



ALASKA
Department of
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Conservation

***FINAL
CHARTER***

***Alaska Department of Environmental Conservation (DEC)
Cruise Ship Wastewater
Science Advisory Panel 2009 (SAP)***



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I. Panel's Official Title

DEC Cruise Ship Wastewater Science Advisory Panel 2009.

II. Authority

The Science Advisory Panel (Panel) is created by the authority of the Alaska State Legislature:

“It is the intent of the legislature that the minimum standards for the terms and conditions of wastewater discharge permits for large commercial passenger vessels meet all applicable state and federal effluent limits or standards, including Alaska Water Quality Standards, governing pollution at the point of discharge. The Department of Environmental Conservation shall establish and consult with a science advisory panel on wastewater treatment to evaluate the most technologically effective and economically feasible treatment options.” Legislative Intent HB 134

III. Purpose and Scope

The Panel is a scientific advisory group structured to provide an expert assessment of passenger vessel wastewater treatment systems. The purpose of the panel is to advise DEC as to the most technologically effective and economically feasible methods and systems to treat cruise ship wastewater that is discharged directly so that effluent meets Alaska Water Quality Standards (see [18 AAC 70](#)) at the point of discharge. Shore-based wastewater treatment facilities are subject to terms of their own permits. The Panel is a consultative and advisory body rather than a rulemaking or policy-making body.

IV. Goals

The Panel will meet up to four times annually and will address the following goals:

- Prior to October 1, 2012, provide a preliminary report to DEC which summarizes, analyzes, and compares the information listed below:
 - Methods of pollution prevention, control and treatment currently in use on board and the level of effluent quality achieved by commercial passenger vessels.
 - Additional economically feasible methods of pollution prevention, control, and treatment that could be employed to provide the most technologically effective measures to control all wastes and other substances in the discharge.
 - these methods shall not be limited to technologies currently used in the maritime industry, but shall also include emerging technologies and those for use in other sectors –

- including land-based uses - which could be adopted for shipboard use
 - combinations of technologies as well as “add-ons” to existing technologies shall also be considered
- The environmental benefit and cost of implementing these additional methods of pollution prevention, control, and treatment.
 - discussion of cost shall include installation, operation, and maintenance issues as well as time required for implementation.
- Based on the analysis above, the most technologically effective and economically feasible options which could be used to meet Alaska Water Quality Standards at the point of discharge will be reported.
- Prior to October 1, 2014 provide a final report to DEC which includes the topics and recommendations in the preliminary report.
- Hold one or more public conferences or workshops before 2013. Hold at least one public conference or workshop between January 1, 2013, and January 1, 2015, if DEC issues, renews, or modifies a permit required under AS 46.03.462(a)(1) after January 1, 2012.

V. Schedule and Milestones

To reach the milestones of the aforementioned goals the Panel adopts the schedule provided as Addendum 1.

VI. Communication (Addendum 2)

DEC is the Science Advisory Panel Communication Intermediary

DEC will serve as the spokesperson and intermediary for any communication between the Panel and all external entities throughout the life of the panel. All external communication from the Panel as a whole will be transmitted by DEC and shall contain the DEC logo.

- The Panel will report their findings to DEC, which in turn will report its findings to the Alaska State Legislature.
- Any and all formal communication between the Panel as a whole, and the public, media, cruise industry, and other interested parties, will be solely conducted through DEC.
- Individual members can continue communicating publicly on cruise and environmental issues without representing the view of the panel.

Communication with the Public

- DEC will make efforts to engage and inform the public throughout the duration of the project and provide a close view of all Panel proceedings. The following methods of communication may be established to receive public comments.
 - a. In-person or telephone communication to DEC staff
 - b. Written communication to DEC
 - c. Submission of comments through website
 - d. Regular public surveys regarding current Panel deliberations
- All meetings of the Panel will be open to the public to allow close observation of meetings and proceedings.
- DEC will communicate all comments and recommendations from the public to the Panel for their consideration.
- Public comments, regardless of method of submission, will be considered.
- SAP meetings will include time set aside for the public to make additional comments.

Communications with the Media

- Any press release regarding the Panel shall be released by DEC.
- Any inquiries from the media regarding the work of the Panel shall be directed to DEC for response.

Interface between the Science Advisory Panel and the Cruise Industry

- During the initial phases of the Panel, the panel will engage with the cruise industry via DEC. As the panel matures, it will gain technical contacts, establish working relationships, and request and analyze data pertinent to its mandate.
- Rules guiding the documentation of communication between the Panel and the cruise industry, methods of obtaining information from the industry, visits to ships and industry offices and all other forms of communication between the Panel and the cruise industry will be established through the consultative process, always notifying DEC.
- Individual members can continue communicating with the cruise industry on cruise and environmental issues without representing the view of the panel.

VII. Ground Rules and Panel Findings (Addendum 3)

The Panel will function under the agreed upon ground rules in Addendum 3. Findings concerning substantive issues will be made through the consultative process among Panel members. In the absence of consensus, minority and majority opinions will be recorded and presented to DEC. The Panel will be managed internally by the facilitator and the facilitator will maintain responsibility for meeting the objectives of the Panel.

VIII. Membership Composition and Replacement (Addendum 4)

DEC selected a balanced science panel characterized by:

- the inclusion of the necessary domains of knowledge,
- relevant scientific perspectives, and,
- a collective breadth of experience to address the mandate, including individuals from specific groups listed in HB 134.

DEC will use the same criteria and procedures when selecting replacement panel members. Member biographies will be compiled and published on the project website.

IX. Conflict of Interest (Addendum 5)

Panel members are required to disclose any information related to a conflict of interest or the appearance of a lack of impartiality, whether caused by member activities or those of their spouse. Such information includes but is not limited to financial interests in cruise ship or wastewater monitoring or treatment equipment industries, and any other financial ties, gifts, promises or favors received from these industries, past, present or currently planned. Detailed disclosures addressing these specific and general potential conflict issues will be made in writing for the first meeting and shall be part of the public record. Disclosures, if any, must be updated in writing with new information prior to commencement of each meeting. In the event of an apparent conflict of interest the issues will be referred to DEC for action as needed to ensure panel impartiality and a transparent panel process.

X. Feedback and Revisions

The Panel facilitator will consider suggestions by the Panel for revisions and improvements to the charter, meeting procedures, and agendas. Suggestions will be relayed to DEC and implemented upon approval.



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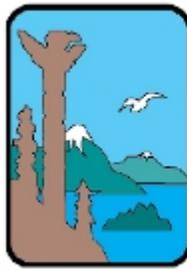
DRAFT CHARTER ADDENDUM 1 Schedule and Milestones

- February 2010: the Panel will establish baseline rules for meetings and scheduling. They will also review the legal framework and history of cruise ship wastewater discharges and Alaska water quality standards. Finally they will review both the existing cruise ship general permit for wastewater discharge and the draft of the new permit. Panel members should be familiar enough with the draft permit to be able to provide individual comments should they so wish. The Panel will take no action on the permit as a group.
- April/May 2010: the Panel will meet to review cruise ship wastewater processes. Topics include influent to wastewater treatment systems, the extent to which current on-board systems are addressing wastewater discharges, what efforts individual companies and ships have made to date to improve their wastewater discharges, and in what timeframe they have done so. For a deeper understanding of installation and operational issues, the Panel may hear presentations from vendors and operators of wastewater treatment systems currently used.
- The scheduled April meeting may be moved to May or June to facilitate visiting cruise vessels to observe treatment systems currently in use. The April and July meeting agendas may be combined into a two day meeting.
- July 2010: the Panel will meet to evaluate current standard and developing advanced worldwide shore-based wastewater technologies and their water quality achievements. The differences between cruise ship and municipal effluent limits will be discussed. The potential for visits to a cruise ship and to a municipal wastewater treatment plant will highlight issues such as size and power requirements when considering the adoption of shore-based technologies for use on board ships.
- October 2010: using dimensions and other particulars of ships and treatment systems, the Panel will meet to discuss naval architecture and installation considerations, physical constraints, and the basic design limitations and engineering considerations of cruise ships and their current wastewater management systems, as well as issues associated

with the installation of new systems or “add-on” control technologies. The USCG and/or a Classification Society may also present a description of the approval processes. Through facilitated discussion the Panel will develop an opinion of which methods are technologically effective for use on cruise ships.

- ❖ ** November 1, 2010: Facilitator to present to Panel for their review and feedback a draft Year 1 Report of Panel determinations of effective technologies
- ❖ ** December 1, 2010: Panel comments on Year 1 Report due to facilitator
- ❖ ** January 1, 2011: Facilitator to present to DEC Year 1 Report of Panel evaluation of effective technologies.
- January 2011: using the Year 1 Report on effective technologies and information provided by the cruise industry regarding the costs to purchase, install, and operate their current AWTS systems, the Panel will consider economic feasibility.
- April 2011: the Panel will evaluate and prioritize the most promising economically feasible technologies which could be used aboard cruise ships.
- July 2011: the Panel will review and comment on the draft agenda, tentative conference dates, lists of attendees, and a statement of expectation for the upcoming technology conference.
- ❖ October 2011: the Panel will host the Technology Conference.
- January 2012: The Panel will review and analyze the results of the technology conference. The facilitator will update the Year 1 Report on effective technologies with the new information incorporating economic feasibility, and with the results of the technology conference, for the Panel to review and approve. The facilitator will make use of Panel analysis to synthesize an outline and produce a draft position paper on technologically effective, and economically feasible cruise ship wastewater treatment methods. Analysis will include, but not be limited to:
 - The best ways to bridge from what the cruise industry is currently doing to what it feasibly can do, in order to meet Alaska Water Quality Standards at the point of discharge,
 - Estimates and timeframes for implementation of both on board and shore-based systems:

- Preliminary / final project design / procurement;
 - Equipment delivery lead times;
 - Installation design and project management; including the classification / regulatory approval process (if applicable);
 - Installation process, including preparation and installation work;
 - Commissioning of the installation and trials;
 - Regulatory verification - performance tests and acceptance;
 - Medium and long term effluent performance verification; final acceptance
 - Incorporating ideas from the equipment manufacturers, the best ways to establish regulatory performance measures (e.g. automated continuous sampling as the default mode).
 - Other technical, regulatory, and economic considerations including the economic and environmental impacts of transitioning to new technologies.
- April 2012: the facilitator will work with the Panel to finalize the paper on the technology conference and the most promising technologically effective and economically feasible cruise ship wastewater treatment methods.
 - ❖ **Prior to July 1, 2012: Facilitator to present to Panel for their review and feedback a draft preliminary report on the technology conference and the most promising technologically effective and economically feasible cruise ship wastewater treatment methods.
 - ❖ **Prior to August 1, 2012: Panel comments on preliminary report due to facilitator.
 - ❖ **Prior to October 1, 2012: Facilitator to present to DEC preliminary report on the technology conference and the most promising technologically effective and economically feasible cruise ship wastewater treatment methods.
 - ❖ January 2013: DEC report due to legislature. DEC determination of future work and need for Panel.



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**Cruise Ship Wastewater Discharge
 Science Advisory Panel Process Outline
 DRAFT**

Objectives: *Evaluate what is technologically effective

*Host one or more technology conferences

*Evaluate what if any new technologies are economically feasible that can be installed and implemented and/or whether cruise ships can implement available technologies to meet Alaska water quality standards at the point of discharge

Mtg	Date	Agenda Topic	Description	Materials to be provided	Product(s)/Outcome
Review					
1	Jan-10	Schedule	Establish meeting dates/set advisory panel schedule	Calendars, agenda, charter	Establish meeting dates/set advisory panel schedule
1	Jan-10	Legal framework	Review HB 134 and existing statutes, water quality standards and voter initiative	Summary of state statutes, copy of HB 134, voter initiative language, Alaska water quality standards, toxics manual	Understanding of existing water quality standards, voter initiative impetus and implications, changes HB 134 made to the initiative.

Mtg	Date	Agenda Topic	Description	Materials to be provided	Product(s)/Outcome
1	Jan-10	Permit	Review existing permit and draft permit	2008 large cruise ship wastewater sampling report, 2009 large cruise ship wastewater sample spreadsheet, 2008 and draft 2010 cruise ship wastewater general permits and information sheets	Understand the development of the existing permit and parameters. Be familiar enough with the draft permit to be able to individually provide comment on the draft permit. Not seeking Panel consensus.
Technical Evaluation					
2	Apr-10	Existing on-board technologies	Evaluate existing on-board wastewater treatment technologies and water quality ships have been able to achieve	Wastewater data spreadsheets for permitted ships and summary reports	Know what the existing on-board systems have been able to achieve
2	Apr-10	Existing on-board technologies	Potential Presentation by Current Wastewater Treatment system vendors.		Deeper understanding of individual wastewater treatment systems currently used on-board and associated installation and operational issues.
2	Apr-10	Source Reduction Evaluation Plans	Evaluate and review current source reduction evaluation plans from each permitted company/ship	Copies of company source reduction evaluation plans and DEC evaluations of each plan	Understand the current status of each company/ship and the efforts each company has taken to improve their wastewater discharges

Mtg	Date	Agenda Topic	Description	Materials to be provided	Product(s)/Outcome
3	Jul-10	Existing shore-based technologies; Field visit	Evaluate existing shore based wastewater treatment technologies and water quality achievements. Visit Juneau Douglas wastewater treatment plant and a cruise ship.	DEC/Oasis Feasibility study from Feb 09; a copy of a Juneau-Douglas wastewater permit	Understanding of what shore-based technology is currently available. Have a sense of what is standard operating technology vs. most advanced (Corolla v. Cadillac). Understand the difference between cruise ship wastewater effluent limits and municipal (other discharger's) effluent limits.
4	Oct-10	Naval architecture	Evaluate naval architecture considerations and physical limitations, i.e. space. Potential USCG and/or Classification Society presentation on the approval process. Facilitated discussion/development of conclusions about what is technologically is effective to be submitted to DEC.	Naval/Marine Architect USCG and/or Classification Society presenter Facilitator	Understanding of cruise ship basic lay-out, space limitations, and engineering considerations associated with the installation of new types of WW tracking systems or add on controls.

**CONTRACTOR TO PREPARE YEAR 1
REPORT OF SCIENCE PANEL
EVALUATION OF EFFECTIVE
TECHNOLOGIES DUE TO DEC 1/1/2011**

Economic Evaluation					
5	Jan-11	Feasibility	Evaluate feasibility in terms of economics and ability to implement technologies	Economics expert; Science Panel Year 1 report on effective technologies. Information from cruise lines regarding the cost of the installation, operation, and maintenance associated with their current wastewater treatment systems.	An evaluation of economic "feasibility." Evaluate what economic data needs to be requested from cruise ship companies and compiled to make an informed decision of what technologies may be economically feasible
6	Apr-11	Feasibility	Evaluate economically feasible WW treatment technologies.	DEC will provide follow-up economic data from cruise ship companies requested at previous meeting.	Evaluate/prioritize what are the most promising and/or feasible available technologies
Organize					
7	Jul-11	Technology conference	Design agenda, develop list of invitees (vendors, groups, etc.)	Materials from last conference and draft update of the feasibility study	Draft agenda, tentative conference dates, list of attendees and statement of expectation for the conference
8		HOST TECHNOLOGY CONFERENCE	Tentatively October 2011		

Analysis

9	Jan-12	Technology conference	Review and analyze results of technology conference. Prepare position paper on draft feasibility study including gap analysis of what cruise ship industry is currently doing and what can feasibly be done to meet WQS, estimate timeframes for design, construction and installation and economic impacts of transitioning to new technologies and their environmental benefits.	A facilitator, draft #2 of updated feasibility study which takes into account recent technology conference and economic findings.	Comments on Draft #2, position paper outline.
10	Apr-12	Technology conference	Finalize position paper on technology conference outcomes (majority/minority opinions if applicable)	Final feasibility study	Final position paper on feasibility study

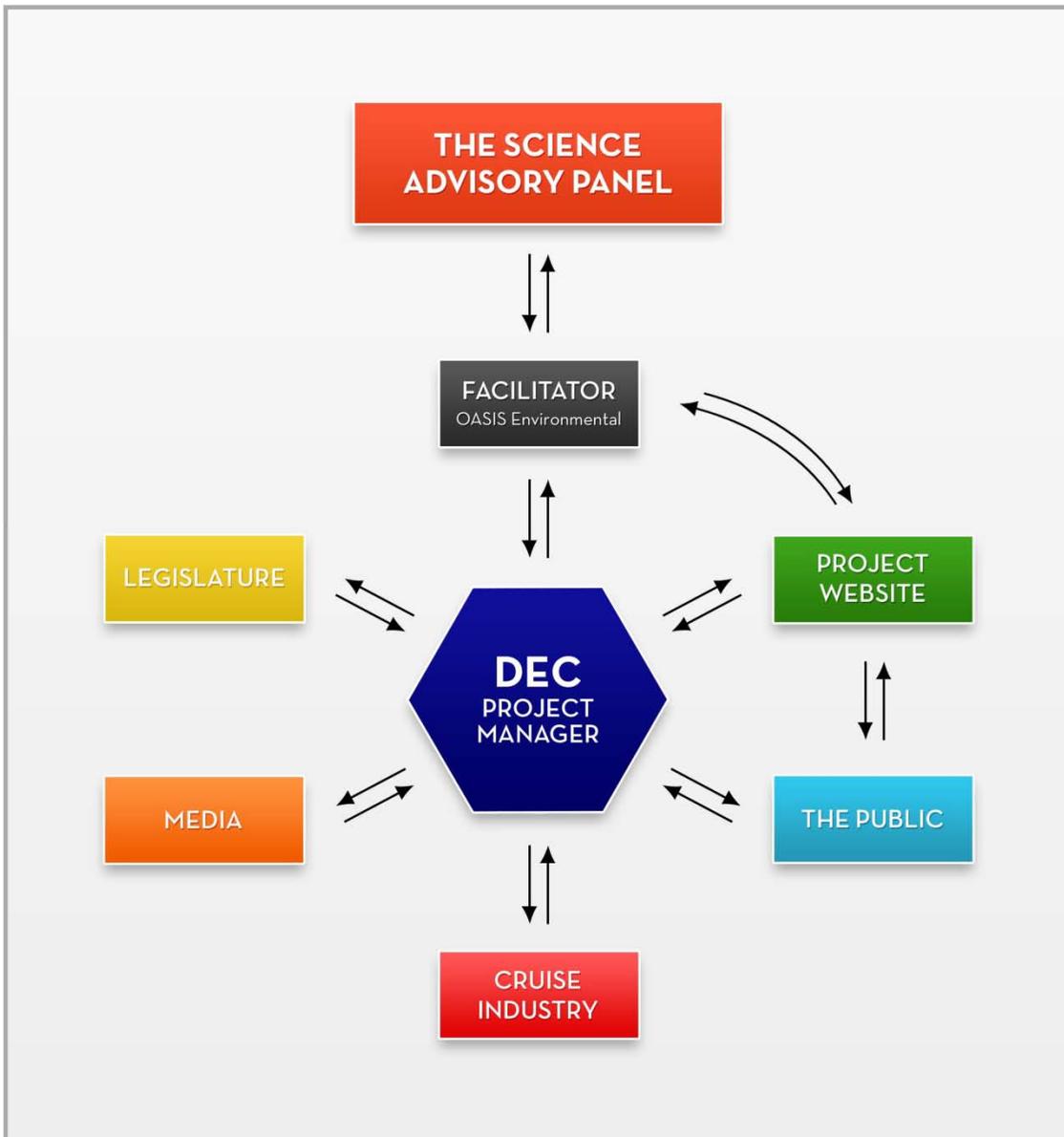
CONTRACTOR PRELIMINARY REPORT OF SCIENCE PANEL EVALUATIONS OF EFFECTIVE TECHNOLOGIES DUE TO DEC 10/1/2012

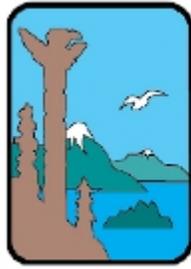
DEC PRELIMINARY REPORT DUE TO LEGISLATURE 1/2013; DETERMINATION OF FUTURE WORK/NEED FOR SCIENCE ADVISORY PANEL



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**CHARTER ADDENDUM 2
Communication Flow Chart**





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CHARTER ADDENDUM 3

SCIENCE ADVISORY PANEL (Panel) MEETING ETIQUETTE AND RULES OF ENGAGEMENT

Panel meetings will begin and end promptly.

Agenda and anticipated schedule will be modified as needed and confirmed at the outset of each meeting in order to provide panel and public the greatest clarity on meeting expectations and opportunities for public input.

Updates to conflicts of interest, if any, will be submitted and announced prior to each meeting.

All cell phones will be turned off prior to the meeting.

The agenda will be followed closely.

Panel members will be expected to participate as equals.

Discussions will avoid placing blame.

The Panel will refrain from disruptive side-bar discussions.

A full, fair, and orderly discussion by all members, on all issues that concern the Panel, will be encouraged.

The Panel will maintain order by discussing one subject at a time, and keeping the remarks of each speaker germane to the pending question.

Panelists will be expected to express disagreements or concerns respectfully. The Panel will adhere to a zero tolerance policy regarding any personal aggression or criticism at the table.

Should discussions on divisive or challenging issues benefit from additional process management, the panel can elect to adopt Robert's Rules of Order.

Opportunities for public input during panel meetings will be structured and time managed by facilitators.



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CHARTER ADDENDUM 4

CRUISE SHIP WASTEWATER SCIENCE ADVISORY PANEL MEMBERSHIP AND BIOGRAPHIES

As a result of a new law (HB 134) that was passed in 2009, the Alaska Department of Environmental Conservation (DEC) is establishing a science advisory panel which will evaluate the most technologically effective and economically feasible wastewater treatment options for cruise ships. Nine of the eleven members have been named. We anticipate filling the last two seats soon. This document will be updated at that time.

Mark Buggins: An environmental superintendent of a coastal Alaska city for over 20 years, Mr. Buggins manages and supervises operations and maintenance of municipal water and wastewater utilities for an isolated island community of 8,800. He is responsible for applying for NPDES wastewater permits, reporting and compliance, as well as upgrades to the wastewater treatment plant. He is certified by the State in Water and Wastewater treatment. Mr. Buggins will fill the legislatively mandated coastal community domestic wastewater management seat on the Panel.

Kenneth J. Fisher, P.E.: A U.S. Public Health Service Engineer Officer who serves as the Senior Representative to the State of Alaska with the Environmental Protection Agency's, Alaska Operations Office, Captain Fisher brings a broad federal, state, tribal, and international background with 26 years of professional engineering, national program management, and senior legislative experience. His diverse work experiences have taken him from Michigan to Africa, throughout Alaska, Arizona, California, Nevada, Washington D.C., and now back to Alaska. He has worked within both the legislative and executive branches of government.

Reinaldo A. González, Ph.D.: An environmental engineer with more than 30 years experience managing water and wastewater projects, Dr. González was part of the team that investigated technologies that are able to meet Alaska water quality standards at land-based facilities and potential ways of adapting these technologies to cruise ships. He presented his findings at the DEC sponsored technology workshop that was held on February 18, 2009.

Juha Kiukas: As managing director for a firm specializing in Marine Environmental Consulting to wastewater treatment system suppliers and cargo, ferries, and cruise ships operators, Mr. Kiukas has experience with research and development of

advanced wastewater treatment systems. He is familiar with conventional and innovative shipboard and land-based wastewater treatment technologies.

Lincoln Loehr: An oceanographer employed in the law firm of Stoel Rives LLP in Seattle as an Environmental Compliance Analyst, his specialty is permitting of municipal and industrial wastewater discharges, and reviewing and commenting on regulatory developments related to such permitting. Mr. Loehr also served on the first Alaska Cruise Ship Wastewater Discharges Science Advisory Panel in 2001-2002. Mr. Loehr will fill the legislatively mandated cruise ship industry seat on the Panel.

Steve Reifenstuhel: A fisheries professional serving as executive director for a fisheries conservation alliance, Mr. Reifenstuhel has worked as fleet manager for a large seafood company, operations manager for an aquaculture company, and a fisheries biologist for the U.S. Forest Service. Mr. Reifenstuhel will fill the legislatively mandated commercial fishing industry seat on the Panel.

Michelle Ridgway: A marine ecologist with over 25 years field research experience in Alaskan seas, Ms. Ridgway is the owner of Oceanus Alaska Marine Ecological Services. She co-is the founder of the non-governmental organization (NGO) Alaska Deep Ocean Science Institute. She is a longstanding member of the Alaska Marine Conservation Council and networks with ocean-focused NGO organizations throughout Alaska. Ms. Ridgway will fill the legislatively mandated NGO seat on the Panel.

Bert Sazon: A Senior Marine Inspector in Sector Juneau's Vessel Inspections Division, Mr. Sazon has worked for the U.S. Coast Guard for thirty-plus years, first on active duty, then as a civilian. He served in the engineering departments of several Coast Guard cutters before transitioning into Marine Inspections. For the last eight years, he has served as an expert in both Federal and International regulations governing ships' wastewater discharge. He oversees wastewater compliance for the 30+ large cruise ships that visit Southeast Alaska annually.

Silke Schiewer, Ph.D.: An associate professor in the Department of Civil and Environmental Engineering at the University of Alaska Fairbanks, Dr. Schiewer holds a doctorate in bio-environmental chemical engineering from McGill University. Her current research centers on membrane processes for water and wastewater treatment, bioremediation of contaminated soils, and biosorption of heavy metals.

Simon Véronneau, Ph.D.: An assistant professor of operations management at Quinnipiac University and an associate researcher at an inter-university research center specializing in transportation management, Dr. Véronneau is a noted researcher on the cruise ship business. He holds a doctorate in operations management and a Chief Mate Foreign Going license. He has practical experience as a senior officer onboard cruise ships, which includes sailings in Alaska. He is currently

writing three chapters in two books on cruise ship management and economics, as well as pursuing research in transportation management.

Thomas Weigend: A naval architect who is member of the executive board and heads the Sales and Design Department of Meyer Werft, a German cruise ship design and vessel construction company. Mr. Weigend's firm specializes in constructing cruise vessels equipped with advanced wastewater treatment systems.

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