

Alaska Cruise Ship Initiative
Science Advisory Panel for Wastewater
(submitted August 24, 2001)

The Science Advisory Panel was formed to assist the cruise industry and resource protection agencies (ADEC, Coast Guard, EPA) in conducting ecological/health risk assessment of wastewater discharge. The end point of these efforts should be the development of scientifically sound risk management recommendations.

A core group of nine scientists are currently serving on the Panel and meet twice a month by teleconference and occasionally all together at a specific location. The core members, their position titles, and expertise are listed below. Associate members with specific expertise are used to address specific issues, including toxicity testing and dispersion. These associate members are drawn from the universities of Alaska, Hawaii and British Columbia and other organizations as appropriate (Alaska SeaLife Center, US EPA and US NOAA for example).

It is worth noting that with the exception of the contract facilitator, the time and expertise of each panel member is donated. Members do not receive fees or compensation, other than reimbursement for travel as appropriate. North West CruiseShip Association has funded the contract facilitator and the travel expenses for non-governmental panel members.

Since its inception in January 2001, the Science Advisory Panel has completed the following assignments:

- Comment on the Alaska SeaLife Center technical report: *CRUISE SHIP WASTEWATER DISCHARGES INTO ALASKAN COASTAL WATERS*.
- Review of the 2000 Quality Assurance Project Plan (QAPP) and ship-specific monitoring plans to ensure 2001 monitoring efforts will collect the data and information needed for impact analysis or risk assessment.
- Initial review of early 2001-cruise ship wastewater monitoring data. Developed general guidelines and recommendations for review of sampling results, including opinions and observations that assist in placing the discharges in context.
- Authored a paper entitled, *NEAR-FIELD DISPERSION OF WASTEWATER BEHIND A MOVING LARGE CRUISE SHIP*, which estimates the dilution of wastewater discharged from a moving cruise ship. The Panel developed their estimations through review of previous studies, and consultation with marine architects and effluent discharge modelers.
- Conducted a study of opportunity to observe currents and turbulence in the wake of two cruise ships underway in Gastineau Channel near Juneau, Alaska. The study used drogues to follow a parcel of water behind each ship and a fathometer to identify the extent of the water column experiencing turbulence from their passage. The objective of the study was to evaluate how drogues, or fathometer observations, or a combination of the two could be used to identify, follow and describe the parcel of water where effluent discharged from a cruise ship would mix with the ambient water.

- Provided comment, input and a scientific observation for the August 2001 dye dispersion study of cruise ship wastewater discharge. This field study was conducted by US EPA and the cruise industry for several ships underway in near Miami, Florida.

Several of their reports and comments can be reviewed on the ADEC Cruise Ship Initiative web site:

<http://www.state.ak.us/dec/cruise>

The Science Advisory Panel has planned for the following projects and studies in the coming months:

- Using the findings to the Miami dye dispersion study, produce a report on the fate of wastewater bacteria discharged in Alaska waters.
- Develop a database array for the 2000 and 2001 monitoring results (with assistance from a contract database manager) that can be continuously updated and manipulated to determine trends. Once the array is fully developed, review and comment on the monitoring results.
- Provide guidelines for toxicity testing.

Science Advisory Panel Core Members

Marlin Atkinson: Professor of Oceanography, University of Hawaii. Specialty: Nutrient input, physical transport models, remote sensing, and point/non-point pollution.

C-J Beegle-Krause: Oceanographer, National Oceanic and Atmospheric Administration. Specialty: Modeling chemical transport in oceans.

Kenwyn George: Environmental Engineer for Wastewater Discharge for Alaska Department of Environmental Conservation. Specialty: Dispersion modeling, fate and effects of wastewater discharge.

Kenneth Hall: Professor, University of British Columbia (Department of Civil Engineering and Institute for Resources and Environment). Specialty: Water quality, water pollution (non-point source, impact analysis).

Lincoln Loehr: Environmental analyst for a law firm. Specialty: Dispersion models and mixing zones, municipal wastewater permitting.

Charles McGee: Laboratory Supervisor, Orange County (CA) Sanitation District. Specialty: Microbiology, wastewater treatment.

Alan Mearns: Senior Staff Scientist, Hazardous Materials Response Division, National Oceanic and Atmospheric Administration. Specialty: Marine ecology, benefits and consequences of waste treatment technologies.

Michael S. Stekoll: Professor of Chemistry and Biochemistry, University of Alaska.
Specialty: Ocean pollution, shoreline impacts of pollution.

Michael Watson: Senior toxicologist for US Environmental Protection Agency, Region 10. Specialty: Marine ecology, toxicology.

Dave Eley: Consultant for the Alaska Cruise Ship Initiative, Secretary and Facilitator for the Science Panel. Specialty: Industrial toxicology and environmental health, waterways management, marine environmental protection.