

Developing Standardized Protocols for Monitoring Nesting Colonial Waterbirds in Region 5: Questionnaire Results



Biodiversity Research Institute
652 Main Street
Gorham, ME 04038

The Biodiversity Research Institute (BRI) is a 501(c)(3) non-profit organization located in Gorham, Maine. Founded in 1998, BRI is dedicated to supporting global health through collaborative ecological research, assessment of ecosystem health, improving environmental awareness, and informing science based decision making.

TO OBTAIN COPIES OF THIS REPORT, CONTACT:

*Biodiversity Research Institute
652 Main Street
Gorham, ME 04038
USA
(207) 887-7160*

www.briloon.org

FRONT COVER PHOTO:

Atlantic Puffin (Katherine Whitemore/USFWS), Arctic Terns (Kayla Pelletier/USFWS), Black Guillemot (Jennifer Goyette/BRI)

SUGGESTED CITATION:

Stenhouse, I.J. & Goyette, J.L. 2012. Developing Standardized Protocols for Monitoring Nesting Colonial Waterbirds in Region 5: Questionnaire Results. BRI Report number 2012-10. A Report to U.S. Fish & Wildlife Service – Maine Coastal Islands National Wildlife Refuge. Biodiversity Research Institute, Gorham, ME. 14 pp.

Developing Standardized Protocols for Monitoring Nesting
Colonial Waterbirds for Region 5:
Questionnaire Results



SUBMITTED TO:

Linda Welch

Maine Coastal Islands National Wildlife Refuge

United States Fish and Wildlife Service

SUBMITTED BY:

Iain Stenhouse

Marine Bird Program

Biodiversity Research Institute

BRI Report No. 2012-10

Table of Contents

PROJECT SUMMARY.....	5
RESULTS	5
PROTOCOL AND DATA SHARING.....	5
MONITORING PROGRAMS AND FOCAL SPECIES.....	7
DATA MANAGEMENT.....	10
RESEARCH INTERESTS, GAPS AND UNMET NEEDS.....	11
CONCLUSION.....	12
APPENDIX I: BRI QUESTIONNAIRE ON CURRENT PROTOCOLS USED TO SURVEY BREEDING COLONIAL WATERBIRDS IN USFWS REGION 5	13

PROJECT SUMMARY

The U.S. Fish & Wildlife Service (USFWS) staff at the Maine Coastal Islands National Wildlife Refuge (MCINWR) would like to gauge the general interest in standardizing monitoring protocols for colonial nesting waterbirds across the Northeast (USFWS Region 5). Monitoring these species on a regional scale may be preferential. With this in mind, the Biodiversity Research Institute (BRI) developed a questionnaire designed to illicit responses on integral issues from federal, state, and private stakeholders. Here, we present the results of the questionnaire designed to assist in prioritizing issues and developing a coordinated strategy to monitoring colonial nesting species in Region 5.

RESULTS

We received 23 responses from requests for information sent to 62 individuals from federal, state, and private organizations that play pivotal roles in colonial waterbird monitoring in the coastal states of Region 5. Of the 23 respondents, 22 (>95%) indicated that they have active and ongoing monitoring programs currently in place.

Not all respondents answered every single question in the questionnaire. We received several surveys which were incomplete. If no responses were provided in the questionnaire we did not include the survey in this report. In the following sections, we summarize the information from those who did respond to specific questions.

PROTOCOL AND DATA SHARING

An overwhelming majority of responses (85%) were in favor of sharing their protocols and techniques, with the aim of creating a central repository. Most respondents (84%) indicated a willingness to adapt their monitoring protocols to achieve a regional coordinated approach, and also expressed a willingness to participate in a centralized data storage and management system on a regional level. Similarly, most respondents (95%) indicated that access to regional information, such as population trends, would be of benefit to their management and conservation efforts (Table 1).

Many respondents used the comments section to explain their response, especially if they chose 'no' in answer to the general questions in Table 1. Two negative responses from question 1 stated that they use a protocol developed by the Massachusetts Division of Fisheries and Wildlife, suggesting that they believe that they are not in a position to share it. A third negative

response indicated that they use a verbally transmitted system and have nothing written to share.

Table 1: Responses to questions related to sharing data, protocols, and participation in coordinated regional monitoring goals.

Survey Question	Yes	No	Maybe
1) Are you willing to share the protocol you use to assist in creating a central repository of techniques?	17	3	0
2) Would you be willing or able to adapt your survey protocol(s) to achieve a coordinated approach across the region?	16	3	1
3) Would you participate in a centralized data storage system on a regional level?	16	3	0
4) Would access to regional information, such as population status and trends, be of benefit to your local management and conservation efforts?	18	1	0

The negative responses from question 2 state that (a) they are no longer involved directly with protocol development or active research, (b) they have used an unwritten method for 30 years, they do nest counts for most sites, and it is meeting their needs, and (c) they would need more information before they could make a decision regarding adapting their protocol.

Two negative responses for question 3 indicate that they are open to the possibility of sharing data, but have concerns about propriety data usage; one respondent stated *“I would be open to this but not without serious discussion of data sharing and use privileges. I am currently working my data into manuscripts and would want to ensure that the data is not being used for similar analyses”*. The third negative response to question 3 indicated that due to pending retirement the question is not applicable; data has already been shared with state agencies.

While other responses were generally positive concerns included; securing raw data and only sharing metrics, limiting work for data entry by (for instance) using a central database to export data to excel, SAS, there were also concerns expressed regarding long term support, and a need for standardized protocols to be compatible with current agency standards (such as the National Park Service; NPS). Three respondents indicated they did not follow written protocols; one is currently working to complete revisions and will implement a formal protocol in the near future. The remaining two did not indicate that any written systematic approach is needed or being formulated.

MONITORING PROGRAMS AND FOCAL SPECIES

Respondents indicated regular monitoring of 28 species across the region, including several species of federal and state concern, such as Roseate Tern (*Sterna dougallii*) and Piping Plover (*Charadrius melodus*; Table 2). Most species are surveyed through an annual count of nesting pairs, and many are the focus of further efforts to measure nest success and productivity. Some surveys are less frequent, however, ranging from 3 to 10 years.

Efforts are made by some states to band the chicks of the Roseate Tern, American Oystercatcher, Black Skimmer (*Rynchops niger*), Common Tern (*Sterna hirundo*), and Arctic Tern (*Sterna paradisaea*). In fewer instances, additional ecological and behavioral information is sought, such as diet composition. Re-sight efforts of marked individuals were indicated for the American Oystercatcher and Common Tern, and there is some collaborative effort regarding meta-population dynamics for Arctic Tern, Roseate Tern and Atlantic Puffin (*Fratercula arctica*). Most species are monitored due to concerns over low productivity. A few species are managed (using lethal and non lethal methods) because they affect nesting efforts and productivity of species of concern.

Table 2: Summary of monitoring efforts reported by respondents from each state. Sampling frequency and intensity differ between species and among states.

State	Number of respondents	Species monitored	Survey Type	Comments
Connecticut	2*	American Oystercatcher	Inventory	Effort made to gauge productivity. Plans to expand species coverage.
Massachusetts	6	American Oystercatcher, Piping Plover	ground-based count	Annual statewide census of nesting pairs, some effort to gauge productivity, counts of marked individuals.
		Common Tern, Least Tern, Roseate Tern	ground-based count	COTE + ROST chicks banded and species managed to increase productivity. LETE - effort to measure productivity. All terns part of annual statewide census of nesting pairs.
		Black Skimmer	ground-based count	Nests counted, productivity monitored, and chicks banded
		Great Black-backed Gull, Herring Gull, Laughing Gull	ground or boat-based counts	Census of nesting pairs range from annual to every 10 years, some management in favor of priority tern species.
		Black-crowned Night- Heron, Glossy Ibis, Great Egret, Little Blue Heron, Snowy Egret	ground or boat-based counts	Census of nesting pairs range from annual to every 10 years, some management in favor of priority tern species.
		Double-crested Cormorant	ground or boat-based counts	Census of nesting pairs approximately every 10 years.
Maine	3*	Arctic Tern , Common Tern, Roseate Tern	ground or boat-based counts	Annual counts of nesting pairs on managed and unmanaged lands; productivity measured and diet composition. Chicks banded and adult COTE and ARTE trapped and banded.
		Great Black-backed Gull, Herring Gull, Laughing Gull	ground-based count – need regular census	Attempt to survey GBBG and HERG when possible (every 5 years in limited areas). Irregular census of breeding pairs for LAGU with some egg control measures taken. Lethal control of adults on ATPU colonies.
		Atlantic Puffin	ground-based count	Annual count of breeding pairs, monitoring of colonies.
		Razorbill	ground or boat-based counts – need regular census	Previously annual count of nesting pairs on managed lands, currently estimates used, surveys of unmanaged lands have lapsed.
		Black Guillemot	ground-based count	Annual measures of productivity and chick growth rates for population subsets in limited areas.
		Leach’s Storm-Petrel	ground-based count	Annual measures of productivity and chick growth rates for population subsets in limited areas.

		Great Cormorant	boat-based Count	Annual counts of all colonies
New Hampshire	2	Piping Plover	unknown	Collaborative monitoring between NH Fish and Game and NH Audubon.
		Arctic Tern , Common Tern, Roseate Tern	unknown	Collaborative monitoring between NH Fish and Game and NH Audubon.
		Great Blue Heron	unknown	Collaborative monitoring between NH Fish and Game and NH Audubon.
New York	2	Piping Plover	ground-based count	Annual estimate.
		Tern Census	ground or boat-based counts	Annual estimate.
		Greater Black-backed Gull, Herring Gull	ground-based count	Monitored annually with wading bird census, Census every 3 years.
		Black-crowned Night- Heron, Cattle Egret, Glossy Ibis, Great Egret, Green Heron, Little Blue Heron, Snowy Egret, Tricolored Heron, Yellow-crowned Night-Heron	ground-based count	Census of nesting pairs range from annual for most islands to every 3 years for complete counts.
		Double-crested Cormorant	ground-based count	Census of nesting pairs range from annual for most islands to every 3 years for complete counts.
Rhode Island	3	American Oystercatcher	ground or boat-based counts	Boston Harbor Islands Coastal Breeding Bird Volunteer Monitoring Program, annual census with some species on 3 year rotation.
		Piping Plover	ground-based count	Beach monitoring 3-4 times per week.
		Common Tern, Least Tern	ground-based count	Monitoring 2-3 times per week, and part of Boston Harbor Islands Coastal Breeding Bird Volunteer Monitoring Program, annual census with some species on 3 year rotation.
		Greater Black-backed Gull, Herring Gull	ground or boat-based counts	Boston Harbor Islands Coastal Breeding Bird Volunteer Monitoring Program, annual census with some species on 3 year rotation.
		Common Eider	ground or boat-based counts	Boston Harbor Islands Coastal Breeding Bird Volunteer Monitoring Program, annual census with some species on 3 year rotation.

		Black-crowned Night- Heron, Great Egret, Snowy Egret, Glossy Ibis	ground or boat-based counts	Boston Harbor Islands Coastal Breeding Bird Volunteer Monitoring Program, annual census with some species on 3 year rotation.
		Double-crested Cormorant	ground or boat-based counts	
Virginia	2	American Oystercatcher	ground counts	Annual census estimate and weekly productivity monitoring in seaside marshes, Virginia Coastal Avian Partnership monitoring
		Piping Plover	ground counts	Annual surveys and weekly productivity monitoring, Virginia Coastal Avian Partnership monitoring
		Common Tern, Gull-billed Tern Least Tern, Royal Tern	aerial and ground counts	Annual seabird census and statewide colonial waterbird surveys (approximately every 5 years)
		Black Skimmers	aerial and ground counts	Annual seabird census and statewide colonial waterbird surveys (approximately every 5 years)
		Gulls	aerial and ground counts	Approximately every 5 years
		Wading birds	aerial and ground counts	Approximately every 5 years

* One response incomplete

DATA MANAGEMENT

In addition to asking whether individuals were willing to share data and participate in centralized data storage, we also requested information on current methods of data storage. A wide range of data storage methods are currently in use, including:

- AMOY Working Group database
- Access database
- Cybertracker to Excel
- Excel spreadsheet
- GIS
- Natural Heritage Program database (MA)
- Paper datasheets
- Word tables

RESEARCH INTERESTS, GAPS, AND UNMET NEEDS

We attempted to distinguish whether respondents have a preference of scope in data collection. Of the 19 responses to the question “*Are you more interested in regional population counts or population trends?*”, two respondent indicated a preference for count data, nine prefer trend data, and eight indicated no preference.

There were 4 negative responses out of 18 to the question “*Do you have geographic gaps, management needs, or conservation goals not currently met by existing monitoring efforts?*”. One respondent no longer conducts research and the other three negative responses were not explained (although in one case the person had already expressed the opinion that their efforts are sufficient). Research goals desired but not currently met include:

- Lack of personnel to complete more comprehensive monitoring, especially in areas difficult to access.
- The desire for increased frequency of surveys for many species to understand the mechanisms driving trends.
- Investigate declines in Double-crested Cormorant, large gull species, and Black-crowned Night-Heron.
- Investigate seabird productivity and achieve more accurate wading bird productivity and population estimates.
- The desire to understand if local populations are integral to regional population health; greater emphasis on regional trends.
- Investigate increasing sampling efficiency using sub-sampling of colonies and/or aerial photography.
- Improved overall monitoring of Least Tern productivity to better evaluate management decisions.
- Increased level of coordination between states and agencies to improve population monitoring and improve protocols.
- Increased habitat management and predator management. Increased studies related to effects of mammalian predation and increased planning and effort to reproductive success of certain species (area mentioned: Chesapeake Bay Islands). Greater networking to deal with predator control (one suggested creating a blog or some other social media for managers).
- Desire to understand prey base: prey availability past and present.
- Lack of access to colonies for measurement of productivity.

CONCLUSION

Most respondents to this questionnaire indicated a strong willingness to collaborate to reach regional monitoring goals for colonial waterbirds. Overall, respondents were forthright in identifying areas of potential conflict, such as open access data sharing, and balancing local or agency needs while also meeting regional goals. Despite these concerns, however, an overwhelming majority of respondents indicated a clear willingness to (1) collaborate to reach regional monitoring goals, (2) share protocols and techniques, (3) adopt standardized protocols, and (4) participate in a centralized data storage and management system on a regional level. Most respondents indicated that access to regional information, such as population trends, would be of benefit to their local management and conservation efforts.

In general, respondents also indicated a desire for long term support of regional efforts, such as long term maintenance and accessibility of a regional database on population trends. In moving forward, the colonial waterbird monitoring community will likely require firm assurances from federal agency partners that any efforts to collaborate across the region will not be short-lived, and that their participation will not create additional work, but will simplify processes and be of considerable mutual benefit.

APPENDIX I: BRI QUESTIONNAIRE ON CURRENT PROTOCOLS USED TO SURVEY BREEDING COLONIAL WATERBIRDS IN USFWS REGION 5

Goal: Integrate local survey efforts for the assessment of regional status and trends of breeding colonial waterbirds

Contact Name

Title
Agency / Affiliation
Address
City State Zip Code
Phone
E-mail
URL

Monitoring Program

Please list program names or target species. For Ex. Piping Plover survey. Use the comments box to provide additional information or clarification.

Program / Species Name
Program Status (Active / Inactive)
Program Initiation Date (mm/dd/yyyy) Program End Date (with an NA option)
Sampling Frequency (e.g. annual estimate, monthly count, etc.)

Sampling period (e.g. mid-July each year, mid-month May-Aug, etc.)

Date of last survey
Geographic area surveyed (e.g. statewide, management area, island, etc.)
Survey type (e.g. aerial, boat-based, ground count, etc.)
Comments / Clarifications
Select button to add additional programs / species

Monitoring Protocol

Do you follow a standardized written protocol? (yes / no)
What parameters do you measure? (e.g. population count, nest success, productivity, etc.)
Units measured (e.g. individuals, pairs, nests/burrows, territories, chicks fledged/egg hatched)

Are you willing to share the protocol you use to assist in creating a central repository of techniques? (If you answered No, please use the comments section to provide rationale. Would any circumstances create an environment which would change your answer to Yes?)

If so, are you comfortable with this being open access? Or limited access?

Title of monitoring protocol

Attach Protocol (If you care to share your protocol with us now please do so.)

Would you be willing or able to adapt your survey protocol(s) to achieve a coordinated approach across the region? (yes / no)

Data Management

What method of storage and management do you currently use for your survey data? (e.g. Excel spreadsheet, Access database, papyrus, etc.)

Would you participate in a centralized data storage system on a regional level? (yes/no; If you answered No, please use the comments section to provide rationale. Would any circumstances create an environment which would change your answer to Yes?)

Future Directions

Would access to regional information, such as population status and trends, be of benefit to your local management and conservation efforts? (yes / no)

Are you more interested in regional Population counts of population trends? (trend / count / no preference)

Do you have geographic gaps, management needs, or conservation goals not currently met by existing monitoring efforts? (yes / no; Please explain below)

Comments / Additional Thoughts

-----<>-----

This form can be viewed at: <https://briloon.wufoo.com/forms/waterbird-monitoring-survey/>