VESSEL SPEED REDUCTION INCENTIVE PROGRAM

2020 PROGRAM RESULTS

Board of Directors
Santa Barbara County
Air Pollution Control District
Our Mission: To protect the people and the environment of Santa Barbara County from the effects of air pollution.

Aeron Arlin Genet
Director / APCO

Molly Pearson/Planning Division Manager
May 20, 2021
**BACKGROUND**

- Offshore emissions = onshore impacts
- Over 100 miles of coastline in Santa Barbara County
- 2019 Ozone Plan
  - Emission inventory for Marine Shipping
  - Commitment to pursue VSR
- Near-term NOx reductions
  - Federal and International Maritime Organization (IMO) actions on engine requirements will take a long time
  - Air districts are required to plan to meet federal and state ozone standards

(Source: 2019 Ozone Plan, Fig. 3-2)
A PARTNERSHIP FOR CLEANER AIR, SAFER WHALES, AND A QUIETER OCEAN

- 2014 pilot in Santa Barbara Channel, expanded each year 2016-2020
- Financial & recognition incentives to shipping companies to slow down in VSR zones
- Container and car carrier vessels
- Seasonal (May to November) to coincide with high ozone levels and presence of whales

Benefits:
- Significant emission reductions (NOx, GHGs, PM, air toxics)
- Reduce fatal ship strikes on whales
- Reduce ocean noise
<table>
<thead>
<tr>
<th>Year</th>
<th>2014</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>VSR Zone</td>
<td>Santa Barbara Channel</td>
<td>Santa Barbara Channel Region</td>
<td>Santa Barbara Channel Region &amp; San Francisco Bay Area</td>
<td>SoCal Region &amp; SF Bay Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td># Companies</td>
<td>7</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td># Vessels</td>
<td>14</td>
<td>25</td>
<td>44</td>
<td>280</td>
<td>349</td>
<td>483</td>
</tr>
<tr>
<td>Slow-speed Distance (nautical miles)</td>
<td>2,700</td>
<td>5,000</td>
<td>12,630</td>
<td>46,026</td>
<td>99,019</td>
<td>181,306</td>
</tr>
<tr>
<td>NOx Reductions (tons)</td>
<td>12.4</td>
<td>25.6</td>
<td>84</td>
<td>266</td>
<td>536</td>
<td>713*</td>
</tr>
<tr>
<td>GHG reductions (metric tons)</td>
<td>535</td>
<td>1,005</td>
<td>2,630</td>
<td>8,668</td>
<td>17,026</td>
<td>23,016*</td>
</tr>
</tbody>
</table>

*Initial estimates; may change.
2020 PROGRAM - VSR ZONES

Southern California Region Vessel Speed Reduction Zone
2020 Protecting Blue Whales and Blue Skies Incentive-Based Program

Legend
- 2020 Incentive Program Vessel Speed Reduction Zone
- IMO-Approved Area To Be Avoided (ATBA)
- Voluntary Extended Area to Be Avoided (ATEBA)
- NOAA Channel Islands National Marine Sanctuary
- 40nm VSR Zone for Ports of Los Angeles/Long Beach
- IMO-Approved Traffic Separation Scheme (TSS)
- Harbor Safety Committee Voluntary Western Traffic Lanes

Note: Mariners transiting through the western and northern approach to and from the Port of Los Angeles and Long Beach (LA/Long Beach) are advised to abide by all TSS through the Santa Barbara Channel as per the NOAA and Admiralty charts of the area. International Maritime Organization (IMO) approved routing measures in this area and the Navy advise that continuous hazardous operations should not take place at any time on the U.S. Port Magu Sea Range. Please see relevant 12 and 22 of the Naval Ships Notice to Mariners, 15th District for more information regarding the U.S. Navy Operating Areas and the Voluntary Western Traffic Lanes at https://www.necmar.com/a.html?/files/id019_Southern_Incentive.pdf

San Francisco Bay Region Vessel Speed Reduction Zones
2020 Protecting Blue Whales and Blue Skies Incentive-Based Program

Legend
- 2020 Vessel Incentive Program Vessel Speed Reduction Zone
- NOAA National Marine Sanctuary Boundary
- IMO-Approved Traffic Separation Scheme (TSS)

Map Source: NOAA Channel Islands National Marine Sanctuary

This map is not to be used for navigational purposes.
Vessels voluntarily travel at 10 knots or less
Over $200,000 in funding for awards and recognition
Financial awards ranged from $2,000 to $30,000

Recognition levels
tiered based on % of distance traveled at 10 knots or less

<table>
<thead>
<tr>
<th>Recognition Level</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sapphire</td>
<td>75-100%</td>
</tr>
<tr>
<td>Gold</td>
<td>50-74%</td>
</tr>
<tr>
<td>Blue Sky</td>
<td>25-49%</td>
</tr>
</tbody>
</table>
## RESULTS

<table>
<thead>
<tr>
<th>Company</th>
<th>Cooperation Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swire Shipping</td>
<td>95%</td>
</tr>
<tr>
<td>MSC</td>
<td>89%</td>
</tr>
<tr>
<td>Hapag-Lloyd</td>
<td>89%</td>
</tr>
<tr>
<td>Yang Ming</td>
<td>77%</td>
</tr>
<tr>
<td>Mol ACE</td>
<td>76%</td>
</tr>
<tr>
<td>NYK-RoRo</td>
<td>74%</td>
</tr>
<tr>
<td>Wallenius</td>
<td>74%</td>
</tr>
<tr>
<td>Cosco</td>
<td>66%</td>
</tr>
<tr>
<td>GALI</td>
<td>67%</td>
</tr>
<tr>
<td>K Line</td>
<td>65%</td>
</tr>
<tr>
<td>Maersk</td>
<td>62%</td>
</tr>
<tr>
<td>CMA CGM</td>
<td>60%</td>
</tr>
<tr>
<td>Hyundai Glovis</td>
<td>59%</td>
</tr>
<tr>
<td>Evergreen</td>
<td>50%</td>
</tr>
<tr>
<td>ONE</td>
<td>31%</td>
</tr>
</tbody>
</table>
2020 PROGRAM - WHALE BENEFITS

Fatal ship strike risk
35% reduction, combined for both the SF Bay Area and Southern California VSR zones

Ocean Noise
4 decibel reduction
2021 PROGRAM

- Launched May 15, 2021, similar to 2020 program
- Over $300,000 of incentive funds
- Funded through a CARB Supplemental Environmental Project (SEP)
  - Managed by Ventura County APCD
  - District receives compensation for staff time
- SEP also provides funding for 2022 program
INTERAGENCY WORK

- **South Coast Air Quality Management District**
  - 2022 Air Quality Management Plan (AQMP)
    - Several meetings; April 1, 2021 presentation at Mobile Source Working Group for Ocean-Going Vessels
    - Ensure that emission reductions from program are quantified and modeled

- **California Air Resources Board**
  - Ocean-Going Vessel emissions estimate model - include updated vessel speed trends
  - Draft 2020 Mobile Source Strategy – potential measures:
    - Short term: require cleaner vessels visiting ports
    - Longer term: stricter federal and international engine emission standards
CONTACT INFORMATION

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Project website:
www.ourair.org/air-pollution-marine-shipping