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DMMP CLARIFICATION PAPER
SMS DRAFT TECHNICAL INFORMATION MEMORANDUM

CLARIFICATION ON THE USE OF THE AMPHIPOD, EOHAUSTORIUS ESTUARIUS, RELATIVE TO GRAIN SIZE AND SALINITY

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INTRODUCTION

In 1993 the Dredged Material Management Program (DMMP) agencies clarified which species were suitable for conducting the 10-day amphipod test, to address the apparent grain size sensitivity of *Rhepoxynius abronius* to fine grained (>60% fines) sediments (DeWitt, et. al., 1988; 1993 Annual Review Meeting: Species substitution for the 10-day amphipod bioassay). The initial guidance implemented at that time, clarified the use of *Eohaustorius estuarius* in DMMP bioassays as a substitute species when interstitial salinities are lower than 25 ppt and percent fines are greater than 60 percent (clay + silt). In the past two to three years, E. estuarius has been used routinely and successfully to test dredged material.

PROBLEM IDENTIFICATION

Eohaustorius estuarius is a common amphipod species in Pacific Coast estuaries, and is distributed along the North American Pacific coast from Central California to British Columbia, Canada. It is an infaunal burrower, which brings it into almost constant contact with sediment particulates and interstitial water. *Eohaustorius estuarius* is commonly found in salinities ranging from 0 to >30 parts per thousand (ppt) and is typically collected from sandy sediments, but exhibits a wide tolerance to sediments ranging from 0.6% to 100% sand (EPA 600/R-94/025). *E. estuarius* was found by DeWitt, et. al., (1989) to exhibit a mean survival of 92.4% in sediments with $\geq$ 90% silt-clay content and 96.7% survival in coarser sediments. This study also found $\geq$ 95% survival of *E. estuarius* in tested salinities ranging from 2 to 28 ppt. Recent (August 1999) DMMP experience indicates that this species may be sensitive to relatively high clay contents (e.g., > 20%), and increased mortalities have been observed in non-chemically contaminated sediments with clay contents between 20 - 45 percent.

Based on the DeWitt, et. al. (1989) and EPA results, the restriction in use of *E. estuarius* to fine grained sediments (>60% fines) when salinities are less than 25 ppt as stipulated in the 1993 clarification paper is not warranted. The purpose of this clarification paper is to provide updated guidance on the use of *E. estuarius* relative to grain size and salinity.

PROPOSED CLARIFICATION

The DMMP and SMS propose to allow the use of *Eohaustorius estuarius* for sediment toxicity testing over grain size distributions ranging from 100 % sand to 0.6% sand (i.e., 0% to 99.4 % silt-clay, provided clay fraction < 20 %) and interstitial salinities ranging from 2 ppt to 28 ppt. In the event sediment clay contents exceed 20 %, testing with *Ampelisca abdita* is recommended.

REFERENCES

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