

# **Black Oystercatcher Science & Conservation Leaders' Workshop**

**April 24, 2019 - 8:30am-4pm**

**Inverness, California**



**Workshop Summary Report**

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## **WORKSHOP SUMMARY**

### **Key accomplishments and current snapshot**

- Program is focused on science and stewardship of the black oystercatcher.
- Seven years (2012-2018) of productivity data collected on ~100 km of coastline in California and 5 years (~96 km) in Oregon with combined California and Oregon estimate representing ~8-10% of the global population of BLOY.
- Conservation activities occur on about 20% of optimal BLOY habitat in California, and 70% in Oregon. This mainly comprises reducing disturbance by raising awareness of nesting birds. Awareness substantially raised among the coastal communities, ocean users, and public at large. Tools are permanent or temporary signs; conversations/advocacy; flyers, magnets and buttons.
- Program includes about 160 volunteers annually, reporting to six coordinators in California and one in Oregon. There are three paid coordinators in California, and one in Oregon.

### **Program products**

- Enhanced understanding and protection for ~8% of global population of black oystercatcher (this number will be refined in 4<sup>th</sup> paper).
- Two papers have been published, one is in review, and a fourth is in prep. Key published findings thus far include a population estimate for CA; a population estimate for OR; and a population viability analysis for CA.
- Productivity studies will be published (4<sup>th</sup> paper, in prep) and all data will be transferred to and housed in BOEM's Multiagency Rocky Intertidal Network. This interactive platform will allow easy access of spatial and tabular data on BLOY locations and productivity by year.
- Contribution of Oregon BLOY abundance data to Rocky Shores Management Strategy update which will potentially inform new site protections through an on-line inventory tool that will be used for developing site designation proposals.
- Outreach materials developed, printed and available for further download and printing from Audubon California website and for Oregon's program at the Portland Audubon BLOY webpage.
- The online drop-down reporting form for productivity studies, ensures standardized data, each year, from all regions.

### **Objectives and plan for the next 5 years: group consensus from roundtable discussion**

- Leads in all regions in CA, and Oregon, are committed to collecting 10 years of productivity data at or near the current level of effort. Sufficient numbers of trained volunteers are likely to remain engaged and available. Several participants pointed out the need to keep volunteers engaged consistently in order to keep retention rates high. Volunteers also want to know when the study will end, and what the result is of their effort. Giving talks with statewide results important.
- BLOY may be stable at the moment, but the species is highly vulnerable to climate change impacts. This underscores the importance of index monitoring, and an intermittent

population census. The group agreed to develop an index monitoring plan for each geographic area, and participate in a once-every-10-year population assessment.

- Funding is needed to print interpretive materials from existing designs. Substantial funding is needed for permanent signs to be designed and installed in California.
- Audubon California/NAS will: Help to hire and advise California Community Science Manager and data curator for the CA BLOY Program (hired by Point Blue or another entity) that will be responsible for hosting online reporting form, make updates as needed, and host website. Oregon has an existing Coastal Community Science Coordinator whom Portland Audubon plans to retain on contract for the next 5-years as long as funding is available.

### **WORKSHOP BACKGROUND & JUSTIFICATION**

Audubon California, USFWS, and partners established a Black Oystercatcher monitoring program in 2011 that has advanced conservation efforts for this species through a California-wide population estimate, nest productivity monitoring, and an outreach program to enhance public awareness of oystercatcher and rocky intertidal conservation. The program has been successful and resulted in publications, data sharing, public engagement, and has informed on-going management efforts to minimize impacts to oystercatchers. A similar Black Oystercatcher monitoring program was re-established in Oregon in 2015 by Portland Audubon, USGS, USFWS, and other partners and has since achieved similar successes as the California program. This work has helped to fulfill the USFWS' Conservation Action Plan for the species. Now, Audubon California must transition to low-cost "maintenance" mode for this program. This workshop was organized to move this transition framework forward in a thoughtful manner that supports agencies' and NGO's efforts to continue monitoring and conservation activities.

**BLACK OYSTERCATCHER CONSERVATION PLAN<sup>1</sup> – ASSESSMENT OF CA & OR PROGRESS**

<b>BLOY Conservation Plan recommendations</b>	<b>Recent accomplishments of the CA and OR BLOY Monitoring Program</b>	<b>Future plans for the CA and OR BLOY Monitoring Program</b>
<b>Assess nonbreeding distribution, and migratory connectivity between breeding and wintering areas</b>	A pilot winter distribution survey was conducted by USGS in Oregon in 2010 but never compiled into report.	<p>BLOY in Oregon and California may attend breeding territories year round, and are not known to undertake long distance migration from breeding territories.</p> <p>No immediate plans for a state wide winter distribution survey though Portland Audubon may take this on for Oregon within the next 5 years through a community science effort.</p> <p>Interest in banding/satellite tagging but no immediate plans.</p>
<b>Develop and define breeding habitat suitability models to target survey efforts and improve population estimates</b>	Weinstein et al. 2014 used GIS tools to associate fine scale habitat types with density of oystercatchers. This provides a coarse index of habitat suitability.	No plans. Oregon population estimate includes almost all viable breeding habitat (except a few off-shore island).
<b>Estimate population size of Black Oystercatcher breeding in the southern portion of the range</b>	Audubon California led the effort to provide the first California population estimate ( <b>4,749-6,067</b> ) (Weinstein et al. 2014); USGS developed an estimate for OR ( <b>321</b> : 262 -511 CI) and WA ( <b>311</b> 276-382 CI)(Lyons et al. 2012); Portland Audubon led the effort to provide a population estimate update (ranging from <b>506-629</b> 463-743 CI from 2015-17) and spatial distribution (Liebezeit et al. Accepted for publication in Northwest Naturalist)	Plan to do statewide BLOY population surveys in CA and OR every 10 years pending funding; We will encourage relevant partners and agencies in WA to do so as well.
<b>Initiate coordinated range-wide monitoring to estimate</b>	CA, OR, and WA have established recent population estimates (since 2006).	CA and OR plan to coordinate periodic (10-yr) population size estimates to detect trend changes. We will try to work with WA as well

<sup>1</sup> Tessler DF, Johnson JA, Andres BA, Thomas S, Lanctot RB. 2007. Black Oystercatcher (*Haematopus bachmani*) Conservation Action Plan. International Black Oystercatcher Working Group, U.S. Fish and Wildlife Service, Manomet Center for Conservation Sciences, Manomet, MA. 115 pp. Available from: <https://www.fws.gov/migratorybirds/pdf/management/focal-species/BlackOystercatcher.pdf>

Tessler DF, Johnson JA, Andres BA, Thomas S, Lanctot RB. 2014. A global assessment of the conservation status of the Black Oystercatcher *Haematopus bachmani*. International Wader Studies 20:83–96.

<b>population size and detect trends</b>	There has been no concerted effort north of the lower 48 that we know of	but no range-wide population estimate effort is planned at this time
<b>Initiate research to assess the impact of vessel traffic and resulting wakes on productivity</b>	No progress though we are not aware of this being an important issue in Oregon or California	No future plans
<b>Investigate survival and other vital rates by continuing to follow the fate of banded populations</b>	Currently only a few banded birds in California and none in Oregon or Washington that we know of	There is interest in Oregon of banding / satellite tracking birds but currently no capacity and no firm plans to make this happen
<b>Assess factors affecting survival and reproductive success in the southern portion of the range and determine the relative importance of each</b>	National Audubon is currently working with nest productivity data sets from Audubon CA (2012-18) and Portland Audubon (2015-18) to develop a Population Viability Analysis that assesses key factors (landform, wave exposure, human density, predators). Plan to submit for publication in 2019	3 more years of effort (until 2021) in CA to accumulate a 10-year data set (7-yr data set in OR)
<b>Assess Black Oystercatcher food adaptability and impacts of climate change on intertidal invertebrates</b>	Some research has been conducted to assess potential sea level rise impact on intertidal BLOY prey (see Hollenback et al. 2014).	All nest and territory location information from productivity monitoring in Oregon and California 2012-2019 will be loaded into the MARINE database and will allow comparison of long term intertidal invertebrate monitoring with BLOY presence and productivity.
<b>Develop an on-line international Black Oystercatcher Conservation Database</b>	No progress though nest data from the CA and OR monitoring programs from 2012-18 has been or will soon be contributed to the MARINE database	Continue to contribute nest data to the MARINE database.
<b>Develop a geospatial risk analysis for regions where human activities potentially overlap the seasonal distribution of Black Oystercatchers</b>	Some assessment of this has been incorporated in the PVA described above and will be included in subsequent publication	No immediate plans for future
<b>Initiate an education and outreach program to highlight the potential impacts of outdoor recreation and vessel traffic</b>	In both CA and OR monitoring programs have been accompanied by education and outreach which has included docent programs and signage	Continue to identify areas that need signage and/or in-person enforcement and find funds to support this

## **DETAILED WORKSHOP NOTES**

Notes taken by Bill Standley, Joe Liebezeit, Nils Warnock, Elise Elliott-Smith. Notes summarized and compiled by Joe Liebezeit

### **Goals of the workshop (Anna W.)**

1. Provide a summary of outcomes of 2012-17 Black Oystercatcher monitoring and conservation in California and Oregon
2. Develop goals and work plan for long-term Black Oystercatcher monitoring and conservation activities at regional and state-wide scales following reduced support from the Audubon network; Keep the program going into the future (Phase 2)
3. Make sure that data keep coming in (Audubon California committed to the program and maintaining the database but long-term funding is likely not available)

### **Program updates (PDFs provided in separate document; contact Joe Liebezeit if you want PPT versions)**

#### **California state-wide (Anna W. – Audubon California)**

- Started BLOY project in 2011 to evaluate status of population statewide
- USFWS (Rob Doster) and Anna first statewide population assessment that resulted in paper on abundance and distribution published in 2014 that revealed more birds than previously thought (CA has 6% of bloy global population)
- Current phase is understanding BLOY status through productivity launched in 2012.
- Goals: population, productivity, and threats addressed
- Laurie hired in 2013 to run the program
  - Funding from BLM, USFWS, Resource Legacy Fund, Marisla foundation, etc.
- Modeling paper being produced by NAS based on BLOY survivorship to develop a Population Viability Analysis (PVA) Summary statistics (so far CA productivity mean ranges from 0.2 to 0.8, mean is similar to AK and BC)
- Audubon California metrics on project participants = 80-120 people are tracking productivity over about 100 km of coast representing 20% of available habitat; benefiting about 6% of global population.
- 2 more papers coming out: modeling adult survivorship and productivity in different areas

#### **Coastal Mendocino (Terra Fuller – State Parks)**

- Monitoring since 2012; number of territories range from 41 to 73 each year
- Have had 32 to 63 nest attempts and up to 42 fledglings

- Productivity ranges from 31-67% and has been staying relatively consistent (see slides in PPT); highest productivity in 2015
- Most BLOY nests on rocky islands but a few nest on shore on rocky outcrops/cliffs
- Peregrine Falcons may be a factor in local breeding success and appear to be increasing (returned in 2014); river otter noted taking nests; nesting gulls are also a factor
- Human disturbance is thought to be relatively low, especially since abalone fisheries closed so less people crawling on rocks
- [NOYO center](#) is now open
- Future: Parks would like to see more funding and perhaps someone else take up some of the slack; bringing science to the community has been important; there have been questions about where the data go. Provide volunteers feedback mechanism (from someone other than Parks) to bring science to the community; getting volunteer feedback and recognition is important.

#### **Sonoma Coast** (Diane Hichwa, Madrone Audubon)

- No slides
- Strictly a citizen science group out of Sea Ranch (mostly) Coastal Stewardship Taskforce when California Coastal Monument was formed; began doing seabird monitoring during fireworks - got them started with Rick Hanks with BLM; about 16 volunteers
- Started BLOY monitoring in 2011 along with Madrone Audubon
- Sea Ranch has access to 10 miles of rocky coastline (private homeowners association)
  - Typically 16-18 nests in that stretch (mostly in southern part); most on offshore sea stack rocks but 3 on mainland
  - A few birds re-nest; very high nest site fidelity – in exactly same place year after year
  - 12 nests hatched this year and 5 fledged chicks (no other productivity data presented)
  - Disturbance – mostly from other birds chasing them; PEFA have been seen chasing BLOY; pelican landed, TUVUs, CORAs, OSPR, all reported to disturb nests
  - Human disturbance is limited due to lack of access; did see one instance of disturbance to nest by diver
  - Gualala Point largest nesting site along their stretch (island) – 3-5 nest but also has WEGU nests; PEFA seem to go after the WEGU
- Drones being for surveys of the COMU and corms (one comment about BLOY response to drones is that they will alarm continuously when the drone is up in the air); *need an overall drone policy*; also recreational problems with drones
- What assistance can they use: Short write-up of what we are seeing & data form tweaks would be good; they would like feedback on the project; even if only a written write-up;

data entry forms need some clarity for volunteers; Volunteers would like to see how their data is fitting in to larger program

#### **San Francisco Bay** (Tori Seher – Alcatraz NPS)

- Historically have only had one nest on Alcatraz (usually successful); a few years ago they had 2 additional pairs (but only observed via boat so hard to access)
- Last year they expanded and monitored 12-13 nests in Alameda and Marin Co. (Bay area) with the waterbird docent program; monitoring was inconsistent
- Suitable habitat in the bay is spotty; they had one successfully fledge on a dock! Also nest on roof at one site – not successful
- Seen feeding on sandy and mud flats (also in Morro Bay)
- Productivity – no real numbers but fledglings were produced at multiple locations in the Bay; disturbance on Alcatraz is pretty consistent and from a wide variety of sources
- Predation – often see PEFA but they have not seen them take BLOY
- Not much human disturbance but they have witnessed a BLOY dive bombing a drone at Land's End
- There is a large Alcatraz docent program; Tori had to find volunteers to monitor nests when folks were on vacation

#### **San Luis Obispo coast** (Jodi Isaacs – Morro Coast State Parks)

- Data from 2012-2018
- Range of coast monitored = 2-11.7 linear miles. Extends from north, Piedras Blancas where there is little human disturbance, to Shell Beach, in the south, where there is more disturbance
- Number of BLOY nests surveyed = started out with 9 in 2012 and up to 47 in 2018
- Number of surveyors = 6-26 (currently at 26); challenging to get monitors for north end but not south
- With Audubon's help they hired intern to help coordinate volunteers off of the Park property – small amount of \$\$ for huge gain: usually recruit interns from their snowy plover program and Cal Poly (younger folks); Program has grown from 2012 until present; volunteer skills have improved over the years.
- Increasing public awareness has been a big benefit to the program – now they know where birds and nests are
- Productivity has ranged from 13% (2013 and 15) to 95% (2016). Productivity per pair seems to have gone up from 2012-18 but this may be driven by 2016 when they had 95% productivity
  - Limited nesting sites so there is space competition with other birds (BRPE, BRCO, PECO, DCCO)
  - A number of Peregrine Falcon on the coast but have never observed predation

- Concerns going forward: having volunteer base; takes a lot of effort; volunteers need feedback and it needs to be regular; they want goals; want to know what they accomplished

### **Central Coast/Monterey Bay** (Rick Hanks – 2012-18)

- Has good data for 2014-18 (since 2016 in north)
- Region from SF to San Luis Obispo
- Two study areas (~70 nests monitored):
  - Monterey Bay South Coast (Monterey, Pebble Beach, Point Lobos): 43 territorial pairs in 3 sections
  - Monterey Bay North coast (Santa Cruz & San Mateo Co.): 27 territorial pairs
- >40 volunteers; challenging to get monitors for the north, easier in south
- Success ranged from 0.19-0.60 (2014-2018); overall low
- North coast and Monterey Bay have higher nest success than South Coast section (2X as high)
- Disturbance – Humans (31), drones (22), dogs (13), fishing (5), avian (217); more disturbance in south than in north
- Have no direct observations of predation but have found depredated chicks that they associate to PEFA or owls
- Conservation action measures:
  - Ropes and signs around nesting sites have been effective, 11 fledglings where they put up ropes and signs (Sign that coastal commission approved)
  - Produced outreach material; developed some outreach around drones
- Helped City of Pacific Grove develop drone permitting policy as well as BLOY protection protocol: Administrative Protective Measure – city of Pacific Grove – MOU – have had some success
- Wildlife Cameras (Reconyx) being used in some areas (recorded a coyote out on one of the nesting islands) but no success yet in identifying predators; one person makes a plea for more camera work to help identify reasons for nest failures; they have documented people going through roped area. Cameras 20m away from the nest
- Banded BLOY now in population providing new insights on behaviors; initially banded in 2011 in Fallarones, first seen in Monterey in 2013 – band slipped down over foot; color band too tight and one of the birds lost a toe (need to check band sizes)

### **Vandenburg Air Force Base** (Dan Robinette – Point Blue Conservation Science)

- Manage Point Blues' coastal marine program out of Vandenburg since 1999 (21 years); not officially part of the monitoring network. Habitat: mix of rocky and sandy beach
- Monitor nesting birds on about 40 miles of coast: Develop core 4 species to develop management from indicator species: BLOY, PIGU, PECO, SNPL
- BLOY population (Vandenberg):

- #s have seemed to have remained stable (since 2000) – almost a 20 year data set (about 20 to 25 birds). Productivity about 0.7 or 0.8 in early years then warm water in 2004-05 and productivity decreased
- Warm water events seem to have negatively affected productivity and it has stayed low (at least through 2017); same pattern for WEGU that breed there (which also forage in the intertidal like the BLOY)
- BLOY diet consists of small limpets away from the nest; bring large owl limpets back to nest
- BLOY population (Farallones):
  - Productivity declined from mid 2000s and slowly increasing in later years but growing pinniped populations have moved the traditional breeding sites for the BLOY (they are not going to monitor BLOY this year); interest in trends of shellfish productivity and how this is affecting BLOY productivity; invertebrate recruitment data appears to show time lag
  - Suggests we should be paying more attention to prey populations vs. predator populations. At one location mussel beds looked normal but opened the shells and quality was low (poor/small meat) – same with abalone
  - Question about impact of domoic acid on productivity
  - Predation is often considered main threat, but limiting factor may lie elsewhere

### **California State Parks (Terra and Jodi)**

- Successes from program for state parks
  - Audubon monitors Russian Gulch, data goes into State Park database
  - Increased awareness by staff and public of BLOY nest locations which assists in permitting decisions; just the knowledge gain of BLOY spatial distribution aids in stewardship and informs fencing and signage and where people can go
  - Focused educational opportunity toward potential problem groups (e.g. fishers, etc.)
  - Partnerships help leverage action
  - Monitors add to promotion of parks and resources
  - Jodi feels this is the biggest part of the program: Outreach support is a huge part of the program – no sign in the world can take the place of a face-to-face interaction
- Challenges
  - Stewardship in face of climate change and increasing visitation
  - Funding for outreach materials
  - Management support for staff
  - Visitor compliance and enforcement
  - Staff not necessarily scientists trained to deal with these monitoring issues (thus the partnerships become even more important)
  - Could use more interpretive signs but that doesn't solve problems

- Don't see higher ups pulling the plug on this. How long will this program go on? Other birds they can pay attention to?

### **Año Nuevo Island (Ryan Carle)**

- Año Nuevo is remote; hard place to get to so can't use volunteers. Need staff and use boats to get out to site
- Fallarones are no longer going to be monitored because of funding
- Have been monitoring BLOY since about 2000 (as part of the seabird monitoring program) – funding after Luckenbach oil spill supports this work
  - Number of pairs? 5-10 pairs
- BLOY almost always fail there – dismal productivity (4-5 chicks fledged in 20 years); unknown cause of nest failure
- Probably around 10 birds nest / year.
- Healthy intertidal and no human disturbance: could set up a good comparison to the more human-impacted sites
- Increasing numbers of sea lions, lots of nesting WEGU, corms, a few pairs of CORA
- Big wintering groups of BLOY: See up to 30 birds that congregate there in the winter (might be an understudied part of their life cycle)
- Looking for funding to keep going

### **Oregon (Joe Liebezeit, Portland Audubon and Elise Elliott-Smith, USGS)**

- Historical abundance info:
  - 1988 – estimated 350 adults in OR
  - 1997-2004 (USGS) ground surveys conducted after developing both boat and land-based survey protocols
  - 2004 (USGS) – protocol for boat and land surveys developed; expanded survey to cover entire coast: Estimated 311 birds (276-382 CI)
  - After 2006, monitoring program not formally supported anymore but some volunteers still monitoring nests opportunistically
- Program reinvigorated by Portland Audubon 2015 onward with in-kind support from USFWS (Oregon Coast NWR complex)
  - Bigger project using volunteers developed (>70 volunteers and some agency folks each year, Total volunteers for 4 years is over 120)
  - Have a paid seasonal field coordinator (Amelia O'Connor) and USFWS intern each year
  - Goals to estimate pop size and trends, spatial distribution, outreach, informing management
  - Now have a community science program using protocol originally developed by USGS so results comparable to earlier mid 2000s USGS led work.

- 75 survey routes on rocky shoreline; no boat formal surveys done although a few opportunistic boat surveys have been done at Redfish Rocks and Gull, Otter rocks (not a lot of birds on the few offshore sites)
- Conduct  $\geq 2$  surveys per site during 3-week period each May
- Population estimate: Jim Lyons (with USGS) doing the population modeling
  - Min pop estimates around 500-630 birds for 3 consecutive years – 2015-17 (and using N-Mixture Modeling w/ detection probability which is  $\sim 0.50$  / yr)
  - Most birds distributed along the southern coast
- Productivity:
  - Fledging success around 35% (n=157 nests)
  - Island nests more successful than onshore nests
- Human disturbance – North coast sites more disturbed – more visitors from Willamette Valley cities.
- How does this inform conservation?: paper submitted to NW Naturalist on abundance and distribution estimate; Targeted signage (in cooperation with USFWS); Contributing to various conservation plans; Rocky Shores Management Plan update (for Oregon) which will allow new site designations for identifying areas of coast to have stronger protections
- Next steps: Continue at least through 2021; Research needs: Winter ecology and pop estimates; bird movements (color-bands or GPS tag would be awesome)

**National Audubon Science team** (Dan Orr presenting on behalf of Tim Meehan - Tim joined by phone)

- Their work began 2011; 164 volunteers and covered about 9% of coast and found 1,160 breeding birds
- Monitored about 530 nests (2012-2016) for productivity; about 120 volunteers; central and northern California
  - Median productivity is about 33% (16-73%); (labeled median on graph but Dan said this is a mean)
  - Fledglings / pair = 0.5; 16-73% of pairs have higher than 0.5 fledging / pair
  - Correlates of productivity
    - Offshore nests positive (higher productivity) +0.38\*
    - Wave exposure – 0.005
    - Western Gull index (-0.61\*) and human pop (-0.29) density negative relationship with productivity
    - Shoreline access distance (-0.20)
    - Common Ravens shown neutral but tending more toward a positive effect (+0.29)
  - Mapping out productivity along the coast (in general more productive further north than further south) (except around Humboldt?); will help target

conservation efforts – focus on areas with productivity lower than 0.5 fledglings/pair

- Target productivity – they suggest that 0.5 fledglings per pair (and up) suggested to maintain stable populations (this was based on about 20 productivity estimates from around the West Coast); 0.5 productivity – Why? Coincides with lambda of 1. Comes from a separate study. Took all the estimates they could get out of the literature from AK to WA. Then built Matrix Population Model.
- Web application created that allows user to manipulate vital rates to project different scenarios (<https://tmeeha.shinyapps.io/bloypop-app/>)
- Next steps:
  - Add 2017-18 California nest productivity data & 2015-18 Oregon to data set
  - Publish results in late 2019
  - Archive data in public repository (looks like it will go in Monitoring Rocky Intertidal Shores dataset)

#### **Multiagency Rocky Intertidal Monitoring Network** (Rani Gaddam, UC Santa Cruz – MARINe)

- Goal is to track changes within and among intertidal communities over space and time
- Sites from se AK to Mexico
- Different protocols for long-term studies:
  - Long-term monitoring 160 sites, 1-2 surveys / site/ year
  - Biodiversity intensive survey every 5-7 years (180 sites): record species, abundance and changes over time, density, and location; percent cover in long-term plots of various organisms; Topo maps of each sites being developed
- Data being used for a variety of purposes. For example, can be used for impact assessment (e.g. oil spill impact analysis, water quality effects, wave energy conversion device assessment)
- Data goes into MARINe data base at [www.pacificrockyintertidal.org](http://www.pacificrockyintertidal.org), which has an online mapping application and downloadable data; Can provide user generated trend graphs
- BLOY data will be uploaded and summary data and interactive mapping of BLOY and intertidal data are available
- Next steps: Audubon CA has already provided BLOY data to MARINe. Add Oregon data next. Possibly create a BLOY page on the MARINe website.

#### **Review of on-line nest monitoring form** (Laurie Harvey & Monica Zhang)

- End of Year Oystercatcher survey (EYeS) – Tim’s acronym
- Uses Survey 123 (ESRI product)
- Long-term use without a dedicated manager – provides consistency
- Easily view/share data
- Data entered by area data coordinators
- Will they back-log info into this? – Can get an intern to do this

- Is this APP based or computer – Use computer since end of year. You can enter coordinates or just navigate to the location on a map
- Need to figure out data propriety – e.g. have folks contact the “data owner” if they want to use to publish; Anyone can view entered data, but need special authorization to edit data once entered (it is saved automatically)
- Will be entering 2017 nest locations which can be copied for future years if nest sites are the same
- Put in little definitions (recommendation)
- Make it self-sustaining eventually

**Roundtable Discussion notes** (afternoon session):

Goal for roundtable discussion: Develop a game plan for the regions with reduced Audubon role

- Accomplishments: BLOY program has been ‘gift’ to both future and through developing a population estimate, by collecting productivity data that provides information for how to strategize and promote outreach, education and stewardship, and provides a baseline for future comparisons and impact analyses

Questions: if funding and our role were not an issue, what would your program look like?

What are your hopes and dreams? What does reduced Audubon role look like? What questions scientifically do we need to answer? How much monitoring do we need and on what time scales?

- Abundance, productivity are done or being done.
- From state parks: more \$\$ into interpretive side: outreach and signage. They would like to see Audubon have a community science coordinator.
- \*\*\*reduced monitoring for some years before push\*\*\* to keep folks engaged. Need to have some consistency if we want to keep volunteers engaged.
- Target areas where coverage has not been adequate
- Ryan: believe in long-term monitoring. Do we need to worry about this species at all? Oystercatchers are not the biggest concern right now so should we focus on it?
- Jodi: are there models of periodic sampling?
- Elise: BLOY are a unique intertidal indicator and have reason to believe they will be impacted by Climate Change. For doing surveys for population estimate. This is a long-lived bird so there might be lag effect. Really intensive survey every 10 years is probably sufficient. Nest monitoring might need to be more frequent. During the year of intensive abundance surveys doing some nest monitoring is worthwhile.
- Vicki: warns that it will be disengaging for volunteers if we don’t have continuous monitoring.
- Anna: Is 10 consecutive years is enough? Seabird literature suggests that it is.
- Dan R: One option is to monitor for 2 or 3 years consecutively and then take a break

- Joe: Subset of intensive anchor sites monitored every year and other sites monitored more periodically
- Laurie: so close to 10 years, then some options: take a low level index monitoring, stop monitoring for a period. Laurie, 2021 would be 10 consecutive years of nest productivity
- Joe: Should repeat the abundance estimate as well at some point for trend
- Jodi: Parks just need to know where nests are so they can protect them
- Laurie: Have ability to test productivity models. Build a toolbox to help this species.
- Vicki: Integration with MARINe data can help answer questions
- Terra: Can always to outreach to agency folks every 10 years to have them help with surveys
- Rani: Benefit of keeping volunteer base is would be good to be able to mobilize folks quickly for oilspill, etc.
- Bill: Stewardship that those volunteers generate in their communities is outreach that goes a long way.
- Elise: If intensive nest productivity not an option, later season survey to look for fledglings (if no longer working in the early season) can be an option. Not as useful for actually monitoring nests. But can help you raise red flag if you see any problems. Do folks do surveys to start season to look for nests?
- Terra: yes
- Ryan: some level of baseline monitoring to keep going. How much effort will it take to make it sustainable?
- Terra envision: give volunteers the tools (e.g. on-line monitoring forms) to do the monitoring but not necessarily pay for a coordinator. Can add in a periodic big survey. In this model data still needs curation.
- Terra: What are Audubon's goals and then Parks can see what they can do
- Anna: flip question back on regional coordinators – What do regional coordinators want for their areas?
- Terra: 3 more years of data + interpretive signs (funding for this) and outreach materials (State Parks “ask”)
- Rick: monitoring is what keeps folks engaged. At a minimum get 3 more years of data. Is this a species we know enough about that we don't need to be concerned about this anymore? We can answer this at the end of the next 3 years.
- Anna: say it comes out as stable but at risk, then periodic monitoring?
- Rick: can you still keep as an Audubon California project? There is benefit to this when engaging with partners. Ecosystem-wide focus moving forward – e.g. MARINe nexus
- Rob: likes idea of 3 more years of monitoring to get at 10 years. Don't forget there is a conservation action plan for this (Tessler et al 2007) that we should consult to guide next steps.

- Ryan: Consider employing undergrads for independent theses – not as hard as recruiting grad students. Engages youth.
- Jodi: agrees with Terra. Her district could not give a shit about BLOY. Active seabird protection network. She can commit to 3 more years but her personal goal is to pair her efforts with seabird protection network.
- Dan R: Point Blue is not nest monitoring BLOY but would be a big effort to make this a part of seabird aware effort. Have an LOI already. Need funding to fold in BLOY with seabird aware.
- Diane: is seabird protection network even care about BLOY?
- Rick: depends on species impacted
- Diane: might be worth educating the seabird protection network.
- Elise: may just need to focus intensive nest monitoring at select sites
- 5 regions in California: interested in completing 10 years (3-years monitoring) but still need Audubon CA curator. What does that person cost?
- Anna: How could seabird aware step up?
- Dan R: Help with data curating and housing
- Anna: Should Audubon CA and Point Blue put funding in for data curator? Not likely to work out, no gain.
- Ryan: Will continue to collect the BLOY data no matter what Audubon does
- Anna take home: Agreement on 5 regions of California completing 10 years total (3 more years) productivity monitoring. Index monitoring, 10-years productivity, budget for interpretive signs; person for data curation and help with volunteer coordination. Could be part of a community science manager position.
- Elise: If #s are good every 10 years (intensive population estimate AND nest productivity for southern range – CA, OR, WA). If pop # stable and productivity is good then, at a minimum, conduct small scale intensive nest monitoring at some regions (~20 nests/region). If 10 years snapshot is worrisome, then 2 more years of intensive productivity monitoring. How do we decide on sampling regions? Could choose areas that access is fine and capture the range of productivity estimate. Such a site could act as a bell-weather. Other option could be stratified-random sampling or a combo to be practical. Also consider end of year fledge assessment in addition to nest monitoring.
- Laurie sent a sheet around for what the hire would do: data QAQC, advise area coordinators, outreach help with signage, do data prep to input into MARINe, feedback and presentations to groups (volunteers), publications, out of state networking collaboration (Oregon?, WA?), providing a budget for interpretive materials (also would need to develop abundance estimate platform and ability to include other species). All in support of 10 years of BLOY productivity data (and 2<sup>nd</sup> abundance estimate) and some sort of index productivity monitoring and stewardship.

This depends on:

- \$3300 for Jodie (San Luis Obispo/ Morro coast) for seasonal coordinator
- Monterey (Rick) will be able to fundraising for interns (10-15K) – can probably manage for this year but not sure after
- Diane (Sonoma/Sea Ranch) would need help – haven't had an intern in 2 years. Berkeley student option if had \$\$\$. Would like money for student intern (2K if no living expenses)
- Mendocino: Terra thinks Audubon has funding for 3 more years.
- Audubon will provide \$500 for Ryan (Año Nuevo)

Summarize takeaways and to dos:

- 5 areas of California agree to commit to 10 years of annual productivity monitoring
- At end of 10 years some type of index monitoring analysis with help from NAS statistical support
- Data will be curated by person that will get to MARINe, AKN, etc. Budget for interpretive signage. Area folks send budget (Terra 6K for signage).
- 10 year southern range (CA, OR, WA?) survey (third year of the person's position)

## **CALIFORNIA COMMUNITY SCIENCE SEABIRD COORDINATOR POSITION UPDATE**

A work plan is being developed by Audubon California and Point Blue (via Seabird Aware Program) after which funders will be approached to support the program. Contact Anna Weinstein for further updates.

### **WORKSHOP ATTENDEES**

<b>Attendee</b>	<b>Affiliation</b>
Anna Weinstein	Audubon
Bill Standley	BLM
Dan Orr	Audubon
Dan Robinette	Point Blue
Diane Hichwa	Madrone Audubon
Elise Elliott-Smith	USGS- Oregon
Jodi Isaacs	State Parks
Joe Liebezeit	Portland Audubon
Laurie Harvey	Audubon
Monica Zhang	Audubon
Nils Warnock	Audubon Canyon Ranch (morning session only)
Rani Gaddam	UC Santa Cruz
Rick Hanks	BLM Emeritus
Rob Doster	USFWS
Ryan Carle	Oikonos
Terra Fuller	CA State Parks
Tim Meehan	Audubon (by phone during science update)
Tori Seher	Alcatraz NPS
Vicki Pearce	Monterey