

# House Finance Subcommittee

## Environmental Conservation Cruise Ship Program Overview

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Gene McCabe, Director, Division of Water

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# Cruise Ship Program

- Program staffing
- Statutory Authority 46.03.460
  - o Terms and Conditions
  - o Independent Verification
  - o Allow Dept to monitor and supervise discharges
- Registration Required (AS 46.03.461)
- Collection and reporting of information
- Establishment of fees (AS 46.03.480)



# Foreign Flagged Vessels

- Internationally flagged vessels are governed under the International Maritime Organization (IMO) and International Convention for the Prevention of Pollution from Ships (MARPOL)
- United States Coast Guard (USCG) retains port state control
- DEC regulation begins at ambient air when exiting the vessel stack
- Program began prior to ballot initiative that created Ocean Rangers (Method 9 has been in use since at least 1975)



# Division of Air Quality Cruise Ship Regulations

- 18 AAC 50.070 Marine Vessel visible emission standards
  - ...visible emissions, excluding condensed water vapor, may not reduce visibility through the exhaust effluent of a marine vessel by more than 20 percent...
- EPA Reference Method 9
  - Visual determination method used to measure the opacity of emissions from stationary sources, such as smokestacks
- Opacity Contract and USFS
  - DEC maintains a contractor to perform additional Method 9 observations throughout Alaskan ports of call. Additionally, DEC maintains a MOU with the U.S. Forest Service for monitoring in Holkham Bay, Tracy Arm, Endicott Arm, and/or Stephens Passage
- Additional Monitoring
  - 2019 Juneau Saturation Study
  - Community Sensors: Ketchikan, Juneau, Haines, Skagway, and Sitka

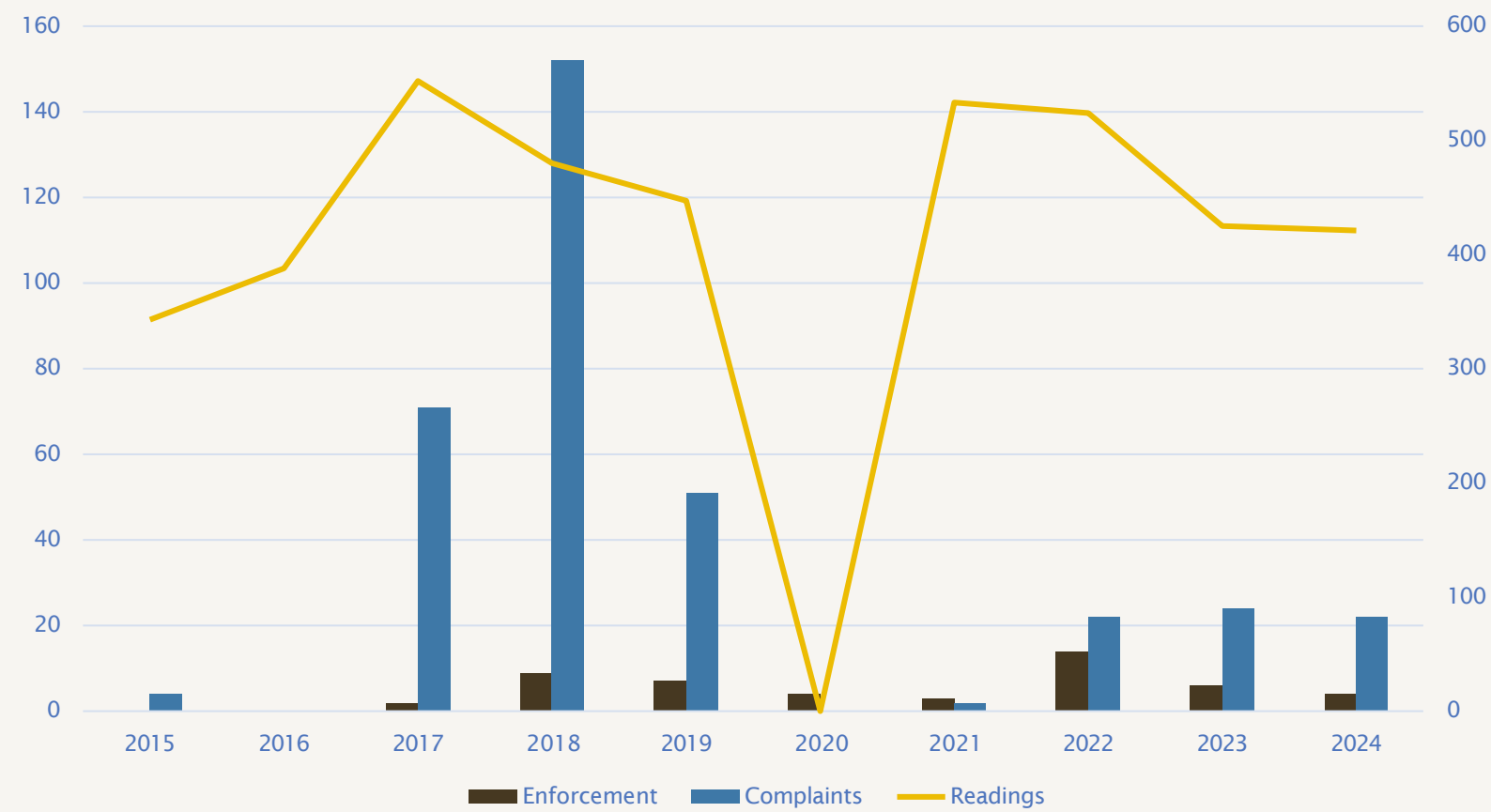


# Method 9 Observations

- MUST be performed from shore
- ZERO observations from Ocean Rangers
- Negative and positive biases exist when observing vessels; visual emissions require certified observers and QA procedures
- Opacity as a surrogate to PM conditions exist in nearly every Air Quality permit across Alaska
- Uptick around 2018 correlates with fleetwide scrubber use; water vapor creates 100% opacity and is excluded from regulation



# Compliance, Enforcement, and Public Complaints



Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Readings	343	388	552	480	447	0	533	524	425	421
Enforcement	0	0	2	9	7	4	3	14	6	4
Complaints	4	0	71	152	51	0	2	22	24	22



# Example Observation



**AMHS Ferries Visible Emission Observation Form**

Company <b>AMHS</b>		Observation Date <b>07/05/22</b>		Start time: <b>09:25</b>		End time: <b>09:55</b>	
Cruise Ship <b>Kennicott</b>		Readings every 15 seconds		Comments: <b>photo #1</b>			
Location <b>JNU Ferry Terminal</b>				photo #2			
Process Equipment		Operating Mode					
Control Equipment		Operating Mode					
Describe Emission Point <b>Main Stack</b>							
Height Above Sea Level (feet) <b>91</b>		Height Relative to Observer (feet) <b>71</b>					
Distance From Observer (feet) <b>139</b>		Direction From Observer (degrees Msc) <b>190</b>					
Describe Emissions Start <b>coming</b> End <b>✓</b>		Emission Color Start <b>black</b> End <b>✓</b>		Steam Plume Start <b>NO</b> End <b>✓</b>		Point at which the opacity was determined (feet above exit) Start <b>10</b> End <b>✓</b>	
Describe Plume Background Start <b>clouded sky</b> End <b>✓</b>		Background Color Start <b>white</b> End <b>✓</b>		Sky conditions Start <b>broken</b> End <b>✓</b>		Wind Speed (knots) Start <b>6</b> End <b>✓</b>	
Ambient Temperature (°F) Start <b>55</b> End <b>✓</b>		Relative Humidity (%) Start <b>73</b> End <b>✓</b>					

**SOURCE LAYOUT SKETCH**

The North Arrow in the drawing above is from a Magnetic Compass Reading, Msc (not corrected to true North).

A 'V' in an 'End' Field means the same conditions existed at the start and end of reading.

Min	0	15	30	45	
1	60	60	60	60	photo #1
2	60	60	40	40	
3	40	60	60	70	video #1
4	70	70	70	70	
5	70	70	70	70	
6	70	70	70	80	photo #2
7	80	80	70	70	
8	70	70	70	70	
9	60	60	60	60	
10	60	60	60	60	
11	60	60	60	40	
12	40	40	40	40	
13	40	40	40	40	photo #3
14	40	40	40	60	
15	60	60	60	60	
16	60	60	60	60	
17	60	60	60	60	
18	60	60	60	60	
19	60	60	60	60	
20	70	70	60	60	
21	60	60	60	60	
22	60	60	60	60	
23	60	60	60	60	
24	40	40	40	40	
25	40	40	40	40	
26	40	40	60	60	
27	60	60	60	60	
28	60	60	60	60	
29	60	60	60	60	
30	60	60	60	60	

Observer's Name (Print) **Amie Spieth** Date **07/05/22**

Observer's Signature **Amie Spieth** Date **04/01/2022**

Certified By **Alaska Environmental Resources, LLC** Date **03/08/2022**

VEO Form Number (ADEC Use Only) **AMHS VEO FORM**





# Future Monitoring Efforts

- DEC is working with Cruise Lines International Association (CLIA) and cruise lines together to share and review opacity monitoring data from onboard opacity sensors
- Electronic opacity sensors have existed across industry in Alaska for decades, cruise lines have used them internally for many years
- Meeting regulatory standards under the U.S. Environmental Protection Agency (EPA) PA Performance Specification 1 for these systems requires careful review and quality assurance





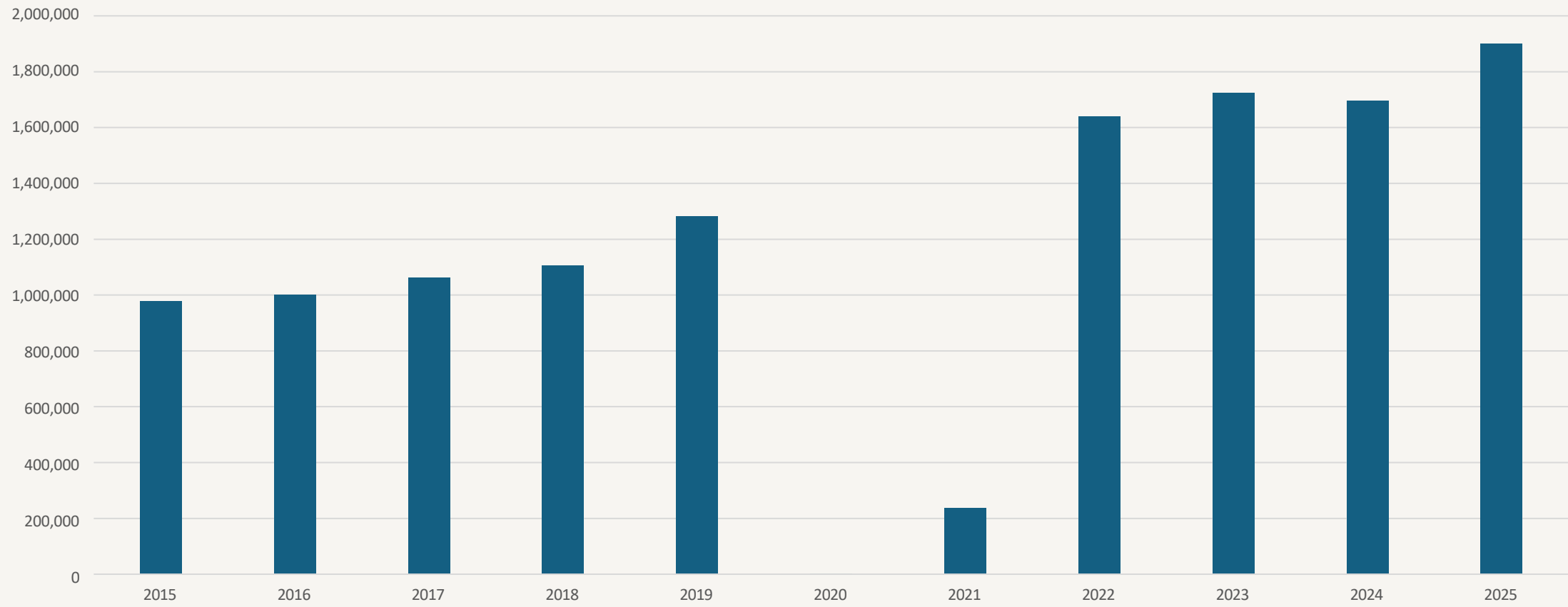
# Water Quality Program Overview

- Commercial Passenger Vessels
  - Small 49-249 passenger berths
  - Large 250+ passenger berths
- All vessels must register annually; implemented as 18 AAC 69
- AK Large Vessel General Permit (LVGP) authorizes the discharge of treated graywater and sewage
- Small vessels must apply for a Small Vessel Best Management Practices Application (SVBMP) if they intend to discharge in AK
- Discharges other than treated graywater and sewage are regulated via EPA Nationwide Vessel General Permit
- Division Inspectors board each vessel twice annually; once underway and once in port

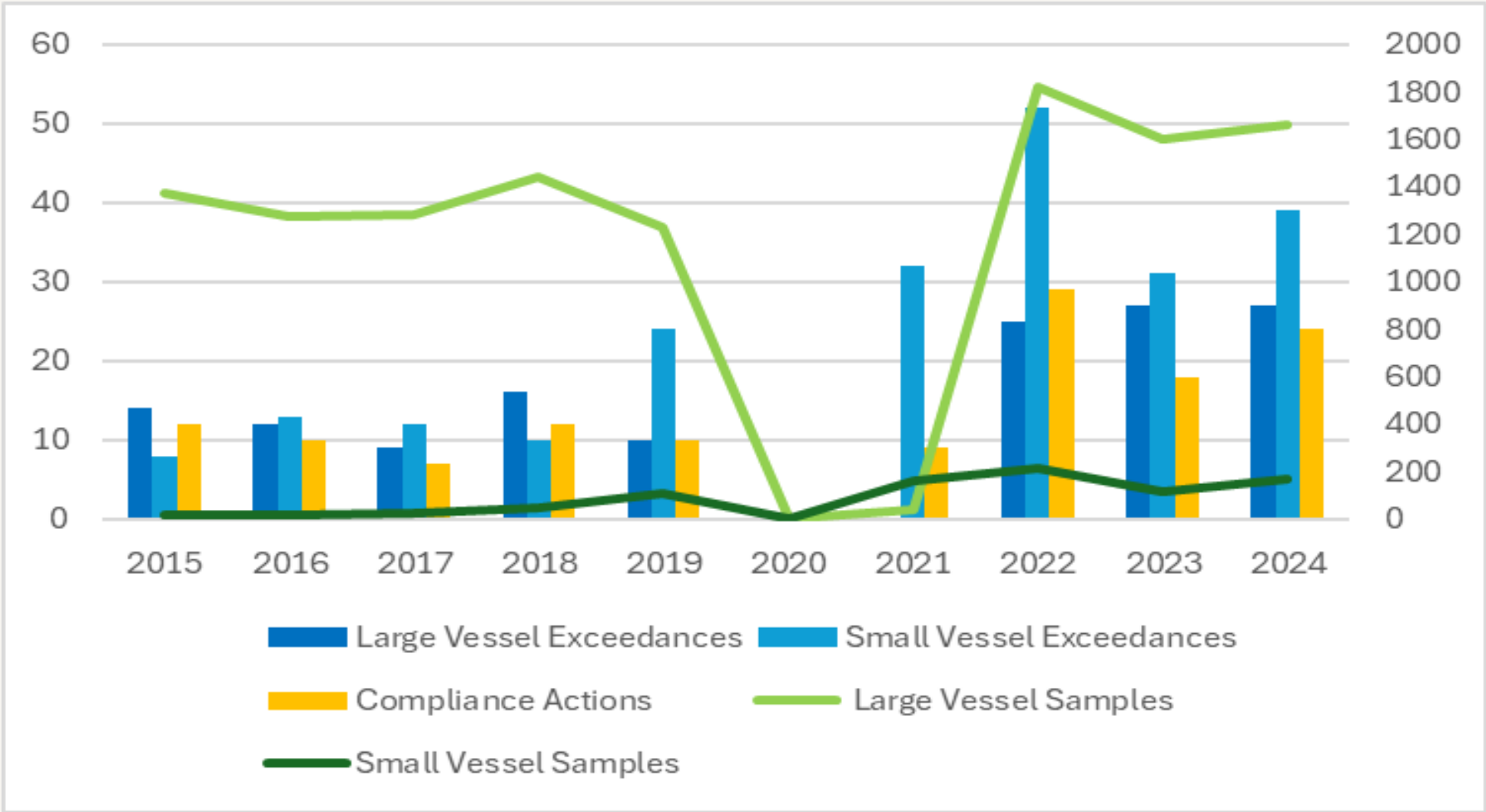


# Alaska Cruise Ship Passengers

Total Alaska Cruise Ship Passengers



# Water Quality Compliance and Enforcement



# Case Study: Small Passenger Vessel





# Questions?



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