

Bering Sea Integrated Ecosystem Research Project: Semiannual Progress Report

Please Note: Semiannual Progress Reports are due on October 1 or April 1 (whichever comes first) after the contract start date, and then every semester thereafter until the contract is completed. If the first report comes due before substantial progress has been made, please just note that in your initial report. If progress reports are delinquent, current and subsequent invoices will not be paid until programmatic requirements are met. Note that this report will be posted on the Board's BSIERP web site and is what Board members, the Science and Advisory Panels, other researchers and the public will see as representational of your research and its quality.

Email electronic copy to tvanpelt@nprb.org using **this subject line format:**
BSIERP Project XXX Progress Report
If you have questions, please contact Thomas Van Pelt at (907) 644-6715 or tvanpelt@nprb.org

Project #: B65

Title: Seabird Colony-based Studies, 04.37

Principal Investigator(s) and Recipient Organization(s): (Include email contact information)

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Contract Period and Amount of Funding:

1 October 2007 to 30 September 2009
\$224,724

Report Period:

1 October 2008 to 31 March 2009

Report Date:

1 April 2009

Lead Author of Report:

Heather Renner

Proposed timeline and milestones within report period:

<i>What</i>	<i>Who</i>	<i>Start (2009)</i>	<i>Other key dates</i>
Plan studies, including liaison with other BSIERP collaborators	Irons, Kitaysky, Kuletz, Roby	February	During Alaska Marine Science Conference
Select seasonal biologists for St. Paul and St. George	Renner	March	Annually 2009-2010
Secure housing for seasonal biologists in the Pribilofs	AMNWR staff	March	Annually 2009-2010
Summarize available data	field biologists	October	Annually 2009-2010
Supply data to data manager	Renner	November	Annually

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Project Summary: The goal of this project is to determine the effects of inter-annual variations in environmental conditions and prey availability on diet composition, body condition and adult survival of breeding Black-legged Kittiwake and Thick-billed Murre on St. Paul and St. George Islands in the Pribilof Islands.

This project addresses the following BSIERP hypotheses:

2b: Reduced cold pool extent will increase overlap of inner domain forage fish and outer domain piscivores.

2d: Sporadic reversals to cold conditions (e.g., 1999) will have strong effects on the sub arctic community and result in increased inter-annual variability in abundance and pelagic productivity of piscivorous fish, seabirds and marine mammals.

3a: Competition with abundant, piscivorous fish species for forage species will lead to a decline in murre, kittiwakes and fur seals.

3b: Growing populations of humpback and fin whales increasingly will both consume and compete with forage fish (juvenile pollock) for zooplankton (euphausiids and copepods). By reducing the prey base of forage fish, whales not only reduce the amount of forage fish available to other predators, but also their quality (lipid content).

3c: In a top-down control community, fishing will reduce the degree of top-down control of forage species (including juvenile pollock) by adult pollock, cod and arrowtooth flounder. Owing to light exploitation rates, top-down control by arrowtooth flounder will increase, as will their level of competition with piscivorous fish, seabirds and marine mammals. As a result of these two processes, arrowtooth flounder will determine ultimate community composition, such that the climax community will be arrowtooth flounder-dominated (similar to the Gulf of Alaska).

4a: Climate-ocean changes will displace predictably located, abundant prey (hot spots) necessary for successful foraging by central place (seabirds and fur seals while nurturing young) and hot spot (baleen whales, walrus) foragers.

4b: Central place foragers will shift their diet, foraging locations or rookery locations to increase foraging opportunities (based on differential foraging success).

Progress Summary:

All planned milestones have been met. Diet sample data were received from the contractor in January immediately prior to the Alaska Marine Science Symposium. While the other monitoring data were provided to the data manager in the fall, the diet data require more processing which will take more time. Field crews have been hired, protocols amended, supplies ordered and housing secured for 2009. We attended several collaborative meetings at the Marine Science Symposium as well as the October PI meeting. We have a planning meeting scheduled with our field crew and the telemetry crew in April.

Lessons learned and project adjustments:

This reporting period has been mostly planning rather than field work, so we have little to report here. Our major adjustment relates to in-field collaboration with the other seabird crews – we have agreed that the Refuge crew person will work more opportunistically with both of the other seabird crews rather than quite as closely with the telemetry crew. This should facilitate us targeting diet sample collection more towards times when birds are returning to the colony rather than focusing on birds being recaptured for device removal.

Integration activity:

Field data and metadata were provided to the BSIERP data manager in September 2008. We have participated in meetings or alternate communications with Franz Mueter and Will Satterthwaite to work on model development. We participated in the PI meetings at Girdwood in October and Anchorage in

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January. We are collaborating with Sasha Kitaysky and the other seabird PI's to get stable isotope analyses done on the fish species collected in the diet samples.

Education and Outreach: Byrd gave a presentation on seabird aspects of BSIERP at the Pribilof Collaborative meeting in Anchorage in January. Also, data from our project were included in Rosana Parades' poster at the Alaska Marine Science Symposium.

Next year's Work plan (not part of the 5 page target length):

BSIERP B65 Seabird Colony-based Studies Pribilof Islands, Vernon Byrd, vernon_byrd@fws.gov, 907-235-6546

2009-2012 Tasks, Assignments, Timeline

<i>What</i>	<i>Who</i>	<i>Start (2009)</i>	<i>Other key dates</i>
Plan studies, including liaison with other BSIERP collaborators	Irons, Kitaysky, Kuletz, Roby	February	During Alaska Marine Science Conference
Select seasonal biologists for St. Paul and St. George	Renner	February - March	Annually 2009-2010
Secure housing for seasonal biologists in the Pribilofs	AMNWR staff	January - March	Annually 2009-2010
Revise detailed protocols for data collection and order needed equipment and supplies	Renner, other AMNWR staff	March-April	Annually 2009-2010
Have protocols reviewed by other seabird colony team members	Renner, Irons, Kitaysky, Roby	April	Review annually as needed
Coordinate field approaches to avoid conflicts	Renner, Irons, Kitaysky, Roby	April	Review annually as needed
Make a preliminary trip to the Pribilofs to confirm housing, select study areas, and inform local people of planned work	Byrd	April	As needed 2009-2010
Initiate contracts for prey remains identification	Byrd, Kuletz	April	Annually
Train field personnel	Renner	June	June each year 2009-2010
Conduct field studies	seasonal field biologists	June-September	Complete field studies in early September
Send diet and blood samples to contractor	Renner, field biologists	September	Expect annual results by end of year 2009-2010
Summarize available data	Renner, field biologists	October	Annually 2009-2010
Supply data to data manager	Renner	November	Annually
Complete NPRB progress reports	Renner	September, March	Semi-annually 2009-2012
Report to communities of St. Paul and St. George	Byrd or Renner, AMNWR staff	TBD	Annually 2009-2012
Complete publications	Collaborative among various PIs	January 2011	Continue thru 2012