GoMMAPPS: Seabird Planning Update

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Gulf of Mexico Oil Spill & Ecosystem Science Conference 2017

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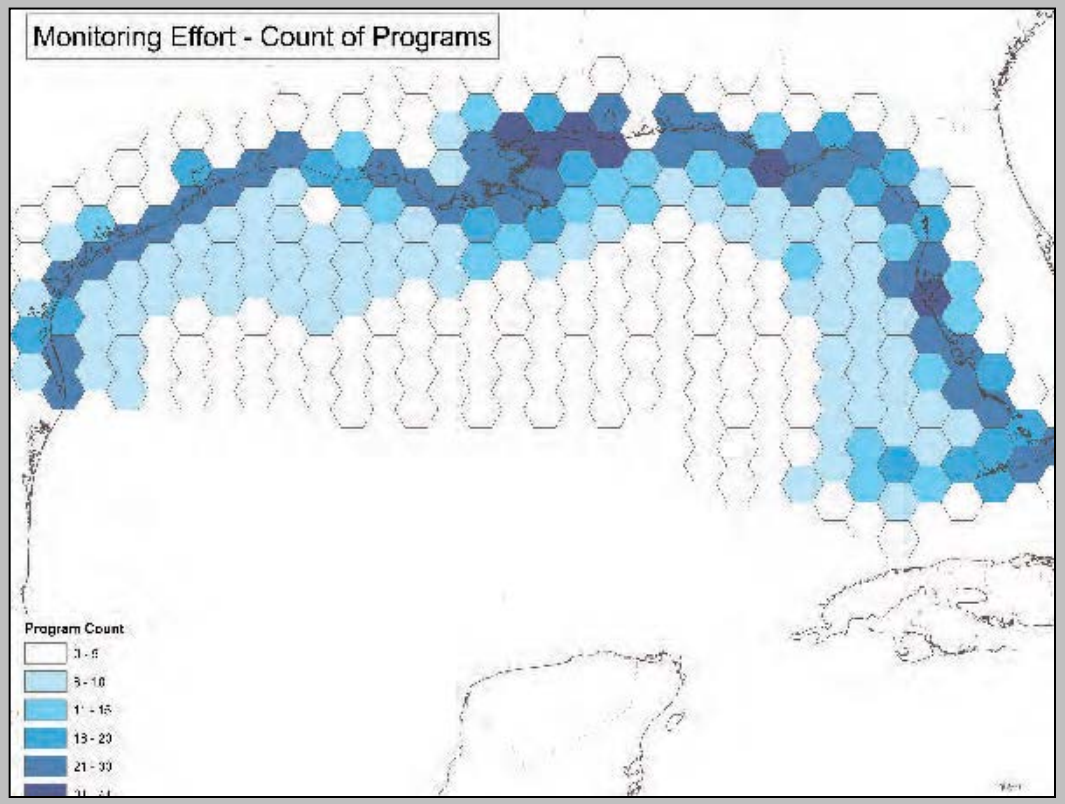
2017 Gulf of Mexico Oil Spill and Ecosystem Science Conference, New Orleans, LA 6-9 Feb.

GoMMAPPS Impetus

Lack of research and monitoring data in Gulf offshore waters for living marine resources: abundance, distribution, habitat use, and behavior for 3 Taxa Groups

Ocean Conservancy Monitoring Gap Analysis



Love et al (2015)

(1) Limited or lower effort offshore

(2) Pelagic Seabirds: Little to no monitoring, short or long-term

(3) Marine Mammals: Limited/fragmented monitoring

(4) Sea Turtles: No long-term monitoring of males or juveniles


Why should we care about seabirds in the GoM?
05/07/2011 09:30

BOEM Data Needs

Why are avian data needed? ⟶ **Regulatory Nexus**

1. **MBTA- presently no 'take' provisions; USFWS in progress on PEIS for ITA** (FR Doc No: 2015-12666)
2. **USFWS-MMS MOU** (signed June 2009)
3. **Executive Order 13186** (January 2001)
4. **NEPA** (EIS and EAs, OSRA models, etc.)
5. **Consultations with USFWS**

-- there is limited information available to inform decisions regarding offshore O & G effects/impacts to avian resources (see Johnson and St.-Laurent 2011)

Currently, in the GOM there are no mitigations, stipulations, or other policies in place <u>specific</u> to the protection or conservation of avian resources

USFWS Data Needs

Why are avian data needed? → **Regulatory Nexus**

→ Reduce Uncertainty RE Potential Effects/Impacts

1. Mortality of migratory birds associated with platform collisions
2. Nocturnal circulation events or NCEs
3. Effects of a large volume of produced waters and the waters constituents on seabirds and their food resources
4. Disturbance-related and/or behavioral or energetic effects
5. Effects of oil spills on avian resources

NOTE: #'s 1-4 are considered *Routine Events and are permitted activities*, #5 is considered *Accidental Event(s) and are unpermitted activities.* Refer to the *Seabird Science Plan* for more detailed information

*** Ultimately, the USFWS is interested in *reducing, minimizing, mitigating,* or *eliminating,* O & G-related sources of avian mortality in the GoM OCS. USFWS is further interested in reducing decision uncertainty associated with all 5 of these avian impact producing factors**

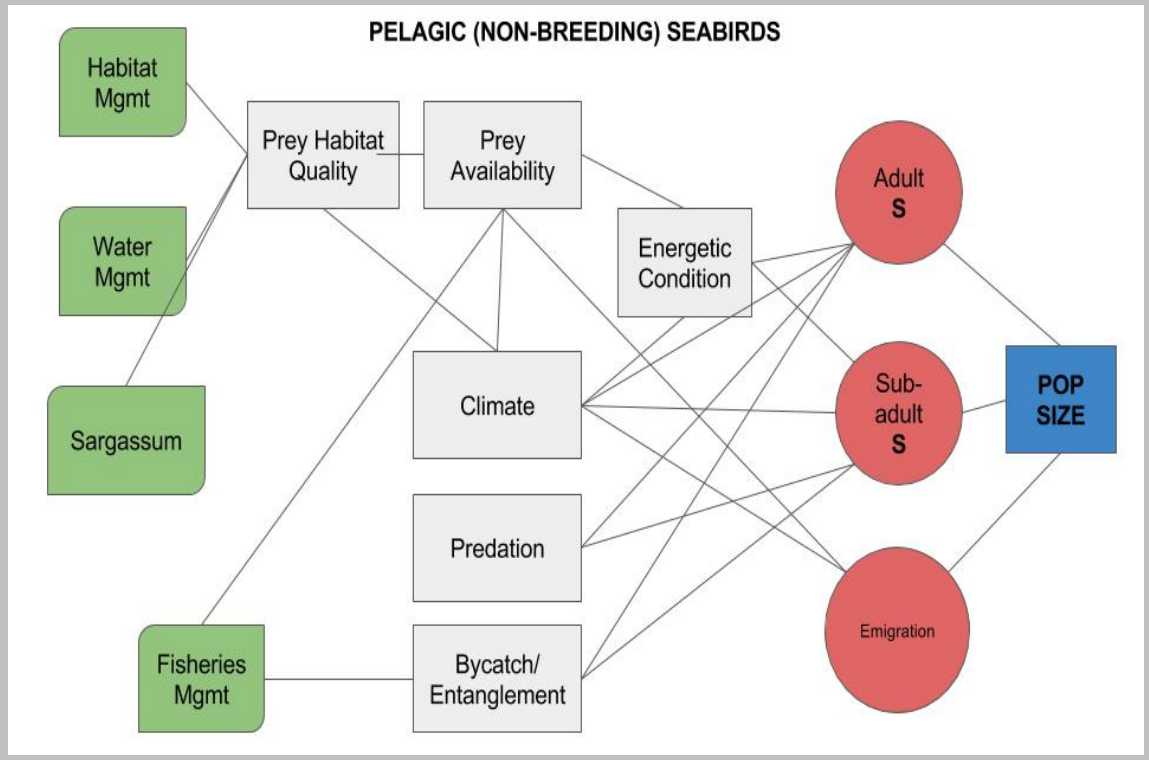
GoMMAPPS: Seabirds

Programmatic Objective: Document the distribution, abundance and diversity of birds in the nearshore (≤50nm from shore) and pelagic environments (outward to EEZ) of the GoM

Operational Objective: Understand the mechanisms that influence the distribution, abundance, and diversity of birds in the nearshore and pelagic environments of the GoM

Photo Credit: J. Gleason

DRAFT Influence Diagram provided by the Seabird Working Group of the Gulf of Mexico Avian Monitoring Network (GoMAMN)- Jodice et al.



GoMMAPPS: Seabirds

Null Model: The distribution, abundance and diversity of birds detected is not influenced by:

(1) Presence (e.g., density) and status (e.g., active) of offshore platforms

(2) Proximal fisheries activities (e.g., shrimp and menhaden trawlers)

(3) Proximal micro-habitat or forage indicators (e.g., Sargassum lines, menhaden schools, predatory fish schools on bait balls, etc.)

(4) Oceanographic features (e.g., SST, chlorophyll a, salinity, depth, loop currents, eddies, upwellings, etc.)

(5) Broad-scale weather patterns (e.g., fronts)

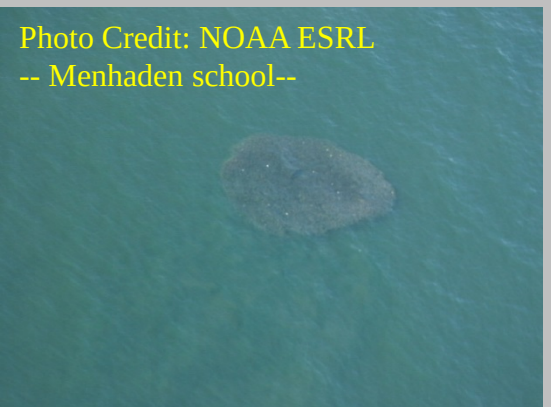


Photo Credit: NOAA ESRL
-- Menhaden school--


Photo Credit: NOAA Teachers at Sea Blog
-- Sargassum line--

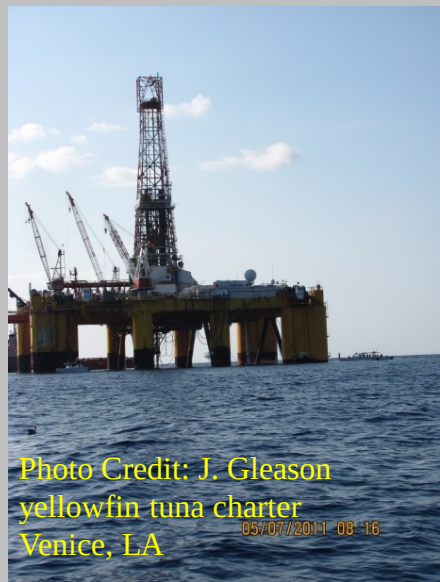


Photo Credit: J. Gleason
yellowfin tuna charter
Venice, LA


What do you plan on doing about the lack of seabird info in the GoM?
08/06/2011 07:49

GoMMAPPS: Seabirds

Tactical Objectives:

(1) Deploy both aerial-based and vessel-based surveys to collect information on the distribution, abundance and diversity of birds; **and**

(2) Use empirical and/or derived data collected during surveys and/or available for download from other sources to model the influence/interaction of independent variables (e.g., SST, chlorophyll a, salinity, depth, loop currents, eddies, upwellings, platforms, etc.) on the dependent variables (i.e., distribution, abundance, and diversity of avian species) to evaluate the Null Model

Photo Credit: J. Gleason

Photo Credit: J. Gleason

GoMMAPPS: Seabirds

Seabird Research Team

USFWS Project Management:

• Overall Project Manager: *Bill Uihlein* (ARD Science Applications, Atlanta, GA)

• Technical / Day-to-Day Project Management: *Jeff Gleason* (Gulf Restoration Team & Migratory Bird Program, Lacombe, LA) AND
Randy Wilson (MS Field Station Leader, Migratory Bird Program, Jackson, MS)

Aerial Surveys – Point of Contact: **Randy Wilson**

• PIs – Survey Design: *Jim Lyons* (USGS-PWRC) & *Emily Silverman* (USFWS)

• PIs – Data Collection (aircraft): *Mark Koneff* (FWS-MB-HQ) &
Jim Wortham (USFWS-MB-HQ)

• PIs – Data Analysis and Reporting: *Elise Zipkin* (Michigan State University) + PhD student, *Jim Lyons*, & *Emily Silverman*

• PIs – Data Management: *Emily Silverman* & *Jim Lyons*

<u>NOTE</u>: A # of these individuals have been involved with various aspects of AMAPPS aerial surveys and/or the N Atlantic Sea Duck aerial surveys

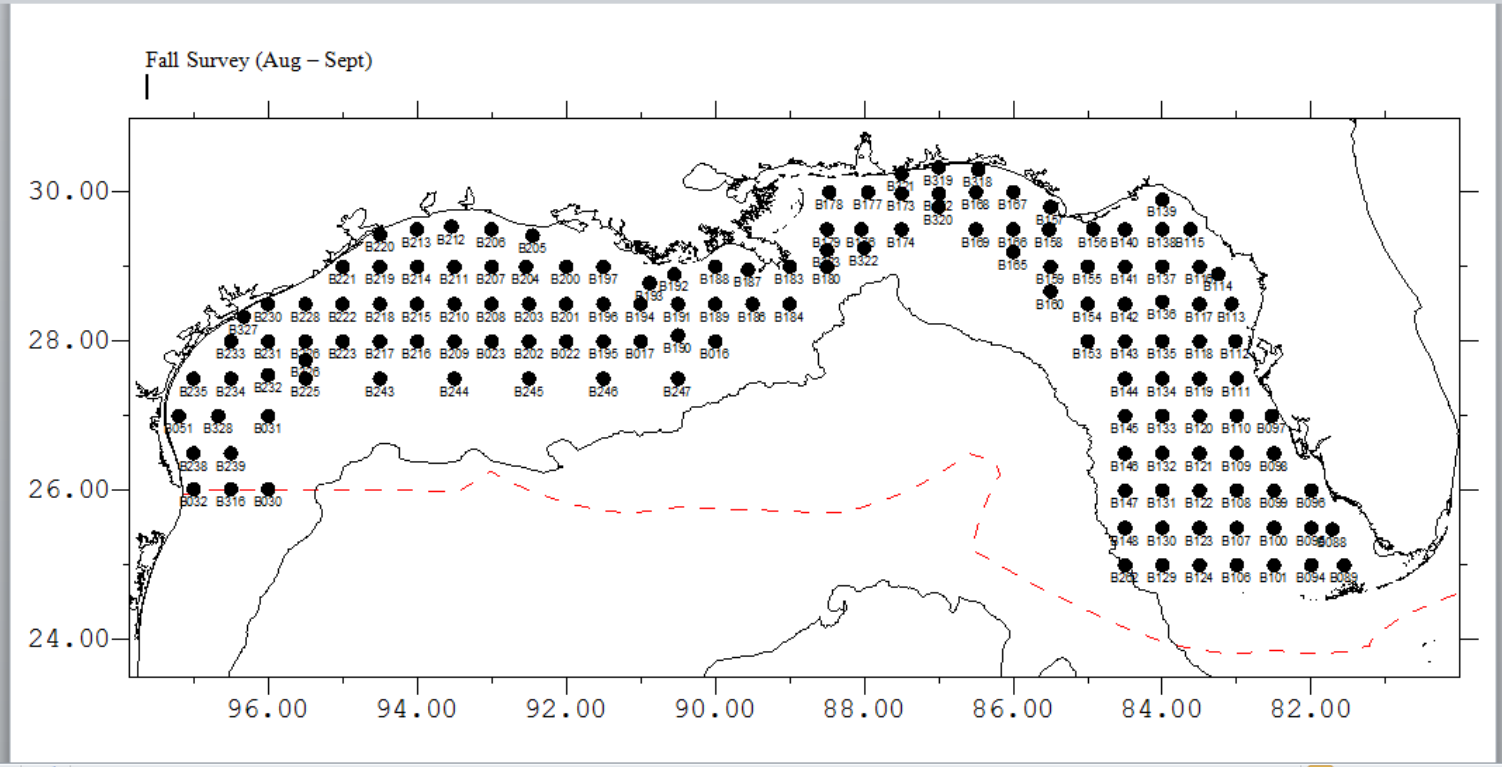
GoMMAPPS: Seabirds

Seabird Research Team

Vessel Surveys – Point of Contact: Jeff Gleason

- PIs –Survey Design: *Jeff Gleason* (coord. with NOAA staff and vessels)
- PIs – Data Collection: *Pat Jodice* (USGS SC Coop Fish & WL Res. Unit &

NOAA All Survey stations.doc [Compatibility Mode] - Microsoft Word



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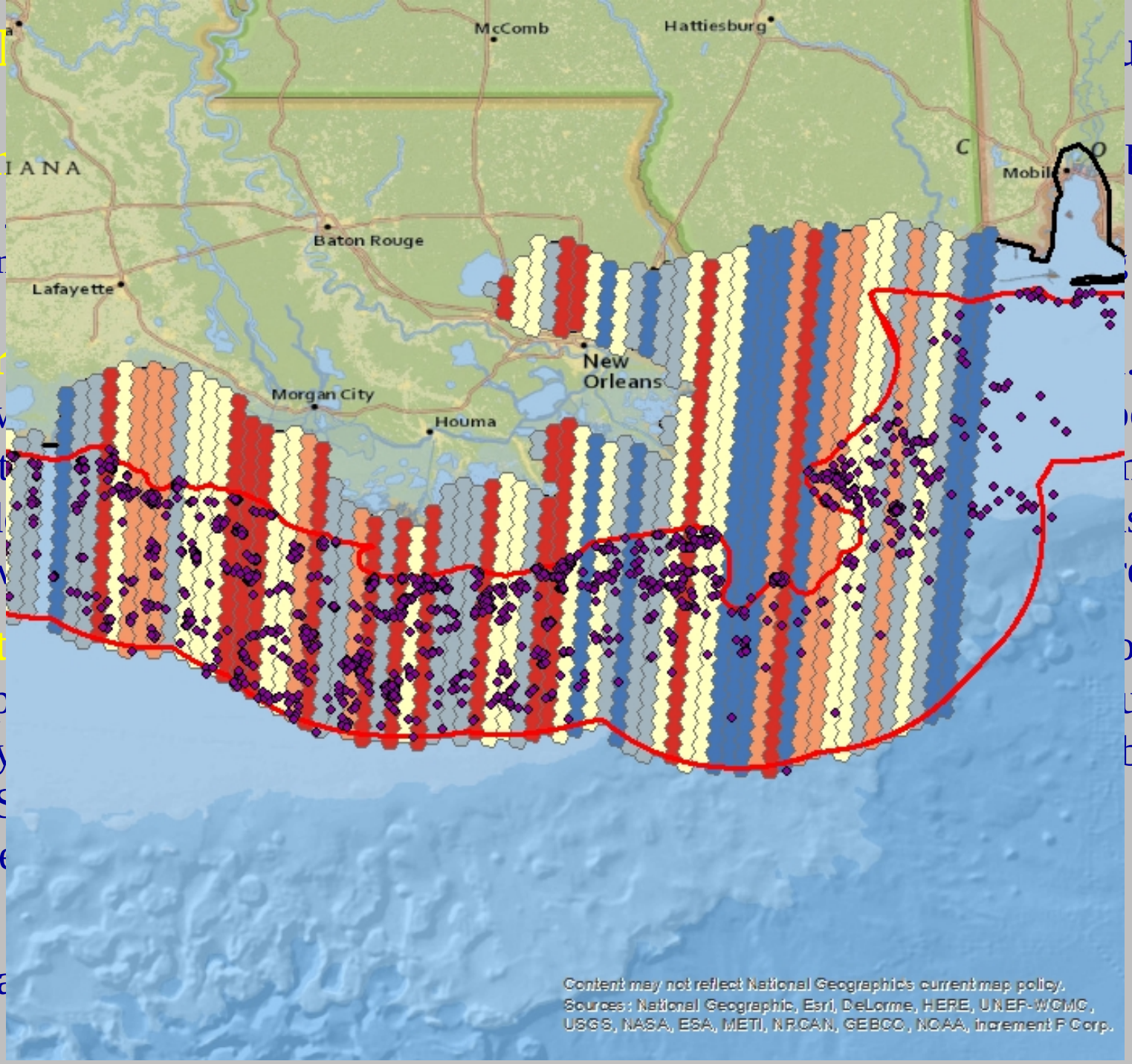


GoMMAPPS: Seabirds

Aerial Surveys

Data Management: Observers and pilots will download data daily and perform QA/QC checks as well as upload data to a stand-alone external hard drive. All data (both design and final) will be uploaded to a dedicated seabird USGS Confluence site to facilitate sharing. Archival storage will be within a SQL Database hosted by USGS-PWRC or USFWS.

Training: Bird ID Workshops will be conducted annually. Workshop materials will include: Bird ID, survey protocols, familiarity with onboard computer systems used to collect data, familiarity with aircraft, etc. All observers are REQUIRED to complete all mandatory FWS Aviation Safety Training requirements.

Safety: USFWS pilots will complete a Search and Rescue Assessment for the GoM, as well as develop aviation flight plans and coordinate flights with O & G helicopter traffic prior to any survey flights.

GoMMAPPS: Seabirds

Vessel Surveys

When:

Oregon II ~30DAS 28 April to 30 May SEAMAP Spr. Plankton (2 legs, 2 observers/leg)

Pisces ~15DAS 1 to 15 June SEAMAP Reef Fish (1 leg, 2 observers)

Gordon Gunter ~55DAS 27 June to 26 Aug SE Marine Mammal (3 legs, 1-2? observer/leg)

Gordon Gunter ~27DAS 1 to 30 Sept SEAMAP Fall Plankton (2 legs, 2 observers/leg)

Gordon Gunter ~30DAS 11 Oct to 10 Nov Fall Pelagic Trawl (2 legs, 2 observers/leg)

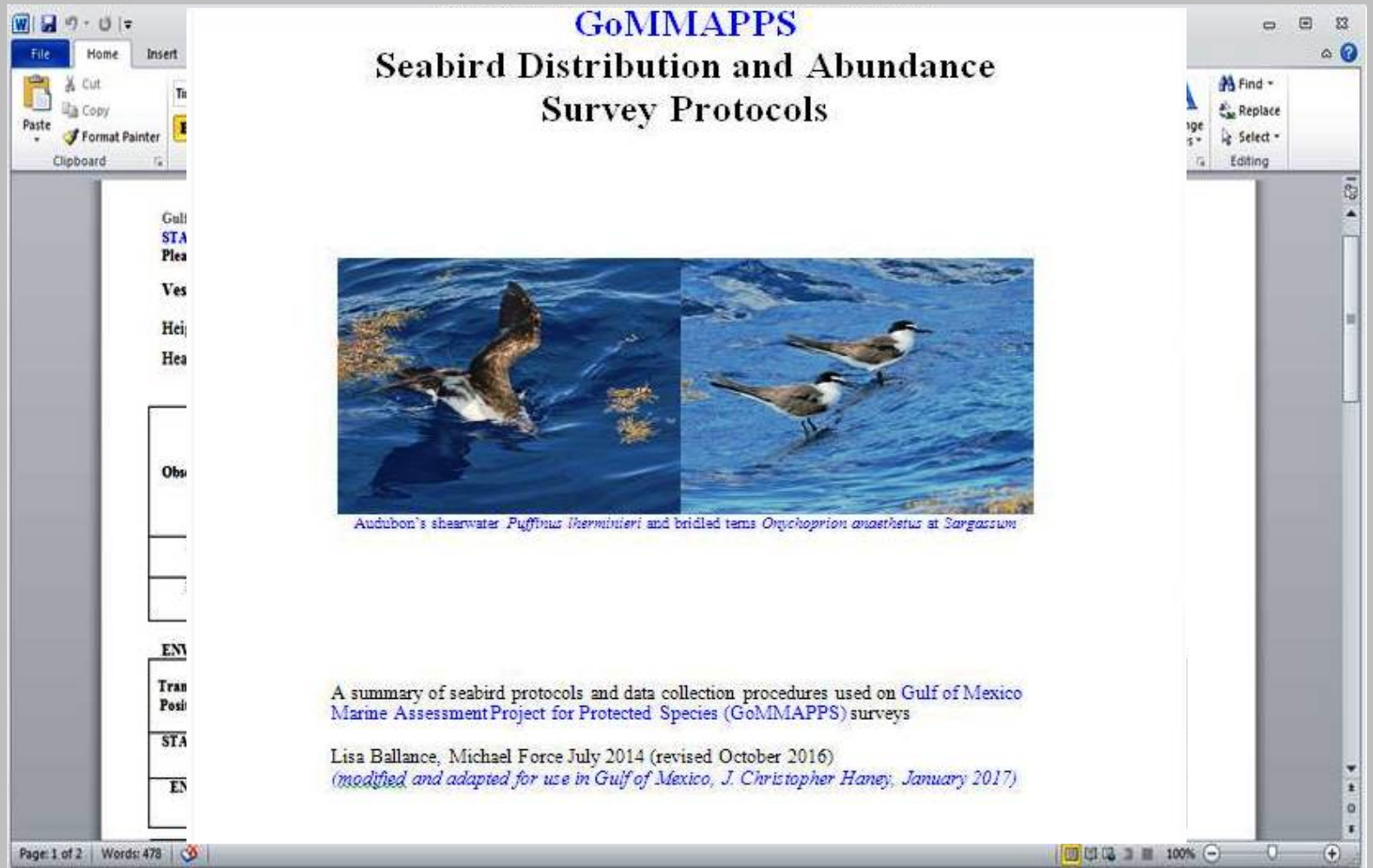
**** Chris Haney & Jeff Gleason will probably be assigned to Leg 1 on Oregon II**

Where: Northern GoM from Texas-Mexico border around to the Florida Keys and out to the Environmental Economic Zone – dependent upon the path and sampling points underpinning the Gulf States Marine Fisheries Commission's Southeast Area Monitoring and Assessment Program and/or NOAA Marine Mammal surveys

GoMMAPPS: Seabirds

Vessel Surveys

- Constrained , opportunistic sampling design via NOAA vessels of opportunity
- 2017 (calendar year 2017): observers on 5 vessels, ~10 legs, ~157 DAS, 17-20 observers will be needed (combination of fed and non-fed observers)



GoMMAPPS

Seabird Distribution and Abundance Survey Protocols

Audubon's shearwater *Puffinus lherminieri* and bridled tern *Onychoprion anaethetus* at *Sargassum*

A summary of seabird protocols and data collection procedures used on Gulf of Mexico Marine Assessment Project for Protected Species (GoMMAPPS) surveys

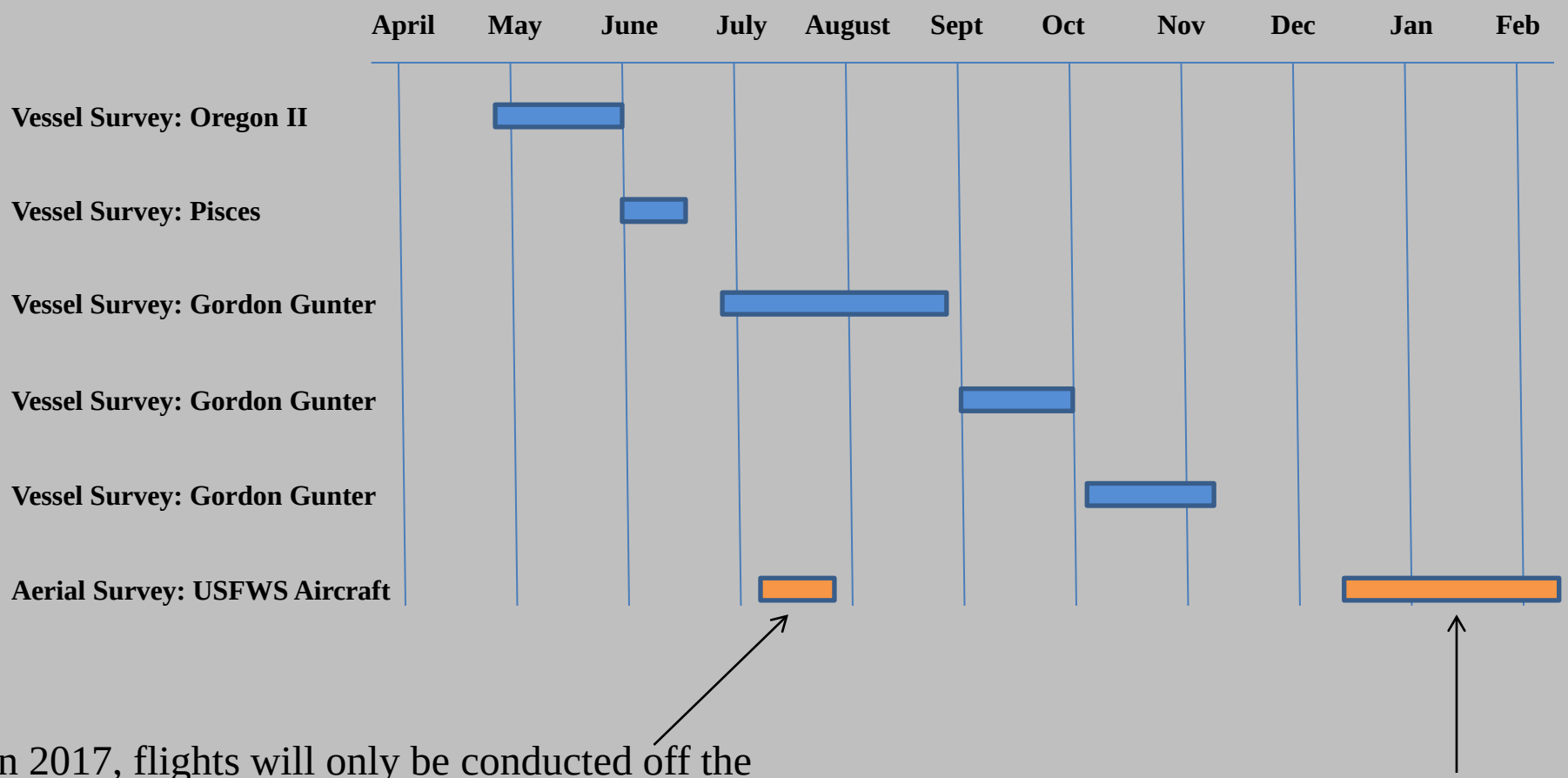
Lisa Ballance, Michael Force July 2014 (revised October 2016)
(modified and adapted for use in Gulf of Mexico, J. Christopher Haney, January 2017)

Variable	Temporal Resolution	Spatial Resolution	Hypothesized Link
Bathymetry	none	0.016 d	Depth → circulation, mixing → prey availability
Chlorophyll-a	week - month	0.05 d	Primary productivity → prey availability (time lag)
Sea surface temperature	day - month	0.01 – 0.05 d	Temperature → prey activity & abundance (time lag)
Distance to nearest SST front	week - month	0.05 d	Fronts aggregate prey and may provide visual cues
Mixed layer depth	daily	0.05 d	Properties assoc w/ depth of mixed layer → prey activity and aggregation (divers v. surface feeders)
Sea surface height anomaly	daily	0.05 d	Physical forcing due to SSHA → prey aggregation and distribution
Velocity of moving water	week	0.33 d	Speed, direction, and magnitude of movement → prey distribution and consistency
Wind speed	hour	0.25 d	Wind speed → water mixing → prey distribution Wind speed → avian flight dynamics and energetics

GoMMAPPS: Seabirds

Fieldwork

Seabird Surveys - 2017



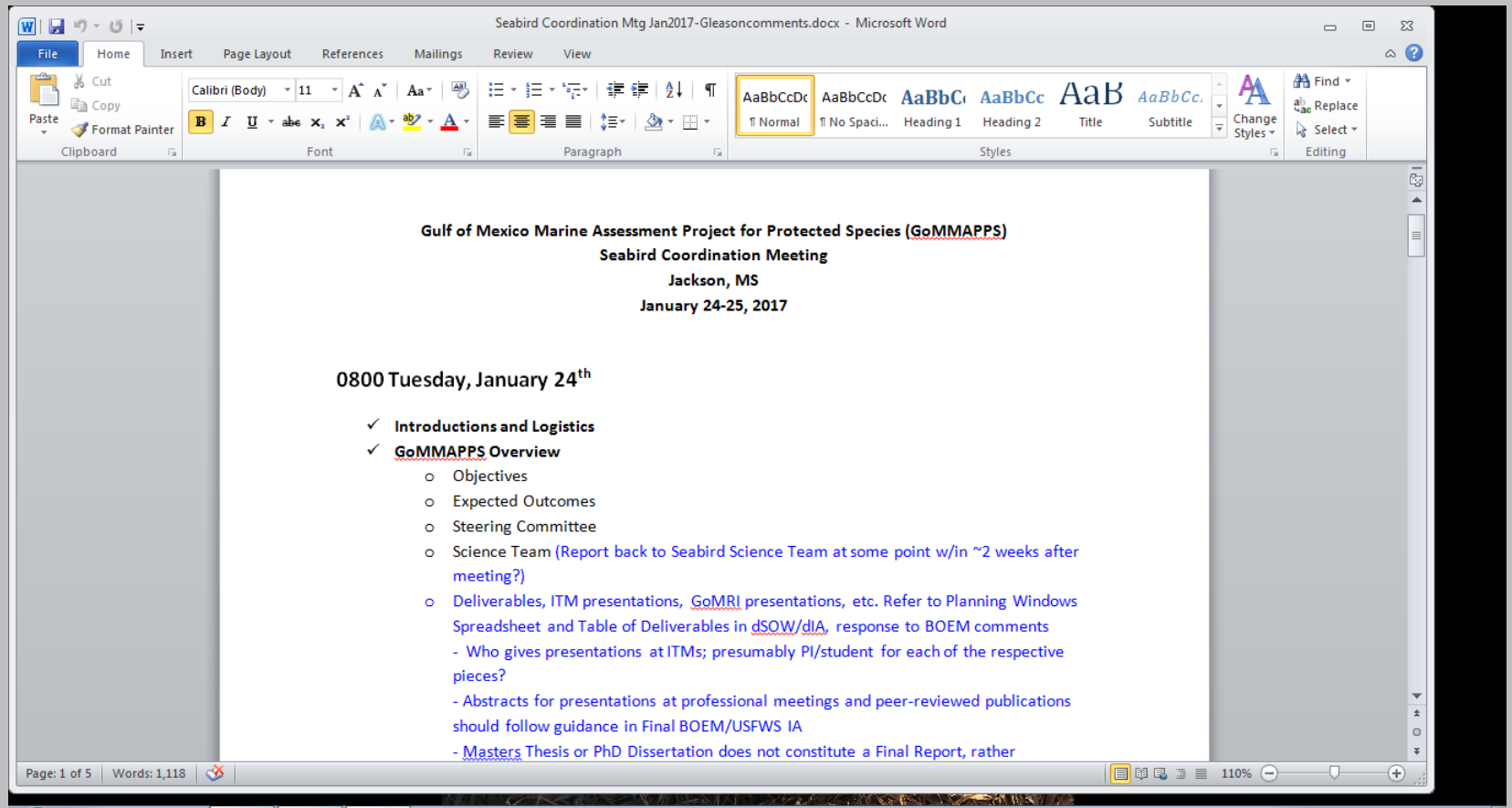
In 2017, flights will only be conducted off the LA coast and flights will be based out of Houma during the 1st 2 weeks of July. Two Service aircraft will be used with 2 pilots + 2-3 observers per aircraft

Winter surveys will be flown in 2017-2018, 2018-2019, and 2019-2020 sometime during the window of mid-Dec to early Feb depending on availability of aircraft and pilots

GoMMAPPS: Seabirds

Conclusions

- GoMMAPPS Seabird Coordination Meeting in Jackson, MS last month
- GoMMAPPS represents the largest seabird monitoring effort in the GoM, possibly ever (or at least since the efforts by Clapp et al. in the early 1980s)!
- this effort has the potential to provide study design, protocols, and sampling platforms for a long-term seabird monitoring effort, i.e., GoMAMN



Acknowledgments

BOEM: providing funding for this large-scale, multi-taxa effort in the GoM

Rebecca Green (BOEM ESP): project COR- planning & coordination, and providing us all with an opportunity to get together here at GoMOSES, as part of GoMMAPPS

Gulf of Mexico Avian Monitoring Network (**GoMAMN**) & the Seabird Working Group therein

GoMMAPPS Seabird Working Group: **A. Trahan, D. Walther, P. Tuttle, B. Spears, K. Stone, P. Jodice, A. Powell, E. Silverman, K. London**. Thanks to P. Jodice for providing some slide info.

NOAA: **K. Mullen** and **L. Garrison**, as well as **K. Mitchell**, **A. Millett**, **J. Salisbury** and other staff assisting with planning & coordination for seabird observers

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Thank you!

Questions??