

## SUBTIDAL STUDY NUMBER 2A

Study Title: Injury to Shallow Benthic Communities

Lead Agency:ADF&G

### PROJECT JUSTIFICATION

Benthic organisms associated with subtidal sediments generally represent good monitors for measuring effects of oil fluxing to the bottom. These organisms typically remain close to or at the site of larval settlement and, consequently, represent good monitoring organisms. The composition of the marine benthic fauna has been successfully used at various locations throughout the industrial world as a basis for measuring effects of pollutants on the bottom.

Shallow (<20 m) subtidal studies were initiated in Prince William Sound in the fall of 1989, and continued during the summers of 1990 and 1991. Thus far, the 1989-90 sampling effort has demonstrated the presence of oil (observed as sheens) and/or injury to marine plants, invertebrates, and fishes in sill fjord, eelgrass (Zostera) and Laminaria/Agarum bay habitats (Jewett et al., 1992).

Deep (>20 m) benthos studies were initiated in the Prince William Sound in July 1990. Six of the deep benthos sites sampled in 1990 were adjacent to eelgrass sites sampled by the shallow benthic program. Preliminary results from the deep benthos study indicated significant differences for infauna within oiled embayments in comparison with unoiled embayments.

### OBJECTIVES

Determine the temporal and spatial effects of the Exxon Valdez oil spill on the infaunal invertebrate communities within eelgrass embayments. These objectives will also be attempted on communities within Laminaria bays, on a "time available basis only" at no additional cost.

### METHODS

The final phase of this project will concentrate on processing samples, analyses, and reporting on the shallow subtidal communities that were sampled in the Prince William Sound eelgrass (Zostera) habitat in 1991. This habitat, as well as Laminaria bays, was chosen because of relative ecological importance, history of prior injury, and on proportion of total habitat in the

oiled Prince William Sound area. Six of the sites within the eelgrass habitat are also the deep benthos sites. All studies were conducted at oiled sites (selected at random when possible) and control sites that are matched to the oiled sites with regard to geomorphology, degree of freshwater input, substrate type, and general circulation and wave exposure regimes.

Other areas (Kenai and Kodiak regions) were excluded because it is anticipated that effects were greatest within Prince William Sound and because of logistics of sampling in those other regions.

BUDGET (\$K)

|                        |            |            |
|------------------------|------------|------------|
| Salaries\$             | 7.1        |            |
| Travel                 | 0.0        |            |
| Contractual            | 95.0       |            |
| Commodities            | 0.0        |            |
| Equipment              | <u>0.0</u> |            |
| Subtotal\$             | 102.1      |            |
| General Administration |            | <u>7.7</u> |
| Total\$                | 109.8      |            |