UNIVERSITY OF CALIFORNIA

SANTA CRUZ

Maternal Behavior and Attendance Patterns of the Steller Sea Lion in California

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by

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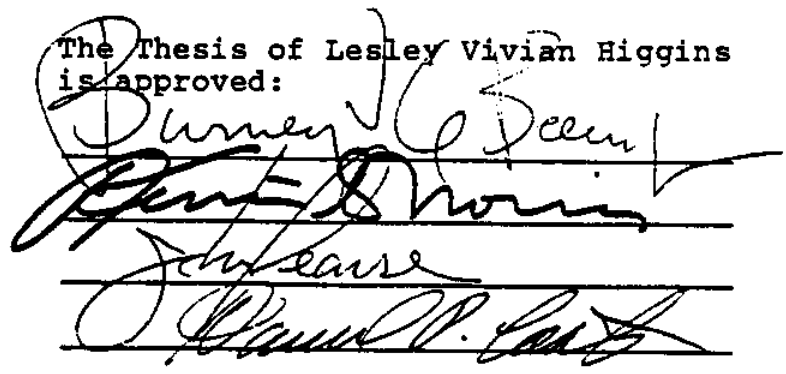
The Thesis of Lesley Vivian Higgins is approved:



(Costa; R/F-92)

INTRODUCTION

Maternal care and lactation in mammals is a strategy by which the female uses her body's resources to rear her young until it can fend for itself. Allocation of maternal resources varies with the ecological setting and the social structure of the species. This study concerns the factors affecting maternal behavior and attendance patterns in the female Steller sea lion (Eumetopias jubatus) and the constraints placed upon her activities by her pup.

The Steller sea lion is the largest Otariid and occupies a range extending from the Pribilof Islands south to San Miguel Island off the coast of California, and in Asian waters on the Kurile Islands, Kamchatka, and the islands of the Okhotsk Sea (Kenyon and Rice, 1961). Like other Otariids, the post-partum female alternates feeding at sea with periods on land nursing her pup. The period of maternal care appears to last about a year (Gentry, 1970; Sandegren, 1970; Calkins and Pitcher, 1982), although observation of the Alaskan population showed that quite a few yearlings, and some two year olds, returned to the rookery still suckling (Sandegren, 1970; Calkins and Pitcher, 1982).

Previous studies of the Steller sea lion (Gentry, 1970; Sandegren, 1970), lacked a comprehensive account of the attendance pattern of the female. Attendance patterns

are difficult to study due to the problems of identifying individuals and the inability of reseachers to work at night. Still, an overall picture of attendance is obtainable when data from many females is combined and inspected for changes over time.

Sexual investment theory suggests that in polygynous sexually dimorphic species, such as the Otariids, the male offspring might be expected to receive a higher proportion of parental resources (Trivers and Willard, 1973; Maynard Smith, 1980). Previous studies of other species of Otariid show that male pups are heavier at birth, grow faster and ingest more milk than female pups (Costa and Gentry, in press; Diodge et al, 1984; Ono et al, 1983; Trillmich, in press). Physiological data is not available for Steller sea lions, but the difference in maternal investment might be expected to manifest itself in the behavior of the animals. This study looks at pup suckling and female attendance to determine if behavioral observations can serve to discern differential investment in male and female pups.

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