**2019 ITAE Field Asset Overview**

*Pop-up Float*

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| --- | --- | --- | --- |
| **Principal Investigator** | Dr. Phyllis Stabeno | **Requesting Organization** | NOAA’s Pacific Marine Environmental Lab  Seattle, WA |
| **Mission Name** | Mooring Continuity | **No. of Assets** | 7 |
| **Duration** | July 2019- July 2020 | **Data Mission Days** | Up to 2 years |
| **Launch Location** | N/A | **Recovery Location** | Not applicable, no recovery |
| **OPAREA** | Bering Sea & Chukchi Sea | | |

Background

The Ecosystem Fisheries-Oceanography Coordinated Investigations program (EcoFOCI) has been collecting oceanographic measurements in the Bering Sea beginning in 1991 and in the Chukchi Sea in order to provide information about currents, nutrients, heat, sea ice cover and seasonal variability for an integrated long-term monitoring effort that contributes to climate forecasts and fisheries management. Moorings have been deployed at C2 in the Chukchi Sea beginning in 2010 and at M5 beginning in 2005. Pop-up floats are programmed to collect bottom data, profile data and under-ice data before transitioning to a surface drifter phase and sending all raw hexadecimal data logged back in short burst data (SBD) text messages. Pop-up floats were first developed as a prototype in 2016, and 5 floats were deployed each in 2017 and in 2018 in the Bering and Chukchi. The benefit of adding the Pop-up floats to the suite of instruments at the long-term monitoring sites include capturing profiles under the sea ice at times when surface moorings are absent. Deploying Pop-up floats near long-term sites provides continuity while expanding the mooring dataset’s temporal resolution; they are able to collect a full bottom-to-surface profile and send preliminary looks at bottom temperatures during the winter months in early spring for use in seasonal modeling and early predictions.

Mission Overview

Seven (n=7) Pop-up floats outfitted with pressure sensors, cameras, GPS, tilt accelerometers, PAR sensors and temperature sensors (possibly addition of fluorometer, TBD) will be built and calibrated at PMEL before loading aboard the R/V Ocean Starr in early July 2019 in Seattle, WA. Three (n=3) of the Pop-up floats will be deployed east of Saint Matthew’s Island, AK on leg 1 of the 2019 AIERP cruise as the ship makes its way north from Dutch Harbor, AK to the Chukchi Sea. Four (n=4) more will be deployed near C2 and C12 on the same Mooring-focused leg of the AIERP cruise. The three Saint Matthew’s Island Pop-up floats will be programmed to release on March 1st, 10th and 20th respectively in an attempt to capture bottom-to-surface profiles during the ice extent retreat in early spring. The four Chukchi Pop-up floats will be released to collect profiles from early to late April (dates TBD).

\*\*Exact deployment locations TBD/ East of Saint Matthew’s Island, AK near M5 and near C2 and 12 in the Chukchi Sea.

Objectives

* Load 7 Pop-ups on R/V Ocean Starr early July 2019
* Deploy 3 Pop-ups East of Saint Matthew’s Island, near M5 on leg 1 of R/V Ocean Starr AIERP cruise
* Deploy 2 near C2 in the Chukchi on AIERP
* Deploy 2 near C12 in the Chukchi on AIERP
* Pop-ups ideally timed to collect vertical profiles during ice retreat
* Late Spring/ summer 2019 data transmits back to PMEL, provides first look at conditions from the winter of 2019
* Continue receiving surface drifter data for up to 2 years, develop automated user interface for Pop-up database, have data included in the National Data Buoy Center and NWS sea surface measurement input, integrate satellite remote sensing data.

Sensor Table

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| --- | --- | --- |
| **S/N** | **INSTRUMENTATION** | **Total Units Required** |
| Pop-up S/N 201, 202, 203, 204, 205, 206, 207 | Temp + PAR + Camera + (Fluorometer?) | 7 |

Acknowledgements

Programs:

Innovative Technology for Arctic Exploration (ITAE)

Distributed Biological Observatory (DBO)

NOAA’s Arctic Integrated Ecosystem Research Program (AIERP)

NOAA’s Ecosystem-Fisheries Oceanography Coordinated Investigations (EcoFOCI)

R/V Ocean Starr

Personnel:

Steven Anderson

Shaun Bell

Eugene Burger

Sarah Donohoe

Dan Langis

John Shanley

Dirk Tagawa

Alex Turpin

Tom Walton

Willa Zhu

Map

\*\*Exact deployment locations TBD/ East of Saint Matthew’s Island, AK near M5 and near C2 and 12 in the Chukchi Sea.

(As available, **only as an attachment in an email to heather.tabisola@noaa.gov**, please provide a map of your operating region, or planned cruise track in both of the following formats;

* PNG
* Excel or CSV file(s) of Lat/Longs in degrees decimal minutes AND decimal degrees)