

**U.S. Senate Committee on Commerce, Science, and Transportation
Subcommittee on Fisheries and Coast Guard**

**Field Hearing on Oil Pollution from Vessels
Port of Seattle Commission Chambers
August 1, 2005
Senator Maria Cantwell, presiding**

**Testimony of Professor Thomas M. Leschine, School of Marine Affairs, University
of Washington (Revised 7/31/05)**

EXPANDED REMARKS

My name is Tom Leschine. I am Professor of Marine Affairs at the University of Washington where I have been since 1983. I became Director of UW's School of Marine Affairs in 2003. My academic training is in mathematics, and my research career has been in ocean policy studies with an emphasis on environmental decision making, especially with regard to pollution policy and management. A considerable portion of my work has emphasized the conduct and application of risk assessment studies in support of public policy decisions affecting the environment. I'm a long-time member of the Society for Risk Analysis.

Oil spill prevention, preparedness and response have been among my academic pursuits since the late 1980s, when I received a grant from the Washington State Legislature to provide research support to the Department of Ecology in the development of more effective approaches to oil spill damage assessment. The resulting Washington Oil Spill Compensation Schedule, adopted by the state legislature in 1989, has greatly facilitated Ecology's ability to assure the public is adequately compensated for damage to public resources caused by oil spills. In the early 1990s I served as Historian for the U.S. Coast Guard, leading the team that prepared the *Federal On Scene Coordinator's Report* for the *Exxon Valdez* oil spill. I served as a Commissioner of Maritime Pilotage in the State for seven years during the 1990s, and currently I'm a member of the Scientific Advisory Board of the Coastal Response Restoration Center (CRRC). The CRRC is a joint center of NOAA's Office of Response and Restoration and the University of New Hampshire whose mission is to support research aimed at improving oil spill preparedness, response and restoration capabilities through a competitive grants program. I've also served on numerous National Research Council Committees, one of which examined the quality of risk assessments being conducted to identify effective risk reduction measures for Prince William Sound oil transport, in the wake of the *Exxon Valdez* spill.

I am honored to be invited to testify at this field hearing on vessel-source oil pollution being held by the U.S. Senate Committee on Commerce, Science and Transportation's Subcommittee on Fisheries and Coast Guard. I wish to address four points in my testimony. These points are summarized in bulleted paragraphs below.

- Significant improvements have been made in the safety of oil transport since the *Exxon Valdez* spill, both nationally and in Washington State.
 - Oil spill risk will never be reduced to zero however, and additional improvements in the total system that deals with oil spill prevention, preparedness and response for Washington waters remain necessary. Reliance on the private sector for provision of response resources—the current approach—is inherently problematic due to the necessity of maintaining profitability.
 - The recommendation of the June 2005 report by The Glostien Associates (*Oil Spill Response Vessel Capabilities in Washington*) to increase reliance of fishing vessels and other vessels of opportunity offers an innovative way to address this problem, though non-specialized vessels may not prove equally useful or available in all circumstances, suggesting the need for additional specialized assets as well.

- Social conflict is inherent in the arena of oil spill prevention, preparedness and response. Historically little has been done to address this problem directly however, despite the high costs it can impose on efforts to deal with spills and safety improvements.
 - The arenas in which oil spill safety is deliberated have been overly dominated by government and industry, with the public voice absent or weak, and this has been true in Washington State.
 - The public is vulnerable to “hindsight bias” a psychological heuristic that colors public reactions when the fact of an oil spill on the water belies earlier assurances by experts, public officials and industry representatives that everything was under control.
 - Studies suggest that the Prince William Sound Regional Citizens Advisory Council is an effective model for citizen participation (G. Busenberg, Innovation, learning and policy evolution in hazardous systems, *American Behavioral Scientist* **44**(4) 679, 2000.). Legislation signed by Governor Gregoire in May creating an oil spill advisory council (ESSB 5432, Chapt. 304, Laws of 2005) could produce a similar body for Washington, a major advance in my view. Time, sufficient resources and commitment by all parties to negotiated agreement will be necessary for the new council to work effectively.

- The sources of oil spill risk in Washington waters—particularly in Puget Sound—are numerous and interconnected in difficult-to-understand ways. This seriously complicates the task of finding a few key remedies that convincingly reduce the overall risk of spills. The whole maritime transport and oil-handling system needs to be examined critically for sources of risk and reexamined frequently.
 - Spill risk on the outer coast and Strait of Juan de Fuca is likely dominated by different threats than risk in more inland waters, especially central and southern Puget Sound, where risk is likely most associated with non-tankship traffic and operations—for example, fueling operations. Pleasure

- craft or other non-commercial or non-oil transport vessels can easily emerge as proximate causes of oil spills, or themselves be directly involved in incidents that lead to significant spills. The 1991 *Tenyo Maru* spill resulted from a collision between a Japanese fishing vessel and a Chinese freighter in Canadian waters but close enough to Cape Flaherty to cause considerable environmental damage in its vicinity.
- Much rhetoric over the past several years has suggested the region needs to make ‘either/or’ choices on protection, an unrealistically oversimplified proposition in my view. Resources need to be invested in each aspect of the oil spill risk problem in proportion to the risk each poses, and in ways that effectively address identified risks. The challenge is to know when we’ve done enough or done the right things.
 - Approaches dominated by technical analysis, like that of the major Prince William Sound risk assessment study evaluated by the National Research Council several years ago (*Review of the Prince William Sound, Alaska, Risk Assessment Study*, National Academies Press, 1998), are likely less useful in Puget Sound, meaning more reliance needs to be placed on open, active and transparent deliberation among all parties on the likely sources of risk and what can be done to address them. This reinforces the value of a Prince William Sound RCAC-like model for Washington State in my view.
- Research is vital to understand how better to avoid major oil spills and to deal with their aftermath. But opportunities and funding for research are too frequently tied to oil spill incidents, where social conflict and questions of legal liability make it difficult for the right research to be done or for research to be sustained to the point where real understanding emerges. Moreover, oil spill research has historically been dominated by the natural sciences and engineering, at the expense of understanding important ‘human dimensions’ of oil spill prevention, preparedness and response.
 - Marine ecologists have argued that oil spills set researchers up to ask the wrong questions, focusing on quantifying wildlife injury rather than trying to understand how best to help the areas affected by a spill get on the road to recovery (R. Paine and others, “Trouble on oiled waters” *Annual Review of Ecological Systems*, 27:197-235, 1996). A recent radical new (and much discussed) view on how difficult recovery from a spill like Exxon Valdez can be given the continued presence of hydrocarbon contaminants in sensitive environments—propounded by Charles Peterson of the University of North Carolina and colleagues—emerged only after more than a decade of monitoring results were available for analysis (C.H. Peterson and others, “Long-term ecosystem response to the Exxon Valdez oil spill”, *Science* 302: 2082-2086, 2003).
 - Important ‘human dimensions’ of oil spill prevention, preparedness and response have received much less attention than natural scientific and engineering aspects.

- Human factors that can influence profoundly the real level of safety in risky technologies like marine oil transport are receiving increasing attention, but data is difficult to come by due to the relative rarity of spill events and factors like legal liability. Information on “near misses” is crucial, and the airline industry has been very successful in developing good data, while efforts to do the same thing in the maritime domain seem to remain beset by difficulties.
- Developing accurate and sensitive indicators of ‘what counts for success’ in the performance of preparedness, prevention, and response systems—as judged from the perspective of all interests potentially affected by spills—is an especially important task that has to include researchers from the social sciences to be done properly. A 1999 issue paper of the American Petroleum Institute underscores the importance of this problem (*Judging Oil Spill Performance: The Challenge of Competing Perspectives*, API Technical Report IOSC-008, prepared by June Lindstedt-Siva, 1999).
- A potentially useful and innovative model for bolstering research quality and scope is the Coastal Response Research Center (CRRC), a partnership between NOAA’s Office of Response and Restoration in Silver Spring, Md., and the University of New Hampshire. The CRRC operates through a peer-reviewed competitive grants program. It uses its Scientific Advisory Panel—of which I am a member—to make an independent assessment of research needs and to encourage researchers to develop proposals to address under-researched questions.
- The National Sea Grant College Program could, with encouragement, also become an effective conduit of research in these areas, and the practice of the U.S. Coast Guard to select promising junior officers for graduate training in schools like the School of Marine Affairs has also been effective in developing fresh perspectives on problems of preparedness, prevention and response that then get carried back to the parent organization. A recent student of mine at the School of Marine Affairs, USCG Lt. Cdr. Drew Tucci, devoted his master’s thesis to developing understanding of impediments to evaluating oil spill response readiness, and his work proved so useful that the Coast Guard tasked him with the further development and implementation of his own recommended approach to evaluating response readiness upon his assignment to Coast Guard headquarters following graduation.

As a final thought, opportunities for learning about the nature of risk and what to do about it, as well as for learning how best to cope with the environmental and social costs incurred as a result of a major oil spill should one occur, are essential. The kind of learning I’m talking about includes robust organizational design such as the Prince William Sound RCAC seems to represent as well as research and development. The key is to take advantages of opportunities to learn *outside* the situation of being in the midst of a major oil spill. I alluded earlier to the work of Prof. George Busenberg of the University of Colorado at Denver in reference to the PWS RCAC. To paraphrase what he said in his article, do you want to try to *learn from disaster* with a major oil spill

already on your doorstep and with passions running high and the likelihood of genuine learning low, or would you rather *learn by design*, through considered and ongoing deliberation among all parties potentially affected by a major oil spill should one occur, in an environment defined by the *absence* of a spill disaster and with the prospects of useful learning much more likely to be high?

I sincerely thank the distinguished Senator and her staff for this opportunity to present my thoughts on ways to address the risks that oil spills from vessels pose to Washington waters, and ways to reduce those risks, at this hearing.

Prepared and presented by

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