WASHINGTON STATE DEPARTMENT OF
Natural Resources
Doug Sutherland - Commissioner of Public Lands

Overview of 1998 Puget Sound Expedition

1998 Puget Sound Expedition Finds 10 New Non-Native Marine Organisms.

In September 1998, a first-of-its-kind scientific survey of Puget Sound revealed 10 non-native marine species not previously recorded in the area. All together, the expedition of 19 scientists collected and identified 39 non-native species in six days of systematic sampling. These discoveries increase the number of known invasions to at least 52 non-native saltwater and brackish water species in Puget Sound.

The Puget Sound Expedition scientific survey team was jointly organized by representatives from Washington's Department of Natural Resources (WDNR), the University of Washington, and the San Francisco Estuary Institute. Although scientists have regularly gathered information for particular sites, this is the first time taxonomists (scientists who deal with the description, identification, and classification of organisms), with a broad range of expertise systematically gathered information at many sites throughout Puget Sound.

The expedition of volunteer marine experts primarily surveyed the organisms on floating docks. The survey focused on invertebrate and algal species, common organisms that are significant to marine food weds and ecosystem health. Non-native species have been known to profoundly affect ecosystems, even though the effects of most introductions are not well understood. The expedition completed an important first step by identifying species that are currently present.

Species have been introduced to Puget Sound through shipping, commercial fisheries of various kinds, and other human activities. Once introduced, these species can spread, quite naturally, to other areas. "Out of all the species that are introduced, a few may cause catastrophic changes to the ecosystem and the human economies, said Andy Cohen, a project co-organizer and scientist at the San Francisco Estuary Institute. "For example, an introduced Atlantic shipworm bored its way through the entire maritime infrastructure - wharves, piers and ferry slips in northern San Francisco Bay in two years, causing more than $2 billion dollars in damage." (Fortunately, the shipworm was not found in Puget Sound)

Until the1998 exotics survey, field research in Puget Sound had focused predominantly on specific areas or species of interest such as cordgrass (Spartina) that is invading large areas of Willapa Bay and other coastal estuaries, and European green crabs (Carcinas maemas) that threaten northwest coast shellfish and crabs. Tom Mumford, a scientist with WDNR said, "We tend to focus on exotics that hit you over the head, like Spartina and the green crab, rather than small organisms like amphipods whose effects are initially more subtle but potentially more wide-ranging. Because amphipods are a major food source for salmon and other species, shifts in their populations could dramatically alter the food web."

Fortunately, Puget Sound appears to be dominated by native organisms, unlike San Francisco. But this news does not mean we don't have to worry about Puget Sound," said Claudia Mills, a co-organizer and scientist at the University of Washington. "We need to protect it from more introduction." One of the goals of the expedition was to inform and motivate future scientific and management action. The substantial ecological and economic impacts of biological invasions in aquatic ecosystems have been well documented. However, unless resources are devoted to research into the nature of these invasion and potential solutions, efforts to reduce the rate of biological invasions or mitigate their impacts are likely to be hampered.