



THE POLAR CITIZEN SCIENCE COLLECTIVE

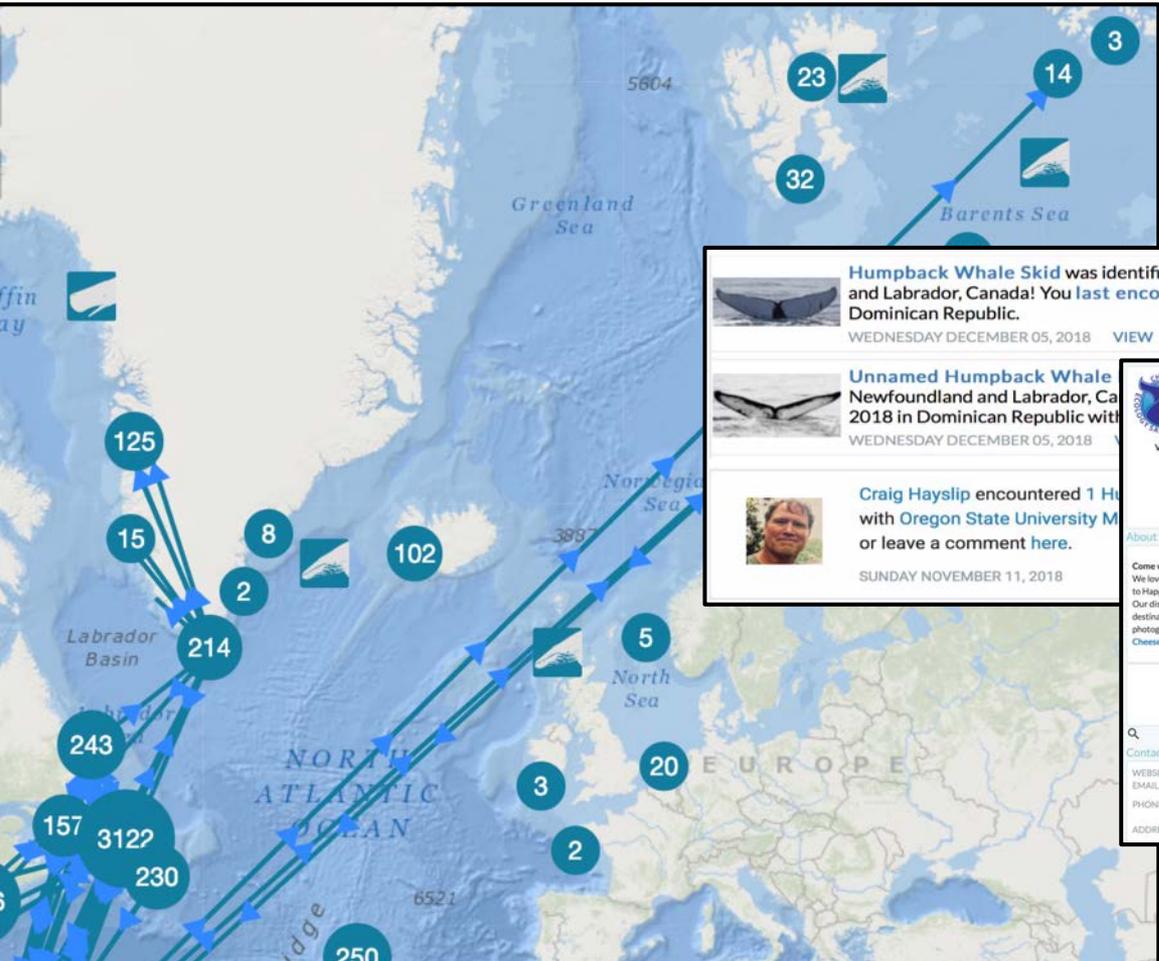
*Creating polar
ambassadors through
citizen science*



Phytoplankton Sampling



Individual marine mammal connectivity



feedback delivered to contributor

Humpback Whale Skid was identified in an encounter on Saturday June 09, 2012 in Newfoundland and Labrador, Canada! You last encountered this individual on Friday February 06, 2015 in Samaná, Dominican Republic.

WEDNESDAY DECEMBER 05, 2018 VIEW

Unnamed Humpback Whale Newfoundland and Labrador, Canada 2018 in Dominican Republic with...

WEDNESDAY DECEMBER 05, 2018

Craig Hayslip encountered 1 Humpback Whale with Oregon State University Marine Mammal Center or leave a comment here.

SUNDAY NOVEMBER 11, 2018

Cheesemans' Ecology Safaris
Los Gatos, California, United States

Voyages Encounters Individuals
74 538 386

Followers 6 Log My Trip Unfollow

About

Come watch whales and all wildlife with us! We love whales and are excited to contribute to Happywhale making citizen science fun! Our distinctive worldwide tours travel to destinations unique for abundant and photogenic wildlife and nature. Visit us at Cheesemans.com or call us at (800) 527-5330.

Total	Visible
32	Encounters 32
4	Individuals 4
2	Species 2

Contact

WEBSITE www.cheesemans.com
 EMAIL info@cheesemans.com
 PHONE 800-527-5330 or 408-741-5330
 ADDRESS 555 North Santa Cruz Ave, Los Gatos, CA 95030

Cheesemans' Ecology Safaris
Feb 18th - Mar 4th, 2019
VESSEL Akademik Ioffe

voyage tracks with geolocated encounters



IAATO is supporting Science

Travelling to Antarctica on board an IAATO vessel gives us operators as well as our guests the time, access and resources to participate in citizen science and to contribute valuable information to the scientific community for a better understanding and protection of the Southern Ocean and Antarctica.

What is citizen science and why should we participate?

Citizen science is scientific research conducted (in part) by non-professional scientists. It is a way to utilize the power of thousands of travelers around the globe to observe, record, and report on natural phenomena. This is particularly important in remote and difficult to access destinations, like the Southern Ocean and Antarctica. Research in these areas is extremely expensive and limited by its remoteness and seasonal accessibility. The scientific community studying these regions is therefore often facing data scarcity. The Antarctic Peninsula, which is the main operating area for the majority of operators, is also considered a hotspot of climate change, putting the polar tourism industry in a unique position: our expedition vessels make fantastic platforms for science. With extended access to these remote regions and expedition teams often equipped with research backgrounds, we have the potential to participate and engage our guests in citizen science projects and to provide valuable data to the scientific community.

By having guests participate in these programs and by using citizen science projects to educate guests about the Antarctic ecosystem, they gain a greater understanding of the region in which they travel. This heightened level of understanding can invoke the desire to become Antarctic Ambassadors, returning home to champion for the protection of one of our planet's most fragile ecosystems.

In the following pages you will find information gathered by the Polar Citizen Science Collective on how to run a successful citizen science program on board, as well as a selection of a multitude of projects from different disciplines that have been proven to work well on board. The Polar Citizen Science Collective www.polarcitizenscience.org is a non-profit that works collaboratively with the industry and the scientific community to develop and implement citizen science projects on board tour vessels.

Everyone is invited to participate – it is fun, engaging and educational. Let's make a difference together.

IMPORTANT NOTE: None of the projects listed in this document require special permitting, if you are considering a citizen science project that involves collection of any specimen, be sure to check special permitting requirements prior to initiating the program on board.

How to make citizen science successful on board

Citizen science works well when it is considered as an activity in the same way as kayaking or camping and incorporated into the company's program. It is recommended to assign one expedition staff member to act as "Citizen Science Coordinator/Science Nerd" for each cruise. His/her primary duties would be to:

- Oversee and coordinate the citizen science program;
- To discuss the project scheduling with the Expedition Leader;
- Assign "Project Leads" to the individual citizen science projects;
- Ensure data collection protocols are met and data are delivered to respective scientific partners; and
- Serve as the go-to expedition staff member for guests interested in participating.

Here are a few tips on how to make citizen science successful during your voyage:

- Consider an introductory power point presentation to introduce the citizen science program you offer on board (many projects listed in the following provide power point material).
- Consider creating a citizen science voyage plan; some projects are excellent for sea days, others for in the field, some are site specific, and some can be done throughout the entire voyage.
- Create a citizen science notice board, where you post information/flyers about each project (additionally other relevant information from the scientific community).
- Post citizen science activities in the daily program.
- Mention citizen science activities/findings at the daily recap.
- Invite guests to an end of trip citizen science recap where you summarize the projects you ran during the trip, show preliminary results, and discuss the concept of being an Antarctic Ambassador.
- Include citizen science information in the post-trip information package that guests receive, such as information about the projects you offered including important project websites, or about science projects guests can participate in when back at home (e.g. www.penguinwatch.org).

Project overview

In the following you will find a brief description of the various projects supported by IAATO and the Polar Citizen Science Collective. For detailed information about each project please refer to the downloadable resources provided via IAATO (specific links are mentioned in each project description).



Happywhale – Marine Mammal Photo Identification



Background

Happywhale <http://happywhale.com> is a platform for gathering marine mammal photos from citizen scientists from all over the world, saving the research community as a data source for photo identification (photo ID) studies of many whale and seal species. Photo ID has been used for decades by scientists, where unique individually identifiable markings on animals allow them to be tracked through time and space. Photographs from citizen scientists can become high value data if the images is of good quality and has a verifiably correct date and location. We are able to track individuals over lifetimes working with researchers and citizen scientists around the world. This helps scientists study important ecological questions, such as lifespan and survival, population health, migration patterns, and even social dynamics like family structure.

In the Southern Ocean, large whale species such as the blue, fin and humpback whale were hunted down to just a few thousand, for some species even a few hundred individuals by 20th century commercial whaling. Most commercial whaling ended in the 1980s and the great news is that the majority of whale populations are recovering. But science is starved for good data from Antarctic waters.

We have a unique opportunity to change this through collecting photos of species of interest during our voyages: humpback, blue, sei, fin, southern right whales, killer whales, rare whales, Weddell seals and leopard seals and submitting them to Happywhale. Images are then shared with scientific organizations engaged in photo ID studies. For humpback whales, Happywhale will attempt to identify your whales; the best part is that all contributors can follow individuals, like a social media platform for your favorite whales.

- Make sure cameras are set to Antarctic local date and time (ship's time) and use on-board GPS if available. Happywhale will use GPS data either directly from the camera or from the time stamp that is attached to the metadata of each photo to derive location (each IAATO vessel is continuously sending its position, so if the time stamp is right, Happywhale will know where the photo was taken).

Note for expedition staff: Remind guests to adjust camera times during South Georgia stops when time changes are occurring.

Participate?

Fun and very engaging throughout the entire trip (except if the underside of the whale is visible and you see the fluke/walrus, etc. See

CALENDAR



Training and equipment required

Participation is easy, requiring a decent quality camera/ smartphone and basic internet/navigation skills. No other training is required.

The equipment needed for this project includes

- Camera/smartphone with decent camera function

Expected results/feedback

Participating in science can be rewarding! Happywhale will notify every participant of what we find in their photographs, both by email notification and on the website <http://happywhale.com>. Notifications will tell contributors from NOAA's Southwest Fisheries Science Center what the sighting

but their animal is new to the database in the future. And that animal will get a special – finding mark – if the sighting has not been reported before. This mark will be assigned to years before – reminds experience and keeps the science, these studies the mammal population, feeding and responding skills and results <http://www.facebook.com/>

Make sure your company has its own Happywhale page. If not, contact Ted to have this set up. All sightings from your company will be connected to that page and you can then share this page with your guests. Non-photographing guests can participate as well, through "following" the voyage, or individual whales. Both options can be selected via the company's Happywhale website, to receive identification notifications.



Optional: Name a whale to fundraise and engage passengers! For high quality images of humpback whales sent by expedition staff, we try to keep a rapid feedback cycle, with notification within 48 hours from image submission to notification of a match found or confirmation that a whale is new to science. You may name an unnamed matched whale or a whale confirmed to be new to science if used in a fundraising context, such as the voyage auction following certain naming guidelines. If you are interested in naming a humpback whale, please contact Ted.

Scientific project partners

Data are shared with a wide collaboration of research groups, depending on species. A major goal of Happywhale is to make data available for sound management and protection of remote polar regions. By sharing your photos through Happywhale, you are contributing to these projects (see info about each project available via the resource material):

Antarctic Killer Whale Photo Identification Catalog

The Antarctic Peninsula may be home to the world's most diverse assemblage of killer whale ecotypes, possibly different species! Photos of the dorsal fin and saddle patch (the pale area just below and behind the dorsal fin) are requested by researchers Robert Pitman, John Durbin and Holly Fairbairn from NOAA's Southwest Fisheries Science Center to help understand pod structure and population health.

Antarctic Humpback Whale Catalog

Humpback Whales are showing a very strong recovery after the end of commercial whaling. Photos of the underside of the tail are requested to understand their population recovery and migration patterns. This research project at Abidul Wahid, College of the Atlantic, now spans more than two decades and has documented over 8000 individual whales.

WHALE-SWIM Project – Southern Right Whales in South Georgia

Southern Right Whales were one of the first whales hunted in the Southern Ocean whaling era, but we know very little about their recovery. Photos of the head, particularly viewed from above to show the "callosity" patterns are requested. The WHALE-SWIM project is the first ever survey of southern right whales in South Georgia waters, their primary feeding grounds.



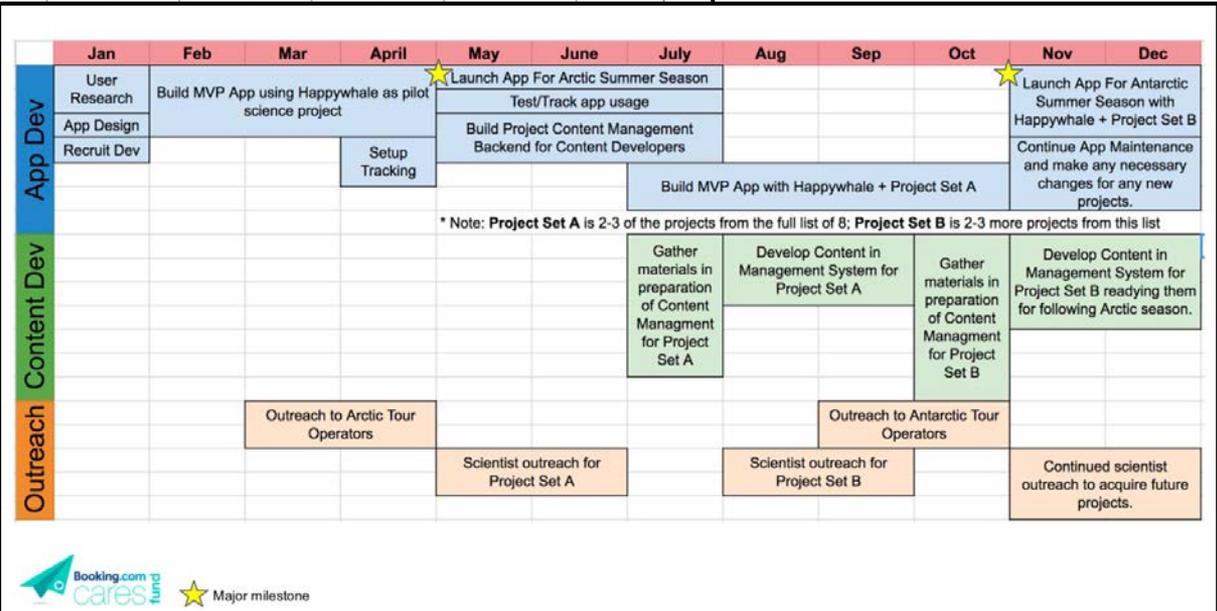
Please look out for right whales on your travels this season!



Polar Collective mobile app citizen science project implementation

The Polar Citizen Science Collective currently operates 8 projects that will be implemented into the app using common modular building blocks. This programming efficiency dramatically reduces development time and cost, and invites perpetual scalability

Project	Description	Modular app building blocks	Replace data sheets	Connect to existing app	Date/time/location tracking	User management	Outreach / follow-up engagement	Data sharing to global databases
Antarctic Travel Experience: Bucknell University	Pre-and post-trip traveler surveys studying the impact of the travel experience				X	X	X	
Bird Surveys: Stony Brook University	Counting seabirds during ocean crossings for population monitoring	X			X	X	X	eBird
FjordPhyto: Scripps Institution of Oceanography	Impact of increased glacial meltwater from climate change on phytoplankton	X			X	X	X	iNaturalist
Happywhale	Individual ID of whales worldwide							
Historic Site Inventory: UK Antarctic Heritage Trust	Monitoring status of remote Heroic Age historic sites	X						
Cloud Observation: NASA	Linking satellite overpass images with ground truthed atmosphere observations for climate modeling			X				
Sea Ice Observation: International Arctic Research Center	Measuring sea ice type and distribution to correlate with satellite observations	X						
Secchi Disk: Secchi Disk Foundation	Measuring plankton concentrations globally to understand ocean productivity			X				



roadmap and timeline





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Thank You!

