



## AECO's activities in Community-based observing and Citizen Science

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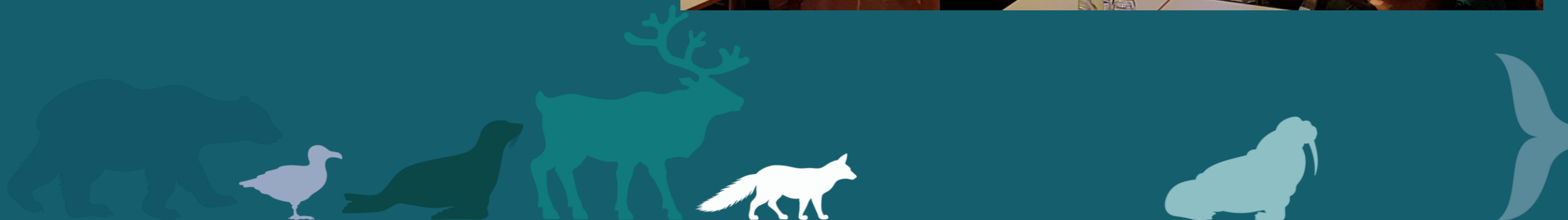
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# Who are we?

- Association of Arctic Expedition Cruise Operators
- Vessel operators, vessel owners, vessel management companies and affiliate companies with interest in the industry
- Established in 2003



# Role

- Ensure environmentally friendly, responsible and safe cruise tourism in the Arctic
- Advocate for the expedition cruise industry and AECO's members' interests
- 63 international members
  - 57 operating vessels (2022)





# WHAT IS AN AECO EXPEDITION CRUISE?

## THE EXPEDITION CRUISE EXPERIENCE



# ARCTIC CRUISE OPERATIONS



LEGAL  
FRAMEWORK



SIZE



FUEL



INFRASTRUCTURE  
& HARBOR NEEDS



ITINERARIES



DESTINATIONS



PRODUCT  
FOCUS



INDUSTRY  
ASSOCIATIONS



INDUSTRY  
STANDARDS



## CONVENTIONAL CRUISE OPERATIONS

IMO

Mostly more than 500 guests

HFO & MGO

High

Fixed

Towns/populated areas

Vessel experience,  
entertainment on board,  
destination highlights

CLIA

Industry policies guide  
company minimum  
standards



## AECO EXPEDITION CRUISE OPERATIONS

IMO or National/Flag State  
regulations

Mostly up to 500 guests

MGO, sail & hybrid  
technology

Low

Highly flexible

Nature landings and local  
communities

Destination immersion and learning  
experience

AECO

Mandatory industry  
standards and guidelines



## SMALL VESSEL CRUISE OPERATIONS

National and/or flag state  
regulations

Mostly up to 12 guests,

MGO, sail & hybrid  
technology

Low

Highly flexible

Nature landings and local  
communities

Various

None

Individual company standards



*Environment*

*Safety*

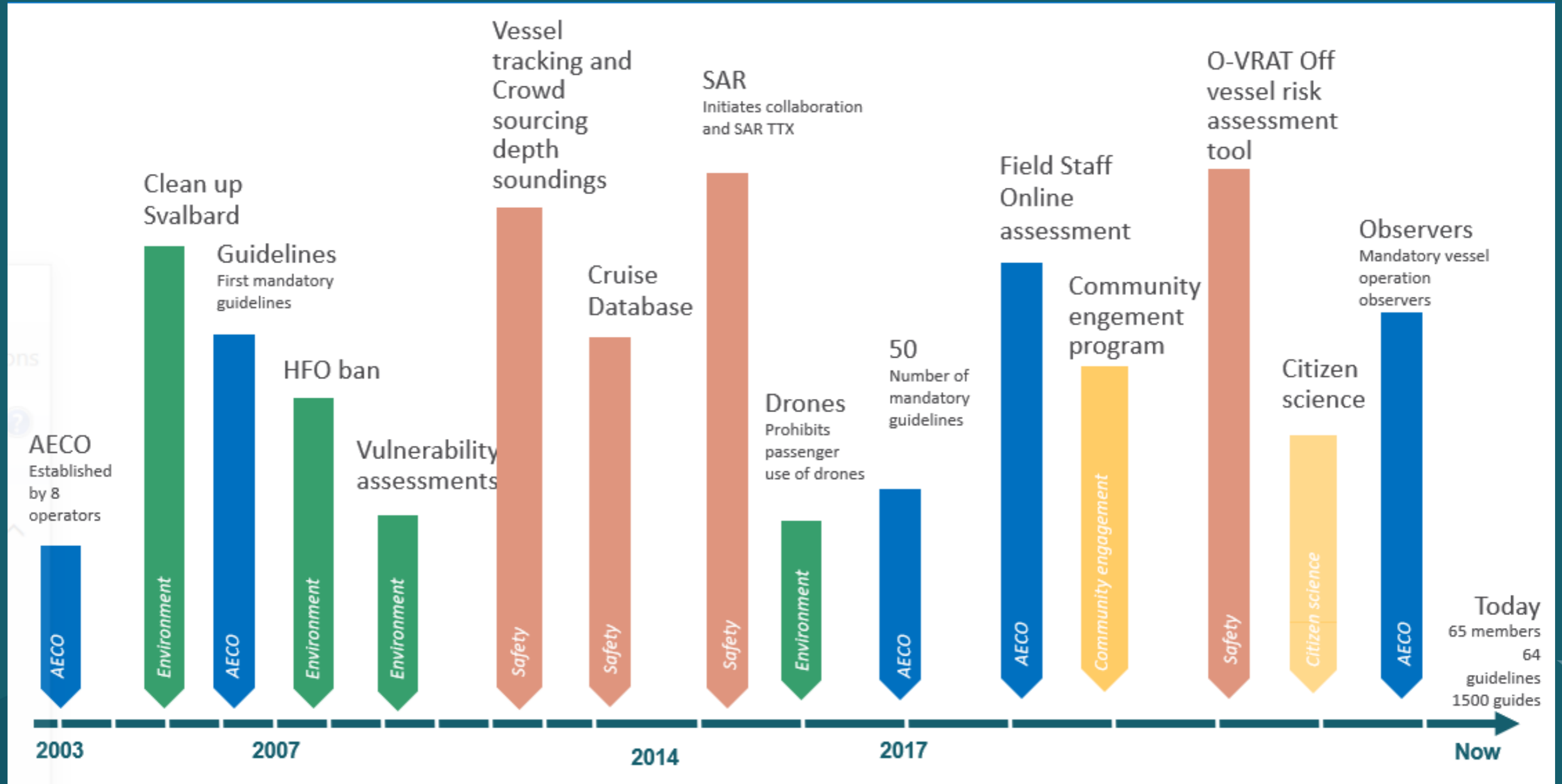
*Community engagement*

*New pillars, e.g. climate  
change, Citizen science*

2003

2030

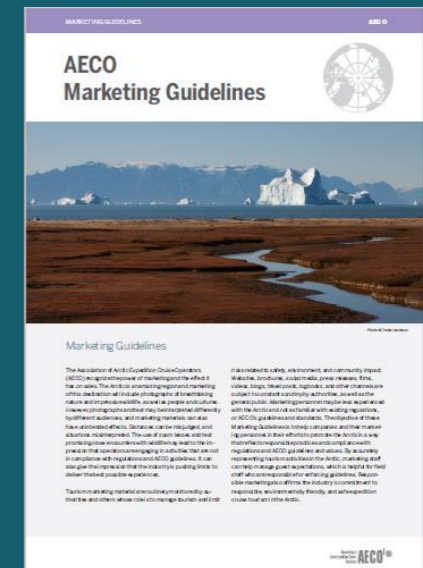




# AECO's guidelines

The backbone of AECO's work

- Operational Guidelines
- Visitor Guidelines
- Cleanup Guidelines
- Community Guidelines
- Biosecurity Guidelines
- Vegetation Guidelines
- Cultural Remains Guidelines



*“Active participation by tourists in authentic research and data collection could alter the tourist gaze by **providing a deeper understanding of the environment they are visiting** and a fuller sense of place.”*

*“the process of scientific data collection, can serve to enhance and deepen the visitor experience, such that **passengers could return home more aware of the discrepancy between their expectation of the Arctic as a place separate from human interference, and the reality of the Arctic as impacted by human activity.**”*

## Arctic expedition cruise tourism and citizen science: a vision for the future of polar tourism

Audrey R. Taylor, Pórný Barðadóttir, Sarah Auffret, Annette Bombosch, Allison Lee Cusick, Edda Falk and Amanda Lynnes

(Information about the authors can be found at the end of this article.)

### Abstract

**Purpose** – The purpose of this paper is to provide a conceptual framework for using citizen science – defined as a data collection method through which non-professionals engage in contributing to authentic scientific inquiry – within the expedition cruise industry to contribute significantly to the collection of environmental data from hard-to-access Arctic areas.

**Design/methodology/approach** – The authors review trends in Arctic expedition cruise tourism and current needs in Arctic research and monitoring, and clarify where the expedition cruise tourism industry could have the most impact by providing data to the scientific community. The authors also compare the regulatory context in the Antarctic to that in the Arctic and discuss how these differences could affect the widespread use of citizen science. At last, the authors describe some general principles for designing citizen science programs to be successful on board, and highlight several existing programs that are being recognized for their contributions to a greater scientific understanding of the Arctic.

**Findings** – The authors find that citizen science data from the expedition cruise industry are underutilized as a tool for monitoring Arctic change. Numerous examples illustrate how citizen science programs on-board expedition ships can successfully collect robust scientific data and contribute to enhancing the knowledge and stewardship capacity of cruise passengers. Inclusion of citizen science data from the expedition cruise industry should be considered a critical part of international Arctic observing networks and systems.

**Social implications** – Active participation in Arctic citizen science by tourists on expedition cruise ships has many potential benefits beyond the collection of high quality data, from increasing passengers' knowledge and understanding of the Arctic while on board, to affecting their attitudes and behaviors after they return home.

**Originality/value** – The potential for tourism to contribute to Arctic observing systems has been discussed previously in the scientific literature; the authors narrow the focus to citizen science programs in the expedition cruise industry, and provide concrete examples, in the hope that this will streamline acceptance



For scientists, citizen science offers a way to collect information that would otherwise be unaffordable and inaccessible.

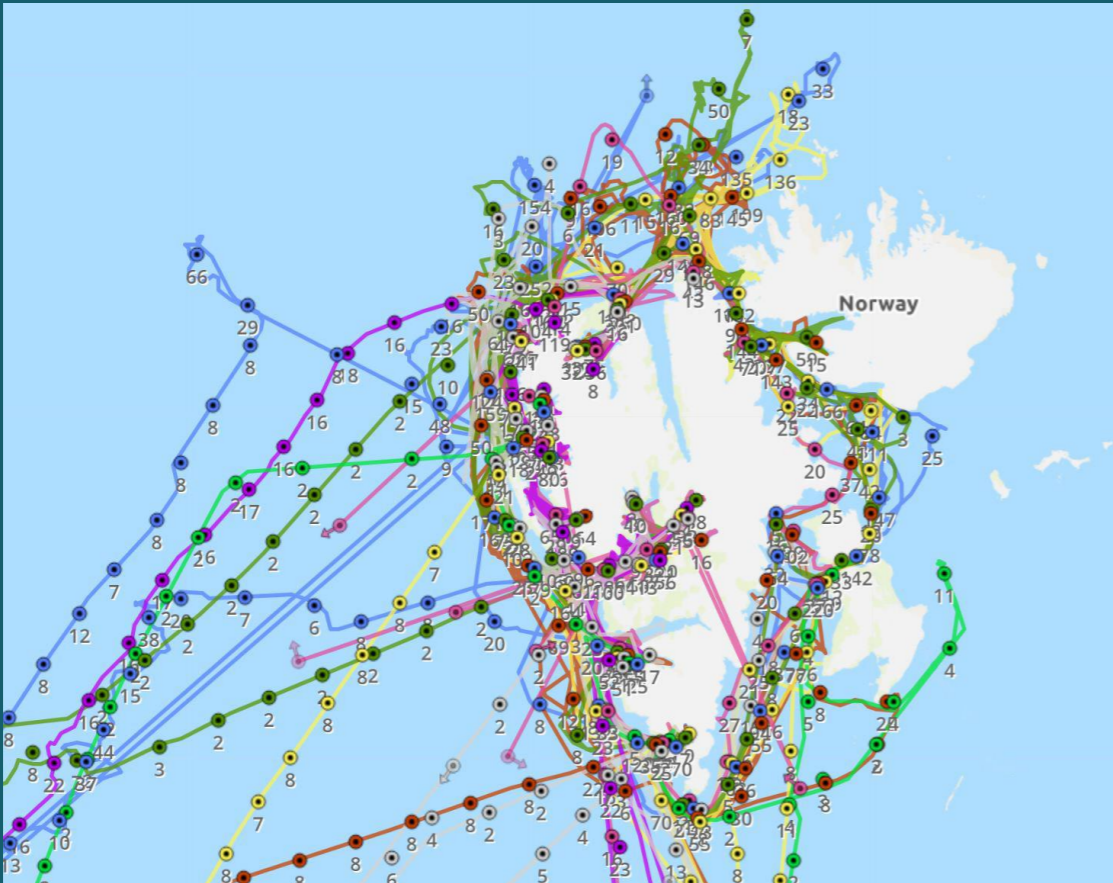
-Tulloch et al 2013

“ Builds a cooperative space for people to work together in research”

-Jarvis et al 2015



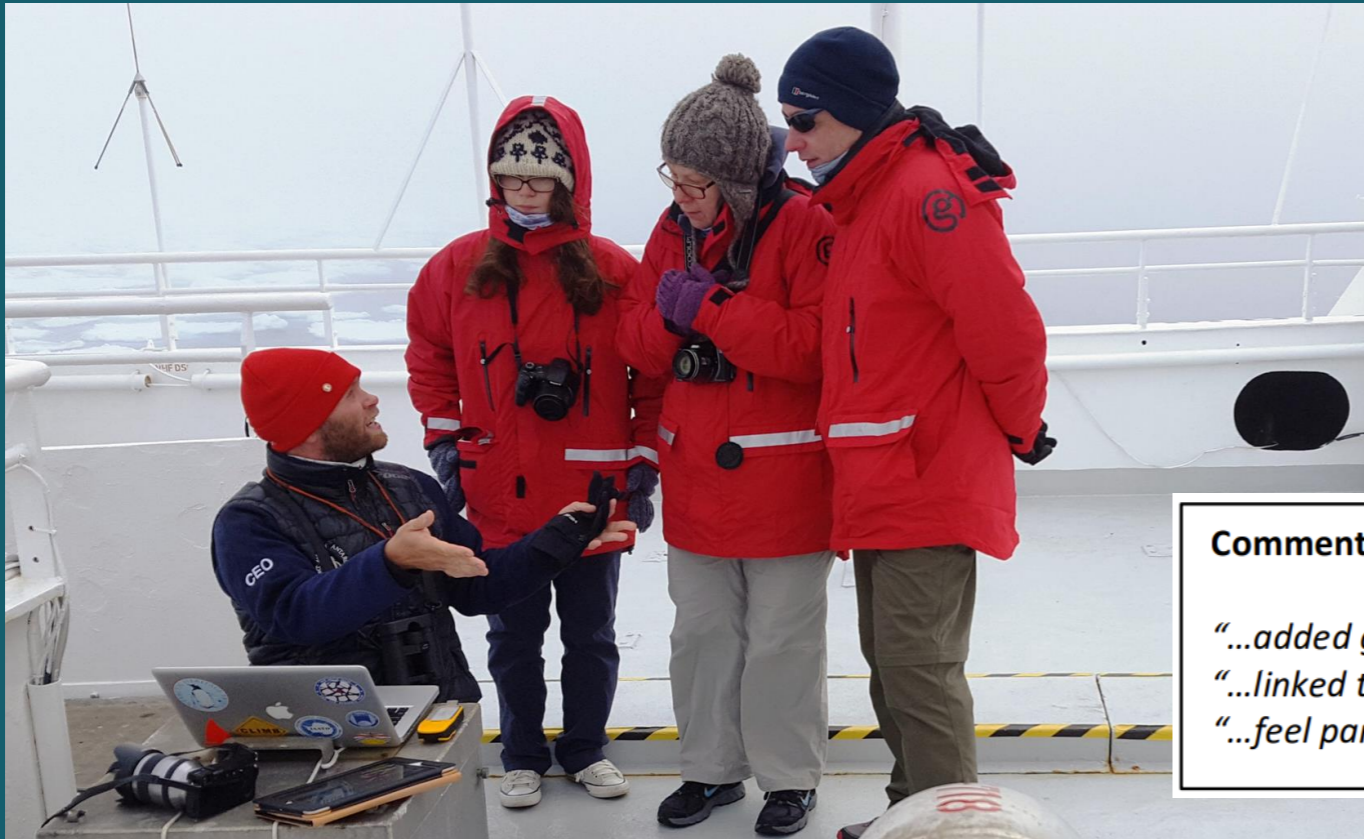
# Citizen Science



- Platforms of opportunity
- Climate changes are occurring most dramatically exactly where arctic expedition cruise tourism is most present
- Alleviate the high costs and complexities of accessing the Arctic
- Our members are frequently in remote areas, which are hard and expensive to get to

**Olex**

# Citizen Science



- Educates tourists and creates stewards/ambassadors of the environment

## Comments from the guests on board:

*"...added great value to the educational program on board"*

*"...linked the lectures to science projects"*

*"...feel part of something important, not just cruising"*

# Experience and education amongst guides

*A study from November 2021 – 513 respondents*

- 74% with four or more years of higher education
  - Majority nature studies, archeology and history
- 98% have finished first-aid training
- 47% have advanced first-aid training
- 77% have learned crisis management
- 40% have more than 10 years experience
- 88% have more than 2 years experience
- 44% have experience in research work



# Involvement in research



PERRINE GERAUDIE, Akvaplan-niva



PHOTO BY MELISSA NACKE, AECO



Established projects

Welcome external  
scientists on board

Collect samples or  
data for research  
institutions

# Citizen Science

AECO members are involved in:



+ Norwegian Polar Institute  
Marine Mammal Sightings  
+ NIVA FerryBox

# Citizen Science



- Users submit photos of marine mammal encounters
- Happywhale identifies the whales by their unique markings
- Happywhale tracks your whales around the globe
- State-of-the-art image processing algorithms to match whale photos with scientific collections
- 501,841 Photos submitted
- 199,478 Identified Encounters
- 80,614 Individuals identified



# On board

- Education is an integrated part of the expedition cruise product
- All AECO members have lectures on board
- Biology, botany, geology, glaciology, oceanography, ornithology



# On board

- Expedition cruising evolved from scientific expeditions
- Many of the newer vessels are equipped with science labs
- Increases the understanding
- Important to communicate the findings to the greater public



Andréenese, Kvitøya 2010



Meodden, Freemansundet 2008



Sallyhamna 2007



Crozierpynten – Sorgfjorden  
2008



# Types of involvement



Vessel



Guides and staff



Guests



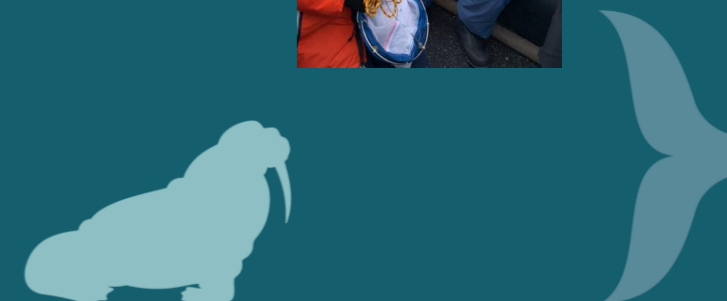
## How can AECO contribute?

- Open the door to AECO's operators
- Coordination between AECO operators
- Communicate to guests on board
- Promote projects
- Communicate results



## When do we get involved?

- Only certain projects are relevant for AECO
- Experimental design has to fit the scope and concept of the trip
- Researchers have lectures on board
- Results have to be valuable to and shared with the public
- Roles and responsibilities, managed expectations

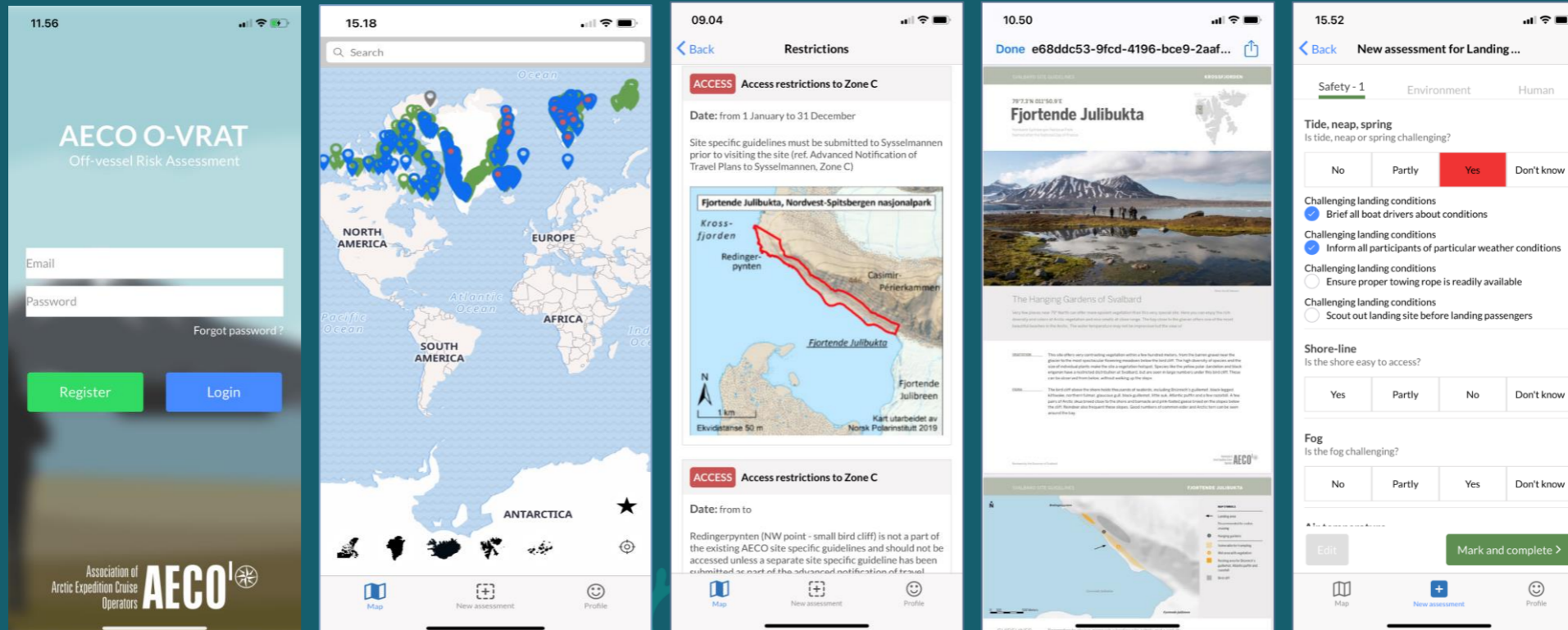


# Lessons learned

- Permitting
- Collecting physical samples
- Resources
- Interest from passenger



# Lessons learned from creating our own app







Association of  
Arctic Expedition Cruise  
Operators **AECO** 

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**[www.aeco.no](http://www.aeco.no)**

**f** @ArcticCruiseOperators

**t** @ArcticCruiseOp