2024 AMOY Working Group Meeting Notes

<u>**Day 1: December 3rd**</u>

Introductions – 43+49 =92 participants this year!

Group Photo (virtual and in-person)

2024 Range-wide breeding season overview - Shiloh Schulte

- 2000 - AMOY species of concern
- 2001 – first AMOY WG meeting
- ~First years' summary: cooperative banding agreement and identifying research needs
- 2008 Oystercatcher Recovery Initiative
- 2012 database established
- 2015 Atlantic Flyway Shorebird Initiative
- 2020 BOTW Account Published
- Winter Surveys: 45% increase since 2008 (last 15 years)
    - 2003: 10,971 AMOY
    - 2008: 10,150 *estimated
    - 2013: 11,284
    - 2018: 12,453
    - 2023: 14,735
- Conservation Strategies
    - Coordinated management
    - Coordinated monitoring
    - Consistent standards
    - Conservation scale - AMOY *mostly* in the US year-round
    - 950 miles of shoreline
    - 1650 AMOY pairs
    - 40+ partners (Federal, State, NGO, private citizens)
- Accomplishments
    - Mark-recapture
    - Predator BMP
    - Disturbance BMP
    - Expanded Capacity
    - Winter population surveys
    - AMOY website
    - History/trends in productivity
    - Multi species benefits
    - Foraging habitat restoration
- 2024 productivity
    - Increase in latitude correlated with increase in productivity
    - Distribution of adult population uneven throughout the range

- o Productivity:
  - ▪ Average 0.29 productivity before 2009
  - ▪ 2024 – 0.56 productivity
  - ▪ Average 0.50 productivity after AMOY recovery initiative in 2009
- o Current objective:
  - ▪ Increase population by 50% (from 2008)
  - ▪ Productivity >0.5 chicks/pair
  - ▪ Manage current nesting, roosting, and foraging habitat
  - ▪ Create and restore habitat
  - ▪ Reduce human disturbance
  - ▪ Manage predation
  - ▪ Build a constituency of public support for AMOY conservation
  - ▪ Support and leverage cooperative mark-resight program
  - ▪ Develop shared database for breeding season data
  - ▪ Address and develop strategies to manage impacts of marsh erosion and sea level rise
- o Questions:
  - ▪ Next 15 years funding discussion? - NFWF supportive of continuing the work to additional 10 years (2029) as a part of the Atlantic Flyway Shorebird Initiative – funding not for AMOY exclusively
  - ▪

2024 State/Region Updates

Each state/region/country to give 5-min update + questions

Maine and New Hampshire:

- 4 pair in Nova Scotia also
- Rocky/pebbly substrate on rocky islands (similar habitat to BLOY)
- Typically nest within footprint of the colony
- Isles of Shoals 4 pair (1 pair in NH, 3 pair on Maine side)
- Question on color of bands used: Answer - Yellow bands

Maryland:

- Assateague Island
  - o North 71%
  - o 2%
  - o Over Sand Vehicle 10%
  - o State Park 17% breeding population
- Banded 78 oystercatcher chicks since 2016
- 3 of the chicks banded have returned to nest
- 1 observed in Nicaragua

Texas:

- 1st nest Feb 13
- Last next June 6
- Hit with 3 large storms this year
  - May Derecho
  - Tropical Storm Alberto
  - Hurricane Beryl
  - Lots of overwash across shorebird species
- 3 transmitters

Alabama:

- Productivity of 0.22 fledglings/pair
- Quite a bit lower than 2023 (1.14) and 2022 (0.88)
- Band Resights:
  - AAH
  - Red W48
- AAF(seen at Cedar Key), AA3 (seen at Alligator Point), AAY
- Audubon Coastal Bird Surveys
- Continue Breeding bird surveys and banding efforts

Florida:

- 900 miles of coastal habitat
- 274 nests
- 37% hatch rate
- 219 breeding pairs (2024)
- 85 Fledglings
- Primary nest fates: unknown (45%), Overwash,
- 8 AMOY pairs (6 with confirmed nests) on rooftops
- Game camera used to monitor nests on rooftops
- FSA partners confirmed recruitment on rooftop from ground nesting AMOY
- AMOY adults fed chicks under chick shelters
- 92 fledglings from ground sites and rooftops in 2024
- Tolomato River 2024
  - 30 pairs nested
  - High reproductive potential
  - Grew by 10 pair in recent years

Georgia:

127 pairs – 79 with nests

57 chicks hatched – 36 chicks fledged

50% pairs on shell rakes – 70% of productivity

In the past, a high percentage of productivity came from offshore bars, but that is shifting to oyster rakes, barrier islands have suffered from high mammalian predation

Successful cannon-netting – banded 24

Banded 28 chicks statewide

Resight surveys in January-February

Total 677 resights - 348 unique birds

Thermal nest monitors:

- Remote sites that cant be monitored frequently
- Site with high predation

South Carolina:

- Crab Bank restoration
    - 3rd year of nesting since restoration
    - 32 acre island
    - 17 pairs, 21 nests, 8 fledges
- Cape Romain:
    - Stewardship of remote (boating only accessible)
    - Successful example of stewardship
- Continue Fall and Winter resighting
- 2001-2014 resight data and hopes to have manuscript out in 2025 documenting distribution of roost sites in SC
- AMOY tracking (satellite tags) in partnership with SCDNR

North Carolina:

- Annual Productivity Monitoring
- About half nest on barrier islands (60% breed on barrier islands)
- Productivity of 0.43
    - Barrier islands (
    - 0.31 at natural and dredge sites
-
-
- Larger barrier islands tend to do better than the smaller barrier islands
- Causes of failure: Predation
- Had unusual case of a coyote burying 2 AMOY nests instead of predating eggs
- Captured game camera footage of overwash from large ship passing by on low-lying oyster rakes
- Documented BAEA predating embryos and larger chicks
- AMOY poop-based diet study
- State-wide banding 2004-2024
- Conduct non-breeding surveys during the fall and winter (5 sites conducted monthly)

Virginia:

- Collective monitoring efforts collected by many partners state-wide
- AMOY nesting distribution:
    - Shoreline of Chesapeake bay
    - Seaside lagoon
    - Barrier islands (support about 50% of state-wide breeding population)
    - Almost 40% on just 2 barrier islands (Metompkin and Cedar Island)
- June Breeding AMOY surveys
- 959 total pairs state-wide: (567 breeding pairs on barrier islands)
- 0.37 productivity
- Recent research found 0.4 necessary to sustain population in Virginia
- Assateage and Assawoman had highest productivity since 2013 and 2014! Low storm and predation impacts
- Plum Tree Island (not accessible, but documented 8 pair of AMOY from surveying by the water)

Delaware:

- Expanded to inland bays (survey once/month by boat) increased AMOY detection
- 8 breeding pairs, 5 fledglings, productivity of 0.63
    - Inland bays: 4 pairs, productivity of 1.25
    - Beaches: 4 pairs, no productivity
- Chick detection is difficult with monthly frequency, saw 5 fledglings
- Overwash is impactful on achieving productivity
- Re-instating a banding project in 2025
- Drones for monitoring (in early process)

New Jersey:

- 207 pairs monitored in 2024 – Atlantic coast beaches, and marshes (most marsh birds not monitored)
- 62 monitored nesting sites
    - Holgate – 53
    - Stone harbor point – 26
    - Horseshoe island – 15
    - Sandy hook - 11
- 56% predation, 30% undetermined/other, 11% flooding,
- Non-lethal predation management – fladry
    - Ultimately coyote depredated nest but nest lasted longer than other AMOY nests in area
- 1 AMOY nest with fladry (coyote did predate nest but nest survived longer) 1 plover nest with fladry did survive. Will continue experimental
- Chick provisioning study
    - 1 hour observations – analysis underway

Rhode Island:

- Southern sites – AMOY and PIPL on beaches (23 pairs)
- Narragansett Bay – offshore islands – statewide colonial waterbirds survey in May (24 pairs)
- 47 total pairs in RI – closely monitored subset is 0.61 chicks/pair
- Largely unsuccessful on mainland beaches – most fledges come from islands
- Many unoccupied suitable habitats
- Nest site at Quonset airport – fledged chick

Connecticut:

- 93 breeding pairs (230 individual) – productivity 0.75
- Losses from predation (85% nest loss) and human disturbance
- 80% nest on offshore islands – more productive 1.0
- 20% on mainland beaches – 0.04 productivity
- Storms major overwash leading to reduction in nesting habitat – increase in intraspecific competition
- Observed communal brooding in response to human disturbance
- Nest camera project – fox and coyotes on mainland sites
- Predator management with rats – removed 15 rats from site (common rat, also die-off of slipper shells, so rats more of an issue now with AMOY eggs, 2 pair AMOY did not have issue with rat predation in 2024 after rat management)
- 80 banded birds total – 26 fledglings
- Pilot project in 2025 to use solar powered GPS trackers

Avery Nagy-MacArthur from Birds Canada here:

- just wanted to share that we had 3-4 breeding pairs of AMOY here in Nova Scotia this summer. It's incredible to see the amount of effort being devoted to AMOY monitoring across the range! We don't formally survey for them in NS but we do encounter them through our work with Piping Plover, and we're considering attempting to monitor them more formally.

Massachusetts:

- Liz Olson - Quick MA numbers from our August meeting 250 pairs and 200 Fledglings with still some on the beach for productivity 0.91 to 1.01 chicks per pair
- Martha's Vinyard 18 pairs with 31 fledglings

New York:

- Rockway Beach
  - 36 pairs
  - 45 chicks
  - 1.25 productivity
- Jones Beach

- o 11 nesting pairs
- o 0.5 productivity

It's Complicated: the relationship between foraging ecology and reproduction for AMOY-Kate Goodenough and Lindsay Addison

- 400 pair AMOY in NC
- Use a variety of habitats
  - o Barrier Island Beaches (45%)
  - o Natural and marsh islands (36
  - o Artificial dredged spoils material islands (19%)
- Nest survival 0.2-0.75
- AMOY nesting landscape constraints
- The timing and intensity are highly variable which creates opportunities for behavioral tradeoffs (hunter et al. 2017)
- Barrier Islands mammalian predation
- Natural and barrier islands (overwash)
- AMOY foraging ecology
  - o Shellfish specialists (94%)
  - o Some specialization of mole crabs
- Nocturnal foraging dynamics for AMOY are relatively unknown (Sanders et al. 2013)
- Foraging trips involve cost-benefit tradeoffs
- EUOY pairs with walking access to foraging habitat have significantly higher productivity (Ens et al., 1992)
- AMOY research in NC found no affect of adjacent foraging habitat on nest survival but best model predicted lower survival for broods without direct access to foraging (schulte& Simmons)
- Project Questions:
  - o What tradeoffs have AMOY developed to mitigate increased energy demands of reproduction?
  - o Does
  - o The
- Methods: Study Design
  - o Barrier Islands, dredge-material, and natural islands
  - o Foraging ground adjacent to nesting territory or not
- Methods-GPS telemetry
  - o 31 AMOY deployed with GPS dataloggers (<3% of body mass) across the hNC coast line
  - o Trackers were deployed for 12-30 months using a reinforced leg-loop harness
  - o Data collection ranged from 30-120 minutes depending on season
- *some data loggers were unable to be collected as AMOY did not breed each season (storms)
- Methods: Movement analyses
  - o The 'geosphere' package in R to calculate foraging distances

- - The 'move' and 'move2' packages in R to calculate movement tracks
    - The 'ctmm' package in R to calculate autocorrelated kernel density estimation of forage territories and home range estimates
    - The
    - 'lmer' and 'stats' packages in R to create mixed effects models and conduct repeated measure ANOVAs
    - ArcGIS Pro 3 for map development and calculation
- Results: tracking study
    - 70,000 data points were generated for the project (N=31)
    - Tracks ranged in length from 5-30 months
- Results: foraging distance
    - Cape fear
    - North barrier islands
    - South barrier islands
- Females travel significantly more than males regardless of location or habitat
- Forage Adjacency
    - Birds with forage adjacent traveled less than those without foraging adjacent
- Looking at day and night, foraging in similar locations
- But when split into dawn, day, dusk, night--> most foraging occurs during dawn
- Nesting territory size was larger for AMOY nesting at Pea Island NWR and Cape Lookout.
- Nesting territory size was much smaller for spoil island birds
- Found that there was not a lot of overlap between different types of birds nesting (spoil overlap with spoil but not with marsh nesters)
- Question: do males tend to protect the chicks/nest/territory more so than females? perhaps a factor in what influences females having a greater foraging distance than males?
    - Potentially
- Q: how does forage adjacency affect productivity? A: Yes it does benefit productivity
- Q: how did you account for tide in the models in the analysis of time of day? A: input tide as a random variable, but it really seemed dawn was the time AMOY forage regardless of tide.

Movement patterns of AMOY in PFAS influenced Charlston Harbor, SC

- PFAS – highly persistent in environment, widespread, high potential for bioaccumulation and biomagnification, contamination in marine animals
- Contamination in marine animals recorded across the globe
- Aqueous fire fighting foam (AFFF) use - how does avian space use influence PFAS use?
- Earlier studies focused on dolphins – and estuarine sediments
- Six fish species all had PFAS contamination (Fair et al. 2020)
- Pelican Eggs also found PFAS
- PFA levels in eggs were similar to levels detected in other avian species but were not correlated between 3 different locations
- Eastern oysters may be able to deduce intracellular concentration of PFAS over time – Mobile Bay USA (Boyd)
- Methods: collected oysters, fish from trawl surveys, bird feathers, blood, eggs

- GPS tags on 27 oystercatchers (12g gps tag with solar panel, put in crate to ensure fit and able to walk around before releasing)
- Non-reinforced tags (45 days) reinforced tags with nylon (128 days)
- Ctmm package in R
- Subset to nesting season (April to August 6th)
- Charleston Harbor (18 individuals) Intra-coastal waterway (9 individuals)
- Fit movement models
- Calculated 95% estimates of space use (AKDEs)
- Average amount of PFAS in water samples
- Sum of 54 targeted PFAS compounds EPA drinking water limit = 4nanograms/liter for PFOA and PFOS
- EPA currently regulates these two and has been phased out of industrial products
- Future Work
    - Hidden Markov Models with accelerometry to identify high use foraging areas
- Question: did you find the tags that were dropped? A: Yes, found and reinforced and re-deployed. Had 1 owl depredation with a reinforced tag and was able to recover
- Question: what is going on with the PFAS levels much higher than EPA limits for drinking water? A: I pulled the level in to give a reference. Some of the 54 compounds were higher but sum of different compounds and unknown levels of bioaccumulation but known sources.
- Question: what will be done with data if effect is found (presumable yes on AMOY) will there be mitigation? A: not sure but don't have data on effects of PFAS on AMOY
- Question: How did the levels of PFAS identified in eggs? A: collected 1 egg from each bird that was tagged, sent to chemist for analysis and Yes, homogenizing the entire egg.
- Question: are they not going up the river? A: yes, up to 10km

Delaware Bay AMOY Project – Story Map – Megan Kolk and Emmy Casper

- NFWR DWCF funded 2 year project
- Conserve Wildlife Foundation of NJ with partners of Wetlands institute and USFWS Delaware Bay coastal program
- Goals:
    - Determine abundance, distribution, threats, and productivity
    - track movements within and between breeding seasons
    - Characterizer nest sites to understand preferences and suitability to inform management and future restoration projects
- Walking through StoryMap website:
    - Storymaps.arcgis.com/stories/
    - Goal to engage the public (e.g., video clips, links to pages on topics of interest)
- Annual census of 35 sites with 15 that have active nesting
- Taking RTK measurements to help with future restoration projects
- Spraying invasive plants
- Game cameras – documenting predators (e.g., red fox) interactive ability to go through game cameras (sorted to selected photos only)

- Quadrate to document habitat
- Monitoring photos
- 13 game camera photos of an interesting AMOY nest to engage people
- Mink documented on camera (but fox tracks to/from nest)
- Overall, game cameras very helpful!
- Started deploying transmitters on the bay shore and are thinking about a spin-off on this StoryMap
- Q: website advertised anywhere? Not public yet, but after approval it will be available.
- Q: what is the long-term plan, will it be static once it goes online? A: somethings are easier to update, but more likely to have related spin-offs on different topics.
- Q: is there additional funding for the project? A: 3 more years of funding for this project. It was a lot of work and it took a while to get it to where it is now.

Human behavior change (the presence of rangers and cameras in CT –Milan Buscher et al.

- Stewards, Cameras, and human behavior
    - A problem and the solution
    - Human behavior causes severe shorebird disturbance!
        - Entering nesting areas
        - Interrupting foraging
        - Trampling eggs or chicks
        - Dogs
        - ATVs
    - Physical barriers, signs, and information campaigns help but might not be enough
        - Stewards: educational, motivational., multi-functionality, high-costs)
        - (Wildlife) Cameras: Observation & deterrent, legal issues, low-cost
- Milford Point
    - Barrier beach – frequented by anglers, birders, beachgoers, dogs restricted
    - Audubon alliance monitors – PIPL, AMOY, LETE
    - Management – fenced off areas, daily monitoring and public outreach
    - Signage had more "why" explaining
    - >25 ft distance, walking around birds, paying attention to bird behavior
    - May, June, July study observation
- Results
    - 276 observations, 193 rangers, 126 cameras
    - 20 interviews
    - 76.4% walkers or birders (some runners, fisherman)
    - 35.1% kept >25ft distance
    - 21.8% walking around birds
    - 43.5% paying attention
    - Variables: **(insert photo)**
        - Steward presence (no effect)
        - Steward interaction (positive effect)
        - Camera presence (negative effect

- ▪ Sign interaction (no effect)
- ▪ Purpose of visit (negative effect people and model camera)
- ▪ Group size (no effect)
- ▪ # of other people present (positive effect)
- ● Interview results:
    - ▪ Positive evaluation "I think they do a great job here"
    - ▪ Familiar behaviors "keep people away from nesting terns and plovers"
    - ▪ Intrusion-->conflict "I think sometimes they can get carried away […]"
    - ▪ More interaction "The informational part segways to the enforcement"
- ● Practical implications (meaning of the results)
    - ▪ Stewards and cameras: the mere presence does not have an effect. Importance of interaction, social influence and information.
    - ▪ Fostering positive interactions: Training stewards and providing more opportunities for interaction, could reach different types of people.
    - ▪ Small effects: we only measured relatively small effects. There are plenty of potential reasons, but it is important to repeat at other locations.
    - ▪ *Already 2 rangers rotating at this beach, possibly responsible for less ranger effect
    - ▪ *interaction does have an effect, explaining the "why". This is the same site where there have been issues with disturbances to photographers in the past – big bird staging area
    - ▪ We've tried tabling – doesn't appear to work.

Overview and feedback about products teaching 1. effective communities of practice or 2. how to measure human behavior change - Sami Thomas

- ● Using community-based social marketing to promote behavior change
- ● What types of disturbance are you experiencing?
    - ● Non-compliance with rules
    - ● Dog disturbance
    - ● Disturbance by beach walkers
    - ● Disturbance by vehicles or boats
- ● Regulatory signs: are a common tool used to communicate rules and notify laws in the absence of law enforcement
- ● Information Panels: purpose to increase knowledge about a subject (history, what they look like, etc)
- ● Knowledge-deficit (assumes that changes in behavior are group to providing info): but...merely providing information has little or no effect on changing people's behavior
- ● Predators now wipe out 70 percent of shorebird nests in the far north, a shift in historical patterns that scientists.....
- ● Doom and gloom: but.....despite a majority.....
- ● Behavior change
    - ● Laws, policies, and enforcement
    - ● Change the context

- - Strategic communication
- Voluntary compliance
  - To promote behavior change in areas with little support from law enforcement
- Community based social Marketing (CBSM) Five Steps:
  - Select behavior to promote
  - Identify the barriers and benefits
  - Develop strategy
  - Pilot strategy
  - Implement broadly and evaluate
- CBSM is most effective:
  - when behavior change is central to the problem
  - When there is a clear and direct audience to target
  - Social influence and norms play a role
  - Clear barriers and benefits
- CBSM is not just outreach
  - Integrates scientific rigor with insights from social science…
- Transdisciplinary approach
  - Biological Science
  - Social Science
  - Applied expertise and knowledge of managers and practitioners
  - Collaboration through a community of practice
- 23 CBSM campaigns from Canada to Brazil
- Case Study 1
  - Hirtle's Beach, Nova Scotia
  - Goal: improve respect for symbolic fencing and walk on the wet sand
  - Strategies: prompts, communication
  - Evaluation insights:
    - Observations collected
- Case Study 2
  - Higgins Beach, Maine
  - Goal: Leach dogs in designated buffer zone to prevent disturbance in restricted area
  - Strategies: Prompts, communication, social diffusion, incentives
- CBSM works
  - Follows a systematic process with evidence-based approaches
  - Offers a new perspective through the lens of community members
  - Minimizes barriers to participation and engagement
  - Ability to evaluate applied outcomes
- Producing 2 guidance documents
  - 1: Communities of Practices (CoPs)
    - Deep dive into what CoPs are, the benefits of participating in them, challenges to consider and when they can be a good tool
  - 2: Evaluating Human Behavior Change: inns and outs of evaluation designs….
  - *Stay tuned for virtual feedback session on these two documents*

- Co-produced online toolkit: sos.atlanticflywayshorebird initiative....
- 2025-2027 proposed plan

Investigating drivers of nest and chick survival in the Virginia Barrier Islands - Mikayla Call

- AMOY productivity in Virginia (0.28+/-0.07) lower than recovery goal
- Research goal: what may be causing lower than expected productivity and what does that mean for management
- Metompkin Island
- Fisherman Island
- Methods:
    - Routine surveys 1-3 days
    - Radio tagged AMOY chicks (<g)
    - Quantified survival using a logistic exposure model, implemented in a bayesian framework:
    - Using the same model, investigated the effects of several predictor variables on survival
        - Year
        - Age (linear)
        - Age (quadratic)
        - And ~10 more
- Cumulative probability of nest survival: 62% never hit 50%
- Chick survival was very low
- Hatched (close to 50%), flooded, predated, eggs did not hatch, abandoned, unknown failure, unknown fate.
- Nest:
    - Survival increases with temperature
    - Lower survival farther from the high tide line
    - Survival decreases with age (
- Chick Fates suspected from field evidence (fledged, predated – avian, predated- ghost crab, trauma (brain) weather, unknown mortality, unknown fate.
    - Survival is much lower for chicks that hatch later
    - Survival is nonlinear and greater for older chicks
- Ghost Crab Study: when are ghost crabs burrows present? When are ghost crab burrows more abundant?
    - Probability of zero burrows decreases with time (i.e., more ghost crab activity later in the breeding season
    - More burrows later in the season...
- Key takeaways:
    - Chick survival may be driving low productivity
    - Chicks hatching later in the season face different threats—specifically, ghost crabs.
    - Predator management is complex
    - Increasing need to manage for flood risk
- Habitat effects: changing patterns of habitat availability and habitat quality

- Objective 1:
- Objective 2:
- Assess spatiotemporal patterns of landcover change from 2004 to 2021 using supervised classification of NAIP
- Define suitable oystercatcher

- The Virginia barrier island system is rapidly changing (changing habitat classes, more shrubs, survive better with warmer winters)
- Preliminary habitat selection model: metompkin island 2004 and 2021
  - Select nest sites in area with more dry sand and herbaceous vegetation
  - 2
  - 3
- Habitat increased 10% from 2004 to 2021, why? More oystercatchers on Metompkin, so have to use more of the landscape
- Going to look at if habitat designation affects nest survival.
- Q: distance of chicks to identify home range?
  Q: have you looked at the total number of chicks fledgling from the island? A: no, but might want to. Shiloh – look at density dependence vs. predation
- Q: have you looked at chick provisioning? A: all chicks seemed fairly healthy so did not start doing provisioning studies
- Q: types of predators
- A: peregrine, owl for avian, shouldn't be mammalian because of management, but sometimes are still there

Next Topic: Community connections to protect Georgias shorebirds – Abby Sterling

- 3-progned approach
  - Wildlife beach zones at public beaches
  - CARE certification for ecotourism companies
  - "all in the same boat" outreach with recreational boaters
- 6 of the 28 species estimated to have lost 50% of more of their abundance over the 40-year period analyzed
- Declines are accelerating for 18 or the 28 species…
- Disturbance:
  - Recreational disturbance limits habitat availability
    - Lowered body condition, decreased survival in wintering piping plovers at crowded beaches
    - Dogs, people reduce nesting success
    - Reduced feeding time, wasted energy, carryover effects
  - Provides opportunity for education and outreach
- A "people problem" needs a people solution
  - Community-based social marketing five-step approach
- "Wildlife Beach Zone: Please stay on the wet sand!" sign non-regulatory
- Increased Protection: Stewards,

- Dogs look like predators to shorebirds!
- Partnering with local beach managers
- Trained 100 people
- C.A.R.E. certification for Ecotour Guides
- Building and growing a community
- Waiting list for 2025
- 59 total participants with 55 guides certified
- As of September 30th, 18,822 people have been reached through our guides
- Guide buy-in: growing community, partnerships, and volunteering
- Potential opportunities to expand or scale-up
- Results from working with recreational boaters
    - 40 intercept surveys to boaters in remote sites – over 80% of respondents viewed signs
    - Education events at 3 high traffic marinas, boater groups including Americas' boating club, freedom boating club,
    - Boater toolkit access form: https://forms.gle/7YGVVkMJudaMEhT38

Species at Risk Program – Caleb Spiegel

- USFWS At-Risk Initiative
- Team functions/value:
    - Increase communication w/in FWS and among partners (e.g., NEAFWA and AFC)
    - Increase opportunities for combined resources
    - Address management challenges in new/creative ways
    - Raise visibility of shorebird issues w/in FWS
- Habitat – Disturbance - Predation
- **Conservation of the American oystercatcher national wildlife refuge system needs assessment and recommendations** – report ready from Dec. 2022 survey
    - Questions:
        - Life stages supported at refuge and marsh use
        - Priorities driving management (is AMOY a resource of concern? How are actions being funded?
    - 23 staff from 40 refuge station: 17 states responded
        - Follow-up interviews, October 2023: clarify needs and barriers: increase accuracy of insights and….
- Findings:
    - Most refuges ~70% identify AMOY as Priority Resource of Concern – multiple life stages
    - Predator management: 6 need, but don't do it, 8 refuges do it but unsatisfied
    - Human disturbance: nearly all have breeding season concerns
    - AMOY WG: 20 of 23 interested in AMOY WG, 50% = not yet engaged --> some signed up
    - Banding and monitoring: most staff interested --> results used to engage biologists
    - Capacity: Nearly all needed --> surveys and habitat restoration

- Main Recommendations:
    - Human Disturbance: use adequate social science tools (CBSM), trained stewards; and ensure consistent/timely LE access
    - Predation Management: access to tools and adequate staff; cross jurisdictional shared info/support
    - Restore priority habitat: $...
    - Prioritize adequate staff and resources: not all refuges w/AMOY have resources to meet need
    - Expand coordinated monitoring and tracking: refuges encouraged to support coordinated training efforts (AMOY WG) --> mgmt broader context
    - Emphasize partnerships and training:...
- **Marsh Habitat Modeling Project**
    - Team priority: identify importance of marsh habitat to AMOY --> prioritize acquisition, restoration, and management
    - Background: Atlantic coast joint venture – focus on 3 saltmarsh species
    - Use of marshes of interest for AMOY
    - Monitoring challenges on Refuges
    - Project details:
        - Funding: NFWF Delaware Watershed Conservation Fund (FY 24 round)
        - Project:
    - Deliverables:
        - Saltmarsh sparrow and AMOY probability of occupancy from Maine to Virginial (using veg layer)
        - Hotspot identification for areas important for both species
    - Progress:
        - Vegetation modelling underway U of Connecticut
        - Deliverable: tool in google earth engine –change over time
        - AMOY – Saltmarsh Sparrow occupancy modeling starting Late 2025
        - New USACE-USFWS MOU in final review (to meet 70% beneficial use goal by 2030)
        - Pre/post restoration rapid assessment (SHARP) surveys from VA to ME: starting June 2025
        - Future aspirations – subsequent phase(s) ground truth hotspot model and incorporate additional datasets
        - Inform restoration practices of Delaware bay marshes to benefit at risk species
        - Pilot restoration project aimed at measuring benefits to shorebirds and SALS
        - Contact Noah Kahn: noah_kahn@fws.gov
        - Ghost write funding proposals where priorities overlap
        - Law enforcement and regulatory coordination
        - Predator management

- Survey and banding protocols
- Collaborative projects that pool funding sources
- Restoring or creating habitat (e.g., use of dredge) increased collaboration on training and sharing of beach stewards/volunteers