

## MEMORANDUM

TO: Pacific Fishery Management Council Family  
FROM: Joshua Sladek Nowlis  
SUBJECT: CMC Requested Option for California Market Squid MSY  
DATE: 6 June 2000

### Option

CMC requests that the following option be added to the list of alternatives for a maximum sustainable yield (MSY) for California market squid:

***MSY = 6,000 metric tons in Northern California and 8,000 mt in Southern California***

This option represents a safe level of squid catch, as indicated by the stability of these catch levels over ten-year periods. This option is particularly important to consider because all other alternatives currently under consideration are based on recent landings data, from a time period when landings alternately rose and crashed. Unlike these other alternatives, the levels we propose has proven robust even in the face of El Niño ocean conditions. Thus, it offers stability to the squid fishing industry and to the many animals that rely on squid as a food source.

### Rationale

- To the best of our knowledge, MSY must be based on landings data in the absence of any other biological information about California market squid.
- Landings have increased dramatically over the 1980s and 1990s (Fig. 1).
- Current high landings may contribute to the observed “disappearance” of squid during El Niño conditions. When landings were lower, prior to 1980, squid landings did not drop noticeably during or after two strong El Niño events in 1965-66 and 1972-73 (Fig. 2). These results suggest that squid catches are now biologically constrained, at least during El Niño conditions.
- These biological constraints may have a negative effect on squid, the squid fishery, and the ecosystem. The squid fishery is California’s most valuable, and squid are a food source to a wide variety of fish, sea birds, and marine mammals. During the most recent El Niño, squid were available at such low levels that the industry suffered badly.
- Squid are susceptible to overfishing as indicated by collapsed squid fisheries in eastern Canada and the Falkland Islands. In the U.S. Atlantic, *Loligo* squid are categorized as overfished. Sardines, which share similar life history traits collapsed in California due to a combination of oceanographic cycling and overfishing.

- The Pacific Fishery Management Council and the National Marine Fisheries Service should analyze and consider an option that would set market squid MSY at levels that have been proven historically to be sustainable and not biologically constrained.
- An analysis of landings data indicates that the time period 1963-64 through 1972-73 had the least variability in Northern California landings of any ten-year period on record (Fig. 3). The average landings over this period were 5008.8 metric tons. An analysis of landings data indicates that the time period 1972-73 through 1981-82 had the least variability in Southern California landings of any ten-year period on record (Fig. 3). The average landings during this time period were 7886.8 metric tons. These time periods included two of the seven strongest El Niños on record, but landings did not change following these oceanic conditions. In contrast to current catch levels, landings during these time periods were probably not biologically constrained.
- Rounding these average landings up yields MSY estimates of 6,000 for Northern California and 8,000 for Southern California squid. This option represents a safe level of squid catch, as indicated by the stability of these catch levels over ten-year periods that included El Niño conditions.

CMC intends to expand on these points in a report that we hope to make available prior to the June Council meeting.

Fig. 1

# Market Squid Landings in California

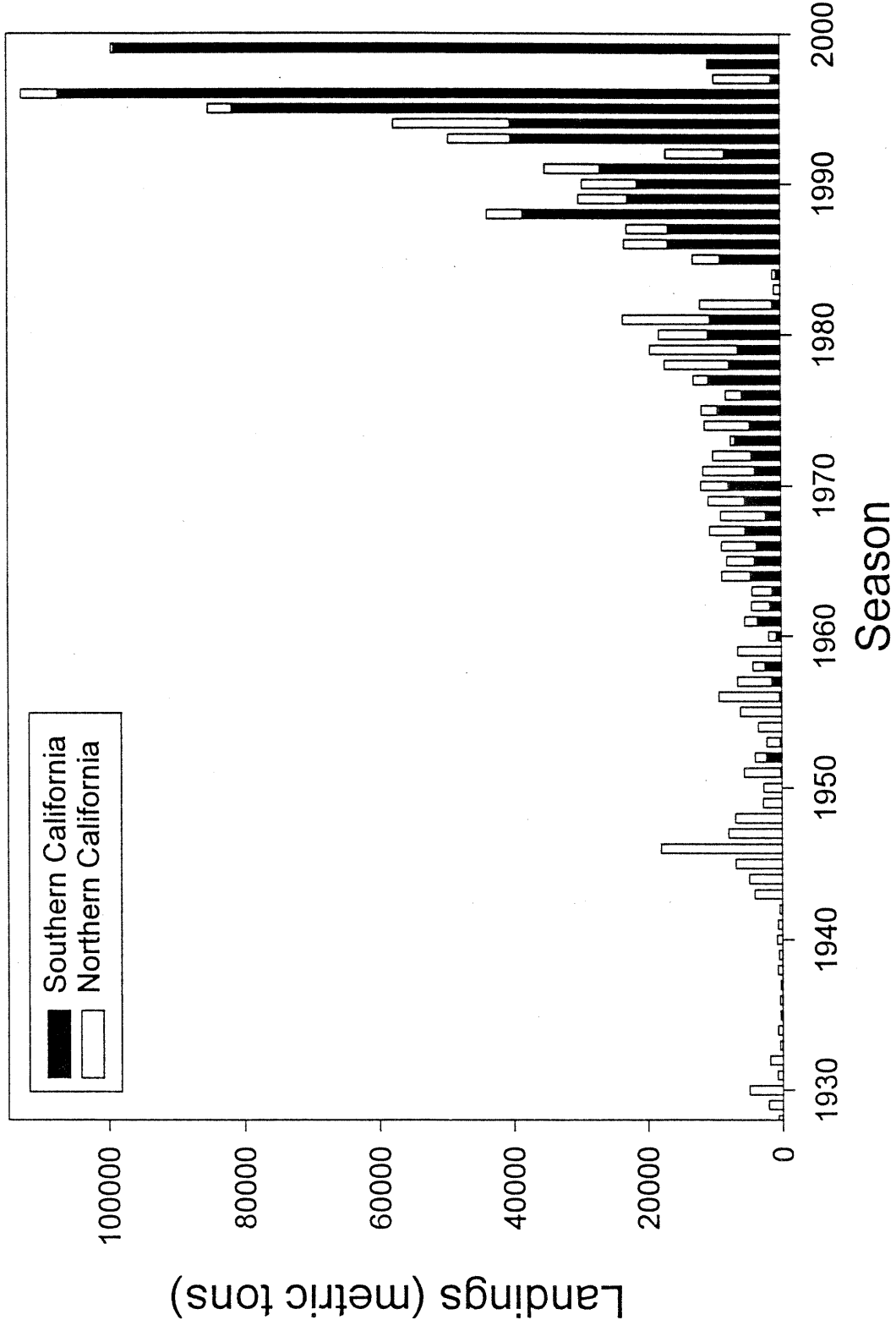


FIG. 2

# Market Squid Landings in California

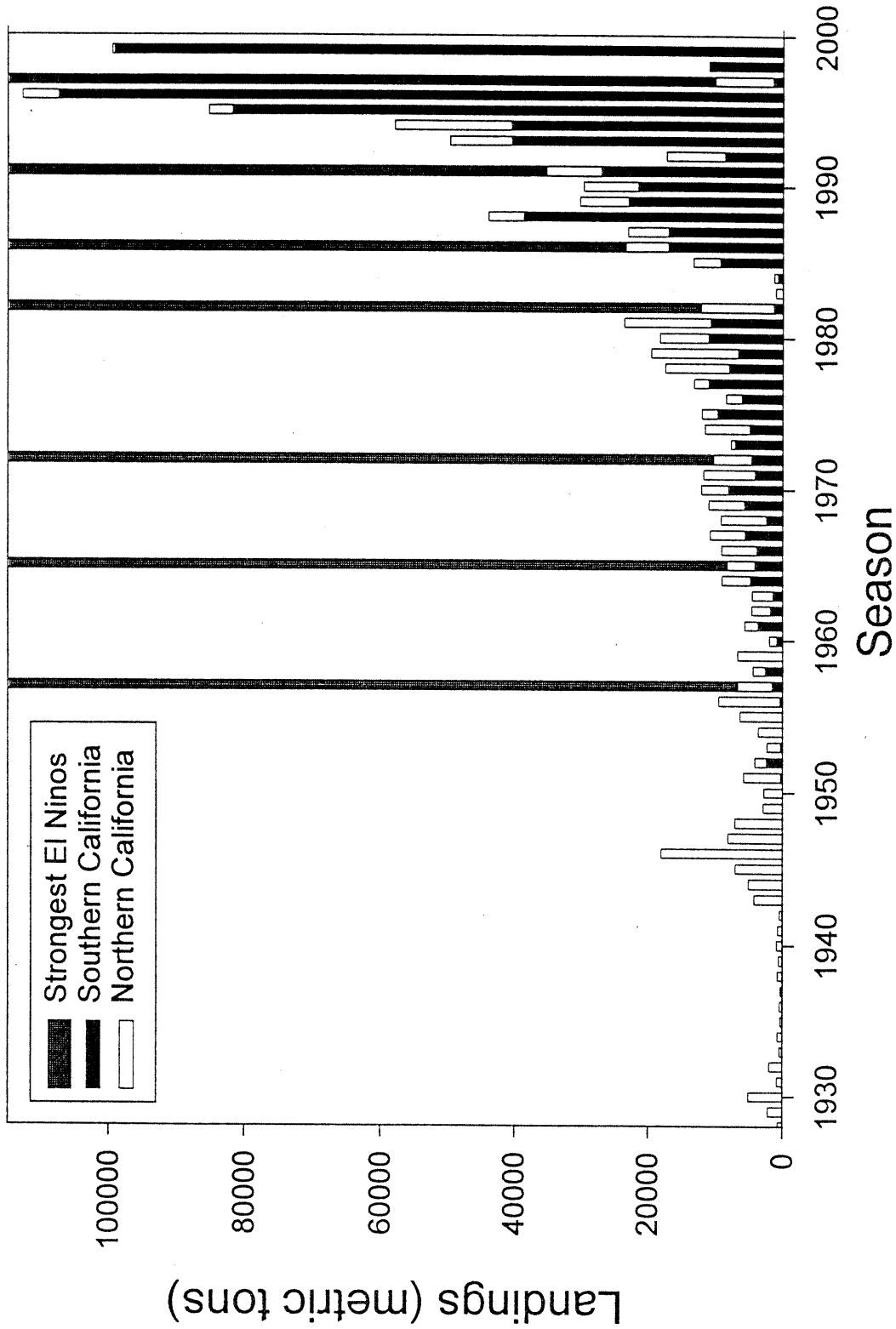


Fig. 3

# Variability in Landings over 10 Preceding Years

