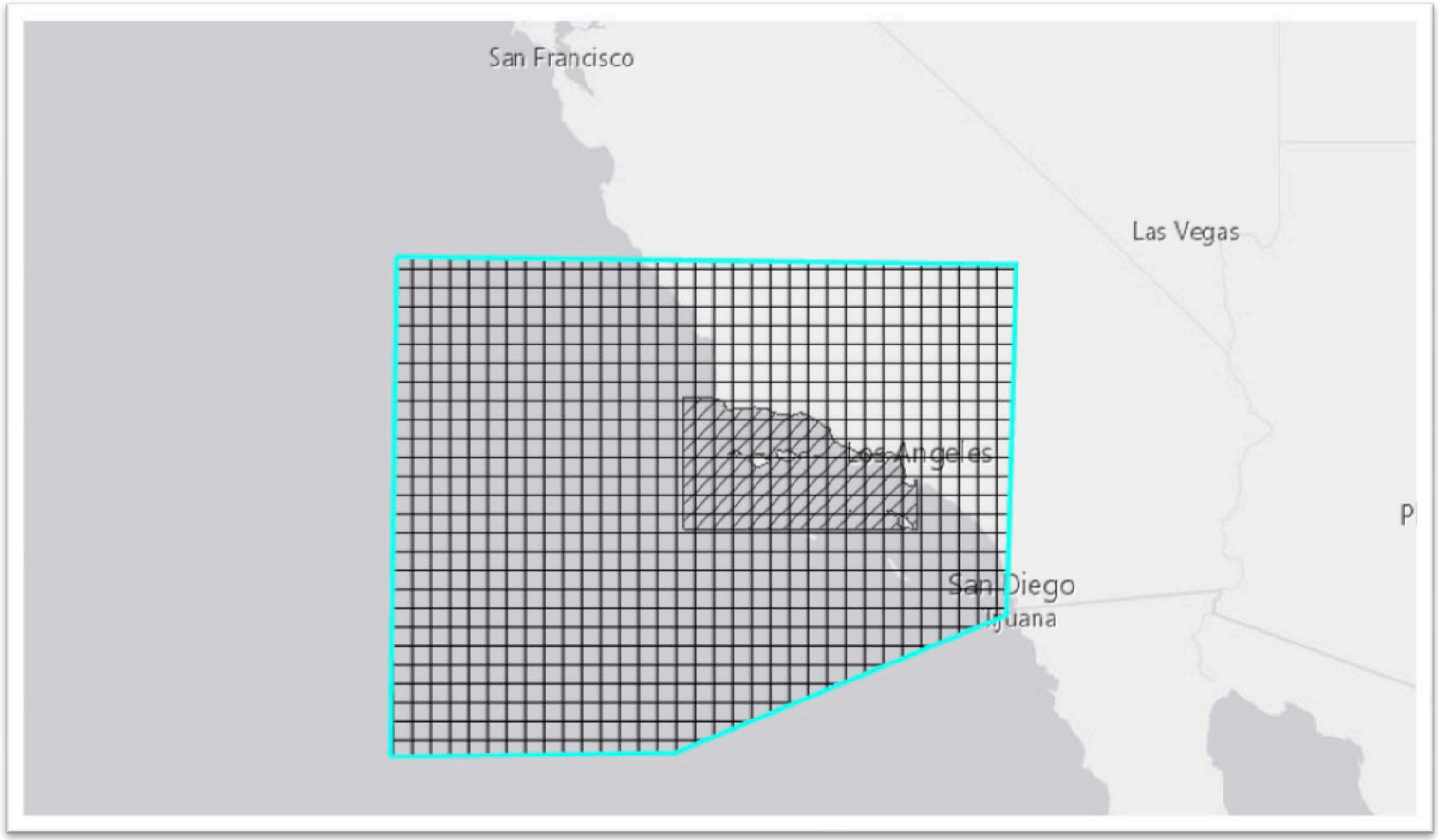
Dynamic Management Area Idea: AIS Whale Warning Zone

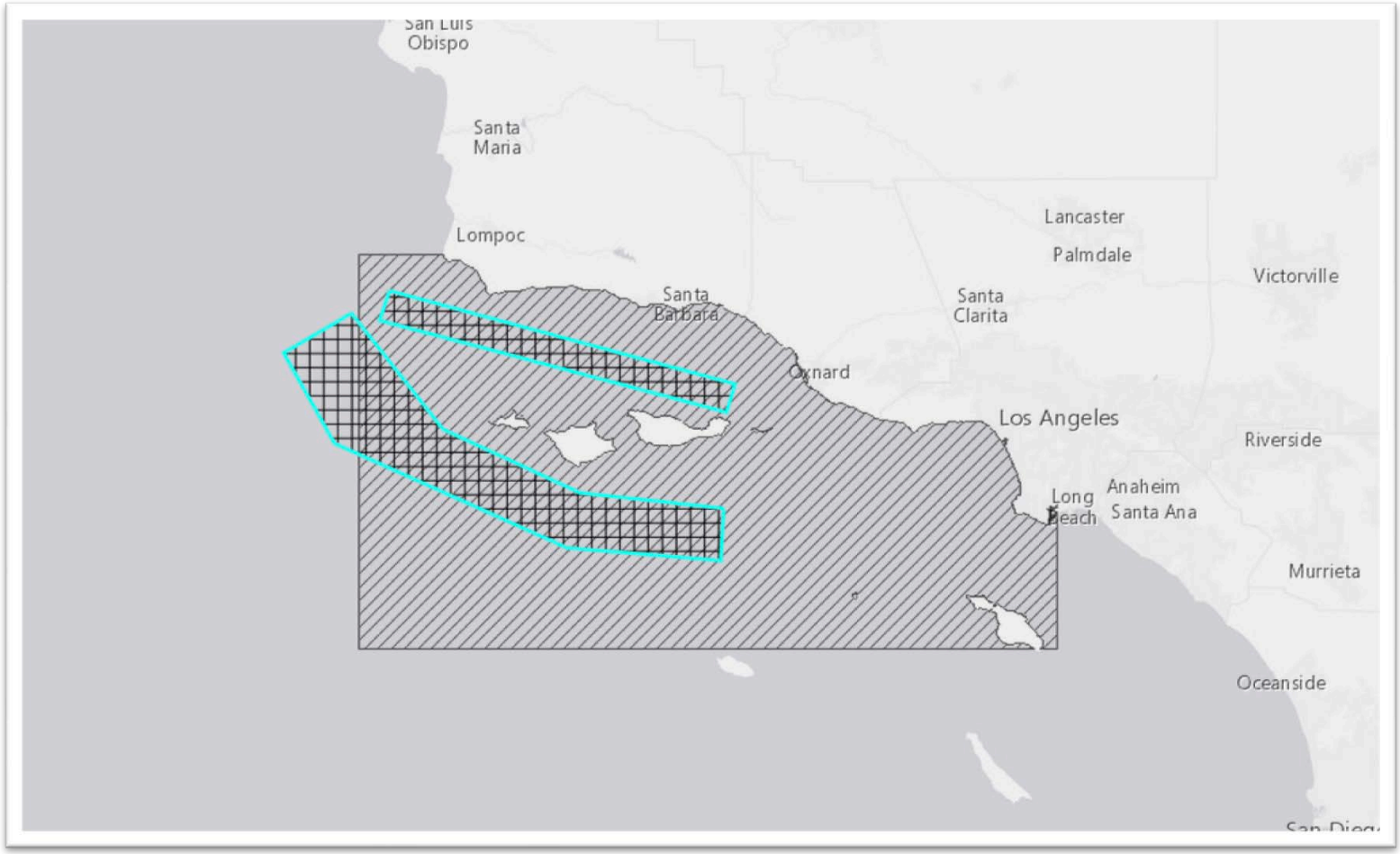


Description: This DMA would be based upon the actual presence of whales as seen by observers, scientists, ships, etc. Anyone observing an aggregation of 3 or more whales remaining in an area of less than 10 square miles over the course of 2 or more days would report to a central clearinghouse. Such sightings would then be transmitted in spatial form via AIS to ships with a recommendation to avoid the area or reduce speeds through it.

Criteria: Sightings of 3 or more whales remaining in a 10 square mile area for 2 or more days.

Rationale: The biggest issue with any sort of spatial management at this point in time is the relative paucity of spatially specific data on whale aggregations. Additionally, both within and among years the locations where whales aggregate change. The above system would take advantage of existing communications systems to alert ships to the specific locations where whales are being seen, allowing them to either alter course or reduce speed to avoid.

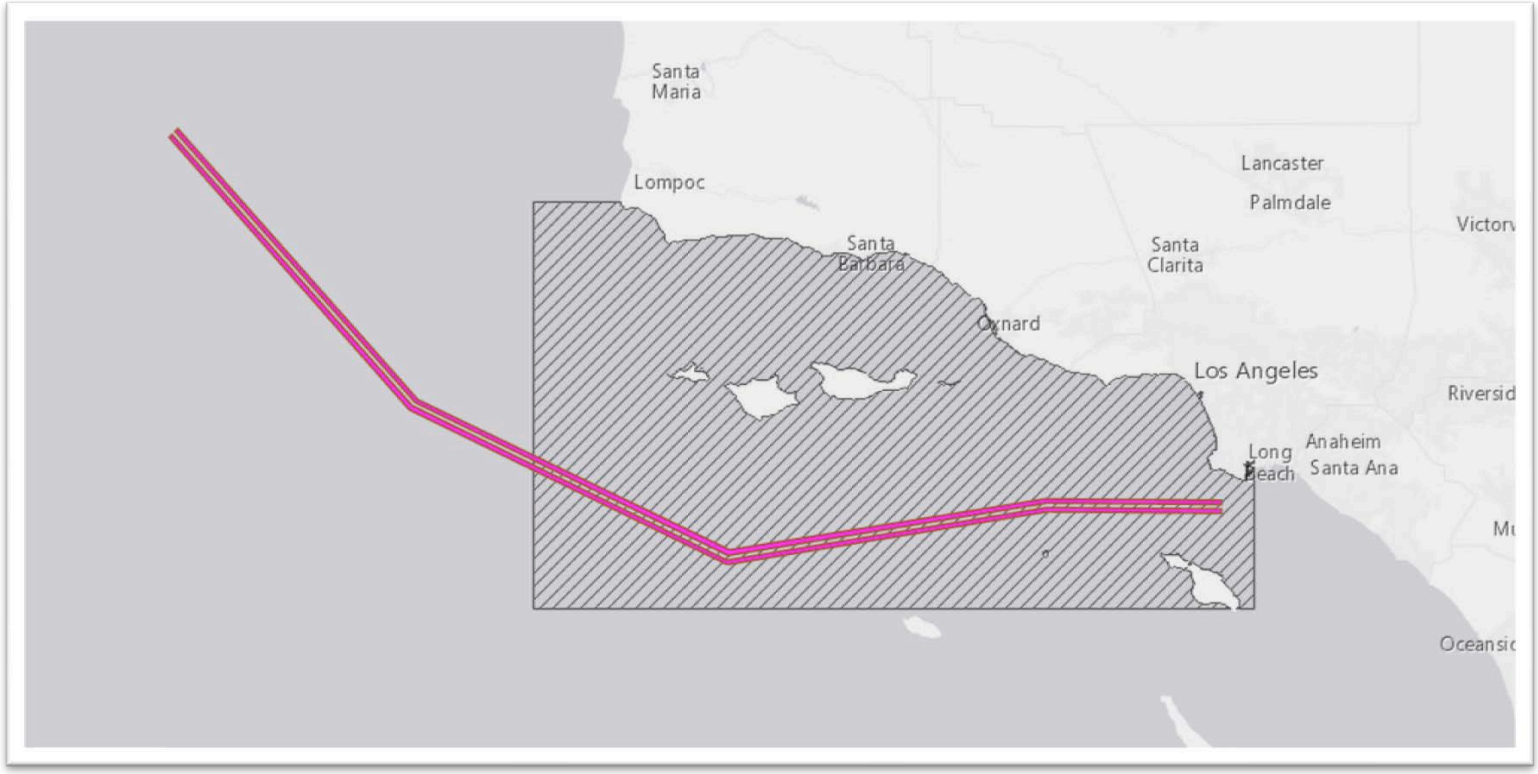
Seasonal Management Area Ideas: VSR Seasonal Inside & Outside Channel



Description: Voluntary and possibly incentive-based speed reductions to 12 knots or less. Existing rules in effect in this area include CARB fuel rule and North America ECA rules.

Rationale: Reductions of air emissions during peak ozone season, reduce lethality to whales during peak whale season.

Shipping Lane Idea: Bathymetric Feature Avoidance



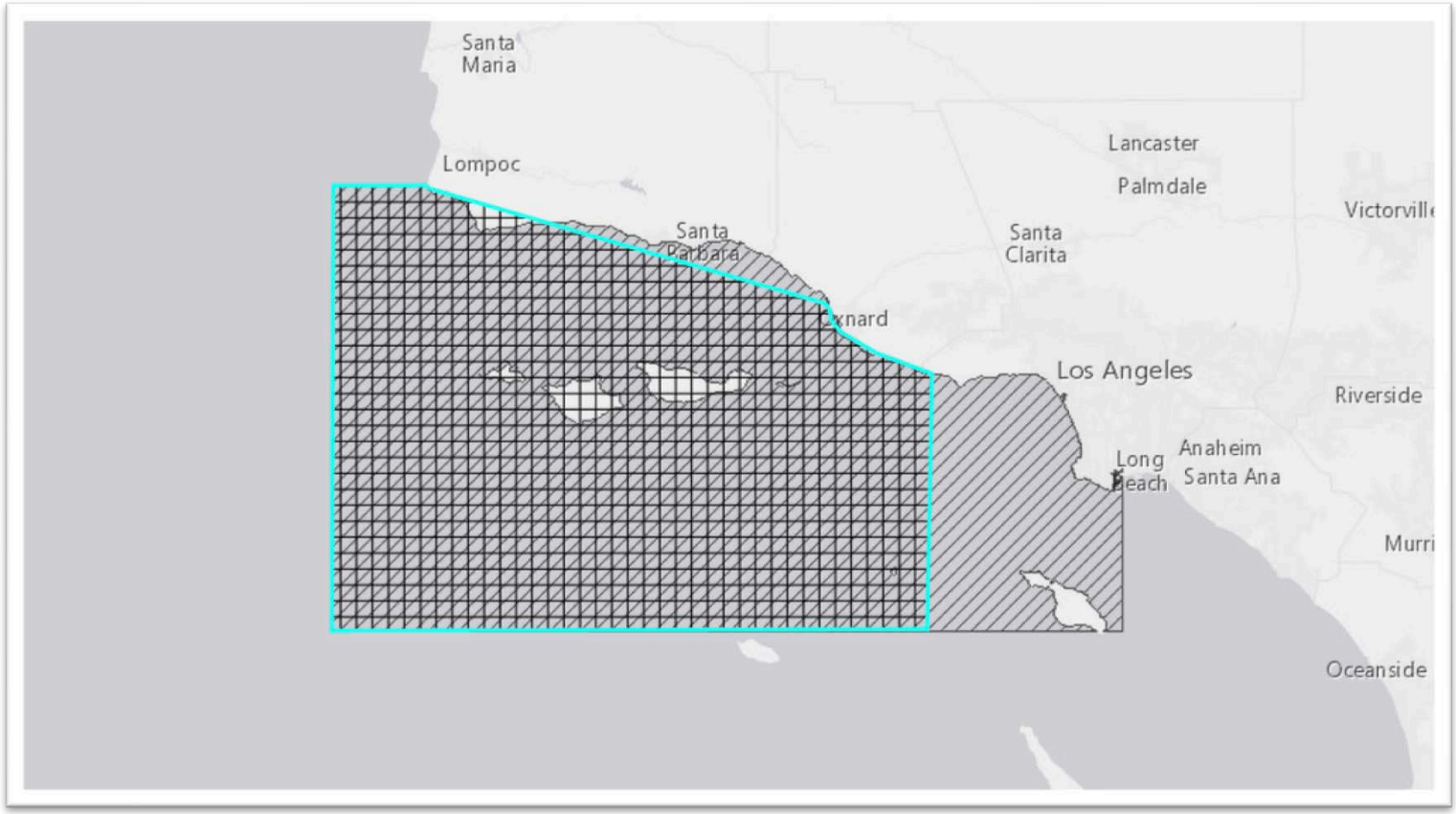
Rationale: Bathymetric feature avoidance/CINMS avoidance
1. Whale protection - Assumes upwelling events off bathymetric features may concentrate whales and routing should consider avoidance of those features - Potential to tie to weather related forecasting - Generally follows the exiting tracks of vessels using the "Western Voluntary Approach" (overlay the AIS data) to the south of the Channel Islands and CINMS - Further Pushed to the west to avoid shelf features and seamounts - Vessel Convergence Point Pushed apprx. 80 nm north-west. When measurements are taken from new convergence point the actual transit is less than 20 nm further.
2. Air quality - the modest increase in emissions would be offset to some degree by the prevailing winds moving the mass southerly. According to the extensive tracer study done by CARB in 2000, almost none of the offshore ship emission made landfall in either Santa Barbara or Ventura Counties. Of the emissions that did make land they generally didn't do so until southern Orange and San Diego Counties. More importantly the Santa Barbara is already in attainment for all NAAQS (designed to protect the most sensitive individuals in the population) including at the current 75 ppb O3 (ozone). While there seems to be some concern by SBCAPCD that the proposed new O3 NAAQS (est 65 - 70 ppb) may be a problem. However, that concern is based on a 2005 fleet that simply doesn't exist today and air quality improvements that have been made are significant. More importantly continuing improvements are already hardwired into the system through international treaty. Including the further reduction of GHGs
3. No real difference to the Navy from current conditions; same potential for increased frequency of transits. Further from whale watching, fishing impacts unknown but unlikely.
4. - Would need to consider in associated with an VSR proposal in the SB Channel and the increased traffic avoiding the existing VTSS.

Multi-part Management Idea: Area of Interest, DMA, SMA & TSS Shipping Lane

Overall Rationale: Large area encompassing entire SB Channel Down to Ports of Long Beach/LA. New Study Region This Area of Interest would be a large Management Zone and include two components. First, Dynamic Management during the year. Sightings of 3 or more whales trigger operating vessels 65 feet (19.8 meters) or greater route around speed reduction zones (Dynamic Management Areas—DMAs) or transit through them at 12 knots or less. Once whales have left the area to DMA could be removed. The second component would be a shipping corridor (to be identified) through the Naval range. When DM is triggered ships could chose to use either the Santa Barbara TSS (at a slower speed) or transit south of the islands through the alternate transit corridor. This corridor could be designed to minimize overlap with known whale habitat areas identified in the BIAs, Redfern modeling, and Irvine modeling, while also minimizing interruption of naval testing operations. Some suggestions include having ships transit a similar (but slightly different) path from the tankers to avoid being inside the SB Channel. Having the corridor encompasses the areas of high use from the 2012 & 2013 AIS data.

Support Goals of MSWG: 1) Reduced risk of ship strikes: a.Yes. Ships would either slow down to 12 knots or re-route during times when there are high concentrations of whales in the Santa Barbara TSS. Identifying a corridor through the Naval testing range that minimizes overlap with BIA's, Redfern model, and Irvine model could result in reduced co-occurrence with whales through the region.
2) Decrease air pollution: a. Yes. Fewer air emissions from ships that chose to slow down in the SB TSS, instead of re-routing.
3) Improve navigational safety: a. Uncertain. Proposed corridor could identify directional travel corridors for north and south bound traffic (similar to shipping lanes). This would reduce the chances of north and southbound traffic crossing paths through the navy range and could improve navigational safety.
4) Minimize interruptions to Navy operations and other ocean users: a. Uncertain but trending towards yes. Establishing a known corridor through the Navy range would allow the Navy to plan and execute operations outside the area. Should the Navy chose to conduct trainings in the corridor they could then easily identify ships within the corridor and notify them to re-route to avoid testing operations. This option could build on the existing role the Marine Exchange already plays in intercepting and communicating with ships when they enter the Navy zone, letting them know of any testing operations and if they need to vacate the zone.

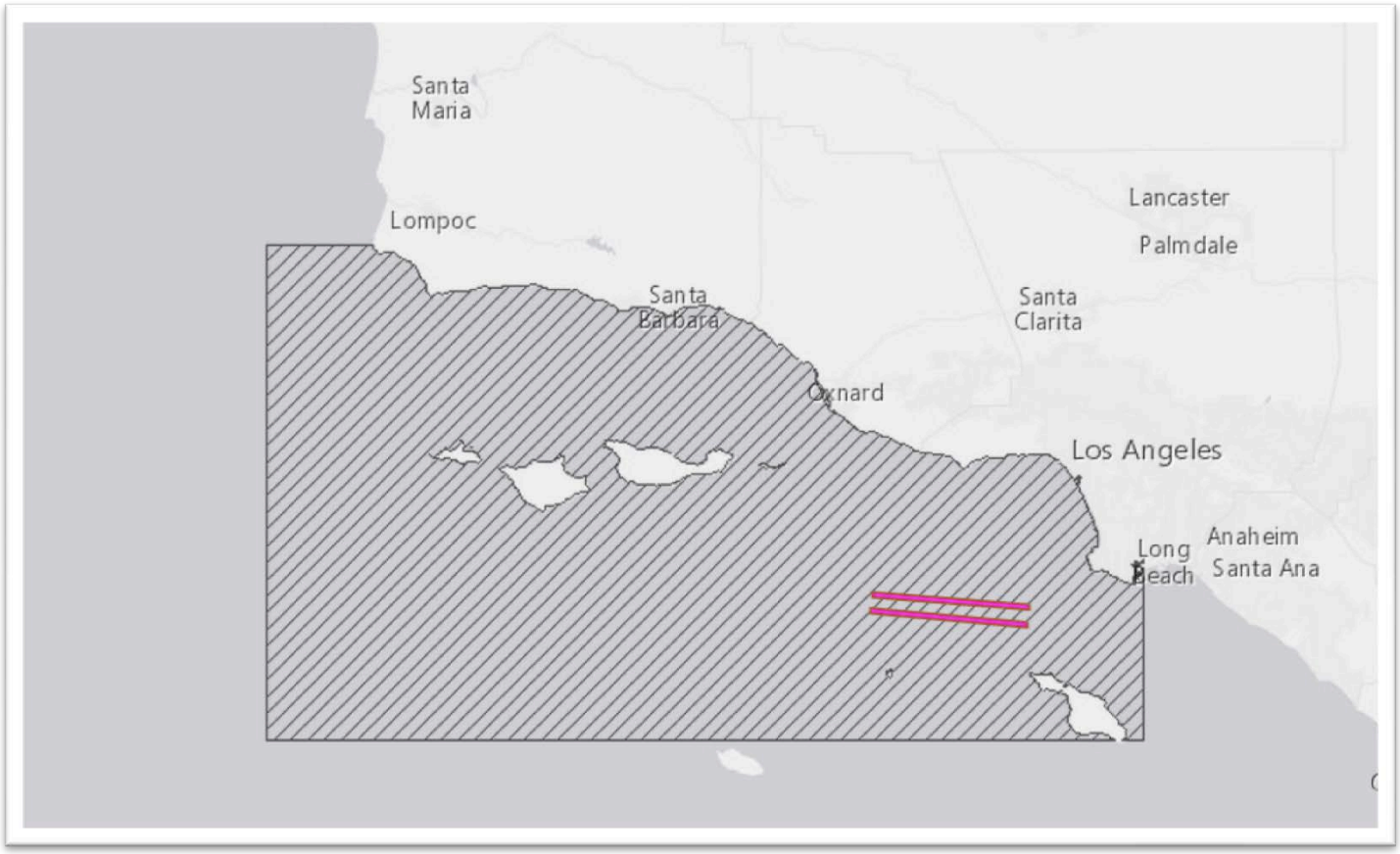
Speed Reduction Zone Idea: VSR



Description: After careful review of all material, I see interwoven spaghetti of current ship paths and whale sightings/paths. The whales seem to be everywhere throughout the MSWG area, so I see nowhere to move the ships and be clear of the whales.

Rationale: Therefore, the only recommendation I have regarding Management Areas or Shipping Lanes is a Maximum Ship Speed alternative throughout the entire MSWG area. I plugged in 12 knots because that's the figure used for the pilot in the summer of 2014, but defer to scientists on whether that's the right speed, and I defer to scientists on the minimum size of vessel this should apply to.

Shipping Lane Idea: Permanent Western Lane



Rationale: The voluntary western lane is already used by many vessels. Official designation of a western lane by the IMO will encourage even wider use of the lane, reducing unorganized traffic. This will reduce the threat of ship strikes by creating lanes that can be managed for whale protection. For example, whale conservation efforts such as overflights and slow speed zones could be implemented in the western lane as well. It will also improve navigational safety by organizing traffic in designated lanes, thus reducing threat of collisions. Finally, the designation of this lane will reduce user conflicts because port managers can advise whether to use the lane or not based on military activity.