

# CRUISE SHIP POLLUTION IN LA PAZ, B.C.S. MEXICO

Many jurisdictions around the world have issued regulations to mitigate scrubbers' wastewater pollution. These effluents contain acidifying compounds, heavy metals and other toxic substances. According to the ICCT, the success of mitigation strategies depends on enforcement capacity, the area of national waters compared to the area where ban applies, and port busyness. However, in most cases the evidence suggests that a nation-wide ban is most effective in reducing marine pollution from scrubbers.



When the COVID-19 pandemic started and travel restrictions increased worldwide, cruise ships searched for ports where to dock or stay in warm lay-up. The Gulf of California, specifically the Bay of La Paz, became a top choice for some of these large vessels.



**10 vessels** with open-loop scrubbers stayed at the Bay of La Paz in warm lay-up, at some point in time from January 2020 to June 2021.



In aggregate, they visited La Paz a combined **45 times** and nearly **600 days**.

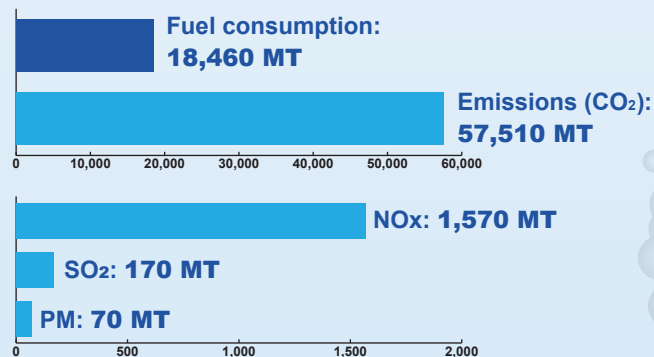


However, based on public cruise itineraries, these cruises were scheduled to call at La Paz **3 times** in 2020 and **0 times** in 2021.

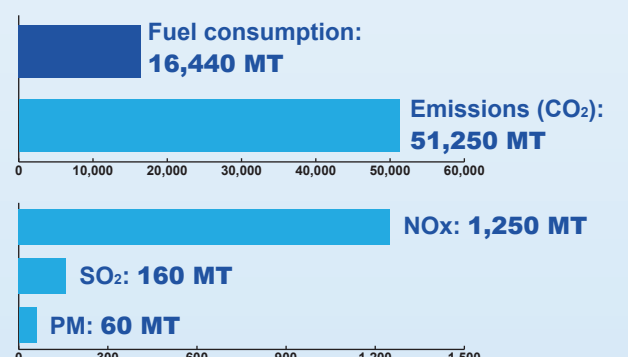


Most of the total NOx, SO2 and PM emissions occurred in **April 2021**, followed by March and June.

## HOLLAND AMERICA # OF VESSELS: 5



## PRINCESS CRUISES # OF VESSELS: 5



MT= Metric Tons.  
NOx= Nitrogen oxides  
SO<sub>2</sub>= Sulfur dioxide  
PM= Particulate Matter  
CO<sub>2</sub>= Carbon dioxide



### Warm lay-up

Main engines continue operations and auxiliary engines keep heating and air conditioning systems running; emissions and effluents are still produced.

Washwater:  
**4,260,970 m<sup>3</sup>**

Washwater:  
**3,795,130 m<sup>3</sup>**



This is equivalent to  
**3,224**  
Olympic pools



**8,056,100 m<sup>3</sup>**  
Total washwater effluent

Based on these effluent amounts, these cruise ships may have contributed as much as:



**21.3**  
kg of PAHs



**1.25**  
kg of mercury



**93**  
kg of lead



**1,667.5**  
kg of vanadium

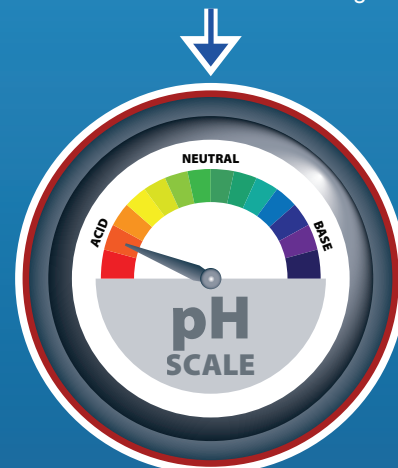
PAHs= Polycyclic aromatic hydrocarbons

ICCT= International Council on Clean Transportation

Sources:  
• E.W. Carr, J.J. Winebrake and T. Miranda. (2022). Emissions and Effluents from Cruise Ships in the Bay of La Paz, Mexico from January 2020 to June 2021. Available at: [https://iamerica.org/wp-content/uploads/dlm\\_uploads/2022/05/Emissions-and-Effluents-from-Cruise-Ships-in-La-Paz-From-January-2020-to-June-2021-1.pdf](https://iamerica.org/wp-content/uploads/dlm_uploads/2022/05/Emissions-and-Effluents-from-Cruise-Ships-in-La-Paz-From-January-2020-to-June-2021-1.pdf)  
• L. Osipova, E. Georgeff and B. Comer. (2021). Global scrubber washwater discharges under IMO's 2020 fuel sulfur limit. International Council on Clean Transportation. 32 pp. Available at <https://theicct.org/sites/default/files/publications/scrubber-discharges-Apr2021.pdf>

to the marine  
environment of the  
Bay of La Paz.

These effluents contain acidifying compounds harmful to the marine ecosystem and that can contribute to climate change.



Toxic metals normally bound to sediments can be released and enter the marine food web and can eventually reach humans.

Calcifying marine animals have difficulties growing and maintaining skeletons and shells.

