AMOY WG Meeting 2022

Wednesday December 7, 2022 – morning notes

HABITAT RESTORATION

Tim Keyes, Habitat Restoration Group Update; PPT available

- Growing concerns with SLR and threat of flooding for nesting birds, particularly at important, remote nesting sites
- Habitat restoration team requests info to populate Habitat Restoration Project database; eventually info will be put into a Story Map (or some other solution) for easier access
- Shift in ACOE goals for BU projects – has benefited efforts for bird habitat restoration
- Examples from GA:
    - Sand fencing; partial success, easy permitting
    - Golden Ray wreck mitigation resulted in oyster rake restoration projects
    - Dredge spoil island restoration
    - Altamaha Bird Island – problems with maintaining sediment that was added
- Q&A
    - Success and failures – comment that it will be important for restoration project database to include examples of successes and failures
    - Sand fencing – question about debris and dealing with that
        - Had to consider timing and tides, etc. and planned the deployment and take down as part of the strategy.
    - Recreation problems?
        - New places have protection, building in protection strategies to address issues with boaters. Not many issues with shell rakes.

AMOY Award presented to Sue Heath!!!

Janet Thibault, Crab Bank Restoration Project, SC; PPT available

- Three island seabird sanctuaries in SC under DNR management; Crab Bank needs restoration and opportunity came up with Charleston Harbor dredging and cost-share agreement with ACOE
- AMOY first to recruit onto restored island; also had LETE, GBTE and BLSK
- Great-horned owl documented predating chicks and eggs
- Dredge material offered lots of "treasure hunting" opportunities and attracted visitors – be aware for future projects
- Q&A
    - What kind of cameras?
        - Great outreach tool, Browning cameras for video footage. Also used REconyx
    - Owl management?

        - Research permit to relocate owl; did not use because owl didn't come back
    - What does a bird sanctuary mean in SC?
        - Designation means the entire island is closed to low water from March 15-Oct 15. Otherwise just intertidal zone is open.
    - Veg management plan and add plans to add material?
        - No plans to renourish and have communicated with state botanist to ID problem plants.
    - Freshwater pools on purpose? No, happy accident. Harder packed sediment happened to result in some water pooling up.

Lyra Brennan, Snake Island, MA

- Restoration for AMOY and COTE; urban landscape
- Primarily vegetation removal
- Two more years of veg management, developing long term mgt plan with town of Winthrop
- Q&A
    - Threshold for vegetative cover? Not at this time, transect surveys ongoing and will provide info to base that on going forward.
    - Considering herbicide? Did consider that and might be more effective. Would trigger more in terms of approval/permitting process. May go that route in the future but wanted to start with most direct plan

Amanda Hackney, Story Map as a potential repository for Habitat Restoration Project info

- How to make the habitat restoration project database the most useful and accessible for people?
- Set up Survey 123 form for entering project information; ability to include polygons, add text, add photos, upload reports, etc. Provides consistency and searchable functions.
- ArcGIS online dashboard for viewing information and modifying form
- Form can be set up to be accessible to the public
- ArcGIS dashboard provides interactive platform to view projects and associated information; dashboard components automatically generated by completing the Survey123 form.
- Costs associated with access to the platforms; NGOs could help where they have access already
- Also costs for storage to consider.
- Q&A tabled for later in the day.
- From the chat: would be great to have all the habitat work compiled. Maybe explore potential to coordinate with AFSI somehow so that this is integrated with their similar products? Deb Reynolds has similar thoughts/interest.

HUMAN DISTURBANCE

Alexis Pristina, Nest vandalism in NYC; PPT available

- Rockaway Beach Endangered Species Nesting Area (RBESNA)
- May 15, 2022 major vandalism event with missing AMOY, PIPL, KILL nests and dead PIPL adult

- Further disturbance to AMOY nests on May 20
- June 11 lost 1 PIPL nest and 1 AMOY nest and abandoned LETEs with beach goers inside symbolic fencing.
- Adapted monitoring/posting protocols as a result of these disturbances
- Q&A
    - LE response? Parks Department usually responds when there is an incident. Staffing shortages in recent years.
    - What are relationships like with local communities? Fairly good, park rangers do lots of events/programming.
    - Have you recruited volunteers to help build stewards and get people more involved? Some pushback last year because of closures but small number of voices. They do "perception surveys" and generally response is good. Thinking of more ways to involve the public.
    - Chat discussion of pros/cons of marking nests, ways to use GPS coordinates to locate them, send thoughts to alexis.pristina@parks.nyc.gov

<u>Lyra Brennan, Fireworks in Boston Harbor; PPT available</u>

- Hingham Harbor, MA, efforts to limit disturbance from fireworks
- Button Island, 3 pairs of AMOY, base of July fireworks annually, town managed site
- 2023 island had wading bird colony as well
- Sarah Island, 2 AMOY pairs and wading bird colony
- Langlee and Ragged Islands
- Established plan for communicating with towns/harbormaster; suggested alternatives, e.g. barges using buffer distances used for T&E species/mainland sites; fireworks ultimately postponed, media generally neutral.
- Next steps will be more outreach and communication; continued rescheduling of fireworks.

<u>Meghan Kolk, Disturbance Management at Stone Harbor Point, NJ; PPT available</u>

- Focus on watercraft landings
- Only compatible activities allowed; lots of activities not permitted (i.e. dogs)
- Steward Program, details on slides

<u>Beth Amendola, Community based social marketing campaign; PPT available</u>

- Pilot study using Guidance Document produced by Vtech
- Study tasked to use some of 7 strategies
- Tabling not successful in CT
- Q&A
    - Why tabling not successful? Focused on high tide and message was to not be there at high tide; also hard to get volunteers to staff them. Other places, like NY, had much more success, i.e. their Share the Shore Day.

AMOYWG NOTES - DAY 2, 12/7/2022 - AFTERNOON

Human Disturbance and Vandalism continued.

Community-based social marketing campaign update- Beth Amendola

Ashley Dayer manages the project with Virginia Tech. Using a social marketing campaign, a collaborative group of conservation partners created a guidance document to reduce disturbance to shorebirds and seabirds.

The update today focused on efforts to use the guidance to develop a social-marketing campaign. The overall strategies included communication, social norms, commitment, prompts, incentives, social diffusion, and convenience. The campaign focused on pedestrians or dog walkers: these two campaigns had different approaches. Different sites were selected to represent different beach types, for example, sites that allow dogs vs. those that don't.

Using the work performed in CT, the focus was on "Share the Shore" and a sub-message related to tidal stages and what to do during different tide stations—messaging with "Time your Visit with the Tide." For communication, they created a website in collaboration with AFSI about projects in the state. The website can also be accessed via QRL codes. Each page is tailored to each site and the site-specific threats/needs. On-site, outreach was also performed. The primary focus was on high tide and the associated messages, as it was the most extreme with messaging to not use the beach due to the lack of space to go around birds without flushing. They used a pledge approach for tabling activities to inspire people to follow the recommendations. Brochures were created with tide charts available as part of the fold-out to make decisions easier for the public.

They reached over 6000 people, the campaign was picked up by 26 reporting outlets, and improved over 1300 acres of habitat. As part of the project, the group created many graphics, signs, etc., that can be used for future campaign activities.

Sometime in 2023, they plan to create an online toolkit for others. Graphics and templates will be available and can be modified as needed.

They applied for funding to continue this campaign for one more year. If funded, they will be using the lessons learned and will expand messaging strategies. They also want to expand messaging to central and south America so that efforts target breeding and non-breeding grounds for imperiled species.

Q/A

Alex- Why wasn't the tabling effective in CT? Because they targeted high tide, there were fewer people at the sites, so there were fewer people to interact with. There may be nuisances with CT also; similar tabling events in NY were very successful.

Research & Management Project presentations

Mikayla Call- AMOY chick survival in Virginia

The project focused on understanding what drove low AMOY chick survival and what factors drove ghost crab activity. Efforts were focused on Metompkin, with an average of 95 AMOY pair each year.

Since 2016 productivity has declined despite the management of mammalian threats and the increase of breeding adults.

Game cameras indicated that avian predators and ghost crabs were impacting nests, but hatch rates were >70% suggesting that the low productivity was related to low chick survival. In 2021-2022, they used radio tags and daily brood surveys. Radio tags were added to 1 chick per brood. Tags were <1 g and glued to chicks. This allowed for tracking chicks until they either fledged or disappeared. They confirmed the fate of all chicks during the study, with higher fledge rates in 2021 compared to 2022. Median survival time was 15 days, and the probability of surviving to fledgling was 30.3% which was lower than reported elsewhere. For tagged chicks, they could use evidence at the site to evaluate the source of loss- these included unknown causes, avian predation, ghost crab burrow, or trauma/illness (possibly starvation). 21% avian, 21% ghost crab, 54% unknown, remaining unknown trauma. Did have 2 AMOY chicks with observed mortality from conspecific interactions and exposure.

The study led to questions about ghost crabs—including methods to quantify and model what influences ghost crab density.

Q/A

What type of glue and how long did it need to be reapplied? – The glue varied initially, but over time using super glue, retention ranged from 24 hours to 15 days.

What do you think the unknown predators were, possibly mammals? – Mikayla suspects GHOW as the culprit, given how quickly they disappeared.

What were the avian species captured on camera- laughing gull, herring gull, and peregrine falcons

Shiloh- were ghost crabs primarily predating young AMOY chicks?- Yes, typically within the first few days.

Alexis- Also seeing more ghost crab activity in the past couple years, seem to be more active when PIPL have nests/chicks

Shorebird Chick Growth- Thomas Lameris & Jeroen Reneerkens

The presentation was on shorebird chick growth as a global collaborative effort. This type of work is only possible with collaboration with many researchers. Chick growth is a crucial time, ~0.8% of their life; they have to have enough resources to grow from hatch to full grown. There is quite a range of variability in growth patterns between individuals, years, habitats, etc. Thomas recently looked at growth rates among four red knot sub-species and saw considerable variation.

Body size and growth for chicks are influenced by weather, food availability, and breeding season length. Development should be faster at higher latitudes because of the length of the season. We would also expect that larger species can grow slower.

They called for collaboration a couple of years ago and asked for chick biometric data from shorebird species- hoping for a wide variety of species. 55,922 records from 74 species and 86 study sites. The call for data is still out; they would be interested in any chick data available. Species included so far range

from SESA at 24 grams to Eurasian curlew at 1200 grams. For data needs, known age, at least ten records, and at least one measurement at ten days or older.

The growth rate was faster for smaller species than for larger ones. There isn't the same latitude influence on larger species to some extent. However, more data on larger species is needed to understand this pattern better.

Food availability also influences chick growth. Food availability depends on the date and temperature. Showed a comparison of common ringed plovers and piping plovers- they are very similar species but nest at very different latitudes. The ringed plover experienced a negative effect of hatch date on growth, and this effect increased with latitude. There was a positive effect of temperature on growth, which increased with latitude.

They will use a phylogenic correction when comparing similar species. This will help control for relatedness and allow assessing latitude and temperature's influence.

Q/A

Ezra- asked about the adult experience and if that might influence chick growth and access to food. – the individual data will inform the species data. – hadn't considered semi-precocial chicks to the same extent, and there could be an influence on adult experience.

Contact information- jeroen.reneerkens@nioz.nl

Oystercatcher productivity and population dynamics- Lyn Brown

Examining foraging habitat and the relationship with breeding success. Previous studies have indicated that higher chick survival can occur when breeding closer to foraging locations. They worked at Assateague and Assawoman- both sites have experienced low productivity. Predation has a slightly larger role in nest loss on Assateague.

Study Question- How AMOY uses the foraging habitat during the breeding season and the habitat quality? AMOY at Assateague are feeding on mole crab and donax. AMOY are feeding similarly at Assawoman and on clams and some offshore mud flats/shell rakes. At Assateague- pairs were feeding almost solely on mole crabs despite the occurrence of what appeared to be higher-quality overwash areas. At Assawoman, some AMOY traveled at least 2 km away and brought food back to their chicks.

They conducted environmental sampling to collect various metrics such as salinity, chlorophyll, temperature, etc. Assateague had higher temps and lower salinity and chlorophyll. The bayside sampling was driving the differences in water temperature. Chlorophyll appeared to have greater variation and may need more sampling. The changing temperature and dissolved oxygen may be an issue with expected climate change, influencing long-term food availability and conditions for AMOY.

This is year 1 of a 3-year project, and more info will be available as the project continues.

Q/A

Pam- could the AMOY foraging further away be associated with site fidelity rather than availability- known.

Shiloh- Interested in survival differences between chicks with direct access to foraging vs. those where parents have to forage away.

Oystercatcher data loggers- Kate Goodenough

For the last couple of years, Kate has been working with Lindsay using GPS telemetry data to understand the foraging dynamics and behavior of AMOY. Kate is interested in nocturnal foraging. European research indicates that AMOY are very active at night. Sanders et al. (2013) showed more corpuscular foraging patterns. Understanding nocturnal activity during the breeding season could influence reproduction.

The study design included barrier island, dredge, or natural island and with adjacent foraging vs. not. Methods included GPS telemetry, movement analyses, GIS, etc. 28 tags were successfully downloaded from a variety of sites. Data recorded every 30-60 minutes.

AMOY were foraging throughout the night. There were some slight increases in movement during the night. Night movement was common and appeared to be an important part of their ecology. They also seemed to maintain foraging territories. There were also differences in foraging habitat type for birds nesting on marshes vs. dredge islands.

Night foraging is an important part of ecology- almost 1/3 of their foraging. But, there is much heterogeneity among individuals. This could influence some individuals- making them more susceptible to change. There were a lot of shared foraging areas, and if there are environmental impacts (e.g., hurricanes) could influence large portions of the population.

Q/A

Ricardo- how do we define a foraging area? – Foraging areas were defined by tag speed and time spent. We had coordinates for nest locations and could assess how far individuals were from the nest locations. The number of repeat visits made by each individual was also used when making decisions about foraging.

Tim- Would tide influence distance regardless of night/day? – Part of it could be related to the tide but also availability. One of our next steps is incorporating tide into the modeling to understand foraging/movement patterns.

Mike- when the tagged birds were not foraging, were they still moving far from nests?- There were differences, but they did predominately stick close to nesting territories.

Oystercatcher nest survival in Florida- Nick Vitale

The research focused on factors that limited AMOY reproductive success. The work took place in the Big Bend region of Florida. Salt marshes dominate the coastline with minimal nesting areas for AMOY. Three basic concentrations, St. Marks, Barge Canal, and Cedar Key. This study focused on cedar key and the barge canal, but today's talk will focus on the barge canal. These sites are constructed with limestone rock, which makes tracking challenging. Many islands are vegetated, so nets are often low-lying on the edges. These sites had high nesting effort but low productivity, so more information was needed.

Nick used game cameras with motion sensor settings, frequent nest, and chick monitoring. Monitored chicks out to 60 days. Banded chicks and use VHF telemetry.

For nest survival, he found that nests were generally hatching, but overwash and predators were the most frequent cause of nest loss.

Modeled daily chick survival and found that nest hatch date and raccoon occupancy were important as DS probability. Predator presence tended to increase with the season.

They didn't intend to look at food availability but were finding that chick survival wasn't improving with age and noted that chicks appeared to be underweight and were taking longer to fledge. Did collect older chicks and fledglings that were banded and known age and died were necropsied and found to have died of starvation. 40% of chicks that technically fledged were not making it to 60 days.

They did look at human disturbance. The disturbance was relatively low, but because the islands were small, disturbance did have an influence, and there was a need to address it.

They documented 14 other predators using the island. Cameras were valuable for documenting and addressing predators impacting nests and chicks.

In 2019, the results were presented to park managers and provided them with various management options. The park agreed upon predation management – vegetation management, and human disturbance management. Selected one island for vegetation management and removed vegetation with chainsaws and herbicides. In 2021, park managers went out with equipment and conducted an Rx burn. These actions reduced vegetation.

Management results contributed to higher hatch rates and a drastic increase in chicks fledged. 2021 had a record number of fledglings produced.

Ghost Crab Management- Raya and Lindsay

Ghost crabs have a variety of impacts on wildlife. For shorebirds, this can be nest predation, chick predation, injury and predation of both chicks and adults, as well as harassment and abandonment. The harassment can also result in indirect predation.

Ghost crabs can also be an essential food resource for wildlife, including shorebirds. Therefore management should be targeted and focus on areas predating imperiled species.

A study in Florida occurred from 2011-2013. In Florida, high proportions of SNPL nests failed from ghost crabs. Chick survival was influenced by ghost crab density on the landscape. When ghost crab burrows are close to nests, nests have lower survival.

On average, nests had 15 burrows within 15m (ranging from 0-93). Shell cover, vegetation cover, and time of year influenced ghost crab density at the nest.

Snowy plover daily nest survival increased when ghost crabs were removed from around the nest site and increased as the treatment areas expanded to 15m. nest survival nearly doubled when ghost crabs were removed from 15m around the nest.

Capture rates observed for ghost crabs were 31% at nest sites. The capture rates were higher at randomly selected burrows. Crabs were less likely to be captured in dense shells and more likely to be caught in dense vegetation. Targeted ghost crab removal benefits were achievable and effective; however, it can be time-consuming. It is more effective earlier in the season. Ghost crab trapping techniques continue to be tested in Florida. A modified bucket trap has recently been in testing. FWC continues to work on guidance for ghost crab management. Game cameras have shown that people overestimate ghost crabs' impact.

Work in NC: in 2021, 9 AMOY broods failed within one week of hatching, and ghost crabs were suspiciously abundant. In 2022 biologists used guidance from Florida and created Fripp traps and experimentally tested ghost crab management. Challenges limited sample size in 2022 but found better success at treatment nests vs. control nests. We will continue sampling in 2023. Despite challenges, it is a feasible tool at the site.

Q/A

How many traps vs. how many burrows around each nest? In NC would set up ~3 traps at a time. They targeted active burrows. If traps had not caught crabs on a visit, the trap would be moved to a new burrow.

Is a guidance document from Florida available? It's a draft guidance document, but FWC can certainly share pieces of the document.

How quickly are crabs caught after traps are placed? It can be quick. Have documented catching crabs within 30 minutes of trap placement.

Is there a size threshold for removing traps? 3cm burrow minimum.

Nest vs. brood-rearing areas? FWC is still testing strategies for brood-rearing areas, including using a modified bucket trap. Thinking early season management before broods are present may be used to avoid accidental capture of chicks.

Interest in sharing out the Florida guidance document/decision tree

<u>Banding: Best Practices and Coordination</u>

There is a need for instructions/guidance as collaborators start working with AMOY and are looking for information or have questions on the capture/banding of AMOY.

Request- Shiloh is still looking for input on the protocol and hopes that this will be a collaborative effort to complete. Need videos of traps in action and trap setup.

The protocol will include chick and adult capture methods and various instructions, modifications, and best practices.

Priorities for 2023- folks from the steering committee will reach out to others within the workgroup to complete these tasks

Aerial survey planning and survey completion

Banding protocol sub-team formation and protocol completion

Finalize the habitat restoration story map and decide where it will be housed (e.g., part of the AMOYWG website).

There might be a need to compile disturbance management resources – facilitate discussions, put people in touch, and share resources. A sub-group on this topic may be needed for this. The format is flexible, this could be a sub-team or a list serves on the subject, as this is an evolving need. Debra Reynolds- added a link to the new AFSI photography and invited WG members to join the current AFSI human disturbance meetings. This group currently meets monthly.

Dan Gibson will send a follow-up on the Integrated Population Model to understand group interest, timing, data requirements, funding needs, etc.

The 2023 PIPL meeting will have breakout groups on other BNB species, such as AMOY.