Port Access Route Study (PARS) update

February 10, 2011

By: Michael C. Carver
Coast Guard is responsible for:

- Designation of fairways and traffic separation schemes to provide safe access routes for vessels proceeding to and from ports.
History

• The Coast Guard has since identified a potential safety enhancement which could result in extending the northern TSS lanes to increase predictability of vessel traffic in a popular fishing area.

• Study intended to review whether to extend vessel traffic lanes to the VTS limit.
AIS Ship Traffic Summer Average
# AIS Ship Traffic

<table>
<thead>
<tr>
<th>VTS VESSEL DATA</th>
<th>Tot. Vessels</th>
<th>Sea N</th>
<th>Sea W</th>
<th>Sea S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 2008 – Feb 2009</td>
<td>3083</td>
<td>907</td>
<td>1076</td>
<td>1100</td>
</tr>
<tr>
<td>Aug 2009 - Feb 2010</td>
<td>1947</td>
<td>467</td>
<td>961</td>
<td>519</td>
</tr>
</tbody>
</table>
AIS Ship Traffic Analysis

- **Sea S %**
  - Aug 2008 – Feb 2009: 36%
  - Aug 2009 - Feb 2010: 27%

- **Sea W %**
  - Aug 2008 – Feb 2009: 35%
  - Aug 2009 - Feb 2010: 49%

- **Sea N %**
  - Aug 2008 – Feb 2009: 29%
  - Aug 2009 - Feb 2010: 24%
Process to date

- Notice of PARS study: December 2009
- Comments due: February 2010
- Notice of public meetings: September 2010
- Meeting held: October 2010
- NMS provided USCG with data and conference with them on favored options
- Final PARS report: June 2011.
• Ports and waterways safety act dictates the Coast Guard is responsible for: Designation of fairways and traffic separation schemes to provide safe access routes for vessels proceeding to and from ports.
PARS Requirements

- USCG is required to conduct a PARS before establishing new fairways or traffic separation schemes (TSS) or making any adjustments.

- USCG must coordinate with interested stakeholders
Collect and analyze data on

- Vessel traffic trends
- Fishing activity
- Recreational boating
- Military activities
- Environmental factors
- Economic impact
- Present & potential traffic density

- If existing traffic routing measures are adequate or require modifications
- Type of modifications
Development

• Federal Register Notice (74 FR 65543, December 10, 2009) announced the Eleventh Coast Guard District initiated a PARS for the approaches to San Francisco and solicited comments.

• Nine letters received to the docket in response to the notice of study.
Goal

Find optimal solution(s) that reduce the risk of marine accidents while minimizing risks to wildlife and sensitive areas.
NMS Comment Letter

- Analyze data from Mount Tamalpais AIS station to identify trends in traffic pattern, the problems, and how routing changes would reduce risk of vessel spills or ship strikes.
- Northern traffic lane infringes on the ASBS.
- Ships are anchoring within 2 NM of Bolinas Lagoon.
- Consider vessel speed to reduce risks of marine casualties and to reduce air emissions.
- Assess the impact of traffic lane alternatives on the various fisheries.
- Extend Western route over the shelf break to prevent ships from traveling along the shelf edge.
- Research is being conducted using whale sightings and AIS data to identify ships that transits in the vicinity.
- Other studies noted.
Consider implementing a mandatory speed limit.
Include an incentive program similar to the Port of Long Beach.
Send all traffic to and from the Western lane.
Keep tow boats to one side of the lanes.
Extend the lanes farther offshore.
The proposed extension of the Northern lane and combining the Western and Southern lanes into one
A logical change would be to combine the Southern and Western lanes into a single Southwest lane.

The Western approach is most frequently used but there are concerns with the Farallon Islands (less than 4 miles away) during strong southerly winds.

Generally, northerly winds prevail. Extending the Western lane further offshore would make for an unpleasant and possibly unsafe ride during strong N’ lies.

Creating a Southwest lane provides a reasonable distance from shore and the Farallon Islands and reduces vessel pitching during NW’ ly and S’ ly winds and swells.
Chevron prefers that its ships not use the Northern lane but it’s often more prudent due to weather and fog.

If Western lane is extended, it may result in more frequent use of Northern of Southern lanes during heavy weather.

There have been near collisions while transiting the precautionary area during pilot boarding due to congestion.

The Western lanes are also being used more frequently because of CA emission limits.

Fishing vessels are more frequently encountered in the area of the Western Lane.
Preliminary Proposal #1

**Pros:**
- Extends northern/southern TSS and gives all vessels a predictable approach and departure pattern.
- Helps give P/C and F/V visibility on standardized commercial traffic routes.

**Cons:**
- Could potentially bring vessels to close to Cordell bank on northern approach.

---

*Extend the southern lane 8.5NM to the limit of the VTS coverage area. Keep the western lane as is. Extend the northern lane 16NM to the limit of the VTS coverage area, (1 mile wide lanes and 1 mile separation zone throughout) and shift as necessary to avoid the ASBS off Point Reyes and Cordell Bank (2.34NM from high tide line).*
Pros:
- Extends TSS’s and gives all vessels a predictable approach and departure pattern.

Cons:
- Could potentially bring vessels to close to Cordell bank on northern approach.

Extending the existing lanes to the limit of the VTS coverage area: (no change in the shape of the lanes)
Preliminary Proposal #3

Pros:
- Extends northern/southern TSS and gives all vessels a predictable approach and departure pattern.
- Helps give P/C and F/V visibility on standardized commercial traffic routes.

Cons:
- Impact on vessels transiting to or from SF that use existing southern TSS.
- May result in vessels not using the new southern TSS.

Extending the northern lane as in option 1, and combining the southern and western TSS's into a single southwest approach that extends to the limit of the VTS coverage area.
Preliminary Proposal #4

Pros:
- Extends northern/southern TSS and gives all vessels a predictable approach and departure pattern.
- Directs traffic away from Pt Reyes and avoids Cordell Bank.

Cons:
- Putting a turn in the TSS

Slight turn in Northern TSS to direct vessel traffic away from Pt Reyes while avoiding Cordell Bank
Preliminary Proposal #5

Pros:
- Extends northern/southern TSS and gives all vessels a predictable approach and departure pattern.
- Directs traffic away from Pt Reyes and avoids Cordell Bank.
- Helps give P/C and F/V visibility on standardized commercial traffic routes.

Cons:
- Impact on vessels transiting to and from SF that use the existing southern TSS.
- May result in vessels not using the southern TSS.
- Putting a turn in the Northern TSS.
We looked at existing data
Scale
A sample of the data

Northern Shipping Lane: Preliminary Proposal #1
(from U.S. Coast Guard Port Access Route Study as interpreted by CBNMS staff, November 2010)

- Blue: Outbound Traffic Lane
- Yellow: Separation Zone
- Red: Inbound Traffic Lane
- Gray: Area of traffic approach/Departure to/from northern shipping lane-speculative
Northern Shipping Lane: Preliminary Proposal #1
(from U.S. Coast Guard Port Access Route Study as interpreted by CBNMS GIS staff, November 2010)

Whale Density per square kilometer
Blue and Humpback Whales

- Low
- Medium
- High

5 minute grid cells extracted from CDAS.
Includes multiple surveys of varying length, between 1975-2008; survey coverage not comprehensive.
Density calculated as observations divided by survey effort, and adjusted for estimated probability of detection.
Northern Shipping Lane: Preliminary Proposal # 2
(from U.S. Coast Guard Port Access Route Study as interpreted by CBNMS staff, November 2010)

- Outbound Traffic Lane
- Separation Zone
- Inbound Traffic Lane
- Area of traffic approach/departure to/from northern shipping lane—speculative

200 meter contour
Northern Shipping Lane: Preliminary Proposal # 2
(from U.S. Coast Guard Port Access Route Study as interpreted by CBNMS staff, November 2010)

Whale Density per square kilometer
Blue and Humpback Whales
- Low
- Medium
- High

5 minute grid cells extracted from CDAS.
Includes multiple surveys of varying length, between 1975-2008; survey coverage not comprehensive.
Density calculated as observations divided by survey effort, and adjusted for estimated probability of detection.
Northern Shipping Lane: Preliminary Proposal #4
(from U.S. Coast Guard Port Access Route Study as interpreted by CBNMS staff, November 2010)

Legend:
- Blue: Outbound Traffic Lane
- Yellow: Separation Zone
- Red: Inbound Traffic Lane
- Gray: Area of traffic approach/Departure to/from northern shipping lane—speculative

200 meter contour
Northern Shipping Lane: Preliminary Proposal # 4
(from U.S. Coast Guard Port Access Route Study as interpreted by CBNMS staff, November 2010)

Whale Density per square kilometer
Blue and Humpback Whales

- Low
- Medium
- High

5 minute grid cells extracted from CDAS.
Includes multiple surveys of varying length, between 1975-2008; survey coverage not comprehensive.
Density calculated as observations divided by survey effort, and adjusted for estimated probability of detection.
Northern Shipping Lane: Preliminary Proposal # 6
(from U.S. Coast Guard Port Access Route Study as interpreted by CBNMS staff, November 2010)

- Blue: Outbound Traffic Lane
- Yellow: Separation Zone
- Red: Inbound Traffic Lane
- Gray: Area of traffic approach/departure to/from northern shipping lane—speculative

200 meter contour
Northern Shipping Lane: Preliminary Proposal # 6
(from U.S. Coast Guard Port Access Route Study as interpreted by CBNMS staff, November 2010)

Whale Density per square kilometer
Blue and Humpback Whales
- Low
- Medium
- High

5 minute grid cells extracted from CDAS.
Includes multiple surveys of varying length, between 1975-2008; survey coverage not comprehensive.

Density calculated as observations divided by survey effort, and adjusted for estimated probability of detection.
Northern Shipping Lane: Eliminated

- Blue: Outbound Traffic Lane
- Yellow: Separation Zone
- Red: Inbound Traffic Lane

Area of traffic approach/departure to/from northern shipping lane - speculative

200 meter contour
Northern Shipping Lane: Eliminated

Whale Density per square kilometer
Blue and Humpback Whales
- Low
- Medium
- High

5 minute grid cells extracted from CDAS.
Includes multiple surveys of varying length, between 1975-2008; survey coverage not comprehensive.

Density calculated as observations divided by survey effort, and adjusted for estimated probability of detection.
Perspective

1989 PARS recommended shift of the southern TSS to reduce risk of grounding on the San Mateo coastline.

Implementation delayed until study of potential impacts on Monterey Bay National Marine Sanctuary was conducted. October 1998 Vessel Management Report concurred with recommended shift of TSS.

Recommended TSS shift implemented August 2000.