


Board Agenda Item

TO: Air Pollution Control District Board

FROM: Aeron Arlin Genet, Air Pollution Control Officer 

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SUBJECT: Update on Vessel Speed Reduction Program and Ocean-Going Vessels

RECOMMENDATION:

Receive and file an update on the 2022 Vessel Speed Reduction (VSR) program and other activities related to large ocean-going vessels.

BACKGROUND:

Large ocean-going vessels traveling along the California coastline and into California's ports are a major source of air pollution, as they emit significant amounts of nitrogen oxides (NOx) and other pollutants. Over the long term, international rules will require cleaner engines on newly built vessels, which will reduce NOx emissions from this sector. However, fleet turnover in this industry does not happen quickly, and it is expected to take 10-15+ years to phase out the older, dirtier engines. In the meantime, the marine shipping sector continues to be the largest source of ozone precursor emissions in Santa Barbara County.

Since 2014, the District and partners have implemented the Protecting Blue Whales and Blue Skies VSR program for immediate air quality and whale protection benefits. This voluntary program asks operators to decrease their vessel speeds to 10 knots or less, which increases the fuel efficiency of most vessels and reduces emissions of multiple air pollutants, including NOx, greenhouse gases (GHGs), particulate matter (PM), and toxic air contaminants. Reducing vessel speeds also lowers the risk of fatal ship strikes on endangered whale populations and it reduces ocean noise that can interfere with whale communication, navigation, and feeding. Reducing NOx emissions through voluntary incentives is a critical part of the District's strategy to help prevent exceedances of the state and federal ozone standards. The District's 2022 Ozone Plan¹, which was approved by your Board in December 2022, includes an inventory of ocean-going

¹ <https://www.ourair.org/wp-content/uploads/2022-Ozone-Plan.pdf>

vessels, a discussion of the air quality impacts from the vessels, and a commitment to continue pursuing emission reductions through VSR.

DISCUSSION:

The following topics related to the District’s VSR program and other ocean-going vessel activities will be covered in this section:

- 1) 2022 VSR Program Results;
- 2) 2023 VSR Program Launch;
- 3) Assembly Bill 953 – Statewide Voluntary VSR & Sustainable Shipping Program;
- 4) Other Ocean-Going Vessel Activities in Santa Barbara County Waters:
 - a. City of Santa Barbara – Harbor Commission Cruise Ship Subcommittee; and
 - b. Future Statewide Control Efforts.

2022 VSR Program Results

The 2022 VSR Program was implemented successfully from May 1 to December 15, 2022, which is the time period that coincides with peak ozone levels as well as the presence of blue, humpback, and fin whales near the California coast. The program continues to focus on large container ships and auto carriers since these ships have higher speeds and more emissions, but the 2022 program also allowed bulk and general cargo vessels to register for the first time. Participation included 684 vessels operated by 23 different shipping companies. There were 398 container ships, 183 auto carriers, 98 bulk ships, and 5 general cargo ships. The 2022 VSR Program captured about 75% of the container ships and 96% of the auto carriers, but only about 28% of the bulk & general cargo ships at this point.

All participating vessel operators were asked to slow to 10 knots or less in the VSR zones, and Automatic Identification System (AIS) ship tracking technology was used to track the speeds and cooperation level of the companies during the VSR season. Depending on the company’s level of cooperation, companies were placed in award tier categories as follows:

- Sapphire: 85-100% of total fleet distance travelled at 10 knots or less
- Gold: 60-84%
- Blue Sky: 35-59%

Companies were notified of their award status in March 2023, with 8 companies achieving the Sapphire award level, 10 achieving Gold, and 5 achieving Blue Sky. The shipping companies that participated in the 2022 program and their award levels are listed below:

Sapphire:

- MSC *
- COSCO Shipping *
- NYK-RoRo
- Wallenius Wilhelmsen *
- Yang Ming *
- Swire Shipping *
- OOCL *
- CSL *

Gold:

- Maersk *
- Evergreen *
- Wan Hai *
- ONE *
- Hyundai Merchant Marine
- Mol ACE
- GALI *
- CMA CGM

“K” Line *

- Hapag-Lloyd *

Blue Sky:
Hyundai Glovis
Swire Bulk

Pacific Basin
Eastern Car Liner
Toyofuji Shipping

More than \$200,000 in financial incentives were made available to those companies that reached the Sapphire and Gold award levels. The incentives ranged from \$2,500 to \$20,000 per company, depending on the award tier and the fleet size. Notably, more than 75% of the financial incentives were generously declined by the companies in order to help fund next year's program and recognition efforts. Those companies that declined the incentive are highlighted above with an "*".

Outreach for the 2022 program included various news releases issued by program partners, social media posts, a program fact sheet that highlights the participating companies, and articles and advertisements in trade and business journals. Physical awards will also be mailed to participating companies and photos of the awards will be used in future recognition materials. In 2022, program partners also launched a Brand Ambassador component to the program. Any company that ships with one or more of the VSR program participants is eligible to become a Brand Ambassador. Ambassadors help advocate for more sustainable shipping and are committed to reducing air pollution, regional GHGs, underwater noise, and ship strikes on endangered whales. To date, six companies and the Port of Hueneme have become Brand Ambassadors for this program.

As shown in Table 1 below, the emission benefits for the 2022 program are 921 tons of NOx and 32,604 metric tons of GHGs. These numbers represent an approximately 27% reduction in NOx pollution and GHG emissions from the ships that voluntarily participated in the program, as compared to baseline conditions. For comparison, the NOx reductions are equivalent to converting 580,000 passenger vehicles to zero emissions for a single year. Program partners have also quantified the whale protection and noise reduction benefits of the 2022 program. Point Blue, a conservation science institute, estimated that the risk of fatal ship strikes was reduced by 44%, and the Scripps Whale Acoustics Laboratory estimated that the 2022 program resulted in a reduction in ocean noise by 4.6 decibels per transit.

Table 1: VSR Program Summary - 2014 to 2022

Year	2014	2016	2017	2018	2019	2020	2021	2022
VSR Zones	Santa Barbara Channel Region		Santa Barbara Channel Region & San Francisco Bay Region			Southern California Region & San Francisco Bay Region		
# Companies	7	10	11	12	15	16	18	23
# Vessels	14	25	44	295	349	483	545	684
Slow-speed Distance (nautical miles)	2,700	5,000	12,630	46,026	99,019	181,306	179,530	266,148
Overall Fleet Cooperation	--	--	--	36%	55%	60%	64%	78%
NOx Reductions (tons)	12.4	25.6	84	266	536	748	650	921
GHG reductions (metric tons)	535	1,005	2,630	8,668	17,026	24,258	22,201	32,604

2023 VSR Program Launch

The 2023 VSR program launched on May 1 and will run through December 15, 2023, and the program continues to expand to achieve additional air quality and whale protection benefits. The three significant changes to the 2023 program include:

- 1) The program expanded to include tanker vessels, since additional emission reduction and whale protection benefits are achieved when these ships slow down to 10 knots or less.
- 2) The Southern California Region expanded 10 nautical miles westward to include the International Maritime Organization approved extension to the Santa Barbara Channel shipping lane.
- 3) A newly formed Monterey Bay VSR zone was created, as the Monterey Bay National Marine Sanctuary, Monterey Bay Air Resources District, and San Luis Obispo County APCD have joined the program as new partners. The new VSR zone will result in participating vessels slowing down for approximately 80 more nautical miles when entering or exiting the southern route of the San Francisco Bay Region.

After receiving feedback from participants over the years and given that more than 75% of the financial incentives were declined in 2022, the 2023 program will not include financial incentives. Instead, the program will focus on the value of positive media coverage and marketing campaigns for participating companies, drawing industry and public awareness to the VSR program and the company achievements. As of May 11, twenty-two shipping companies have agreed to participate, showing that the companies continue to participate without the

financial incentives. Additional information and materials related to the 2023 VSR Program, as well as the previous programs, are available on the Program's website at www.bluewhalesblueskies.org.

Assembly Bill (AB) 953 – Statewide Voluntary VSR & Sustainable Shipping Program

AB 953 was introduced in February 2023 by Assemblymembers Gregg Hart and Damon Connolly. This bill would task the Ocean Protection Council — in coordination with California air districts along the coast and in consultation with the federal Office of National Marine Sanctuaries, the U.S. Environmental Protection Agency, the U.S. Navy, the Coast Guard, the California Air Resources Board, and other stakeholders — to create a statewide voluntary vessel speed reduction and sustainable shipping program for the California coast. The bill would build upon the existing Protecting Blue Whales and Blue Skies program in order to reduce air pollution, the risk of fatal vessel strikes on whales, and harmful underwater acoustic impacts.

The District has been working with the Protecting Blue Whales and Blue Skies program partners to help urge the passage of AB 953, as it would provide additional support for continuing and expanding the emission-reduction impacts from the current VSR program. The bill has unanimously passed through the Assembly Committee on Water, Parks, and Wildlife and the Assembly Committee on Natural Resources, and now goes to the Assembly Committee on Appropriations. If the bill passes through the Assembly Appropriations, it would then move on to the Assembly Floor for a vote.

Other Ocean-Going Vessel Activities in Santa Barbara County Waters

City of Santa Barbara – Harbor Commission Cruise Ship Subcommittee

The City of Santa Barbara has been a destination on some cruise ship itineraries since 2010. Thirty cruise ship visits occurred in Santa Barbara in 2022, and these ships anchor at a location approximately 1 mile offshore. During their 10-hour stay, the cruise ships are running their engines to provide power for the ship while many of the passengers come ashore by boarding smaller tender boats.

In April 2022, the Harbor Commission formed a subcommittee to share information and collect public comment on the visiting ships. District staff were requested to present on the air quality impacts of these cruise ships at the subcommittee's December 2022 meeting. Staff provided information about the types of air pollutants emitted by cruise ships and estimates of the pollution associated with a typical cruise ship visiting Santa Barbara. Emissions were put into perspective by comparing them to the emissions from passenger vehicles and seeing how cruise ships fit into the county's overall emission inventory. Another meeting was held in February 2023 on water discharge requirements, and future meetings are planned to cover the remaining topics of community concern. District staff will continue to evaluate air quality impacts and be a resource to the Harbor Commission when requested to provide relevant information on cruise ships.

Future Statewide Control Efforts

Ocean-Going Vessels (OGVs) are primarily regulated by the U.S. Environmental Protection Agency and the International Marine Organization (IMO). However, the California Air Resources Board (CARB) has also adopted the At Berth Regulation that includes control measures that require OGVs to use cleaner fuels within Regulated California Waters (24 nautical miles from shore) and require OGVs to plug in to shoreside electrical power when docked at berth.

In December 2022, CARB released their Interim Evaluation Report for the 2020 Control Measure for Ocean-Going Vessels At Berth. The District reviewed CARB's analysis and submitted a comment letter providing support for CARB's efforts to explore additional emission-reduction measures from OGVs while in transit, maneuvering, and at anchor in California waters. The District recommends that CARB develop mitigation options for the at anchor activities throughout the state to offset the emissions that impact the nearby community. In addition, the District encourages CARB to coordinate and implement pilot projects that reduce emissions from cruise ships and associated tender boats while at anchor. Potential pilot projects could consist of a capture-and-control barge, providing electricity from a barge-based battery bank, or other innovative concepts that would reduce the emissions from the auxiliary engines, and the use of electric tenders to transport passengers to shore from cruise ships.

On May 25, 2023, CARB staff will discuss with their Board of Directors the potential to adopt new measures that further reduce emissions from OGVs while in transit, maneuvering, or at anchor. Such measures could include statewide incentives or regulations to achieve slower vessel speeds within Regulated California Waters. The District continues to work with CARB to advocate for such a program, as it would provide the necessary support and funding to achieve additional NOx reductions and health benefits to coastal communities.

FISCAL IMPACT:

District staff time spent implementing the 2022 VSR program was included in the District's adopted budget for Fiscal Year (FY) 2022-23. The District receives compensation for staff time spent implementing the 2022 VSR program through a CARB Supplemental Environmental Project (SEP) Oversight Agreement managed by Ventura County APCD. The approximate revenue for the 2022 VSR program is \$46,275.

A new SEP application was submitted by Ventura County APCD to receive state funding for the 2023 VSR program and beyond. The SEP program allows community-based projects to be funded from a portion of the penalties received during settlement of state enforcement actions. There are many SEP applications submitted to CARB each year, and it is up to the violator to select the VSR program as the funded project during the settlement agreement process with CARB. Other than the \$157,500 incentive funds that have been reinvested into the program by the majority of the 2022 participating companies, there is currently no additional funding source for the operation and implementation of the 2023 VSR Program.