

FISH/SHELLFISH STUDY NUMBER 4B

Study Title: Impact of Oil Spill on Juvenile Pink and Chum Salmon and Their Prey in Critical Nearshore Habitats

Lead Agency: NOAA

Cooperating Agency: ADF&G

PROJECT JUSTIFICATION

Preliminary results from this study have documented effects of the Exxon Valdez oil spill to juvenile pink salmon, including exposure and hydrocarbon body-burden, mixed-function oxidase (MFO) induction, and reduced growth in oiled areas. The hydrocarbon profiles in contaminated pink salmon indicate that ingestion of oil, either directly or through contaminated prey, was the route of contamination. Density of juveniles, abundance of prey, and temperatures in the areas sampled do not explain the differences in growth observed. Field studies in 1989 and 1990 showed that temperatures and abundance of zooplankton prey were not different between oiled and non-oiled areas sampled; littoral epibenthic prey resources tended to be higher in oiled areas; and abundance of juvenile salmon was higher in non-oiled areas. The differences in growth are thus attributed to effects of oil contamination. In support of this conclusion, preliminary analysis of laboratory experiments in 1991 showed that ingestion of whole oil in food can adversely affect growth and survival of juvenile pink salmon.

Many of the results and conclusions from this study regarding effects of oil contamination to juvenile salmon are preliminary and tentative at this time because of incomplete sample and data processing. From the 1989/1990 field collections, there are still outstanding hydrocarbon analyses; incomplete transfer of data on hydrocarbon analyses actually done; outstanding contracts on meiofauna analyses from experimentally oiled sediments, epibenthic crustaceans, MFO's, and pink salmon otoliths. From the 1991 oil-ingestion experiment, growth measures from RNA/DNA assays and otolith increment analysis are incomplete; and no data are yet available for hydrocarbon tissue measures or MFO induction. When these data sets are completed, a final report will be prepared.

	BUDGET (\$K)
Salaries	\$ 50.0
Travel	4.0
Contracts	37.0
Supplies	12.0
Equipment	6.0
Subtotal	<u>\$ 109.0</u>
General Administration	10.4
Total	<u>\$ 119.4</u>