

## AMOY WG Meeting 2022

### Tuesday December 6, 2022 – morning notes

#### Abby Sterling – plenary presentation; PPT available

- Specific actions to involve Law enforcement?
  - Tybee example – using community connections; presentation for LE and lifeguards.
  - Have reached out to LE on St. Simons as well. Effectiveness varies depending on site specific rules, e.g. no leash laws on St. Simons.
  - FL FWC also has a program working with LE – recording from last year’s meeting is available for more information.
- Wildlife Zones – do those vary by breeding vs. non-breeding seasons and how does public respond if they are dynamic?
  - Not much outside of breeding season; right now those areas are designated as year round. Zones are not regulatory – just a mechanism to raise awareness and focus stewarding effort and signage.
  - Locations based on where birds are vs. where people are keeping in mind the full annual cycle.

#### Shiloh Schulte – 2022 overview of nesting season; PPT available

- Low reproductive success in mid-Atlantic but coastwide productivity is still hovering near the 0.5 chicks/pair/year goal.
- NE seems to be doing well
- Are breeding pair numbers also increasing in the NE? Yes in some areas, but hard to say in a lot of spots without coastwide breeding pair surveys being done.

#### Pam Denmon – USFWS At Risk species Initiative update

- NE region – Virginia north to Maine; AMOY chosen as one of 3 at-risk species along with RUTU and WHIM.
- For AMOY, they have developed a survey to share with refuges soon; all refuges in NE, SE and gulf coast. Goal is to get a baseline for what refuges are doing for AMOY.
- Pam previewed survey. Examples of questions:
  - What stages of AMOY do you have at the refuge?
  - Willing to make AMOY data public?
  - Are you banding AMOY at the refuge?
- Will be sharing results with WG Steering Committee
- Funding? Will that be an end result and will the survey results guide that?
  - Primary objective is to increase engagement with USFWS staff in participating in things like the WG meeting, id’ing common priorities, etc.
  - No explicit dedicated funding to this initiative but it raises the visibility with USFWS leadership about how we can address common priorities collectively. Will set the stage for potentially taking advantage of new sources of funding and channeling it towards initiatives like this.

- Would like to continue to engage with AMOY WG and could share FY23 objectives with the group.
- Is this happening in the SE region?
  - Survey is going to all refuges in NE, SE and Gulf coast regions.
- Any thoughts about expanding questions to other agencies/orgs outside of USFWS?
  - Yes – if it's something the group is interested in. Some of the questions are very refuge focused but some are broad.
- From the chat: feeling some frustration with this effort which is good, but the Refuges in SC are so strapped for funding and staff that this is like a tease for something that they all would like to do but aren't able to.
  - Caleb: I understand that frustration Mary-Catherine. Have heard it from staff members in our region, as well. However, what we certainly can do a better job of is coordinating across programs and with external partners and raising visibility of common issues with leadership. Other At-Risk teams in our region have been able to use the initiative as a way of focusing funding needs, thinking outside of the box, and being prepared to take advantage of new opportunistic funding sources when they come down the pike

#### STATE UPDATES – recording and PPTs available

- Sue Heath, TX
  - Documented double brood – both successful!
- Tim Keyes, GA
  - Seeing trend of decreasing barrier island pairs and increasing shell rake pairs.
- Emily Heiser, NJ
  - Documented AMOY using shade from beach chairs on a regular basis!
- Tim Guida, MS
- Janet Thibault, SC
  - New study looking at contaminants starting with Clemson University
- Beth Amendola, CT
  - High productivity in 2022
- Alex Wilke, VA
  - Barrier island pair numbers remain stable, productivity continues to be low
- Hen Bellman, DE
  - 5-12 breeding pairs in DE
- Maureen Durkin, RI
  - 42 pairs in the state with almost half at one site, Sandy Point Island
- Raya Pruner, FL
  - 518 pairs in FL (2021)
- Lindsay Addison, NC
- Carolyn Mostello, MA
  - 212 pairs monitoring in 2022, likely represents about 90% of state's pairs
- Rob Longiaru, NY
- Shiloh Schulte, ME, NH

- 10 pairs monitored in 2022, first birds banded in NH in 2022

## Q&A

- What is a mobi-mat? Mats put out at beach entrances for pedestrians. AMOY have clued into this that they are safe from beach raking if they are close to the mats.
- Human disturbance issues on Horseshoe Island, NJ?
  - From Emily in the chat: LOT of human disturbance issues on Horseshoe Island. It's been a bit of a logistical nightmare but we're very proud of the steps we've taken to address it. We petitioned our state's tidelands council for management rights to the island this spring. We got a 5 year agreement for a seasonal closure - we initially asked for a 20 year agreement for a year-round closure. The state, USFWS Edwin B Forsythe, and CWFNJ work in partnership to manage and monitor it. Our goal was 3-4 visits per week with full weekend coverage. Mostly achieved that. A lot of boating issues remain - hoping for more law enforcement help this year - they were waiting for the formal plan to be signed before they are able to fully assist.
- From the chat: Are nests on NJ town beaches protected?
  - Emily Heiser: Yes, all nests on municipal beaches are protected. Several of these pairs have been found over the years by beach-goers as they are not on sites that we regularly monitor as they are expanding into areas that they have not traditionally used.
- Are coons in MS relocated?
  - Pest management company, animals removed and released on private lands. No lethal control.
- Breeding in Canada yet? Usually 1 nest in southern nova Scotia but no data from 2022. Could be looking at recolonization of historic range eventually.
- From the chat: Is there limited monitoring in Delaware, or just very little nesting there?
  - Hen Bellman: A little of both! We cover areas of known breeding and I suspect we are missing more birds that nest inland in other marshes. But, we are also a small State with a short sandy coastline :)

## **AMOYWG NOTES - DAY 1, 12/6/2022 - AFTERNOON**

### **Coordinated monitoring and monitoring protocol and structure**

For years efforts were made to define terms and enter AMOY monitoring data in a spreadsheet. Some states struggled to provide this data because of uncertainty in the number of breeding pairs and productivity at the state level. In 2019, the WG began talking more in-depth with Rachel Katz- essentially modifying the protocols developed for piping plover. The efforts include a written protocol, excel templates, and an Esri-based app. Members of the WG from 5 states pilot-tested the spreadsheet and protocol in 2022. Pam Denmon/Lindsay Addison provided a tour of the database.

The excel file (database) is intentionally flexible to allow for survey frequency and coverage differences. Data that doesn't meet a particular threshold (e.g., infrequent survey coverage) can be filtered out if needed.

The protocol allows for the recording of nesting or territorial pairs- regardless of whether nests were confirmed. ##X is used to record territorial pairs, and XXA is for pairs with confirmed nests, allowing users to distinguish the two. ##R is used for renesting. Breeding unconfirmed in the banding database is the same as ##X for consistency.

Zak Poulton provided an overview of the app (Esri field map) casting his phone. He suggests downloading the area maps to store on phones to avoid connection issues in the field. The phone will sync once you are in the office and connected to the internet. Survey123 is also an option but isn't efficient for navigation to nests or territories. In comparison, field map allows users to navigate and see relational tables associated with data fields. Zak can share the app if anyone wants to explore it independently. Rachel can send the app packet, which can be sent to agency GIS folks and set up by IT or others, depending on the agency's direction.

The collaborative collective database is viewed as an opt-in effort. There will be a user agreement, and AMOYWG members can opt-in when there are data-sharing requests.

Data can be collected using any format. The excel spreadsheet/database is what we are interested in and can be entered from any format.

Erin King- showed visuals using the pilot data collected this 2022 season and presented using an R script and ArcGis Online.

Feedback from 2022 pilot-testers:

Katie- had a good experience using the protocol this year. It made for an easy transition between species by using separate layers within the same or between apps and using a mixture of field map and survey123.

Tim- found the app straightforward in the field. Had a couple of issues when unable to collect coordinates in the field, and manually entering was difficult. This was because they started using the app late and already had coordinates for nests. Some frustration due to the multiple tabs in the spreadsheet. Some issues with collecting data in remote locations due to connection issues.

Zak- if you oversee a project, it is user-friendly for interns, volunteers, etc. improves data collection.

Pam- it worked great. In the end, I had to modify the excel sheet. Some requested modifications for 2023, including abandonment as a cause of nest loss. It was easy to transition between species.

Allie- The features to navigate to nests or pair territories. It made surveys more efficient.

Q/A

Has anyone talked with Nest Story folks yet? Lindsay- no but within the realm of possibilities. It may be possible to crosswalk the two for data formatting/sharing. This would be useful for folks already using Nest Story and not wanting to use multiple apps.

Has anyone used the new app and Nest Story, and what are their thoughts? Nest story has a learning curve, and the new app may be more user-friendly. Zak- did use nest story when it first came out but ultimately went with the new app because they could already use Esri products. There are many similarities. He likes the dashboard features of nest story that show summary information quickly. The

auto-populated info is missing from Esri products (e.g., auto-assign hatch date when one egg nests are located). Todd- doesn't see the output as a sticking point but sees the difference between the apps as a potential issue. Nest story is nest based, whereas the field app is pair based. This would likely lead to the need to change nest story formatting. Beth (CT) said there is a way to record pairs (without nests) in nest story already, so maybe not as big of an issue. Shiloh- yes, this is a structural distance between the two, and that comes down to the biological relevance for the species. We discussed focusing on pairs vs. nests over the years and finally decided that for AMOY, we needed pairs to assess productivity. We weren't capturing all breeding adults with a focus on nests. For example, when predation is high, you may not detect nests for a breeding pair. We could also track territorial pairs that aren't breeding to determine if site-specific threats (e.g., disturbance) influence behavior. This change will hopefully also allow for consistency in data collection throughout the range.

Brian- can then pick lists to be edited? Currently, use Survey123. Is there a way to customize the app for their needs? For example, we like to have pick lists for band combinations. Otherwise, this is a QC issue. Lindsay- yes, the only thing standardized is the spreadsheet. You can customize the data however you need to.

Cape Lookout already uses a field collection app, but the data is collected somewhat differently. Would partial data be of interest? They focus on nest check info but can't collect complete site data. – Incomplete data is fine and the protocol/data entry allows for flexibility in coverage.

Lindsay entered data directly in the spreadsheet and does not recommend this approach.

Shiloh- members have asked if the spreadsheet would eventually be turned into a database like the AMOY banding database. The goal is to have something comparable to local, state, regional, and range-wide information annually and over time. However, we can do this without a database and need to be able to test and then fine-tune the data collection. Given the complexity of the data and the need to do QA/QC, it might be better suited as a more straightforward excel sheet for the time being. Long term, yes, we do want a database or data repository. That will need to be created and maintained. The first step is to collect data in the right way and then build off of that. The next step is to find the funds and the will to do so.

Pam- kept the pilot group small intentionally so that the productivity sub-team wasn't overwhelmed with questions, issues, and feedback.

General discussion in the chat about FieldMaps vs. Survey123- Erin King created forms in both, found users preferred FieldMaps. Emma LeClerc- I can't speak to this project, but in general Field Maps is used for map-based data collection and Survey123 is used for form-based data collection. So if you need coordinates every time, you'd use FieldMaps and if you're visiting a static point each time, you might be better off with Survey123. I'd like to hear how the two work in the pilot project though. Pam- Having the info in the template is what we are looking for. That is what would go into the database. (e.g., the app doesn't matter as long as you are populating the template).

General discussion in the chat about pick lists for banded birds, including PIPL- Pros and cons of that. Marueen- I've gone back and forth on whether it saves time vs. inadvertently encourages complacency, e.g. if someone sees a partial band they just assume it's something from the pick list that's close. I don't know if others have thoughts on this? Emily Heiser- I've definitely had those thoughts over the years.

Maureen- Ultimately having our banded birds in NS is much easier to assign to nests and search for pedigrees and resights. Hen Bellman- Also gone back and forth on that, Maureen. I ended up not giving surveyors this drop down option and they have to fill out every leg location in our Survey 123 template. Ultimately, I decided we would not count any partial resights. Maureen- Thanks Emily and Hen. We haven't previously had enough banded amoy to make it a big deal either way, but we are getting there now. No easy answer!

### **Dan Gibson- Integrated Population Modeling for AMOY**

Dan talked about the potential use of the AMOYWG band resight data and how it can be used for the conservation of AMOY. His presentation provided an overview of Integrated population modeling (ITP) and descriptions of how it can be used for decision-making.

He provided modeling of SY and TY resights and the timing of first breeding, there appears to be a latitudinal gradient. At lower latitudes, birds are more available and breed earlier. Recruitment may be more likely in lower latitude states. In comparing GA and NC, NC had a higher growth rate, with a substantial difference between the two states. Strong evidence of meta-population dynamics related to young pre-breeding birds found in other states.

The sample model isn't designed to ask any questions at this point. If we have conservation questions (e.g., sea level rise), the model can be used to understand how vital rates are impacted (e.g., is sea level rise influencing hatch rates, chick survival, adult survival) and what it means for the future.

*Discussion-* Would an IPM be useful, and what is needed? Is this something the AMOYWG wants to invest in, and what types of questions are we interested in?

*Support for the project* will require maintenance and expansion of the demographic database beyond what the WG already reports and demographic modeling.

Q/A

Beth (CT)- In thinking of sea level rise and large-scale restoration projects- is there a way to use this type of modeling to assess proposed restoration projects to see if they will improve conditions for AMOY and other species? Dan- yes, we could evaluate the cost of sea level rise vs. the benefit of restoration actions.

Shiloh- This is an important next step for the work of the WG and is related to the origin of the AMOY recovery initiative. We want to be able to assess how well we are doing and reevaluate productivity goals for AMOY throughout their range. Having something we can use beyond predicting population growth and asking specific conservation questions would benefit the species' long-term recovery.

Dan- another use would be able to use the wintering survey estimates to evaluate the productivity needed to drive the winter population changes. This would allow us to estimate productivity in areas where it might be currently uncertain.

Emma- Intersected the additional parameters – how would you scale up? Dan- if the question was at the sub-state level, we could look at how patterns of habitat-related metrics feed into state metrics and then feed into range metrics- think about it hierarchically. The level of complexity matches the level of the questions.

Zero-inflated count distributions for capture-mark-reencounter data- a new paper that models temporary immigration using the AMOYWG band database.

### **Shiloh Schulte- Overview of coordinated winter aerial/ground AMOY survey**

The development of a range-wide survey was a priority. It established a population baseline and allowed the WG to evaluate conservation actions and population benefits. The paired air/ground surveys are the benchmark for tracking AMOY population change.

For 2023, members of the WG will be needed to help with these surveys to either help take photos from the aerial flyovers or for the ground counts.

Surveys are stratified based on the likelihood of occurrence. Small flocks can be missed from the air, and the ground surveys are paired to use as a correction factor. Photos can also be used for this. The ground counts have been crucial to ensuring roost flocks are documented. In 2018, the detection rate for small flocks from the air was 0.83. The time observed and location allows for the estimate of how many AMOY were missed. The ground counts also provide information on age structure.

For 2023- we will also be coordinating with international folks, given the known occurrence of banded AMOY migrating to central America.

The 2023 AMOY range-wide survey is planned for Jan/Feb. Surveys are possible for early March, but we want to avoid them because of conflicts with breeding surveys. We will need to look for periods with high amplitude tides to ensure AMOY will be at high tide roost sites.

We want to ensure we are tracking efforts during ground surveys to be used as a match for future grant funds.