

Alaska's Cruise Ship Initiative and the Commercial Passenger Vessel Environmental Compliance Program

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Abstract - Wastewater and air pollution violations and fines imposed on some cruise ships operating in Alaska in the 1990s coupled with the increase in the number and size of cruise ships traveling to Alaska raised public concerns about cruise ship waste management practices. In December 1999, the ADEC asked the U.S. Coast Guard, the U.S. Environmental Protection Agency, and Southeast Alaska communities to join industry representatives, Tribes, environmental groups and concerned Alaskans in a public discussion about cruise ship waste practices. This effort became known as the Alaska Cruise Ship Initiative (ACSI). Voluntary sampling in 2000 identified non-functioning marine sanitation devices and numerous wastewater samples with high levels of fecal coliform bacteria. Due to the efforts of the ACSI and the 2000 sampling, Alaska enacted a groundbreaking law in June 2001 that regulates cruise ship wastewater discharges in state waters. The law established the Commercial Passenger Vessel Environmental Compliance (CPVEC) Program within the ADEC.

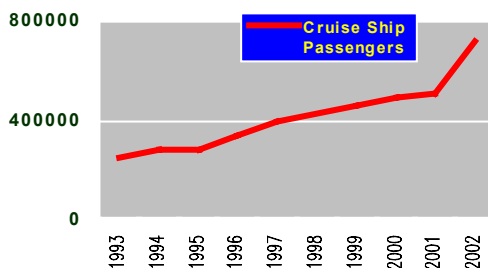
Tourism in Alaska shares the rich marine environment with commercial fisheries. Fishing is the largest private employer in the state, providing 47% of all private sector jobs. The commercial fishing industry depends upon the perception and the actuality that Alaskan fish come from pristine waters.

Alaska's Native peoples subsist off the bounty of the sea, relying heavily upon marine resources for nutrition, sustenance, cultural integrity, and spiritual well being. Alaska Natives were alarmed over potential cruise ship pollution and the fouling of especially vulnerable food items such as filter feeding mollusks.

In 1998, Royal Caribbean Cruise Lines (RCCL) entered into a plea agreement in the State of Alaska. RCCL was charged with discharging oil, dry cleaning products, and photochemicals into Gastineau channel near Juneau, Alaska during 1994-1995.

I. INTRODUCTIONS

From 1993 to 1997, the number of visitors coming to Alaska via cruise ship increased by roughly 60%. From 1997 to 2002, the number of cruise ship visitors increased by almost 85%. In 2002, 720,000 cruise ship passengers visited Alaska via cruise ship. The addition of the crew brings the total to almost 1.2 million.¹ By comparison, the state's population is just over 600,000. Ninety five percent of these visitors come to Southeast Alaska. This region has a population of 75,000 people. Southeast Alaska towns often feel overwhelmed by the number of cruise ship visitors. For example, Skagway - with a summer population of 1,200 people - often has more than 12,000 people visiting in a day. In addition to the high volume of visitors and crew, cruise ships by their sheer size are a highly visible industry in Alaska.



Source, DECD, Visitor Statistics

This accusation outraged many Alaskans. They began to question whether cruise ships were meeting the current Alaska Water Quality Standards enforced by the State of Alaska's Department of Environmental Conservation (ADEC).

Because of its international nature, the cruise industry was exempted from many of the environmental laws and regulations that other industries were required to meet. For example, neither DEC nor EPA issued a permit under the Federal Clean Water Act for cruise ship wastewater discharges.

The ships instead complied with environmental regulations drafted by the International Maritime Organization (IMO), an agency of the United Nations, and U.S. Coast Guard. According to US regulations, the U.S. Coast Guard certifies marine sanitation devices (MSDs) at installation and checks to ensure that they are operational during ship inspections.

In December 1999, ADEC responded to public concern and convened a forum to review and discuss the cruise industry's waste management and disposal practices in Alaska. The participants included the U.S. Coast Guard, the U.S. Environmental Protection Agency (EPA), Southeast Alaska communities, industry representatives, Tribes, environmental groups, and concerned Alaskans. This effort became known as the Alaska Cruise Ship Initiative (ACSI).

II. ALASKA CRUISE SHIP INITIATIVE

Goals of the ACSI included the following: (1) Identifying the waste streams from the cruise ships; (2) Developing pollution prevention and waste management solutions; and

(3) Assessing and verifying compliance with volunteer wastewater sampling; and (4) Keeping the Alaskan public informed.

Voluntary sampling of large cruise ships in 2000 indicated that the marine sanitation devices (MSD) on most ships were not functioning. USCG regulations required that effluent from the “treatment” systems could achieve effluent that contained no more than 200 fecal coliform per 100 ml at installationⁱⁱ. Only one ship that was sampled met this standard.

Large Cruiseship Voluntary Sampling Results from 2000

	Blackwater		Graywater	
	min	max	min	max
F.C./100 ml	ND	24 Million	ND	33 Million
TSS (mg/l)	ND	3,580	4	29,400

III. ALASKA SPECIFIC LEGISLATION

The federal government passed Title XIV – Certain Alaskan Cruise Ship Operations in 2000.ⁱⁱⁱ The regulations to implement this federal law became effective in July 2001. This law set black water standards for vessels with 500 or more overnight passengers.

In early 2001, Alaskans petitioned their State legislature to introduce legislation to also the state authority to monitor the environmental practices of cruise ships as well.

Both chambers of the state legislature introduced a bill. Former Governor Knowles also introduced comprehensive legislation to create clear state authority to oversee cruise ship operations. The legislation was heavily debated. When the legislature failed to pass the bill, the Governor called a special legislative session. Cruise ship legislation, AS 46.03.460 – AS 46.03.490, passed in June 2001 and was effective on July 1, 2001.

This law has standards for graywater and blackwater as well as provisions for the disclosure of solid waste and hazardous waste disposal. It covered vessels with 50 or more overnight passengers. The state law established the Commercial Passenger Vessel Environmental Compliance (CPVEC) Program within the ADEC.

Law	State	Federal
# overnight passengers	50+	500+
Discharge limits	1 mile from shore @ min. 6 knots	
	BW & GW	BW only
F.C./100 ml	200	200
TSS (mg/l)	150	150
Discharge limits	Continuous discharge (in port)	
	BW & GW	BW
F.C./100 ml	Refers	20
Chlorine (mg/l)	to Fed	10
TSS (mg/l)	Law	30

IV. CREATION OF STATE REGULATIONS

One of the first tasks of the CPVEC program was to develop regulations that detailed how industry would register, comply with wastewater standards, and disclose information about hazardous and solid waste disposal.

The CPVEC was the first program in the DEC to use a Negotiated Regulations Committee to draft regulations to implement a state law. The Negotiated Regulations Committee included members from DEC, USCG, large cruise ships, small cruise ships, Alaska Marine Highway System, Southeast Alaska communities, Tribes, and environmentalists.

The Committee held four meetings, which were all open to the public. The Committee finished their draft regulations on May 15, 2002. These regulations were then taken through a formal rulemaking process that included a period for public comment.

During the public comment period, the DEC held a public workshop at the Juneau Legislative Information Office (LIO). This meeting was teleconferenced to the following LIO offices: Anchorage, Ketchikan, Sitka, Seward, Petersburg, Valdez, Wrangell, and Kodiak. These towns were selected because they receive the highest volume of cruise ship traffic.

The CPVEC regulations were made effective November 15, 2002.

V. COMMERCIAL PASSENGER VESSEL ENVIRONMENTAL COMPLIANCE (CPVEC) PROGRAM

The CPVEC program requires: (1) annual ship registration; (2) industry sampling and analytical testing of wastewater discharged in Alaska waters; (3) compliance with discharge standards; (4) independent verification of wastewater sampling by the state; (5) ship record keeping of wastes discharged into Alaska waters; and (6) vessel environmental compliance fees.

The CPVEC program has two dedicated staff, a program manager and an engineer. The program is funded from fees collected from cruise ship companies.

All vessels plying Alaska waters with capacity for at least 50 overnight passengers for hire must register with the state by March 15 of each year. The registration information requirements come directly from the statute and must be notarized by the vessel owner or operator. If the vessel is discharging into Alaska water they are subject to the wastewater sampling and compliance program. Vessels that do not discharge in Alaska waters are not subject to the wastewater effluent standards and sampling regime.

Vessels discharging wastewater into Alaska waters are required to test the wastewater at least two times per year. Under both the ADEC and the U.S. Coast Guard (USCG) regulations, the owner/operator of the vessel is required to submit a Quality Control Quality Assurance (QAQC) Plan. The USCG and ADEC have worked together to create a document that satisfies both programs. Samples that are taken using this QAQC Plan satisfy the requirements of both the state and federal law.

The QAQC plan contains all the pollutants tested and the EPA methods to be used. The QAQC plan includes sampling and laboratory quality control elements. The QAQC requirements include third party sampling, duplicate sampling, sampling audits, and a lab technical systems audit. The USCG program requires third party sampling. The DEC regulations stay consistent with other state wastewater programs and allow industry to sample themselves. However, large cruise ships sample to satisfy the requirements of both the federal and state law. Therefore, a third party sampler takes all large vessel wastewater samples.

The USCG approves ships that meet more stringent effluent limits to discharge continuously including in port. The state law requires owners/operators to submit all sampling data submitted to the USCG for approval and continued compliance with more stringent standards to the DEC.

Third party sampler samples cruise ship wastewater as part of the CPVEC program.



Because each ship is configured differently and follows unique wastewater management practices, the state statute and regulations require the owner/operator to submit a vessel specific sampling plan (VSSP). The VSSP must prove to the ADEC that the sample taken is representative of the wastewater discharged from the particular ship. The ADEC approves the VSSP prior to sampling.

The ADEC conducts sampling throughout the cruise ship season. The ADEC also audits the industry sampler to verify

that samples are collected according to the QAQC Plan and the VSSP.

VI. ENFORCEMENT

Alaska's cruise ship law was designed to be implemented in stages to allow for the installation of improved wastewater treatment technologies. For example, large cruise ships with over 250 overnight passengers were subject to the blackwater effluent standards as soon as the law was effective – July 2001. The timeline for compliance was extended, however, until January 2003 for large cruise ship graywater. The wastewater effluent for small cruise ships and ferries with between 50 and 249 overnight passengers will not be subject to compliance until January 2004.

There were no Notices of Violation (NOV) against cruise ships for wastewater effluent infractions during 2001. DEC issued one NOV to Holland America for fecal coliform exceedances in 2002 on the *Ryndam* and the *Volendam*. The state and federal government still have enforcement actions pending against Holland America for the August 2002 *Ryndam* spill.

The ADEC also requests copies of wastewater discharge logs kept by the cruise ship companies. The ADEC used GIS to determine if large ships were in compliance with the requirement to discharge more than one nautical mile from shore while traveling a minimum of 6 knots during 2001. Several record keeping infractions were noted but no NOV's were issued. DEC is undertaking a similar effort for the 2002 large ship wastewater discharges.

The CPVEC program is also charged with monitoring and enforcing cruise ship visible emissions. The state's Marine Vessel Visible Emission regulation, 18 AAC 50.070^{iv}, applies to all marine vessels and pre-dates the creation of the CPVEC program.

The DEC has been pleased with the improvements that the cruise ship industry has made regarding visible emissions. In 2000, the DEC issued 15 Notices of Violation for cruise ship visible emissions. In 2001, the DEC issued 11 Notices of Violation and in 2002 there was only 1 – the Holland America *Statendam*. We have seen this decrease in violations despite increased visible emissions monitoring. There has been one reading this year with enforcement potential.

VII. SCIENCE ADVISORY PANEL

In January 2001, the Science Advisory Panel was organized to independently address the scientific questions surrounding the impact of cruise ship waste in Alaska. The Science advisory panel is a group of independent volunteer scientists and engineers. There are nine core members on the Panel.

These core members include an oceanography professor, a NOAA physical oceanographer, an ADEC environmental engineer, a civil engineering professor, an oceanographer for law firm, a microbiologist, a NOAA senior staff scientist, chemistry professor, and an EPA senior toxicologist. The paid panel facilitator was a retired USCG Captain-of-the-Port and an industrial toxicologist.

The North West Cruiseship Association funded the contract facilitator and the travel expenses for non-governmental panel members until the end of 2001. The DEC funded the contract facilitator and the travel expenses for non-governmental panel members until the end of 2002. The efforts of the Science Advisory Panel culminated in the publication of the "Impact of Cruise Ship Wastewater Discharge on Alaska Waters" report in November 2002.



VIII. ADDITIONAL SCIENTIFIC ENDEAVORS

The CPVEC Program is also responsible for conducting scientific studies related to the impact of cruise ship wastewater discharges on the environment and human health.

During the summer of 2002, the CPVEC program, under the guidance of the Science Advisory Panel, conducted Whole Effluent Toxicity (WET) testing on vessel wastewater from a variety of wastewater treatment systems. WET testing is conducted on most permitted treatment systems under EPA's National Pollution Discharge Elimination System. While fecal coliform is an indicator of pathological organisms that may cause disease, WET testing is an indicator of the toxicity to sensitive marine organisms. The cruise ship wastewater discharges had very low levels of acute and chronic toxicity. The low level of toxicity coupled with the high dilution factors lead the Science Advisory Panel to conclude that these wastewater discharges did not pose a threat to the Alaska marine environment.

CPVEC has also hired a contractor to model the cumulative effects of small cruise ship discharges. In addition to modeling, the contractor will perform a risk screen based upon the modeled concentrations. The CPVEC plans to perform similar modeling and risk screen on large vessels.

CPVEC will use these studies as well as the work from the Science Advisory Panel to characterize the risks to the Alaska environment and human health posed by the discharge of cruise ship wastewater. CPVEC will report these results to the Alaska Governor by January 15, 2004.

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