Smithsonian Environmental Research Center

PlateWatch

Issue 13

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"The ocean is everyone's back yard."

-Sylvia Earle

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A new site on the Alaskan Peninsula

In 2025 we welcomed a new site to Plate Watch. Chignik is a small village of about 80 people in the Peninsula Borough of Alaska, located roughly midway between Kodiak and Unalaska. Most inhabitants are Alutiiq. The community is surrounded by remote wilderness and has only recently been added as a cruise ship destination, so it is an important site to get background data from for the region. The first year of monitoring included the small boat harbor as well as the ferry dock. The good news—nothing suspicious was found so far! Thanks Jonny and Toby!

Photos top to bottom: Settlement plate from Chignik Boat Harbor (Jonny Singleton) showing polychaetes, bryozoans and barnacles that are likely native. Photo of the harbor (Pinterest).

Measuring Temperature-Why does it Matter?

2025 saw the 3rd highest global temperatures and the highest sea surface temperatures on record according to NOAA (Assessing the Global Temperature and Precipitation Analysis in 2025 | News | National Centers for Environmental Information (NCEI)). Nowhere is this being felt more than in Alaska where rates of warming are dramatically faster than in the lower 48. With this warming comes increased risk of invasion of potentially harmful marine species like the European green crab. By monitoring temperature at our sites, volunteers can help us track potentially important changes in local climatic conditions that can alter species distributions. Having this data can help us predict where species may appear in the future. Temperature loggers need only be put out once/year, retrieved and downloaded (if you have the equipment) or sent back to us at the end of each year. So please put out your temperature logger!!

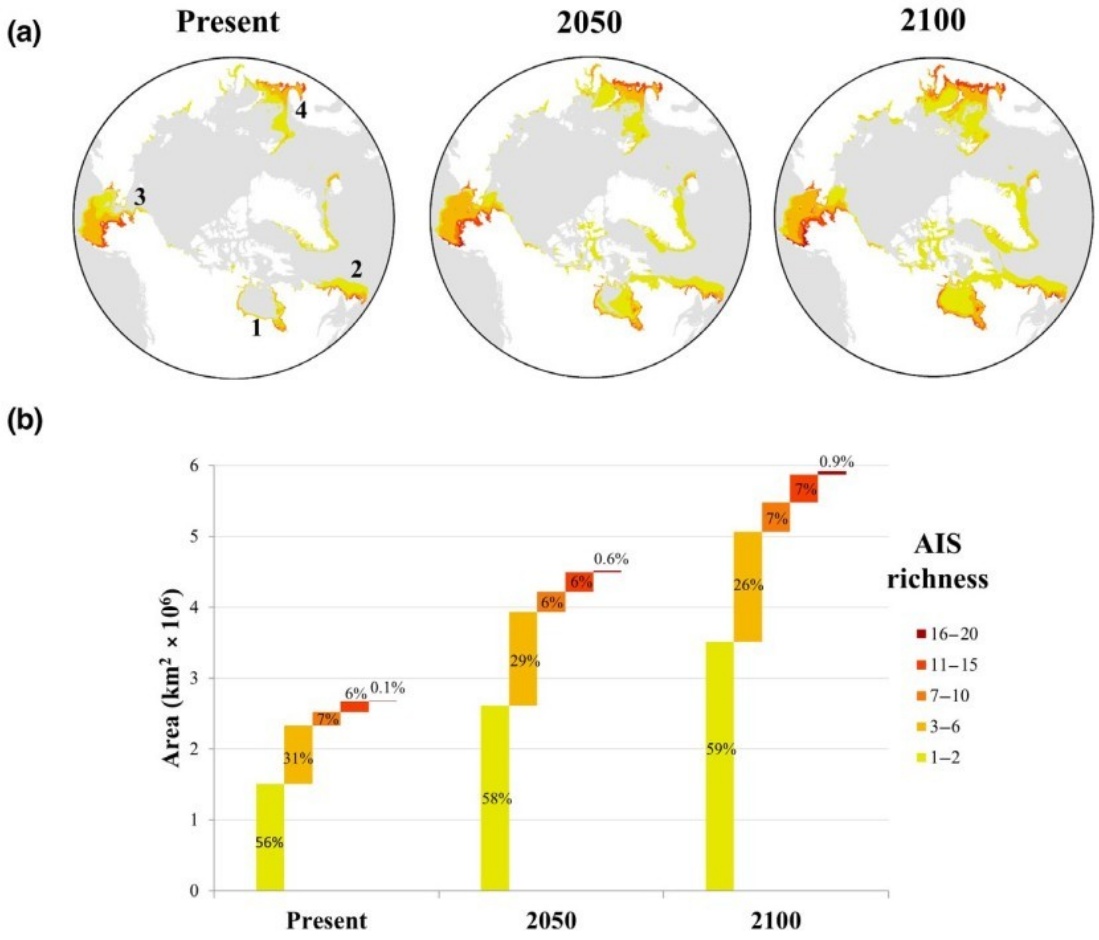
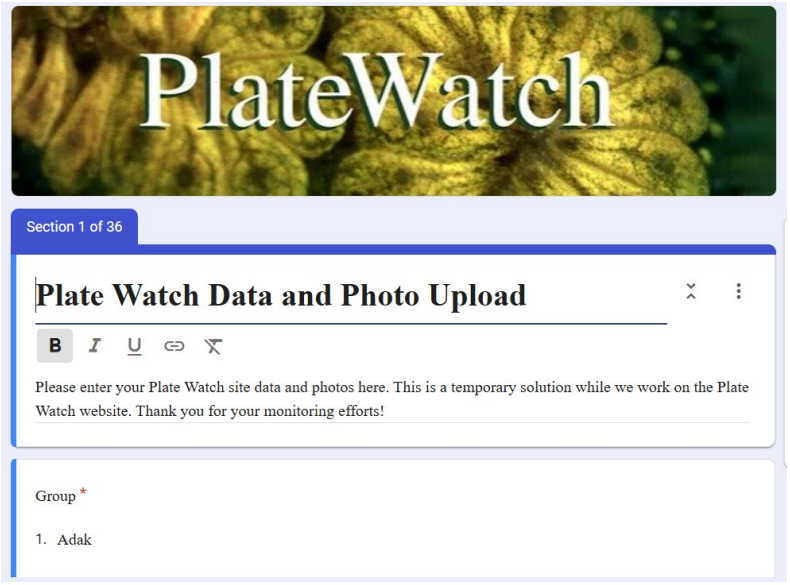


Figure 3 from Goldsmit et al. 2020. What and where? Predicting invasion hotspots in the Arctic marine realm. *Global Change Biology*. 27(9): 4752-4771. Predicted total aquatic invasive species (AIS) richness at an Arctic scale: (a) predicted hotspots of AIS richness for present and future (2050 and 2100) conditions in the Arctic (1, Hudson Bay; 2, Northern Grand Banks/Labrador; 3, Chukchi/Eastern Bering seas; 4, Barents and White seas). Colours represent the number of overlapping species with predicted suitable habitat in a given area; (b) predicted future extension of suitable habitat by area for each category (natural breaks Jenks) of AIS richness. Values shown in the bars are the net percentages of suitable habitat at each level of AIS richness within each projected time period.

Exploring New Frontiers for Plate Watch

Have you been struggling with data entry on the Plate Watch website? Unfortunately, it's old technology that we don't have the funding to update. But we feel your pain and are working to make data entry easier for everyone. This summer we will launch a google form that you can upload all of your data to, including your photos! And we'll take care of integrating it with the existing data on the website. Please give it a try. We would love your feedback!



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Some of you are very familiar with iNaturalist. It's a public website and app where you can upload your observations and find out about just about any living thing, plant or animal, in the natural world. Do you want to know what that crazy looking critter is on the public beach? Or on the bottom of your boat? Post a picture to iNaturalist and the world's expertise is at your finger tips. We are exploring having a Plate Watch project up on iNaturalist for our monitors. More on this coming soon.

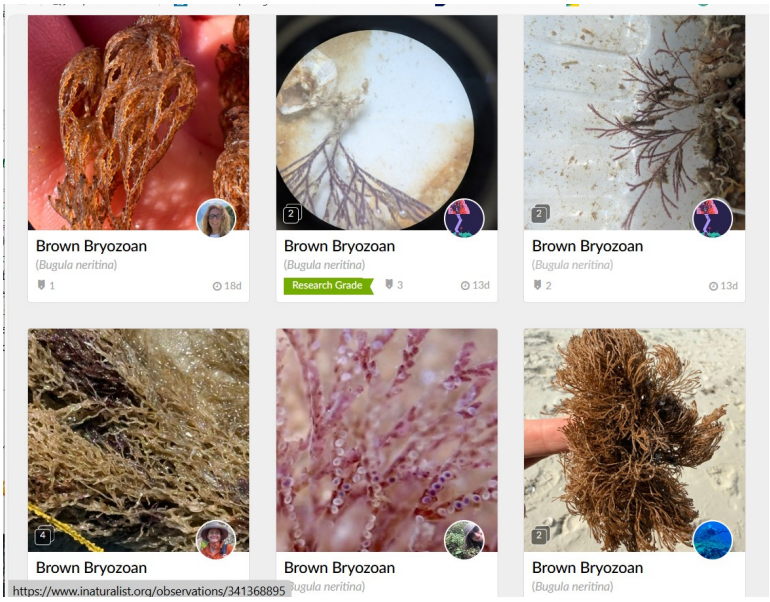

Photo: Example of recent photos uploaded to iNaturalist identified as *Bugula neritina*, one of the target non-native bryozoans we are on the look out for in Alaska. The species has been seen once in Ketchikan in 2016.

Environmental DNA (eDNA) Pilot and Workshop

As many of you know, in August of 2025 we held a workshop in Homer for Plate Watch Monitors. We were pleased that so many could attend (15). We truly appreciate all of our monitors for their ongoing interest, enthusiasm, and commitment to the program!

The workshop included review of Plate Watch protocols, non-native marine invertebrates via PowerPoint presentations and photos, along with hands on examination of living organisms from plates under the microscope. We also presented the basics of eDNA (environmental DNA) sampling and some of the methods currently in use. We went down to the docks and had everyone try out some of these eDNA water sampling methods themselves and give us feedback. The workshop also allowed monitors to meet each other, share ideas and compare experiences. Stay tuned, as the eDNA samples have been sequenced and we await the data analysis!

Photos left to right, top to bottom: Participants taking eDNA water samples from Homer Marina (Photo: Kristen Larson). Plate from Homer Harbor. The passive (PESCA) eDNA sampling device developed by Dr. Jessica Glass at the University of Alaska Fairbanks we tested. (Photos: Linda McCann)

Remembering Gary - Monitor Extraordinaire

In 2025 we lost one of our most dedicated, long term monitors—Gary Freitag. Gary has worked with Smithsonian researchers since the early 2000s when we first began monitoring for non-native

marine species in Alaska. Gary's curiosity and love of teaching and all things marine was inspiring. Wearing his infectious smile, he always had great ideas to improve any project. He helped us design a sled for sampling in the Arctic, a photo set up to monitor for predators on settlement plates, and was always willing to lend a hand. We miss you Gary!

Photo Top left to right: Gary shows off a Japanese soccer ball he found floating in a Ketchikan marina covered with offshore acorn barnacles for our Tsunami debris workshop. Photo of Gary in the lab during a comprehensive field survey (Biovision 2016: Photo Biovision team). Sampling in Ketchikan during a community biobitz in 2012 (Photo: Linda McCann)

Detection of Non-native Invertebrates in Kachemak Bay

SERC's Marine Invasions Research staff returned to Alaska in 2025 for another comprehensive sampling campaign, this time in Kachemak Bay A huge shout out to the many people in Kachemak Bay who assisted us with use of docks to hang plates, boat/ferry service, and lab and housing for the duration of our stay. (KBNERR, NOAA/Univ of Fairbanks Kasitsna Bay Lab, Captain Lucas McLeod to name a few).

We deployed plates at 10 sites and performed both morphological and genetic analyses per our usual protocols. While on site, we detected a few non-native species that had previously been found in the Bay, but preliminary results suggest no new non-native species! Work is ongoing to finalize specimen identification and we will have more details to report in the next newsletter.

In addition, colleagues in SERC's Coastal Disease Laboratory joined us for the beginning of our plate retrieval to conduct experiments to evaluate different types of sampling for environmental DNA (eDNA), including passive vs active filtration methods.

Photos: Retrieving plates and eDNA samplers on the Kasitsna Bay Lab dock. Middle and bottom right: eDNA passive samplers in the lab and deployed in the water next to plates. (First photos SERC staff, bottom right Olivia Pares)

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We're on the web at

http://platewatch.nisbase.org