



The possibilities and benefits of telemetry in planning conservation actions for Common and Little Terns, as well as other island-nesting birds and their habitat

Ramūnas Žydelis, Julius Morkūnas, *Lithuanian ornithological society*



The Project is financed by the EU LIFE Programme, the Ministry of Environment of the Republic of Lithuania and Project partners.



Study objective

To find out how far common terns travel from their colonies for feeding during the breeding period.



How far birds form colonies forage for food?

- Duffy (1986) wrote that common terns most often foraged at 5.5 km from their colony in Long Island Strait, USA.
- Becker et al. (1993) used VHF radio telemetry and recorded that common terns forage within average 6.3 km radius around the colony on the island in the North Sea, Germany.
- Perrow et al. (2011) also suggested that common terns forage at an average distance of 6.6 km from the colony in the North Sea, UK
- What is range for other bird species?



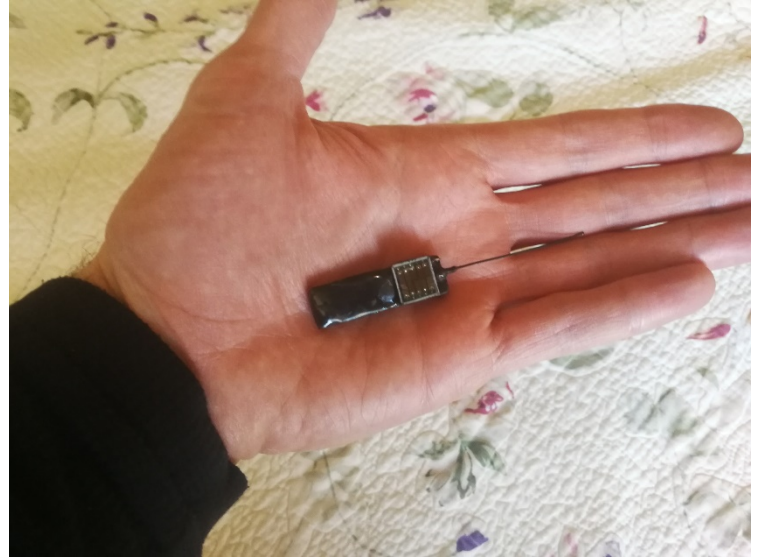
Telemetry approach

Equipment: GPS-UHF transmitters produced by PathTrack, weighing 3 g

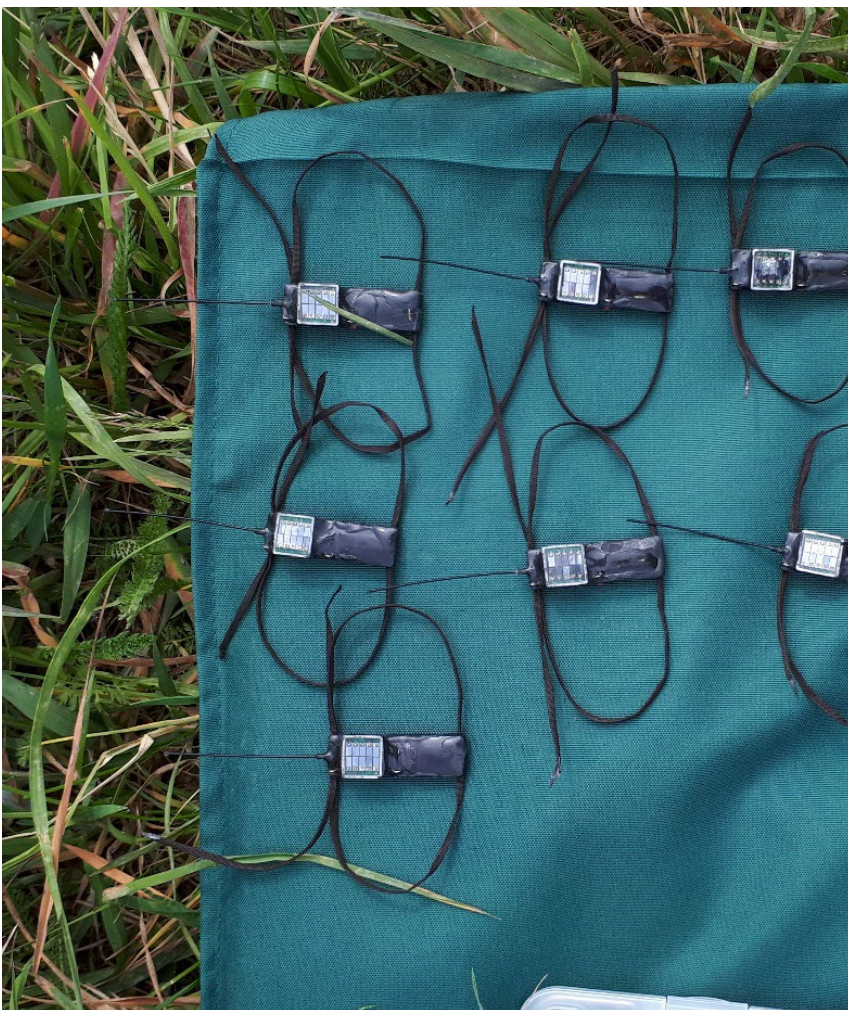


Deployment: by leg loops using 2.5 mm wide Teflon tape

Data downloads: via automatic UHF radio base stations left near bird colonies



Upinių žuvėdrų ženklinimas GPS siųstuvais (LOD), 2020-2021 m.



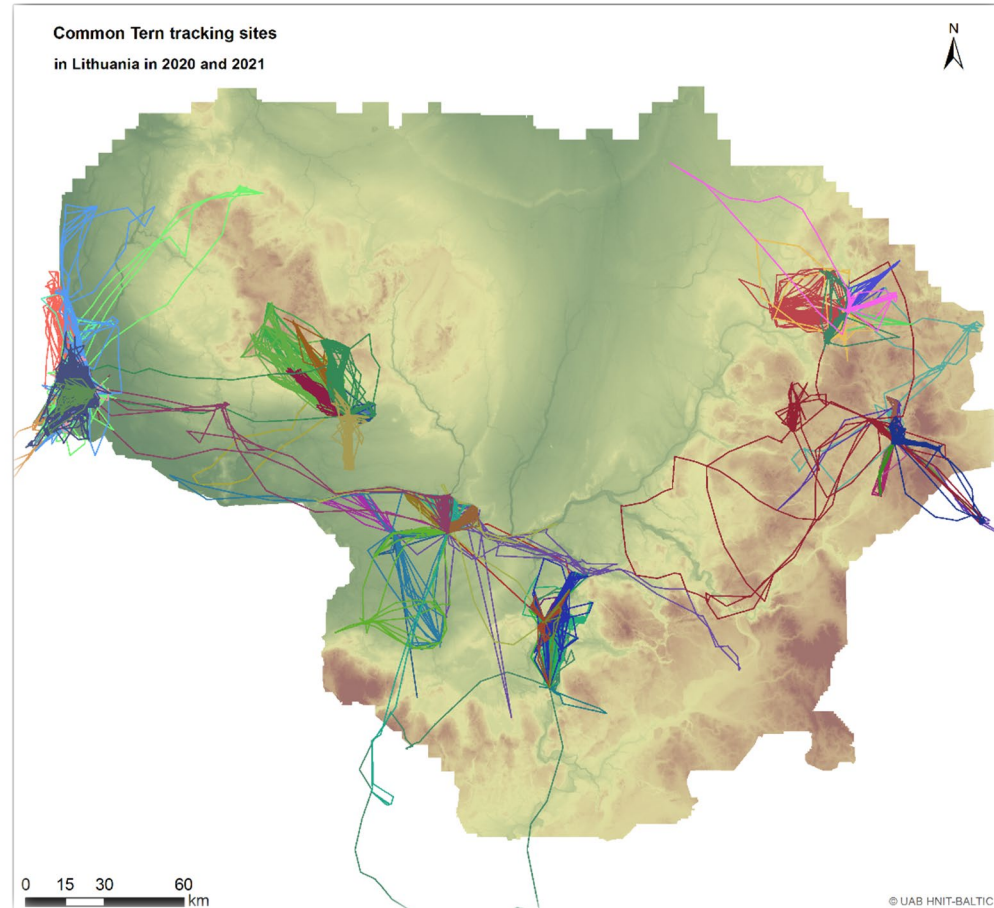


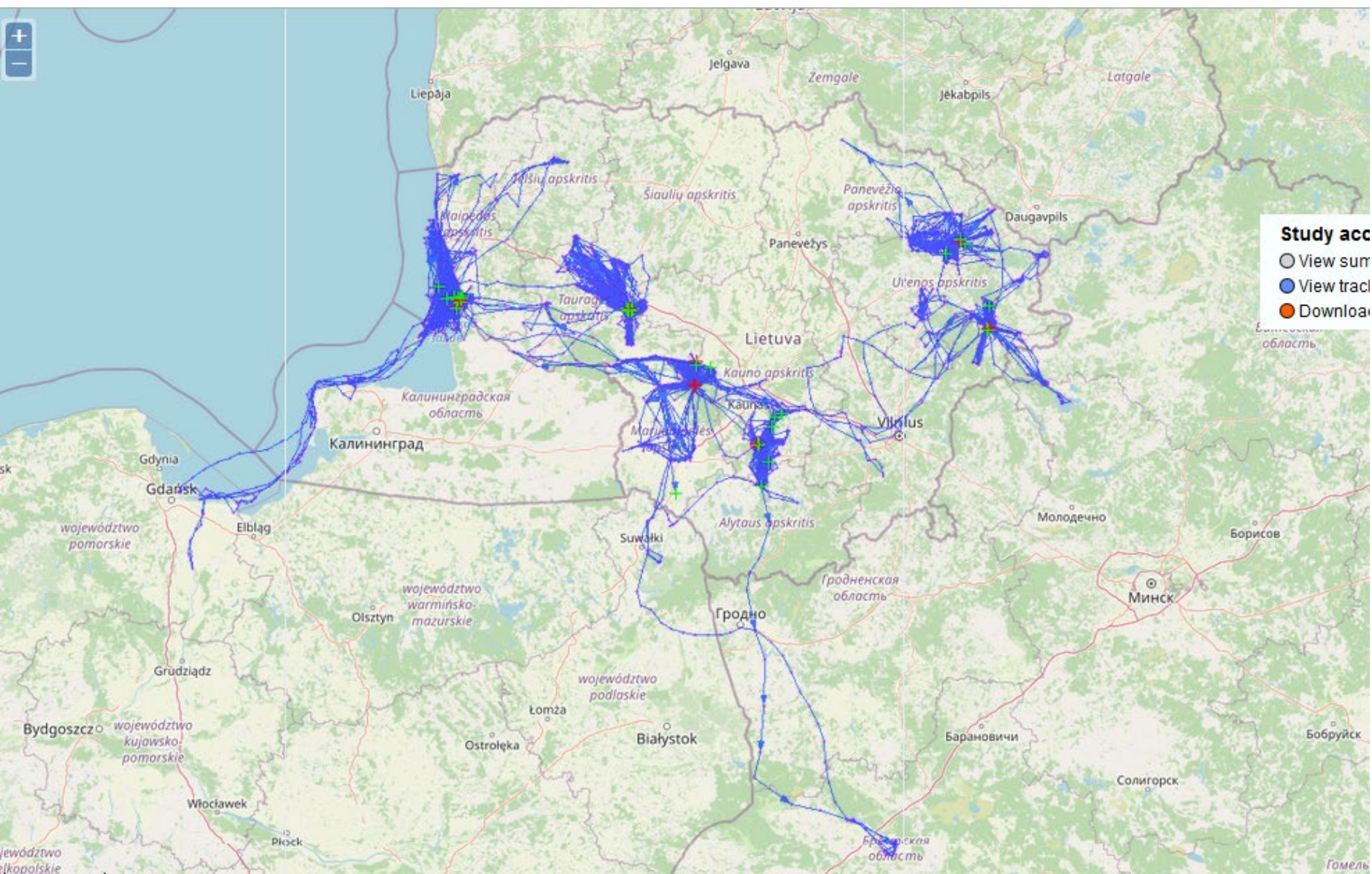


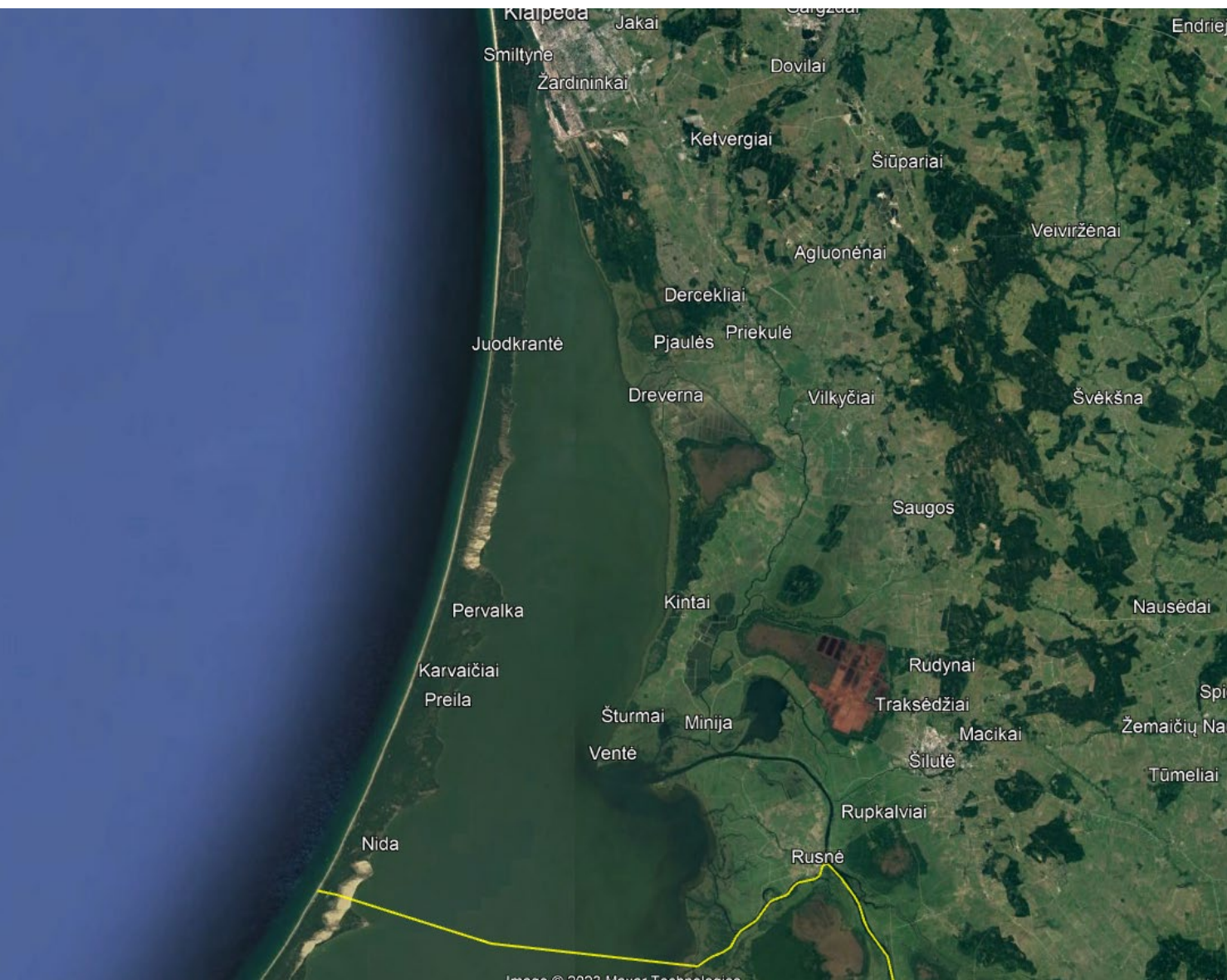


Extent of the study

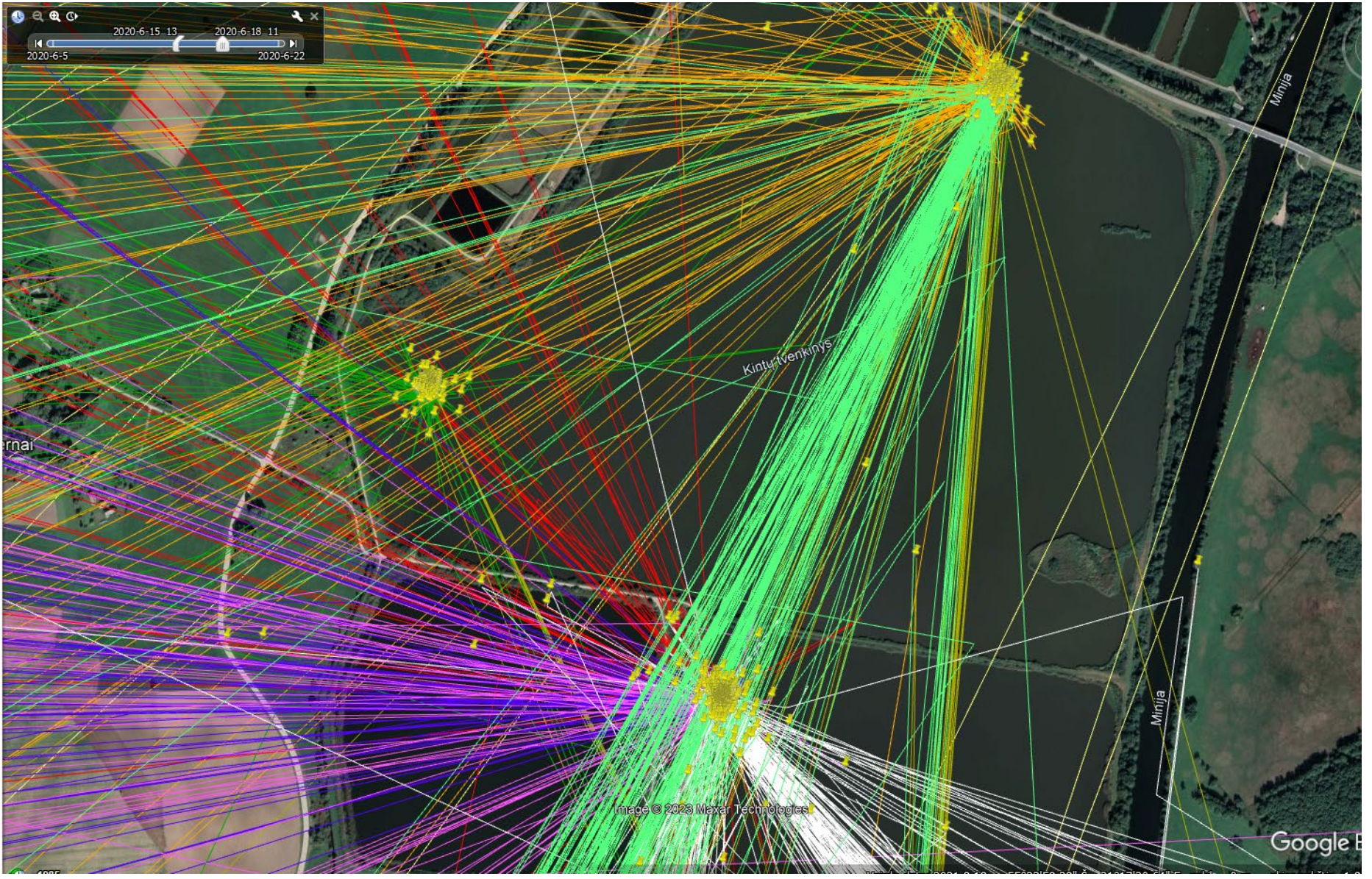
- The study took place in 2020 and 2021
- 62 transmitters deployed
- At 6 colonies across Lithuania:
 - Kintai fish ponds
 - Raseiniai fish ponds
 - Novaraistis flooded peatland
 - Nemunas river island near Birštonas
 - Kretuonas lake island
 - Vasaknos fish ponds
- Data received from 58 transmitters
- 98,000 GPS positions in total



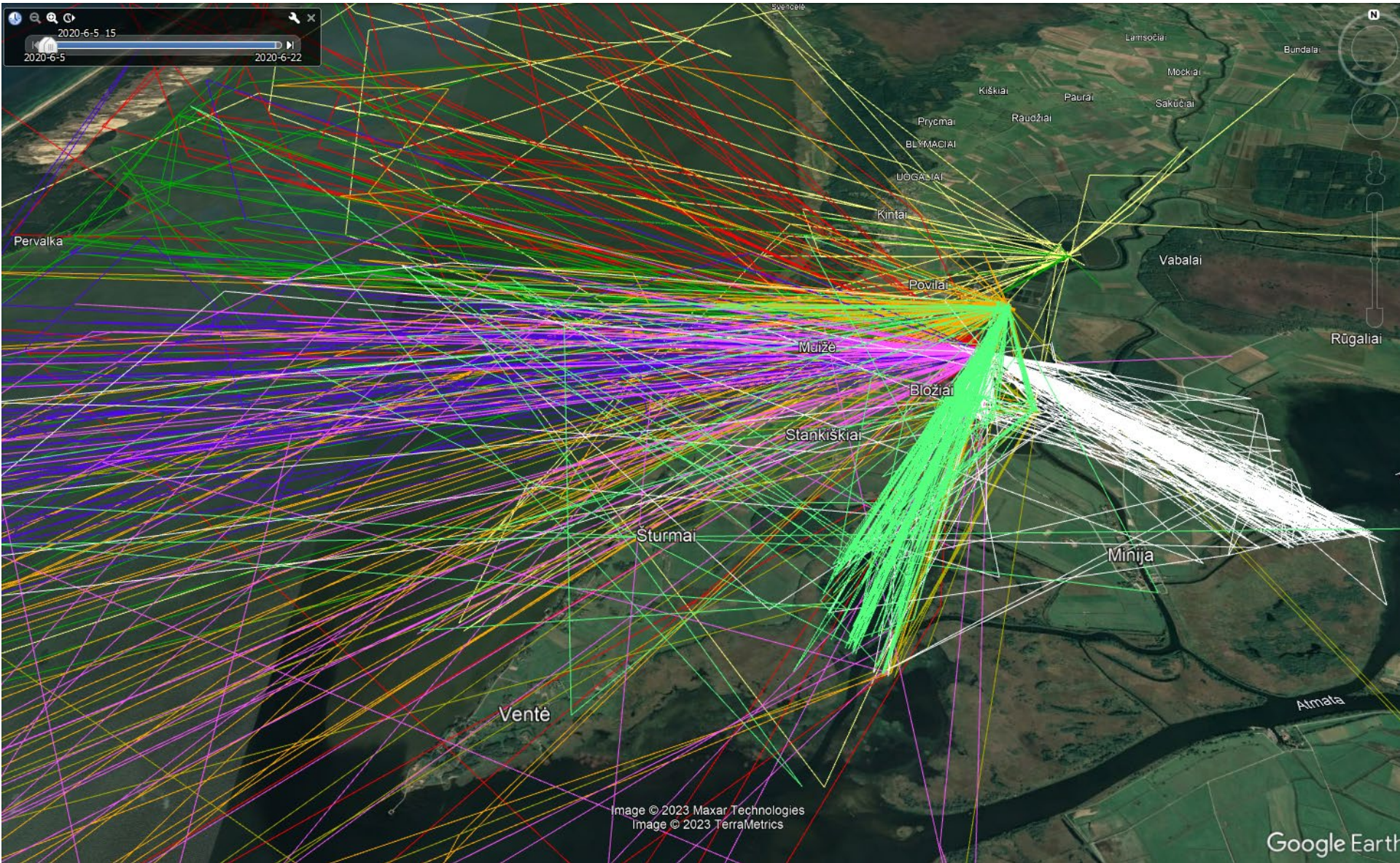




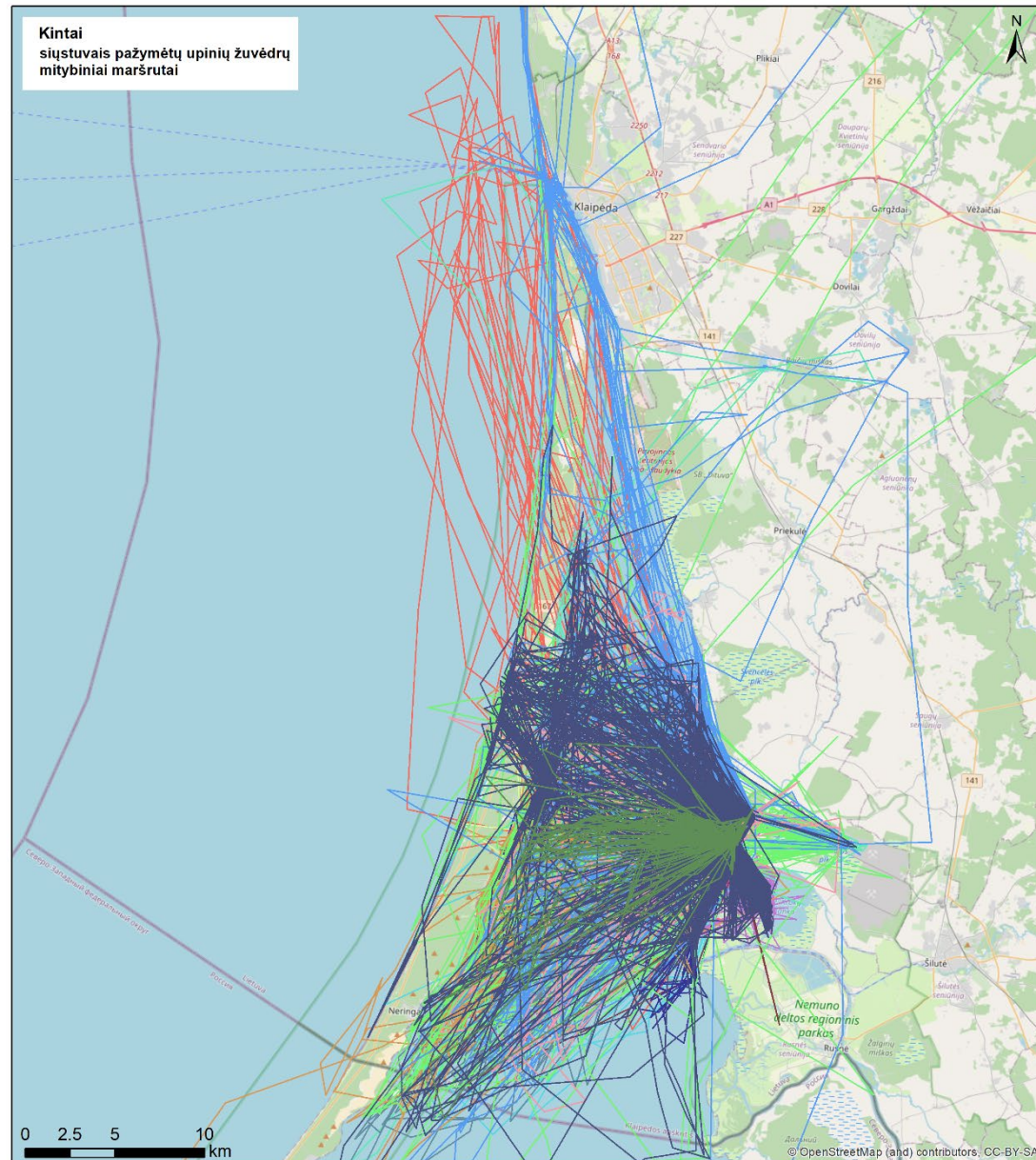


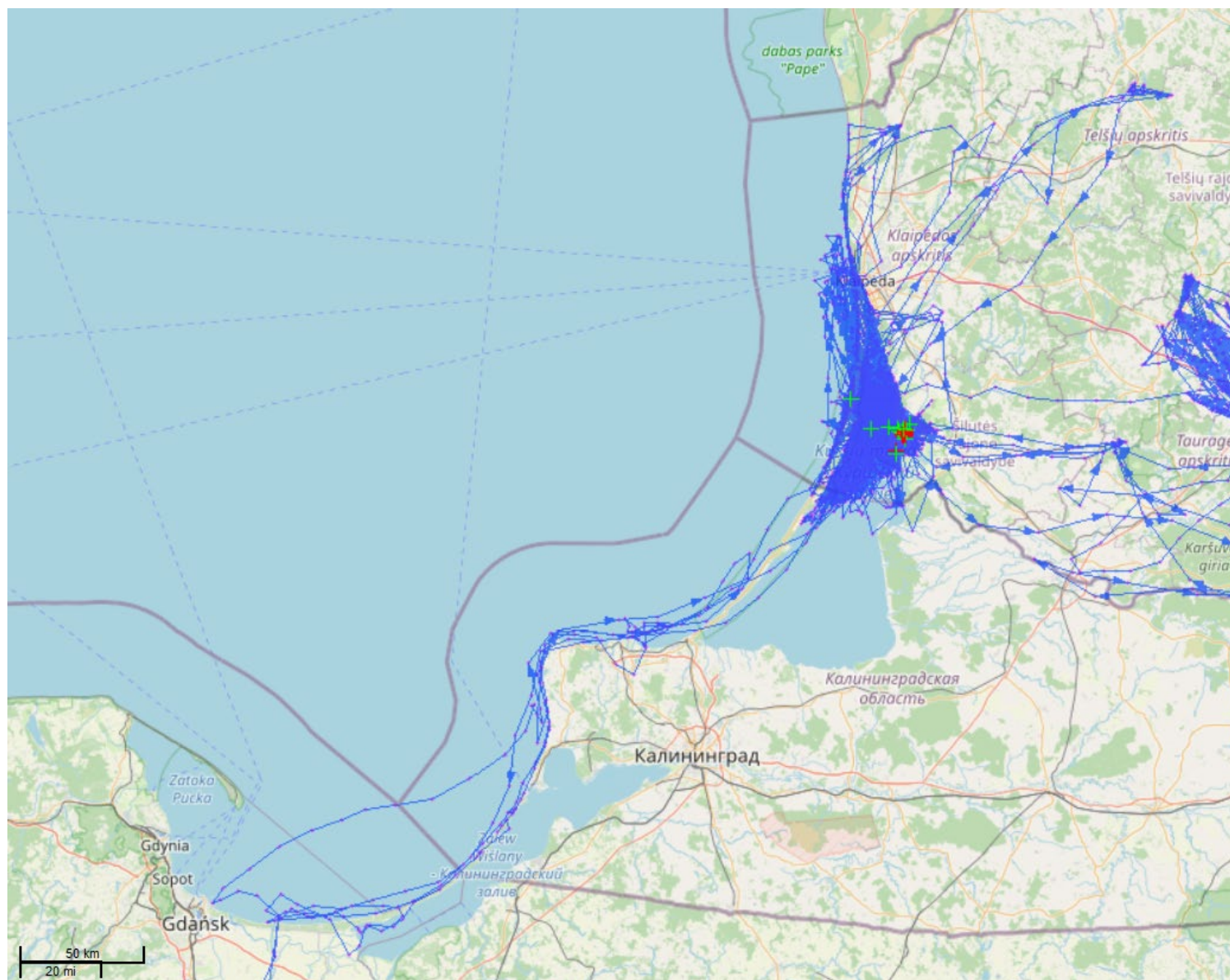


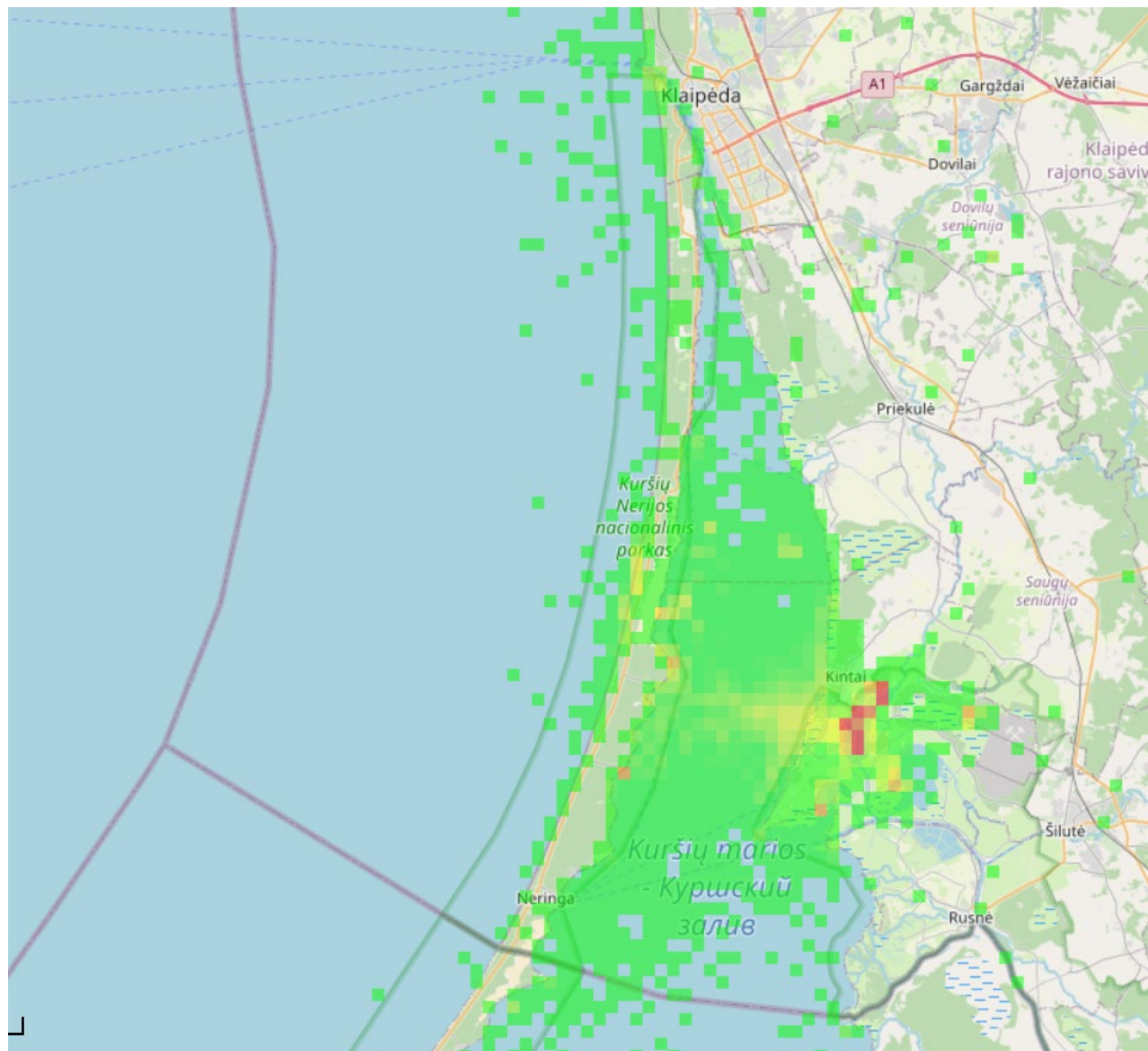
2020-6-5 15
2020-6-5 2020-6-22



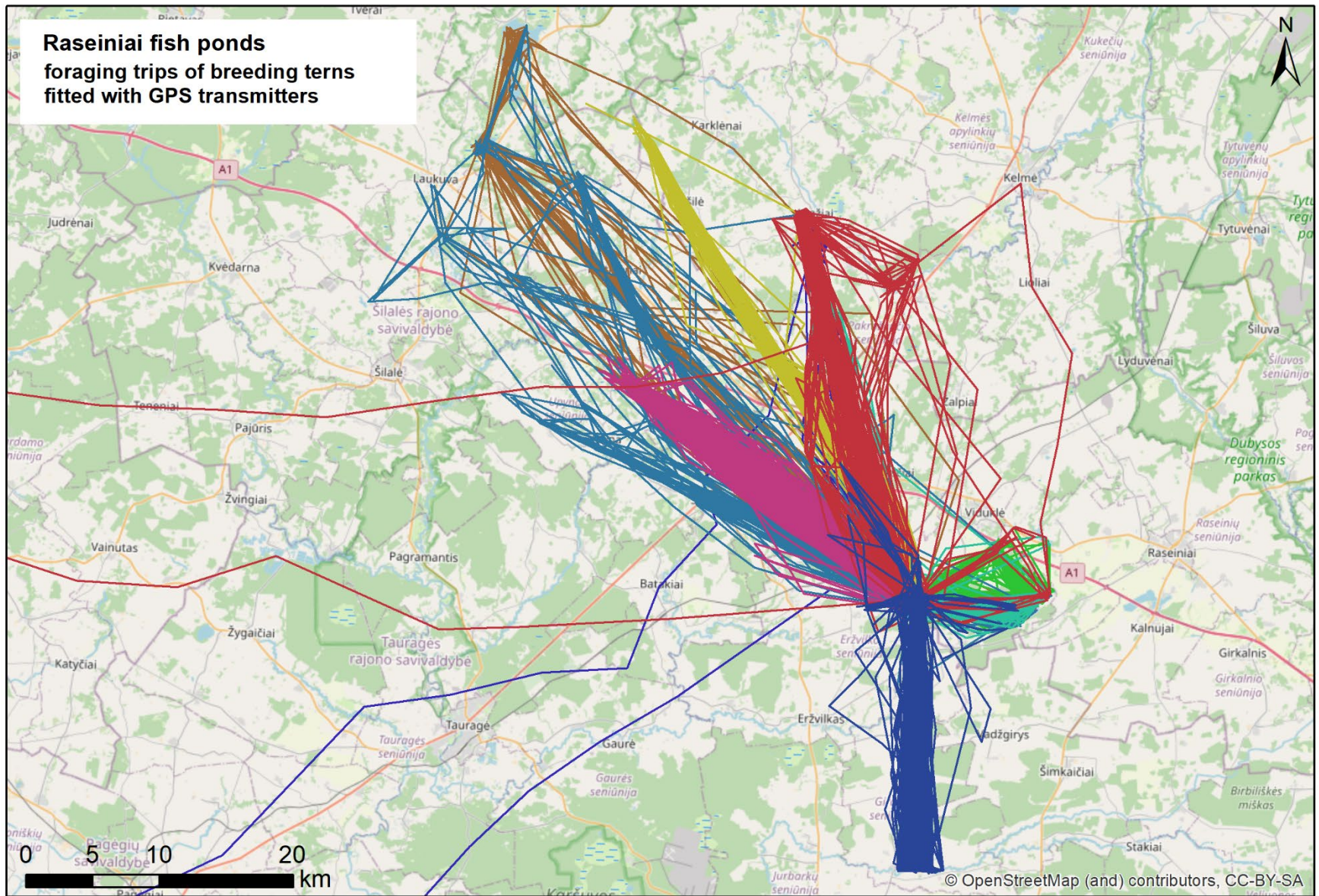
Quick overview of tern tracks: Kintai fish ponds







Quick overview of tern tracks: Raseiniai fish ponds



How is to be Common Tern in Raseiniai fish ponds?



- Driving 40km one way for a small fish and then 40km back with fish stuck out of car in 25 C



ock | #87305049





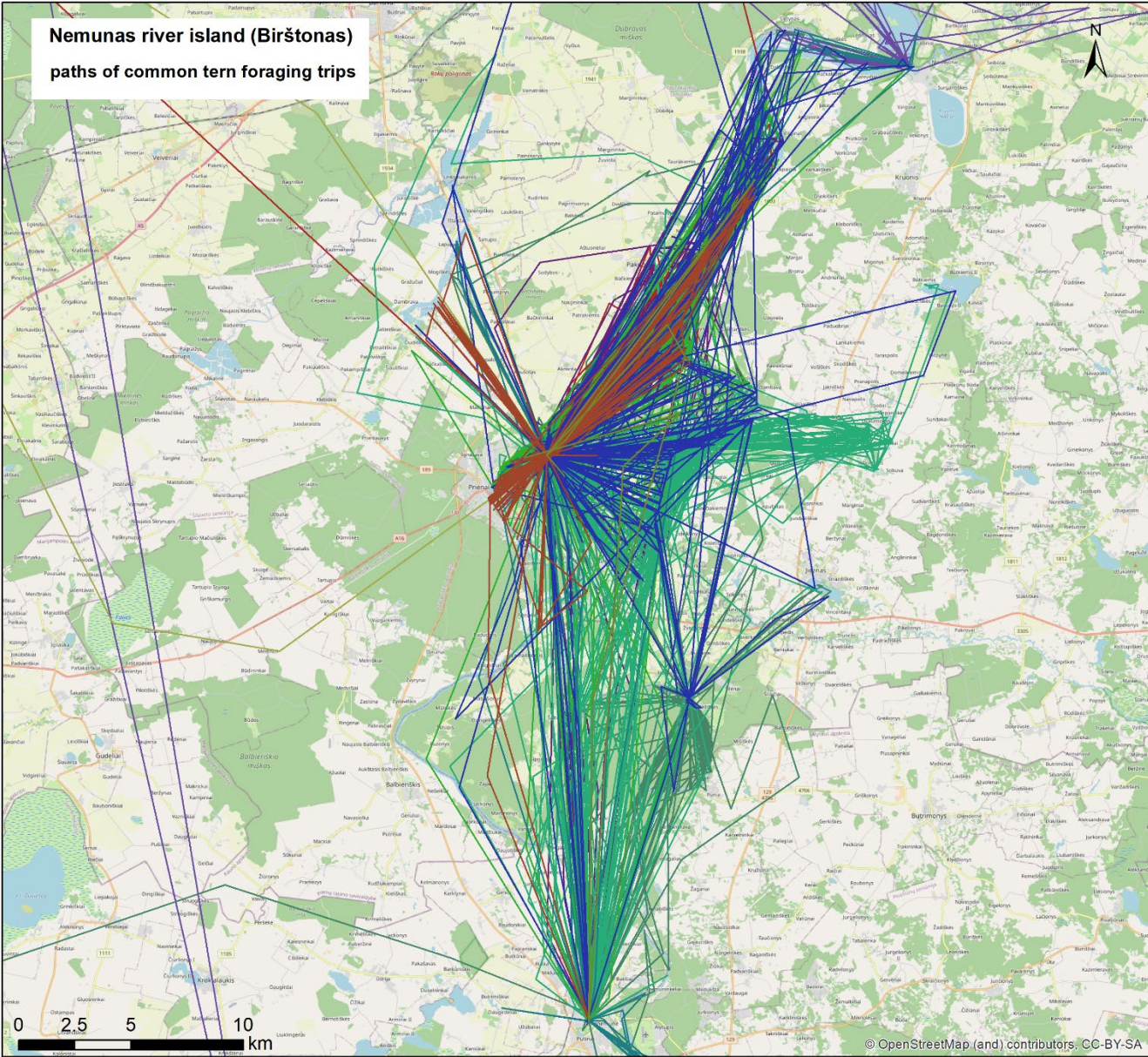
Novaraistis
siųstuvais pažymėtų upinių žuvėdrų
mitybiniai maršrutai

The map displays the coastal area around Novaraistis, Lithuania, with numerous rivers flowing into the Baltic Sea. Colored lines represent the feeding routes of different riverine fish species. A scale bar at the bottom left indicates distances from 0 to 10 km. A north arrow is located in the top right corner.

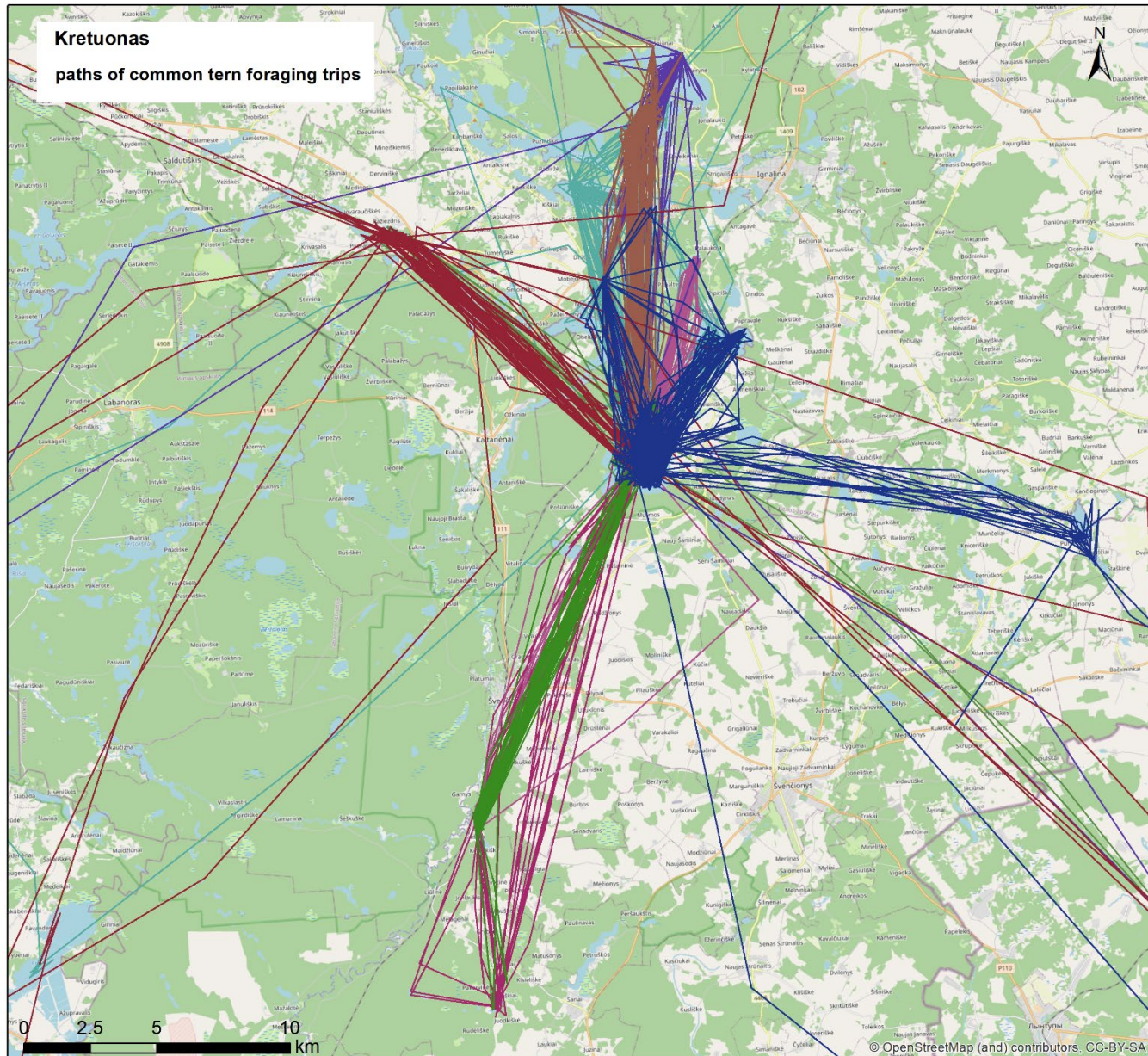
© OpenStreetMap (and) contributors, CC-BY-SA

© OpenStreetMap (and) contributors, CC-BY-SA

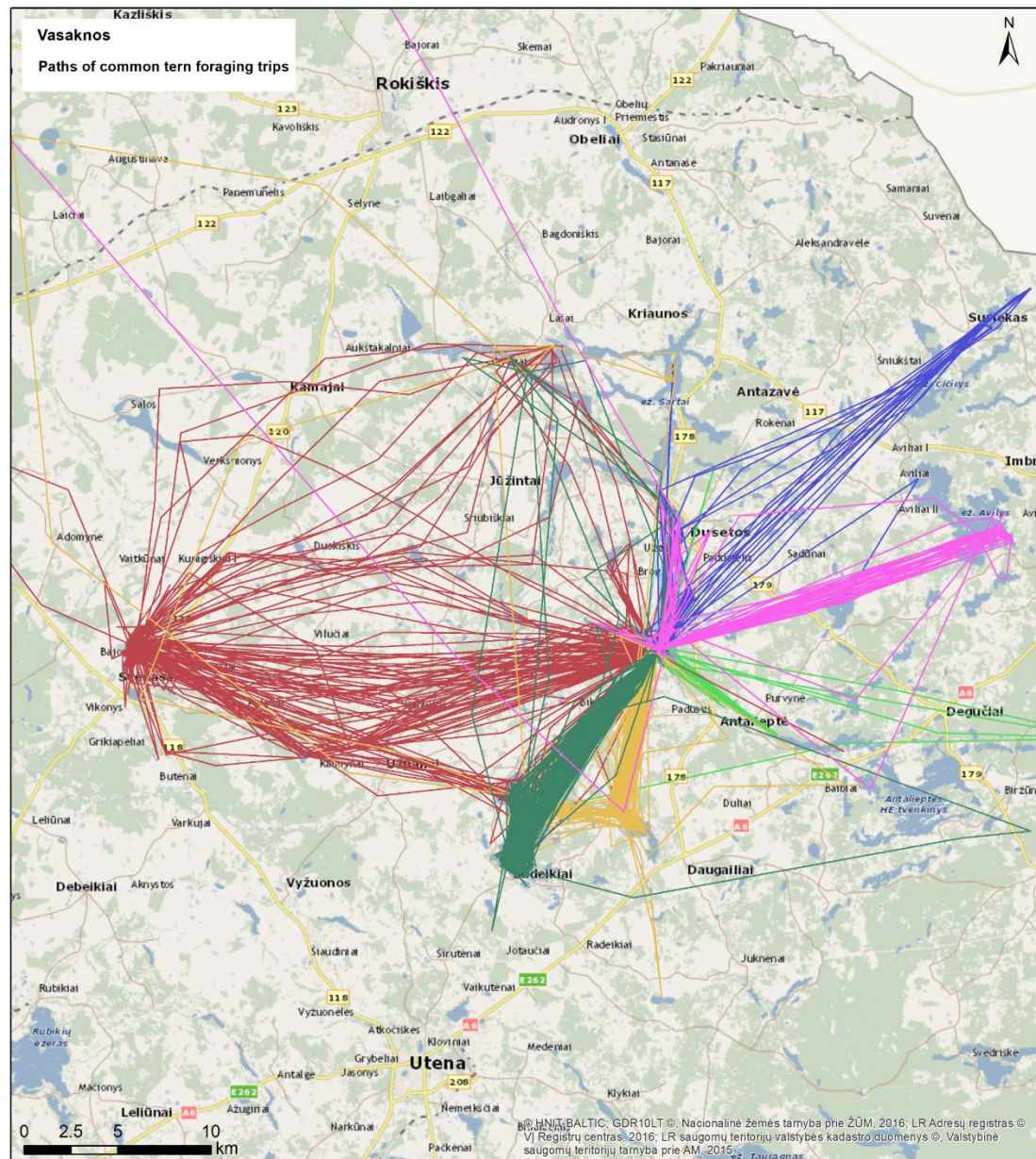
Quick overview of tern tracks: Nemunas river island (Birštonas)



Quick overview of tern tracks: Kretuonas lake island



Quick overview of tern tracks: Vasaknos fish ponds



Summary of foraging trips

Tracking data classified into foraging trips using R package *track2KBA* (Beal et al. 2021).

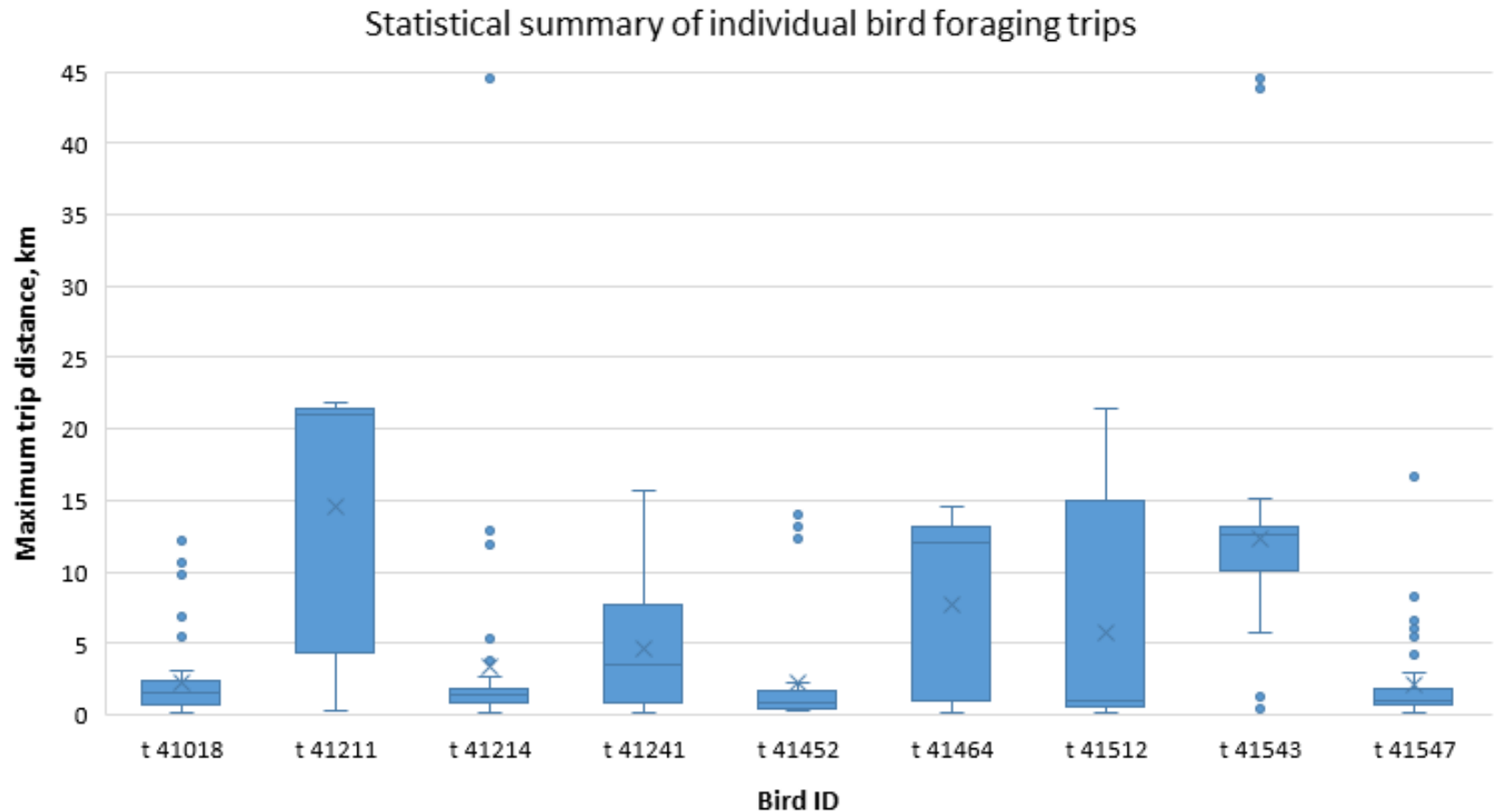
A foraging trip we considered flights over 300 meters from the colony lasting longer than 15 minutes. (At Kretuonas lake min distance was set to 700 m.)

Very long trips >100 km from the colony and lasting over 24 hours excluded.

Site	No of trips	Min distance, km	Max distance, km	Avg distance, km
Birstonas	664	0.3	50.3	9.8
Kintai	2086	0.3	74.4	7.0
Kretuonas	499	0.7	63.7	6.2
Novaraistis	1112	0.3	65.6	8.5
Raseiniai	1240	0.3	62.7	10.3
Vasaknos	791	0.3	87.8	6.1
Grand Total	6392	0.3	87.8	8.0

Summary of foraging trips

Kretuonas island



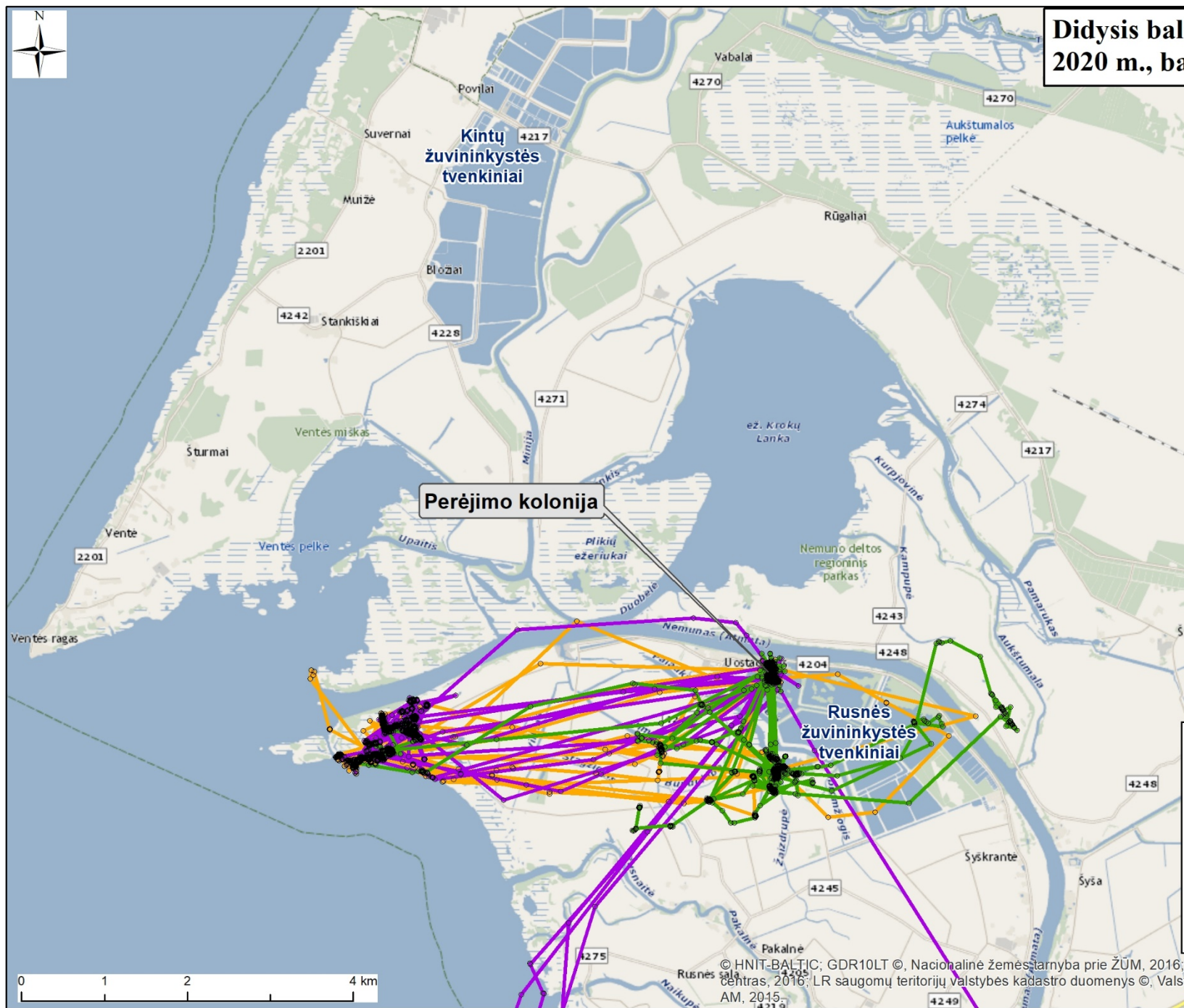
There was high variation between individual birds in terms of foraging trip distances

Common tern tracking in Lithuania - concluding statements

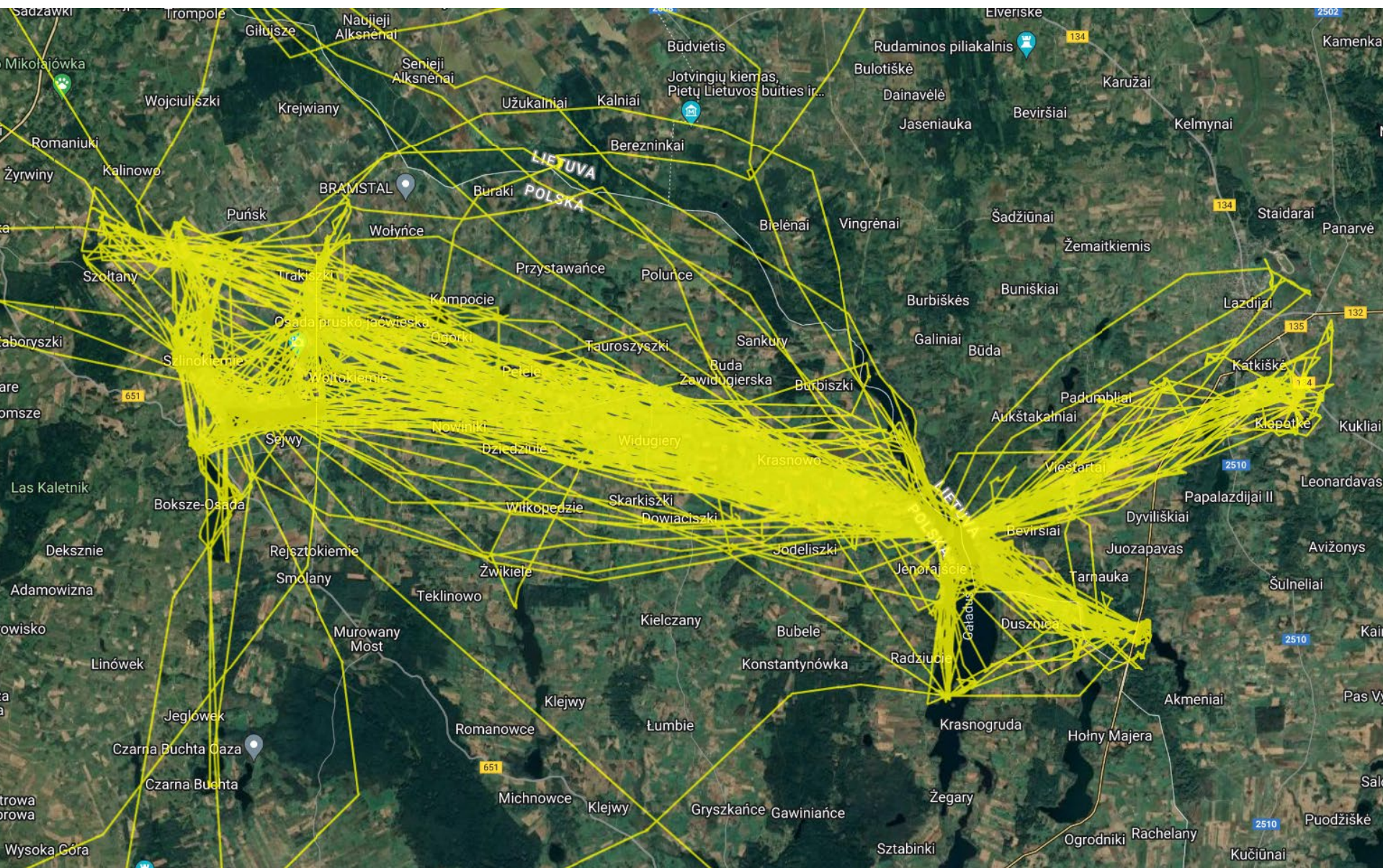
- There was high variability between individuals in foraging distances.
- Overall average distance was 8 km from the colony, but multiple individuals from each colony regularly foraged within 20 km and some as far as 50 km away.
- There was high consistency in individual foraging patterns: birds had their 'favourite' spots which they visited daily.
- Common terns from each colony used multiple water bodies of different type for foraging.

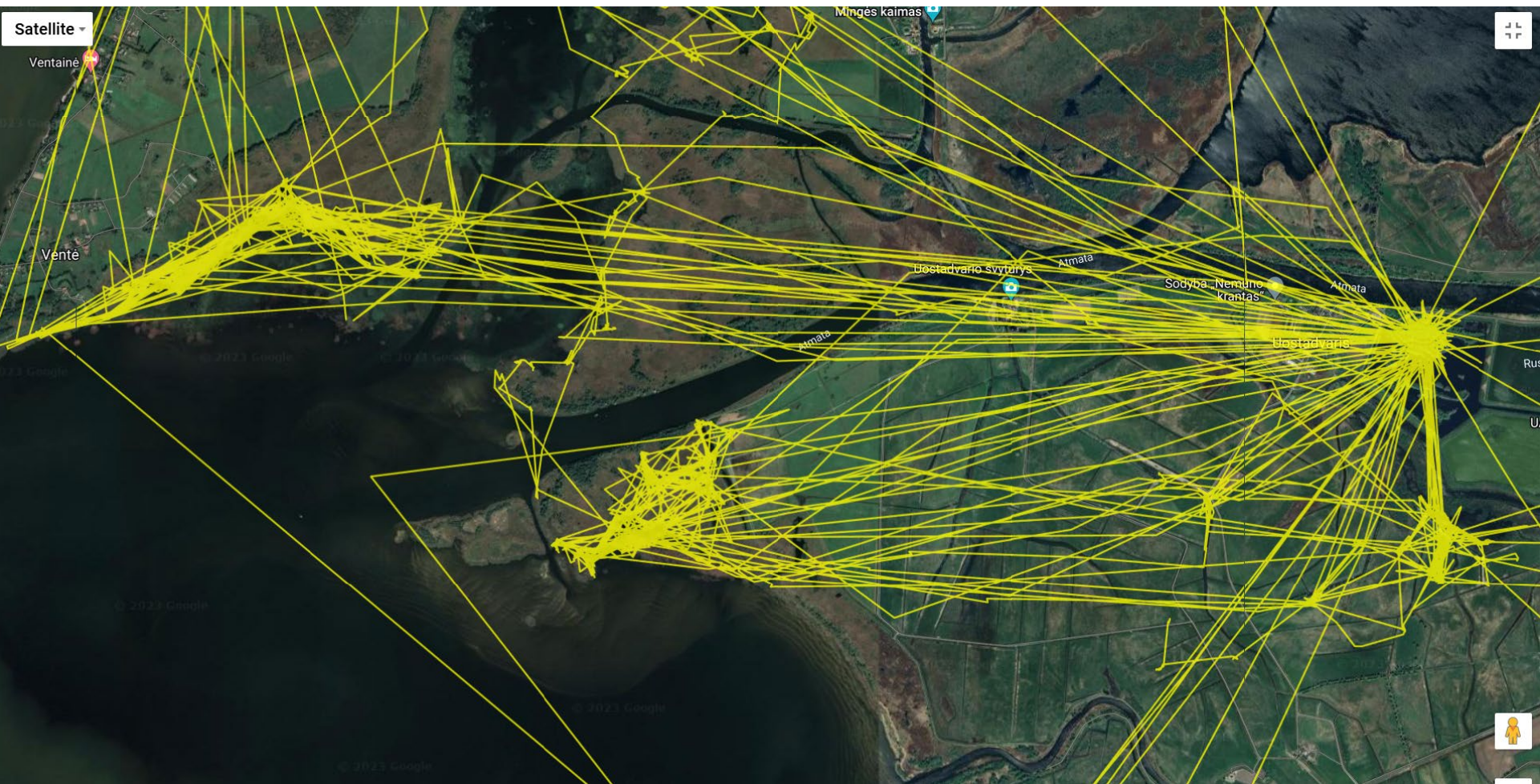


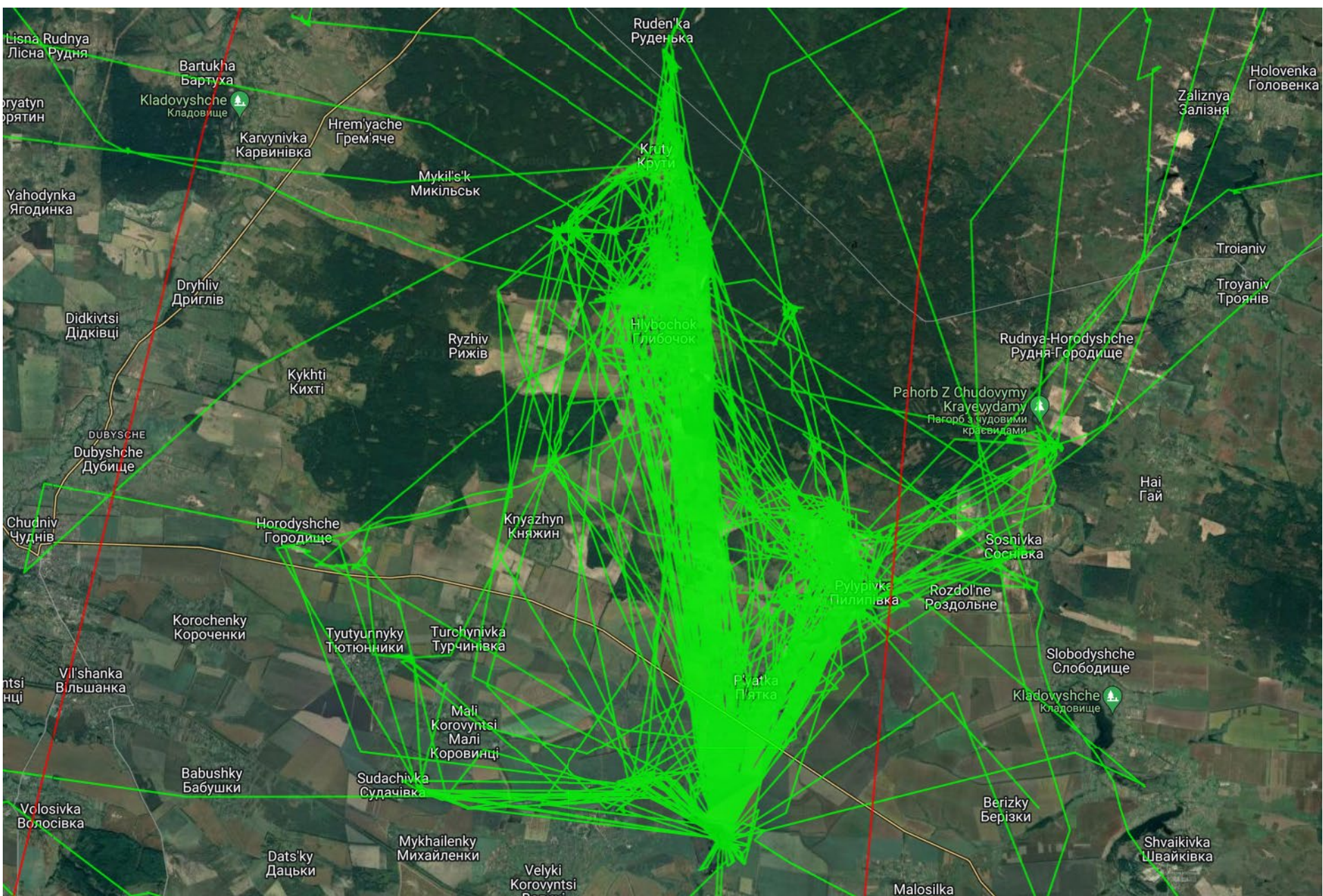












How transmitters can save birds from bycatch in gillnet fishery











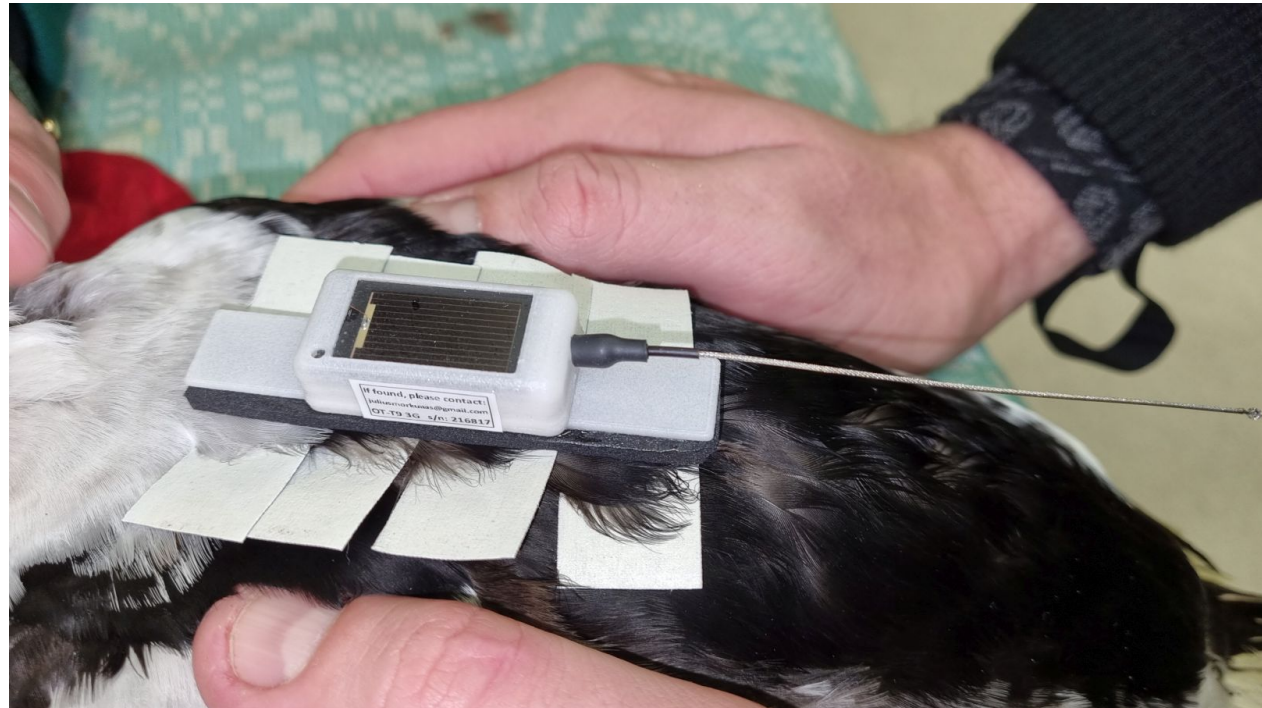
Klaipėdos
universitetas



giving
nature
a home



Federal Agency for
Nature Conservation







Klaipėdos
universitetas



giving
nature
a home



Federal Agency for
Nature Conservation





Klaipėdos
universitetas



giving
nature
a home



Federal Agency for
Nature Conservation

Tagged birds

Species	2021-2022	2022-2023	Total:
<i>Clangula hyemalis</i>	5	10	15
<i>Gavia stellata</i>	7	8	15
<i>Melanitta fusca</i>	8	25	33
Total	20	43	63



Velvet scoter - GPS data



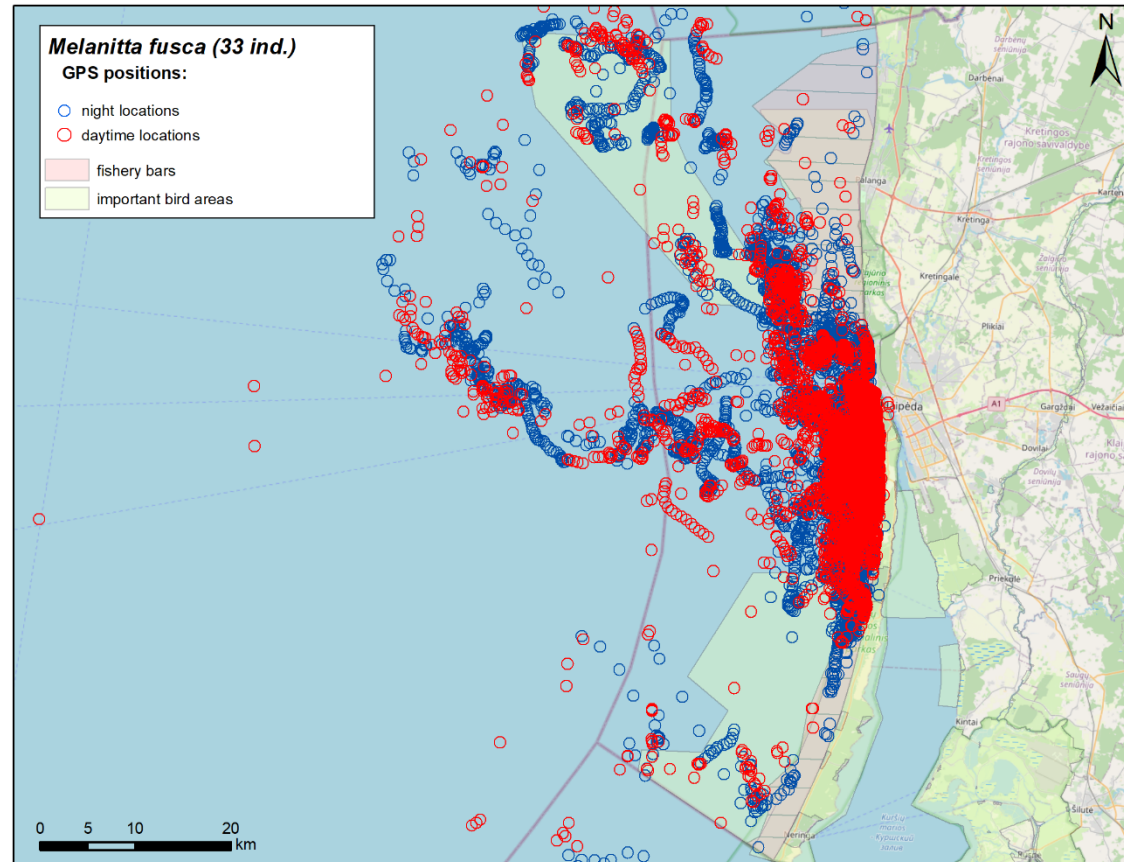
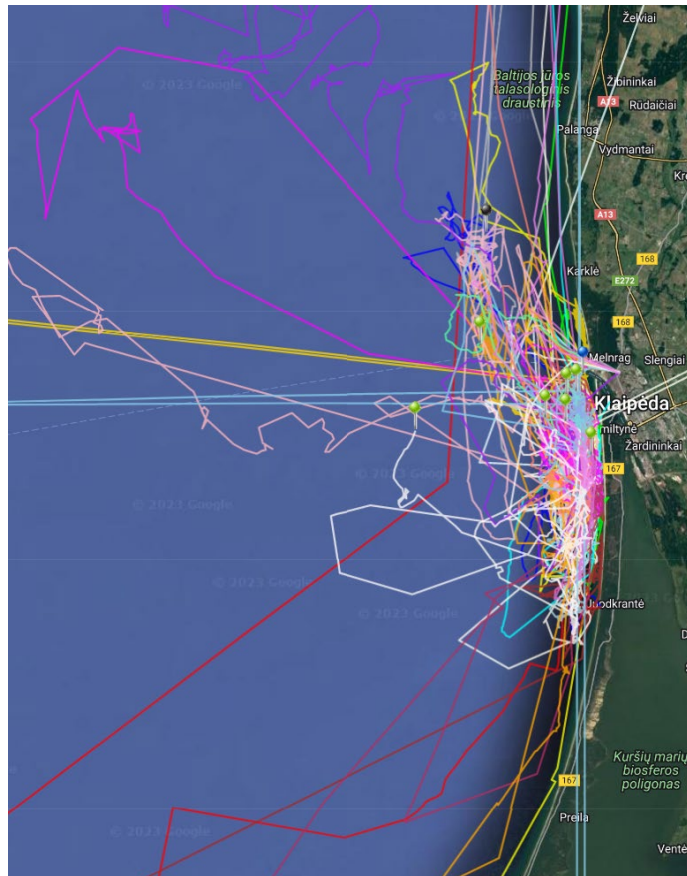
Klaipėdos
universitetas



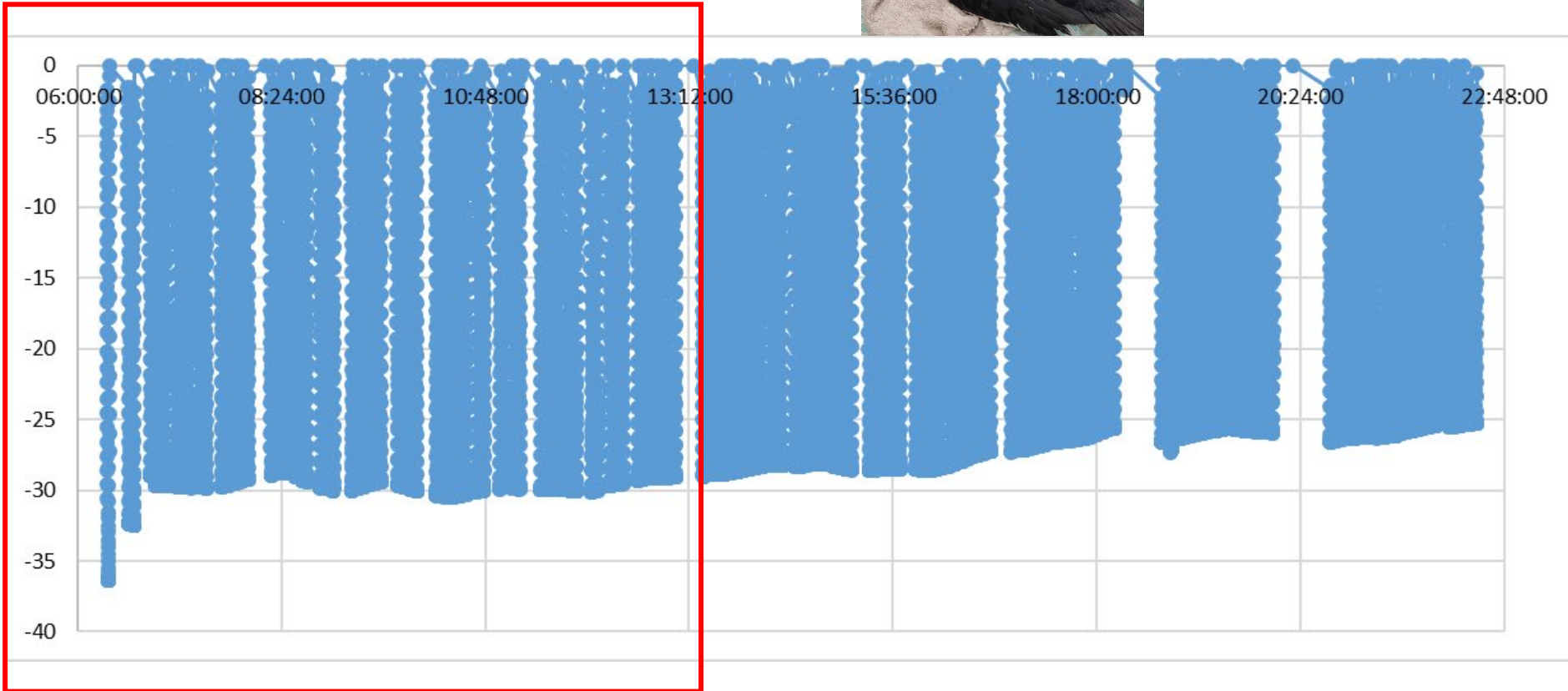
giving
nature
a home



Federal Agency for
Nature Conservation



Underwater - Velvet scoter



Underwater - Velvet s



Klaipėda
University
Marine Research
Institute

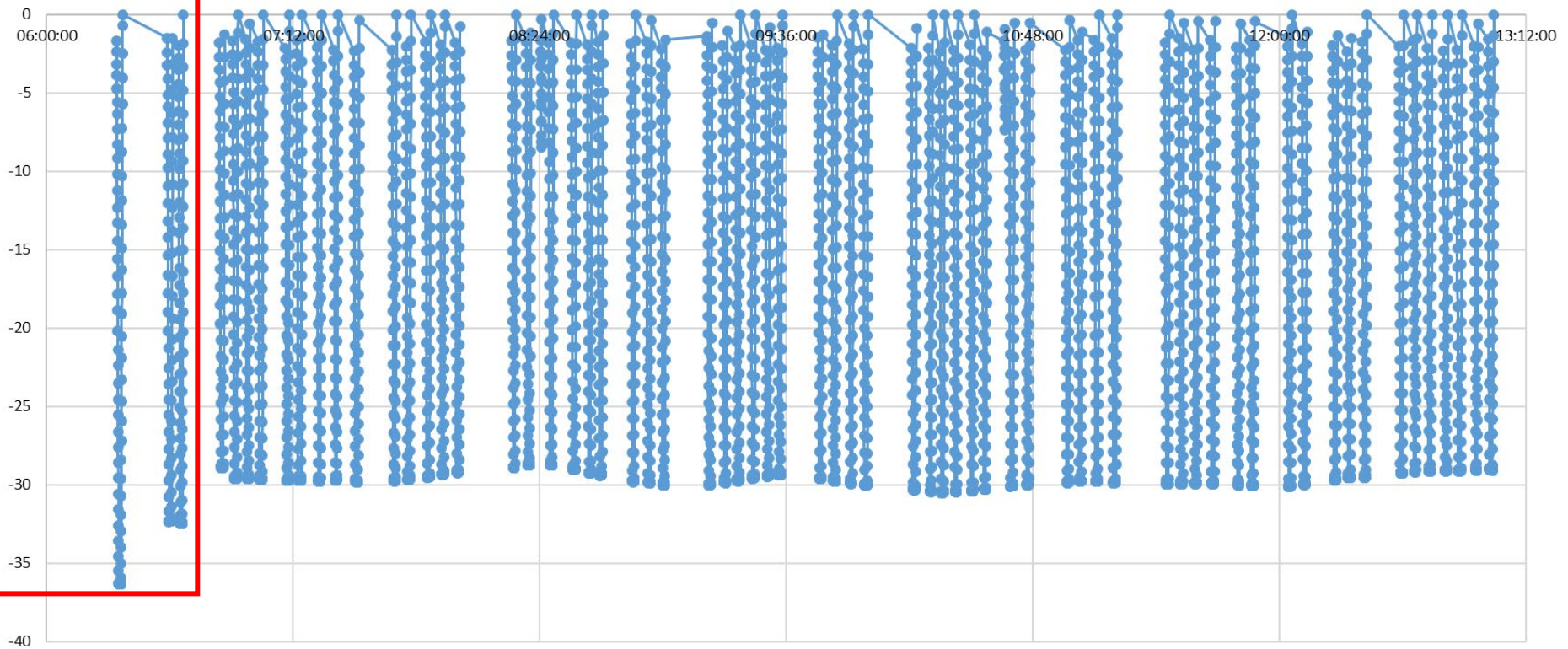


giving
nature
a home



Federal Agency for
Nature Conservation

Nėrimo gylis, m



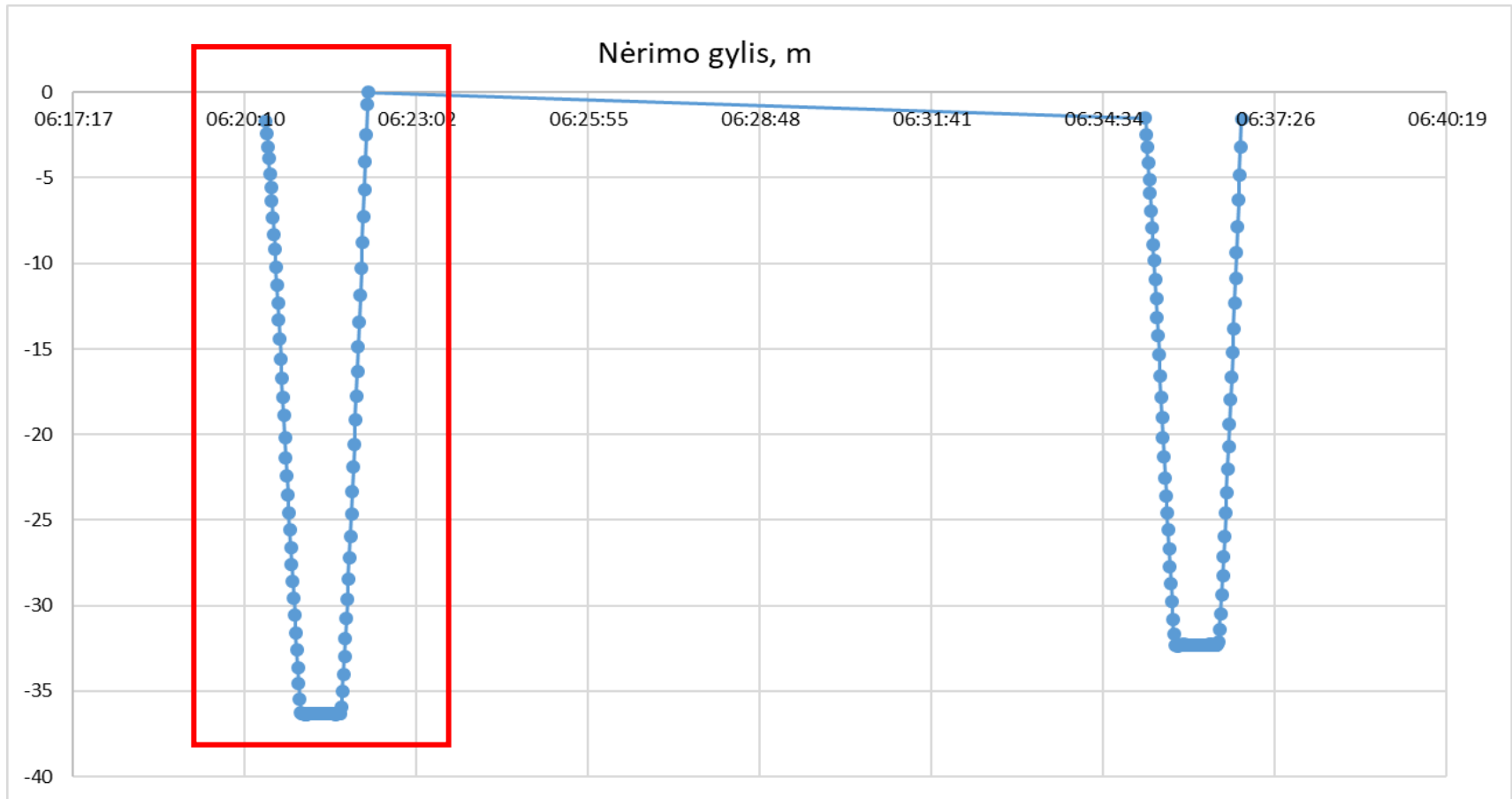
Underwater - Velvet scoter

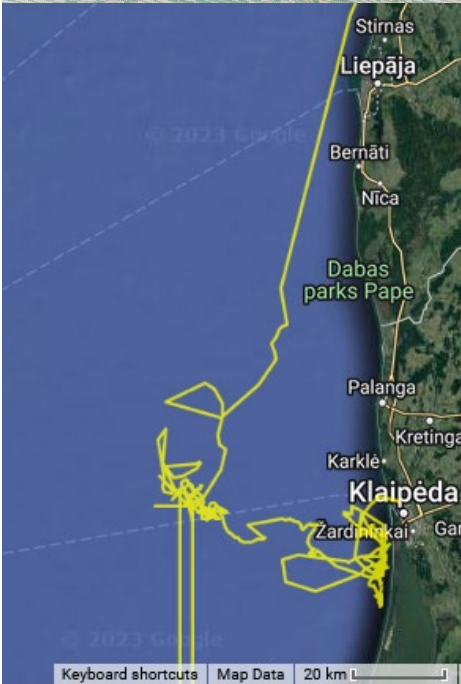


Klaipėdos
universitetas



giving
nature
a home





Klaipėdos
universitetas

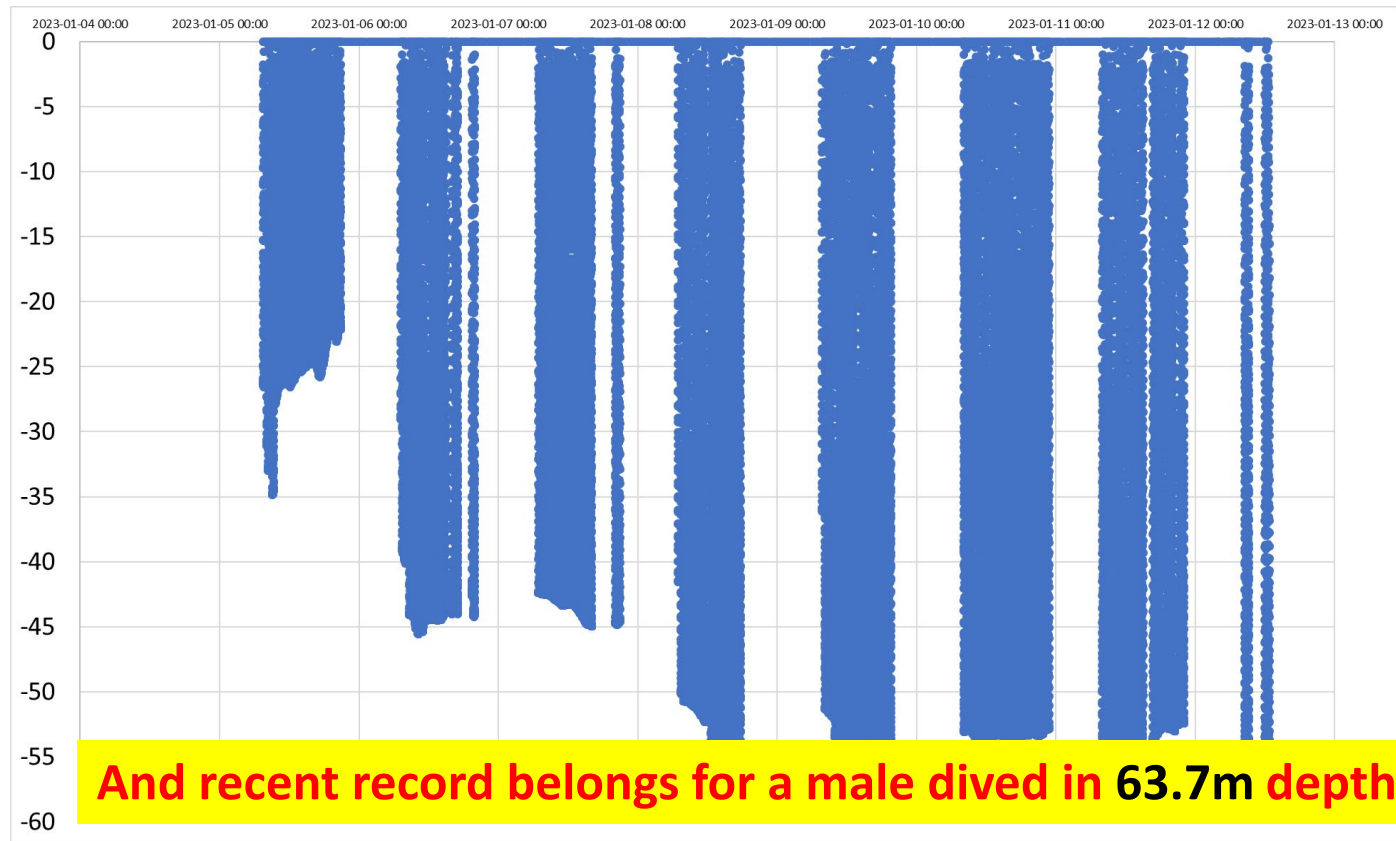


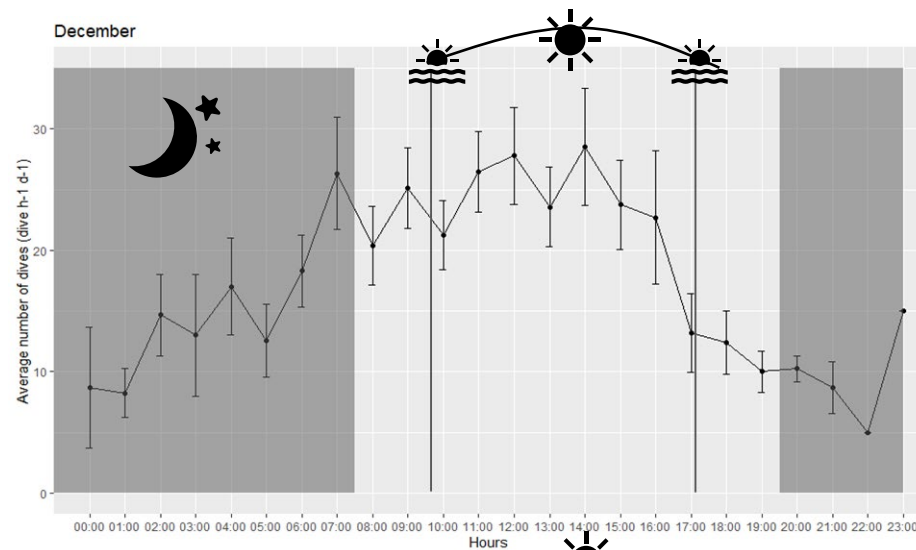
giving
nature
a home



Federal Agency for
Nature Conservation

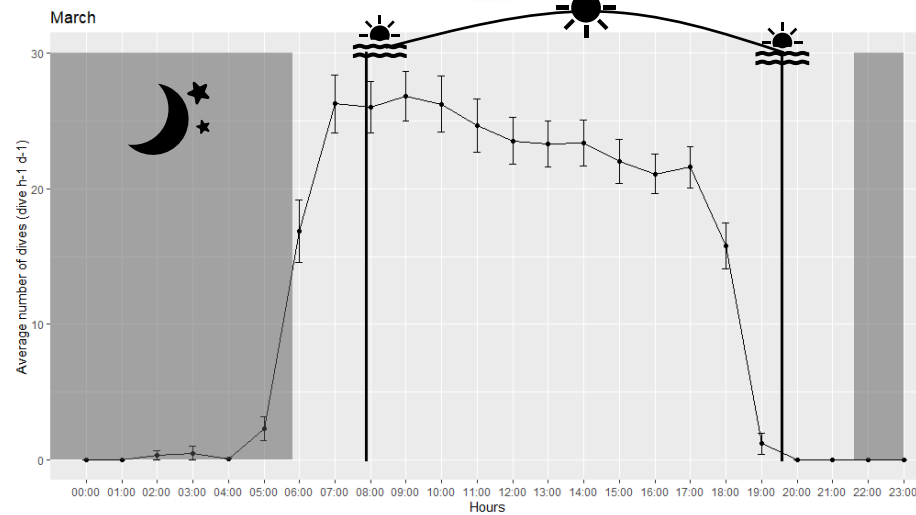
New record !





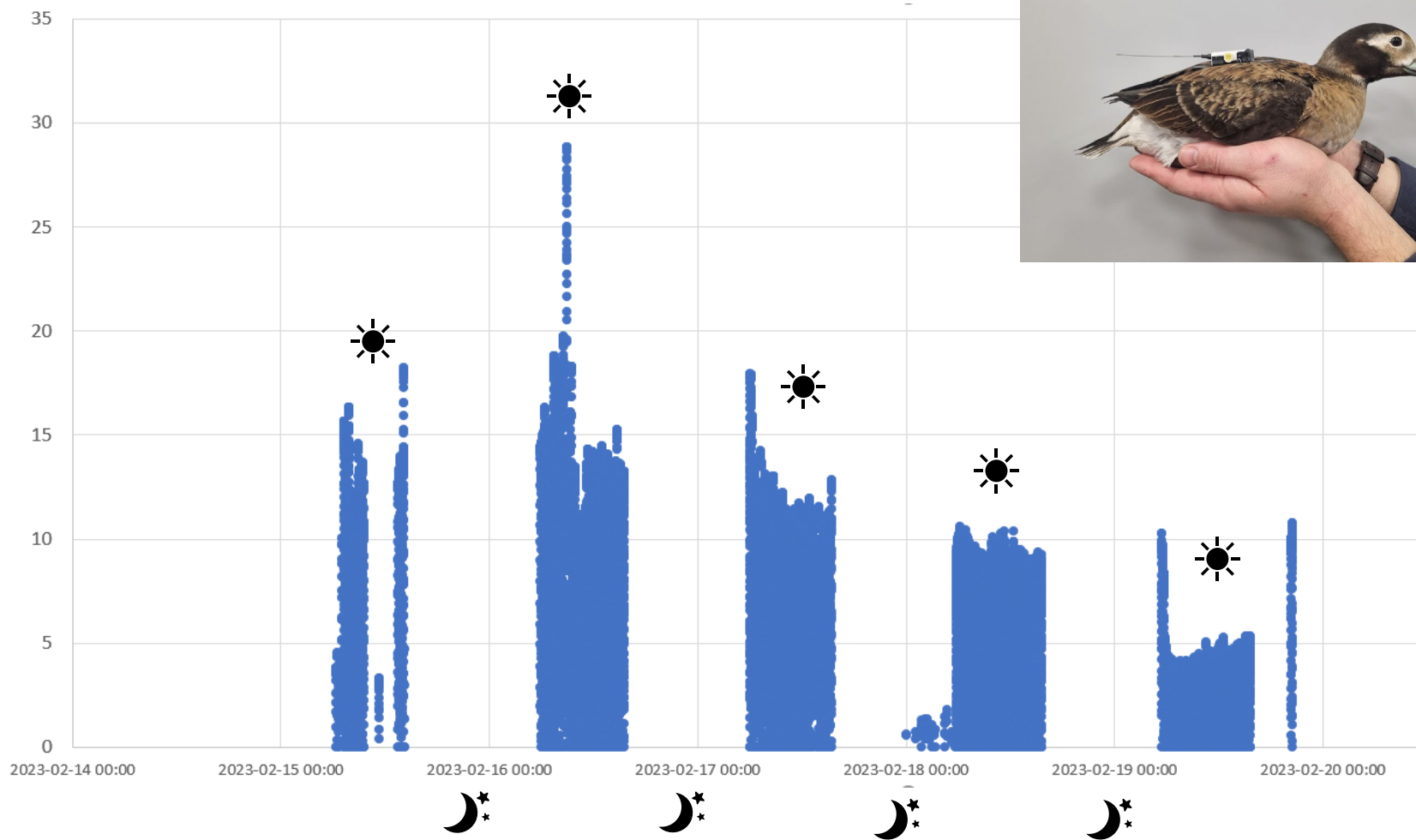
Dive at night and day?

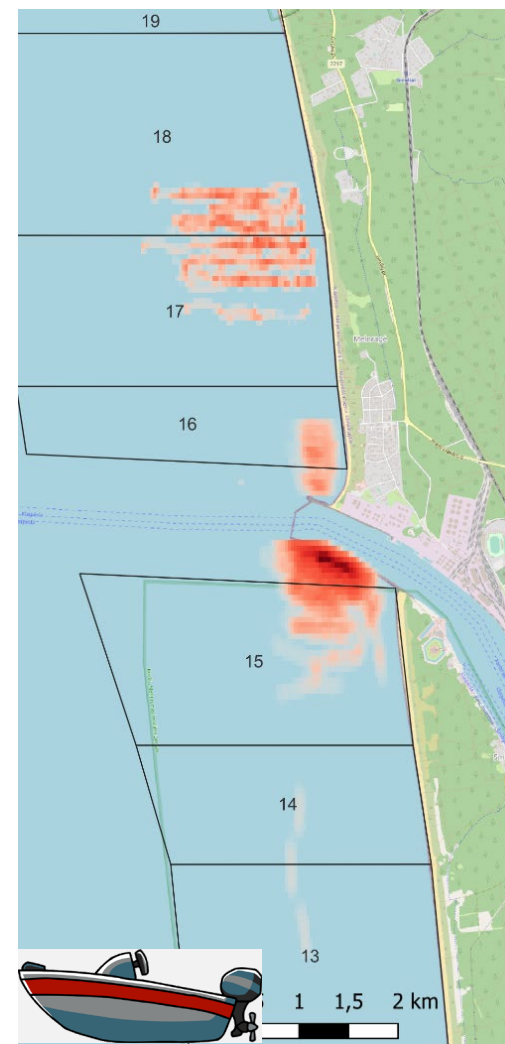
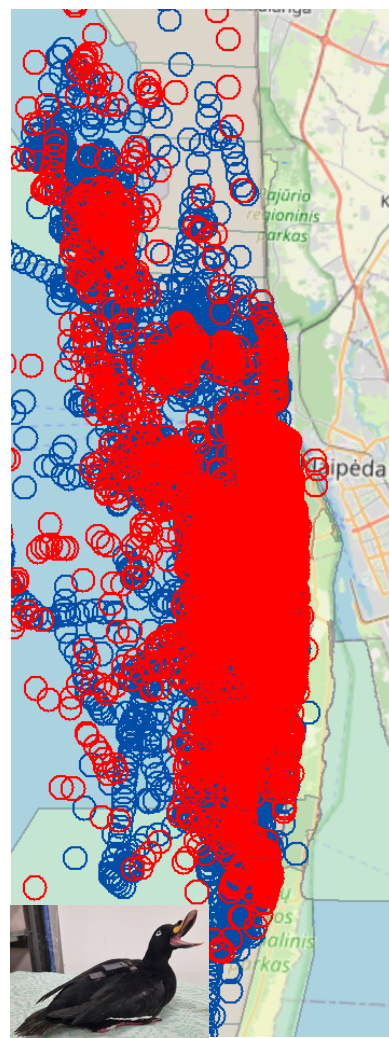
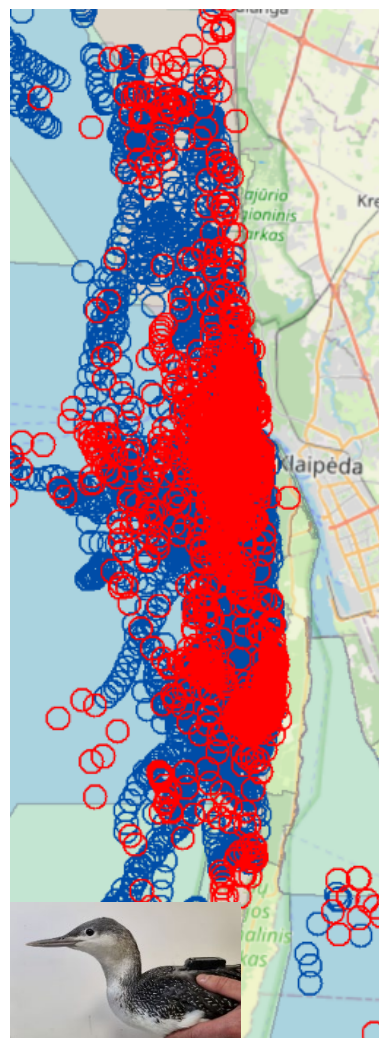
- **December** ducks feed at dusk and night



- **March** ducks feed do not feed at night and dusk







Thank you !

