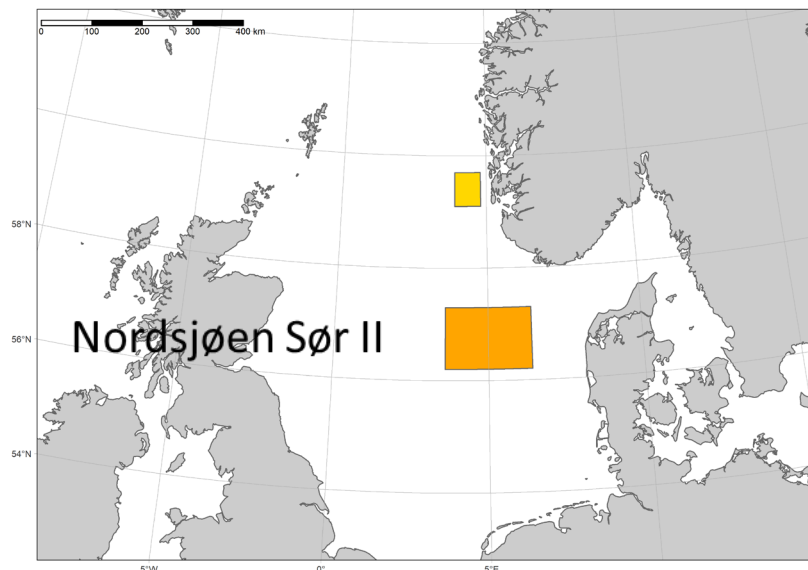
New web application available!



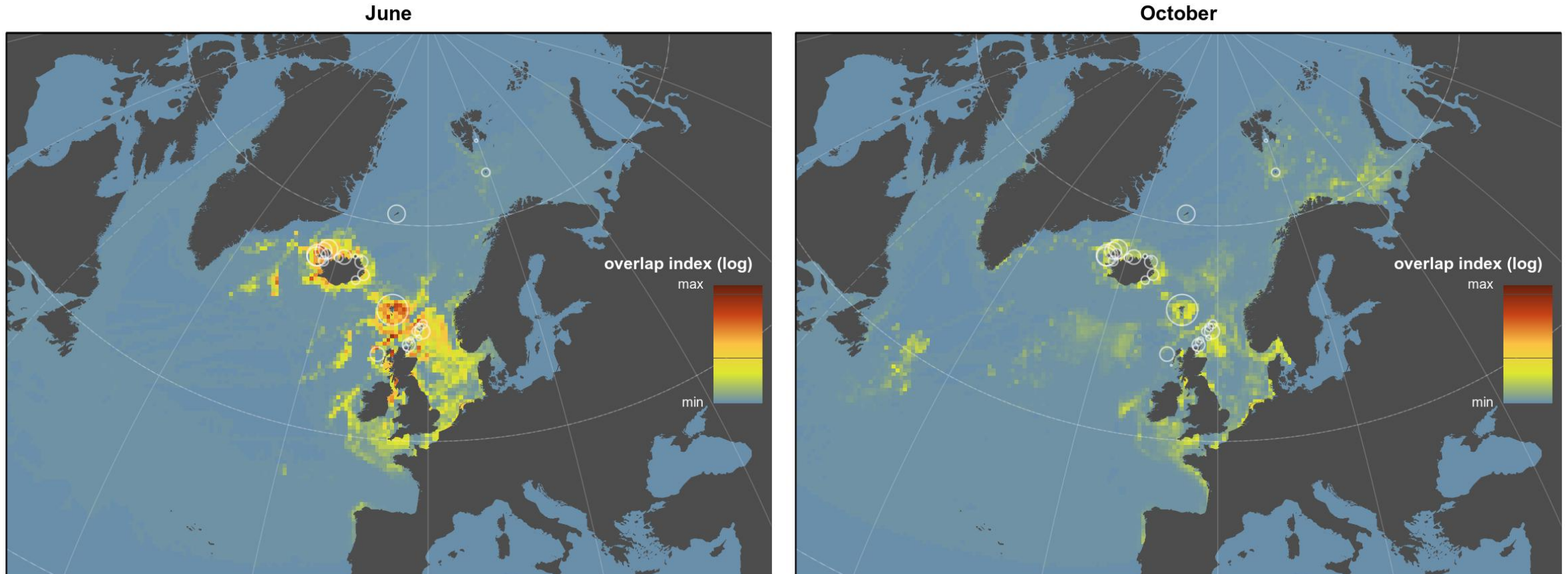
Prototype: <https://seatrack-e9bdc.web.app/>

Hvilke kolonier blir berørt i et "impact" område?





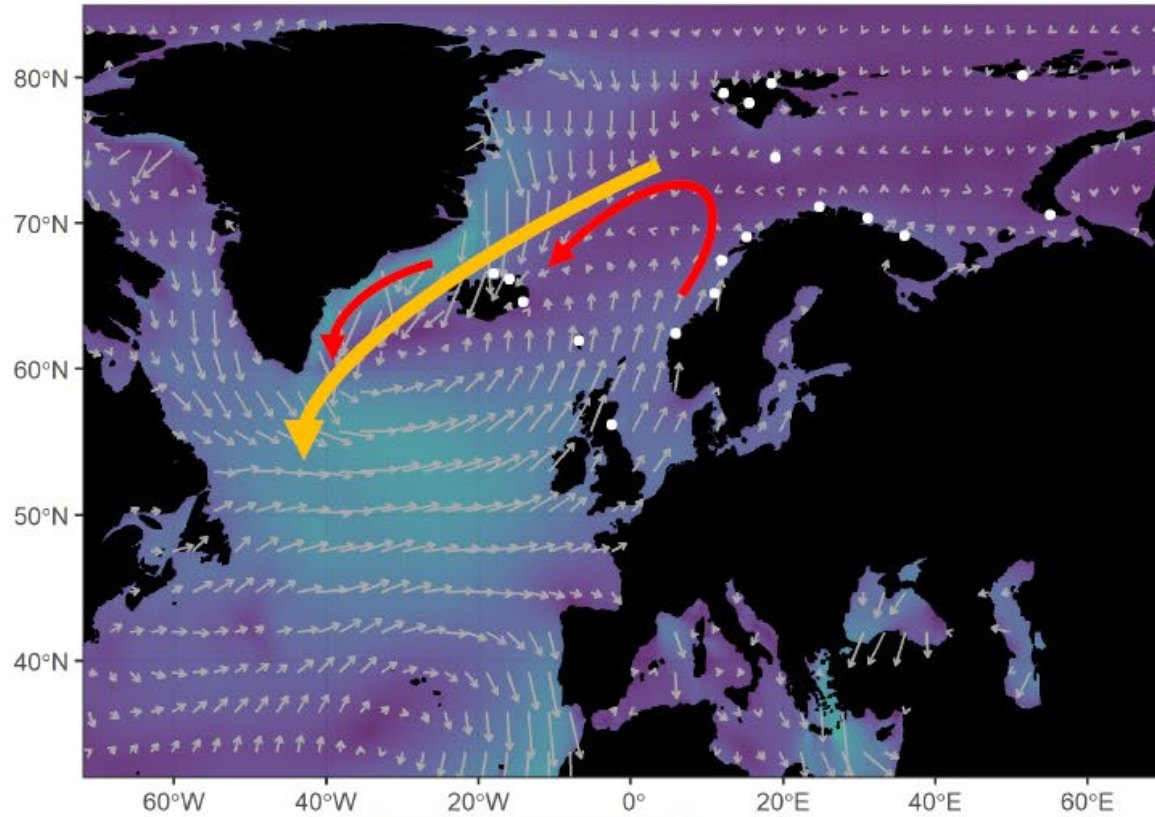
Overlapp mellom fiskerier og sjøfugl



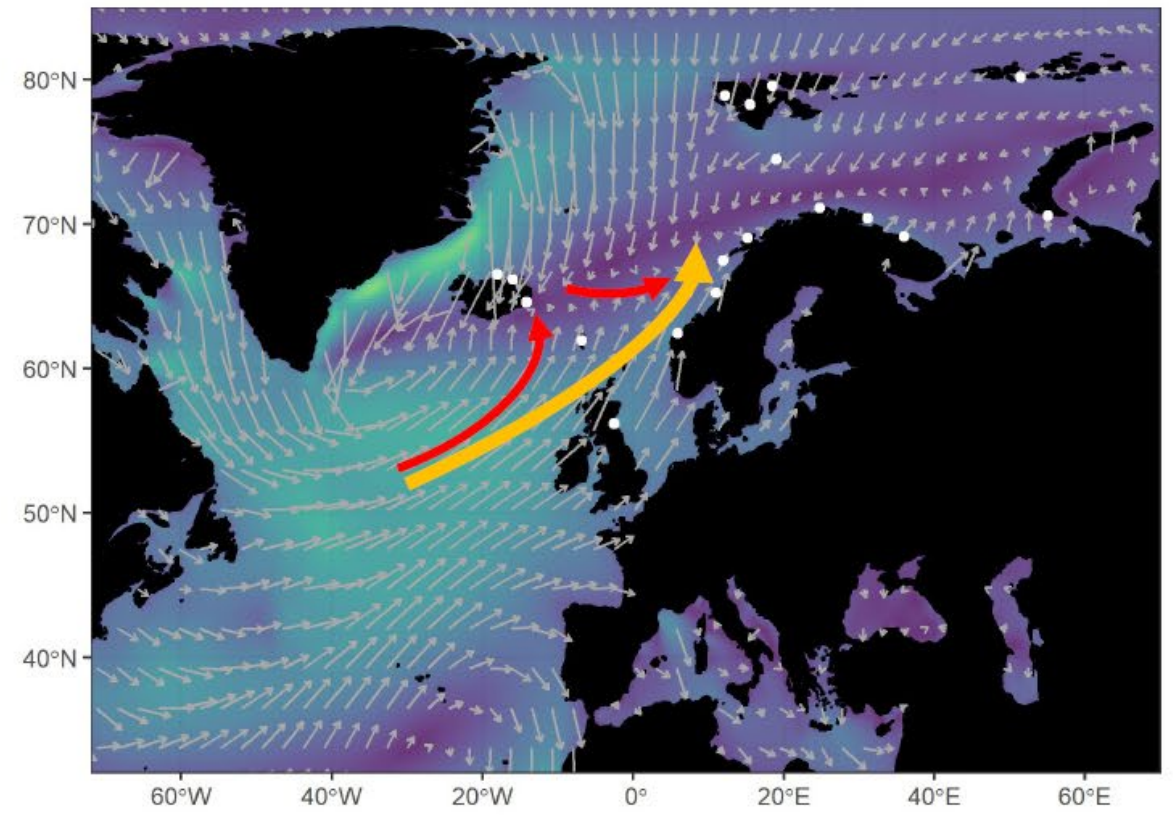
Overlapp mellom fiskeriaktivitet og utbredelse av havhest i hhv. juni og oktober

Effekten av vindmønstre på trekkruiter

a. Autumn



b. Spring

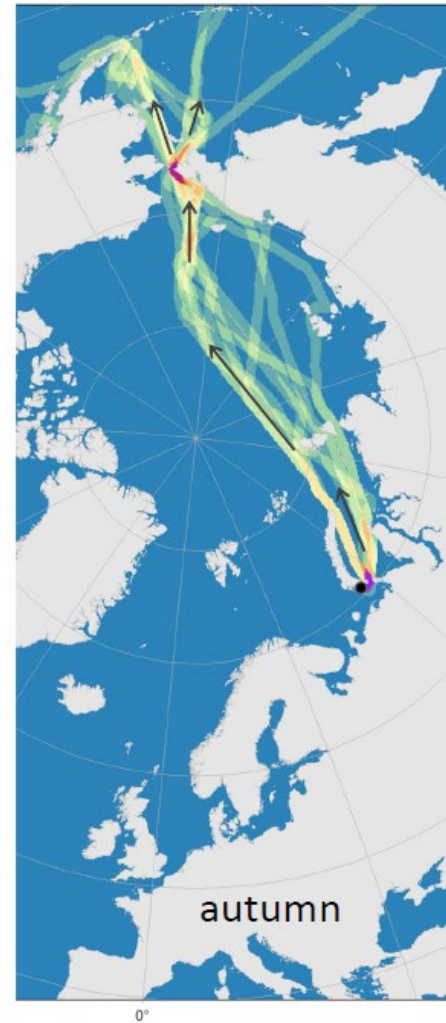


Mean wind speed ($\text{m}\cdot\text{s}^{-1}$)



Phase III (2023-2026)

- Main goals and geographical focus remain as in phase II
- Assess the potential for collaboration Atlantic – Pacific
 - Populations migrating between N. Atlantic and N. Pacific (e.g. Ezhov et al. 2021)
 - Ice-free summers within a decade(s) (Guarino et al. 2020)
- Continue to develop the map products/applications
 - Seabird vulnerability maps



New candidate species

- Better ecological and systematic representativeness
- Assessment based on biological and practical criteria, including conservation status
- 5 candidate species



Arctic tern



Great skua



Leach's storm petrel



Razorbill



Northern Gannet

Replace GLS with GPS

- Replace the GLS logger with a leg mounted GPS logger for species >900 g
- Prototype developed in collaboration with Pathtrack Ltd
 - 3.5 g, leg mounted
 - 1 position pr. day for 1 year
- Avoid biases related to equinox, midnight sun, polar night
- Prototype tested this season on 5 species at 3 sites

Location	C. guillemot	Br. Guillemot	Glaucous gull	Europ. Shag	Common eider
Kongsfjorden					9
Bjørnøya	10	7	8		
Isle of May				4	

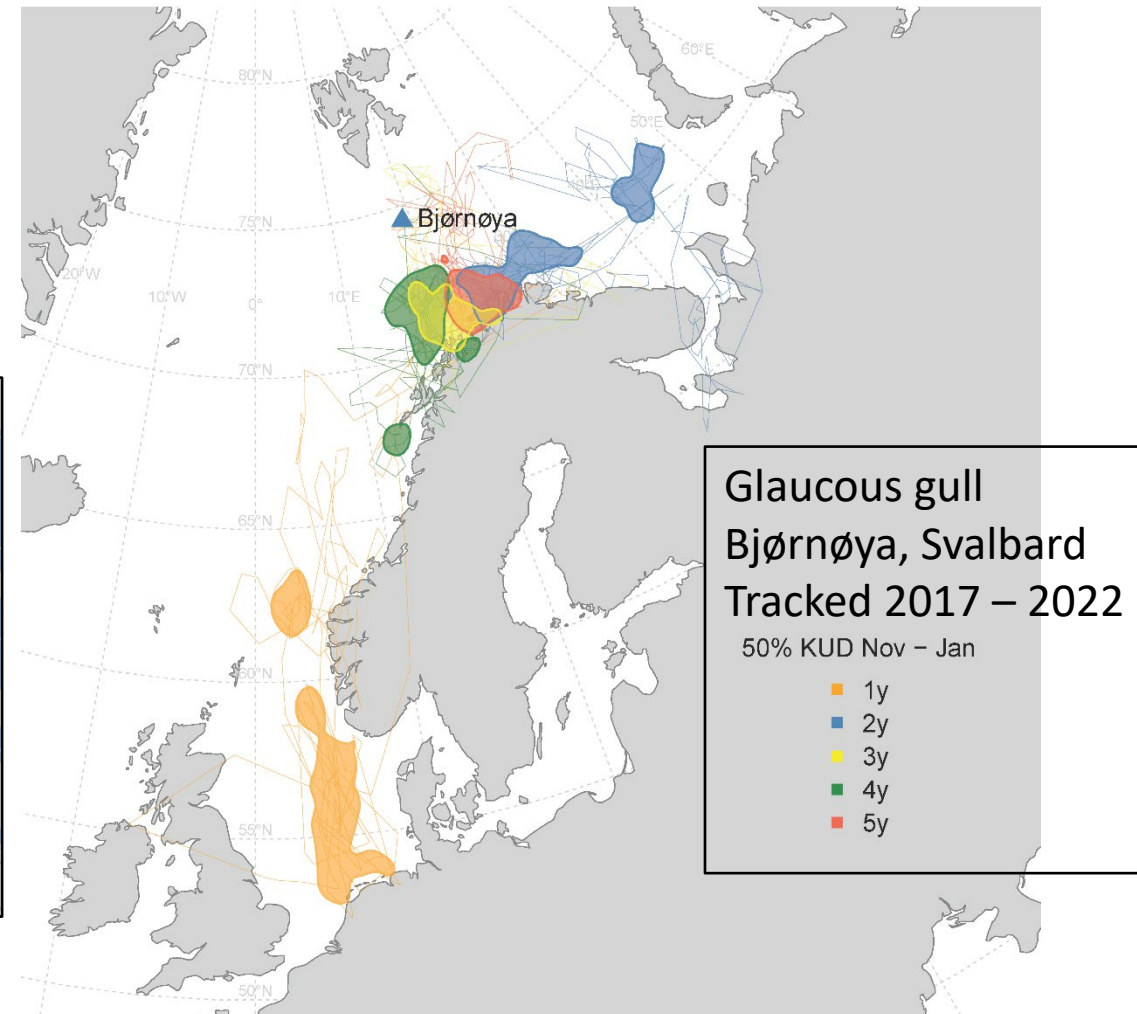


Immature birds

- Continue and expand deployments on immature
- Effect studies started in 2022 on 3 species

Species	N loggers deployed 2019 -2021	N loggers retrieved 2020 - 2021
Common guillemot	208	3
Atlantic puffin	421	3*
Brünnich's guillemot	71	3
Little Auk	440	10*
Black-legged kittiwake	270	6*
Glaucous gull	185	2
Total	1595	8

*prelim numbers for 2022



Takk til sponsorer!

