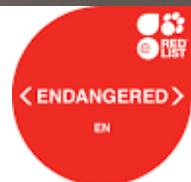


Coexisting with the kittiwake in Tromsø:
citizen science to help an **endangered** species.



Report - December 2023



In May 2023, the Hurtigruten Foundation awarded the nonprofit Wild Lab Projects a grant to support a citizen science project aiming at promoting coexistence with the endangered black-legged kittiwake in Tromsø city center and engaging the public in the monitoring to raise awareness and empathy. This report describes **how we used the grant, what we have achieved** and **how we'll keep supporting** the black-legged kittiwake in Tromsø.

This grant from the Hurtigruten Foundation played a crucial role in initiating this ambitious and innovative project.

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All photo credits: Delphin Ruché

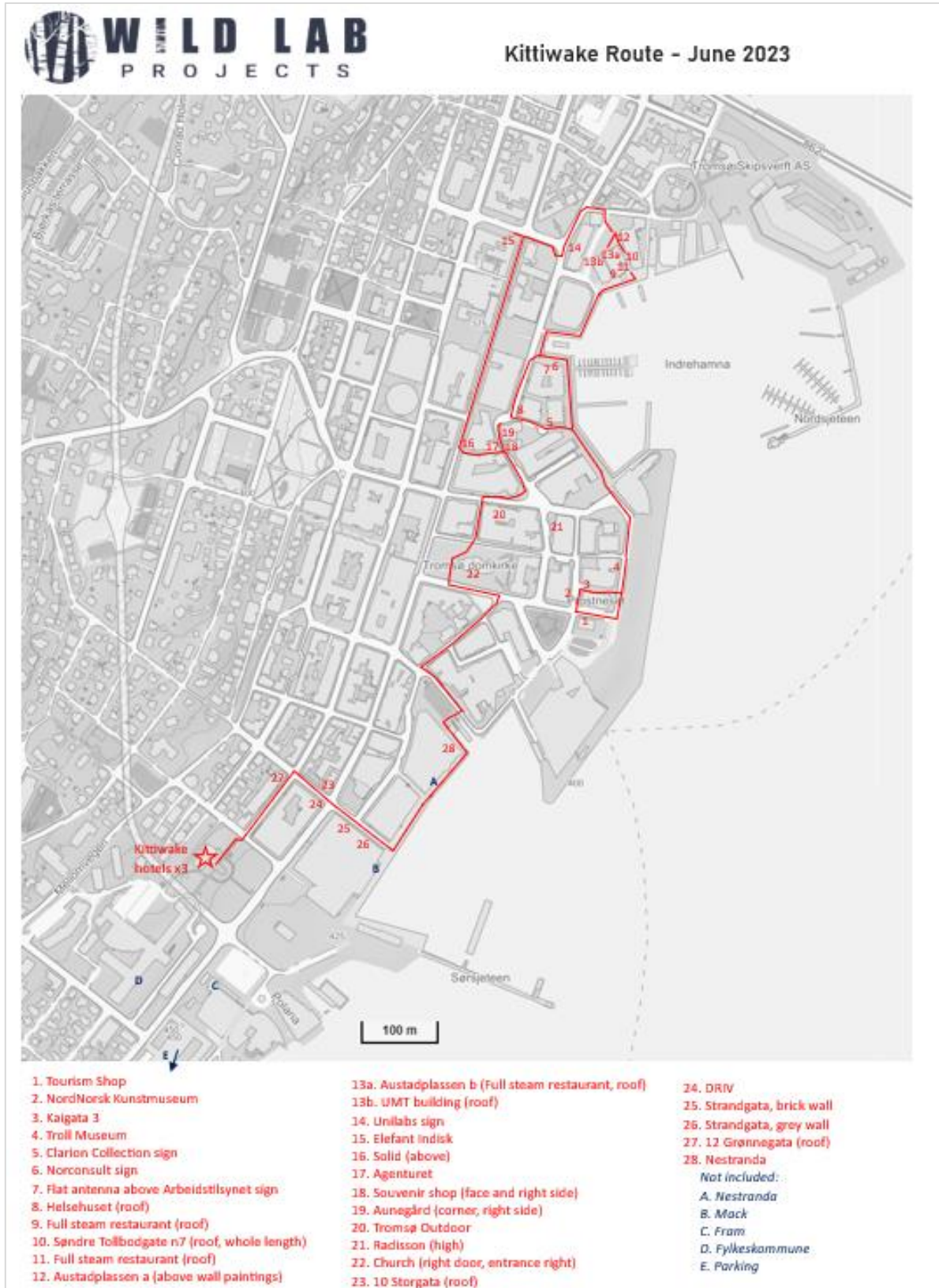


WHAT WE HAVE DONE THIS YEAR



1/ Mapping the nests in Tromsø city center

We mapped all the kittiwake nests present in the city center. This was a necessary step before engaging the public in citizen science and in monitoring the kittiwakes' activity. We produced a detailed map of all the nests we could find (below) and identified 28 stations with 1 to several nests.



We photographed every station to keep a visual archive of the changes that will occur in the future, for example to keep track of new deterrents (spikes, nets or slanted boards), and better understand why and how breeding kittiwakes move between buildings from one year to the next. We have archived all the photos and are showing a few of them in this report.



Station #27: Isolated nest built in a gutter. This nest was occupied most of the summer by a pair of kittiwakes but did not produce any chick, as it is often the case with solitary nests, more vulnerable to predation. Following these isolated nests overtime is relevant because the black-legged kittiwake is a gregarious species, it finds safety in numbers and tends to form colonies, which can grow from isolated nests.



Station #4: The troll museum in July 2023, with white slanted board above several windows. At the end of the breeding season, the windows used by the kittiwakes on the photo were equipped with slanted board too. Next year, these kittiwakes will try to build a nest where they were last year, but eventually will look for another place to build a nest, potentially where there was no nests before. In that sense, at the scale of the neighborhood, deterrents contribute to spread a potential source of conflict.



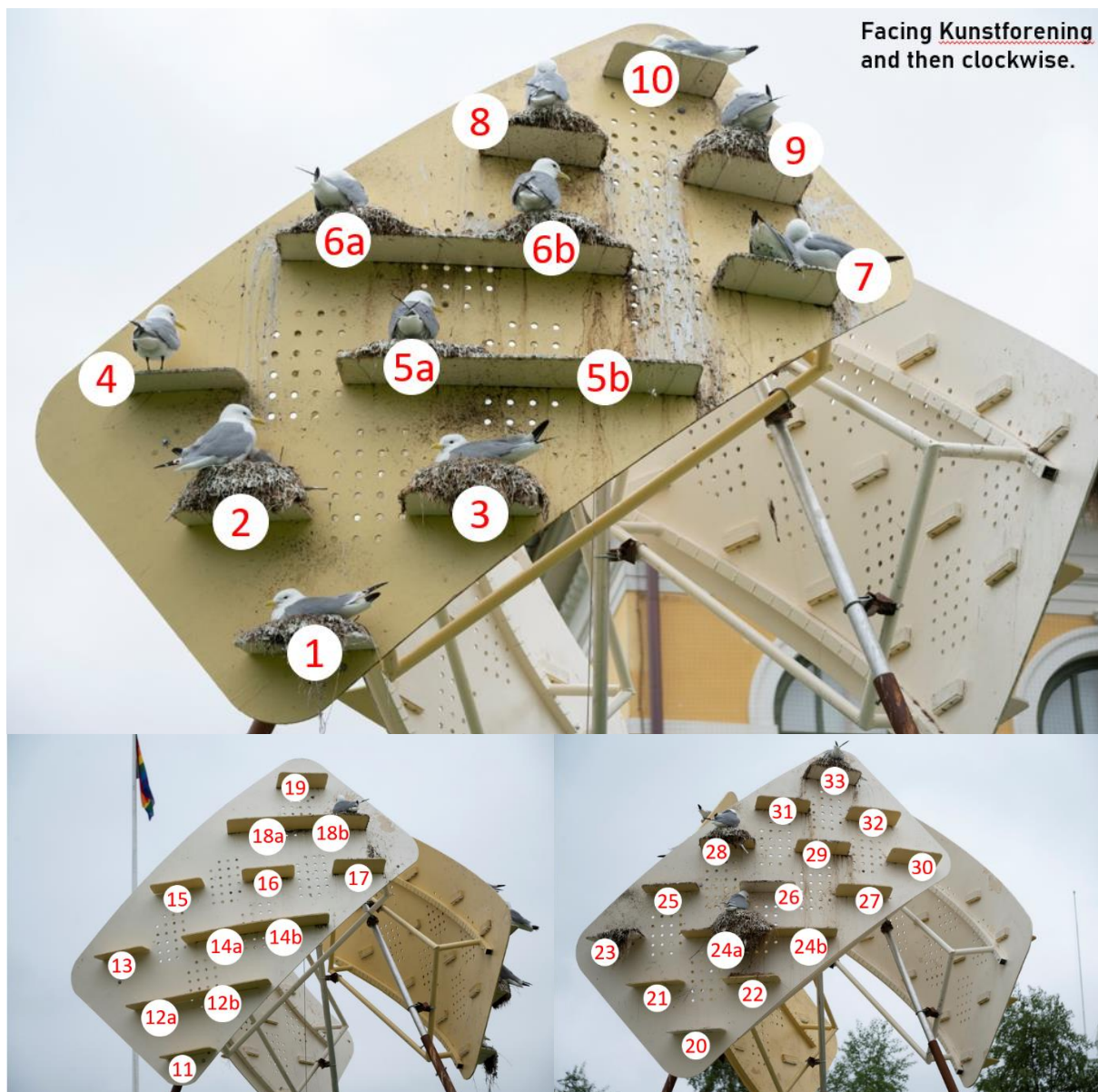
Station C: The Framsenderet, main Tromsø research hub, is covered with nets to prevent kittiwakes from nesting on the window sills. But covering an entire building in deterrents is a near-impossible task, and kittiwakes have used the Framsenderet sign to build their nest and successfully raised chicks.



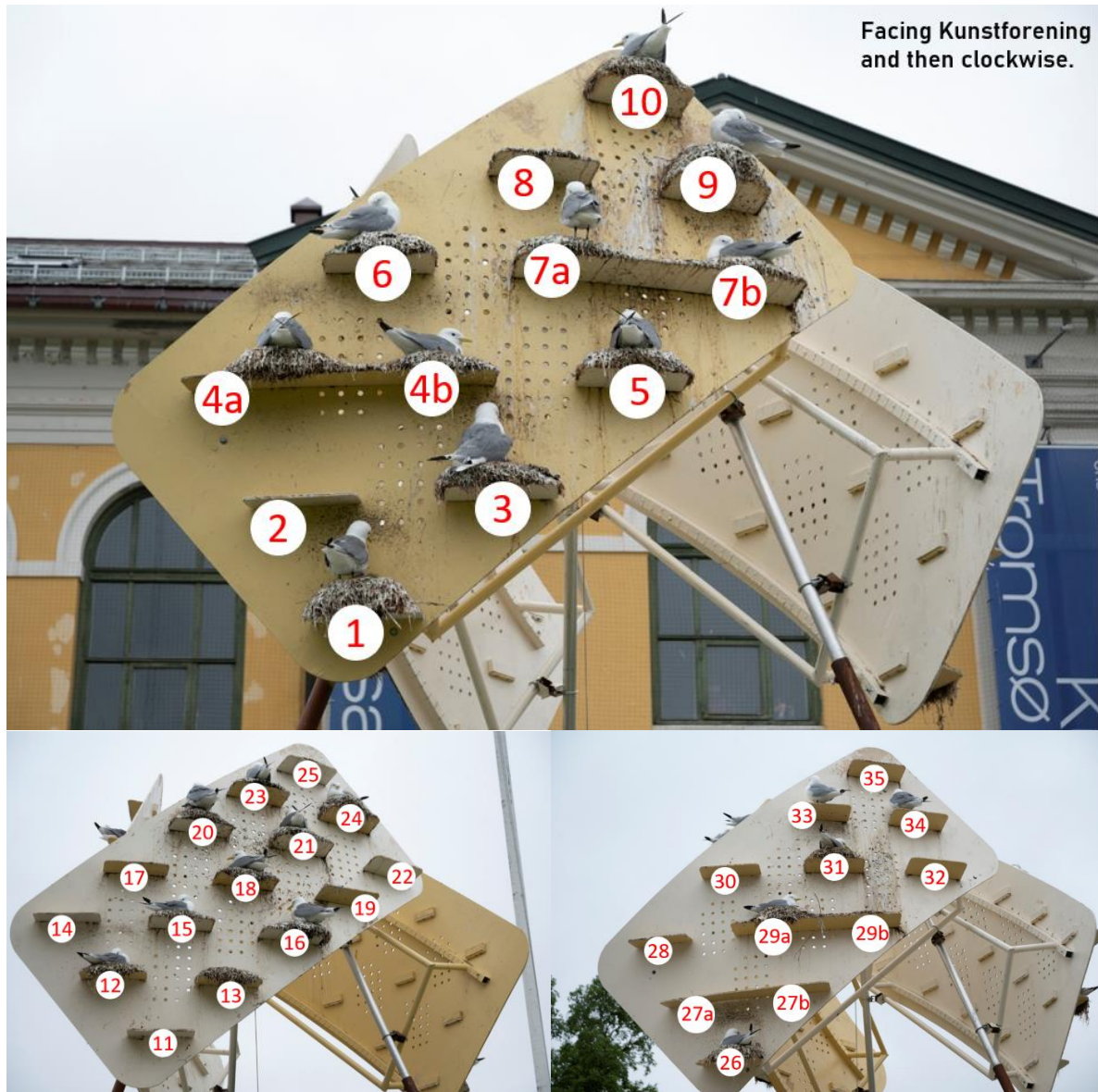
2/ Mapping the nests on the kittiwake hotels

In the previous years, the Center for Contemporary Art (Kunstforening) hosted a kittiwake colony on its walls. But the building needed to be renovated and it was necessary to keep the birds away before the renovating work started. The building was covered in nets between the breeding seasons 2022 and 2023. To compensate for the destruction of the nests, three kittiwake hotels were put up in front of the building in February 2023. With support from Tromsø municipality, two local artists, Lawrence Malstaf and Kaare Grundvaag, designed and built these kittiwake hotels.

We mapped the potential nests on these three hotels, giving each potential nest a number.



Kittiwake hotel #1: 39 potential nests numbered from 1 to 33.



Kittiwake hotel #2: 39 potential nests numbered from 1 to 35.



Kittiwake hotel #3: 47 potential nests numbered from 1 to 46.

3/ Codesigning methods with the Norwegian Institute for Nature Research (NINA)

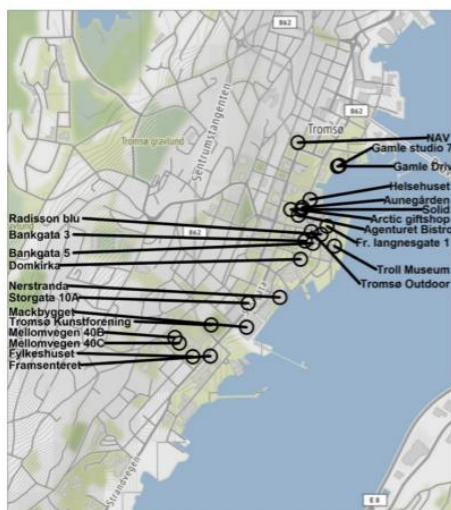
The methods had to meet three conditions: 1- generate knowledge that is relevant to the research partner, 2- produce reliable data and 3- be compatible with citizen science, which means suitable to anyone, including people with no background or education in science, and with no knowledge or experience with birds.

Protocol and info

- Citizen science project on urban kittiwakes in Tromsø. A NINA – Wildlab collaboration



Kittiwake nesting sites on buildings in Tromsø



- Suggested route:
- 1. Start at Trollmuseum
 - ▶ Look at deterrents
- 2. Tromsø Kunstmuseum + Touristinfo
 - ▶ Newly displaced birds
- 3. Mack-bygget
 - ▶ Well established nesting site
- 4. Kunstforening kittiwake hotels
 - ▶ Info of accommodation and moving process
- 5. Teoribygget kittiwakehotels
 - ▶ First hotels (2022) – location, distance to Framcenter and cheap/efficient design → potential for moving to better location

www.nina.no

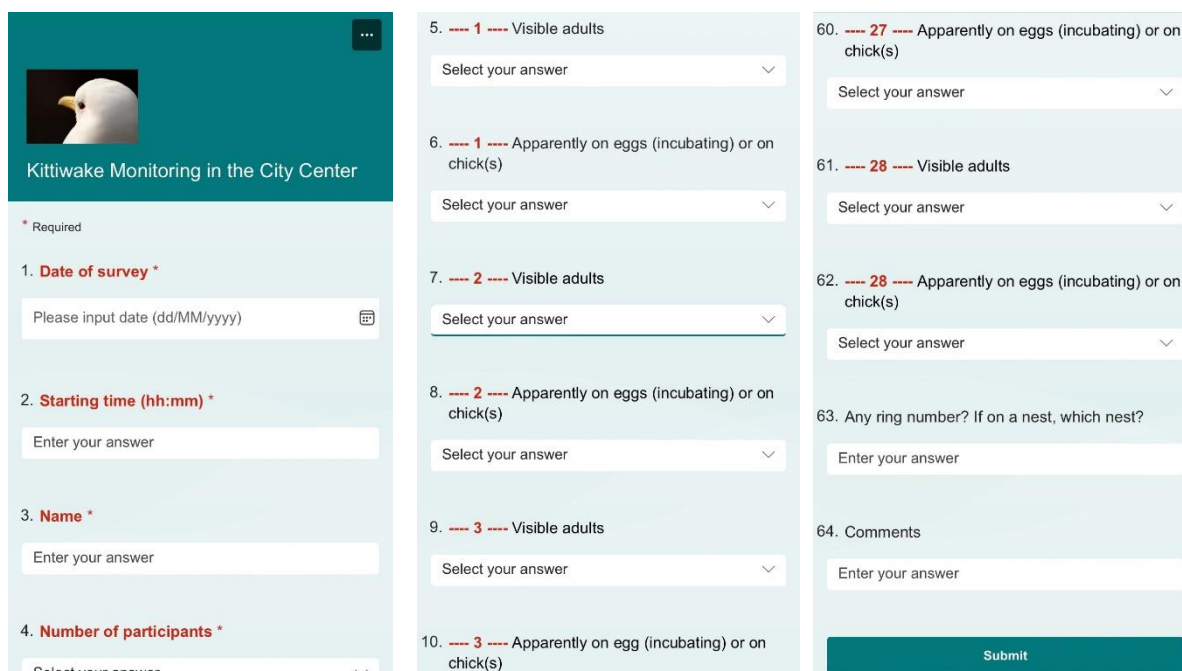


Cover and excerpt of the document produced by our research partner with proposed method and useful information.

The City Center

Based on the methods proposed by our research partner, we developed an online form for the participants to use during the activity. The online form was accessible via a QR code that the participants could scan with their mobile phone. It was important that every participant felt they contributed. Observations were made collectively. The observations were often discussed and debated, as they varied between the participants, for example regarding the number of birds or occupied nests. Eventually, after reaching a consensus, the information was entered in the online form. One participant was entering the information into the online form, based on the group's decision. Another participant volunteered to be a scribe and was given a notebook and a pencil to enter the information on paper, to keep a hard copy of the precious data. With this system, we were able to maintain a high level of engagement.

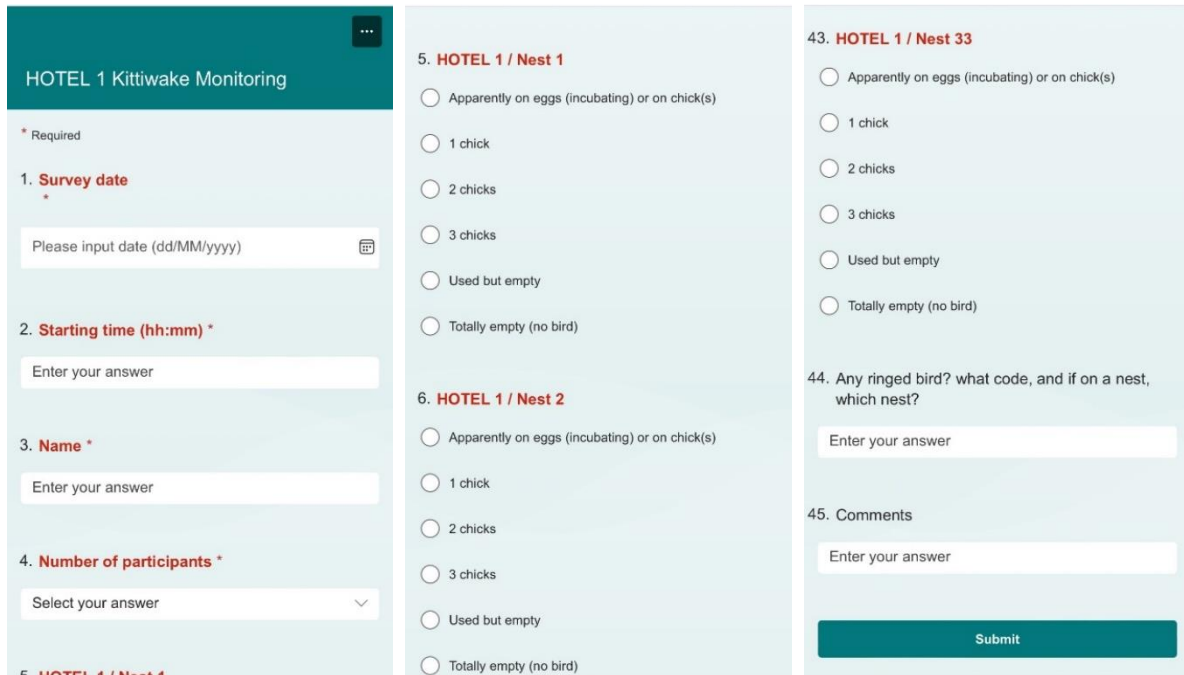
The participant in charge of filling out the online form and the scribe entered the date, the starting time, their name and the number of participants. Then, for every station, they entered the number of adult kittiwakes, and the number of apparently occupied nests (nests apparently with egg(s) or chick(s)). The participants used binoculars during the activity. If a bird was observed with a ring, the information was also entered, and a last field was there to leave a comment.



Screen copies of the online form used by the participants to collect the information. The red numbers refer to the nests.

The Kittiwake Hotels

We developed other online forms for each of the three kittiwake hotels. The first hotel was surveyed together with Wild Lab Projects' coordinator, to make sure all the participants understood the methods and made reliable observations. The participants were given laminated photos of the hotels with numbered nests (the ones on pages 7, 8 and 9). A QR code printed on the photos opened the online form. Everyone contributed to making the observations, but one participant in each group was responsible for entering them in the online form. After the first hotel, if the participants were considered competent, they were given the responsibility to do the other two hotels. Wild Lab Projects' coordinator was there to answer questions and help if necessary.



Screen copies of the online form used by the participants to collect the information on hotel 1.

After entering the date, the starting time, their name and the number of participants, the participants entered their observation for each nest. A potential nest could be apparently with egg(s) or chick(s), or with one, two or three chicks, or used by a kittiwake but empty (no egg, no chick in the nest, or no nest material), or totally empty (no adult present).

The Norwegian institute for nature research (NINA) rings the kittiwakes breeding on the hotels. These rings have a 3-letter code that is visible from a distance. The participants actively looked for these rings and entered the codes in the form.



Kittiwake with the white plastic ring 7F4 on hotel 3.



A Citizen scientist observes kittiwakes nesting on the hotels in June 2023.

4/ Participation and observations

The first rounds of citizen science took place on the 29th of June, after the methods were codesigned with our research partner. At this time of year, most eggs had hatched. The last round occurred on the 29th of September after the chicks had fledged but as kittiwakes are still present in Tromsø city center. From the end of September, the presence of kittiwakes in town became more irregular and kittiwakes eventually all left to their wintering grounds.

Between 29/06 and 29/09, we have done **21 citizen science kittiwake walks**, both in the city center and around the kittiwake hotels. A total of **111 participants**, including repeaters, contributed to these walks. The participants were local volunteers, visitors and tourists. The average duration of the citizen science walk was over 2 hours.

Hurtigruten Expedition offered this activity to their guests, who joined on three different days. One of Wild Lab Projects' mission is to make tourism more regenerative, and nature positive. The Hurtigruten's guests who joined this citizen science walk supported a local action in favor of an endangered species. They discovered Tromsø city center from a unique perspective and got to think and debate about what it means to coexist with nature and wildlife in an urban environment.

Since it was the first time Hurtigruten Expedition offered this citizen science activity to their guests, special attention was paid to the guests' feedback. Hurtigruten's citizen science coordinator and some of the Hurtigruten's staff joined the science walk too. The feedback from all these participants was very positive and Hurtigruten Expedition decided to offer this science walk to their guests again in 2024.



Guests from Hurtigruten Expedition's ship Otto Sverdrup participating in the citizen science kittiwake walk in Tromsø (Credit: Charlotte Kirchner).

Phenology

We started the citizen science walk late (29/6) after receiving the grant from the Hurtigruten Foundation (26/5) and after codesigning the methods with our research partner, which took longer than expected. We covered the chick rearing and fledging periods. The last chick fledged between 6/8 and 28/8, and the number of kittiwakes in town dropped during the first week of September (Figure 1).

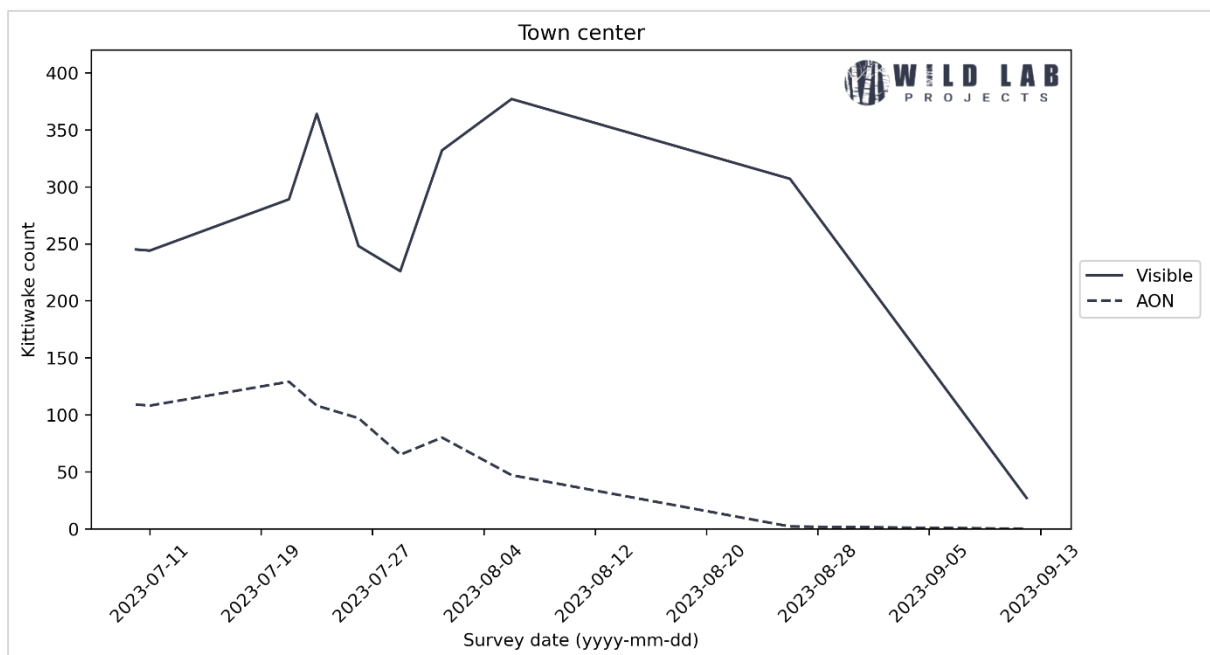


Figure1: Visible adult kittiwakes, and apparently occupied nest (AON, i.e. nests apparently containing egg(s) or chick(s)) between the 29/9.

Number of nests

In the city center, out of the 28 stations included in the monitoring survey, a maximum of 108 used nests were observed around mid-July. We voluntarily excluded the two kittiwake hotels near Framsenderet (made of scaffolding and plywood) and stations A, B, C, D and E on the map page 3, because they were too far from what we could repeatedly survey with participants, or because the inside of the nest was invisible from the ground (stations B and D on the map page 3). Over 50 used nests were observed on the three tripod-shaped kittiwake hotels. Excluding the nests that were on the five kittiwake hotels, we found 321 used nests in Tromsø city center.

Two additional and known colonies are on the north-eastern part of Tromsøya (Skattøra on an artificial cliff and off Stakkevollvegen on a floating dock). We did not visit these colonies.

Number of chicks per nest

The participants recorded the number of chicks per nest on the three tripod-shaped kittiwake hotels. The total number of chicks is influenced by the fact that the hotels were first put up very close to the Center for Contemporary Art, with one of the three panels almost against the building's wall (especially for Hotel 1). These panels were not used by kittiwakes who need lots of space to take off and land on their nests. The three hotels were moved away from the building in March, but it was too late in the season for the kittiwakes to start using those empty panels.

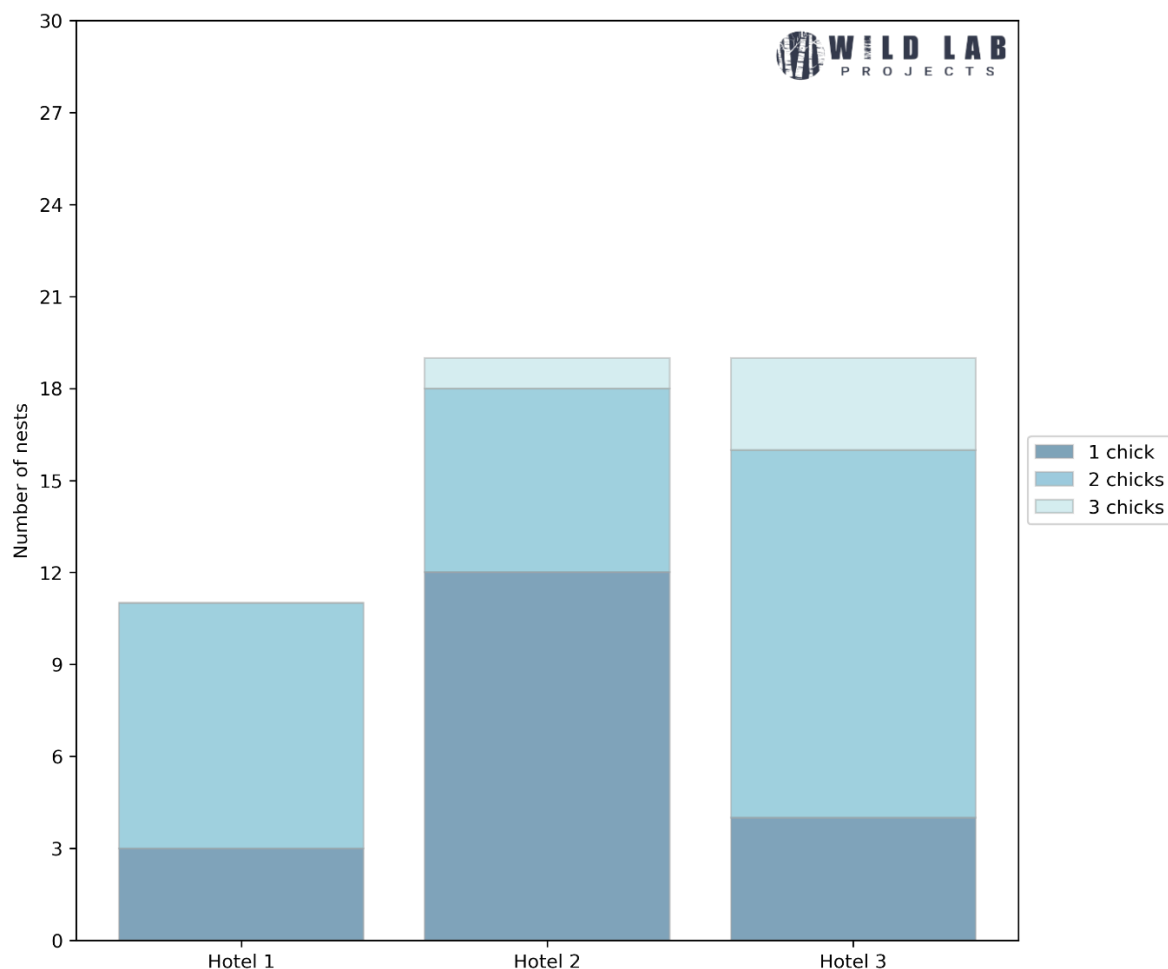


Figure 2: Number of chicks per nest at the end of the chick rearing period on the three hotels.

The deterrents

We paid attention to the deterrents and looked at how effective they were. We noticed that a quarter of all the nests found in Tromsø city center (excluding the nests on the kittiwake hotels) are built on some type of deterrent (Figure 3). This observation left the participants with the impression that the current methods to ward off kittiwakes are ineffective.

Spikes left a negative impression on the participants who saw kittiwakes covered in blood as a result of injuries and punctures caused by the spikes.

Most dead chicks were on nests built on spikes, although this is not conclusive evidence that the spikes were the cause of death.

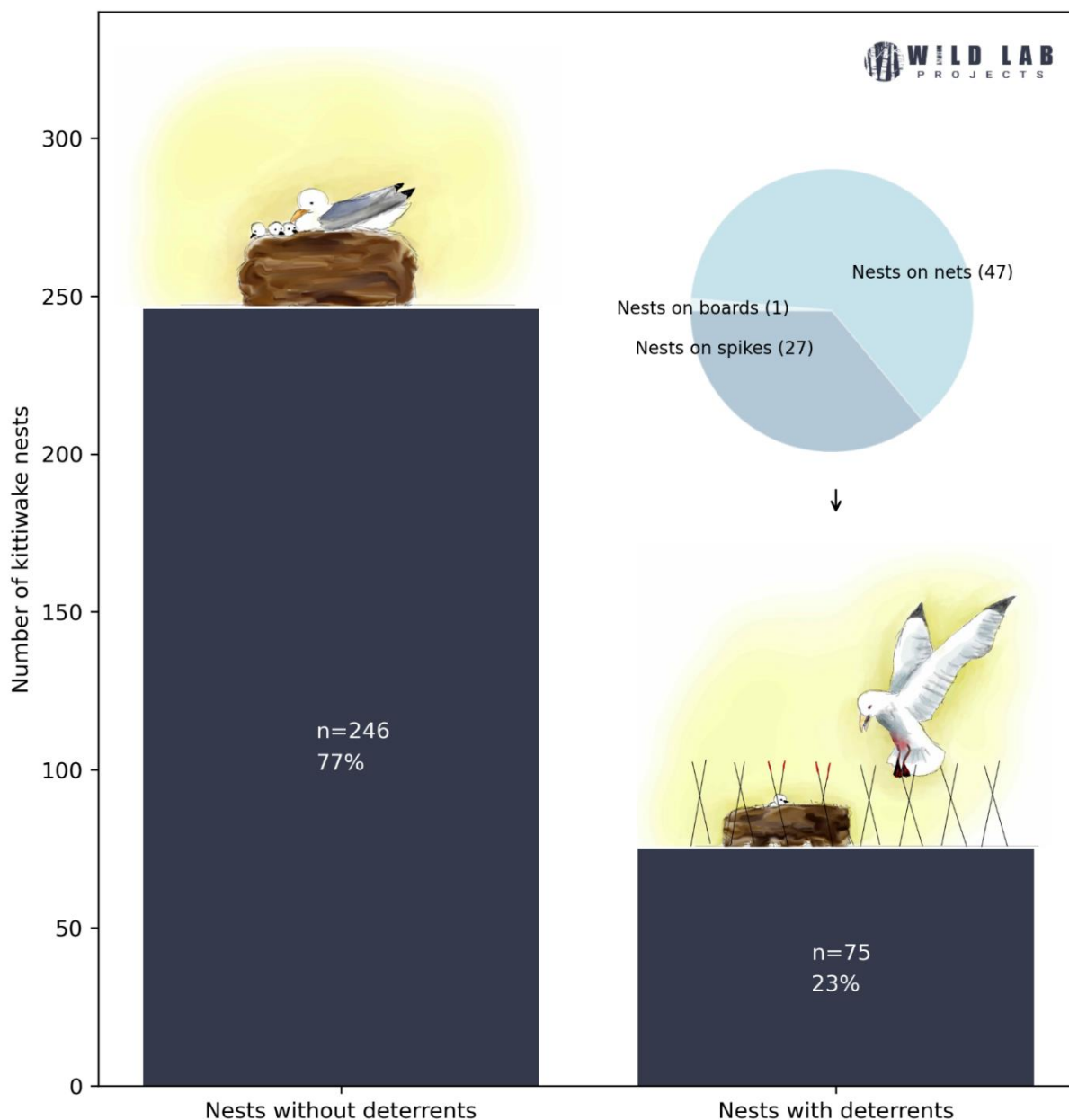


Figure 3: Proportion of nests in Tromsø city center built directly on deterrents, and type of deterrents (illustration: Dr. A. Macfarlane).

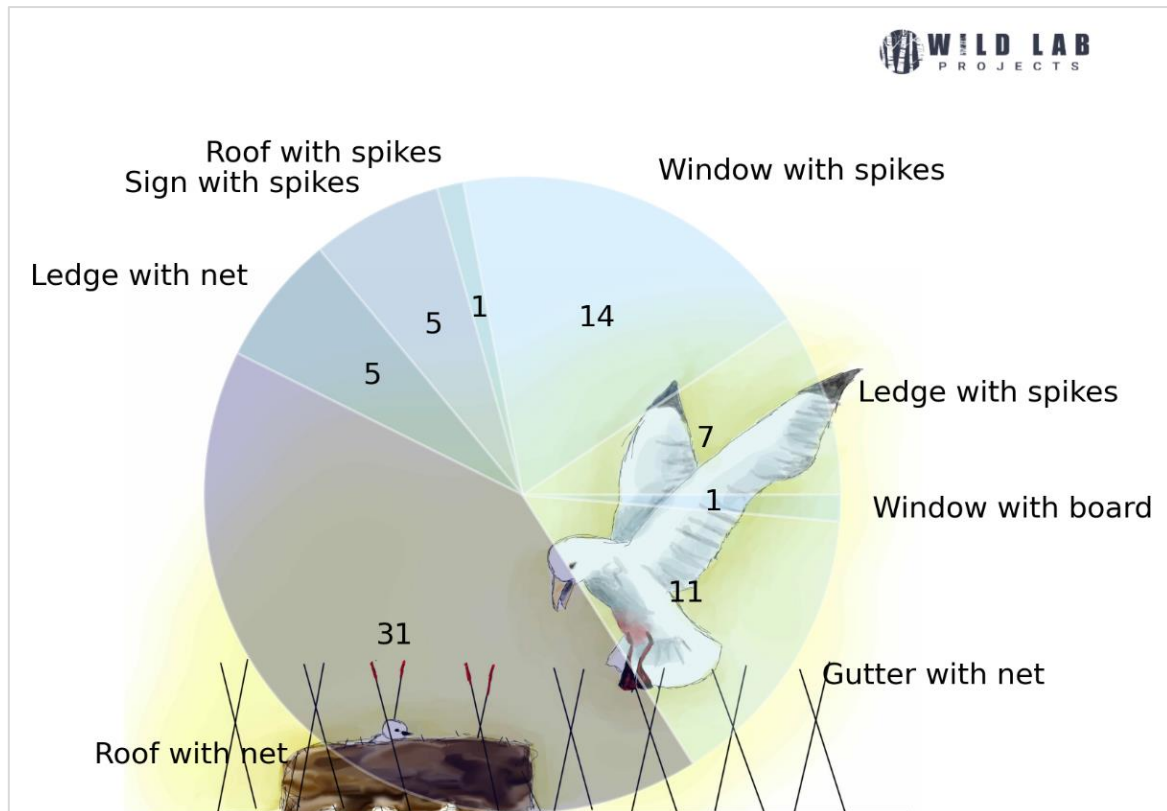


Figure 4: Proportion of nests built on the various types of deterrents (illustration: Dr. A. Macfarlane).

Although nets can be effective if deployed properly, Figures 3 and 4 show that many kittiwakes built their nest directly on a net. The high proportion of nests built directly on a net, compared to other deterrents, is partly because 42 nests were built on the net-covered roof ($n=31$) and gutter ($n=11$) of the Fylkeskommune building, a typical example of deterrents that fail to fulfill their intended purpose.



The Fylkeskommune building and its 41 nests built directly on the net covering the roof and the gutter.



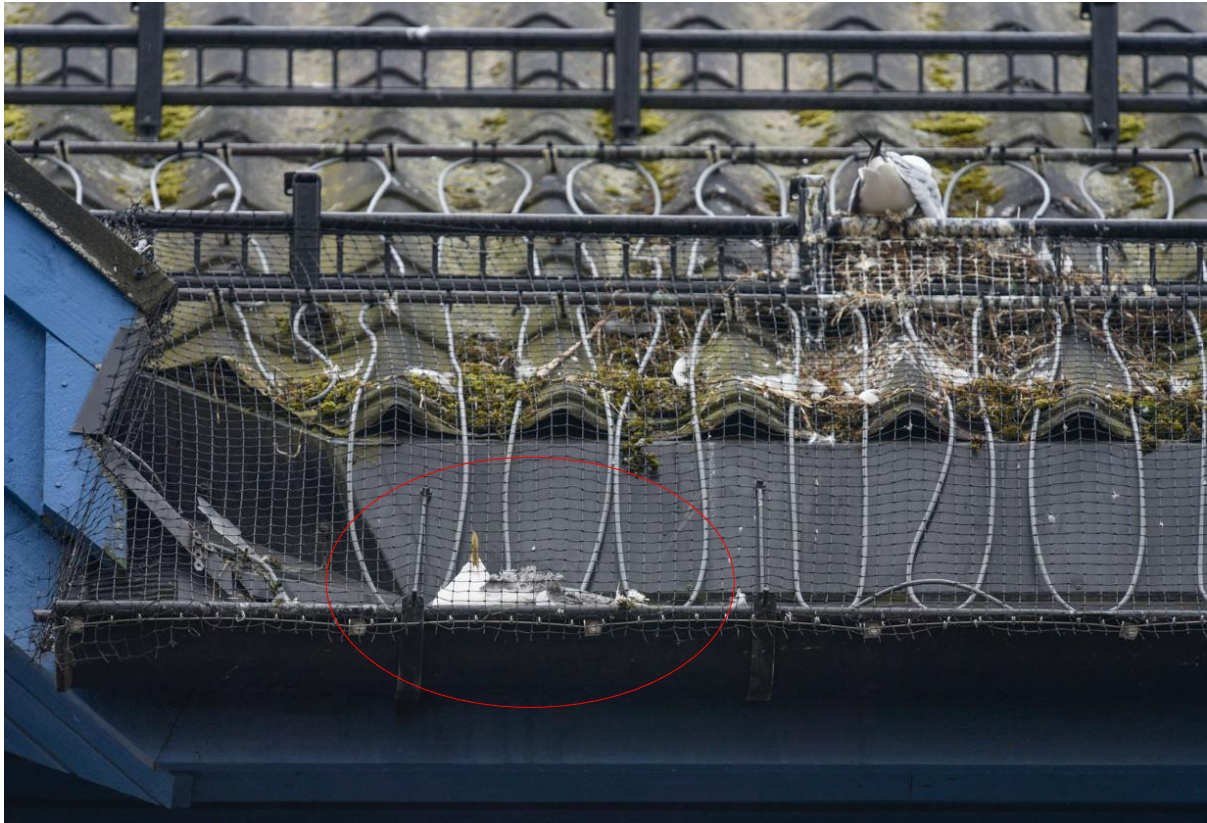
Nest directly on spikes on an historical building in Tromsø city center.



Nests built on spikes on a modern building near Pellerinbryggene.



Nest built on the Kunstforening building before its renovation.



Nets can turn into deadly traps if poorly deployed, as we observed on Sjøgata 31/33, where a net was put over the gutter but left with an open side. One kittiwake found its way in through the opening but never found its way out and eventually died there. While the net kept kittiwakes away from nesting on the gutter, several pairs used the snow rack just above to build their nest.



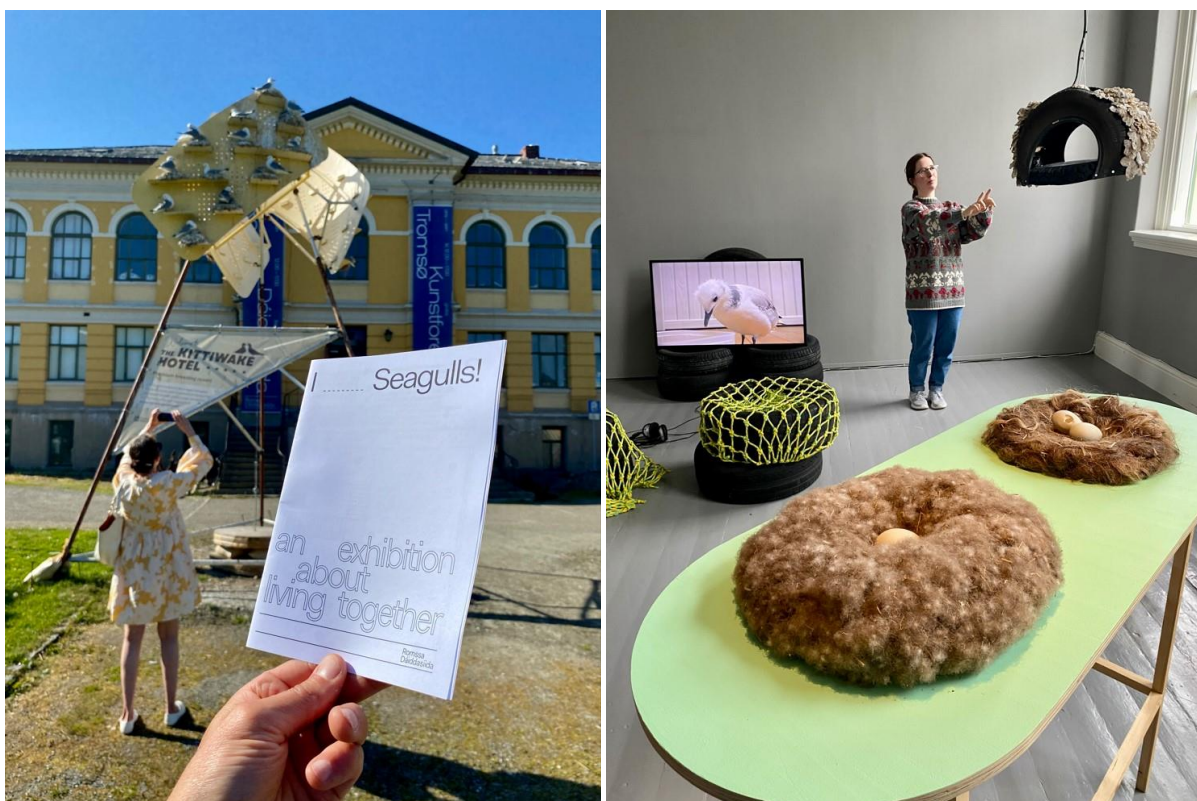
Slanted boards are effective deterrents only if they are put up properly (Station #26, two successful nests).

5/ Collaboration with the Center for Contemporary Art

We partnered with the Center for Contemporary Art (Kunstforening), which hosted an exhibition called “I... Seagulls! An exhibition about living together” and is located a few meters away from the three tripod-shaped kittiwake hotels.

After the two-hour citizen science walk, the participants were welcomed by one of the artists contributing to the exhibition, Irene M. Kaltenborn, the curator Kaare Grundvaag, or the general manager Camilla Fagerli depending on the day.

After experiencing the scientific and social dimensions of the walk, participants concluded the walk with an artistic immersion. This guided tour of the art exhibition enriched the participants’ experience considerably and reinforced the take-away message concerning the importance of living together.



View of the Kunstforening with one of the kittiwake hotel (left) and artist Irene M Kaltenborn giving a tour of the exhibition to the participants (right).

6/ Dissemination

We received support from Aztrid Novillo, an inspiring young female professional nature photographer and filmmaker, who made an [educational video that presents our kittiwake citizen science project](#).

We published regularly on Wild Lab Projects’ social media, with a focus on [our Instagram page](#) with various [posts and reels](#).

We were invited to speak at the [“Bare Prat” event on the 8th of February](#), in Tromsø city center.

We will share this report on our social media channels and with our partners to increase media exposure and will communicate about the project in the local media.



We helped our research partner ring the kittiwakes nesting on the tripod-shaped hotels.

CITIZEN SCIENTISTS: STEWARDS AND SENTINELS

The participants learned about the different species of seagulls living in Tromsø. This was one of the goals of the citizen science walk since kittiwakes pay the price of the bad reputation of the common gull and the herring gull. Common gulls bomb-dive on people walking too close to their nests or chicks, while herring gulls sometimes steal street food from people's hands. Kittiwakes, however, don't directly interact with people, and they find their food exclusively at sea. They are in the city center for only one reason: to build a nest on human-made structures.



The participants have learned that there are different species of seagulls, and most participants are capable of identifying the main three species.

Teaching the differences between the species proved an effective way to fight prejudices against kittiwakes.

Participants also realized that a gull attacking is a gull that is defending their nest, and not a mean gull.

They also acknowledged that herring gulls become habituated to humans because we facilitate access to food waste, as a result of poor waste management (open garbage, food spills on the sidewalks, etc.) or poor behaviors (people feeding them or throwing food or food wrapping on the ground).

All the above changed people's perception of the kittiwakes, and of the seagulls in general, and participants developed empathy for seagulls, which is the first ingredient to coexistence.





We put several chicks back into their nest after they accidentally fell off. Thanks to the regular visits, we could keep track of the breeding status of each nest, and put the chicks back into their nest. This is important because kittiwake chicks are rejected from a nest they don't belong to.

Herring gulls and common gulls look after and feed their chicks after they fall off their nest or once they have fledged. But kittiwake chicks that have fallen off their nest are ignored by their parents and don't survive. A local cat specialized in taking these chicks under the kittiwake hotels.

Late summer, birdflu was detected in Tromsø and we stopped handling chicks.



These chick rescue operations were only possible because we visited the nests frequently with participants, kept track of the breeding status of each nest and found chicks not long after they had fallen off their nest. The citizen science walks were also useful to detect birds in distress and respond immediately, for example if a kittiwake was seen trapped in a net. Had we started earlier, we may have been able to save the kittiwake that died in Sjøgata 31-33 (page 20). We could also notice if nests were destroyed illegally during the breeding season and react accordingly.

Finally, when the bird flu outbreak hit Tromsø, the participants became sentinels, and we could report to the authorities and to our research partner when we found dead birds, and also keep track of the mortality in the city center. Tromsø municipality organized early morning rounds to remove dead birds from the public spaces.



Kittiwake with birdflu symptoms (top), and dead the next day (bottom).



We discussed with several shop owners and tenants who coexist directly with kittiwakes, to hear about their opinion.

Some of them didn't care about having kittiwakes on their building, others wished to get rid of them by all means. We assumed that what most people hostile to kittiwakes want to get rid of is the nuisance caused by the birds (guano, smell, etc) more than the birds themselves. Based on this assumption, we offered to regularly clean the sidewalk in front of their building, to reduce the nuisance. But this proposition haven't had much success so far.

(Photos: a professional cleaner washing the guano off the wall of a shopping center in the city (top), and layer of guano on the pavement under kittiwakes nests (right).



These citizen science kittiwake walks had an effect beyond the group of participants, as people in the streets were intrigued and often stopped to ask what we were doing, and what we were looking at with binoculars. These interactions, often with locals, were opportunities to raise awareness and debate about coexistence, and exposed the participants to various reactions and opinions.

The participants often engaged by proposing concrete solutions to coexist with kittiwakes, argued between themselves and debated about the pros and cons. If most participants recognized that they would not like to have kittiwakes breeding on their house, they also recognized the need to find ways to live together with this endangered species.

THE LESSONS WE LEARNED

Citizen Science & Public Engagement

- Engaging the public in citizen science monitoring the kittiwakes is an effective way to raise awareness and empathy for the kittiwakes and advocate coexistence.
- Our citizen science kittiwake walk is a great activity for travelers who are in Tromsø for a few days.
- Outreach and public engagement change how people perceive kittiwakes, and increase acceptance and coexistence.

Deterrents

- 23% of the kittiwake nests in the city center are built directly on deterrents.
- How effective nets and slanted boards are greatly depends on how they are deployed.
- Spikes are ineffective deterrents and a hazard for kittiwakes. They should be banned.
- Effective deterrents force kittiwakes to move to other locations on the same building (roof for example) or to neighboring buildings and spread potential conflicts within the community.

Strategy

- Keeping kittiwakes from nesting on every building in the city center is impossible. Resources should rather be used to find compromises and practical solutions to coexist.
- Reducing the nuisance (cleaning guano for example) should have priority over deploying deterrents.
- When nests are destroyed, alternative breeding sites should be provided as a compensatory measure.
- More kittiwake hotels are urgently needed to provide alternative sites to both dislodged and incoming kittiwakes.

WHAT WE WILL DO NEXT

- We will resume the citizen science kittiwake walks in 2024.
- We will reinforce our collaborations with our research partner the Norwegian institute for nature research (NINA), and with other parties engaged in protecting the Norwegian kittiwakes in Tromsø.

- We will share our observations with our research partner the Norwegian institute for nature research (NINA) so that they can be used in a scientific context, and to support their actions in favor of the black-legged kittiwake conservation.
- We will continue collaborating with Hurtigruten Expedition and we will initiate collaborations with other tour operators, to make tourism more regenerative in Tromsø, to engage visitors, and to raise awareness and empathy for the kittiwakes.
- We will engage the youth and collaborate with local schools and teachers who can use this citizen science project in their curriculum. This project can be used to give students an experience about scientific research (methods, fieldwork, data analysis, statistics, reporting), and address important questions related to biodiversity, marine ecology, social science, philosophy and conflict management, to name just a few.
- We will continue to address the presence of kittiwakes as an added value to the city of Tromsø, and as a part of Tromsø's identity.



Kittiwake hotels are an effective and relatively cheap solution to compensate for the destruction of the nests in the city center. These structures can be placed where the nuisance is low and they help reduce potential conflicts, which is an important step towards acceptance and coexistence.



Watch Aztrid Novillo's **educational video**: <https://vimeo.com/894972953>



Read the **blog article** on Wild Lab Projects' website: <https://rb.gy/9wv7g1>