CHANNEL ISLANDS NATIONAL MARINE SANCTUARY ADVISORY COUNCIL

Marine Shipping Working Group Meeting

FINAL Key Outcomes

October 7, 2015	October 8, 2015
The Goodland Hotel	**4016 Bren Hall**
5650 Calle Real, Goleta	**University of California Santa Barbara**

Attendance

- Thirteen Marine Shipping Working Group (MSWG) members (or alternates) participated in the fourth MSWG meeting. The following seats were absent: California Coastal Commission, Chamber of Shipping of America, and National Park Service. See attached attendance roster.

Day 1 – October 7, 2015

Welcome, Introductions, Meeting Objectives, and Agenda Review

Marine Shipping Working Group co-chairs, Phyllis Grifman and Kristi Birney, opened the meeting with a review of what had occurred since the last meeting on June 29, 2015. Working group members introduced themselves, and Eric Poncelet and Janet Thomson, Kearns & West facilitators, reviewed the goals and charge of the working group. They also described the products that will come out of the working group process, which include: recommendations for outreach/education and research; MSWG advice on different ship management strategies (framed in terms of pros and cons of the various strategies); specific ship management proposals (including a description of the level of support from individual MSWG members); and an implementation plan. Eric and Janet reiterated that the goal of the working group is not necessarily to achieve consensus on one single proposal, but instead to share advice on a proposal or proposals to the Sanctuary Advisory Council (SAC), including levels of support from the group. Eric and Janet also explained that each recommendation or proposal being submitted to the SAC should include consistent information, including a description, rationale, pros and cons (including any relevant feasibility issues), level of support, and references as appropriate. Eric also noted that, as a ground rule, when a working group member does not support a proposal, he or she should clearly articulate *why* he or she does not support the proposal. Eric clarified that the fifth and last MSWG meeting will occur in either December or January (likely January), and that recommendations from the working group will be forwarded to the Sanctuary Advisory Council and then to the sanctuary superintendent in early 2016.

Informational Presentations

Traffic Schedules and Trends – Captain Kip Louttit, Marine Exchange of Southern California

Captain Kip Louttit, Marine Exchange of Southern California, presented an update on ship traffic arriving to and departing from the Ports of Los Angeles and Long Beach. He highlighted the trend that in 2015, more ships are transiting via the Santa Barbara Channel, and fewer ships are transiting south of the Channel Islands through the Pacific Missile Range, compared to 2013 and 2014. Captain Louttit's full presentation is available online here: http://channelislands.noaa.gov/sac/group_meetings_archives.html.

Update on Economic Studies – Phyllis Grifman on behalf of Theresa Goedeke, National Centers for Coastal Ocean Science

Theresa Goedeke, from NOAA's National Centers for Coastal Ocean Science (NCCOS), is leading a study to estimate the impact of alternative shipping management options advanced by the MSWG to the Channel Islands National Marine Sanctuary (CINMS). Phyllis Grifman, USC Sea Grant, presented slides on Theresa's behalf, which are available online here: http://channelislands.noaa.gov/sac/group_meetings_archives.html. Phyllis explained that Theresa's team is currently building a model to estimate the economic impacts of alternative shipping routes and speed options for the Channel Islands region. When the MSWG process concludes, any recommendations that come out of the process will be put into the model for analysis. Theresa and her team at NCCOS may be able to conduct some preliminary analyses prior to the final MSWG meeting.

Outreach and Education Proposals

The Outreach and Education handout from 10/5/15 used to guide this discussion is available online here: http://channelislands.noaa.gov/sac/pdfs/mswg-outreach10052015.pdf.

Eric Poncelet and Janet Thomson, Kearns & West facilitators, initiated a discussion of the outreach and education proposals that MSWG members submitted through SeaSketch and/or in webinars prior to the meeting. For each proposal, the group worked to develop a description, rationale, pros, cons, and considerations.

Automatic Identification System (AIS) Text Messaging

Description: The Marine Exchange of Southern California (Mx SoCal) would transmit text messages to ships via Automatic Identification System (AIS).
Rationale: This would harness existing technology and equipment to improve real-time communication with ships entering and leaving the Ports of Los Angeles/Long Beach. NOAA and the U.S. Department of Defense could partner with Mx SoCal to disseminate important information on the locations of naval operations and whale sightings. Ships would also be able to transmit information back to Mx SoCal and to other ships in the region.

Pros

- The equipment needed to implement this in Los Angeles, Long Beach, and Santa Barbara is already in place, so additional costs to start using the technology would be minimal.
- The Navy already works with Mx SoCal to effectively transmit real-time information via radio, so it would be relatively easy for Mx SoCal to take the lead on this and start transmitting information via AIS.
- There was broad support from the working group to recommend petitioning the Federal Communications Commission (FCC) to allow Mx SoCal to utilize AIS text messaging.

Cons

- AIS text messaging may not be able to reach traffic outside a certain radius, which may include areas south of the Channel Islands. It may be possible to coordinate with other communication systems to increase geographic reach.
- Additional funding would be needed to support Mx SoCal in utilizing this technology and disseminating additional information.
- The primary purpose of AIS is ship tracking and navigational safety. Texting is an ancillary tool. The texting system could potentially be overused and dilute the ability to use AIS for emergency notification.
- Too many messages could result in mariners ignoring the system.

Considerations

- Currently, only the federal government can use AIS to transmit text messages, so Mx SoCal would need permission from the FCC to transmit messages via AIS to ships.
- AIS text messaging is always disseminated to all parties (like a group text), so it is not a medium for individual communication between Mx SoCal and a single ship. Individual communication is done over the radio and works well.
- Ships could potentially use AIS text messaging to report whale sightings. However, since all messages are transmitted to all parties (like a group text), this could cause problems because there would be too many messages being transmitted to every ship for every individual whale sighting.
- Whale sightings information should be aggregated before it is disseminated via AIS text messaging. Some options for reducing the number of messages include:
    - Defining a trigger for disseminating whale sighting information based on number of whales (e.g. aggregations of 3-5 whales), species, or behavior.
    - Messages about whale sightings could be transmitted only at certain time periods (such as the beginning of watch).
- NOAA's CetSound may be a possible repository for whale data, but it is not meant to be real-time.
- Messages need to be simple and quick to not compromise functionality for safety of navigation.
- This idea could potentially be paired with the third and sixth options listed on the outreach and education handout.
- Outstanding question: Does this have outreach value independent of management context?

Collect Whale Sighting Data from Mariners via Multiple Methods and Transmit Whale Sighting Data Back to Mariners

Description: Mariners report whale sightings via radio, phone, email, mobile apps, or possibly AIS text messaging. Whale sightings information would be transmitted back to mariners.
Rationale: Engaging mariners in reporting whale sightings and transmitting whale sighting information back to mariners may be an effective outreach tool to increase awareness of whale habitat and the threat of ship strikes. Real-time whale sighting information emphasizes the point that there are actually whales in the area and that ship-whale collisions are a real threat.

Pros

- Currently, in the region around CINMS, most opportunistic whale sightings are recorded by Channel Islands Naturalist Corps volunteers aboard participating whale watch and park concessionaire vessels, which typically transit in the Santa Barbara Channel near Santa Barbara, Ventura, and Channel Islands Harbors. MSWG broadly supports engaging other mariners in reporting whale sightings to expand the geographic area where sightings are recorded (especially south of the Channel Islands).
- This could increase awareness of the threat of ship strikes for mariners in multiple sectors, including fishing, shipping, etc.

Cons

- Engaging the shipping industry in reporting whale sightings has proved challenging in the past. CINMS and Pacific Merchant Shipping Association (PMSA) produced a poster for the bridge of ships encouraging mariners to report sightings via email. Whale Alert is also currently available as a way for mariners to report sightings, but neither method has been widely adopted by the shipping industry.
- It is not possible to collect visual sightings at night.
- Success depends on the willingness and ability of individual mariners, which varies a lot.
- When ships are coming in to port, it is the busiest time on the bridge, so mariners on commercial shipping vessels will likely not be reporting whales during that time.

Considerations

- In order to get ships to report whale sightings, they need to also receive information back about the sightings that they and others have recorded (i.e., they need to get something out of it). This could possibly be achieved in the form of a monthly letter or by including sightings in Whale Alert.
- Email may not be the best way for mariners to report sightings (due to lack of internet). The same method of reporting may not work for every ship. It may be necessary to consider multiple ways of reporting (email, Whale Alert, phone, radio, etc.) and integrate those into one database. There was broad MSWG support for this idea.
- There was broad support from the working group to recommend that whale watching and park concessionaire vessels provide whale sighting information even when a Channel Islands Naturalist Corps volunteer is not on board. The captains already log sightings in their log books, so it would just require getting them on board with the mobile app reporting technology.
- The MSWG needs to discuss and determine how often whale reports should be distributed.
- It is important to ensure that multiple sightings of the same whale don't skew the data.
- Naval support vessels could possibly participate.
- This idea has a lot of overlap with the seventh option listed on the outreach and education handout and should likely move forward as one idea.

International Online Resource for Shipping and Whale Strike Information

The working group did not have a full discussion of the description, rationale, pros, cons, and considerations for this proposal. Working group members recognized this as important, but it may be outside of the scope of the working group. Stephanie Altman, NOAA General Counsel, shared that this does not currently exist, and that the International Maritime Organization and the International Whaling Commission are pushing for an international online resource. Working group members agreed that a local or regional online resource should be developed, and should tie in with any international resource that is created in the future. The MSWG will discuss this again before or at Meeting #5.

Research Proposals

The Research handout from 10/2/15 used to guide this discussion is available online here: http://channelislands.noaa.gov/sac/pdfs/mswg-research10022015.pdf.

Eric Poncelet and Janet Thomson initiated a discussion of the research proposals that MSWG members submitted through SeaSketch and/or in webinars prior to the meeting. For each proposal discussed, the group worked to develop a description, rationale, pros, cons, and considerations.

Fine-scale information on species-specific whale distribution and abundance patterns and seasonality

Description: Systematic data collection and integration of existing and new datasets to provide more fine-scale information on whale distribution, abundance patterns, and seasonality. This could include increasing aerial, acoustic, or boat-based visual surveys, and/or standardizing or integrating existing data.
Rationale: This data is important to inform spatial management decisions.
Pros

- There is general agreement about the need for more, finer scale whale data farther offshore, specifically south of the Channel Islands.
- There is general agreement that existing datasets need to be aggregated and integrated.
- The Navy may be able to fund additional aerial surveys utilizing existing transect lines.
- Acoustics can be used to measure presence/absence of whales.

- Aerial monitoring offers many benefits in that a large area can be surveyed in a short amount of time. Aerial surveys need to be systematic.

Cons

- Aerial surveys are limited to 100 miles offshore.
- The MSWG did not support acoustic monitoring broadly as a high priority for the following reasons: 1) it is challenging and expensive to set up a network of acoustic instruments; and 2) the whale species in this region (primarily Blue, Humpback, Fin, and Gray whales) are very different from the North Atlantic Right Whale and do not vocalize regularly, so acoustics are not useful to estimate density, abundance, distribution, location, or behavior.
- Weather can be a problem with aerial and boat-based visual surveys.

Considerations

- More data is needed south of the Channel Islands.
- Coordinating methods for boat and aerial surveys would allow for better data integration and improve data coverage over a wider area.
- The Channel Islands region is very different from the North Atlantic Right Whale habitat, in that there is deeper water, a larger area, and less funding.
- It may be possible to focus aerial surveys on locations where the ships are (e.g., shipping lanes), and then expand to a broader region depending on the availability of funding. A tiered approach could be developed.
- There have been some advancements with satellite monitoring in other areas of the world. This is not likely to work in this region at this time, however, because the regional cloud cover and deep water around the Channel Islands would impede satellite views of whales.
- No matter how sightings are recorded, the level of effort needs to be recorded as well to make the data useful.

Determine efficacy of onboard thermal (infrared) imagery to detect whales ahead of ships

Description: Conduct a pilot study to test the use of infrared cameras on ships to detect whale blows.
Rationale: If successful, this could be used to inform dynamic management. It would greatly increase the geographic scope of existing whale data, specifically where ships transit. This information could also be integrated into new and existing models.

Pros

- Infrared cameras have been installed at a shore-based observation point on the central California coast to test the technology and monitor the gray whale migration. Software has also been developed to automatically detect whale blows. Studies conducted by Toyon Research at Granite Canyon have shown that whale blow detection rates during the daytime correlate well with visual surveys conducted by trained observers. In this study, whale blows could be detected as far as 8 km offshore under good conditions with detections out to 5 km being quite common.
- Infrared cameras can detect whale blows at night, which fills a major data gap.
- This technology can be used to determine the direction that whales are traveling.
- There is broad support from the working group to recommend a proof of concept pilot study to explore the use of onboard infrared cameras to detect whales ahead of ships.
- Infrared cameras are portable and could be moved from ship to ship. It may be possible to test out sharing them between ships transiting between the Port of Oakland and the Ports of Los Angeles/Long Beach so the equipment stays on the west coast and does not travel internationally with the ships.
- There is the added benefit of being able to detect small vessels at night as well.

Cons

- As the sea state deteriorates, the abilities of both visual observers and infrared cameras decrease.

- The equipment is expensive and fragile. For a shore-based system, the cost can be as low as $20,000 if only one camera is required. For a ship-based system, the cost would be around $200,000 for the first unit to provide 360 degree coverage. The cost goes down if 360 degree coverage is not needed. (Future economies of scale may change as the technology becomes more widely used.)
- The technology does not work well in fog.
- When used on ships, infrared cameras require stabilization technology. This may be less of an issue on large vessels. This requires more research and development. Stabilization technology exists; it is just expensive. One infrared camera with stabilization and an 18 degree field of view currently costs between $20,000 and $40,000.
- The technology does not currently differentiate among whale species.
- To increase the range of view, panning cameras is possible, but it is more expensive. At this time, it is preferable to have multiple cameras next to each other, which increases cost.
- This is still in the research and development stage, and is not ready to inform any regulatory actions. Especially during pilot studies, the shipping industry will only support this if mariners are held harmless. Information collected by the infrared cameras could not be used as evidence against mariners if there was not reasonable evasive action taken to avoid a ship strike.

Considerations

- Applications for this technology include: 1) providing more information on the number of whales a vessel might encounter and improving our knowledge of whale distribution, and 2) informing ships so that they can take evasive action to avoid ship strikes.
- Infrared cameras could also possibly be used on aircraft rather than ships.

Collect more information on ship strikes

Description: Collect more information on the rate of ship strikes and the conditions that led to ship strike (i.e. vessel speed, presence of a lookout, etc.)
Rationale: This information would help inform effective management options to reduce ship strikes and answer the key research question, what is the rate of ship strikes?

Pros

- Greater knowledge about factors leading to ship strike can more productively inform future management actions to address this problem.

Cons

- Requires researchers and resources.
- There is only a small sample size of confirmed ship strikes that are linked to an individual ship (only ships that come in to port with a whale on the bow).

Considerations

- There was moderate interest from the working group in pursuing this. However, it is unclear how information would be collected since ship strikes are very challenging to study. One possibility would be to increase necropsy work on dead whales. Also, when a ship comes in to port with a whale on the bow, one could analyze the ship's tracks and speeds prior to arriving at port.

Analysis of past and current vessel AIS data to determine if changes in operations have occurred in recent years

Description: Analyze existing vessel AIS data in a particular area (e.g., several hundred miles around the Channel Islands and the LA/LB port entrance) to determine if (a) the number of trips and/or (b) ship speeds have changed through time.
Discussion: For this proposal, the working group did not have a full discussion of the description, rationale, pros, cons, and considerations. This was identified as a lower priority need by the group,

because the group feels that this is already being done to some extent. Captain Kip Louttit, Marine Exchange of Southern California, provides the SAC and the MSWG with a vessel traffic update at every meeting. The AIS data that is currently in SeaSketch shows changing ship patterns and speeds over time. There are still some remaining questions that would require further analysis such as:

1. What do the observed changes in ship traffic patterns and ship speed mean for ship strike risk? It is possible to analyze the probability of a ship-whale encounter by looking at co-occurrence, and then analyze the risk of fatality based on ship speeds.
2. How did the realignment of the Santa Barbara TSS in 2013 impact ship strike risk?

It is also important to consider the difference between ship/whale co-occurrence and ship strike risk. It is fairly easy to measure changes in co-occurrence, but analyzing changes in risk is more challenging and data intensive.

Integrated Whale Sighting Network and Reporting System for California

Description: A joint NOAA program managed by the Office of National Marine Sanctuaries and the National Marine Fisheries Service that expands, improves, integrates, and coordinates opportunistic marine mammal observation data collection by mariners, researchers, agency representatives, and citizen scientists in California. This program would seek to increase the amount of opportunistic data that is collected by leveraging vessels as platforms of opportunity, including commercial vessels, ecotourism operations and whale watch vessels. Existing funding, resources, and staff time would need to be expanded and dedicated to volunteer training, data management, and outreach. Outreach would be two-fold: 1) reaching out to stakeholder groups (e.g. boaters, shipping industry, fishing industry, etc.) to recruit volunteer citizen scientists, and 2) connecting the data with scientists and managers to ensure the data are being used in research and management. This idea has both education/outreach and research components.

Education/Outreach: Volunteer citizen scientists are educated on whale identification, the threats to whales, and the ways that sighting data is used to manage and mitigate these threats. This is an effective education/outreach tool because it gives the audience an action to take, rather than just providing them with information.

Research: This program would expand the scale and geographic scope of the existing sightings data, with the intent to improve managing ocean users on a regional scale. Whenever possible, level of effort data would be collected in concert with sightings data to improve the quality and utility of the data for research and management.

Rationale: This idea primarily addresses goal 1 (reducing the threat of ship strikes to whales) by increasing awareness of the issue and creating a larger dataset of real-time whale observation data to inform management actions.

Pros

- There was broad support from the working group for a centralized clearinghouse or database where whale data is stored and managed.

Cons

- This option requires funding and resources from NOAA or elsewhere. The WhaleCITE citizen science pilot study spearheaded by Monica DeAngelis at NMFS identified the need for more dedicated staff time.

Considerations

- We may want to integrate with the Southern California Coastal Ocean Observing System (SCCOOS) http://www.sccoos.org/
- We may be able to combine real time sighting data with satellite krill and plankton data.
- HABWatch is an example of a successful integrated volunteer monitoring program.
- Outstanding question: How can aggregated whale information be effectively communicated to ship voyage planners in a timely fashion, so that it can be incorporated in to ship's voyage plans ahead of time?

- This idea has a lot of overlap with the sixth option listed on the research handout and should likely move forward as one idea.

Expanded Vessel Speed Reduction Incentive Trial *(new idea)*

Description: Conduct an expanded vessel speed reduction (VSR) incentive trial that would build on the first VSR incentive trial conducted in 2014.
Rationale: An expanded VSR trial could address some additional questions that weren't included in the first trial. This would inform any VSR that may be implemented in the future.
Pros
- There was broad support from the working group to pursue an expanded VSR incentive trial.
- There was broad support to require that participating ships report whale sightings in the expanded VSR trial (this was not a requirement in the first trial).
- It is likely that the same shipping companies that participated in the 2014 trial would participate in the 2016 trial.
- There may be funding from the Santa Barbara and Ventura Air Pollution Control Districts.
- This may be able to be combined with a thermal imaging pilot study.

Cons
- None identified at the meeting.

Considerations
- There are many ways that the trial could be expanded and new questions that could be answered, including: Are different incentive amounts effective? Can more positive public relations be included in incentives? Can proof of schedule adjustments be incorporated so that "speed up" when leaving a VSR zone is avoided? Can whale sighting reporting via WhaleAlert be included and/or thermal imaging tested as well?

Management Option Topics

The Management Options: Pros and Cons handout from 10/5/15 used to guide this discussion is available online here: http://channelislands.noaa.gov/sac/pdfs/mswg-mgmtproscons10052015.pdf.

Eric Poncelet and Janet Thomson initiated a discussion of the pros and cons of different management option topics in general. For each topic, the group worked to achieve general agreement on the potential pros and cons.

Seasonal Management Area (SMA)

Description: A management area that is static with set dates. It is not implemented based on a trigger and is not implemented all the time year-round.
Rationale: Can reduce ship strike risk when paired with other management approaches such as VSR. May be structured in a way to achieve air quality goals.
Pros
- Easy to manage and implement.
- Can be used to address the ozone season (April through October) if paired with VSR.
- Easier to plan for from the shipping industry's perspective because of its regularity and predictability.
- Education/outreach about SMAs is achievable and efficient. SMAs allow for more effective communication, as there is time to translate and distribute the request with enough time for the ships to plan and incorporate SMAs into schedules. It takes about two weeks to get a notice into the Local Notice to Mariners (LNM).

- When used with VSR, an SMA is better than a Dynamic Management Area (DMA) for air quality because it allows for advanced planning, so reduced speeds can be incorporated into schedules, rather than relying on speed up.
- Built on technology and data that are currently available.
- Can measure changes in shipping behavior by looking at ship traffic patterns in a defined area for a defined period of time.

Cons

- Does not provide feedback that a change in shipping behavior directly reduces the risk of fatal ship strike (because mariners don't know if whales are actually present in the area at the time that they are transiting).
- Does not account for deviations from the norm in animal distribution.
- Likely imposes costs on the shipping industry without necessarily generating benefits for whales.
- If SMA is only implemented in the SB channel, it could have unintended consequences by redistributing traffic to other routes, or vice versa.

Dynamic Management Area (DMA)

Description: A management area that changes spatially and/or temporally based on real-time data. It is implemented based on a trigger.
Rationale: Can reduce ship strike risk when paired with other management approaches such as VSR.
Pros

- Reduces unnecessary use of resources by shipping industry.
- Accounts for variations in animal distribution.
- Provides direct feedback on the impacts of the management measures, i.e. a mariner knows a whale is in the area and there is a legitimate risk of ship strike, so he or she takes an action that mitigates that known risk.
- Can measure changes in shipping behavior by analyzing ship traffic patterns in response to defined, known triggers.
- Provides the most information to mariners because real-time data is required to implement DMAs.
- The Marine Exchange Vessel Traffic Services currently uses dynamic management effectively to coordinate the synchronization of ships in to and out of the port because they have access to necessary data and communications paths. Additionally, this is how the Navy and Air Force manage shipping traffic in the Sea Range to reduce interruptions of Naval and Air Force operations

Cons

- For the existing voluntary approach, there is a time lag between obtaining whale data and distributing it to mariners via LNM. This time lag could be reduced by having a regulatory approach with defined trigger, but there is still the time that it takes to get new notices in to the LNM.
- Difficult to manage.
- Very resource intensive to collect information and distribute it in real-time. Requires a lot of information, data, technology, and effort.
- If there is a possibility of ships changing their routes in response to a DMA, then whale data for *all possible routes* are needed, which is currently unavailable.
- Not all ships have an English speaking watch stander on the bridge outside 25 miles from the Ports of LA/LB, making communication of real-time DMAs challenging.
- Does not address air benefits by season, as an SMA does.
- Could result in speed-up if the DMA is a VSR zone, because ships would not have been able to plan for the slow down during voyage planning, and would need to make up for lost time once outside the DMA.
- Safety of navigation could decrease if ships are changing course to avoid whales.

Vessel Speed Reduction (VSR)

Description: Recommended speed in a defined area.
Rationale: Can reduce the risk of ship strikes and reduce air pollution and greenhouse gas emissions.
Pros

- VSR reduces the risk of fatal ship collisions with whales.
- VSR reduces emissions in that area.
- Incentivized VSR does work under certain conditions. Two examples: 1) Ports of Los Angeles and Long Beach have incentivized speed reduction (12 knots within 40 miles of the ports), which has resulted in compliance from a majority of ships; 2) success of the 2014 VSR Trial in the Santa Barbara Channel, which offered monetary incentives.
- Monetary incentives and good public relations incentives are both effective at achieving compliance.

Cons

- Recent evidence suggests that voluntary VSR (without incentives) results in low compliance from ships.
- Not all carriers are driven by an environmentally conscious image, so improved public relations alone are not likely to gain support from the entire industry.
- Mandatory VSR may encourage ships to use other routes, which could result in unintended consequences for ship strike or safety of navigation.
- VSR may result in a "speed up" when ships leave the VSR zone in order to make up transit time.
- If ships do not speed up when leaving the VSR zone, VSR increases overall transit time for ships.
- For incentivized VSR, funds would need to be identified and secured.

Considerations

- What is the optimal speed for whales? What is the optimal speed for air quality? Practicality should be considered as well. Speed should not be too low so that it causes safety of navigation concerns.
    - With regard to air quality, optimal speeds may be different for different vessels. There are studies that look at this.
    - There are studies that have looked at optimal speeds for whales (P. B. Conn and G. K. Silber 2013).

Day 2 – October 8, 2015

Management Option Topics (Continued)

The Management Options: Pros and Cons handout from 10/5/15 was used to guide this discussion, and is available online here: http://channelislands.noaa.gov/sac/pdfs/mswg-mgmtproscons10052015.pdf.

The MSWG continued its discussions on management option topics from Day 1.

Recommended Tracks and Traffic Separation Schemes (TSS)

Description: A recommended track is a route that has been specifically examined to ensure so far as possible that it minimizes risks and along which ships are advised to navigate. A TSS separates opposing streams of vessel traffic, and segregates inshore traffic, by appropriate means—for example, separation lines or zones—and by the establishment of traffic lanes.
Rationale: Can reduce ship strike risk and improve navigational safety.
Pros

- Where there are already ships transiting certain areas, MSWG may be able to devise optimal routes for avoiding whale collisions.

- It may be valuable to have pre-established alternative routes that can be instituted in emergency conditions such as bad weather or an oil spill. Note that the voluntary western lanes already exist and may serve this purpose.
- To the extent that you can create routes that separate ships from whales, the opportunity exists not only to reduce collisions but also to reduce harassment and the impacts of anthropogenic noise for whales. Noise is amplified in Santa Barbara Channel because of the local bathymetry.

Cons

- There is no ship-to-ship collision safety issue that warrants a new recommended track or TSS south of the islands.
- Once established, these routes would take at least one year to be changed as more is understood about whale distribution patterns. These are not dynamic routes.

Considerations

- A recommended track does not go through a domestic rulemaking process. A TSS does.
- There is currently not a lot of traffic south of the islands that needs to be organized.
- A recommended track may be a more appropriate routing scheme in an area that is not geographically confined such as the Santa Barbara Channel.
- If an official route is established, it *may* encourage more traffic to transit that route.
- There are other IMO ship routing measures that may be more appropriate than a recommended track or a TSS. A document that includes any relevant type of routing measure that could be applied to the risks discussed within the Working Group is available here: http://channelislands.noaa.gov/sac/pdfs/imo-area-based-protection.pdf.

Routing South of the Islands

Description: Organize existing traffic south of the Channel Islands with the goal of optimizing the location of ships with respect to predicted whale densities.
Rationale: Can reduce the risk of ship strikes.

Pros

- Reduces perceived conflict with recreational boaters transiting the Santa Barbara Channel.
- If you create a southern route, it would limit the broad spread of vessel traffic that currently exists south of the Channel Islands, making room for the development of a more cost effective whale monitoring program in this area (e.g., targeted aerial monitoring of shipping routes to inform DMAs).
- Organizes traffic and makes it more predictable for ships transiting an area.
- Where there are already ships transiting certain areas, there may be optimal routes for avoiding whale collisions.

Cons

- The shipping industry and Mx SoCal believe a western approach is not needed to improve navigational safety in this region at this time.
- Any increase in vessel traffic south of the Islands could have potentially negative impacts on the Navy's efforts to conduct its testing operations.
- It reduces the Navy's flexibility in dynamic management of ship locations.

Considerations

- There are not specific air quality benefits associated with routing south of the islands.
- An established route south of the islands may either 1) cause more ships to transit south of the islands or 2) organize the traffic that is *already transiting south of the islands* in to a more predictable traffic pattern.
- The MSWG needs to know if the USCG thinks there is a safety of navigation concern south of the islands that could be alleviated by some type of routing measure.

- Could implementing a route south of the islands actually increase the risk of ship strikes for some species (compared to the status quo shipping patterns)?
- Could implementing a route south of the islands actually discourage traffic transiting in that area because it removes a level of freedom?

Presentation of Ship Strike Risk in the Southern California Bight by Jessica Redfern (NMFS)

To complement and augment the discussions of different routing schemes south of the Channel Islands, Jessica Redfern presented on a ship strike risk assessment that was prepared by Jessica V. Redfern, John Calambokidis, and Thomas J. Moore. The full risk assessment is contained in the proposals handout available online here: http://channelislands.noaa.gov/sac/pdfs/mswg-proposals10052015.pdf.

Jessica explained the methods for the analysis, which included overlaying multiple years of AIS data with whale habitat models and biologically important areas to calculate ship strike risk. Through this analysis, the authors found that the optimal track south of the northern Channel Islands (of the tracks analyzed) is the Central track.

During the working group discussion, MSWG members agreed that it would be useful to conduct an additional analysis in which ship strike risk in the Central track is compared to risk for the status quo traffic patterns, which are characterized by a broad spread of unorganized traffic south of the northern Channel Islands. The group also thought that it may be useful to add the results from Irvine et al. 2014 to the analysis. Jessica Redfern agreed to conduct this analysis over the next several months.

Proposals

Eric Poncelet and Janet Thomson kicked off the this discussion by inviting working group members to introduce their proposals contained in the handout. (*Note that these are brief summary notes. Please refer to the full proposals here: http://channelislands.noaa.gov/sac/pdfs/mswg-proposals10052015.pdf.*)

Proposal Introductions

Environmental Defense Center Proposal
Kristi Birney, Environmental Defense Center (EDC), explained that the EDC proposal contains a suite of spatial management options that can be combined in different ways to achieve the MSWG goals. Some of the aspects of the EDC proposal include:

- Particularly sensitive sea area
- Expanded area to be avoided
- New area to be avoided
- Speed reduction zone
- New route south of the Channel Islands (Kristi explained that the design of this route will be informed by Jessica Redfern's risk assessment)

Preliminary Management Option Idea to reduce the risk of ship strikes on protected whales in the Channel Island National Marine Sanctuary
Zak Smith and Francine Kershaw, Natural Resources Defense Council (NRDC), explained that their approach was to design a "gold standard" for protecting whales. The NRDC proposal includes:

- Removing the existing TSS in the Santa Barbara Channel
- A new route south of the Channel Islands (Francine explained that the design of this route will be informed by Jessica Redfern's risk assessment)
- Extended whale advisory zone with a voluntary speed restriction of 10 knots (year round)

- Mandatory speed restriction along designated ship routes of 10 knots (March – October)

Ship-strike risk in the Southern California Bight
Jessica Redfern, National Marine Fisheries Service, explained that while the risk assessment was more of an analysis than a proposal, the authors were able to identify the Central route as optimal, and thus would like to propose that route as an option.

Technology Based Approach for Risk Minimization for Whale Strikes
John Ugoretz, U.S. Navy, presented the Technology Based Approach for Risk Minimization for Whale Strikes, which was prepared with input from the Marine Exchange of Southern California, Pacific Merchant Shipping Association, U.S. Navy, and U.S. Air Force. This proposal includes:

- A centralized repository for all whale data in the region
- New technology development to assist with collecting whale sightings
- Development of best management practices for mariners to minimize ship strikes
- Tracking behavior changes in ships
- Formal agreement from multiple parties to fund all of the above

Speed Restrictions Based on Acoustic (or other) Whale Detections
Morgan Visalli, Channel Islands National Marine Sanctuary, gave a brief overview of a proposal submitted by Greg Silber, National Marine Fisheries Service, for the MSWG's consideration. This proposal was based on speed restrictions based on acoustic (or other) whale detections.

Proposal Discussions

Speed Restrictions Based on Acoustic (or other) Whale Detections

- This may not be feasible on the west coast, as it is on the east coast, because there are gray, fin, blue, and humpback whales on the west coast, each with very different vocalization patterns than North Atlantic Right Whales on the east coast.
    - Presence/absence data is useful but not for real-time management of DMAs.
- The cost associated with installing a bottom mounted passive acoustic array throughout the region is likely prohibitive.
- Although satellite technology that was tested in Argentina to detect whales may not be able to be replicated in this region at this time, the technology may be more viable in the future. Some working group members believe that this should remain on the table for discussion. For more information, go to: http://www.sciencedaily.com/releases/2014/02/140212183702.htm
- For dynamic management strategies, there should still be a person that establishes when a trigger has been met. This should not be automatically determined by software.
- The group recommends a pilot study to assess the utility of passive acoustic monitoring of whales in the region. This is a research idea and is not intended to inform dynamic management areas at this time.

Technology Based Approach for Risk Minimization for Whale Strikes

- Some working group members are concerned that this proposal will take a long time (i.e., years) to implement. Other management strategies need to be implemented in the interim to achieve the MSWG goals, while this strategy is being simultaneously pursued.
- The group discussed the need to prioritize options in terms of feasibility, funding, timeline, and need. It may also make sense to prioritize ideas that achieved near consensus from the group, such as AIS text messaging.

- The shipping industry's perspective is that vessel speed reduction negatively impacts the efficiency of shipping. Limited, reasonable VSR is okay, but a large VSR zone is not. The shipping industry feels that VSR needs to be implemented dynamically where animals are known to be located.
- One research idea is to correlate VSR alerts with AIS data to understand ships' behavioral responses in the region.
- There was general agreement from the group to develop best management practices to avoid ship strikes if a whale is detected near a ship.
- The group discussed developing a vessel warning system to help mariners avoid ship strikes. This system would be tied in to AIS and combined with best management practices for minimizing ship strike risk. It would be important to then monitor ship behavior to see if ships slow down or take evasive action.
- A centralized clearinghouse for data and a streamlined data flow could decrease the turnaround time from when a sighting is recorded to when some type of management action is implemented.
- A major consideration is the overall high cost of the proposed measures.
- There is general support for: 1) AIS text messaging, 2) central clearinghouse for whale data, with a person in charge of pushing notices out to mariners, and 3) having someone keep the data repository up to date, so that new whale data streams are added as they become available.
- There may be safety of navigation issues association with asking mariners to reroute to avoid hitting whales.

Particularly Sensitive Sea Area (PSSA)

- A particularly sensitive sea area is a broad designation that offers flexibility and acknowledges special ecological, socio-economic, and/or scientific features of a region. A PSSA itself does not impose any management measures or restrictions, but in order for a PSSA to be brought to the IMO, there need to be associated protective measures to prevent, reduce, or eliminate the identified vulnerability of the area.
    - The existing ATBA and TSS in the region could be cited as the associated protective measures, or new measures could be brought to the IMO with the PSSA.
- PSSAs are included on nautical charts, so they notify mariners that there may be certain restrictions in that area. Thus, a PSSA may increase compliance with other voluntary measures.
- Other similar working groups have considered implementing PSSAs vs. Areas to Be Avoided (ATBAs) and decided that an ATBA was easier to implement. An ATBA can be implemented as an associated protective measure along with a PSSA.
- A shipping industry representative stated that a PSSA would not cause ships to avoid the area entirely.
- A PSSA takes about one year to implement at the IMO, and an additional four months if other measures are implemented as well. It takes additional time to actually get it on nautical charts.
- Implementing a PSSA requires government resources, so it may not be worthwhile to implement it without new, additional protective measures.

Area to be Avoided (ATBA)

- New proposals are generally submitted to the IMO in February, and it takes 9-12 months to move through the IMO process.
- Using SeaSketch, the group explored expanding the existing ATBA in different ways to encompass more whale habitat.
    - There was general consensus from the group to expand the ATBA to meet the Santa Barbara Channel TSS.
    - There was general consensus from the group to expand the ATBA slightly to the west to encompass more whale habitat with minimal impacts to the shipping industry and the Navy.

- Using SeaSketch, the group explored creating a new ATBA south of the northern Channel Islands to encompass fin whale habitat. This would create a de facto southern route between the two ATBAs.
    - This would greatly diminish the Navy's ability to dynamically manage ships in the area. It would likely impede their existing dynamic management strategy even more than a new southern route.
    - A southern ATBA would impede traffic going to and from Port Hueneme.
        - Exceptions can be written into an ATBA rule to allow certain types of ships to transit through the area to Pt. Hueneme.
- A precedent exists at the IMO level for creating ATBAs to include whale habitat.

Vessel Speed Reduction Zone (VSR)

- A seasonal VSR zone during the summer would decrease the risk of fatal ship strikes while also improving air quality during ozone season.
- Rather than implementing a VSR zone in an arbitrarily shaped box, the group discussed a VSR zone that is delineated by a larger circular buffer zone around the Ports of LA/LB. This would mimic and encompass the existing 20 nm and 40 nm concentric circles that delineate the boundaries of the Ports' existing VSR incentive program.
    - The group looked at the same 150 nm buffer that was used in Redfern's risk analysis.
    - This would include exemptions as needed through the Pacific Missile Testing Range.
    - The VSR could be seasonal.
    - The VSR would need to be incentivized. Outstanding question: Who would provide the incentives in such a large area, especially if some of the ships transiting through aren't going to the Ports of LA/LB?
    - The shipping industry is concerned that this would eventually become mandatory and make southern California ports less attractive to shippers. Large VSR zones negatively impact shipping efficiency.
    - Low likelihood of adherence due to size (it is too large).
- By extending VSR zones farther south, there could potentially be more funding from the other southern California air pollution control districts who would also receive air quality benefits.

Public Comment

Over the course of the two-day meeting, there were four public comment sessions. All comments are compiled here.

Christina Tombach Wright, Toyon Research, explained that Toyon has developed infrared technology to detect whales. She provided information on the current status of infrared technology for detecting whales. In another public comment period, Christina pointed to a Canadian resource called MEOPAR that may be relevant for the working group. MEOPAR is working to improve whale detection and notify mariners via AIS text messaging. More information: http://meopar.ca/research/project/whale-whales-habitat-and-listening-experiment

Michael Smith, Gray Whales Count, expressed that he would like the group to commit to keeping humpback whales a high priority species, even though their listing status under the Endangered Species Act may change soon. In another public comment session, Michael shared some examples of acoustic research he has been involved with. He emphasized that a lot of great technology exists, but the challenge is using it in real-time. He thought that an acoustics feasibility study is a good option.

Kristen Hislop, Environmental Defense Center, thanked Jessica Redfern for preparing and presenting the risk analysis, and noted that it is great to have the best available science to support this process.

Wrap Up and Next Steps

- The group decided to bundle the existing spatial proposals into one proposal moving forward. A subgroup will convene via webinar to refine this proposal.
- A subgroup will also convene via webinar to refine the technology-based proposal, and specifically design best management practices for minimizing the risk of ship strikes.
- Following these webinars, the MSWG will meet for a final in-person meeting in January 2016.
- The group will also develop a timeline and implementation plan. There will likely be a need after the final in-person meeting for MSWG members to review and confirm the final implementation plan (via email).
- Before adjourning, the group reviewed and confirmed what ideas achieved consensus over the course of this meeting:
    - AIS text messaging
    - Centralized database for whale data
    - Expanded ATBA to the north and west (pending exact map)
    - Do not remove the Santa Barbara Channel TSS
    - Expand whale data collection to vessels of opportunity with Spotter Pro and Whale Alert
- The group agrees to disagree on a southern route and vessel speed reduction for now.

Meeting Attendance Roster (October 7-8, 2015)

Name	Seat	October 7	October 8
Cassidy Teufel	CA Coastal Commission	*Absent*	*Absent*
John Calambokidis	Cascadia Research	*Absent*	*Absent*
Angela Szesciorka	Cascadia Research (Alternate)	*Present*	*Present*
Kathy Metcalf	Chamber of Shipping of America	*Absent*	*Absent*
Sean Kline	Chamber of Shipping of America	*Absent*	*Absent*
Stephen Whitaker	Channel Islands National Park	*Absent*	*Absent*
Kristi Birney (Co-Chair)	Environmental Defense Center	*Present*	*Present*
Andrea Mills	Island Packers	*Present*	*Present*
Jeromy McConnell	Maersk Line	*Present*	*Present*
Lee Kindberg	Maersk Line (alternate)	*Absent*	*Absent*
Capt. Kip Louttit	Marine Exchange of Southern California	*Present*	*Present*
Jessica Redfern	National Marine Fisheries Service	*Present*	*Present*
Megan McKenna	National Park Service	*Absent*	*Absent*
Zak Smith	Natural Resources Defense Council	*Present*	*Present*
Francine Kershaw	Natural Resources Defense Council (alternate)	*Absent*	*Absent*
TL Garrett	Pacific Merchant Shipping Association	*Present*	*Present*
John Berge	Pacific Merchant Shipping Association (alternate)	*Absent*	*Absent*
Mary Byrd	Santa Barbara County Air Pollution Control District	*Present*	*Present*
Joseph Petrini	Santa Barbara County Air Pollution Control District	*Absent*	*Absent*
LT Jevon James	U.S. Coast Guard	*Present*	*Present*
LCDR Brandon Link	U.S. Coast Guard (alternate)	*Absent*	*Absent*
John Ugoretz	Dept. of Defense - U.S. Navy	*Present*	*Present*
Walt Schobel	Dept. Of Defense (alternate)	*Absent*	*Absent*
Phyllis Grifman	USC Sea Grant	*Present*	*Present*
James Fawcett	USC Sea Grant	*Absent*	*Present*

Also in attendance: Stephanie Altman, NOAA's Office of General Counsel; sanctuary staff Chris Mobley, Michael Murray, Sean Hastings, and Morgan Visalli; SeaSketch staff Grace Goldberg and Will McClintock; and Kearns & West facilitators Janet Thomson and Eric Poncelet.

Final Agenda

Marine Shipping Working Group – Meeting #4

Channel Islands National Marine Sanctuary Advisory Council

October 7, 2015 (10:00 AM – 5:30 PM) Gaviota Room, The Goodland Hotel, 5650 Calle Real, Goleta, CA 93117
October 8, 2015 (9:00 AM – 4:00 PM) 4016 Bren Hall, University of California, Santa Barbara CA 93106-5131

Meeting Objectives

- Receive targeted informational presentations
- Discuss outreach/education needs
- Discuss research needs
- Explore key management option topics
    - Discuss pros and cons
    - Discuss possible refinements to build broader support
- Identify core set of topics for continued refinement and exploration at meeting #5

Meeting Agenda – Day 1 at the Goodland Hotel

Time	Item	Lead
9:30 am	*Arrivals*	
10:00 am	Welcome, Introductions, Meeting Objectives, and Agenda Review	• MSWG Co-Chairs, Facilitators
10:20 am	Informational Presentations • Traffic schedules and trends • Update on economic studies	• Kip Louttit, Marine Exchange • Phyllis Grifman, for Theresa Goedeke, NOAA
10:50 am	Discuss outreach and education proposals	• All
12:20 pm	Public comment	• Public
12:30 pm	*Lunch Break*	*Lunch is off-site on Day 1.*
1:30 pm	Discuss research proposals	• All
3:00 pm	*Afternoon break*	
3:15 pm	Public comment	• Public
3:25 pm	Discuss management option topics and proposals	• All
5:30 pm	*Adjourn*	

Meeting Agenda – Day 2 at Bren Hall, UCSB Campus

Time	Item	Lead
8:30 am	*Arrivals*	
9:00 am	Welcome, Review Agenda, Reflections from Day 1	• MSWG Co-Chairs, Facilitators
9:15 am	Continue to discuss management option topics and proposals	• All
10:30 am	*Morning break*	
10:45 am	Public comment	• Public
10:55 am	Continue to discuss management option topics and proposals	• All
12:30 pm	*Lunch Break*	*Lunch delivered on site for MSWG members.*
1:15 pm	Continue to discuss management option topics and proposals	• All
2:15 pm	*Afternoon break*	
2:30 pm	Public comment	• Public
2:40 pm	Discuss support for management option proposals	• All
3:40 pm	Prepare for Meeting #5 • Prepare for development of implementation plan, discuss how to do this at/after meeting #5 • Schedule meeting #5	• All
3:50 pm	Wrap up and Next Steps	• Co-Chairs, Facilitators
4:00 pm	*Adjourn*	

<u>Meeting Materials</u>

- Worksheets describing education and outreach, research, and management option topics and proposals