ATTACHMENT C ***EVOSTC Annual Project Report Form***

Form Rev. 10.3.14

1. Program Number: *See*, Reporting Policy at III (C) (1).

13120114-J

2. Project Title: *See*, Reporting Policy at III (C) (2).

Long term monitoring: Environmental drivers component - The Seward Line: Marine Ecosystem monitoring in the Northern Gulf of Alaska.

3. Principal Investigator(s) Names: *See*, Reporting Policy at III (C) (3).

Russell R Hopcroft

4. Time Period Covered by the Report: *See*, Reporting Policy at III (C) (4).

February 1, 2014-January 31, 2015

5. Date of Report: *See*, Reporting Policy at III (C) (5).

Feb 4, 2015

6. Project Website (if applicable): *See*, Reporting Policy at III (C) (6).

www.gulfwatchalaska.org and http://www.ims.uaf.edu/gak1/https://www.sfos.uaf.edu/sewardline/

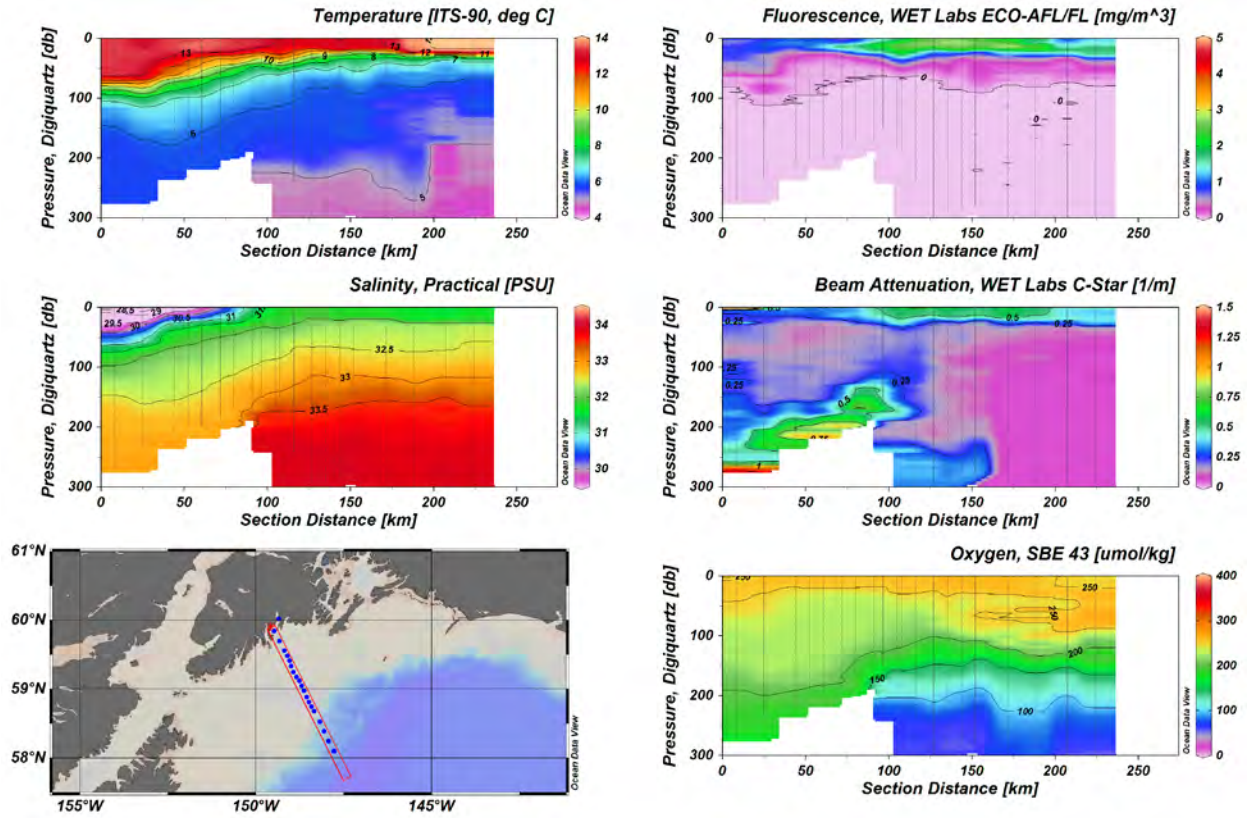
7. Summary of Work Performed: *See*, Reporting Policy at III (C) (7).

This project revolves around executing multidisciplinary oceanographic cruises along the Seward Line and in PWS each May and September. The objectives that are met each cruise are:

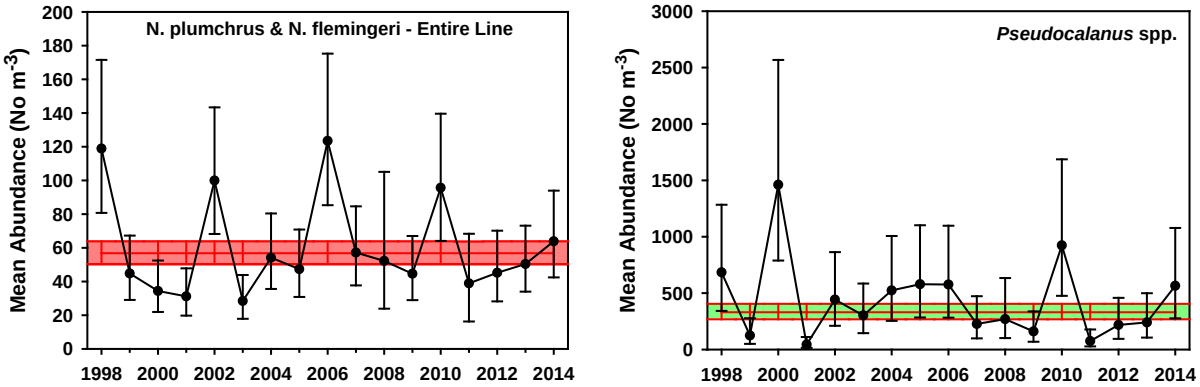
- Determine thermohaline, velocity, and nutrient structure of the Seward Line across the Gulf of Alaska shelf, and at stations throughout PWS
- Determine phytoplankton biomass and size distribution (chlorophyll)
- Determine the distribution and abundance of micro-zooplankton (starting in 2014)
- Determine the distribution and abundance of meta-zooplankton
- Opportunistically, determine rates of growth and egg production of selected key zooplankton species .
- Support determination of carbonate chemistry (i.e. ocean acidification)
- Determine distribution and composition of seabirds (& marine mammals) along the Seward Line, PWS and Kenai coastline
- Provide at-sea experience for graduate students within the University of Alaska

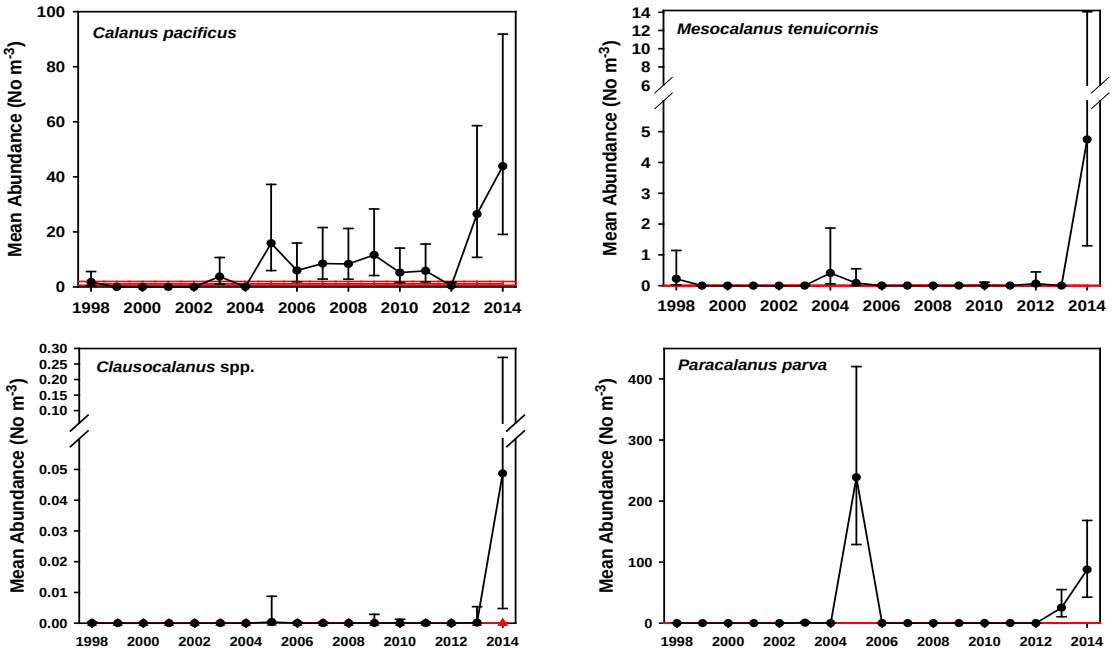
Deliverable/Milestone	Status
Execute May 2014 cruise	Completed
Execute September 2015 cruise	Completed
Attend PI meeting and AMSS to present results	Completed

The fall 2014 cruise was conducted during one of the largest warm-water anomalies observed in the North Pacific during the past 50 years. Unusually warm surface waters were observed at GAK 12 & 13 (14.3°C), as well as >13°C within most of the Alaska Coastal Current waters extending as deep as 40m! (below) Our average upper-100m temperatures for the inner GAK stations were 2.1-2.6°C above the mean for those stations, and 0.6-1.06°C at the offshore end. This made the entire line the warmest on record: 0.5°C above the next-warmest and 1.06°C above the long-term September mean. Usual weather patterns the prior winter, a weak El Nino, and a shift in the sign of the PDO all contributed to this unique situation that will likely impact 2015 as temperatures in the GoA remain nearly 2°C above normal.



Although zooplankton composition appeared typical during the May cruise (see below), by September significant numbers of southern (i.e. California Current) copepods were detected along the Seward Line. In most cases, although their abundances were low compared to the entire copepod community, they were the highest observed over the 18 years of observations along the Seward Line.





In 2014, the Seward Line provided the logistical foundation for NOAA deploying gliders and Wave-riders during May in the projects operational area, and recovering them in September, that are providing a wealth of information on physical and chemical oceanography (OA) at no cost to the project

8. Coordination/Collaboration: *See*, Reporting Policy at III (C) (8).

8.A.:

- Dr. Hopcroft interacts with other PIs within Environmental drivers on a regular basis
- Dr. Hopcroft serves on the Gulf Watch Alaska Science Coordination committee

8.C.:

- Dr. Hopcroft is involved in other major activities in the Gulf funded by NRPB and NOAA

9. Information and Data Transfer: *See*, Reporting Policy at III (C) (9).

- 2013 datasets delivered to workspace, 2014 draft CTD data placed on workspace immediately after each cruise
- Presentations related to Seward Lime wer made at AMSS, and Ocean Science meeting in Hawaii
- Four publication arising from Seward Line sampling are in review for a special issue on the Gulf of Alaska

10. Response to EVOSTC Review, Recommendations and Comments: *See*, Reporting Policy at III (C) (10).

There were no recommendations for this project.

11. Budget: *See*, Reporting Policy at III (C) (11).

Attached – no deviations from proposed.

ATTACHMENT C ***EVOSTC Annual Project Report Form***

Form Rev. 10.3.14

1. Program Number: *See*, Reporting Policy at III (C) (1).

13120114-K

2. Project Title: *See*, Reporting Policy at III (C) (2).

Long-term Monitoring: Pelagic Monitoring Component - Continuing the Legacy: Prince William Sound Marine Bird Population Trends

3. Principal Investigator(s) Names: *See*, Reporting Policy at III (C) (3).

David Irons, Kathy Kuletz, and Robb Kaler

4. Time Period Covered by the Report: *See*, Reporting Policy at III (C) (4).

1 February 2014- 31 January 2015

5. Date of Report: *See*, Reporting Policy at III (C) (5).

24 February 2015

6. Project Website (if applicable): *See*, Reporting Policy at III (C) (6).

www.gulfwatchalaska.org

7. Summary of Work Performed: *See*, Reporting Policy at III (C) (7).

We successfully completed our planned Prince William Sound (PWS) marine bird survey, conducted 30 June to 27 July 2014. Prior to beginning the field season, a project leader (Kaler), two boat operators, and six observers were hired. We arranged field logistics, contractual agreements, and prepared four 25-foot survey vessels and the necessary field and boat equipment. Following three days of observer and boat captain training in Whittier, Alaska, we collected information on marine bird and mammal observation 3-26 July.

Despite several mechanical and electrical issues with the survey fleet, most of which have been in service for >30 years, we safely and successfully completed the entire survey, which includes over 2000 linear kilometers of coastal and pelagic waters. We are completing post-season data quality and assurance checks and will begin preliminary analysis by March 2015. Using the statistical methods described in our project plan, and following additional analyses developed by Dan Cushing during his graduate research using the 1989 to 2012 data set, we will generate abundance estimates for the group of marine bird taxa described in the plan, as well as look at community-wide changes in marine birds of PWS.

Deliverable/Milestone	Status
Hire Project Leader/co-Principle Investigator to oversee 2014 survey	Completed March 2014

Hire and train two motor boat operators	Completed May 2014
Collect PWS marine bird data	Completed July 2014
Gulf Watch PI annual meeting, AOOS office	Attended November 2014
Gulf Watch PI, AMSS meeting	Attended (Kuletz) January 2015
Data management, QA/QC	In progress, to be completed by March 2015
Data analysis, 2014 abundance estimates	In progress, to be completed by May 2015
Boat maintenance and repair	In progress, to be completed by September 2015

8. Coordination/Collaboration: *See*, Reporting Policy at III (C) (8).

8A: Collaboration and coordination both within the pelagic program and between the two programs

- Kathy Kuletz, David Irons, and Robb Kaler have been participating in discussions and meetings on opportunities to integrate the pelagic components of the Long-Term Monitoring effort.
- Kathy Kuletz and Mary Ann Bishop (PWS Science Center) continue to collaborate on marine bird surveys from November to March, in conjunction with the Herring Project and the whale surveys.
- Collaboration within the pelagic program (forage fish, humpback whale, killer whale, and marine bird) and between the pelagic and herring programs continued. In particular, we have been in discussions about potential study designs for areas where whales and seabirds were found to overlap in time and space.

8B: Collaboration and coordination with other EVOSTC funded projects

- Marine bird data collected near the Naked Island group during the Sound-wide PWS marine bird surveys will be used to help evaluate the pigeon guillemot restoration effort there.

8C: Coordination with trust agencies

- Kathy Kuletz completed a third season of marine bird and mammal surveys in Lower Cook Inlet in cooperation with NOAA and the Kachemak Bay Research Reserve. The survey contributes to the long-term Gulf Watch Alaska monitoring project and provides information on the marine regions affected by the Exxon Valdez oil spill. The marine bird component of the Lower Cook Inlet project was funded in 2014 and 2015 via an inter-agency agreement (IA) between Bureau of Ocean Energy Management (BOEM) and USFWS/MBM. As part of this IA, the USFWS will be collating historic data and providing BOEM with potential sampling plans for more extensive examinations of marine bird trends in the region.
- Kathy Kuletz received a grant from the North Pacific Research Board (NPRB) to conduct marine bird and mammal surveys as part of the long-term monitoring program for the northern Gulf of Alaska (a.k.a. the 'Seward Line'), which is part of the multi-agency, UAF, and NPRB 'Gulf Watch Alaska' Program.
- The marine bird surveys all use the same survey protocol, data processing, and archiving (for use in the North Pacific Pelagic Seabird Database). Thus, the marine bird survey data from the Sound-wide PWS July surveys, the winter PWS surveys, the Seward Line surveys, and the

Lower Cook Inlet surveys will be comparable across projects, allowing regional comparisons and broad-scale analyses.

9. Information and Data Transfer: *See,* Reporting Policy at III (C) (9).

- 2012 PWS marine bird survey data were uploaded to the Ocean Workspace in January 2014.
- November 2014, Kathy Kuletz, David Irons, Dan Cushing, and Robb Kaler participated in Gulf Watch PI Meeting.
- January 2015, Kathy Kuletz participated in Gulf Watch PI Meeting.
- Thesis completed: Cushing, D. 2014. Patterns of distribution, abundance, and change over time in the marine bird community of Prince William Sound, Alaska, 1989-2012. Oregon State University thesis (send requests to: daniel.cushing[at]oregonstate.edu).
- Cushing, D., D. Roby, and D. Irons. 2015. Pattern of change over 23 years in the marine bird community of Prince William Sound. *Oral presentation* at the Willamette Valley Bird Symposium, 24 January 2015.
- Cushing, D., D. Roby, and D. Irons. 2015. Temporal changes in a subarctic marine bird community that experienced simultaneous effects of a major oil spill and climate variability. *Oral presentation* at the 42nd annual meeting of the Pacific Seabird Group, 19-21 February 2015, in San Jose, CA.

10. Response to EVOSTC Review, Recommendations and Comments: *See,* Reporting Policy at III (C) (10).

We are making the suggested edits as provided for our sampling protocol. A final revised protocol will be completed by April 2015.

11. Budget: *See,* Reporting Policy at III (C) (11).

The actual cumulative totals deviate over or under 10% for most budget categories. Specifically, for Personnel, costs deviate outside of the 10% proposed budget because we have been fortunate to have several excellent volunteers return each survey year, which has reduced overall personnel costs. Travel and Contractual deviates > than 10% of the proposed budget because we have been unable to locate vendors willing to contract with the FWS for housing resulting in payment for housing using government credit cards (and thus treated as 'travel') rather than contractual agreements. Additionally, we have not been able to find an adequate charter vessel that can accommodate our fuel needs which has also reduced our Contractual obligations and increased our 'travel' costs. Equipment deviated >10% of the proposed budget owing to greater than expected maintenance and repair of our survey fleet. Commodities are within 10% of the proposed budget. Overall, despite these deviations, we will be at or under the Total Proposed amount for this project.

Budget Category:	Proposed FY 12	Proposed FY 13	Proposed FY 14	Proposed FY 15	Proposed FY 16	TOTAL PROPOSED	Actual Cumulative
Personnel	$28.8	$35.3	$68.8	$71.8	$75.1	$279.7	$130.0
Travel	$2.5	$2.6	$1.4	$1.5	$1.6	$9.5	$7.3
Contractual	$49.0	$3.0	$1.5	$1.5	$1.5	$56.5	$7.0
Commodities	$1.2	$3.0	$2.1	$1.5	$0.9	$8.7	$8.5
Equipment	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Indirect Costs (will vary by proposer)	$8.6	$11.0	$18.4	$19.1	$19.8	$76.9	$38.2
SUBTOTAL	$90.0	$54.9	$92.2	$95.4	$98.8	$431.4	$191.1
General Administration (9% of subtotal)	$8.1	$4.9	$8.3	$8.6	$8.9	$38.8	$17.2
PROJECT TOTAL	$98.1	$59.9	$100.5	$104.0	$107.7	$470.2	$208.3
Other Resources (Cost Share Funds)	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	

COMMENTS:

FY12-16

Program Title: 15120114-J Seward Line
Team Leader: R. Hopcroft

FORM 3A
NON-TRUSTEE AGENCY
SUMMARY