SCIENTIFIC RESEARCH AND COLLECTING PERMIT

Grants permission in accordance with the attached general and special conditions

United States Department of the Interior
National Park Service
Glacier Bay

Study#: GLBA-00226
Permit#: GLBA-2014-SCI-0016
Start Date: Jan 01, 2014
Expiration Date: Dec 31, 2018
Coop Agreement#:
Optional Park Code:

Name of principal investigator:
Name: Mr Lewis Sharman **Phone:**(907)697-2623 **Email:**lewis_sharman@nps.gov

Name of institution represented:
National Park Service

Co-Investigators:

Name: Michael Bower	**Phone:** 907-364-2621	**Email:** michael_bower@nps.gov
Name: Bill Johnson	**Phone:** 907-364-2624	**Email:** bill_johnson@nps.gov
Name: Chris Sergeant	**Phone:** 907-364-1591	**Email:** christopher_sergeant@nps.gov

Study Title:
Long-term Oceanographic Monitoring, Glacier Bay National Park and Preserve

Purpose of study:
Regular collection of physical oceanographic parameters has taken place in Glacier Bay since 1993. Over time, the frequency of measurements has occasionally been amended, and staff have turned over. But a solid continuous data series has been accumulated using consistent methods, locations, and equipment. All data, protocols, and reports are available for direct downloading from the NPS Southeast Alaska Inventory and Monitoring Network (SEAN) program website at http://science.nature.nps.gov/im/units/sean/OC_main.aspx

The purpose of this long-term monitoring program of sampling is to compile a dataset of oceanographic conditions from Glacier Bay that can be used to 1) better understand seasonal and inter-annual changes in the local and regional oceanographic dynamics, and 2) better understand spatial and temporal variation in the abundance patterns of marine organisms including phytoplankton, zooplankton, marine invertebrates, fishes, mammals, and seabirds. Measured and derived parameters that comprise this dataset include temperature, salinity, stratification, photosynthetically-active radiation (PAR), optical backscatterance (OBS; turbidity), chlorophyll fluorescence, and dissolved oxygen concentration. The intent is to continue regular sampling, per the project protocol (attached), in perpetuity.

A 2011-2014 University of Alaska-Fairbanks study of Glacier Bay ocean acidification (conducted in conjunction with the SEAN long-term oceanographic monitoring program) is in the final stages of completion. The SEAN may decide to continue those measurements into an expanded monitoring protocol, so those activities/seawater sampling are included in this Application.

Subject/Discipline:
Coastal / Marine Systems
Ecology (Aquatic, Marine, Terrestrial)
Monitor Natural Resources
Water Quality

Locations authorized:
22 permanent oceanographic station locations within Glacier Bay proper and adjacent Icy Strait/Cross Sound (see attached station map)

Transportation method to research site(s):
Motorized NPS vessel - R/V Fog Lark (~30' LOA aluminum landing-craft configuration powered by twin outboard motors) or similarly equipped vessel

Collection of the following specimens or materials, quantities, and any limitations on collecting:
No collections are authorized, except for limited seawater samples as required for chemical analyses in the case of generating measures of ocean acidification. In this case, up to 2 liters of seawater may be sampled from each of up to 6 depths at up to 22 stations per survey. All seawater samples will be either destroyed during analyses or discarded after analyses.

Name of repository for specimens or sample materials if applicable:
Repository type: Will be destroyed through analysis or discarded after analysis

Objects collected:
No collections are needed except for seawater samples collected from multiple depths at select permanent sampling stations throughout park marine waters (see attached map of station locations) during surveys where measurements of standard oceanographic parameters are supplemented by ocean acidification investigations/monitoring that require analyses of water samples. In these cases, up to 2 liters of seawater are collected from up to 6 depths at up to 22 stations per survey. All seawater samples are either destroyed during analyses or discarded after analyses.

Specific conditions or restrictions (also see attached conditions):
The project leader is directed to the park website (http://www.nps.gov/glba/naturescience/obtaining-a-scientific-research-permit.htm) for general information about conducting scientific research in Alaskan national park wilderness, as well as National Park Service (NPS) general and park-specific conditions for and restrictions to conducting research in the park's backcountry. The website also provides a Vessel Regulation Guide (map). Much (not all) of the below is contained there but is repeated here for emphasis.

For your safety and to protect park resources and values, prior to the start of field operations in Glacier Bay in each calendar year, all operators of project vessels (including non-motorized craft such as sea kayaks) will attend a Boater Orientation at the Visitor Information Station (VIS). Advance arrangements can be made by contacting the VIS directly (phone 907-697-2627 or 907-697-2608; email margaret_hazen@nps.gov). If overnight camping or extended periods ashore will occur, all project personnel will additionally attend a Camper Orientation.

In order for the visiting public and park staff to identify you and your activities, all project motorized vessels will prominently display a "RESEARCH" flag, obtainable from the VIS. The flag(s) must be returned upon the vessel's departure from Glacier Bay. If supported by a NPS vessel, that vessel will be clearly marked as such.

The project leader is required to file daily float plans with the VIS, and in consultation with the VIS will arrange periodic check-ins as necessary to keep the park apprised of project activities and locations. These projects are responsible for having a reliable means of communication with the VIS (marine VHF radio when in range of the VIS radio; otherwise a satellite telephone, park radio, or other effective means).

All motorized vessel use will be carefully planned and implemented for optimal efficiency and sensitivity in order to minimize impacts to park resources and values including fuel consumption, air and water pollution, above- and below-water noise pollution, and visual impact.

Whenever moving between locations in the park, project personnel will carefully clean clothing and equipment in order to prevent the introduction/spread of the seeds/propagules of non-native invasive organisms (principally and invertebrate animals) – both terrestrial and aquatic.

If s/he has not already done so within the last three years (for ongoing multi-year projects), the project leader will provide the park with at least three (but no more than ten) representative high-resolution digital images, with captions, illustrating the project. These images will become public domain and may be used by the park to communicate the research in summary form to a variety of audiences. They are due to the Research Coordinator (Lewis Sharman; phone 907-697-2623; email lewis_sharman@nps.gov) by December 31, 2014.

If s/he has not already done so within the last three years (for ongoing multi-year projects), the project leader will provide the park with an up-to-date digital educational "poster" of the project (printable/readable in 11"x17" folio format) for inclusion in an interpretive binder for viewing by the general public. Please ensure the technicality of the poster is appropriate for that audience. Please send to the Research Coordinator, as above, by December 31.

While physically present in the park, the project leader is requested to give an informal "live" presentation of the project to park staff and/or the general public. Again, please appropriately match level of technicality to the target audience. Contact the Research Coordinator for assistance with scheduling, venue, audience, notification, etc.

In addition to the Investigator's Annual Report (IAR, due March 31 in each year following project initiation – the project leader will automatically receive an electronic notification/reminder), the project leader will annually submit to the park (Research Coordinator) a formal Progress Report (same due date). For single-year projects or for the final year of multi-year projects, within one year of completion of field work the project leader will additionally submit a formal Final Report. The detailed Progress and Final Reports will include analyzed data and findings, as well as synthesis with past/other data, a summary interpretation in historical and subject-area context, and any appropriate recommendations to management. The intent here is for the park to receive timely and substantive reporting of project activities and findings. Please communicate to the Research Coordinator any concerns regarding the sharing of report contents with audiences outside the park. Expected future out-year prospective theses/dissertations and peer-reviewed publications are not a substitute for this annual reporting requirement. Upon their completion/publication, copies of such academic

products and formal publications deriving from research in the park are additionally to be delivered to the park in a timely fashion.

Research Permits for additional work may be jeopardized by failure of the project leader to provide all the above products to the park in a timely fashion.

Research conducted on lands managed by the National Park Service (NPS) is valuable to park managers, educators, and the larger scientific community. The NPS is charged with protecting and maintaining data and associated information that have been collected through scientific research so they can be used to assist new investigations and/or inform current and future management decisions. The National Park Service (NPS) has an obligation to the public to ensure that findings generated by permitted research activities occurring within their national parks are made available. As such, the NPS reserves the right to obtain summaries of data and field notes, and a sample of photographs and/or sketch maps generated by the project. The project leader agrees to provide these within two years if requested.

Finally, the NPS reserves the right to terminate this Research Permit at any time due to violation of any of the above conditions, violation of park regulations, or poor/non-performance. In addition, the NPS may decline future Permit extension or renewal, or to modify the above conditions, or commitments of park support of the project, if park priorities and/or management guidance/regulations change and evolve.

Recommended by park staff(name and title):
Pat Sherman, Research Coord. 7/8/14

Reviewed by Collections Manager: Michele Jorgensen 7/9/14
Yes ✓ No ___

Approved by park official:
Lin L. Ely, Chief Resource Management

Date Approved: 7/10/14

Title:
Superintendent Philip M. Hoogl

I Agree To All Conditions And Restrictions Of this Permit As Specified
(Not valid unless signed and dated by the principal investigator)

Pat Sherman
(Principal investigator's signature)

7/11/14
(Date)

THIS PERMIT AND ATTACHED CONDITIONS AND RESTRICTIONS MUST BE CARRIED AT ALL TIMES WHILE CONDUCTING RESEARCH ACTIVITIES IN THE DESIGNATED PARK(S)