

FY 2009 RESEARCH PROBLEM STATEMENT

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TITLE

Investigation of Stream Bed Elevations on the Willamette River at Portland related to Scour at Bridges

PROBLEM (Description of need)

Bed scour can be significant at some bridge crossings of major rivers such as the Willamette River. Other than annual inspections by ODOT personnel, real time information on scour is not available. Recent increases in the knowledge of acoustic technology have allowed the potential monitoring of scour at the Portland Harbor USGS gage where a highway bridge is located. Sometimes design equations for determining scour can be unrealistic. USGS data can be used to compare these scour equation values to real world scour.

PROPOSED RESEARCH, DEVELOPMENT OR TECHNOLOGY TRANSFER ACTIVITY

The USGS has collected real time velocity, and depth information at the Portland Harbor along the Willamette River. The USGS, as part of operating this gaging station, have taken regular cross sections using acoustic Doppler profilers near the highway bridge the past few years. In addition there has been real time backscatter data collected at this site. These backscatter data have not been compared to sediment load data to determine real time scour relations. Once developed these relations could be used to observe scour during floods or during previous floods when these data were collected.

BENEFITS

The stream velocity, scour depth and sediment relations obtained from this study will provide fundamental hydraulic data to better determine potential bridge scour. These data can provide a historic knowledge, real time knowledge and a realistic value for scour at this highway stream crossing.

CONTACT PERSON:

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