UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

Greater Farallones National Marine Sanctuary
991 Marine Dr., The Presidio
San Francisco, CA 94129

Project Instructions

Date Submitted: April 22, 2016

Platform: NOAA Ship *Bell M. Shimada*

Project Number: SH-16-08 (OMAO)

Project Title: Sanctuary Ecosystem Assessment – Applied California Current Ecosystem Assessments Surveys (ACCESS), #44

Project Dates: May 14, 2016 through May 27, 2016

Prepared by: _____ Dated: April 22, 2016
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Approved by: _____ Dated: April 22, 2016
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Approved by: _____ Dated: April 25, 2016
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Sanctuary Superintendent
Cordell Bank National Marine Sanctuary

Approved by: _____ Dated: April 29, 2016
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DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=NOAA, cn=PARKER.BRIAN.W.1076514042
Date: 2016.04.29 11:53:41 -07'00'
Commander Brian W. Parker, NOAA
Commanding Officer
Marine Operations Center - Pacific

1. Overview

A. Project Summary

This project contributes to a regional characterization and monitoring of the physical and biological components of the pelagic ecosystems of northern Monterey Bay (MBNMS), Cordell Bank (CBNMS) and Greater Farallones (GFNMS) National Marine Sanctuaries. Data will be used to relate the spatial patterns of bird and mammal distribution with oceanographic and prey patterns and to understand seasonal and interannual changes in the pelagic ecosystem. NOAA and other regulatory agencies to protect resources in the sanctuaries use this information in management decisions. This assessment and monitoring of the pelagic system specifically meets the sanctuary's mandate to conduct long-term monitoring of the resources within the sanctuaries and provides important information for resource protection, management, and education/outreach.

B. Days at Sea

Of the 12 DAS scheduled for this project, 12 DAS are funded by Line Office Allocation, NOS. This project is estimated to exhibit a medium Operational Tempo.

C. Operating Area

The principal study area includes the nearshore and offshore areas of Cordell Bank, Greater Farallones and the northern portion of Monterey Bay National Marine Sanctuaries. The survey is planned to be a series of predetermined transect lines with sampling stations for water column chemistry and biology. Also, included in this cruise will be nighttime operations to collect vertical migration data on the quality and composition of zooplankton in comparison to daytime samples. A map of the survey area, transect lines, oceanographic sample stations and multibeam survey boxes is shown in the Appendix III. Eastern extent is the 15-fathom isobath, 0.5 nm from land and western extent is approximately 50 km offshore. Northern extent is Point Arena and southern extent is Pescadero, CA. See Appendix II for coordinates.

D. Summary of Objectives

The primary goal is to better understand the linkages between weather, climate changes and the abundance and distribution of seabirds, marine mammals, and their primary prey species such as zooplankton, i.e. krill.

- Improve conservation of top predators and their food webs,
- Guide human uses to provide protection of the marine ecosystem,
- Document effects of environmental changes on the marine ecosystem,
- Contribute data to support ecosystem-based management, and
- Assess ecosystem effects of freshwater outflow from San Francisco Bay and north-central California watersheds

Objectives include:

- Conduct visual surveys along fixed transects to collect abundance and distribution data along preplanned transects and at specific water column sample stations for abundance and distribution for seabirds, marine mammals, sea turtles, and other surface wildlife. During

surveys, note vessel activities, occurrence of marine debris and drift algae;

- At fixed sampling stations drop CTD to collect profile of water chemistry data including temperature, salinity, fluorescence, dissolved oxygen, and turbidity;
- Collect underway SST, salinity, and fluorescence data along preplanned transects; and
- Collect underway acoustic data with the EK 60, frequencies 38 kHz = 1000 W, 120 kHz = 500 W, and 200 kHz = 300 W to estimate zooplankton and ichthyoplankton biomass.
- See Appendix II for specific tasks at each sample station and transect.

E. Participating Institutions

Greater Farallones National Marine Sanctuary, 991 Marine Dr., The Presidio, CA 94062
Cordell Bank National Marine Sanctuary, 1 Bear Valley Road, Point Reyes Station, CA 94956
Point Blue Conservation Science, 3820 Cypress Dr., Petaluma CA 94954

F. Scientific Personnel

All are US citizens. All will assist with loading equipment, supplies and personal gear on May 13, 2016, board May 14, 2016, and disembark May 22, 2016.

Name	Task	Date of Embark/ Disembark	Affiliation	Citizen ship	Gender
Chu, Dana	Teacher At Sea, assist observers, blog, assist back deck	05-13-16/ 05-22-16	Florin High School	USA	F
Devlin, Dru	Mammal observer #2	05-13-16/ 05-22-16	GFNMS	USA	F
Donihue, Ross	Photos and maps	05-13-16/ 05-22-16	Maps For Good	USA	M
Hartnett, Ryan	Surface water, phytoplankton, nighttime TT	05-13-16/ 05-22-16	Pt Blue	USA	M
Howar, Julie	GIS technician	05-13-16/ 05-22-16	Pt Blue	USA	F
Jahncke, Jaime	Recorder/work with crew day and nighttime Tucker trawl/work with crew EK 60 data archive	05-13-16/ 05-22-16	Pt Blue	USA	M
Lindquist, Kirsten	Bird observer/data QC	05-13-16/ 05-22-16	GFNMS	USA	F
Lipski, Dani	CTD /Niskin/phytoplankton/ Hoop Net/data management/work with crew to copy and archive TSG underway data/back up marine mammal obs/ Catalog Photos and Videos/Blog/	05-13-16/ 05-22-16	CBNMS	USA	F

	Supervisor TAS review blogs prior to transmittal				
Nairn, Taylor	Backup Observer/back up Recorder/ Catalog Photos and Videos/Blog/Data QC lead	05-13-16/ 05-22-16	GFNMS	USA	F
O'Donnell, Brady	OA sampling/ CTD / Niskin/phytoplankton	05-13-16/ 05-22-16	Pt Blue Conservation Science	USA	M
Oates, Mark	Catalog Photos and Videos/Blog /Facebook lead/Data QC/ Supervisor TAS review blogs prior to transmittal	05-13-16/ 05-22-16	GFNMS	USA	M
Roletto, Jan	Cruise Leader/Mammal observer/ Catalog Photos and Videos/Blog/ Supervisor TAS review blogs prior to transmittal	05-13-16/ 05-22-16	GFNMS	USA	F
Schnure, Marty	Video and maps	05-13-16/ 05-22-16	Maps For Good	USA	F
Thompson , Jason	Photos wildlife and personnel	05-13-16/ 05-22-16	GFNMS	USA	M

G. Administrative

1. Primary Point of Contact (POC): Jan Roletto, Jan.Roletto@noaa.gov, (c) 415-987-0412, (o) 415-561-6622 ext. 207
   Alternate POC: Danielle Lipski, Danielle.Lipski@noaa.gov, (c) 805-975-5414
   Land based POC during cruise: Maria Brown, Maria.Brown@noaa.gov, (c) 415-254-8747 or Dan Howard (c) 415-706-1064

2. Diplomatic Clearances
   None required.

3. Licenses and Permits
   None required.

II. Operations

A. Project Itinerary

13 May – San Francisco, mobilize gear and personnel, time to be determined
14 May – Depart San Francisco, time to be determined
14-22 May – sample within GFNMS, CBNMS and northern portion of MBNMS, see Appendices II and III for day to day float plan details, sample coordinates and map
22 May – return to San Francisco , demobilized gear and personnel, media tour, times to be

determined
25-27 May – transit to Newport, OR

B. Staging and Destaging

Staging and ship set up: 13 May, San Francisco Bay, CA
Return to port and destaging: 22 May, San Francisco Bay, CA (including media tour of ship)

C. Operations to be conducted

Visual Surveys
Line-transect survey methods will be used to collect marine mammal abundance and distribution data, and location and activity data for vessels. Strip-transect survey methods will be used to collect seabird, marine debris, sea turtle, jellyfish and drift algae abundance data. A daily watch for birds, mammals, etc. will be maintained on the flying bridge during daylight hours (approximately 0630 to 1900) by two (2) mammal observers and one (1) seabird observer, with 1 (one) center line observer and data recorder. Observers will use handheld binoculars. Visual data are recorded directly into a laptop on the flying bridge.

At the beginning of each day observer effort should start on the transect line or conduct the oceanographic (water column) data collection. See Appendix I for day to day float plan. The ship should travel at 10 kt along the designated transect line. While on effort, if the ship's speed should deviate from this by more than 1 kt, the bridge personnel will notify the observer team on the flying bridge.

When bird, mammal, and etc. observations are performed on the same transects with oceanographic stations, the ship may drift away from the plan transect line during water column sampling. Once the water column sampling is completed visual observations will resume once the ship has turned back toward the track line and the ship speed is at 10 kts. The ship does not need to return to the exact coordinates of the oceanographic station but can take a heading of $\pm$20 degrees back toward the transect line.

The bridge will inform the flying bridge two (2) minutes prior to being up to speed (10 kts), once the transect begins, and will give a 10 minute and a 2 minute prior to the end of a transect or when approaching an oceanographic water column sample station. The bridge will also inform the flying bridge, during visual observations when the ship is 3 km (1.62 nm) from the outside and at the boundary of any traffic separation scheme or separation circle. If there are large concentrations of whales in or near a shipping lane, the Cruise Leader will request that the ship contact Vessel Traffic Safety and report the large number of whales. This communication needs to be documented.

Oceanography - Active Acoustics
The bridge will inform the dry lab and flying bridge 10 minutes prior to being on station.

The Simrad EK 60 Scientific Echo Sounder will be operated continuously at 38 kHz = 1000 W, 120 kHz = 500 W, 200 kHz = 300 W, with an interval ping every two (2) seconds. The vessel's navigational depth sounder may be used at the discretion of the commanding officer or OOD, but will normally remain off while underway in deep waters. The navigational depth sounder aboard vessels has been known to interfere with the EK 60 scientific sounder. Since synchronization is

not possible, the navigational sounder should remain off when not in shallow water. The ship's navigational depth sounders may be on when the ship is inshore in depths of 20 fathoms or less. The commanding officer or OOD will inform the Cruise Leader any time the navigational depth sounders are used. The EK 60 will be interfaced to a data acquisition system to estimate micronekton biomass between 0 and 1000 m. The data will be copied to an external hard drive, provided by the science party at the end of visual operations of the cruise.

The read out from the EK 60 is available in the Chem Lab and Acoustics Labs.

Oceanography - Hoop Net Tows

See Appendix II for station locations. The vessel speed will be 1.5-2 kts to deploy, tow and recover the net. Target tow depth is 50 meters. The vessel speed may need to be adjusted to keep a 60° angle. Release wire cable at a rate of 20 m/min for a maximum of 100 m of cable (or to keep ~10 m above from bottom depth). If bottom is 50 m or less, set out [(2 × depth) - 10] m of cable. The ship's crew will deploy and recover nets, and work with scientists on wire angle and vessel towing speed. Scientists will recover samples from the net, once the net is back on deck. The samples will be preserved in formalin, labeled, and stored in containers provided by the ACCESS project.

Oceanography - Tucker Trawl tow

See Appendix II for station locations. The bridge will inform the dry lab and flying bridge 10 minutes prior to being on station. The vessel speed will be 1.5-2 kts to deploy, tow and recover the net. Target tow depth will be determined by the science party, using the signal from the EK 60. The vessel speed may need to be adjusted to keep a 60° angle. Release wire cable at a rate of 30 m/min for a maximum of 400 m of cable (or to keep ~10 m above from bottom depth). If bottom is 50 m or less, set out [(2 × depth) - 10] m of cable. Length of time for the tow of the bottom net, at target depth will be determined by the science party, but is usually no more than 5 minutes. The cable wire will need to be pulled close enough to the deck to release the first messenger. After the first net is closed, the science party will inform the deck crew to bring up the net at a rate of 20 m/min. The science party will determine the depth at which the second messenger will be deployed. Again, the cable wire will need to be pulled close enough to the deck to release the first messenger. After the second net is closed, the science party will inform the deck crew to bring up the net at a rate of 20 m/min.

The ship's crew will deploy and recover nets, and work with scientists on wire angle and vessel towing speed. Scientists will recover samples from the net, once the net is back on deck. The samples will be preserved in formalin, labeled, and stored in containers provided by the ACCESS project.

Oceanography - CTD and Niskin Bottle Rosette

See Appendix II for station locations. Vessel is stationary. Using the ship's CTD-rosette, the rosette is deployed and recovered at every oceanographic water column sampling station. Deploy the CTD just below surface of the water and wait 45 seconds before full deployment. Water samples will be collected at the following depths: 1 meter above the bottom, 50 meters when in depths greater than 60 meters, 5 meters and surface. Cable wire is deployed at a rate of 30 m/min down to 200 m (or 5-10 m from bottom). The ship's crew will deploy and CTD-rosette. Scientists will recover samples from the net, once the net is back on deck. The samples will be preserved in formalin, labeled, and stored in containers provided by the ACCESS project.

The ship's crew will deploy and recover CTD-rosette. Scientists will recover samples from the bottles, once the net is back on deck. The samples collected at depth in the Niskin bottle will be preserved in mercuric chloride, labeled, and stored in containers provided by the ACCESS project. Surface sweater samples will be stored in ship's freezer.

Oceanography - Hand Held Phytoplankton Net and Nutrients Water Sample

See Appendix II for station locations. Vessel is stationary. The Hand Held Phytoplankton Net (HHP) is occasionally deployed at the same location as the CTD (see Appendix II). A scientist will deployed the HHP by hand over the side of the vessel, away from any discharge from the vessel. The net is weighted and sinks to 30 ft and pulled back up three times, then returned to the deck. Ship's survey tech will observe for safety.

The samples from the HHP net will be preserved in formalin, labeled, and stored in containers provided by the ACCESS project.

Photography

Photographs of wildlife, marine debris, and other on-the water activities will be taken on an opportunistic basis, while conducting transects and oceanographic sampling. Only on rare occasions will the cruise leader request a deviation from the planned transect lines or change of speed for photographs. Photos and video will also be collected of ship operations for use in an interactive map, photo library, and video content profiling the ACCESS research program. This content will help spread awareness and aid fundraising efforts for the research in this critical marine ecosystem. Final products may include maps and multimedia profiling the efforts of researchers to monitor coastal waters, telling the story of the research and findings as well as raise awareness of National Marine Sanctuaries. All videos and photos will reviewed by primary investigators prior to public sharing for appropriateness and quality assurance.

Outreach and Media

Once back into port on 22 May, a group of 10-12 media will tour the ship, e.g. flying bridge, bridge, main deck, engine room if possible, and lab space. We plan to provide to the media DVDs with maps of our findings, b-roll video, and still images collected during the cruise. We estimate that the media tour of the vessel will take place from 1300 to 1430, unless another time frame is identified by the ship. LCD projector will be supplied by the science party and set up in the wet lab.

Media clearances will be coordinated through Mary Jane Schramm, GFNMS, 415-561-6622 ext. 205 and David Hall, OMAO Public Affairs, 301-713-7671. Mary Jane will email Cruise Leader the list of names of media, at least 24 hours prior to media boarding the ship. Ship's crew may choose to participate in the tour or not.

D. Dive Plan

Dives are not planned for this project.

E. Applicable Restrictions

Conditions that preclude normal operations:

- Visual surveys cannot be performed at sea states higher than Beaufort 6 or visibility less than 300 meters or after sunset.
- Hoop net, CTD Rosette (Niskin bottles), Tucker trawl tows cannot be done in swells larger than 8 meters or if wind pushes vessel over the top of the nets.
- Mitigation includes pausing operations or anchoring in Drakes Bay until poor conditions subside, or sampling transect lines that are lower priority that occur in areas of better protection from NW winds and swells. Priority transect lines are Lines (offshore) 2, 4, 6, 1, 3, 5, 7, (nearshore) Lines N4, N3, N2, N1, 11, 12, 13, 14, 8, 9, 10, 15, 16, and all other transect lines are lower priority.

III. Equipment

A. *Equipment and Capabilities provided by the ship (itemized)*

1. 110V power on the flying bridge consoles
2. Canopy on flying bridge
3. Freezer space for biological samples (standard freezer -20° C freezer)
4. Hydrographic winch with minimum 1000 m cable (3/8" minimum diameter) for net tows
5. Bottom depth checking during all net tows in depths less than 2000 m.
6. Fume hood (located in chem lab, aft counter, inboard bulkhead)
7. Deck space for one Tucker Trawl net, one Hoop Net, one Niskin Bottle and cradle, one CTD and cradle, three 5-gallon buckets, and three phytoplankton nets
8. Deck hose with fresh and seawater supply to rinse nets as needed
9. Three chairs for observers and data recorder on flying bridge
10. Table on flying bridge to place data logging laptop, near 110V power outlet
11. Hard hats and other PPE
12. Hand held radios to communicate between deck crew, deck scientists, flying bridge scientists and bridge

Equipment and Capabilities provided by the scientists (itemized)

1. Four 7x50 hand-held binoculars
2. Two binoculars with reticles
3. CTD and cradle (as back up)
4. Video camera and tapes
5. Three digital cameras, lenses, and accessories
6. Two Toughbook laptop computers, GPS enabled, for waterproof data logging
7. Twelve laptop computers for Cruise Leader, photo-ID team, multibeam team and backup unit
8. Two, 2TB external hard drives
9. Bungee cords and hooks for securing equipment
10. Two hand held phytoplankton net
11. One clean bucket, for surface water collection
12. Oceanographic data logs and log books
13. Jars for net tow samples
14. Hazardous materials spill kit
15. Computer data storage media (diskettes, CDs, etc.)
16. Two external hard drives for EK 60 data storage
17. One hoop net
18. One Tucker Trawl Net

19. Line for deploying HHP net
20. One Niskin bottle and cradle (as back up)
21. Six float coats
22. Six storage bins
23. Labels, markers, timers, laminated instructions
24. Rubber gloves
25. Non-skid pads for equipment
26. Three cup holders
27. One or two chairs, supports and hardware to be mounted on flying bridge, number to be determined by the Bosun
28. One portable desk top and c-clamps for flying bridge (as back up)
29. Four sets of laminated codes sheets, maps, and coordinates
30. Office supplies such as scissors, tape, pens, pencils, waterproof markers, etc.

IV. Hazardous Materials

A. Policy and Compliance

The Chief Scientist is responsible for complying with FEC 07 Hazardous Materials and Hazardous Waste Management Requirements for Visiting Scientific Parties (or the OMAO procedure that supersedes it). By Federal regulations and NOAA Marine and Aviation Operations policy, the ship may not sail without a complete inventory of all hazardous materials by name and quantity, MSDS, appropriate spill cleanup materials (neutralizing agents, buffers, or absorbents) in amounts adequate to address spills of a size equal to the amount of chemical brought aboard, and chemical safety and spill response procedures. Documentation regarding those requirements will be provided by the Chief of Operations, Marine Operations Center, upon request.

Per OMAO procedure, the scientific party will include with their project instructions and provide to the CO of the respective ship 30 days before departure:

- List of chemicals by name with anticipated quantity
- List of spill response materials, including neutralizing agents, buffers, and absorbents
- Chemical safety and spill response procedures, such as excerpts of the program's Chemical Hygiene Plan or SOPs relevant for shipboard laboratories
- For bulk quantities of chemicals in excess of 50 gallons total or in containers larger than 10 gallons each, notify ship's Operations Officer regarding quantity, packaging and chemical to verify safe stowage is available as soon as chemical quantities are known.

Upon embarkation and prior to loading hazardous materials aboard the vessel, the scientific party will provide to the CO or their designee:

- An inventory list showing actual amount of hazardous material brought aboard
- An MSDS for each material
- Confirmation that neutralizing agents and spill equipment were brought aboard sufficient to contain and cleanup all of the hazardous material brought aboard by the program
- Confirmation that chemical safety and spill response procedures were brought aboard

Upon departure from the ship, scientific parties will provide the CO or their designee an inventory showing that all chemicals were removed from the vessel. The CO's designee will

maintain a log to track scientific party hazardous materials. MSDS will be made available to the ship's complement, in compliance with Hazard Communication Laws.

Scientific parties are expected to manage and respond to spills of scientific hazardous materials. Overboard discharge of hazardous materials is not permitted aboard NOAA ships.

B. Inventory

Less than 50 gallons total of hazardous chemicals shall be brought on board.

Common Name of Material	Quantity	Notes	Trained Individual	Spill Control
Mercuric Chloride	1 qt	Toxic acid	Dani Lipski and Brady O'Donnell	A
Formalin (10%)	3 gal	May cause skin or respiratory irritation	Dani Lipski and Brady O'Donnell	F
Ethanol	1 qt	Flammable	Dani Lipski and Brady O'Donnell	Absorbent pad

C. Chemical Safety and Response Procedures

ACID (A)

- Wear appropriate protective equipment and clothing during cleanup. Keep upwind. Keep out of low areas. Use of fume hood is recommended.
- Ventilate closed spaces before entering them.
- Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible.
- **Large Spills**: Dike far ahead of spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.
- **Small Spills**: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.
- Never return spills in original containers for re-use.
- Neutralize spill area and washings with soda ash or lime. Collect in a non-combustible container for prompt disposal.
- J. T. Baker NEUTRASORB® acid neutralizers are recommended for spills of this product.

Formalin/Formaldehyde (F)

- Ventilate area of leak or spill. Remove all sources of ignition.
- Wear appropriate personal protective equipment.
- Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible.

- Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container.
- Do not use combustible materials, such as sawdust.

Inventory of spill kit supplies.

Product Name	Amount	Chemicals it is useful against	Amount it can clean up
Heavy rubber gloves	2 pair	Formalin, mercuric chloride	n/a
Disposable latex gloves	Box	Formalin, mercuric chloride	n/a
Gallon Ziploc bags	Box	Formalin, mercuric chloride	~ 1 gallon each
Safety goggles	2 pair	Formalin, mercuric chloride	n/a
Absorbent pads	100	Formalin, mercuric chloride	5 gallons
Soda ash or lime	1 bag/jar	Mercuric chloride	5 gallons
Non-combustible container	5 gallon	Formalin, mercuric chloride	5 gallons
Acid neutralizer	1 bag/jar	Mercuric chloride	100 mL

D. Radioactive Materials

No radioisotopes are planned for this project.

V. Additional Projects

No supplementary or NOAA Fleet ancillary projects are planned.

VI. Disposition of Data and Reports

Disposition of data gathered aboard NOAA ships will conform to NAO 216-101 *Ocean Data Acquisitions* and NAO 212-15 *Management of Environmental Data and Information.* To guide the implementation of these NAOs, NOAA's Environmental Data Management Committee (EDMC) provides the *NOAA Data Documentation Procedural Directive* (data documentation) and *NOAA Data Management Planning Procedural Directive* (preparation of Data Management Plans). OMAO is developing procedures and allocating resources to manage OMAO data and Programs are encouraged to do the same for their Project data.

A. Data Classifications: *Under Development*

a. OMAO Data

b. Program Data

B. Responsibilities: *Under Development*

VII. Meetings, Vessel Familiarization, and Project Evaluations

A. Pre-Project Meeting: The Chief Scientist and Commanding Officer will conduct a meeting of pertinent members of the scientific party and ship's crew to discuss required equipment, planned operations, concerns, and establish mitigation strategies for all concerns. This meeting shall be conducted before the beginning of the project with sufficient time to allow for preparation of the ship and project personnel. The ship's Operations Officer usually is delegated to assist the Chief Scientist in arranging this meeting.

B. Vessel Familiarization Meeting: The Commanding Officer is responsible for ensuring scientific personnel are familiarized with applicable sections of the standing orders and vessel protocols, e.g., meals, watches, etiquette, drills, etc. A vessel familiarization meeting shall be conducted in the first 24 hours of the project's start and is normally presented by the ship's Operations Officer.

C. Post-Project Meeting: The Commanding Officer is responsible for conducted a meeting no earlier than 24 hrs before or 7 days after the completion of a project to discuss the overall success and short comings of the project. Concerns regarding safety, efficiency, and suggestions for future improvements shall be discussed and mitigations for future projects will be documented for future use. This meeting shall be attended by the ship's officers, applicable crew, the Chief Scientist, and members of the scientific party and is normally arranged by the Operations Officer and Chief Scientist.

D. Project Evaluation Report

Within seven days of the completion of the project, a Customer Satisfaction Survey is to be completed by the Chief Scientist. The form is available at http://www.omao.noaa.gov/fleeteval.html and provides a "Submit" button at the end of the form. Submitted form data is deposited into a spreadsheet used by OMAO management to analyze the information. Though the complete form is not shared with the ships', specific concerns and praises are followed up on while not divulging the identity of the evaluator.

VIII. Miscellaneous

A. Meals and Berthing

The ship will provide meals for the scientists listed above. Meals will be served 3 times daily beginning one hour before scheduled departure, extending throughout the project, and ending two hours after the termination of the project. Since the watch schedule is split between day and night, the night watch may often miss daytime meals and will require adequate food and beverages (for example a variety of sandwich items, cheeses, fruit, milk, juices) during what are not typically meal hours. Special dietary requirements for scientific participants will be made available to the ship's command at least seven days prior to the project.

Berthing requirements, including number and gender of the scientific party, will be provided to the ship by the Chief Scientist. The Chief Scientist and Commanding Officer will work together on a detailed berthing plan to accommodate the gender mix of the scientific party taking into consideration the current make-up of the ship's complement. The Chief Scientist is responsible for ensuring the scientific berthing spaces are left in the condition in which they were received; for stripping bedding and linen return; and for the return of any room keys which were issued. The Chief Scientist is also responsible for the cleanliness of the laboratory spaces and the storage areas utilized by the scientific party, both during the project and at its conclusion prior to departing the ship.

All NOAA scientists will have proper travel orders when assigned to any NOAA ship. The Chief Scientist will ensure that all non NOAA or non-Federal scientists aboard also have proper orders. It is the responsibility of the Chief Scientist to ensure that the entire scientific party has a mechanism in place to provide lodging and food and to be reimbursed for these costs in the event that the ship becomes uninhabitable and/or the galley is closed during any part of the scheduled project.

All persons boarding NOAA vessels give implied consent to comply with all safety and security policies and regulations which are administered by the Commanding Officer. All spaces and equipment on the vessel are subject to inspection or search at any time. All personnel must comply with OMAO's Drug and Alcohol Policy dated May 17, 2000 which forbids the possession and/or use of illegal drugs and alcohol aboard NOAA Vessels.

Daytime operations will take place during meal hours. Scientists that are not on duty during meal hours shall take meal orders from working scientists and work with crew to set aside and refrigerate plates for working scientists.

Berthing plan will be submitted in a separate document.

B. Medical Forms and Emergency Contacts

The NOAA Health Services Questionnaire (NHSQ, NF 57-10-01 (3-14)) must be completed in advance by each participating scientist. The NHSQ can be obtained from the Chief Scientist or the NOAA website http://www.corporateservices.noaa.gov/noaaforms/eforms/nf57-10-01.pdf.
All NHSQs submitted after March 1, 2014 must be accompanied by NOAA Form (NF) 57-10-02 - Tuberculosis Screening Document in compliance with OMAO Policy 1008 (Tuberculosis Protection Program).
The completed forms should be sent to the Regional Director of Health Services at the applicable Marine Operations Center. The NHSQ and Tuberculosis Screening Document should reach the Health Services Office no later than 4 weeks prior to the start of the project to allow time for the participant to obtain and submit additional information should health services require it, before clearance to sail can be granted. Please contact MOC Health Services with any questions regarding eligibility or completion of either form. Ensure to fully complete each form and indicate the ship or ships the participant will be sailing on. The participant will receive an email notice when medically cleared to sail if a legible email address is provided on the NHSQ.
The participant can mail, fax, or email the forms to the contact information below. Participants should take precautions to protect their Personally Identifiable Information

(PII) and medical information and ensure all correspondence adheres to DOC guidance (http://ocio.os.doc.gov/ITPolicyandPrograms/IT_Privacy/PROD01_008240).
The only secure email process approved by NOAA is Accellion Secure File Transfer which requires the sender to setup an account. Accellion's Web Users Guide is a valuable aid in using this service, however to reduce cost the DOC contract doesn't provide for automatically issuing full functioning accounts. To receive access to a "Send Tab", after your Accellion account has been established send an email from the associated email account to accellionAlerts@doc.gov requesting access to the "Send Tab" function. They will notify you via email usually within 1 business day of your approval. The 'Send Tab" function will be accessible for 30 days.
Contact information:

Regional Director of Health Services
Marine Operations Center – Pacific
2002 SE Marine Science Dr.
Newport, OR 97365
Telephone 541-867-8822
Fax 541-867-8856
Email MOP.Health-Services@noaa.gov

Prior to departure, the Chief Scientist must provide an electronic listing of emergency contacts to the Executive Officer for all members of the scientific party, with the following information: contact name, address, relationship to member, and telephone number.

C. Shipboard Safety

Hard hats are required when working with suspended loads. Work vests are required when working near open railings and during small boat launch and recovery operations. Hard hats and work vests will be provided by the ship when required.

Wearing open-toed footwear or shoes that do not completely enclose the foot (such as sandals or clogs) outside of private berthing areas is not permitted. At the discretion of the ship CO, safety shoes (i.e. steel or composite toe protection) may be required to participate in any work dealing with suspended loads, including CTD deployment and recovery. The ship does not provide safety-toed shoes/boots. The ship's Operations Officer should be consulted by the Chief Scientist to ensure members of the scientific party report aboard with the proper attire.

D. Communications

A progress report on operations prepared by the Chief Scientist may be relayed to the program office. Sometimes it is necessary for the Chief Scientist to communicate with another vessel, aircraft, or shore facility. Through various means of communications, the ship can usually accommodate the Chief Scientist. Special radio voice communications requirements should be listed in the project instructions. The ship's primary means of communication with the Marine Operations Center is via email and the Very Small Aperture Terminal (VSAT) link. Standard VSAT bandwidth at 128kbs is shared by all vessels staff and the science team at no charge. Increased bandwidth in 30 day increments is available on the VSAT systems at increased cost to the scientific party. If increased bandwidth is being considered, program accounting is required and it must be arranged through the ship's Commanding Officer at least 30 days in advance.

This project currently does not include the need to communicate with other ships or aircraft. The only foreseeable communication needs will be email, attachments less than 25 MB. The only foreseeable communication will be to report to Vessel Traffic Safety (VTS) any large concentrations of whales within 3 km of any vessel traffic separation scheme. The ship shall notify the Chief Scientist whenever reporting whales sightings to VTS. Transcription of communication shall be provided on a daily basis.

E. IT Security

Any computer that will be hooked into the ship's network will comply with the *OMAO Fleet IT Security Policy* 1.1 (November 4, 2005) prior to establishing a direct connection to the NOAA WAN. Requirements include, but are not limited to:
(1) Installation of the latest virus definition (.DAT) file on all systems and performance of a virus scan on each system.
(2) Installation of the latest critical operating system security patches.
(3) No external public Internet Service Provider (ISP) connections.
Completion of the above requirements prior to boarding the ship is required.
Non-NOAA personnel using the ship's computers will only use compliant computers and will have completed NOAA's IT Security Awareness Course within 3 days of embarking.

F. Foreign National Guests Access to OMAO Facilities and Platforms

Foreign National access to the NOAA ship or Federal Facilities is not required for this project.

IX. Appendices

Appendix I – Day-to-Day Operations. Sample locations are greater than 0.5 nm from shore and deeper than 15 fathoms.

13-May	TBD	TBD	mobilize equipment, supplies, and personal gear
14-May	10:00		depart
	10:00	12:00	transit to Line 5
	12:00	14:30	Line 5 E to W
	14:30	15:30	transit to Line 7
	15:30	18:00	Line 7 W to E
15-May			transit to Line 10
	6:30	13:30	Line 10 E to W, Tucker trawl done after completion of line, location will be between M and MW and will be determined by the net team in 100 m or more
	13:30	14:30	transit to Line 9
	14:30	16:30	Line 9 W to E
	16:30	17:30	transit to Line 8
	18:10	19:30	Line N8 E to W end at 8W
	19:30	23:00	transit to Tucker trawl Line 10 between 10M and 10MW, see previous location for day time Tucker trawl at shelf break
	23:00	1:00	Tucker Trawl Line 10
16-May	1:00	7:00	transit to Line 6
	7:00	14:30	Line 6 E to W, skip station MW Tucker trawl done after 6W
	23:00	1:00	Tucker Trawl 6MW
17-May	1:00	6:30	transit to Line N4
	6:30	8:00	Line N4 W to E
	8:00	9:00	transit to Line 4
	9:00	16:00	Line 4 E to W, skip station MW Tucker trawl done after 4W
	16:00	17:00	transit to Line 3
	17:00	19:00	Line 3 W to E
	19:00	23:00	transit to Tucker trawl 4MW
	23:00	1:00	Tucker Trawl 4MW
18-May	1:00	6:30	transit to Line N3
	6:30	7:30	Line 3N E to W
	7:30	8:30	transit to Line 2N
	8:30	9:00	Line 2N E to W
	9:00	9:30	transit to Line 2
	9:30	16:30	Line 2 E to W skip station MW Tucker trawl done after 2W
	16:30	17:30	transit to Line 1
	17:30	19:30	Line 1 W to E

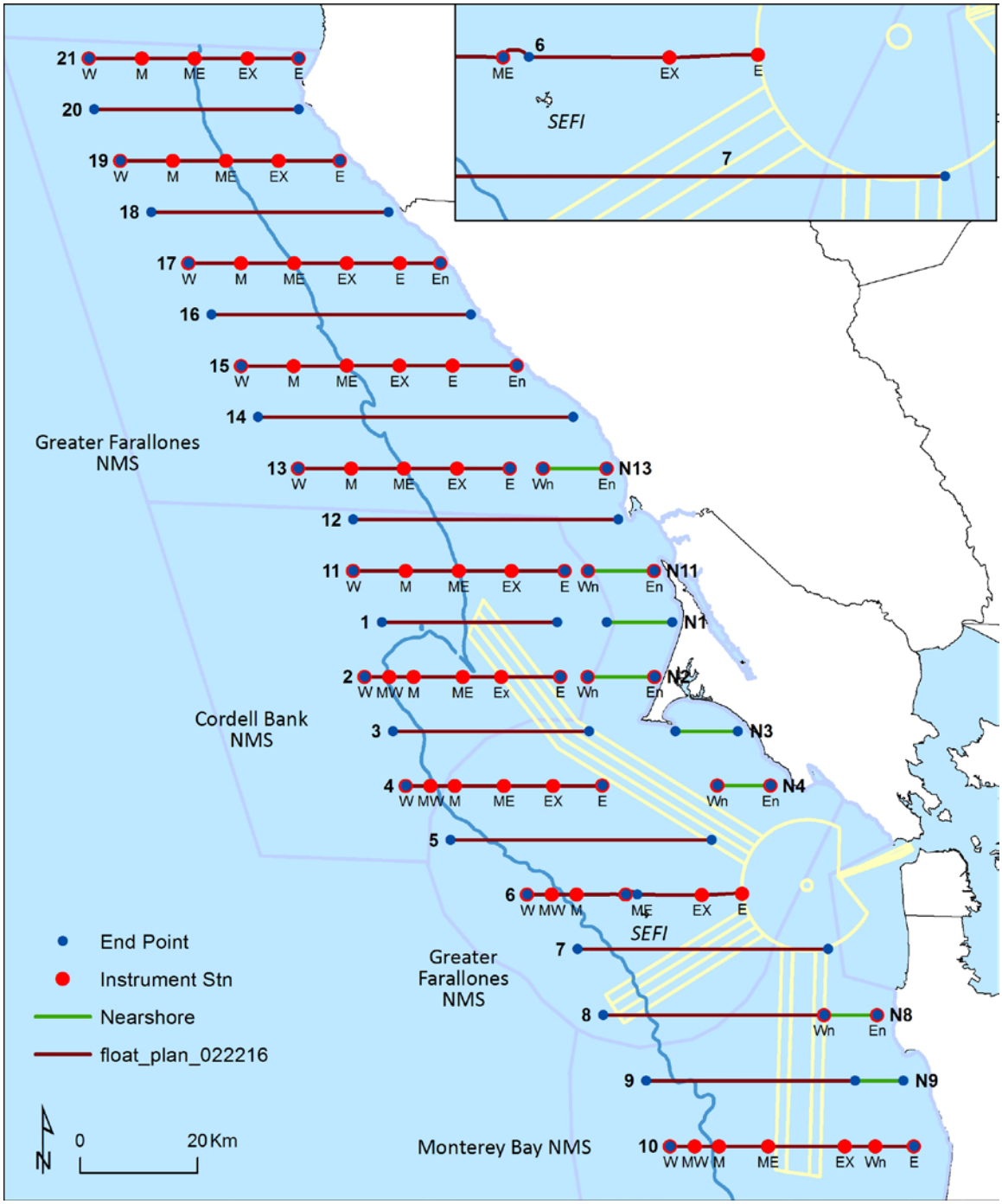
	19:30	23:00	transit to Tucker trawl 2MW
	23:00	1:00	Tucker Trawl 2MW
19-May	1:00	6:30	transit to Line N1
	6:30	7:30	Line N1 E to W
	7:30	8:30	transit to Line N11
	8:30	10:00	Line N11 E to W
	10:00	10:30	transit to Line 11
	10:30	16:30	Line 11 E to W Tucker trawl at ME
	16:30	17:30	transit to Line 12
	17:30	19:45	Line 12 W to E, end at darkness
	19:45	23:00	transit to Tucker trawl 11ME
	23:00	1:00	Tucker Trawl 11ME
20-May	1:00	6:30	transit to Line N13
	6:30	8:00	Line N13 E to W
	8:00	8:30	transit to Line 13
	8:30	12:30	Line 13 E to W Tucker trawl at ME
	12:30	13:30	transit to Line 14
	13:30	17:30	Line 14 W to E
	17:30	23:00	transit to Tucker trawl 13ME
	23:00	1:00	Tucker Trawl 13ME
21-May	1:00	6:30	transit to Line 15
	6:30	13:30	Line 15 E to W Tucker trawl at ME
	13:30	14:30	transit to Line 16
	15:30	18:30	Line 16 W to E
	18:30	23:00	transit to Tucker trawl 15ME
	23:00	1:00	Tucker Trawl 15ME
22-May	1:00	10:00	return to port

Appendix II – Sample Station and Transect Coordinates.
See Appendix III for corresponding map. Line = Transect line number; STN=Station Name; TN=Tucker Trawl Net; HN=Hoop Net; HHP=Hand Held Phytoplankton Net; Nut=Nutrient Water sample collection using a hand held bucket; Niskin=Niskin Bottle collected from wire. Station labels can be found on map, Appendix III.

Line	Stn	Lat	Lon	Tucker	Hoop	Phyto	CTD	Nutrients	Niskin
1	E	38.13977	-123.19292	n	n	n	n	n	n
1	W	38.13027	-123.53292	n	n	n	n	n	n
N1	En	38.14549	-122.96937	n	n	n	n	n	n
N1	Wn	38.14228	-123.09670	n	n	n	n	n	n
2	E	38.05674	-123.18280	n	y	y	y	y	y
2	Ex	38.05352	-123.29737	n	y	n	y	y	Y
2	ME	38.05139	-123.37240	n	y	n	y	y	Y
2	M	38.04872	-123.46745	n	y	n	y	y	y
2	MW	38.04739	-123.51497	y	n	n	n	n	n
2	W	38.04604	-123.56280	n	y	y	y	y	y
N2	En	38.06147	-122.99984	n	n	y	y	y	n
N2	Wn	38.05815	-123.12944	n	n	n	y	y	n
3	E	37.97487	-123.12391	n	n	n	n	n	n
3	W	37.96437	-123.50392	n	n	n	n	n	n
N3	En	37.98205	-122.83508	n	n	n	n	n	n
N3	Wn	37.97912	-122.95640	n	n	n	n	n	n
4	E	37.89245	-123.09480	n	y	y	y	y	y
4	EX	37.88982	-123.18977	n	y	n	y	y	Y
4	ME	37.88719	-123.28475	n	y	n	y	y	Y
4	M	37.88459	-123.37987	n	y	n	y	y	Y
4	MW	37.88328	-123.42744	y	n	n	n	n	n
4	W	37.88194	-123.47479	n	y	y	y	y	y
N4	En	37.90050	-122.76874	n	n	y	y	y	n
N4	Wn	37.89804	-122.87206	n	n	n	y	y	n
5	E	37.81438	-122.87990	n	n	n	n	n	n
5	W	37.80117	-123.38492	n	n	n	n	n	n
6	E	37.73425	-122.81731	n	y	y	y	y	y
6	EX	37.73061	-122.89524	n	y	n	y	y	Y
6	M	37.72455	-123.13761	n	y	n	y	y	Y
6	none	37.72781	-123.02004	n	n	n	n	n	n
6	ME	37.72697	-123.04268	n	y	n	y	y	Y
6	MW	37.72334	-123.18508	y	n	n	n	n	y
6	W	37.72205	-123.23279	n	y	y	y	y	y
7	E	37.65308	-122.64890	n	n	n	n	n	n
7	W	37.64138	-123.13191	n	n	n	n	n	n
8	En	37.55478	-122.54990	n	n	n	n	n	n
8	Wn	37.55252	-122.65290	n	n	n	n	n	n

8	W	37.54224	-123.07834	n	n	n	n	n	n
9	E	37.45343	-122.58972	n	n	n	n	n	n
9	W	37.44396	-122.99144	n	n	n	n	n	n
N9	E	37.45543	-122.49671	n	n	n	n	n	n
N9	W	37.45343	-122.58972	n	n	n	n	n	n
10	E	37.35573	-122.45919	n	n	y	y	y	y
10	Wn	37.35386	-122.54733	n	n	n	y	y	Y
10	EX	37.35244	-122.60591	n	y	n	y	y	Y
10	ME	37.34916	-122.75263	n	y	n	y	y	Y
10	M	37.34697	-122.84710	n	y	n	y	y	Y
10	MW	37.34588	-122.89433	y	n	n	n	n	n
10	W	37.34470	-122.94182	n	y	y	y	y	Y
11	E	38.21845	-123.18162	n	y	y	y	y	y
11	EX	38.21571	-123.28449	n	y	n	y	y	Y
11	ME	38.21286	-123.38734	y	y	n	y	y	Y
11	M	38.20991	-123.49019	n	y	n	y	y	y
11	W	38.20688	-123.59303	n	y	y	y	y	y
N11	En	38.22297	-123.00748	n	n	y	y	y	n
N11	Wn	38.21969	-123.13584	n	n	n	y	y	n
12	E	38.29953	-123.08051	n	n	n	n	n	n
12	W	38.28519	-123.59681	n	n	n	n	n	n
13	E	38.37222	-123.29481	n	y	y	y	y	Y
13	EX	38.36935	-123.39788	n	y	n	y	y	Y
13	ME	38.36640	-123.50094	y	y	n	y	y	Y
13	M	38.36336	-123.60400	n	y	n	y	y	Y
13	W	38.36022	-123.70704	n	y	y	y	y	y
N13	En	38.37723	-123.10650	n	n	y	y	y	n
N13	Wn	38.37398	-123.22994	n	n	n	y	y	n
14	E	38.45433	-123.15912	n	n	n	n	n	n
14	W	38.43619	-123.79017	n	n	n	n	n	n
15	En	38.52927	-123.28791	n	n	y	y	y	n
15	E	38.52578	-123.41353	n	y	n	y	y	y
15	EX	38.52281	-123.51681	n	y	n	y	y	y
15	M	38.51661	-123.72335	y	y	n	y	y	y
15	ME	38.51975	-123.62008	n	y	n	y	y	y
15	W	38.51337	-123.82660	n	y	y	y	y	y
16	E	38.60508	-123.38133	n	n	n	n	n	n
16	W	38.58994	-123.88864	n	n	n	n	n	n

Appendix III. Map of sample area.
Red dots indicate water column sampling stations. See Appendix II for location coordinates and tasks at each water column sample station.



Appendix IV – Media Plan and Shot List for ACCESS May 2016

Media Tour

Mary Jane Schramm, GFNMS Media Specialist, will coordinate a tour media on board *Bell M Shimada*, with ONMS West Coast media coordinator Sarah Marquis and David Hall, public relations/media specialist for OMAO. Once back into port on 22 May, a group of 10-12 media will tour the ship, e.g. flying bridge, bridge, main deck, engine room if possible, and lab space. We plan to provide to the media DVDs with maps of our findings, b-roll video, and still images collected during the cruise. We estimate that the media tour of the vessel will take place from 1300 to 1430, unless the ship identifies another time frame. LCD projector will be supplied by the science party and set up in the wet lab.

Media clearances will be coordinated through Mary Jane Schramm, GFNMS, 415-561-6622 ext. 205. Mary Jane will email Cruise Leader the list of names of media, at least 24 hours prior to media boarding the ship. Ship's crew may choose to participate in the tour or not.

Mary Jane Schramm will ensure that:

- Media RSVP in advance.
- Media are advised in advance to wear flat, sturdy, closed-toed shoes, must be able to walk up and down stairs (ladders). Long-pants are recommended.
- Media are escorted at all times while aboard ship.
- Prior to the end of the cruise Mary Jane Schramm will identify the tour route, highlights and visual aids and who will lead the tour.
- Ship's crewmembers can elect not to be interviewed by media, but are encouraged to point them to a spokesperson.
- Remember that everything is on the record.
- Per the DOC communications policy, media questions about budget, personnel or management issues should be referred to a NOAA public affairs officer.
- ODU's are generally fine unless VIPs will be in attendance.

Shot List

Content will help spread awareness and aid fundraising efforts for the research in this critical marine ecosystem. Final products may include maps and multimedia profiling the efforts of researchers to monitor coastal waters, telling the story of the research and findings as well as raise awareness of National Marine Sanctuaries.

- Theme of video – ecosystem health and partnership

Produce

- A one-minute video of ACCESS operations with climate change message for Facebook.
- Produce a five-minute video of ACCESS operations for fundraising purposes and donor engagement tool.
    - Management issues addressed include climate impacts and indicators
    - Management decisions on increasing resiliency to adapt to climate change
    - Threats
        - Ship strikes
        - Acoustic noise
        - Pollution

        - Marine debris
        - Entanglement
        - Depletion of prey/forage fish
        - Protection of prey/forage fish and krill
        - Climate change impacts
            - OA impacts on zooplankton and cascading impacts to prey (krill and copepods)
            - Zooplankton range and seasonal shifts (phenology)
- Partnership:
    - ACCESS has been developed from three separate at-sea sampling projects, Pt. Blue Conservation Science (formerly PRBO), CBNMS and GFNMS since 2004
    - ACCESS database are data from the merged projects since 2004
- Samples coastal to 35-40 miles offshore past the shelf break, Farallon Escarpment across Cordell Bank and over Bodega Canyon
- Sample design is typical oceanographic sampling and complements large scale projects ongoing projects such as NMFS-Rockfish, ORCAWALE/CSCAPE or former projects CalCOFI, WEST-CoOP
- Students and interns, learning marine science

- Uses of ACCESS data –
    - Conservation of wildlife,
        - Information to guide marine zooming and effectiveness of marine zones and regulations
            - Ship strike issues and placement of the vessel TSS
    - Climate change impacts
        - Impacts from El Niño
        - Impacts from long term changes to prey base
        - Ecosystem based management of fish populations
        - Talking Points
            - No one event can be attributed to climate change. It's the series of events, the severity, the duration, the intensity, and the frequency that adds up to climate change
            -
    - Anthropogenic variable and environmental variables
        - Water quality
            - Nutrients from SF Bay
            - Fresh water outflow from SF sewage outfall
        - Identification of controls for water column resources in the event of an oil spill
        - Determining baseline of krill and impacts by oil pollution events

- Shot list:
    - Use of Spotter Pro, whale watch style if possible, with whale in background
    - Map with our transects and sample stations.
    - Data visualization mapping tool (maybe put this at the end so people can follow along) and include Whale Alert
    - Bridge operations
    - Mobilization (time lapse)
    - Performing data entry for birds and mammals

    - Wildlife shots on the ocean, in the air and in the sample buckets, especially need video of seabirds
    - Tucker trawl
    - OA sampling
    - Phytoplankton sampling (biotoxin)
    - Nutrient sampling
    - Multibeam operations
    - Deploy and recover CTD, nets from underwater Go Pro
    - Explanation of the purposes of the project (interviews on the dock)
        - Purpose and theme of the ACCESS project – see above for talking points, develop script for voiceover from ACCESS 2015 video produced by Paul C
        - Explanation some ah ha! Findings
- On shore
    - Lab work lab work with Meredith
    - Downloading the CTD data and summary graph or map
    - Jaime in his office modeling whales at risk from ship strikes
    - Dani downloading SCS data
    - QA/QC bird and mammal data (can also do this on board Bell Shimada Kirsten, Taylor and Mark
    - Photo cataloging Mark and Jan
- Integrate past video footage from Jamie, Paul C, Dani and Jan
    - Mola underwater
    - Sea lions under water (from DSC cruise clips)
    - Helmet cam from Jaime
    - Party Anthem Rock video (add the release to use video for education purposes, Jan has right use for education and outreach)