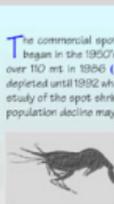




# Are Spot Shrimp Recovering in Prince William Sound a Decade After the Exxon Valdez Oil Spill?



*Pandalus platyceros*, Spot Shrimp



## Introduction

The commercial spot shrimp (*Pandalus platyceros*) increased in Prince William Sound (PWS) began in the 1950's, increased rapidly owing to harvest effort after 1970 and peaked at over 110 mt in 1986 (Fig. 1). After 1986, the harvest decreased rapidly as the stock was depleted until 1992 when the fishery was closed and remains closed. The damage assessment study of the spot shrimp population after the Exxon Valdez oil spill (EVOS) indicated that the population decline may have been coincident with rather than caused by the spill.



The Auke Bay Laboratory and the Valdez Native Tribe are participating in a joint project funded by the EVOS Trustee Council to estimate the abundance of spot shrimp and characterize the structure of populations in western PWS. Our goal is to determine whether the population is recovering from depletion. The project augments current Alaska ADF&G surveys by broadening the geographical coverage and increasing the amount of replication.

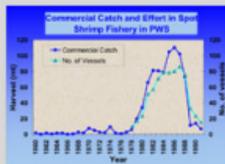


Fig. 1. (After Table 1 of Kinler et al. 1996)

## Objectives

► The objectives in the first year of the study were to:

- 1) Estimate spot shrimp abundance (CPUE) in western PWS.
- 2.) Determine the sex, size composition, and relative number of ovigerous females at the study sites.

## Methods

► Shrimp pots were fished during October 1999 at six sites in western PWS annually surveyed by ADF&G and six new sites in the ADF&G survey area (Fig. 3).

► We weighed the catch and measured the carapace length of all shrimp. Nonovigerous shrimp were subsampled for sexing and ovigerous shrimp were subsampled for fecundity estimates.

Fig. 3. Location of Study Sites

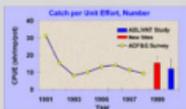
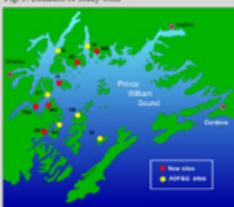


Fig. 2. Annual surveys of spot shrimp abundance from 1989 to 1998 by ADF&G showed a continued decline in CPUE. Our data in 1999 indicated that CPUE may be increasing.

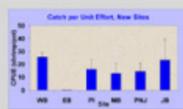
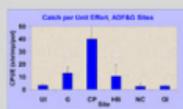


Fig. 4. Catches varied within and between sites. Variability between sites tended to be less at the new sites.

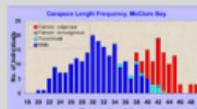
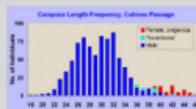


Fig. 5. Percentage of females was low at Culross Passage indicating a young stock. McClure Bay reflected an older stock.

## Results

► Our preliminary mean CPUE estimates including all sites in 1999 exceeded that of ADF&G in 1998 by 48% in number and by 7x in weight of shrimp. However, estimates of the variability in the ADF&G CPUE data are not available at this time. Moreover, more than one year of increasing CPUE estimates would be necessary to indicate progression toward recovery in the spot shrimp population in western PWS (Fig. 2).

► The percentage of female (large) shrimp was relatively high at Golden (G; 22%), McClure Bay (MB; 29%) and Perry Island (PI; 44%), but was low (5%) at such sites as Culross Passage (CP), and Jackpot Bay (JB) and Port Nellie Juan (PN) (Fig. 5).

## Setting Shrimp pots in PWS



## Summary

- Our results in 1999 appear to show higher estimates of spot shrimp CPUE than those of ADF&G in 1998 indicating that recovery may be beginning.
- Although the percentage of females at some sites reflected an aging population, the percentage at other sites indicated a relatively young stock of shrimp.