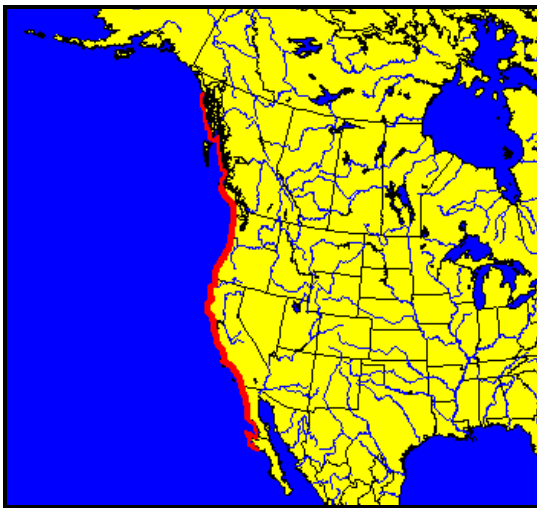


3.3.10 Cabezon *Scorpaenichthys marmoratus*



Distribution map for adult cabezon

Adult Range: From Sitka, Alaska to central Baja California.

Life History: Size: to 99 cm (39 in.); Age at maturity: males - 2 to 3 years, females - 3 to 5 years; Fecundity: 45,000 to 152,000 eggs; Life span: females to 13 years; males to nine.

Adult Habitat: Hard bottom, intertidal to 85 m (280 ft.).

Adult Fishery: Small commercial market, recreational fishery.

Cabezon *Scorpaenichthys marmoratus* belongs to the family Cottidae that comprises 70 genera worldwide (Nelson 1994). Forty-two species of sculpin occur along the California coast (Miller and Lea 1972), primarily in intertidal or shallow subtidal habitats. The cabezon is the largest North American species of marine cottid and occurs over the nearshore continental shelf from depths of 85 m (280 ft) up to the intertidal zone (O'Connell 1953, Matarese et al. 1989). They were collected in all Morro Bay fish studies except for the studies of Horn (1980) (Appendix B this document, Fierstine et al. 1973, Behrens and Sommerville 1982, CDFG unpubl. otter trawl data, 1999-2000 impingement study [Section 4.0]).

Cabezon are a popular sport fish and are also landed commercially (Fitch and Lavenberg 1971, Lamb and Edgell 1986). Females are oviparous and lay demersal, adhesive eggs in rocky crevices or on algae; males guard the egg nest until the pelagic larvae hatch (Burge and Schultz 1973, Matarese et al. 1989). Moser (1996) indicates that cabezon larvae hatch at 3 to 6 mm (0.12 to 0.24 in.).

Larvae appear in the water column around November or December and recruit to tidepools at around 40 mm (1.6 in.) SL in March off Moss Beach, California (R. R. Harry unpubl. data cited in O'Connell 1953), implying a three- to four- month planktonic duration. Females begin to mature in their third year between 25 to 48 cm (10 to 19 in.) SL (Fitch and Lavenberg 1971), and all are mature by year five (Starr et al. 1998). Fecundity for this species has been reported in several sources: 45,000 eggs for a 43 cm (17 in.) SL specimen and 95,000 eggs for a 65 cm (26 in.) SL specimen (Hart 1973); mean fecundity of 48,700 eggs for a 1.4 kg (3 lb) female and 97,600 eggs for a 4.6 kg (10 lb) female (O'Connell 1953, Bane and Bane 1971); and up to 152,000 eggs from a 76 cm (30 in.) SL female (Starr et al. 1998). O'Connell (1953) states that females spawn more than a single batch of eggs per year. Females live to 13 years and males to nine years (O'Connell 1953).

3.3.10.1 Cabezon Results

Peak larval concentration for cabezon collected at the MBPP intake station occurred in January, February, and November 2000 (Figure 3-44), which agrees with reported spawning times (R. R. Harry unpubl. data cited in O'Connell 1953). A representative sample of cabezon larvae had a size range of 3.2 to 6.9 mm (0.13 to 0.27 in.), with an average size of 5.3 mm (0.21 in.) (Figure 3 45). The two peaks in the distribution may represent differences in hatch size between the two spawning seasons. The estimated hatch size for cabezon of 3 to 6 mm (0.12 to 0.24 in.) indicates that the larvae in the entrainment samples were only a few days old.

Based on the expected distribution of adult cabezon in Morro Bay, larval concentrations among all stations should follow the pattern observed during the February and December source water surveys with concentrations decreasing from the outer bay stations (1 and 2) towards the inner bay stations (3 and 4) (Figure 3-46). This pattern was not present during the other surveys. For example, cabezon larval concentration was highest in November at Station 4, the station furthest inside the bay. The concentration of cabezon larvae was highest on flood tides during this survey providing a potential mechanism for their transport into the back bay (Figure 3-47). Otherwise, cabezon concentrations were generally too low to allow for a comparison between ebb and flood tides.

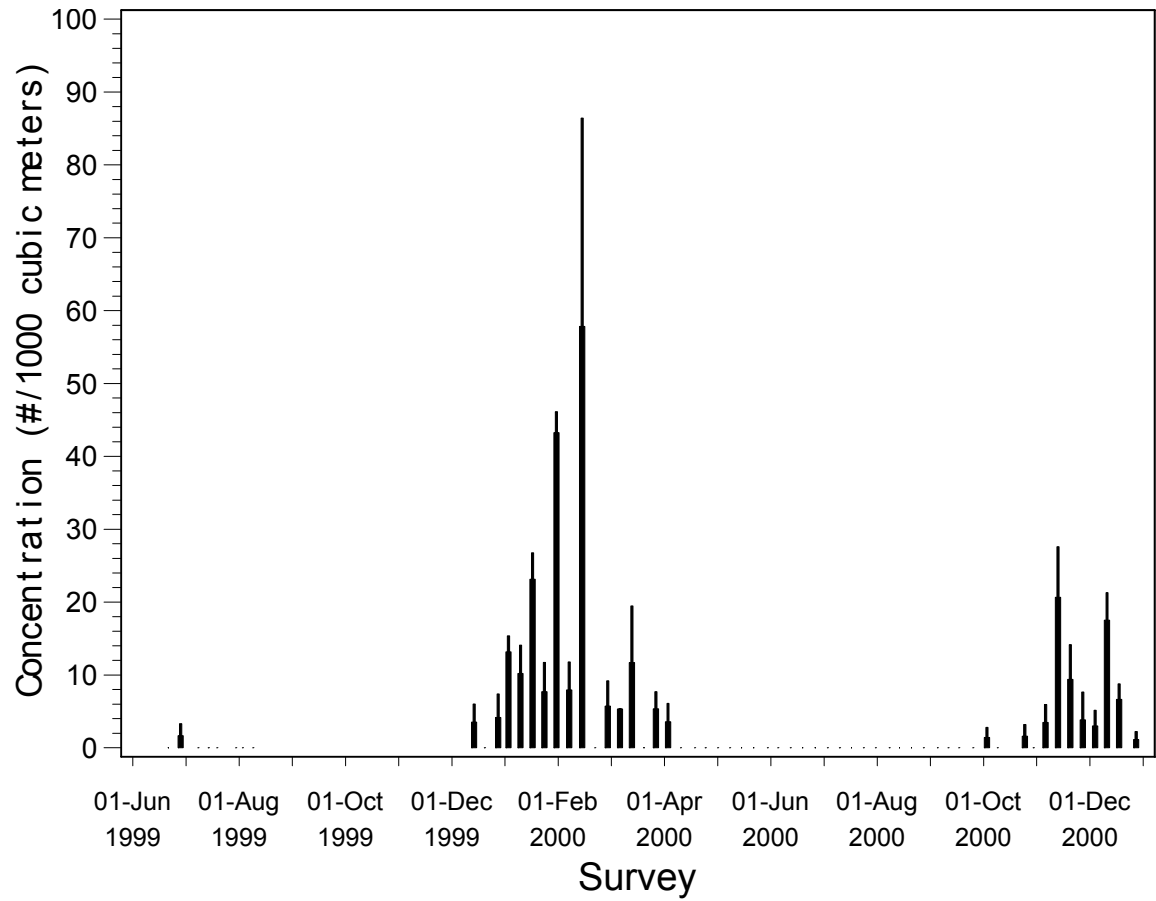


Figure 3-44. Weekly survey mean concentrations of larval cabezon collected at the MBPP intake station with standard error indicated (+1 SE). Weekly surveys were collected from June 21 through August 10, 1999 and from December 14, 1999 through December 29, 2000.

Note: The October 16, 2000 survey was cancelled due to the unavailability of a boat.

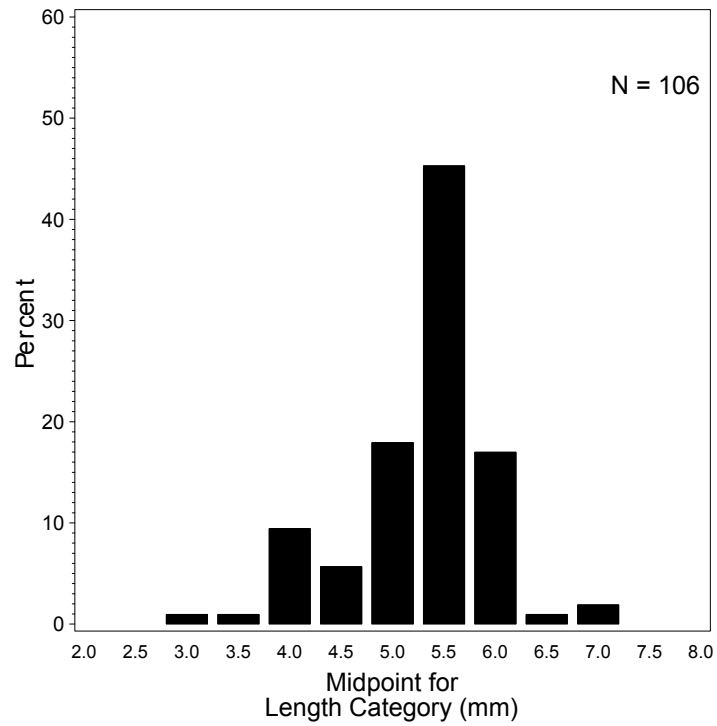


Figure 3-45. Length frequency distribution (mm) for cabezon larvae collected at the MBPP intake station from January – December 2000. The frequency distribution is based on the lengths of a representative sample of approximately 100 larvae.

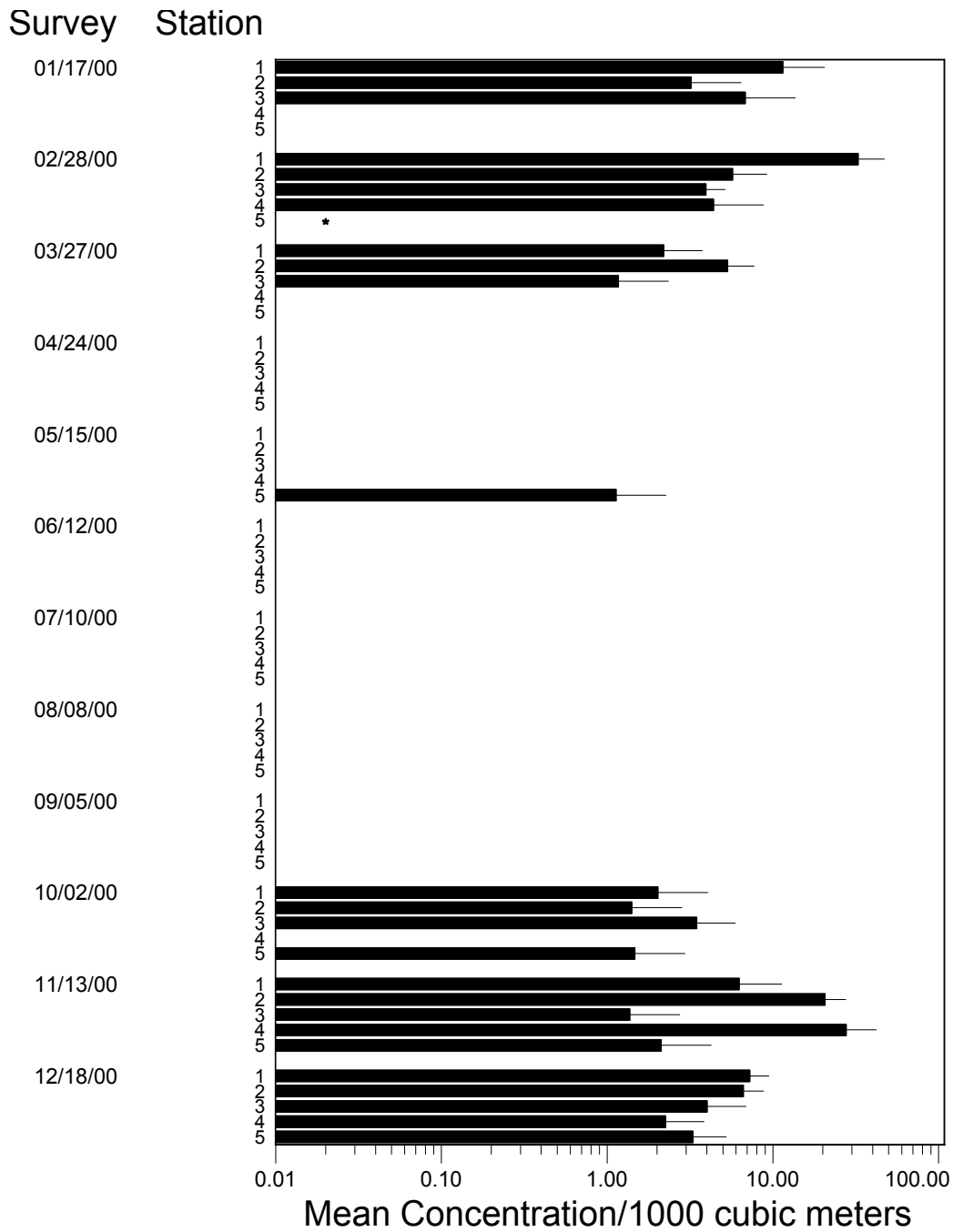


Figure 3-46. Mean larval cabezon concentration in monthly paired surveys at the MBPP intake (Station 2), Morro Bay source water (Stations 1, 3, and 4), and Estero Bay (Station 5) from January – December 2000 with standard error indicated (+1 SE).

Note: During the January 17, 2000 survey, source water stations 1, 3, 4, and 5 were sampled only in daylight hours. Beginning in February 2000 the sampling frequency was increased to cover a 24-hour period.

* Estero Bay Station 5 could not be sampled in February 2000 due to unsafe sea conditions.

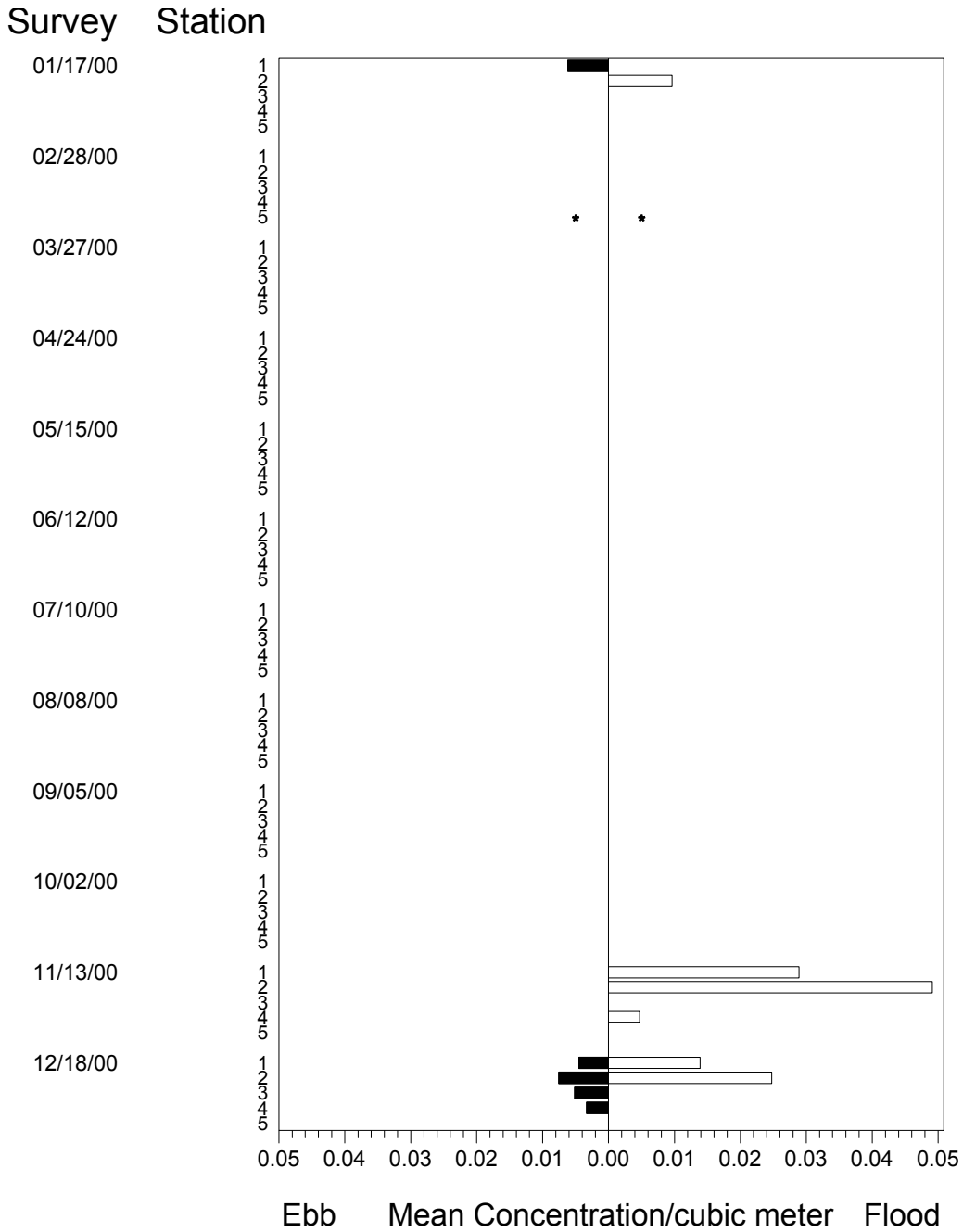


Figure 3-47. Mean concentration of larval cabezon from monthly paired surveys by tidal current (ebb – solid bars; flood – clear bars) and sampling station (Morro Bay stations 1–4 and Estero Bay Station 5) from January – December 2000.

Note: During the January 17, 2000 survey, source water stations 1, 3, 4, and 5 were sampled only in daylight hours. Beginning in February 2000 the sampling frequency was increased to cover a 24-hour period.

*Estero Bay Station 5 could not be sampled in February 2000 due to unsafe sea conditions.

