FY 2010 RESEARCH PROBLEM STATEMENT

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TITLE (*more info*)

Climate Change Impact on Coastal River Estuaries in Oregon

PROBLEM (Description of need) (*more info*)

U.S. Route 101 and other ODOT highways traverse numerous estuaries along Oregon's coast. These roadways affect, and in turn are affected by, changes in the function of the estuary caused by both the presence of the roadway as well as changes in sea level. Likewise, future climatic changes may also affect the function of both the roadways and the estuaries. A great deal of money and effort continues to be focused on restoring estuaries to their more natural function. To validate present methods, develop improved future methods, and to adapt to changing future conditions it is important to monitor conditions in the estuaries and along the roadways.

PROPOSED RESEARCH, DEVELOPMENT OR TECHNOLOGY TRANSFER ACTIVITY (*more info*)

It is proposed that ODOT monitor the physical processes, habitat, biota, and the roadway features of the Salmon River Estuary to better understand the effects of various restoration efforts as well as sea level rise. The details of what, where, and how to monitor are beyond the scope of this problem statement but conceptually some the likely parameters to monitor are listed here.
Physical parameters: Water temperature, water salinity, tidal inundation, channel profiles
Biological parameters: Vegetation, invertebrates, fish use and movement, fish diets, consumption rate and modeled growth
Roadway parameters: Settlement, culvert condition, culvert flows
The proposed data will targeted to form the foundation for ODOT's efforts to maintain the function of the coastal roadway system and to fulfill our obligation as environmental stewards

BENEFITS (*more info*)

By monitoring conditions and changes in the Salmon River Estuary we will better understand ho the roadway/estuary system functions and how it responds to changes of all kinds (restoration, climate, sea level, construction). With this understanding ODOT will be better able to protect, maintain, improve, and construct these roadways. Our ability to do this while protecting the environment and enhancing ecosystem function will also be improved. Agriculture in the estuaries will benefit as well. In general we will be able to make more informed responses to current and future changes to fulfill our agency mission.

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