

FIGURES

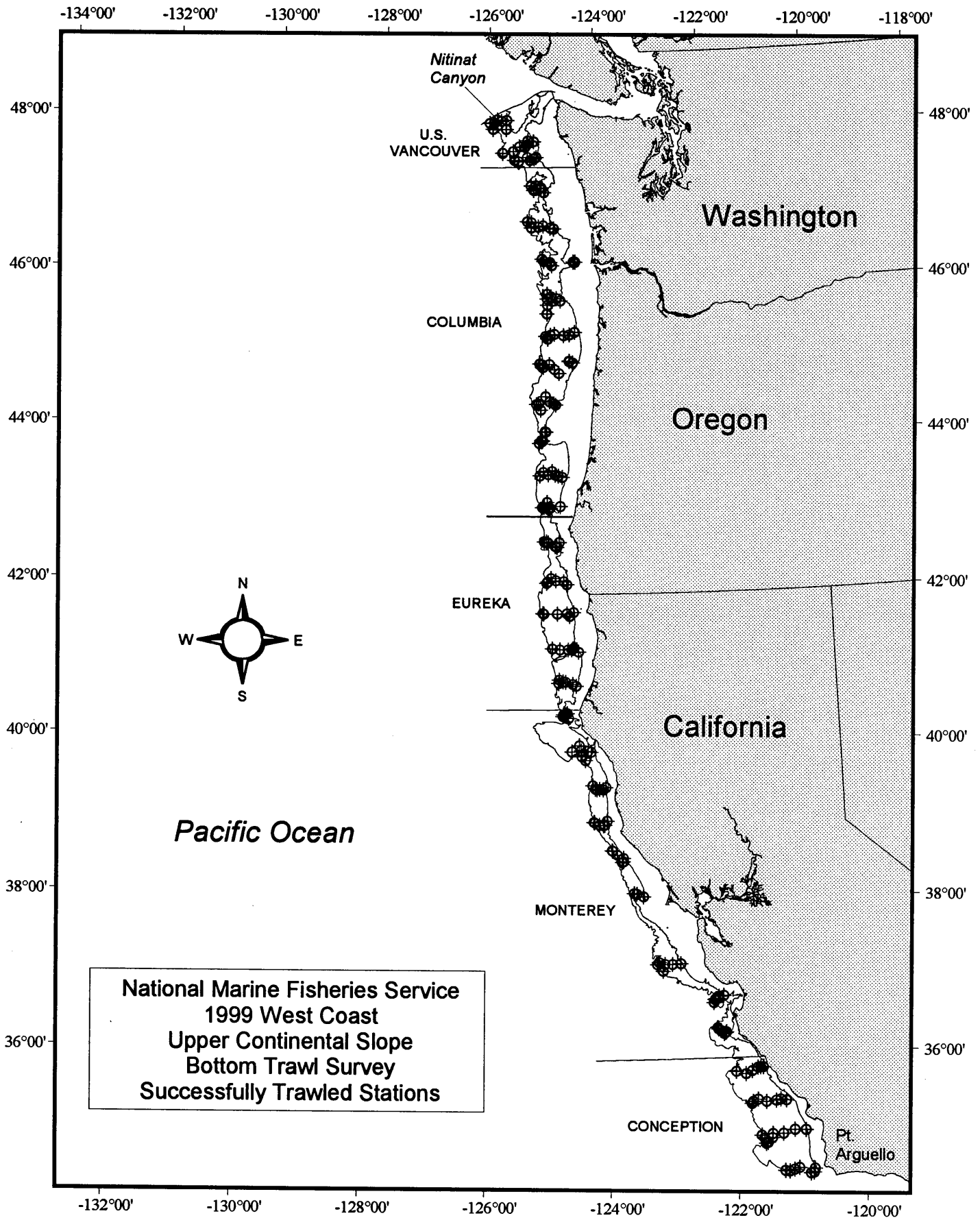


Figure 1.--Map showing the extent of the 1999 West Coast upper continental slope groundfish trawl survey and the location of 199 successful bottom trawl samples.

Poly-Nor'Eastern Trawl

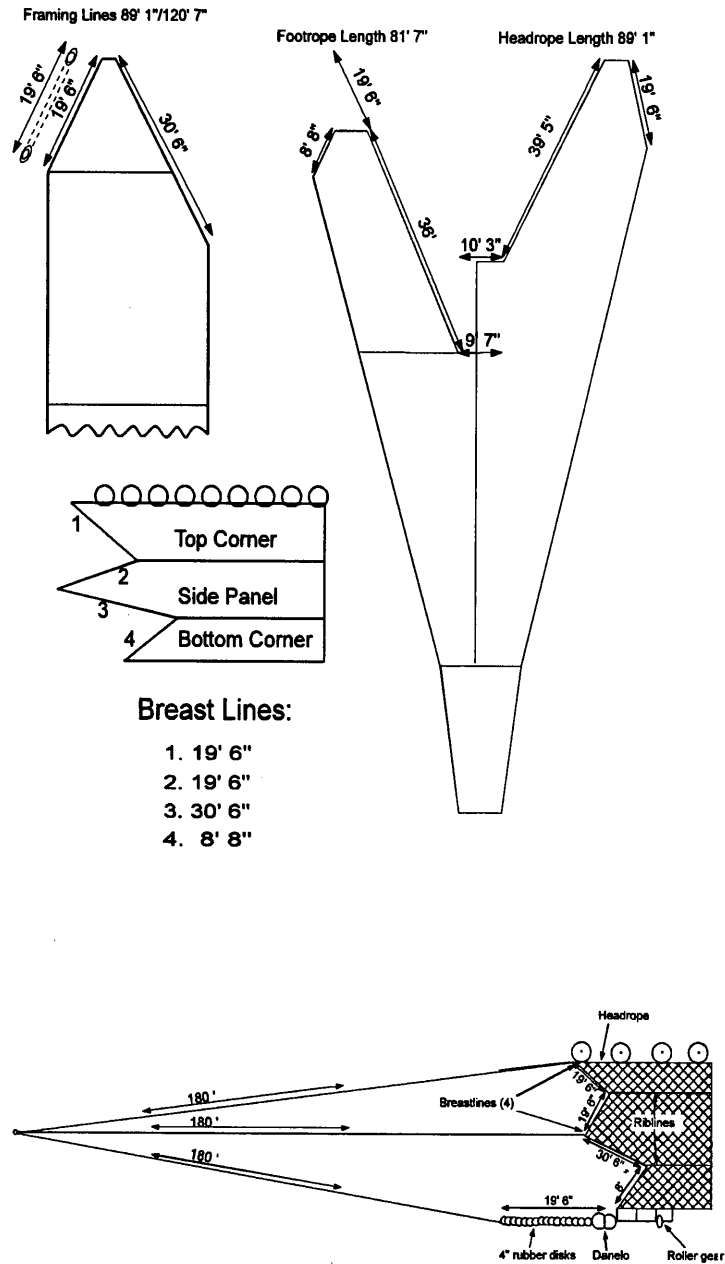
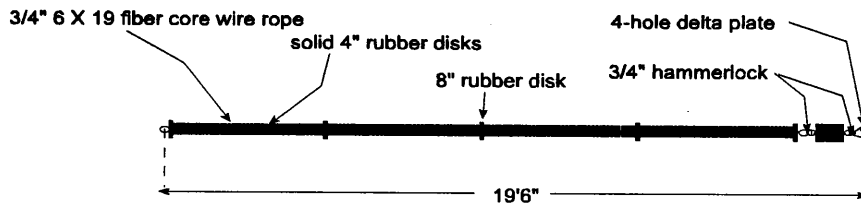


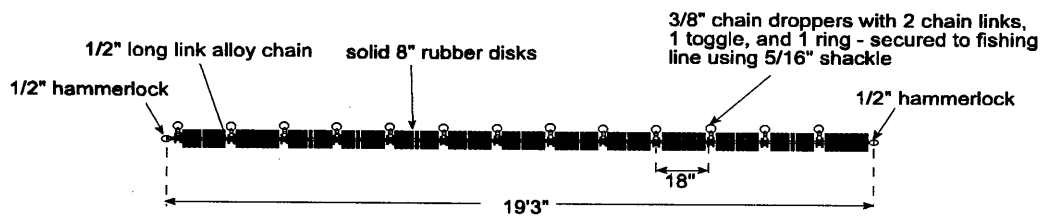
Figure 2.--The standardized Poly-Nor'Eastern trawl used to sample groundfish during the 1999 West Coast upper continental slope bottom trawl survey.

**West Coast Upper
Continental Slope
Bottom Trawl Survey
Ground Gear**

Outboard section



Middle section



Inboard section

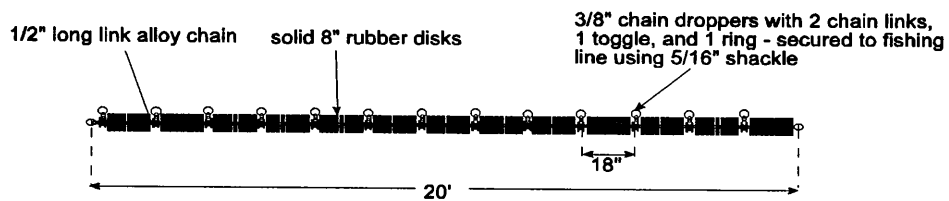


Figure 3.--The groundgear used during the 1999 West Coast upper continental slope bottom trawl survey.

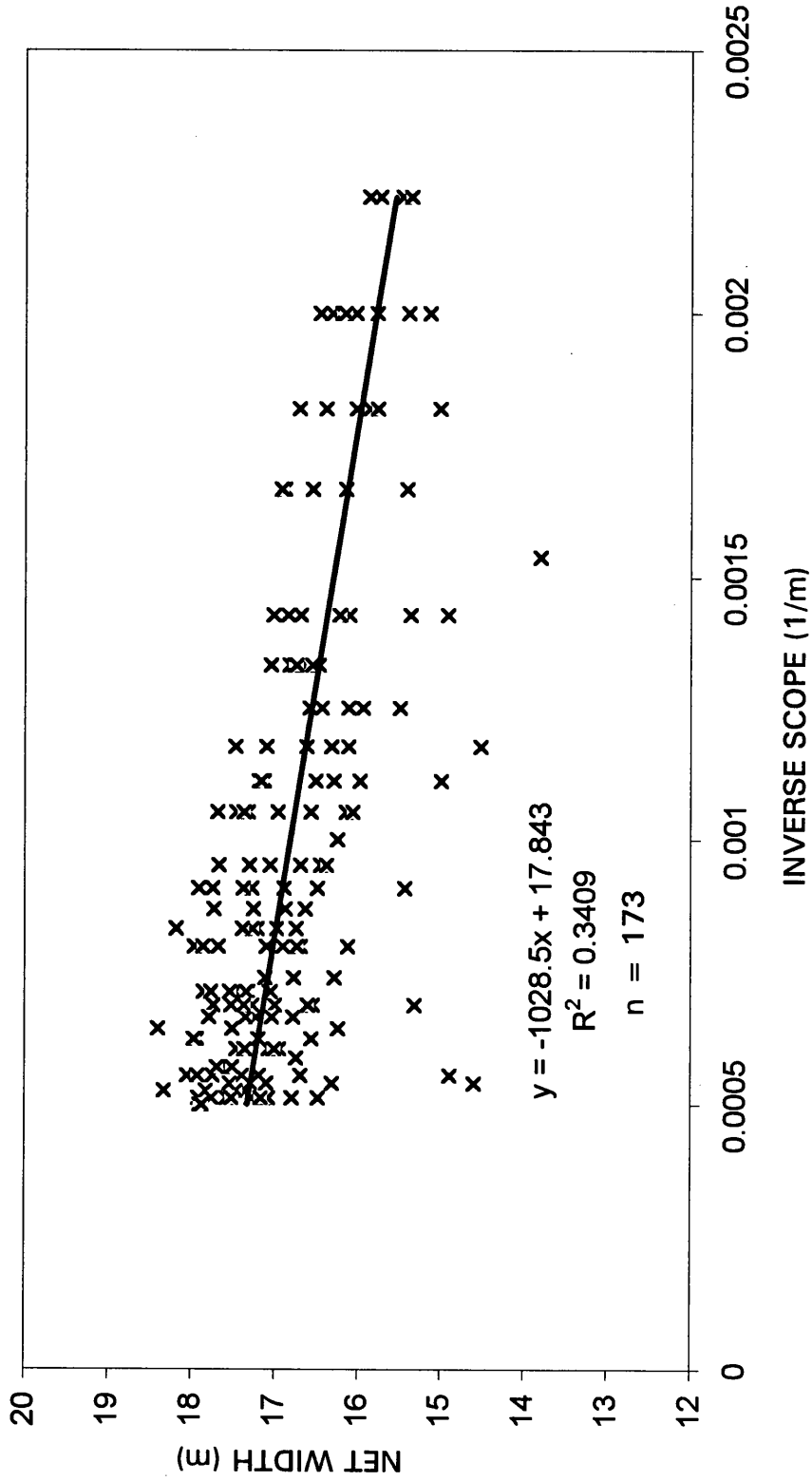


Figure 4.--Mean net widths for each tow during the 1999 West Coast upper continental slope bottom trawl survey plotted against inverse scope.

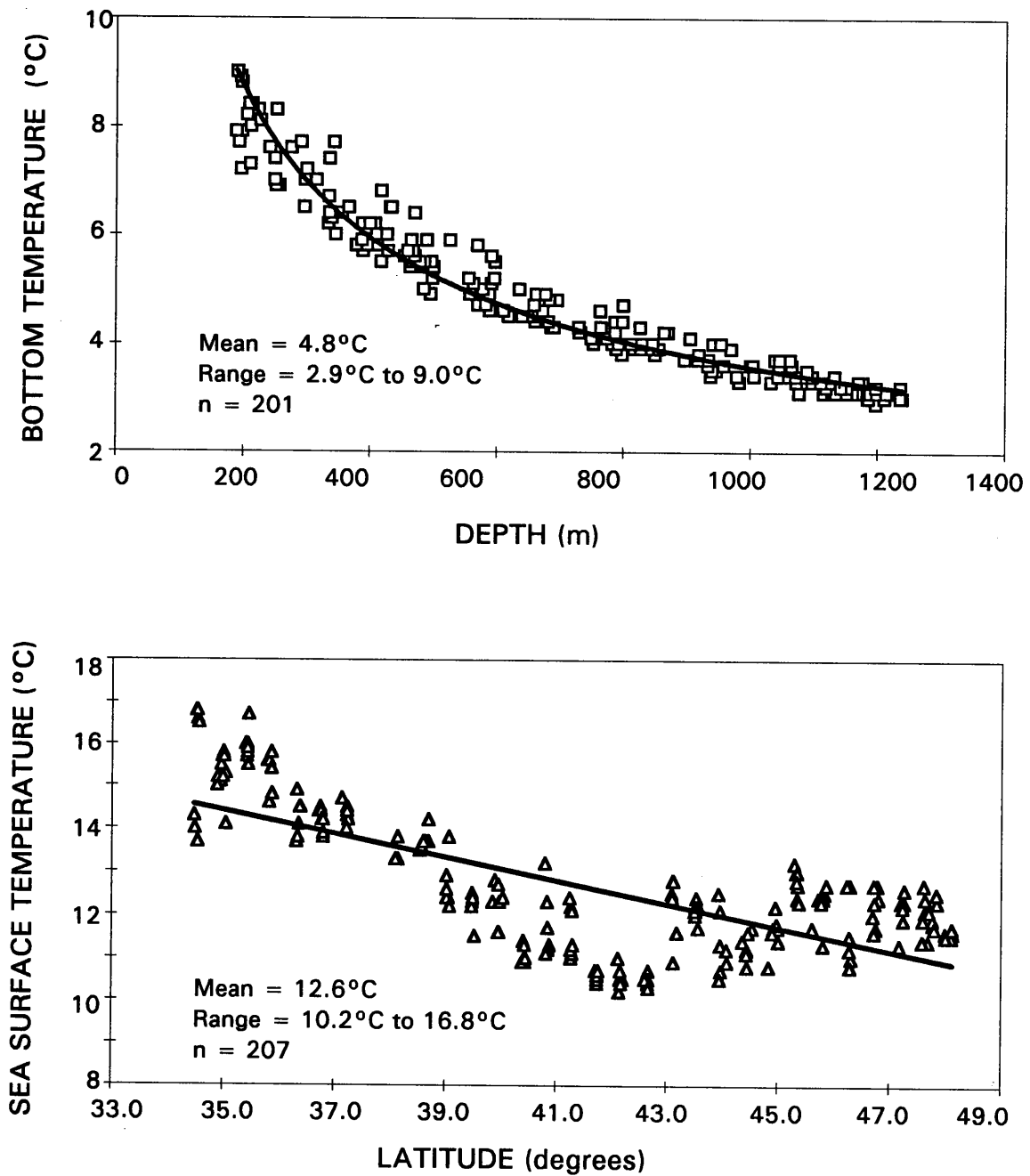


Figure 5.--Bottom and sea surface temperatures observed during the 1999 West Coast upper continental slope bottom trawl survey in relation to tow depth and latitude.

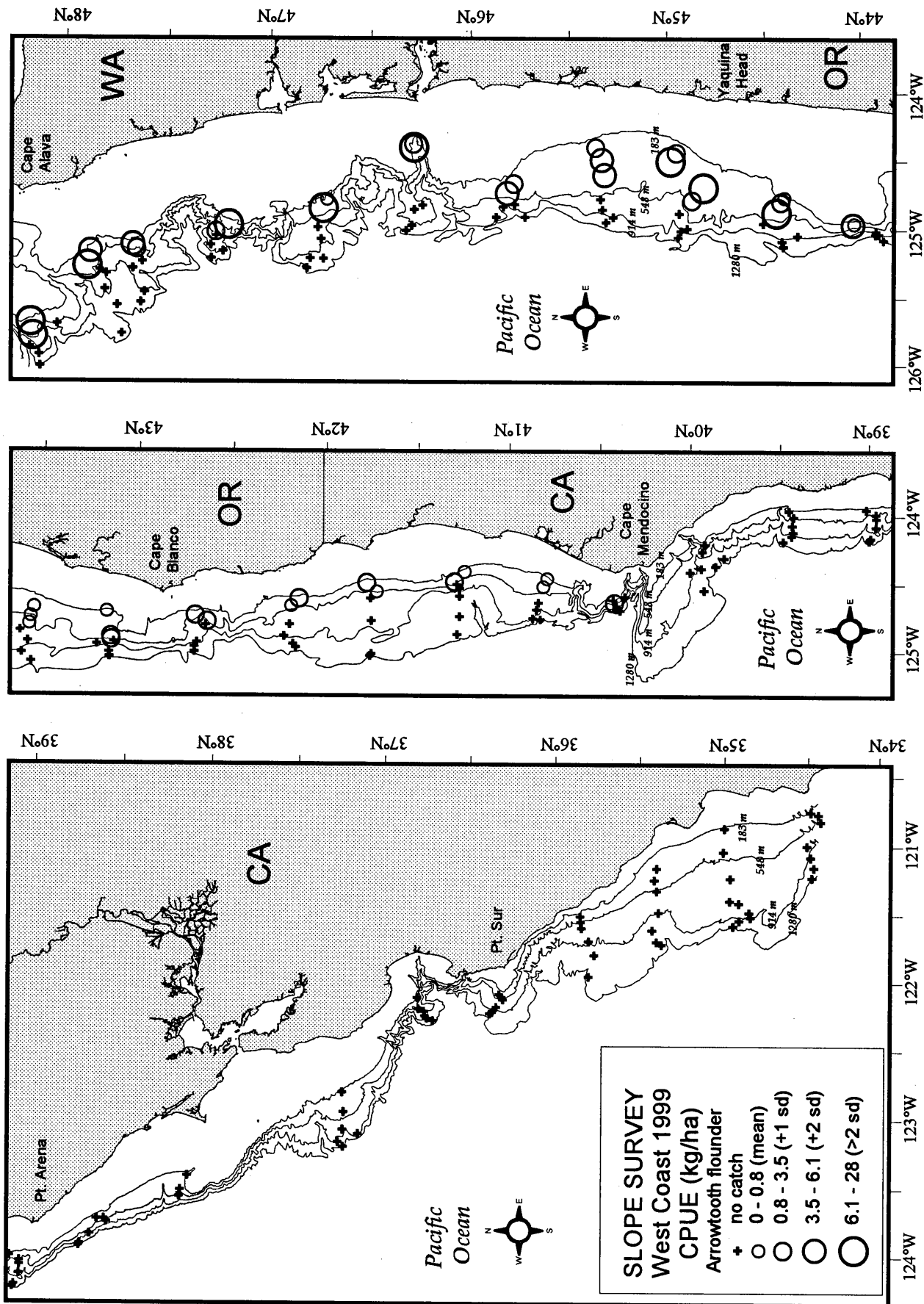


Figure 6.--Arrowtooth flounder distribution and relative abundance (kg/ha) from the 1999 West Coast upper continental slope bottom trawl survey.

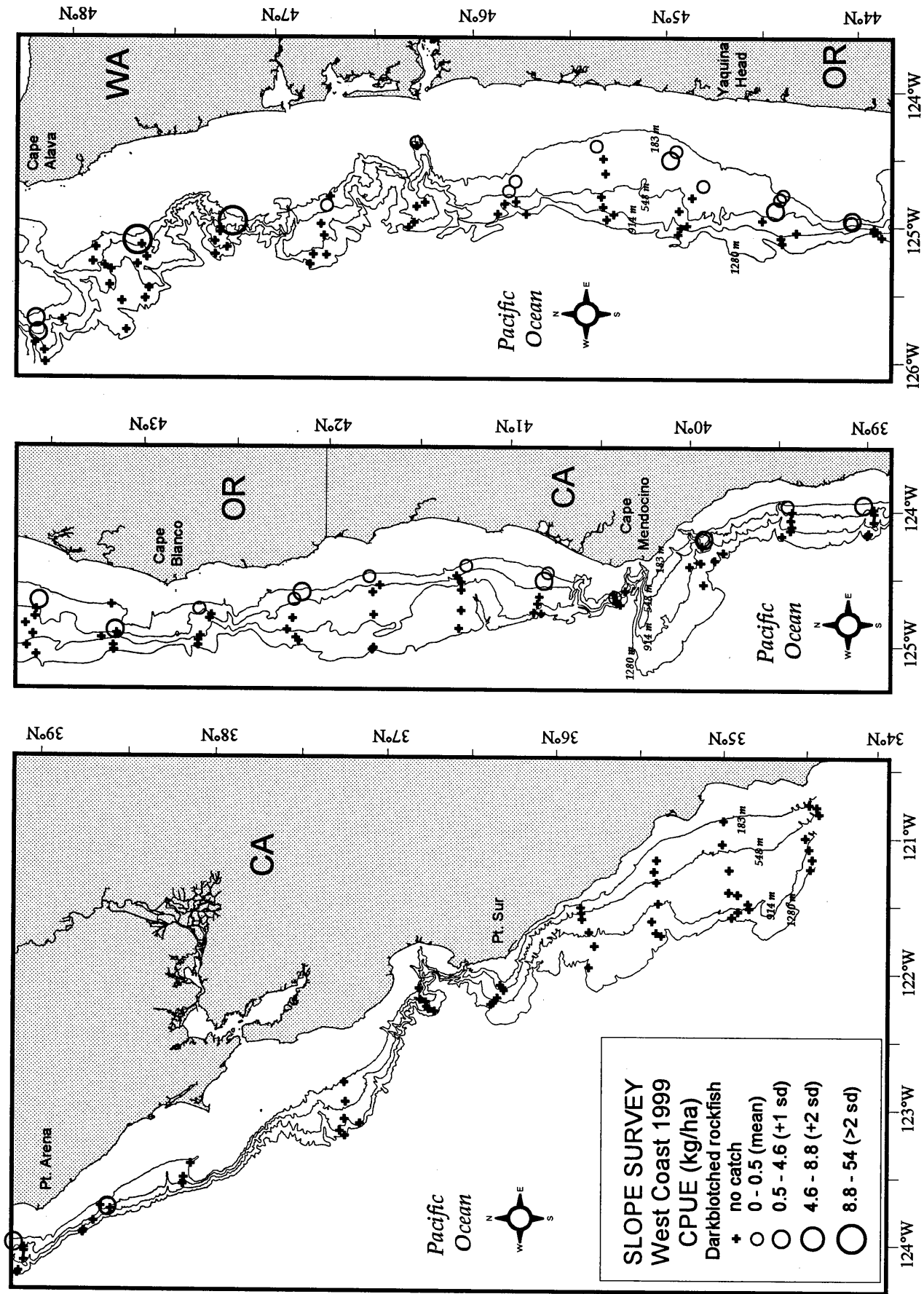


Figure 7.--Darkblotched rockfish distribution and relative abundance (kg/ha) from the 1999 West Coast upper continental slope bottom trawl survey.

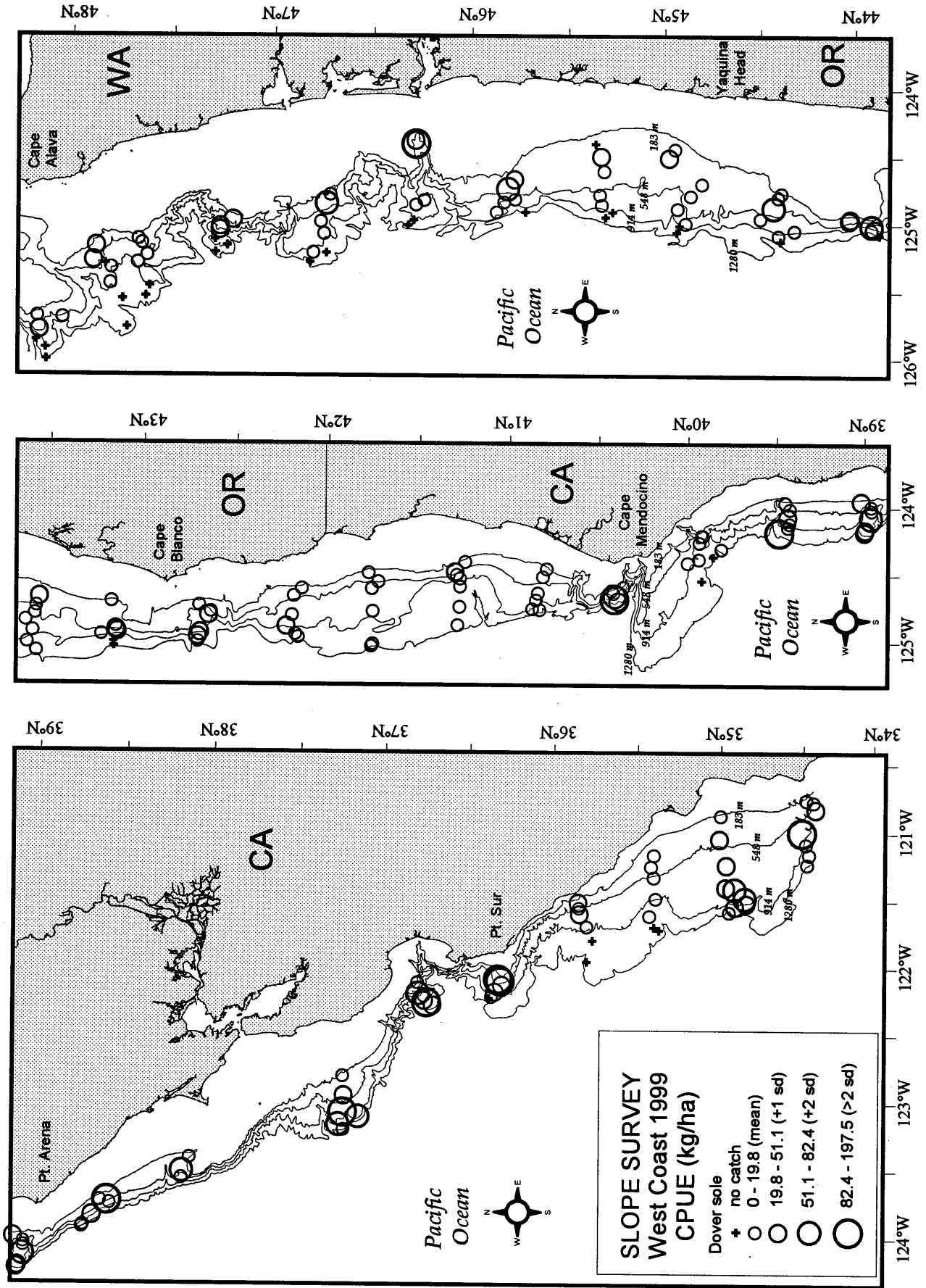


Figure 8.--Dover sole distribution and relative abundance (kg/ha) from the 1999 West Coast upper continental slope bottom trawl survey.

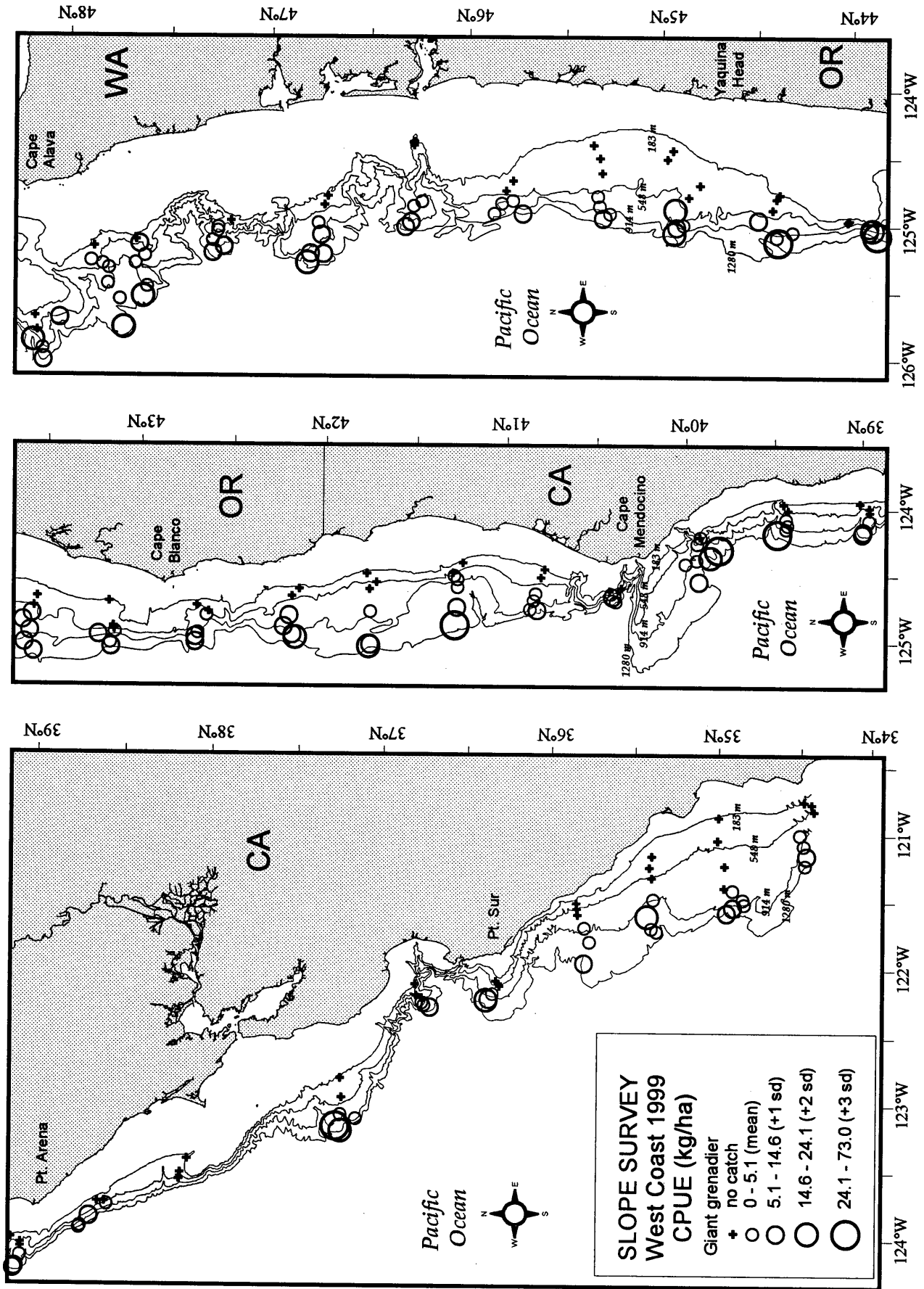


Figure 9.--Giant grenadier distribution and relative abundance (kg/ha) from the 1999 West Coast upper continental slope trawl survey.

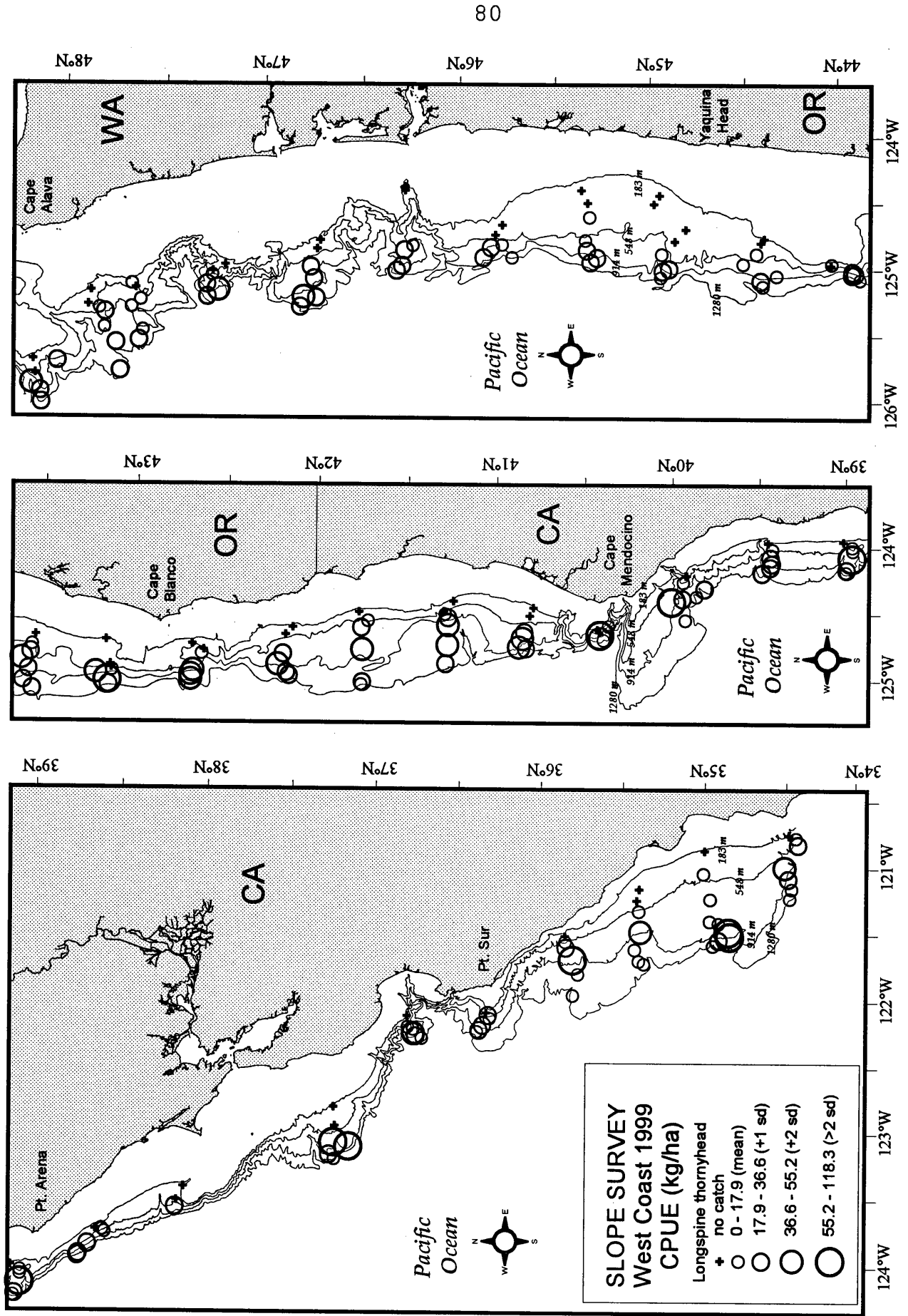


Figure 10.--Longspine thornyhead distribution and relative abundance (kg/ha) from the 1999 West Coast upper continental slope bottom trawl survey.

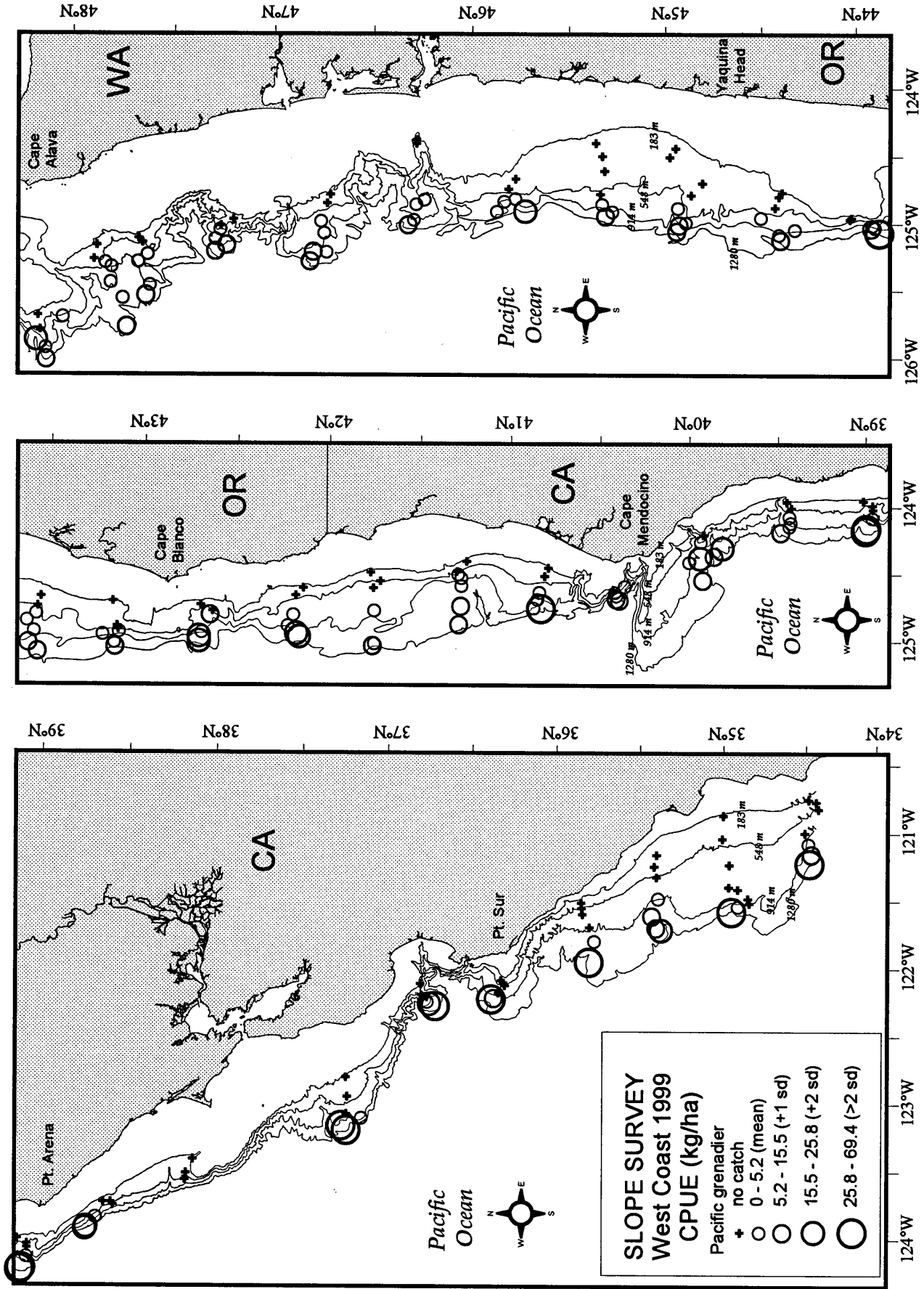


Figure 11.--Pacific grenadier distribution and relative abundance (kg/ha) from the 1999 West Coast upper continental slope bottom trawl survey.

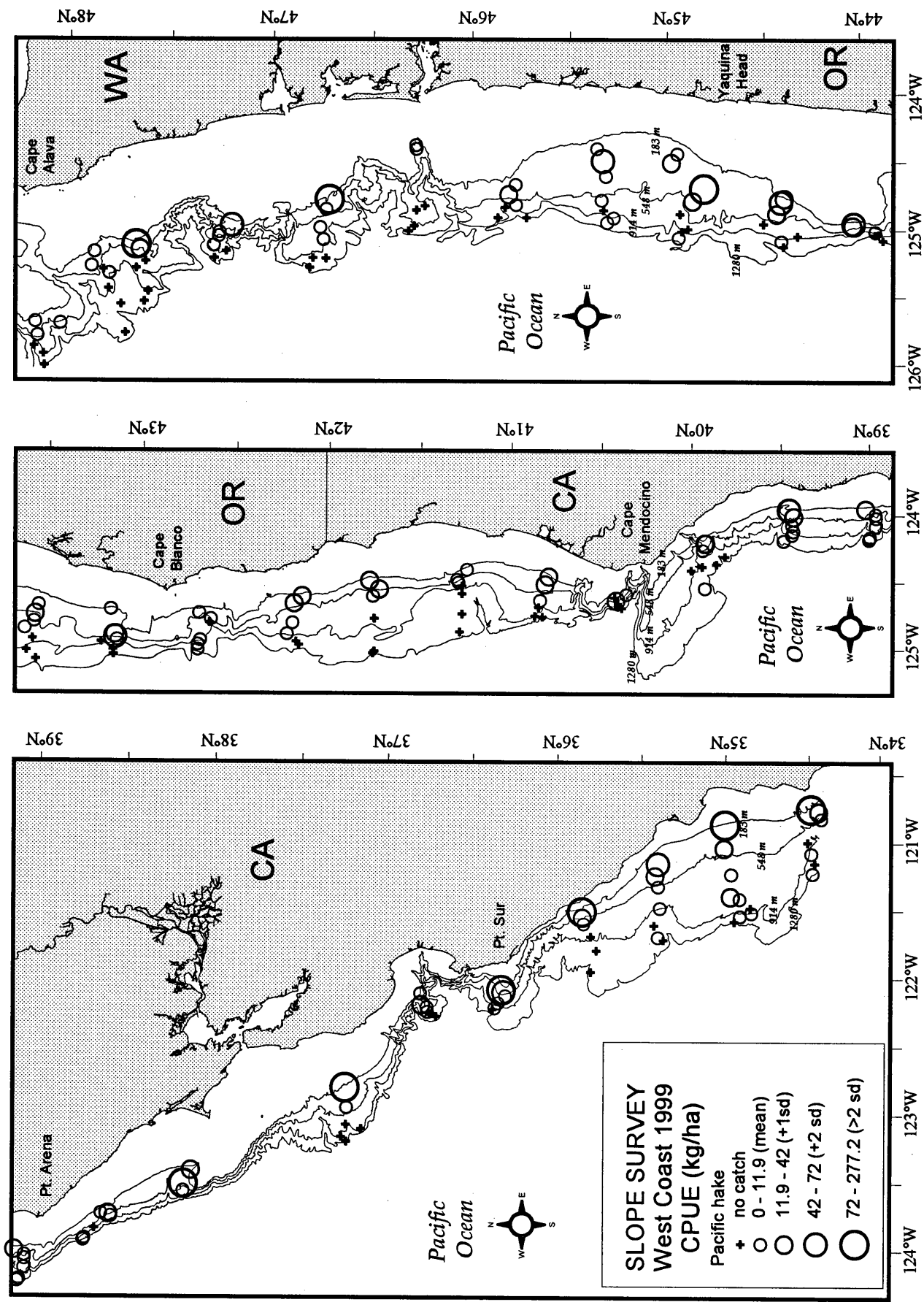


Figure 12.--Pacific hake distribution and relative abundance (kg/ha) from the 1999 West Coast upper continental slope bottom trawl survey.

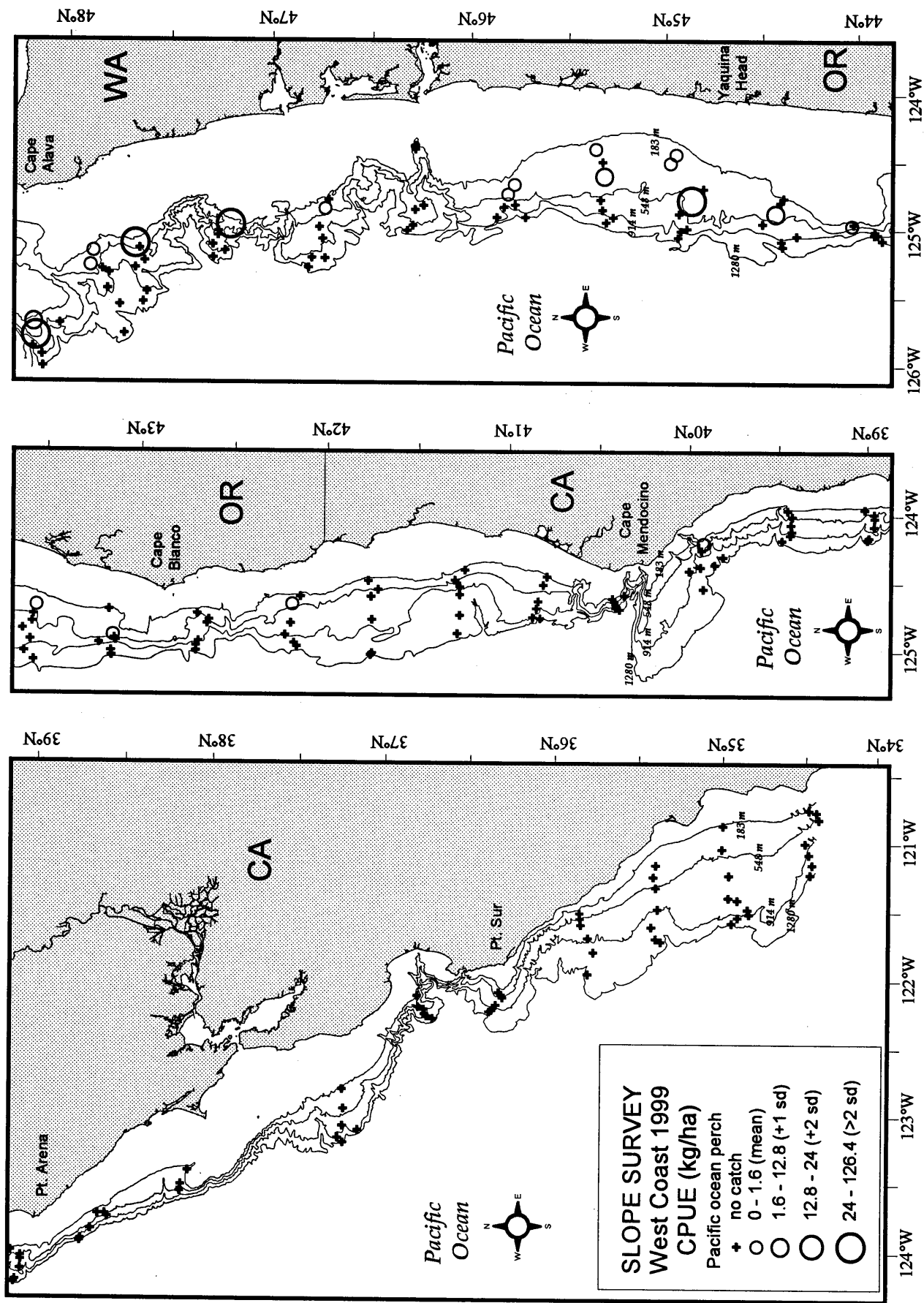


Figure 13.--Pacific ocean perch distribution and relative abundance (kg/ha) from the 1999 West Coast upper continental slope bottom trawl survey.

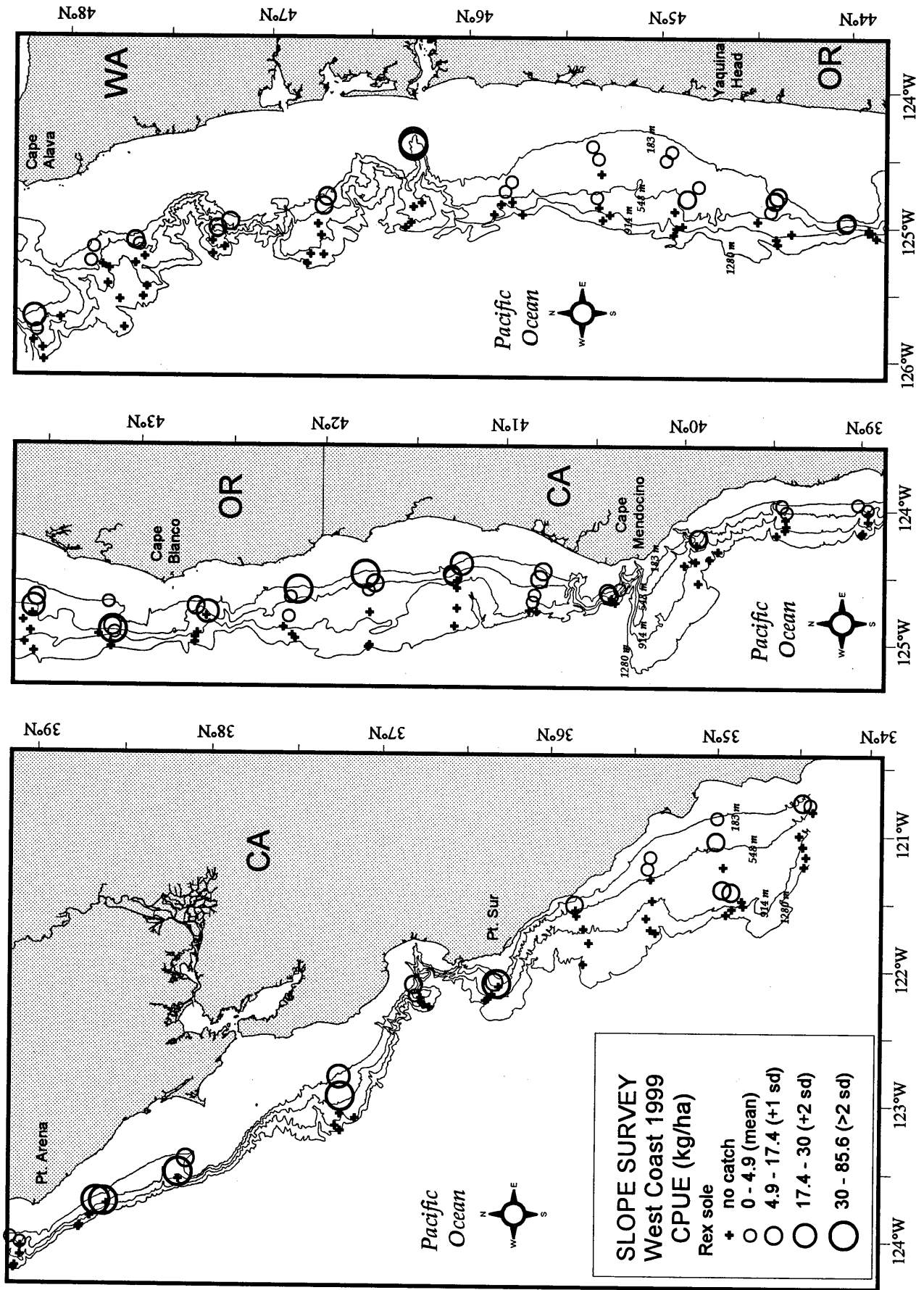


Figure 14.--Rex sole distribution and relative abundance (kg/ha) from the 1999 West Coast upper continental slope bottom trawl survey.

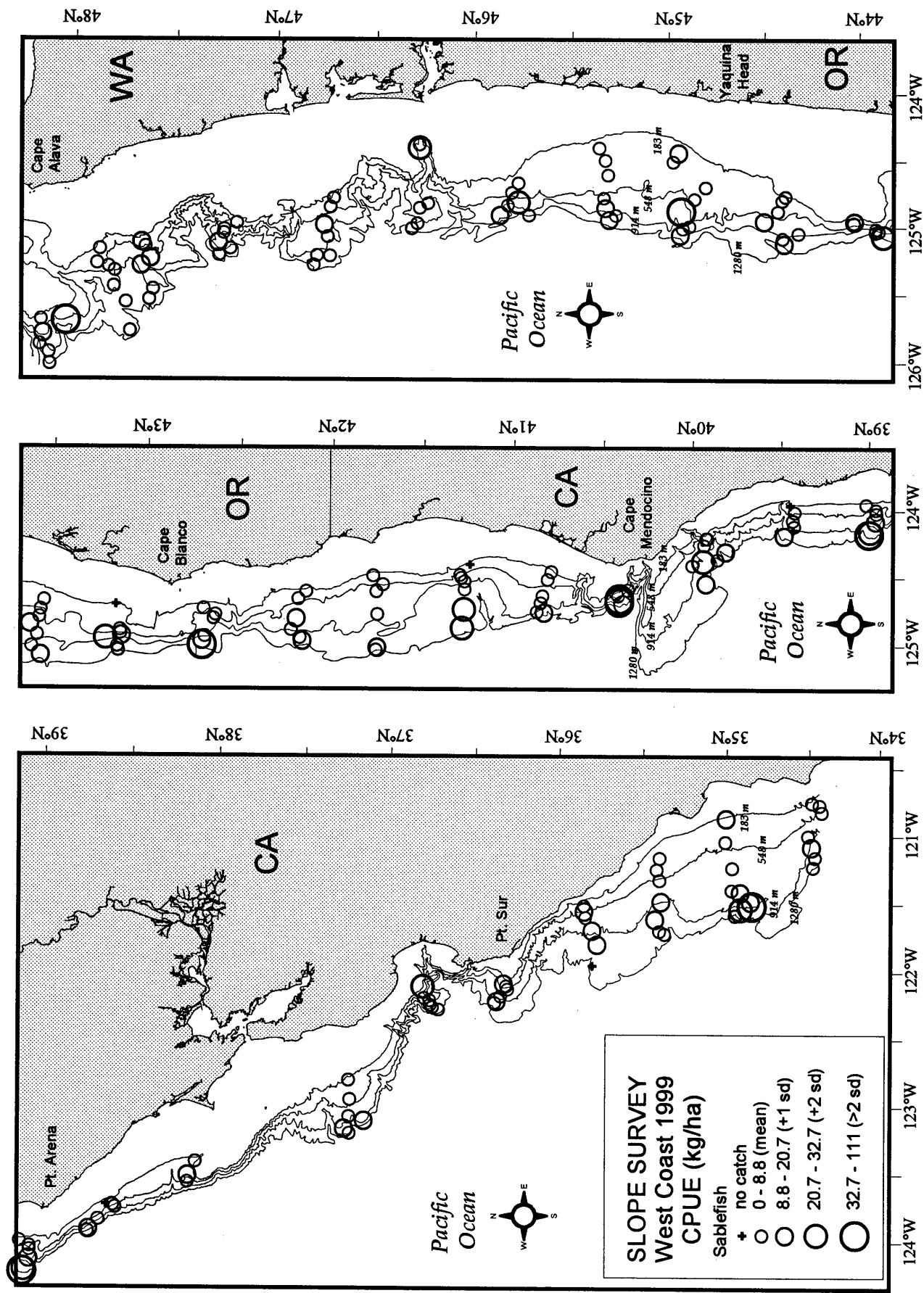


Figure 15.--Sablefish distribution and relative abundance (kg/ha) from the 1999 West Coast upper continental slope bottom trawl survey.

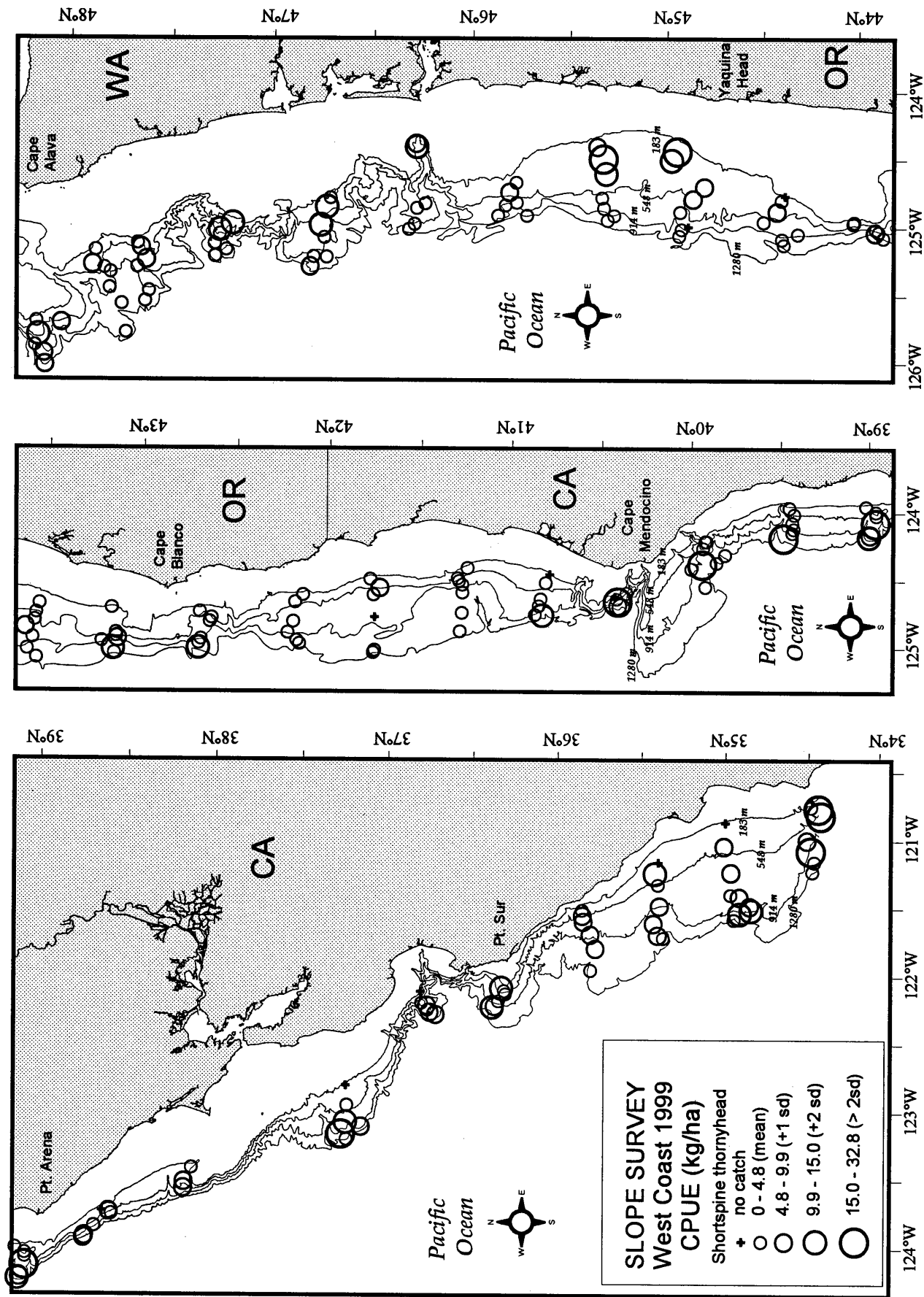


Figure 16.--Shortspine thornyhead distribution and relative abundance (kg/ha) from the 1999 West Coast upper continental slope bottom trawl survey.

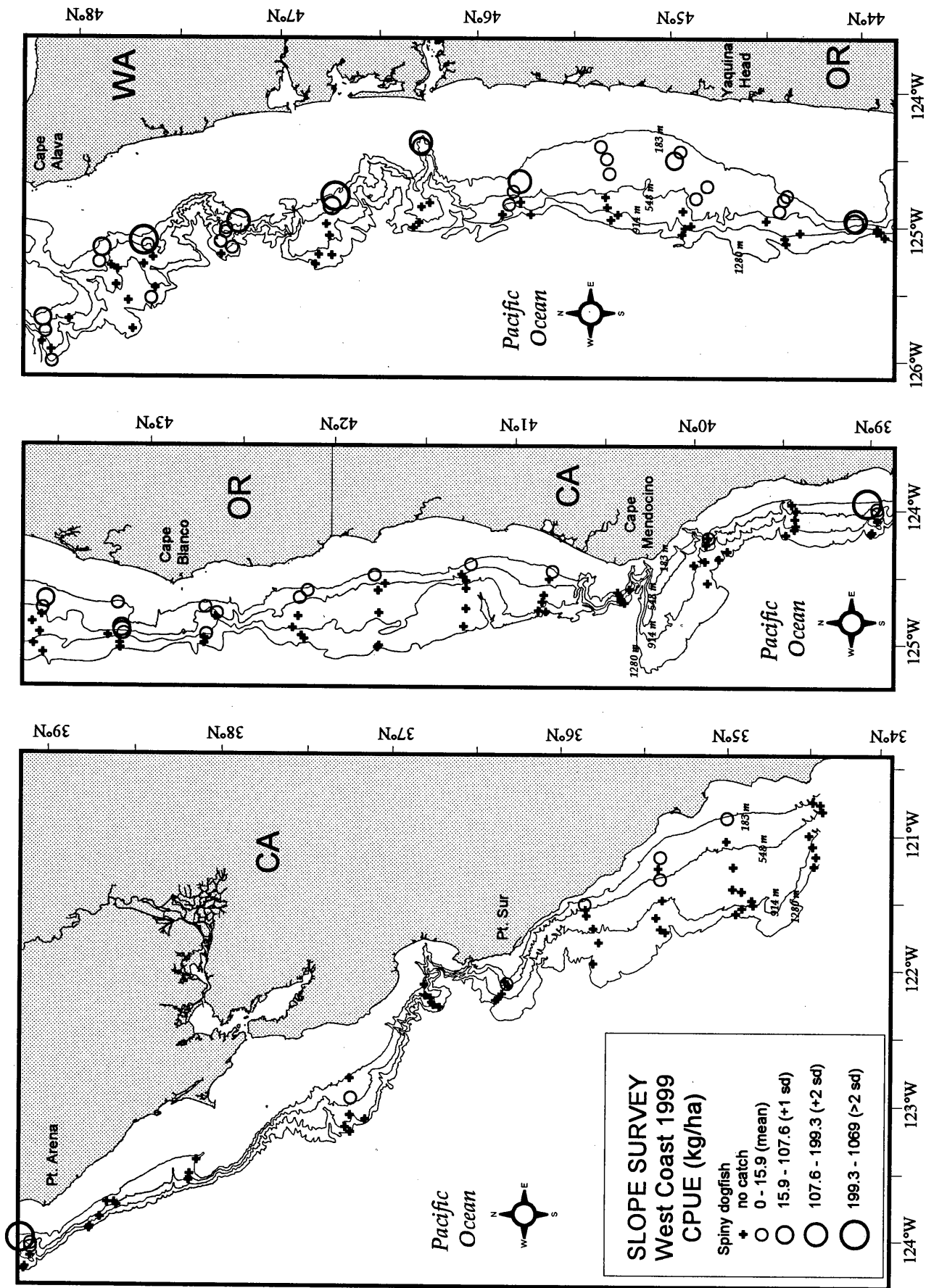


Figure 17.--Spiny dogfish distribution and relative abundance (kg/ha) from the 1999 West Coast upper continental slope trawl survey.

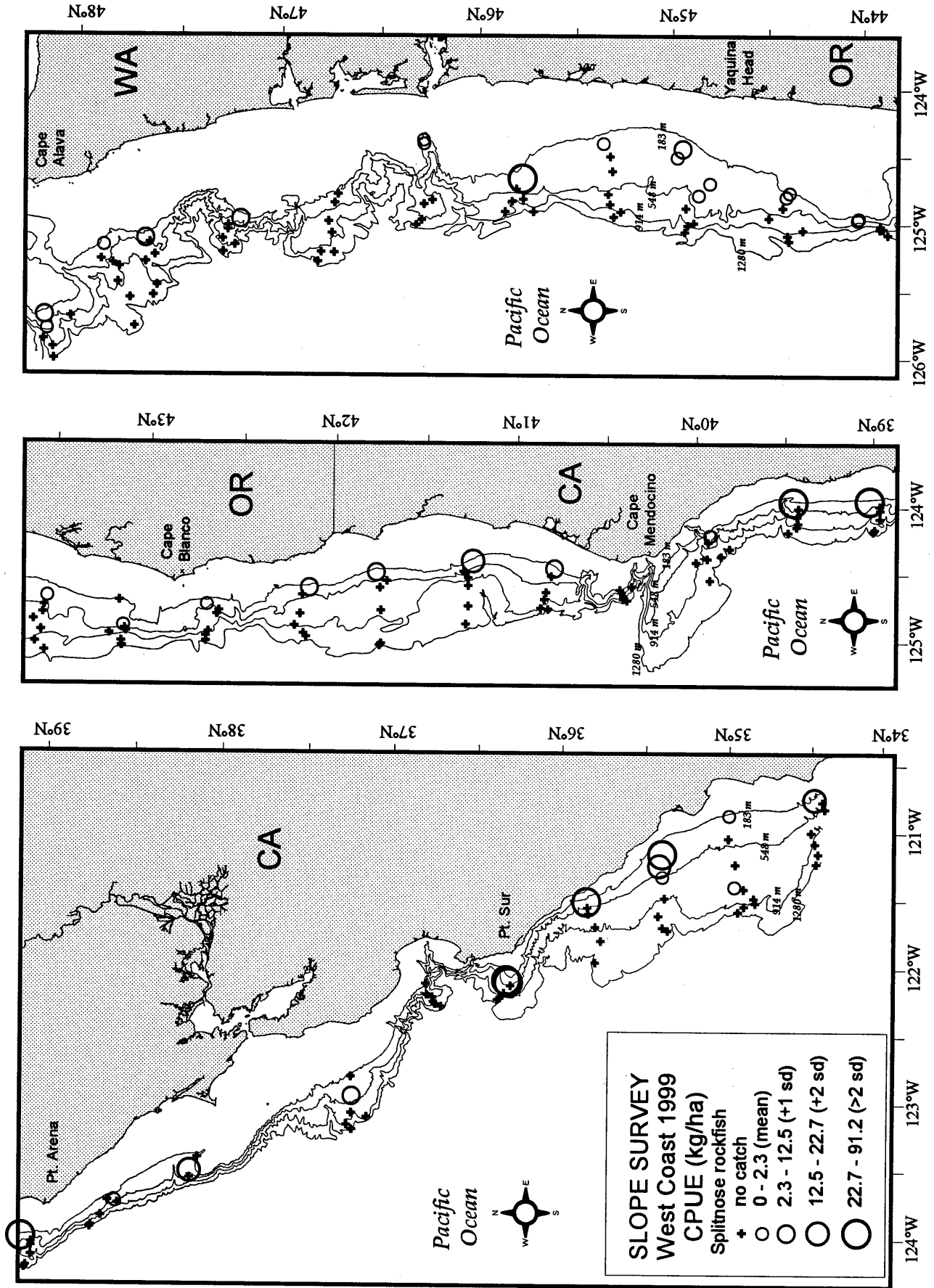


Figure 18.--Splitnose rockfish distribution and relative abundance (kg/ha) from the 1999 West Coast upper continental slope bottom trawl survey.

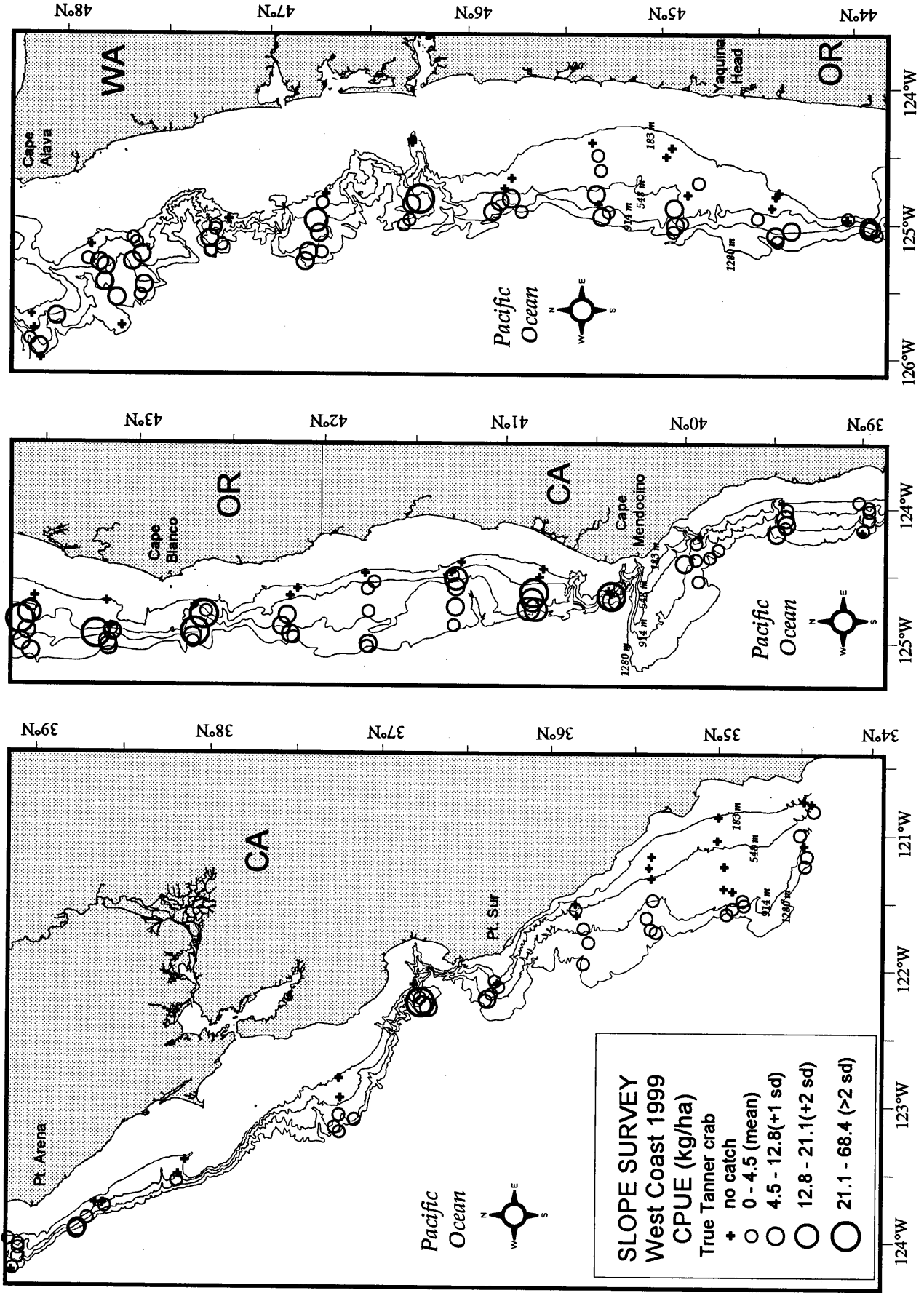


Figure 19.--True Tanner crab distribution and relative abundance (kg/ha) from the 1999 West Coast upper continental slope bottom trawl survey.

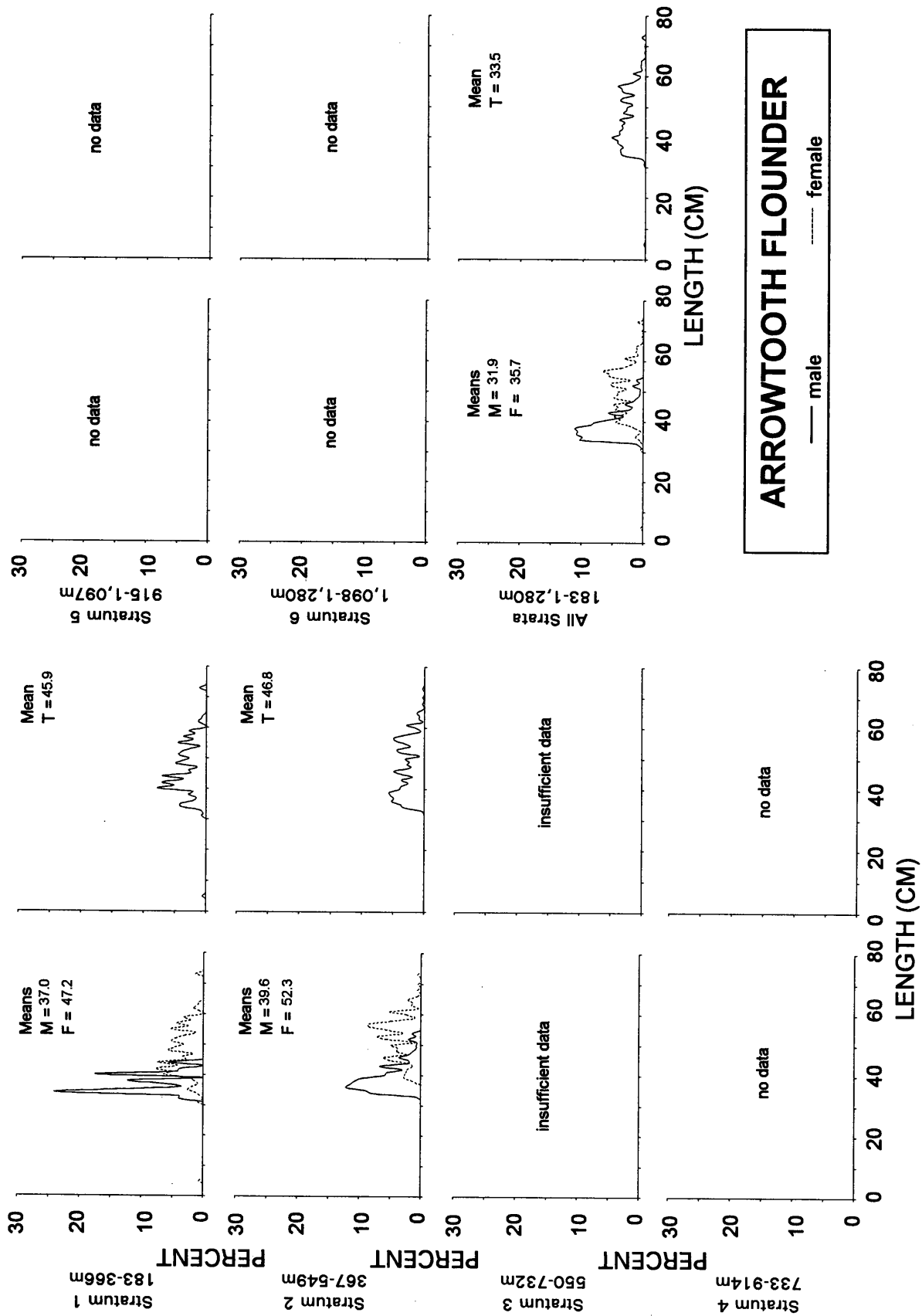


Figure 20.--Estimated population size composition and mean lengths (cm) of arrowtooth flounder by depth stratum and by sex (T = males, females, and unsexed combined) for all International North Pacific Fisheries Commission areas sampled from the 1999 West Coast upper continental slope bottom trawl survey.

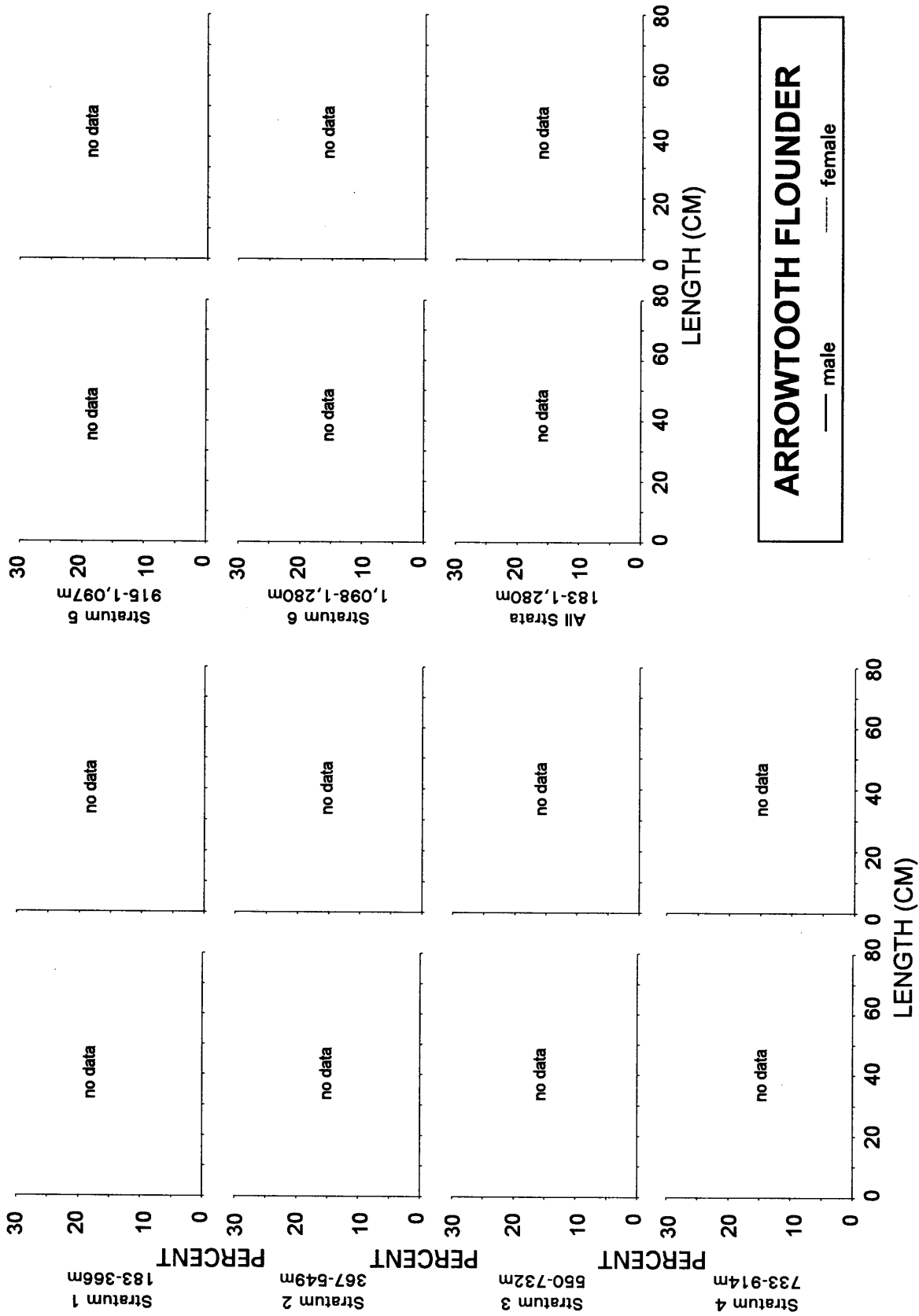


Figure 21.--Estimated population size composition and mean lengths (cm) of arrowtooth flounder by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Conception area from the 1999 West Coast upper continental slope bottom trawl survey.

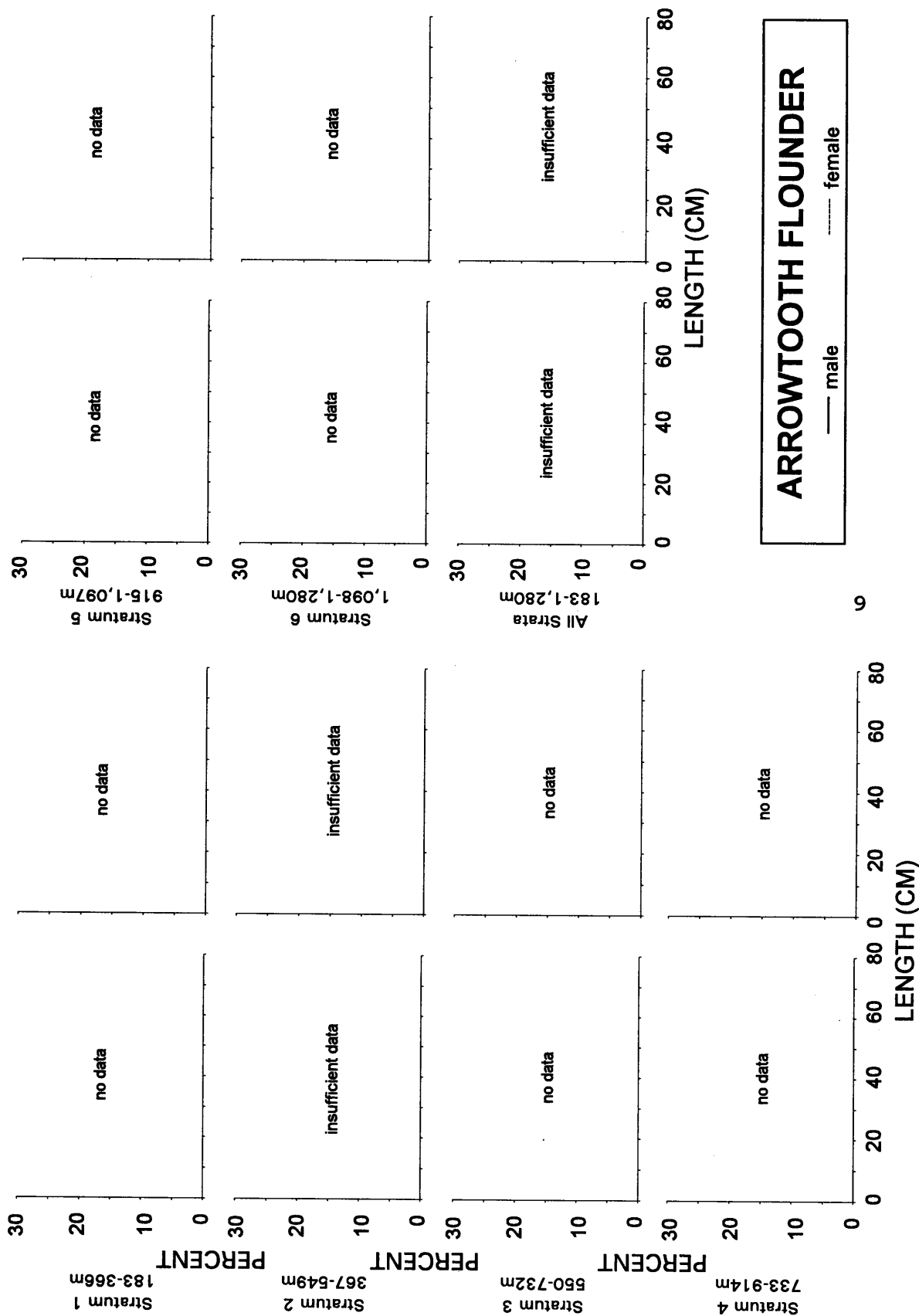


Figure 22.--Estimated population size composition and mean lengths (cm) of arrowtooth flounder by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Monterey area from the 1999 West Coast upper continental slope bottom trawl survey.

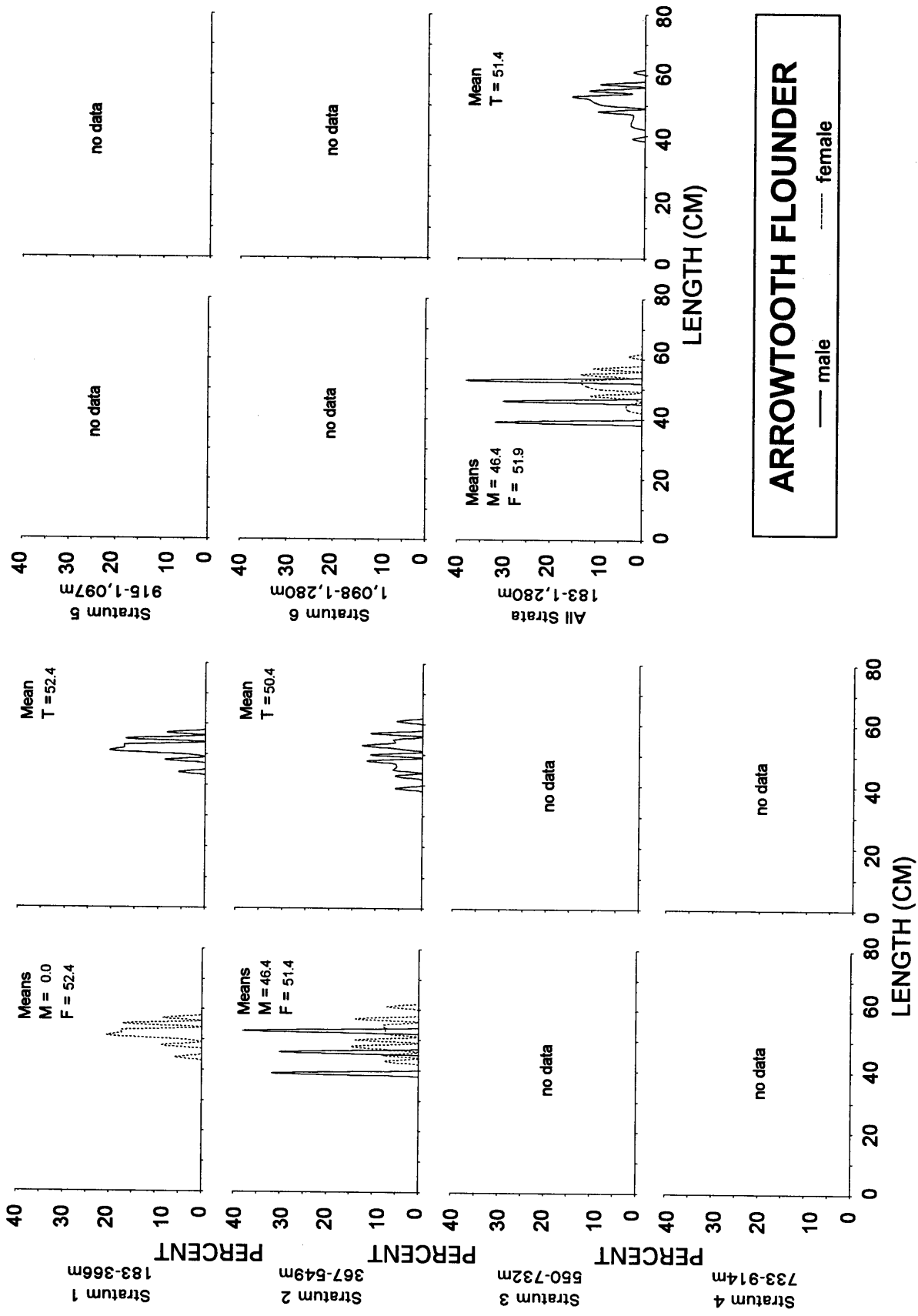


Figure 23.--Estimated population size composition and mean lengths (cm) of arrowtooth flounder by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Eureka area from the 1999 West Coast upper continental slope bottom trawl survey.

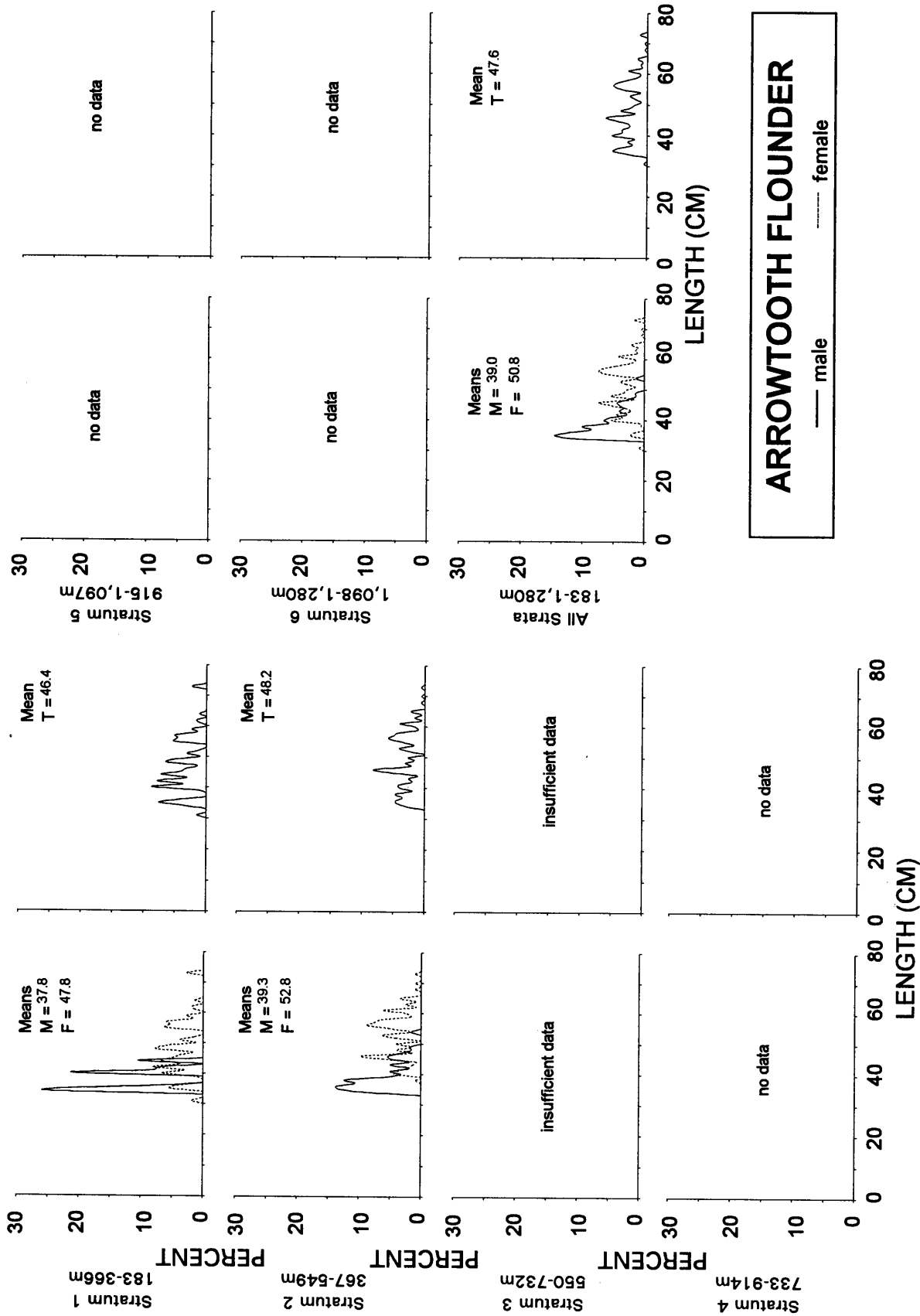


Figure 24.--Estimated population size composition and mean lengths (cm) of arrowtooth flounder by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Columbia area from the 1999 West Coast upper continental slope bottom trawl survey.

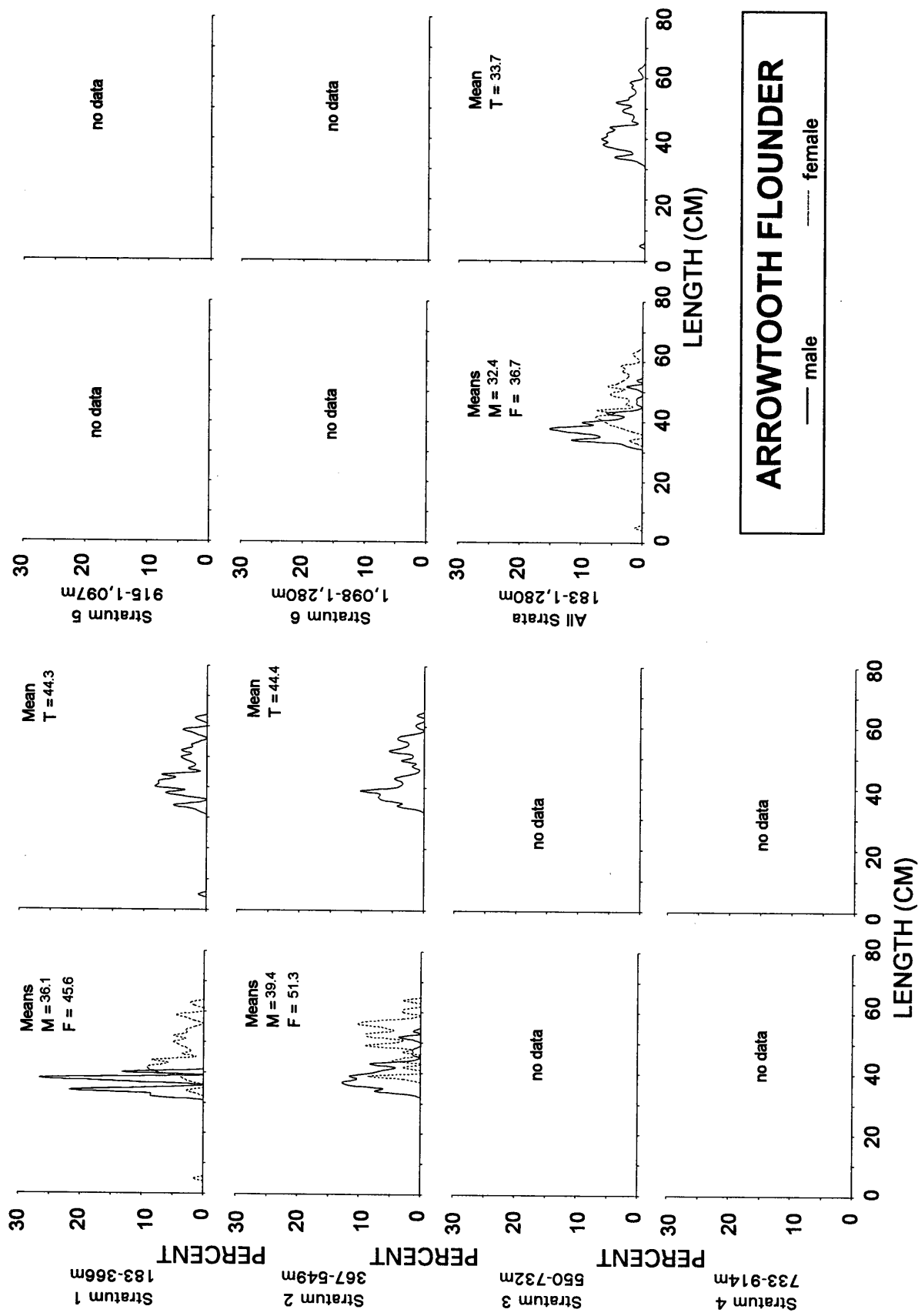


Figure 25.--Estimated population size composition and mean lengths (cm) of arrowtooth flounder by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission U.S.-Vancouver area from the 1999 West Coast upper continental slope bottom trawl survey.

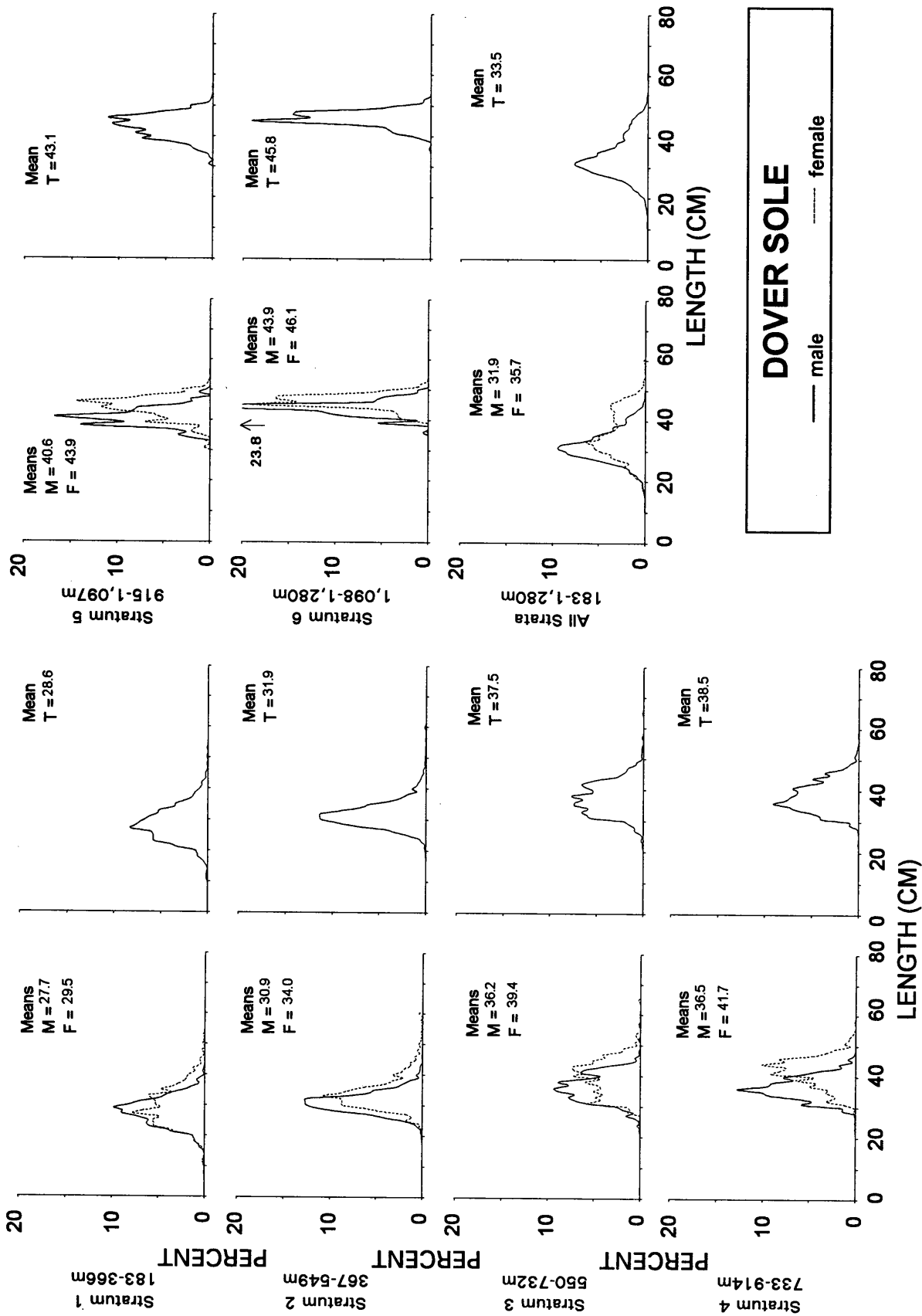


Figure 26.--Estimated population size composition and mean lengths (cm) of Dover sole by depth stratum and by sex (T = males, females, and unsexed combined) for all International North Pacific Fisheries Commission areas sampled from the 1999 West Coast upper continental slope bottom trawl survey.

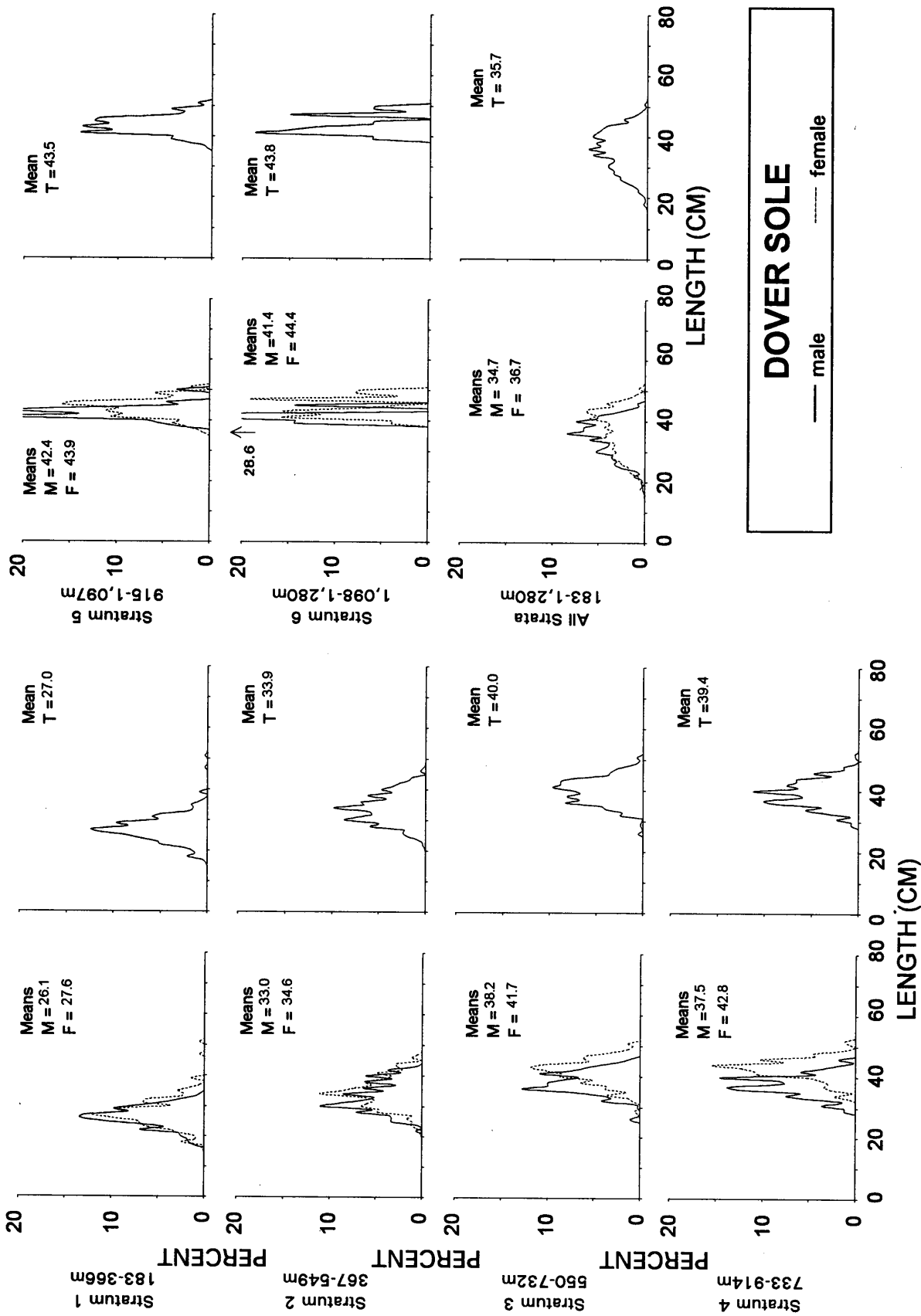


Figure 27.--Estimated population size composition and mean lengths (cm) of Dover sole by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Conception area from the 1999 West Coast upper continental slope bottom trawl survey.

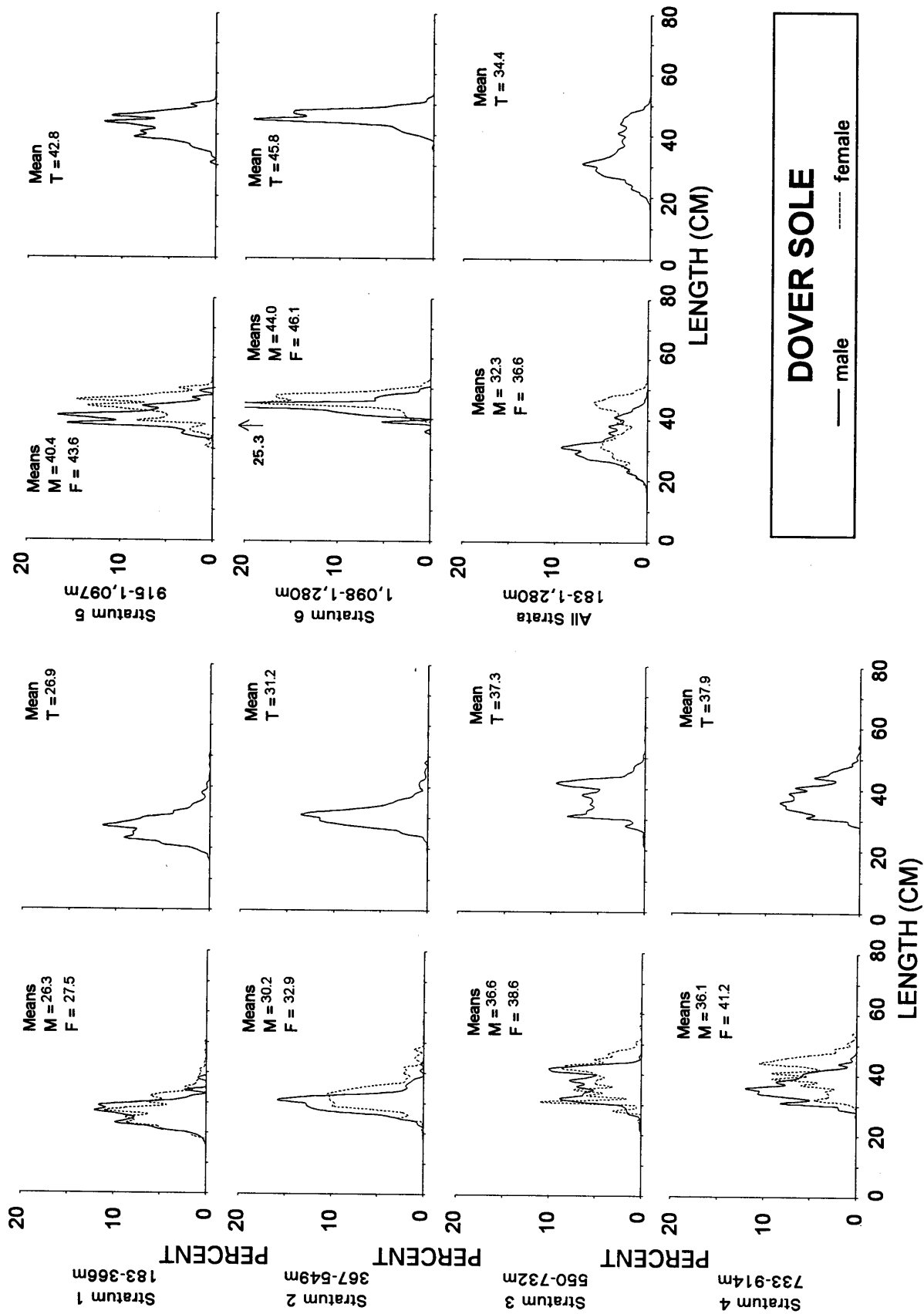


Figure 28.--Estimated population size composition and mean lengths (cm) of Dover sole by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Monterey area from the 1999 West Coast upper continental slope bottom trawl survey.

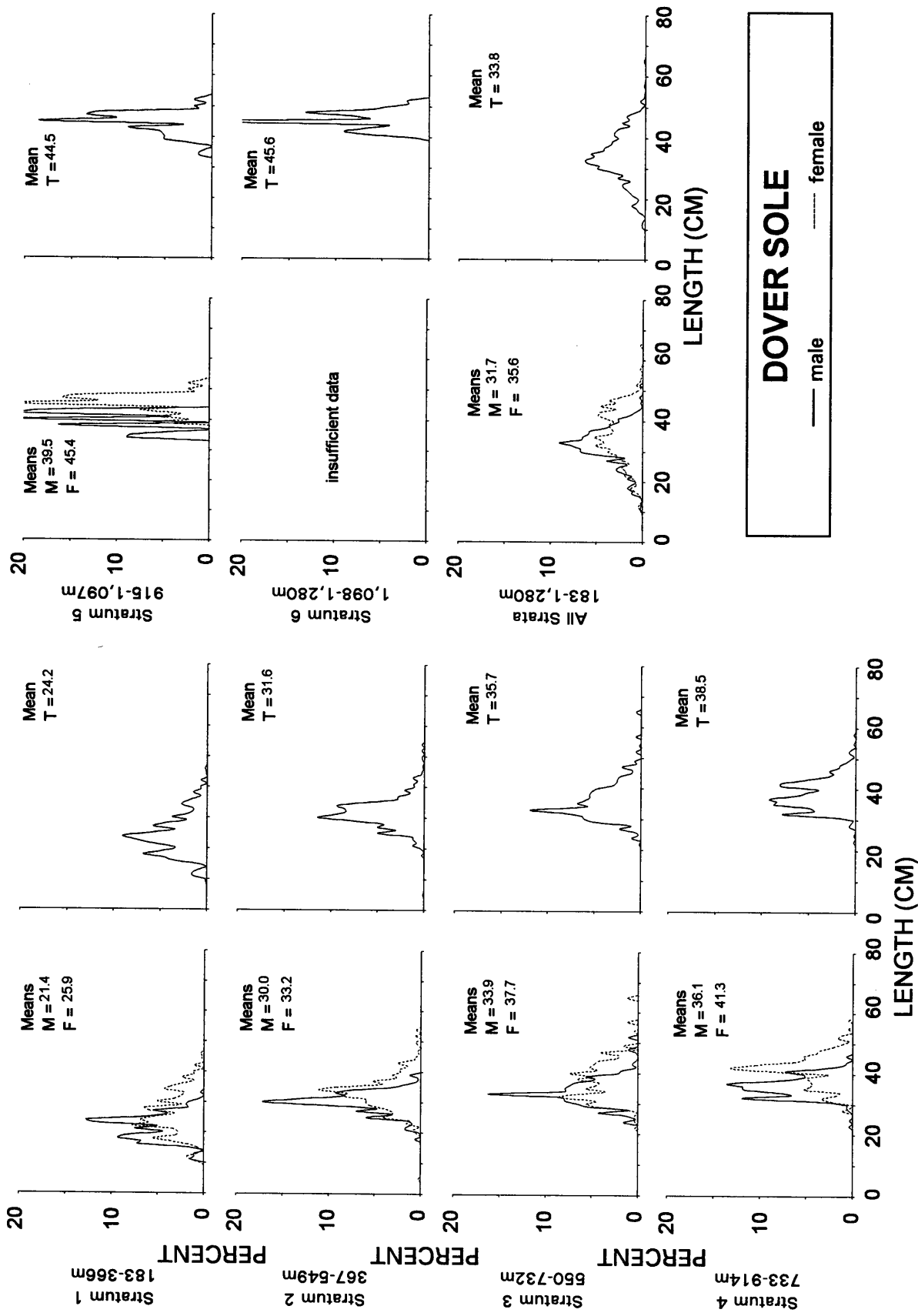


Figure 29.--Estimated population size composition and mean lengths (cm) of Dover sole by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Eureka area from the 1999 West Coast upper continental slope bottom trawl survey.

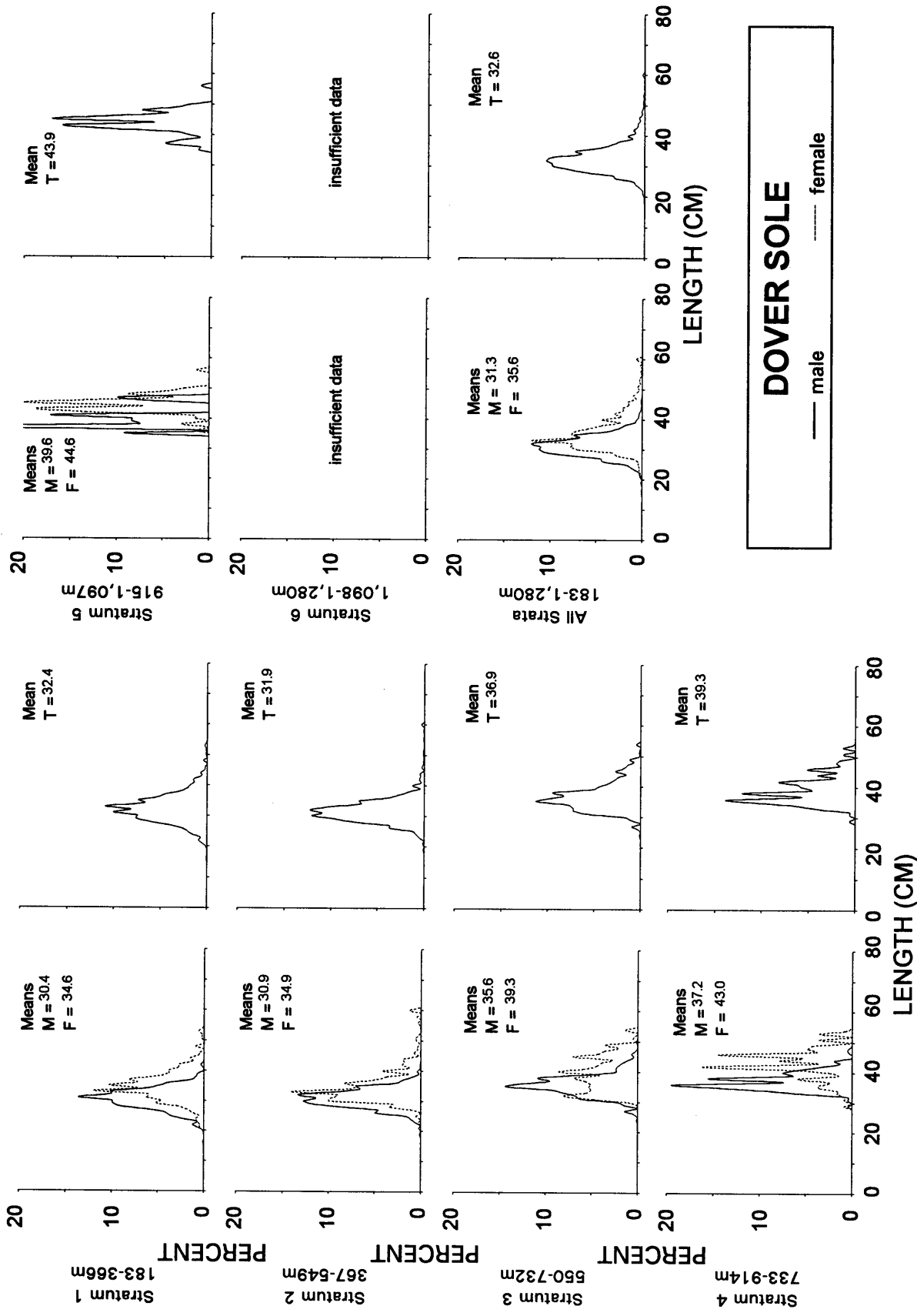


Figure 30.--Estimated population size composition and mean lengths (cm) of Dover sole by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Columbia area from the 1999 West Coast upper continental slope bottom trawl

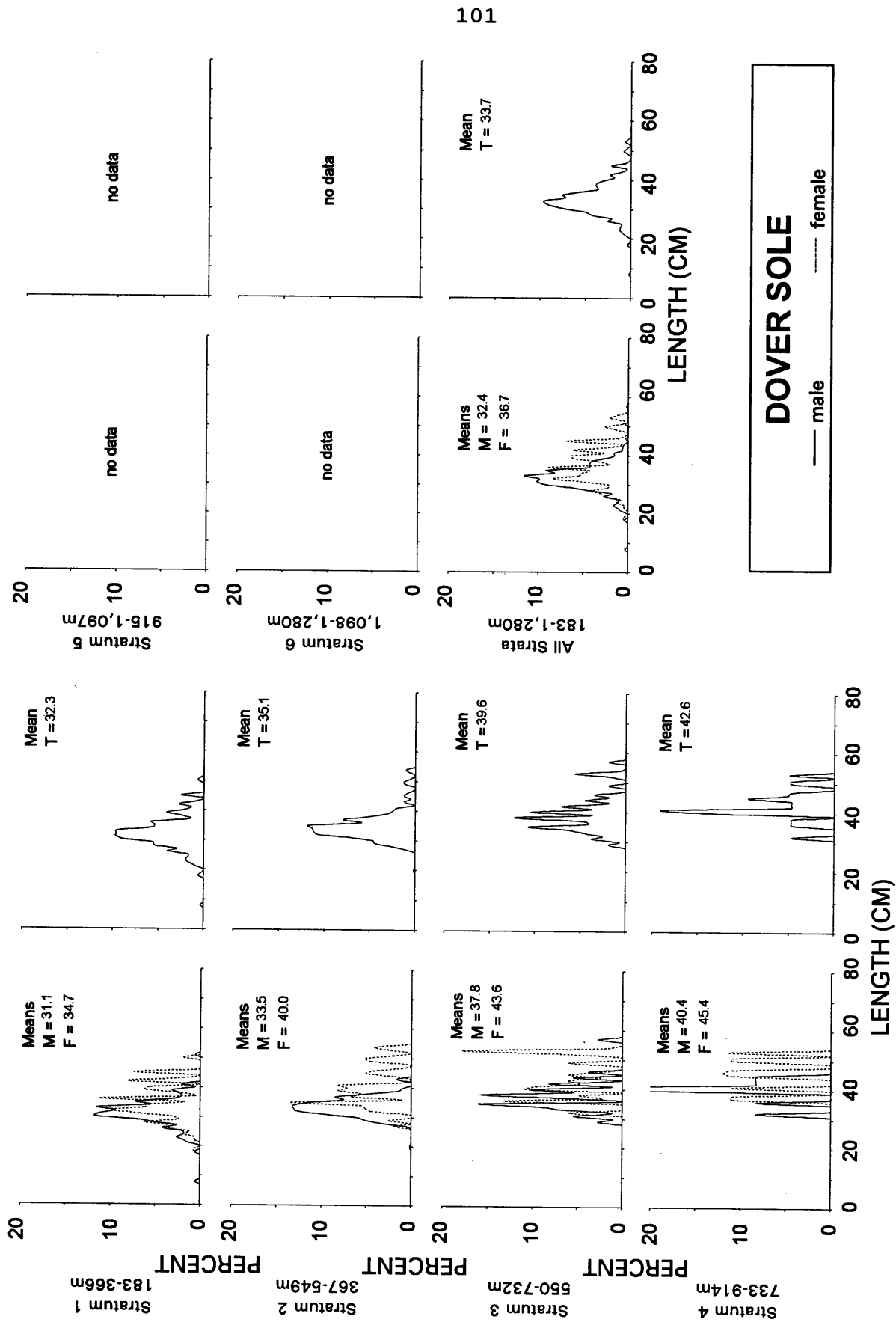


Figure 31.--Estimated population size composition and mean lengths (cm) of Dover sole by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission U.S.-Vancouver area from the 1999 West Coast upper continental slope bottom trawl survey.

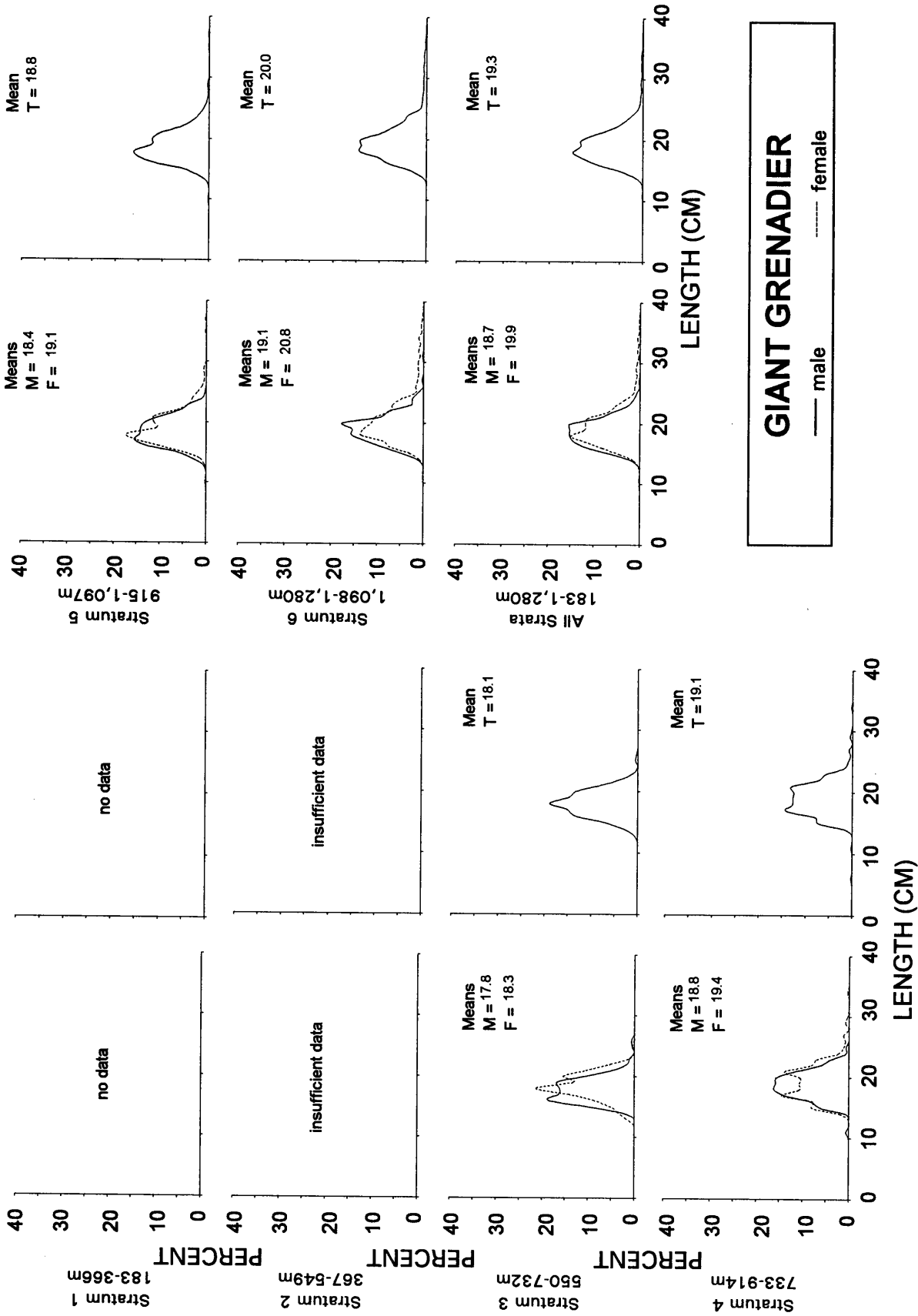


Figure 32.--Estimated population size composition and mean lengths (cm) of giant grenadier by depth stratum and by sex (T = males, females, and unsexed combined) for all International North Pacific Fisheries Commission areas sampled from the 1999 West Coast upper continental slope bottom trawl survey.

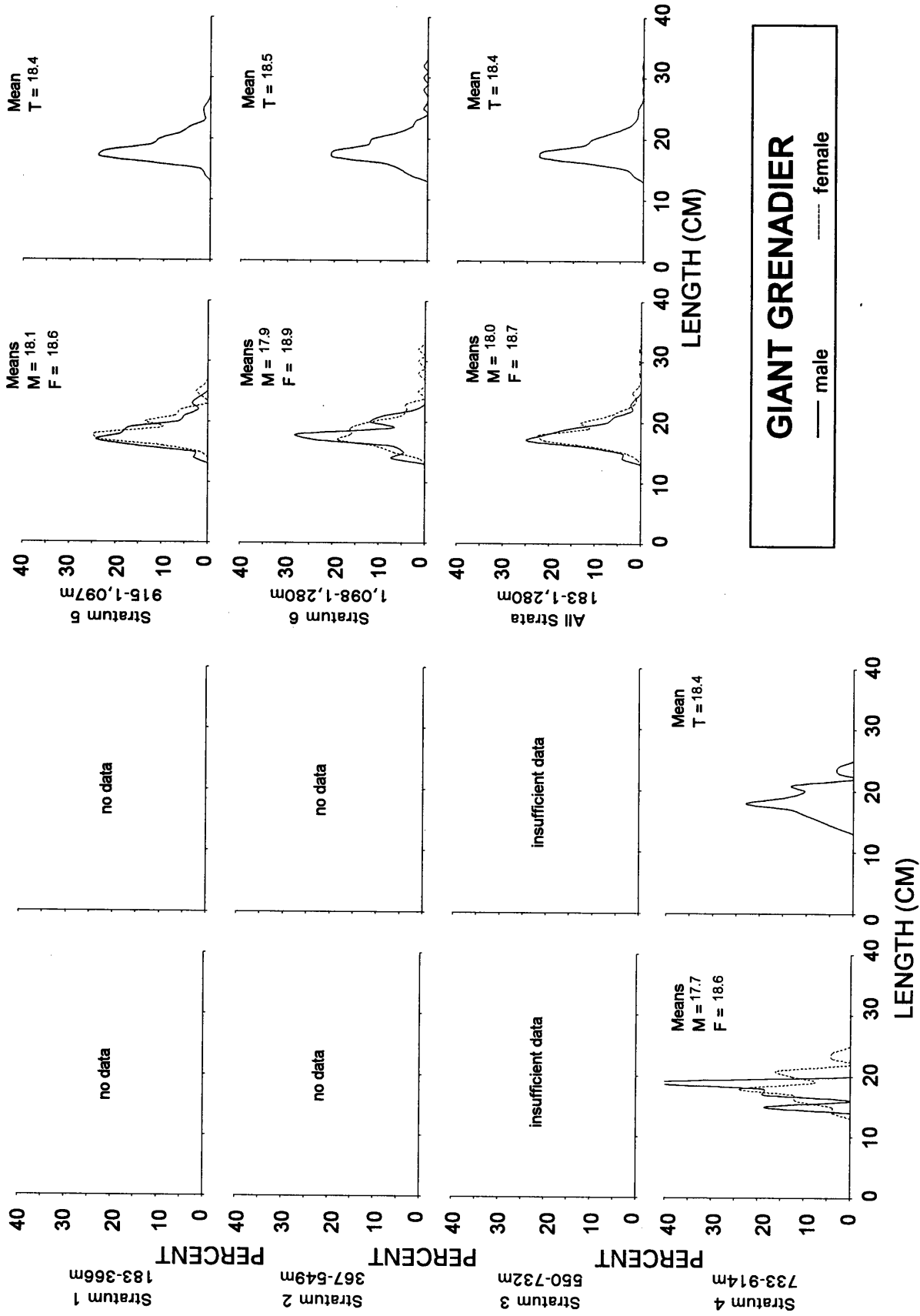


Figure 33.--Estimated population size composition and mean lengths (cm) of giant grenadier by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Conception area from the 1999 West Coast upper continental slope bottom trawl survey.

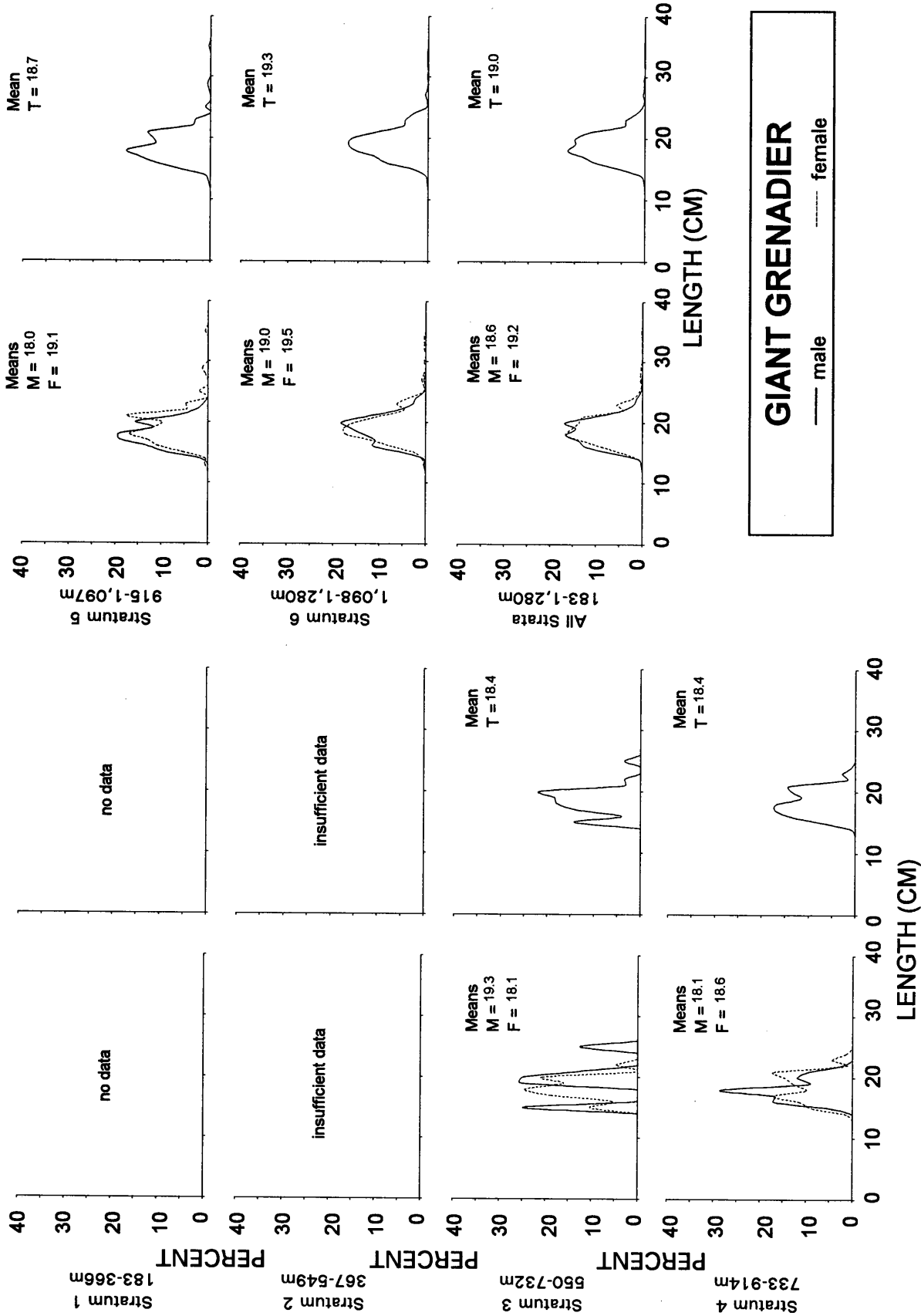


Figure 34.--Estimated population size composition and mean lengths (cm) of giant grenadier by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Monterey area from the 1999 West Coast upper continental slope bottom trawl survey.

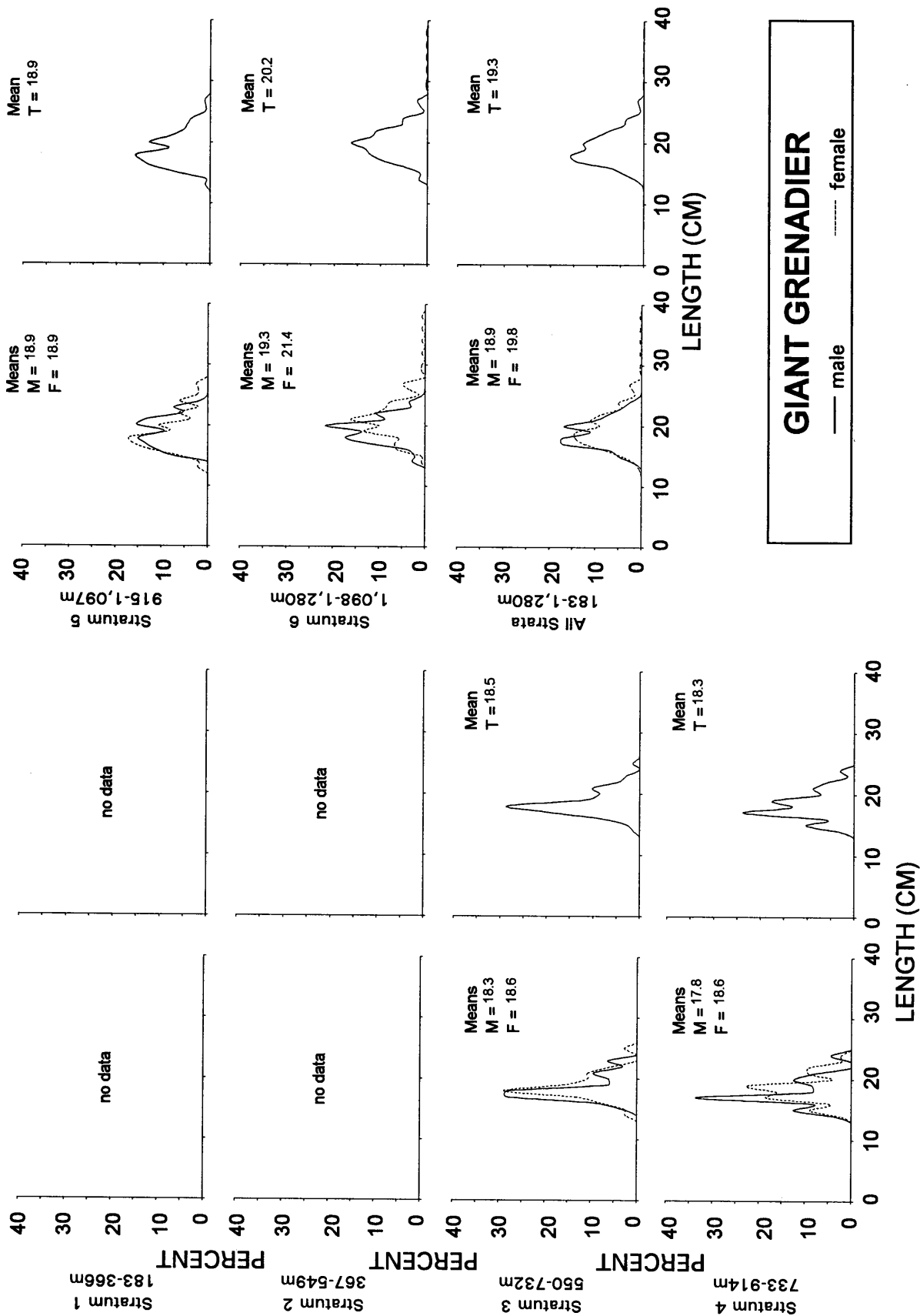


Figure 35.--Estimated population size composition and mean lengths (cm) of giant grenadier by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Eureka area from the 1999 West Coast upper continental slope bottom trawl survey.

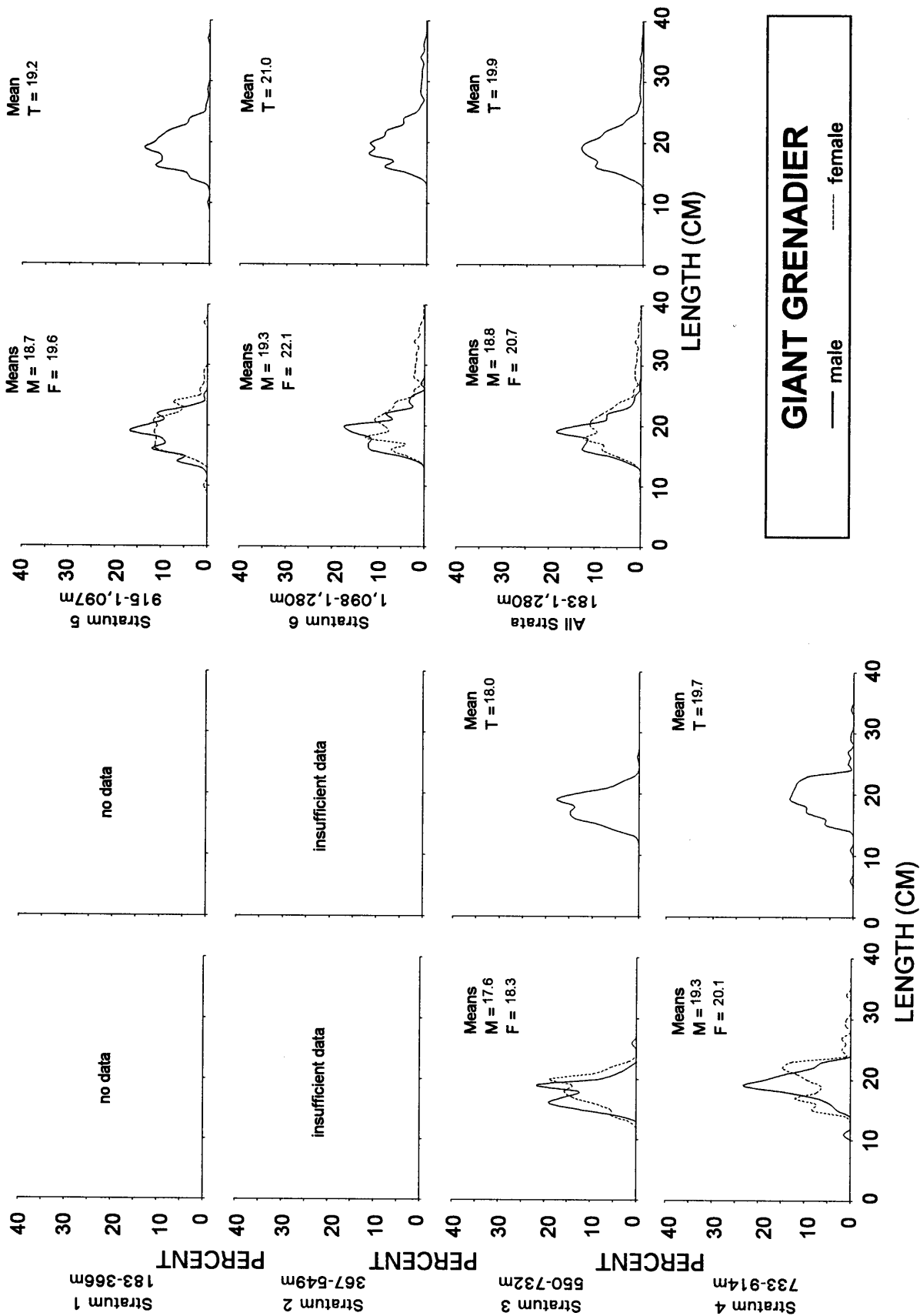


Figure 36.--Estimated population size composition and mean lengths (cm) of giant grenadier by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Columbia area from the 1999 West Coast upper continental slope bottom trawl survey.

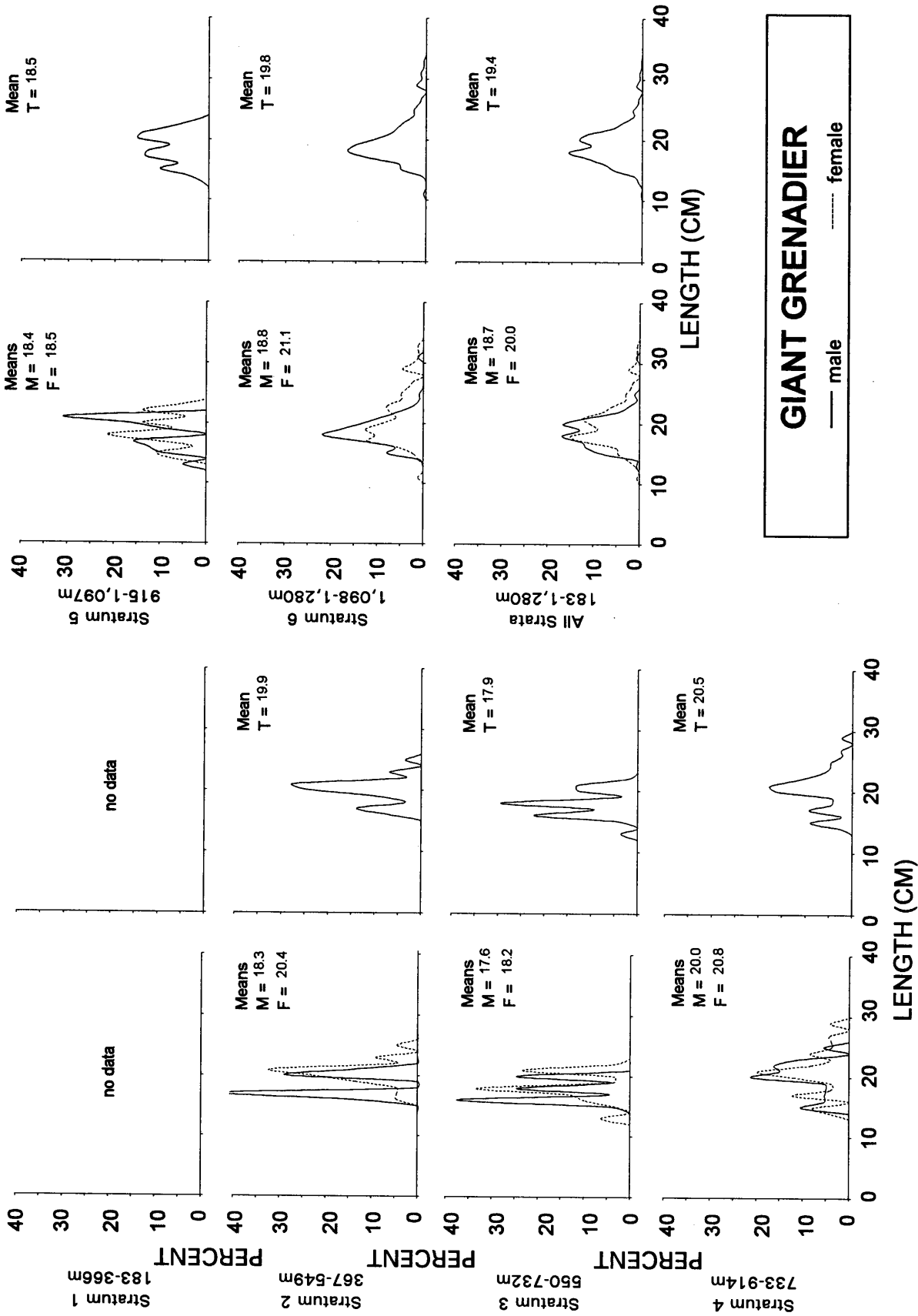


Figure 37.--Estimated population size composition and mean lengths (cm) of giant grenadier by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission U.S.-Vancouver area from the 1999 West Coast upper continental slope bottom trawl survey.

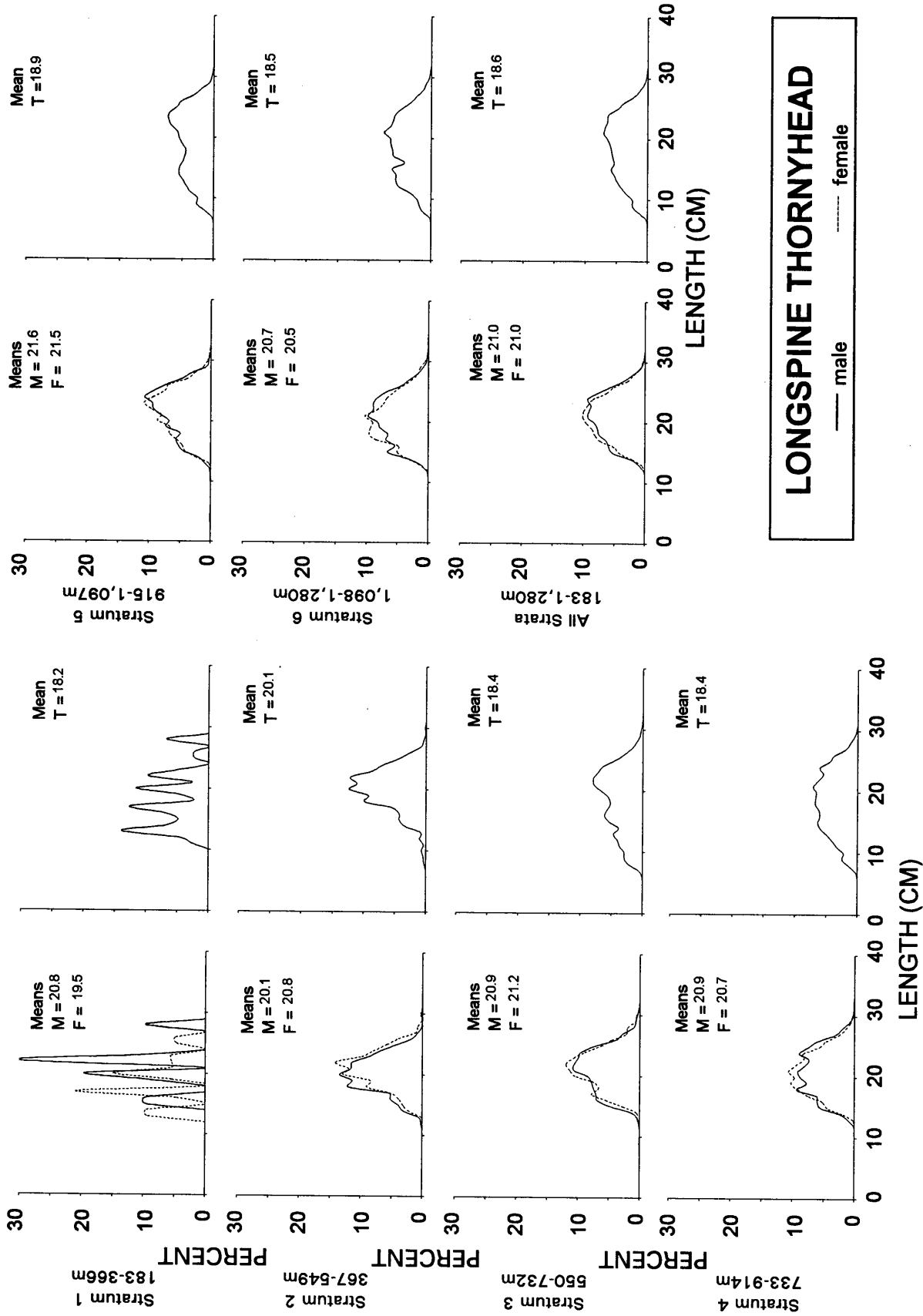


Figure 38.--Estimated population size composition and mean lengths (cm) of longspine thornyhead by depth stratum and by sex (T = males, females, and unsexed combined) for all International North Pacific Fisheries Commission areas sampled from the 1999 West Coast upper continental slope bottom trawl survey.

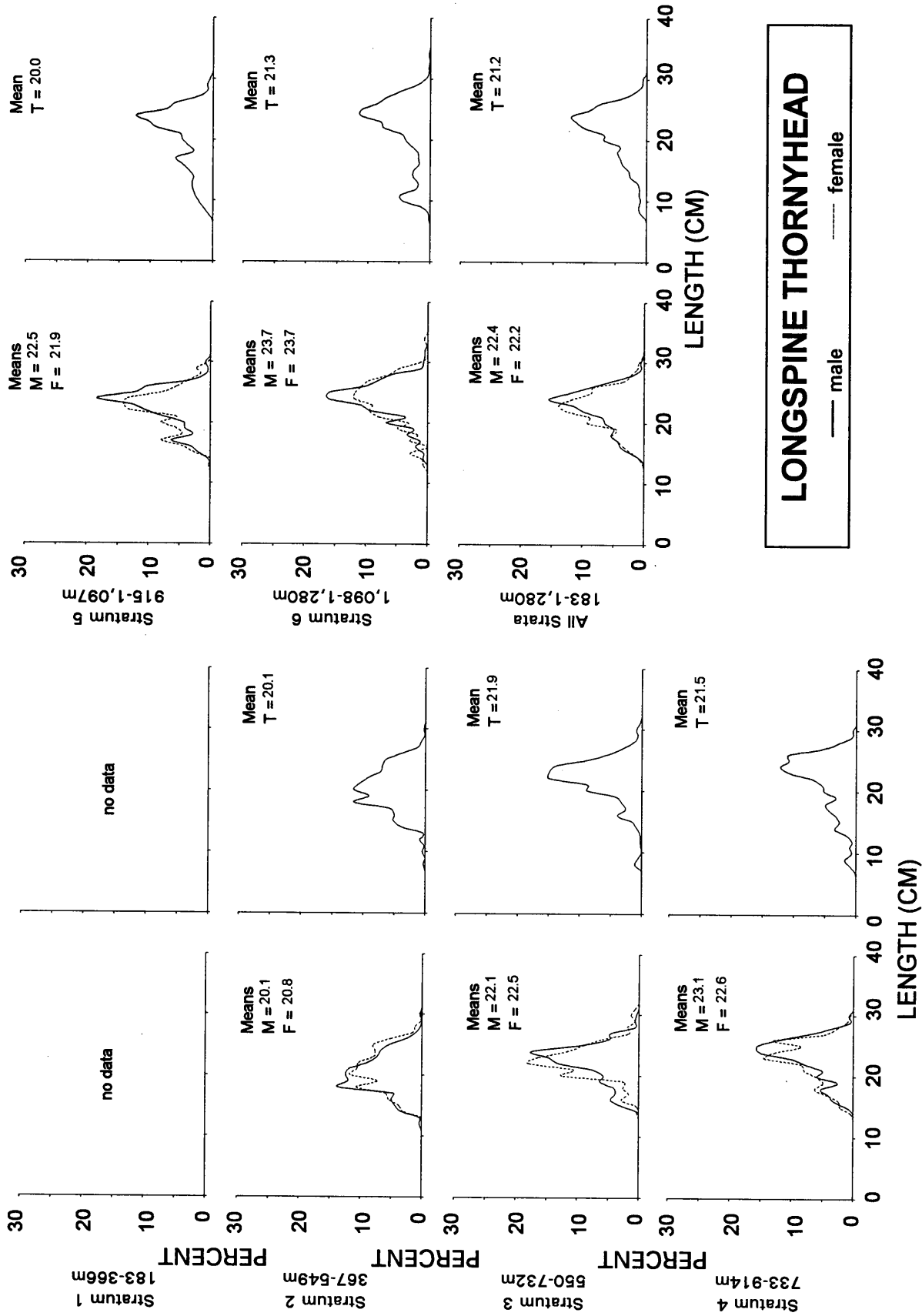


Figure 39.--Estimated population size composition and mean lengths (cm) of longspine thornyhead by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Conception area from the 1999 West Coast upper continental slope bottom trawl survey.

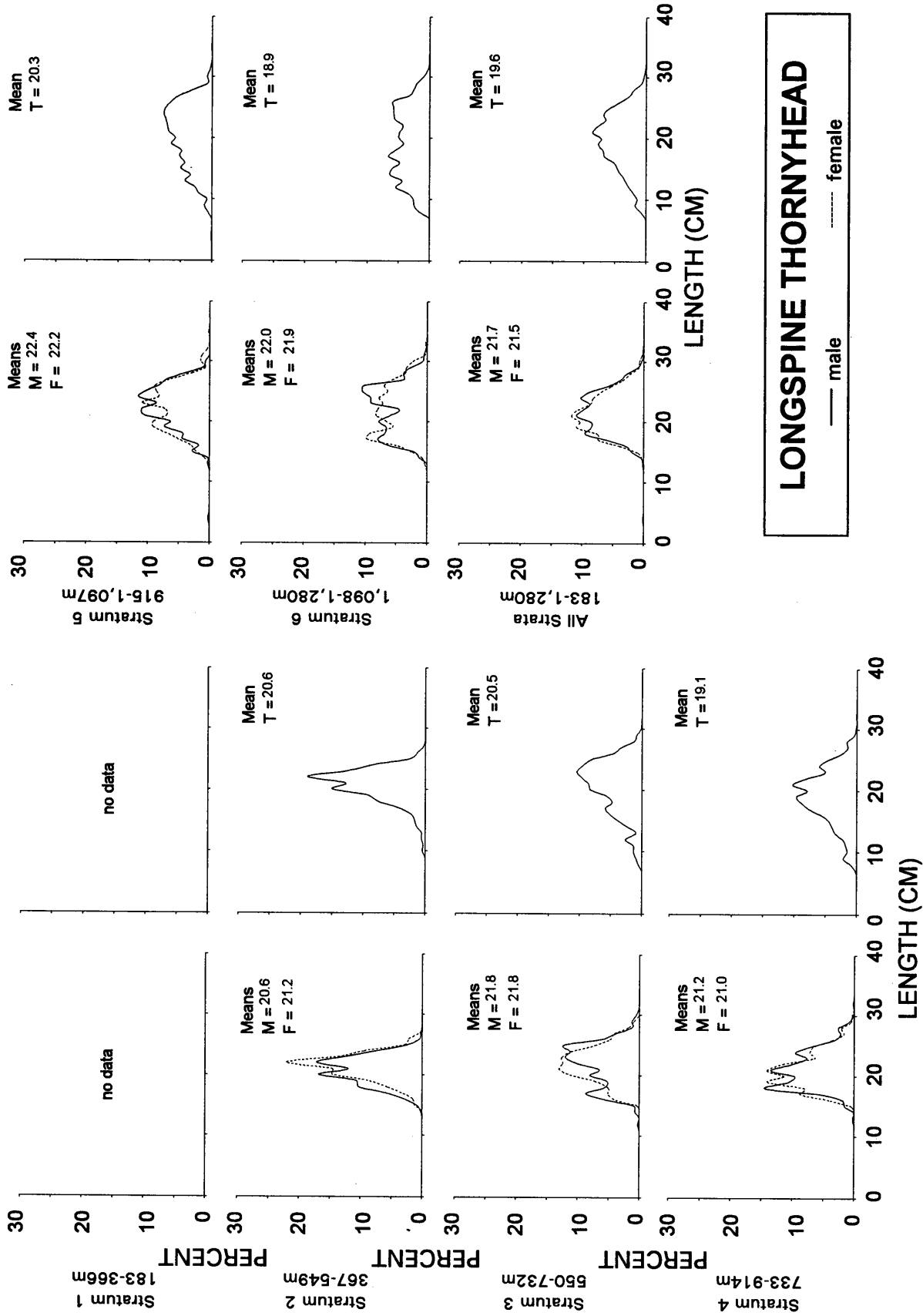


Figure 40.--Estimated population size composition and mean lengths (cm) of longspine thornyhead by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Monterey area from the 1999 West Coast upper continental slope bottom trawl survey.

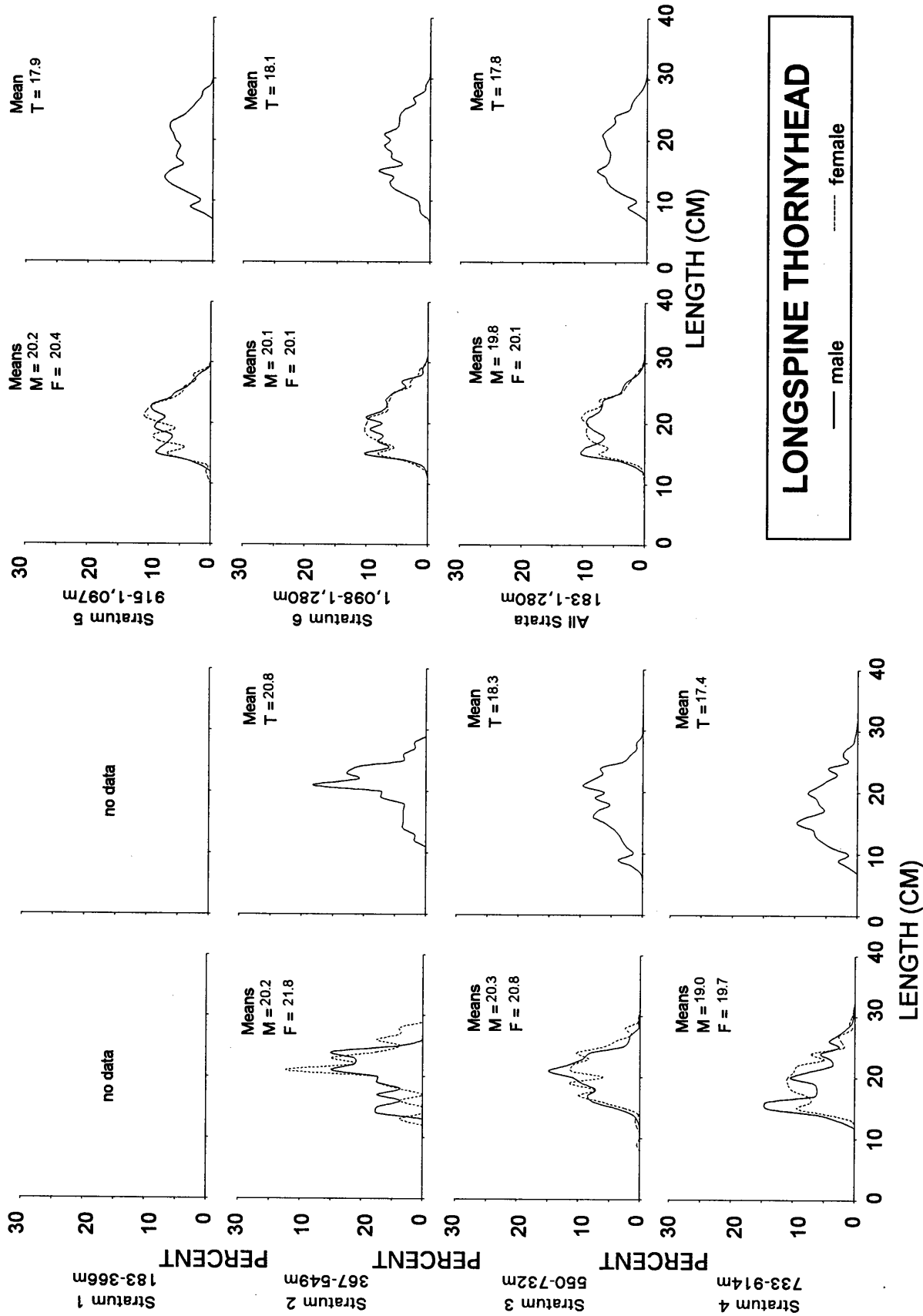


Figure 41.--Estimated population size composition and mean lengths (cm) of longspine thornyhead by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Eureka area from the 1999 West Coast upper continental slope bottom trawl survey.

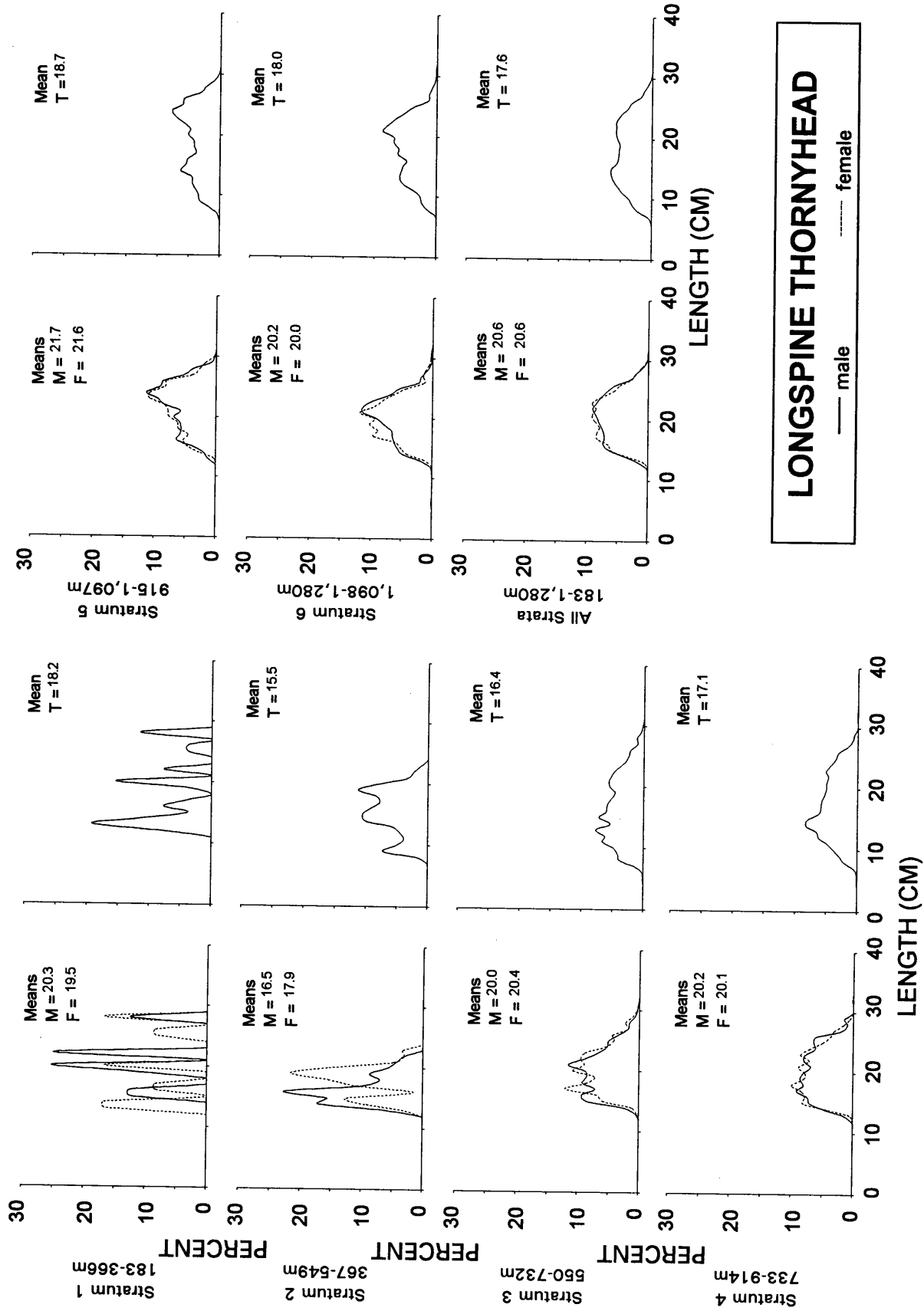


Figure 42.--Estimated population size composition and mean lengths (cm) of longspine thornyhead by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Columbia area from the 1999 West Coast upper continental slope bottom trawl survey.

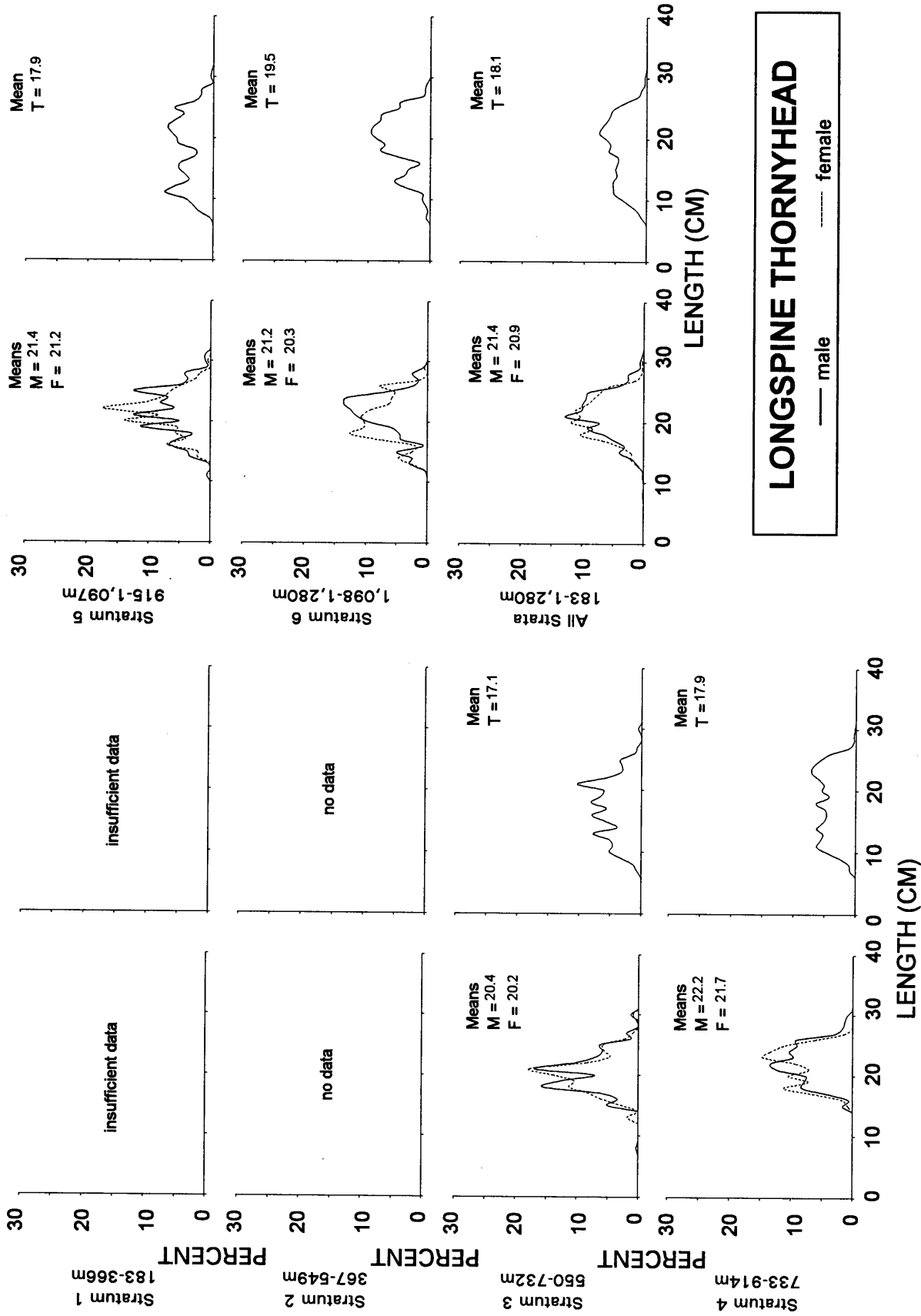


Figure 43.--Estimated population size composition and mean lengths (cm) of longspine thornyhead by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission U.S.-Vancouver area from the 1999 West Coast upper continental slope bottom trawl survey.

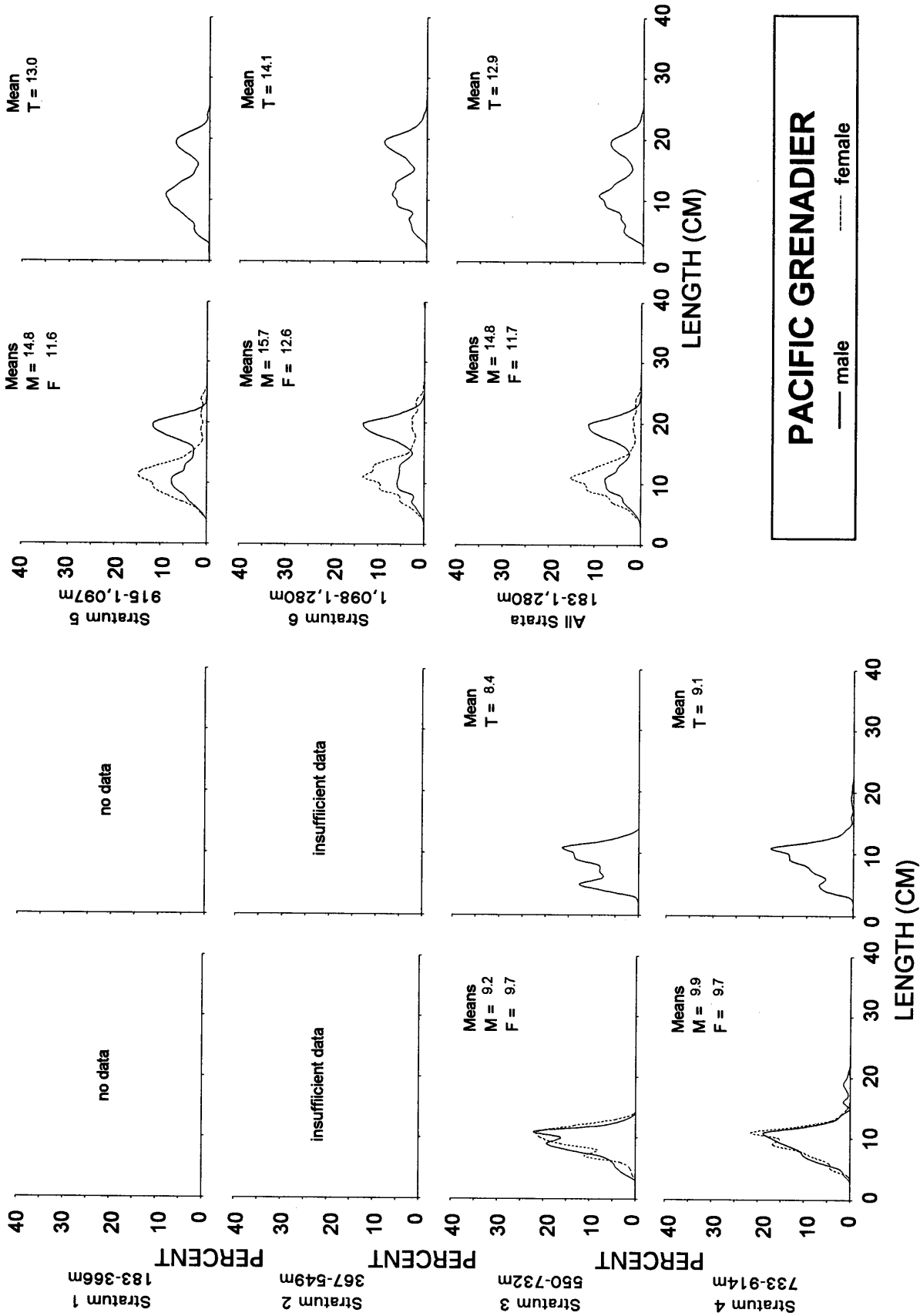


Figure 44.--Estimated population size composition and mean lengths (cm) of Pacific grenadier by depth stratum and by sex (T = males, females, and unsexed combined) for all International North Pacific Fisheries Commission areas sampled from the 1999 West Coast upper continental slope bottom trawl survey.

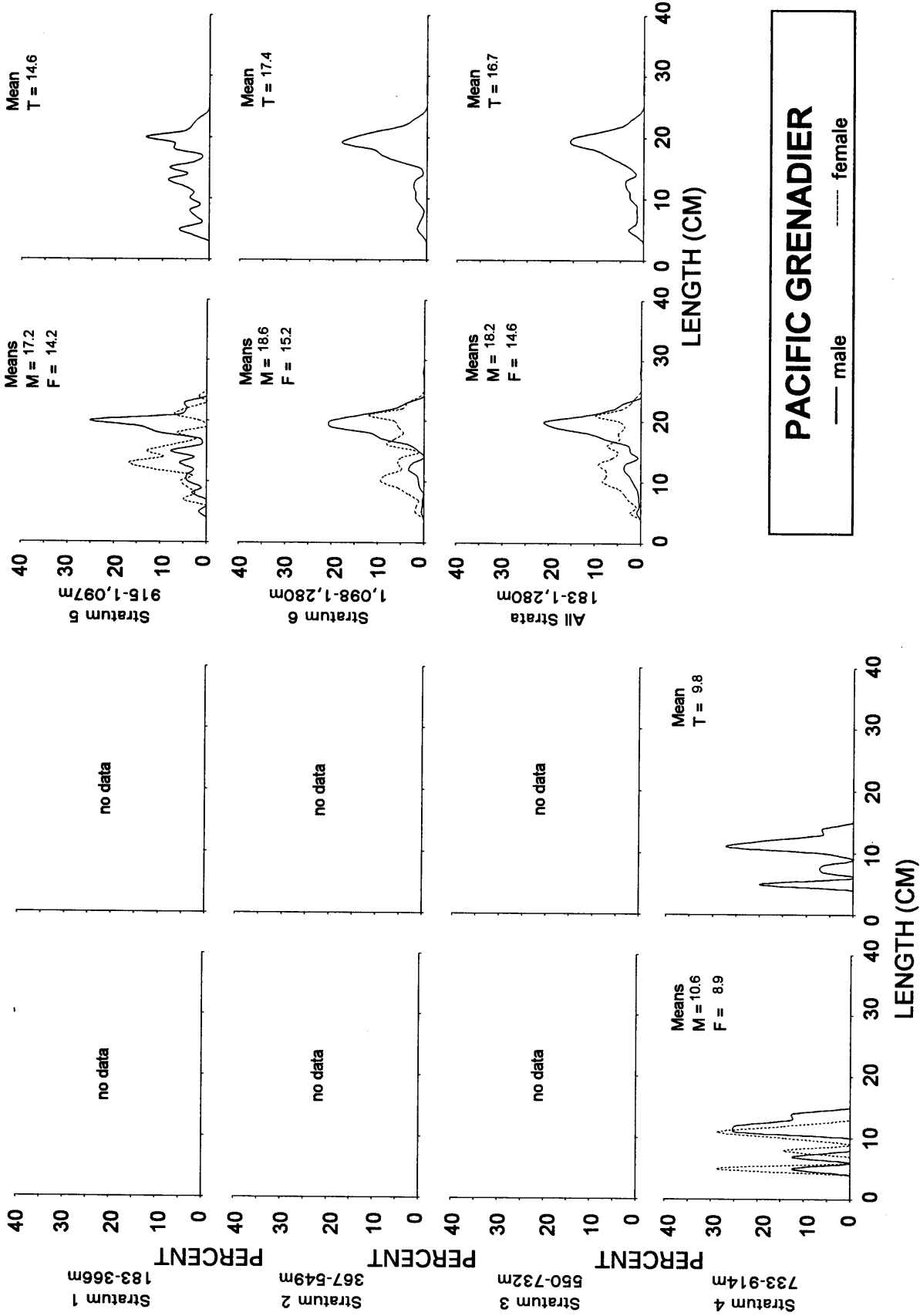


Figure 45.--Estimated population size composition and mean lengths (cm) of Pacific grenadier by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Conception area from the 1999 West Coast upper continental slope bottom trawl survey.

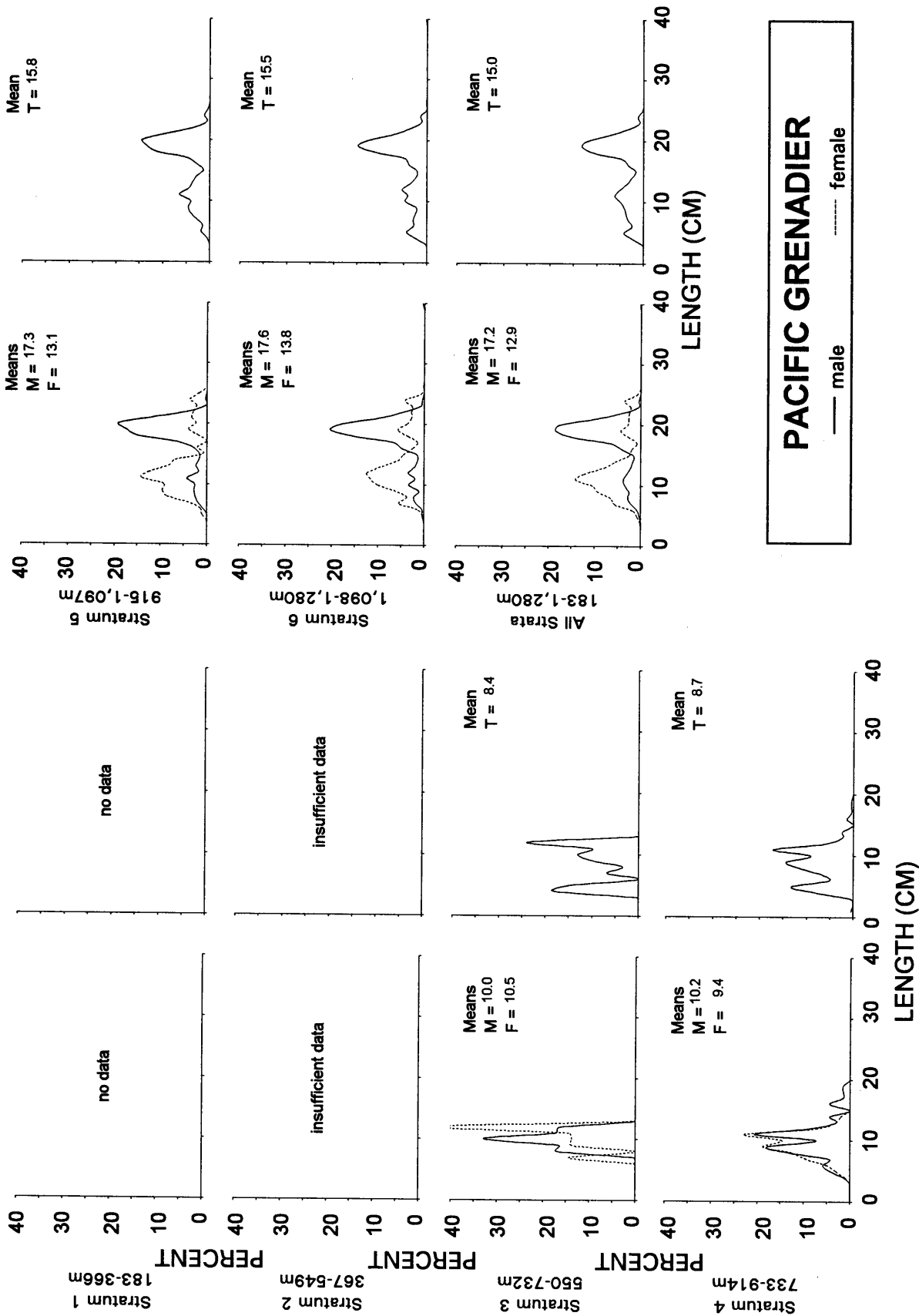


Figure 46.--Estimated population size composition and mean lengths (cm) of Pacific grenadier by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Monterey area from the 1999 West Coast upper continental slope bottom trawl survey.

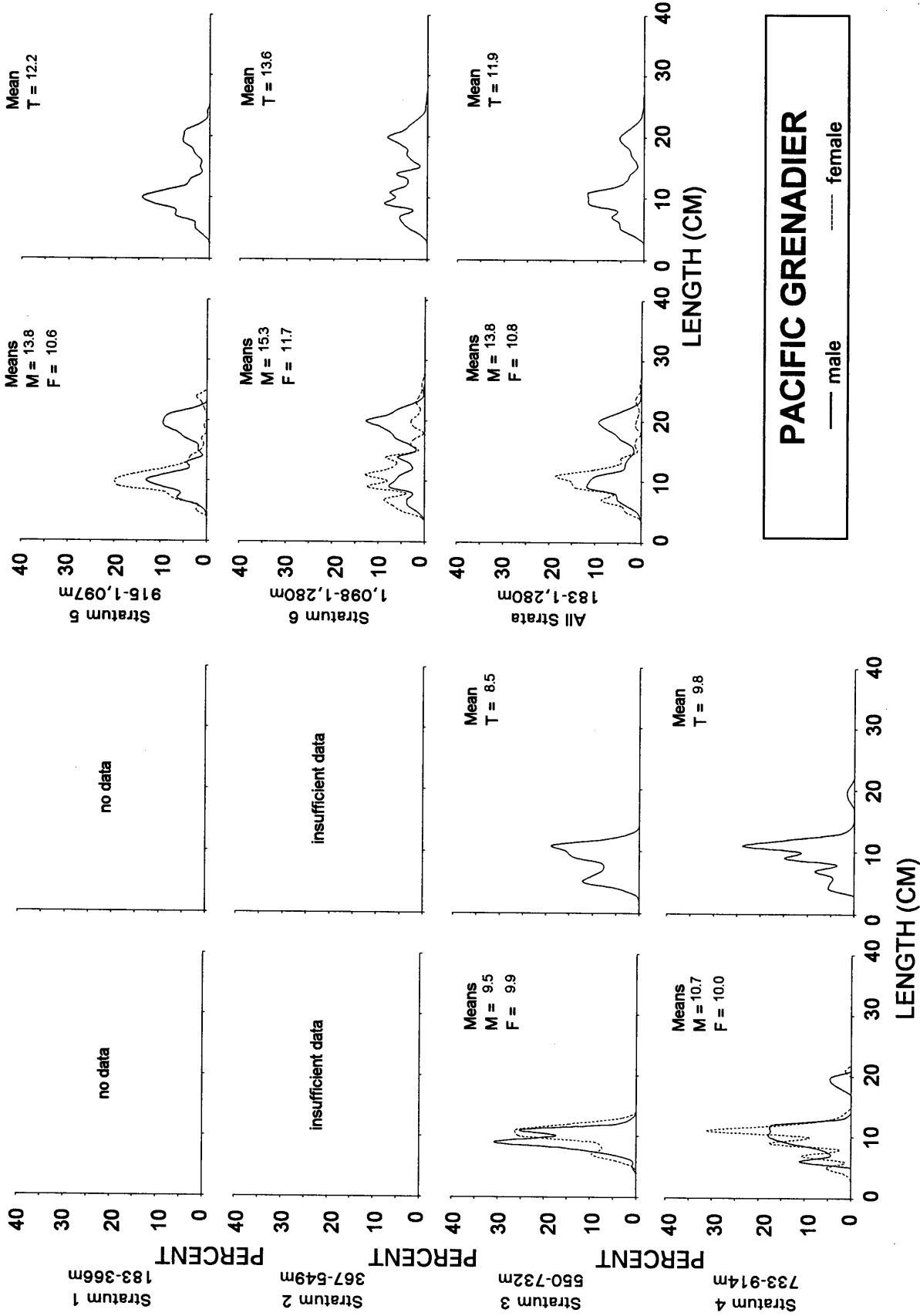


Figure 47.--Estimated population size composition and mean lengths (cm) of Pacific grenadier by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Eureka area from the 1999 West Coast upper continental slope bottom trawl survey.

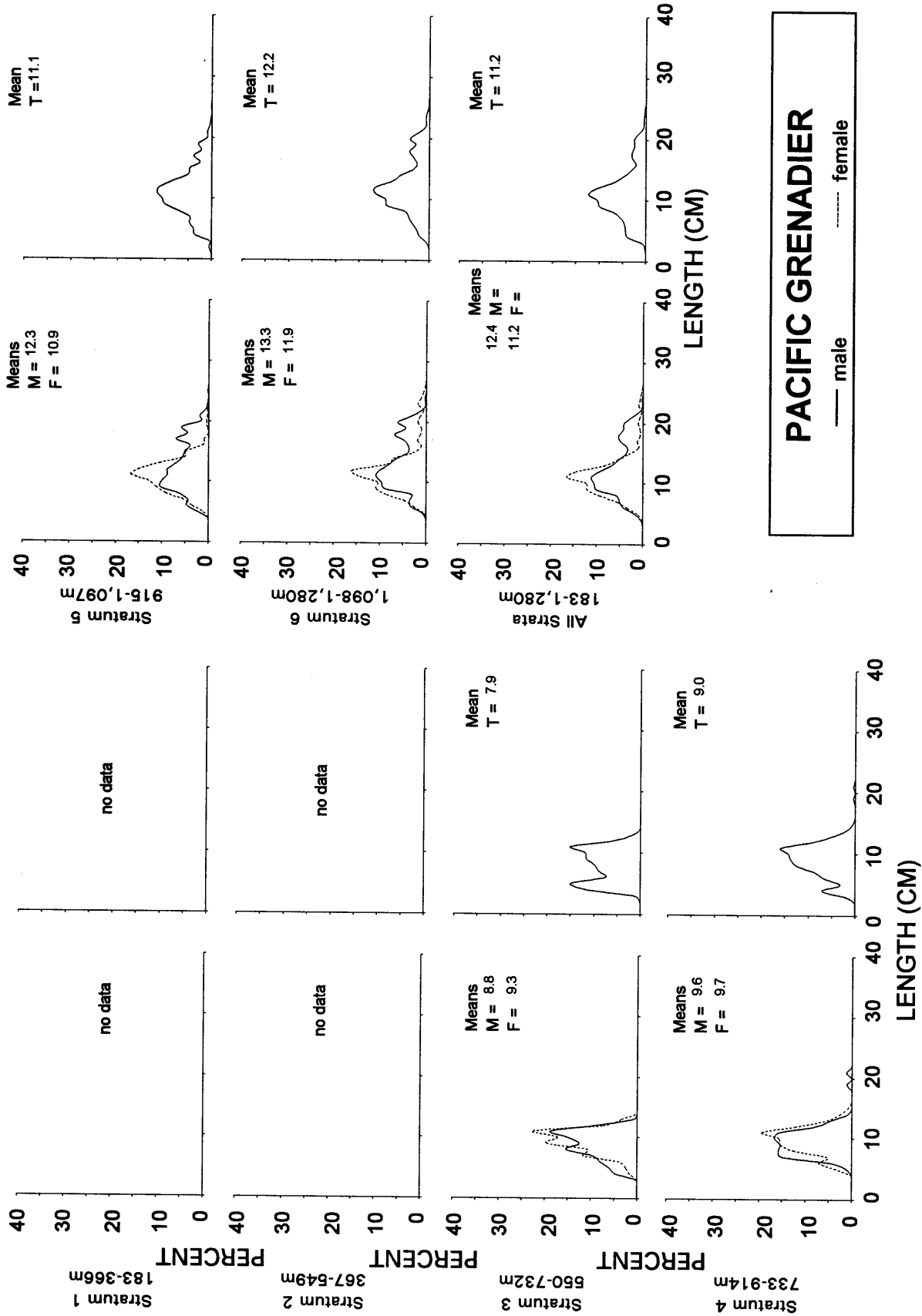


Figure 48.--Estimated population size composition and mean lengths (cm) of Pacific grenadier by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Columbia area from the 1999 West Coast upper continental slope bottom trawl survey.

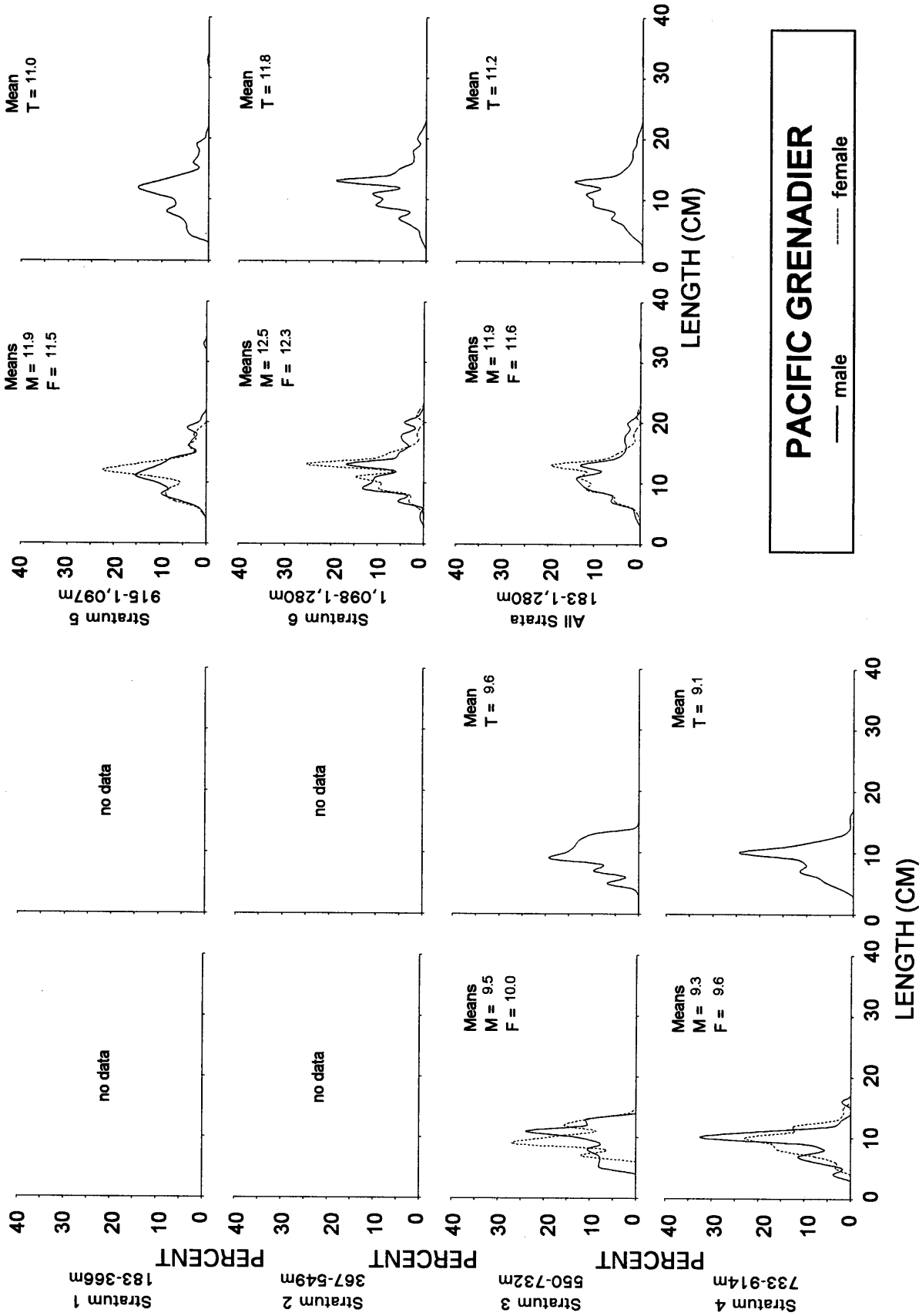


Figure 49.--Estimated population size composition and mean lengths (cm) of Pacific grenadier by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission U.S.-Vancouver area from the 1999 West Coast upper continental slope bottom trawl survey.

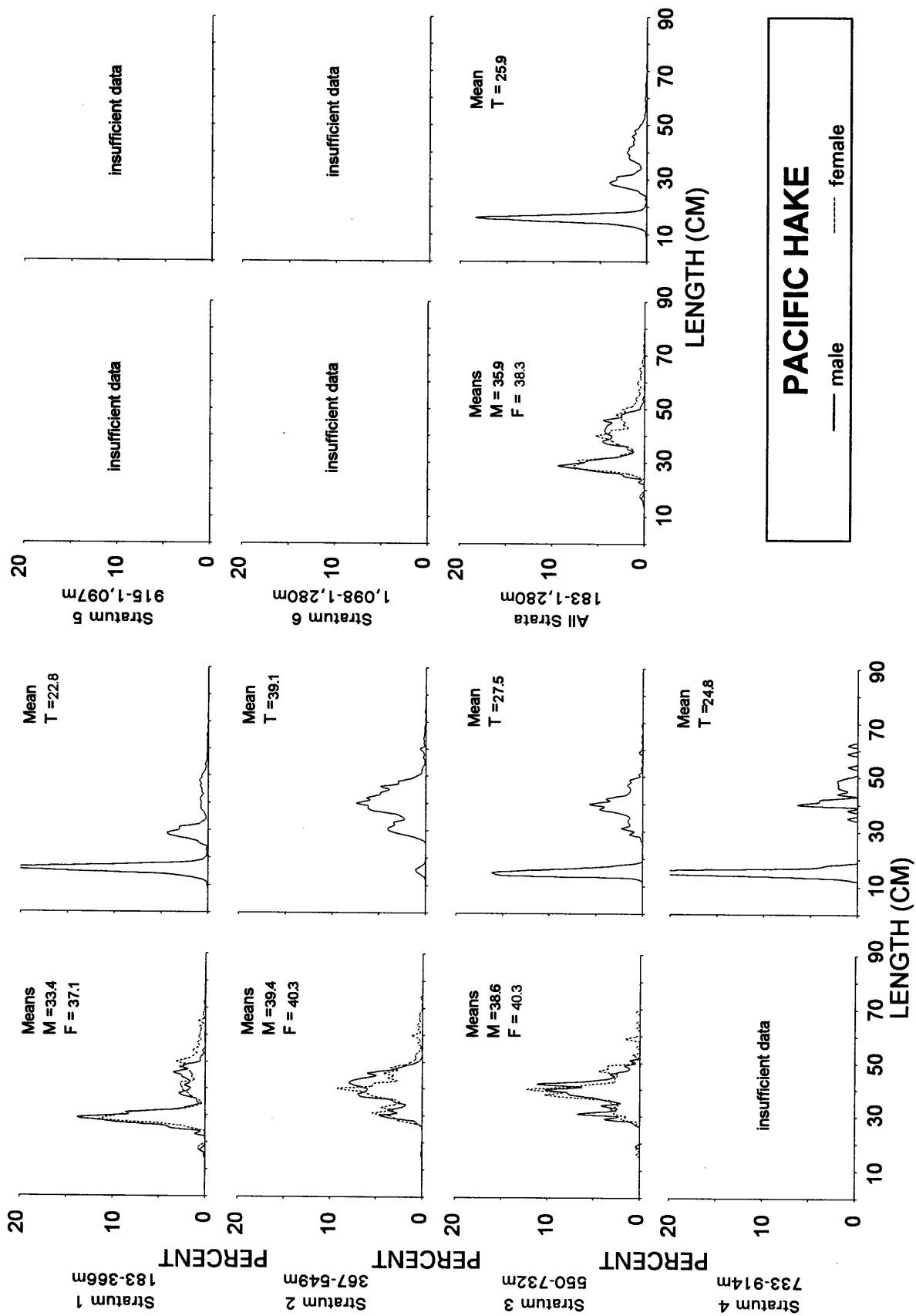


Figure 50.--Estimated population size composition and mean lengths (cm) of Pacific hake by depth stratum and by sex (T = males, females, and unsexed combined) for all International North Pacific Fisheries Commission areas sampled from the 1999 West Coast upper continental slope bottom trawl survey.

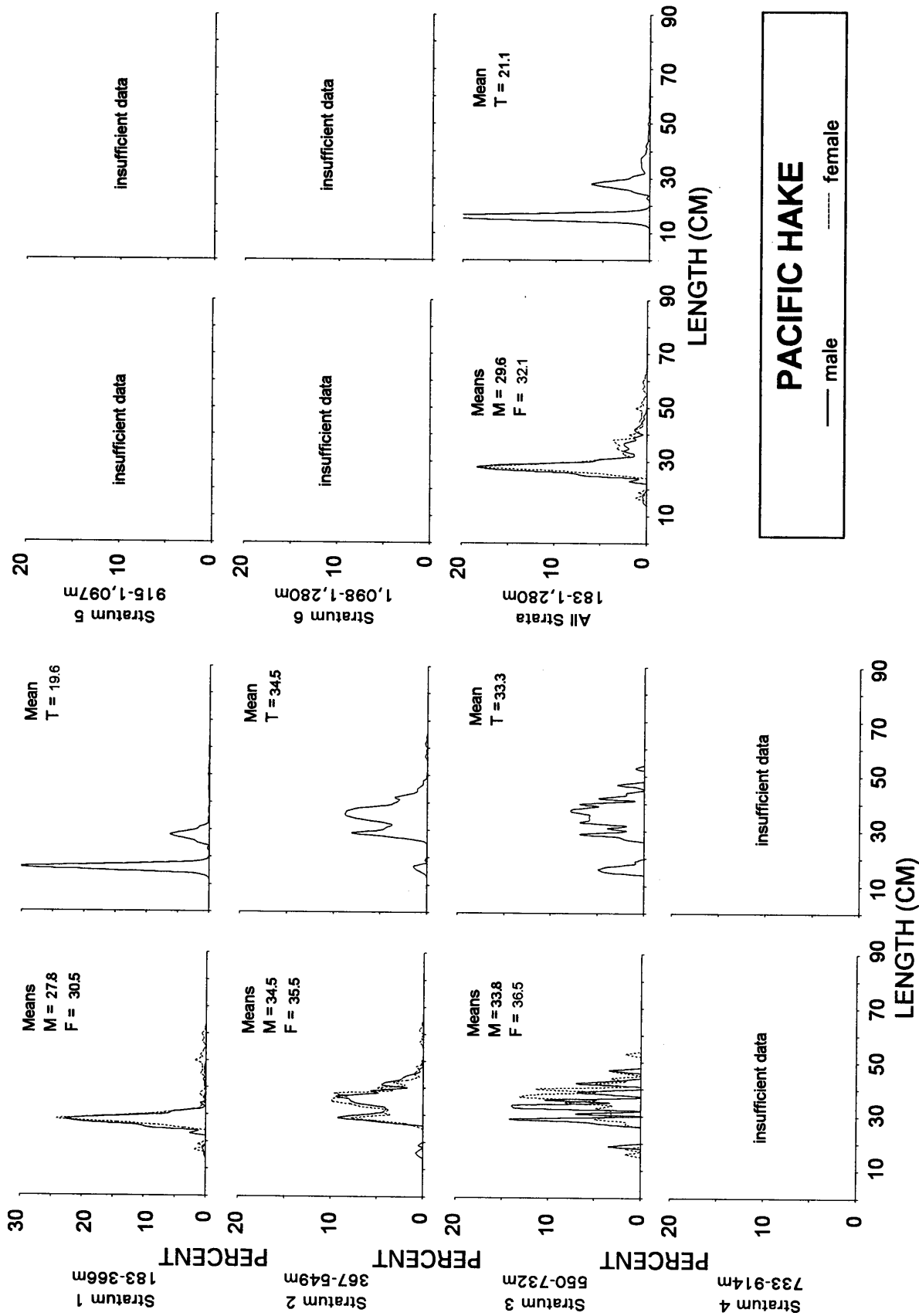


Figure 51.--Estimated population size composition and mean lengths (cm) of Pacific hake by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Conception area from the 1999 West Coast upper continental slope bottom trawl survey.

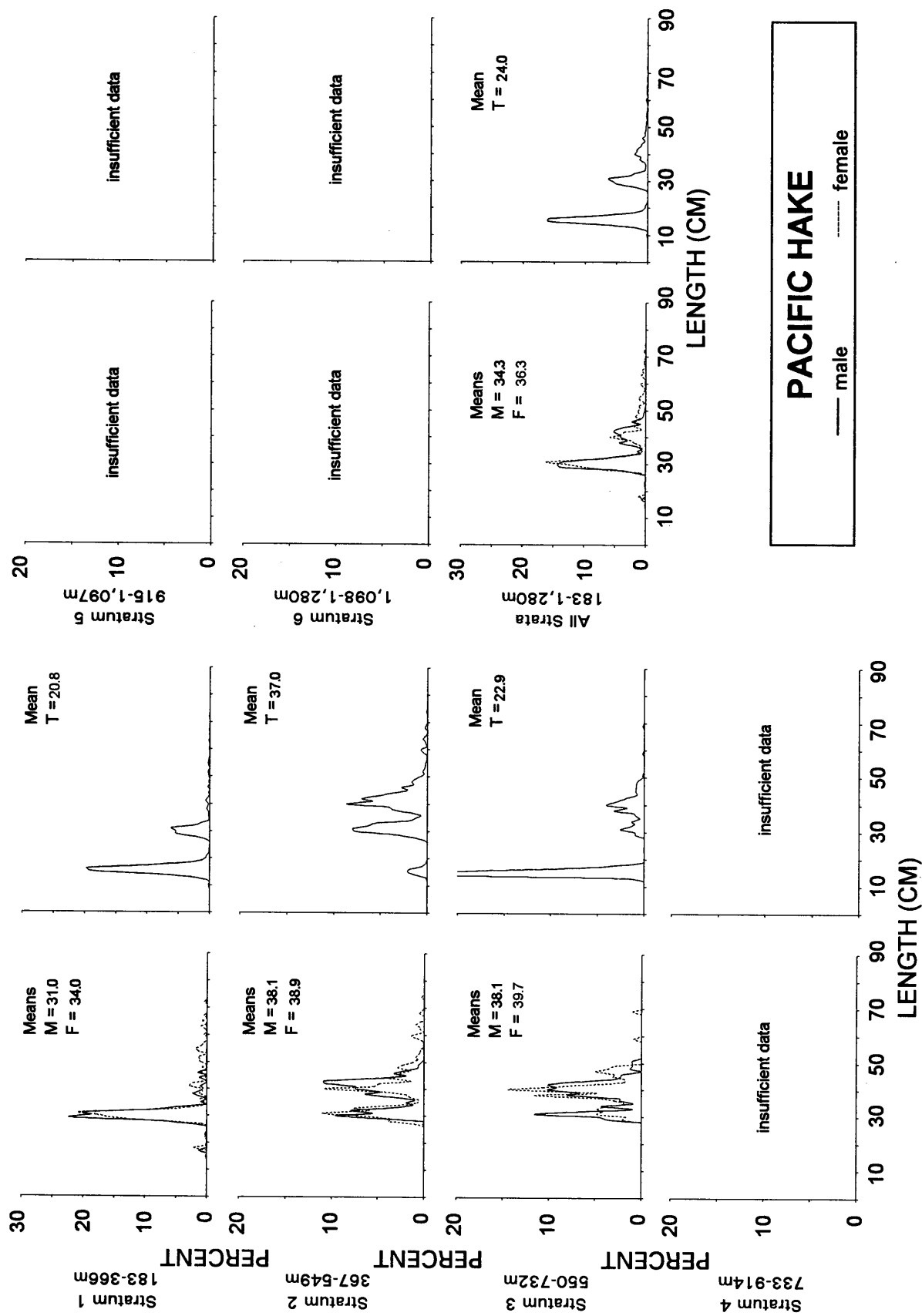


Figure 52.--Estimated population size composition and mean lengths (cm) of Pacific hake by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Monterey area from the 1999 West Coast upper continental slope bottom trawl survey.

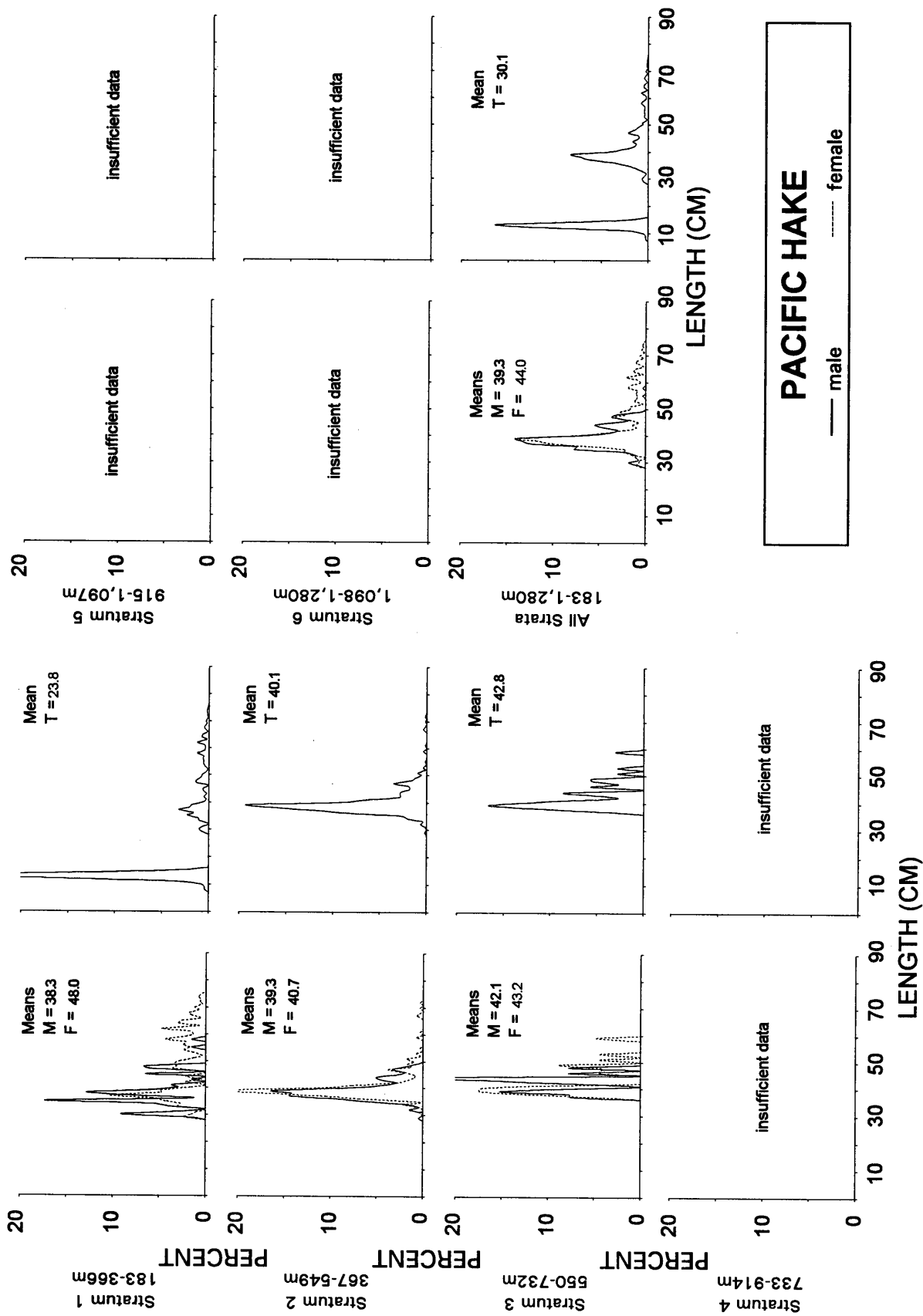


Figure 53.--Estimated population size composition and mean lengths (cm) of Pacific hake by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Eureka area from the 1999 West Coast upper continental slope bottom trawl survey.

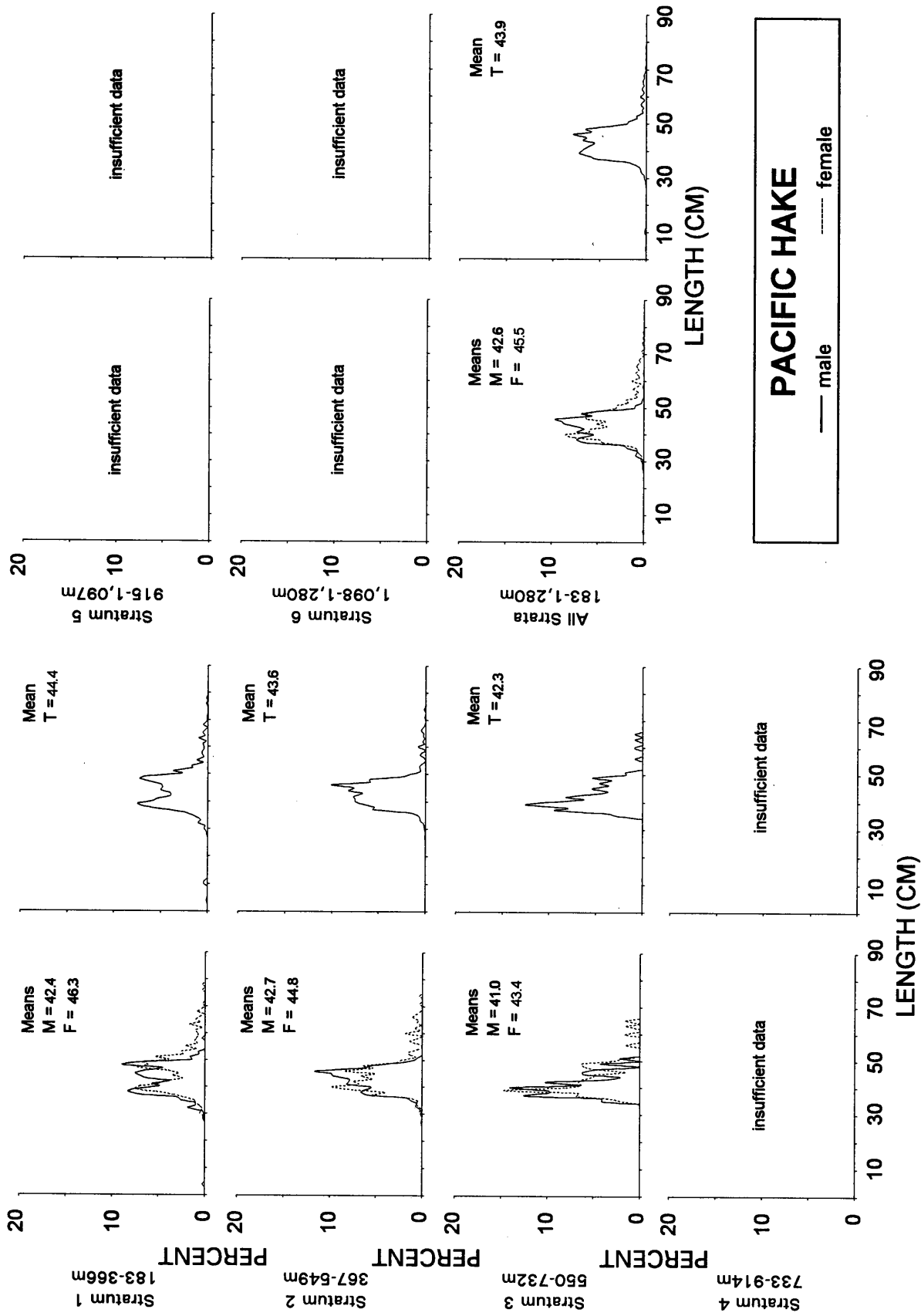


Figure 54.--Estimated population size composition and mean lengths (cm) of Pacific hake by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Columbia area from the 1999 West Coast upper continental slope bottom trawl survey.

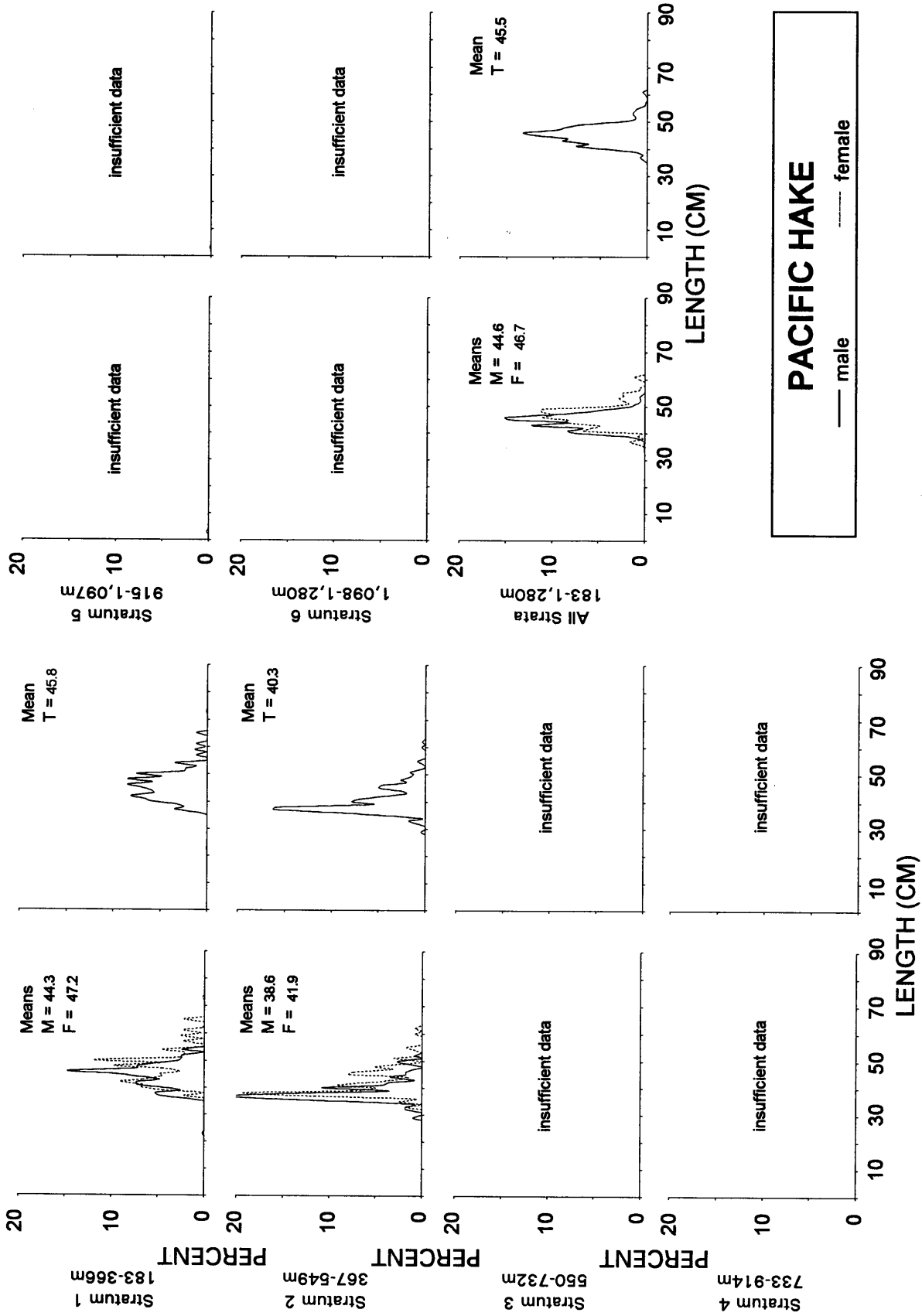


Figure 55.--Estimated population size composition and mean lengths (cm) of Pacific hake by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission U.S.-Vancouver area from the 1999 West Coast upper continental slope bottom trawl survey.

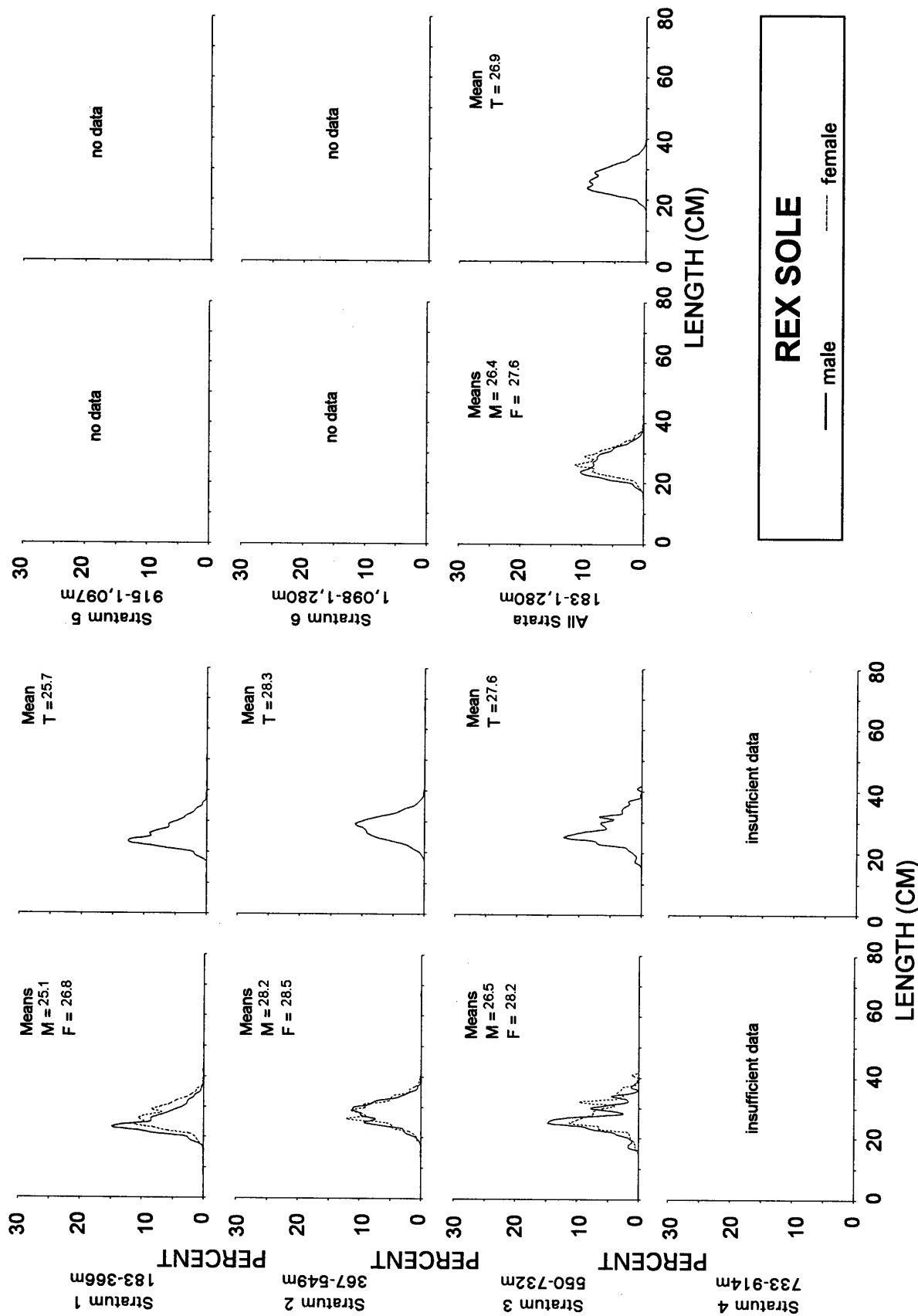


Figure 56.--Estimated population size composition and mean lengths (cm) of rex sole by depth stratum and by sex (T = males, females, and unsexed combined) for all International North Pacific Fisheries Commission areas sampled from the 1999 West Coast upper continental slope bottom trawl survey.

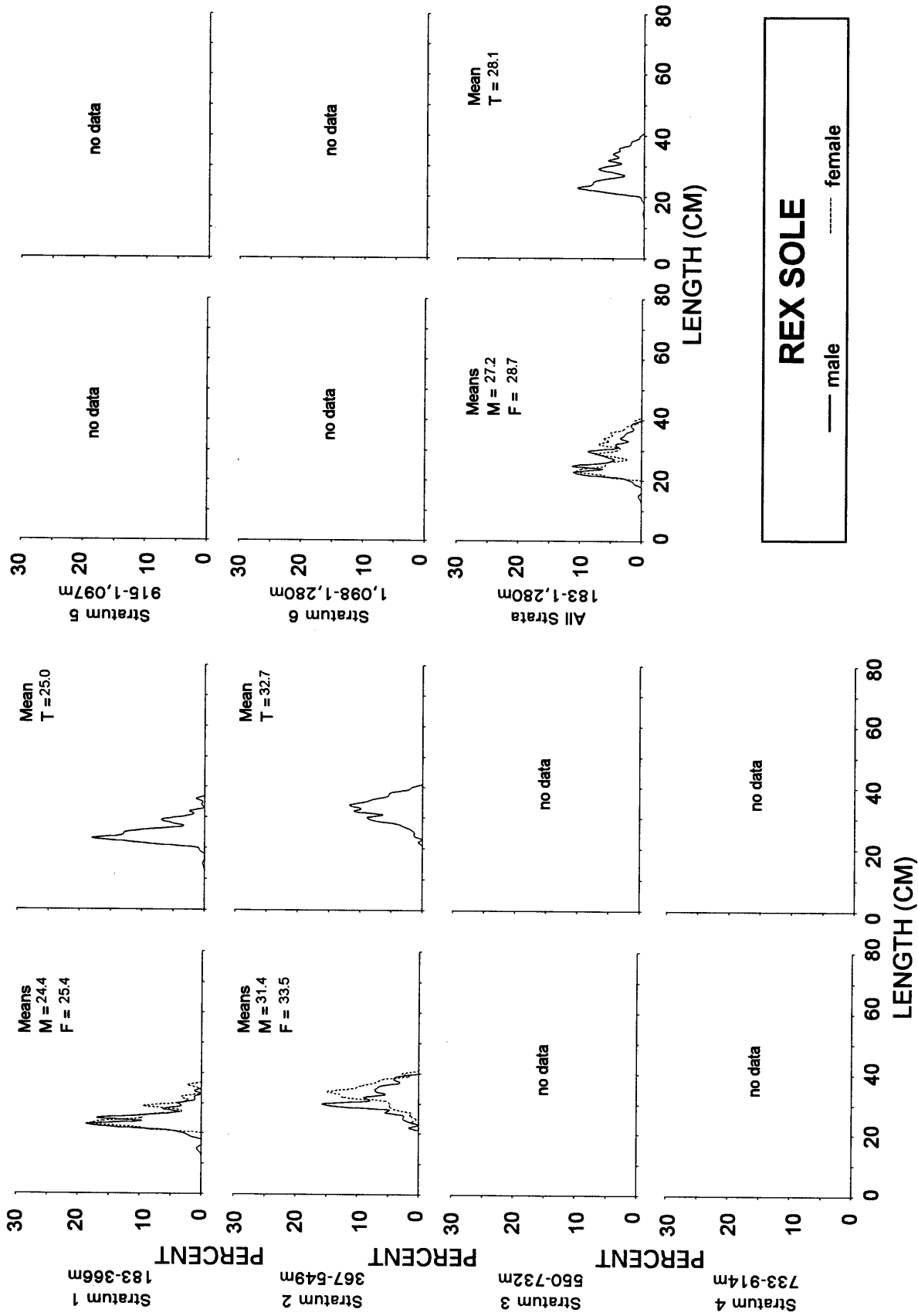


Figure 57.--Estimated population size composition and mean lengths (cm) of rex sole by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Conception area from the 1999 West Coast upper continental slope bottom trawl survey.

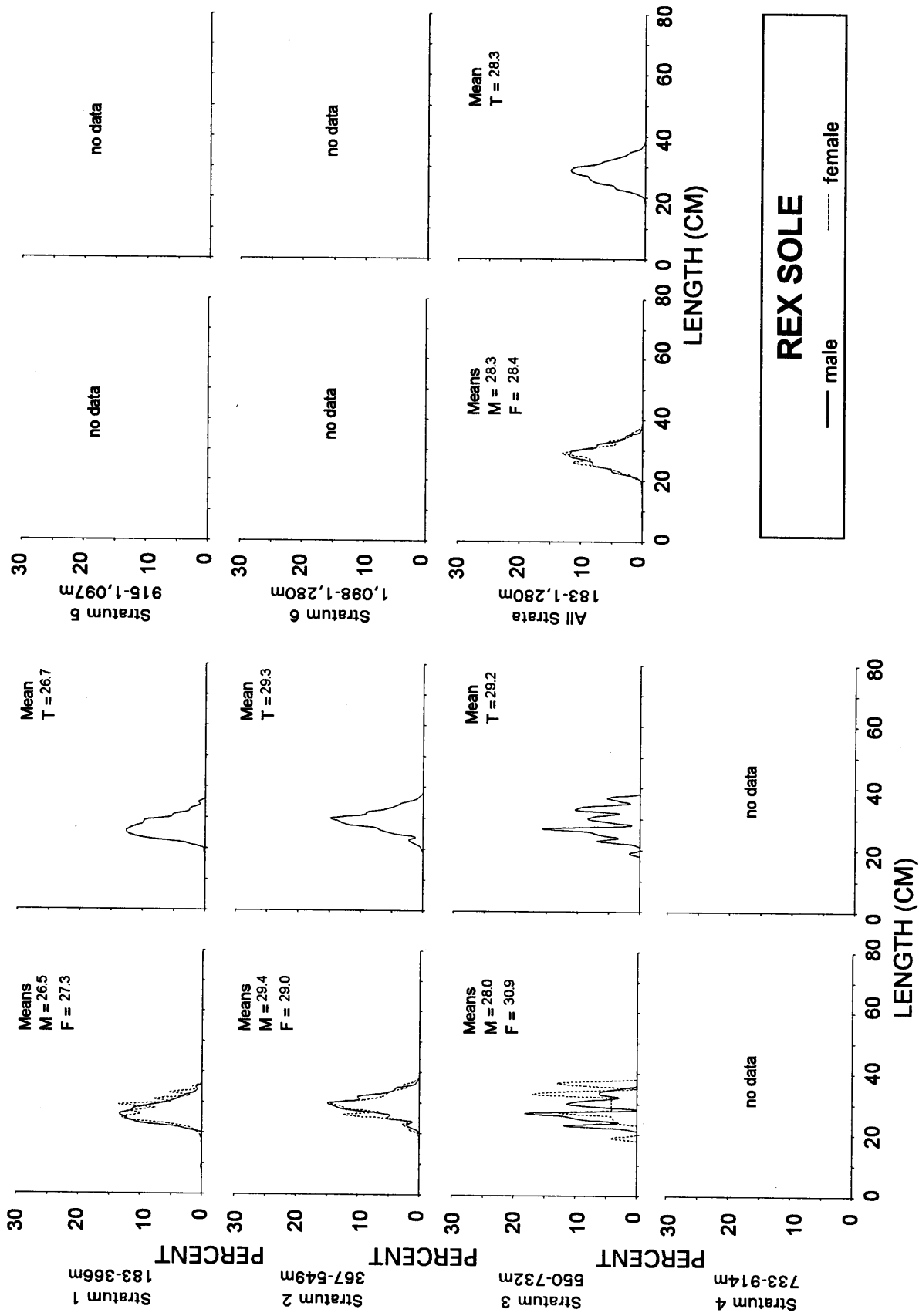


Figure 58.--Estimated population size composition and mean lengths (cm) of rex sole by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Monterey area from the 1999 West Coast upper continental slope bottom trawl survey.

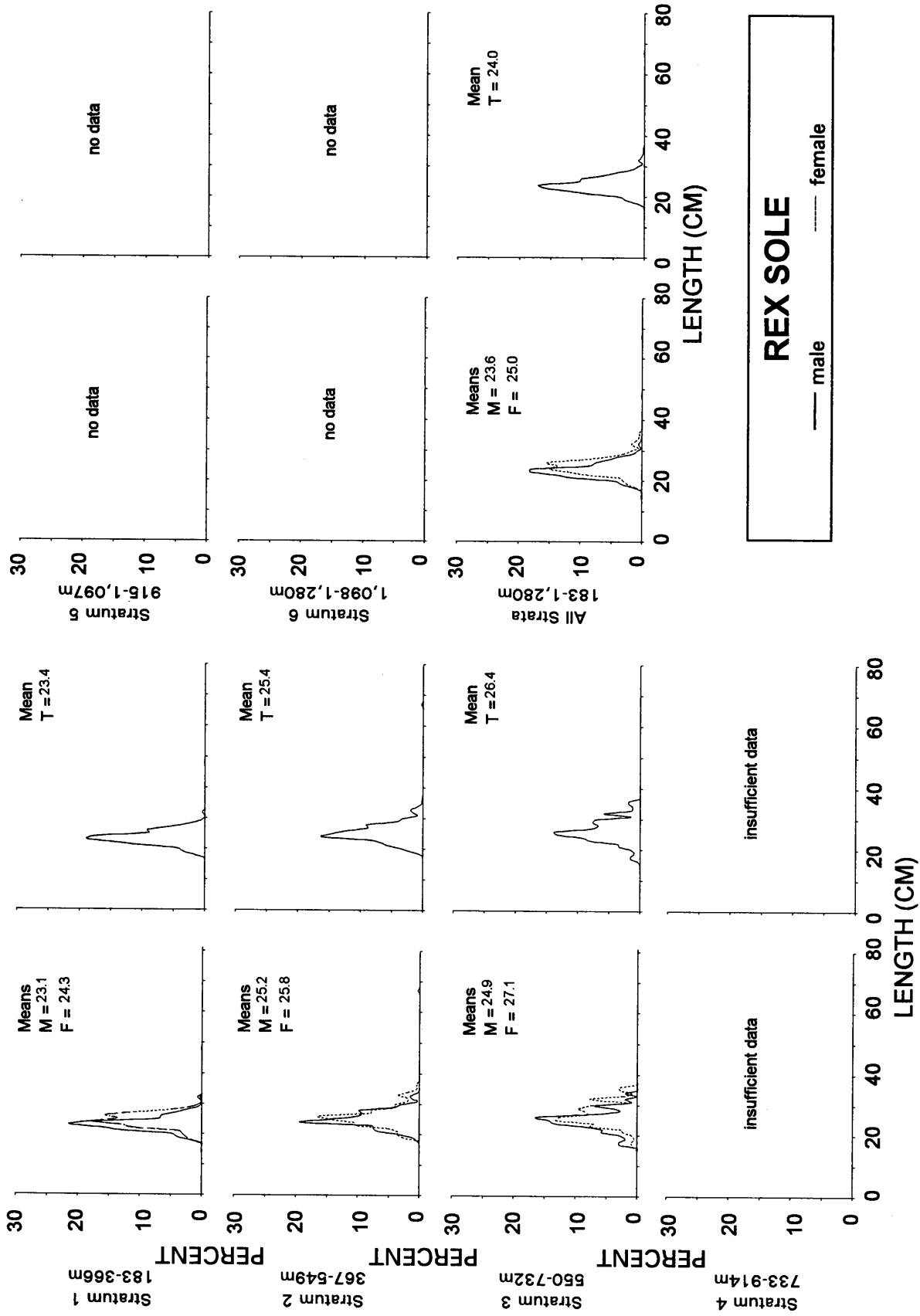


Figure 59.--Estimated population size composition and mean lengths (cm) of rex sole by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Eureka area from the 1999 West Coast upper continental slope bottom trawl survey.

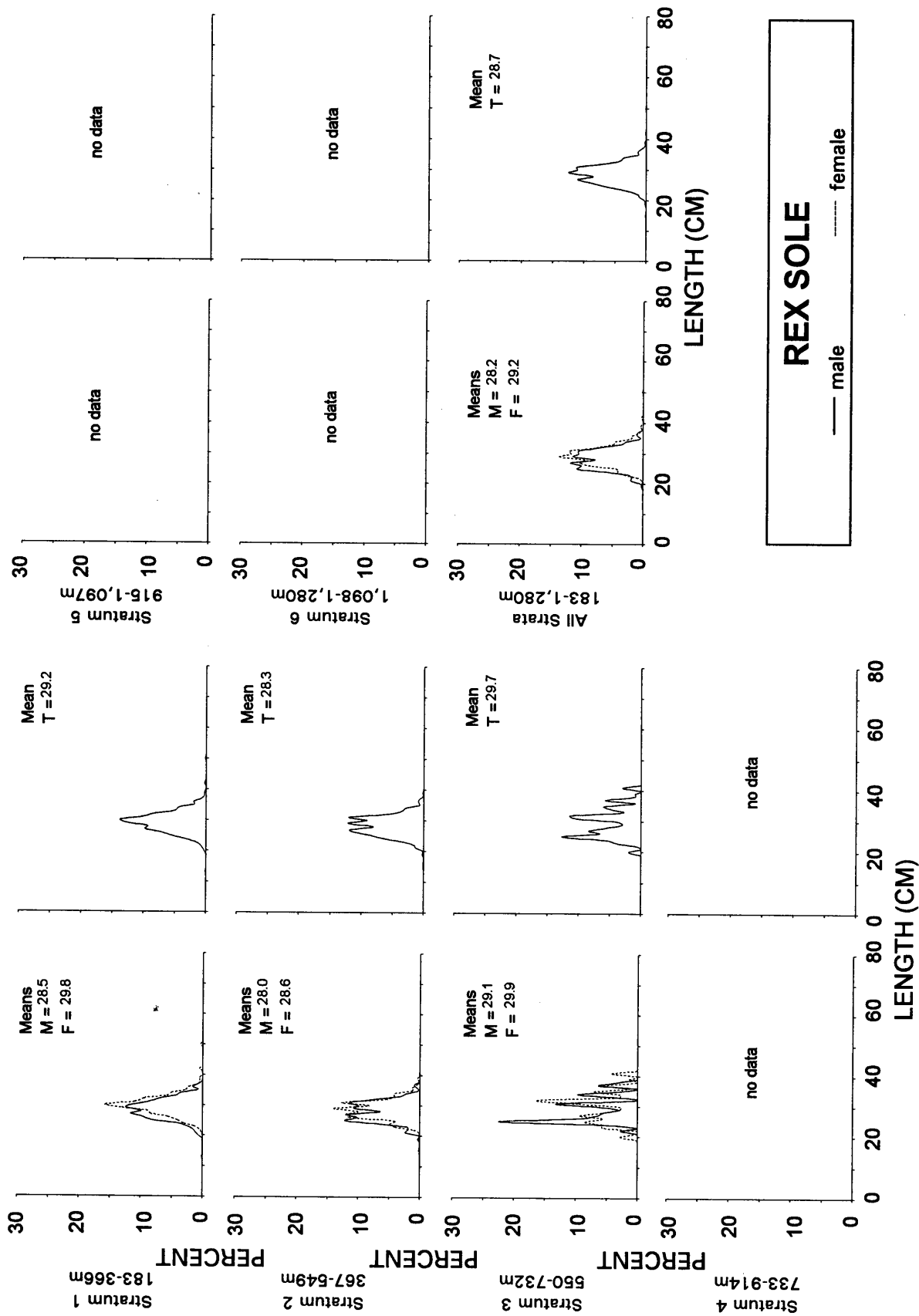


Figure 60.--Estimated population size composition and mean lengths (cm) of rex sole by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Columbia area from the 1999 West Coast upper continental slope bottom trawl survey.

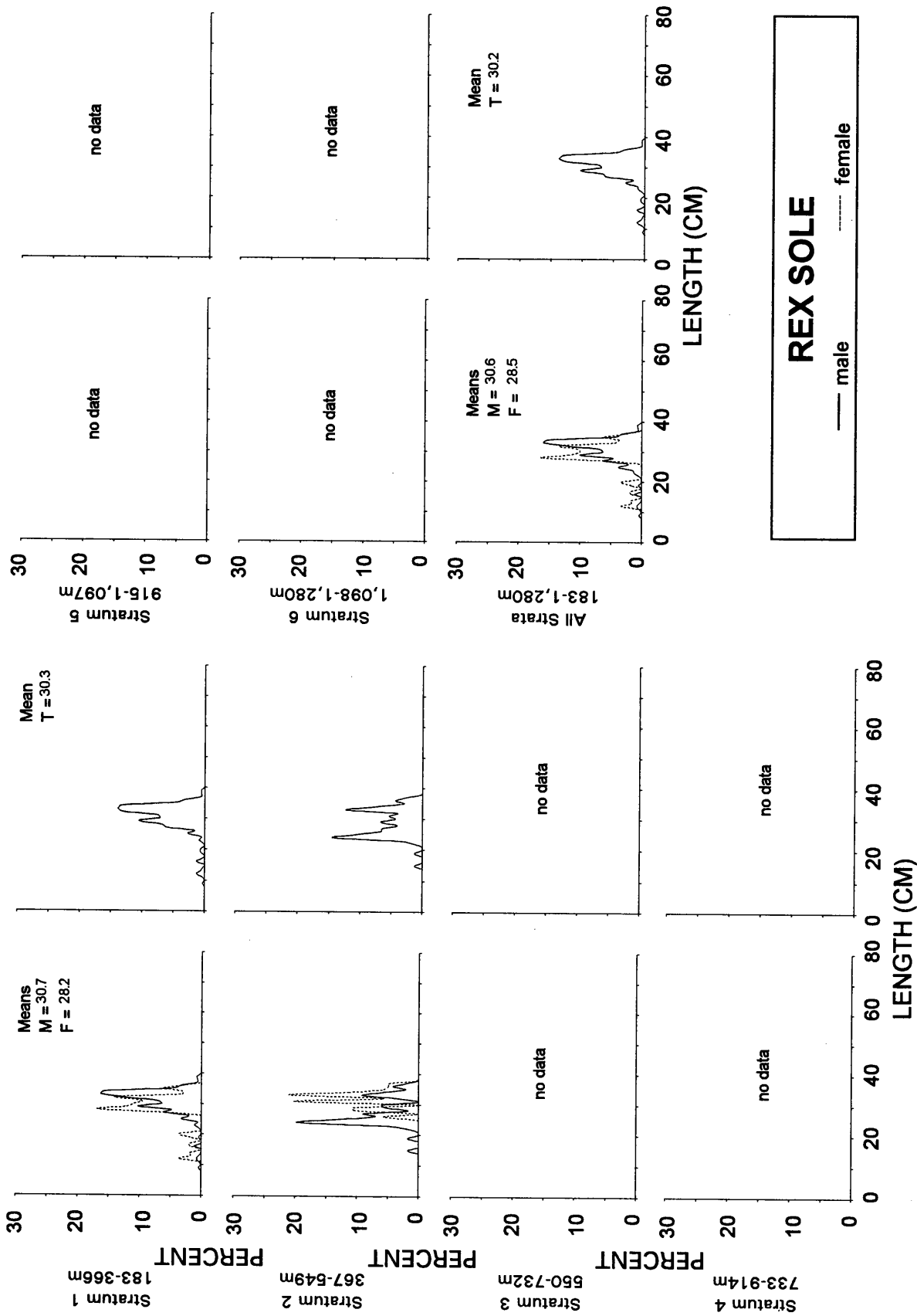


Figure 61.--Estimated population size composition and mean lengths (cm) of rex sole by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission U.S.-Vancouver area from the 1999 West Coast upper continental slope bottom trawl survey.

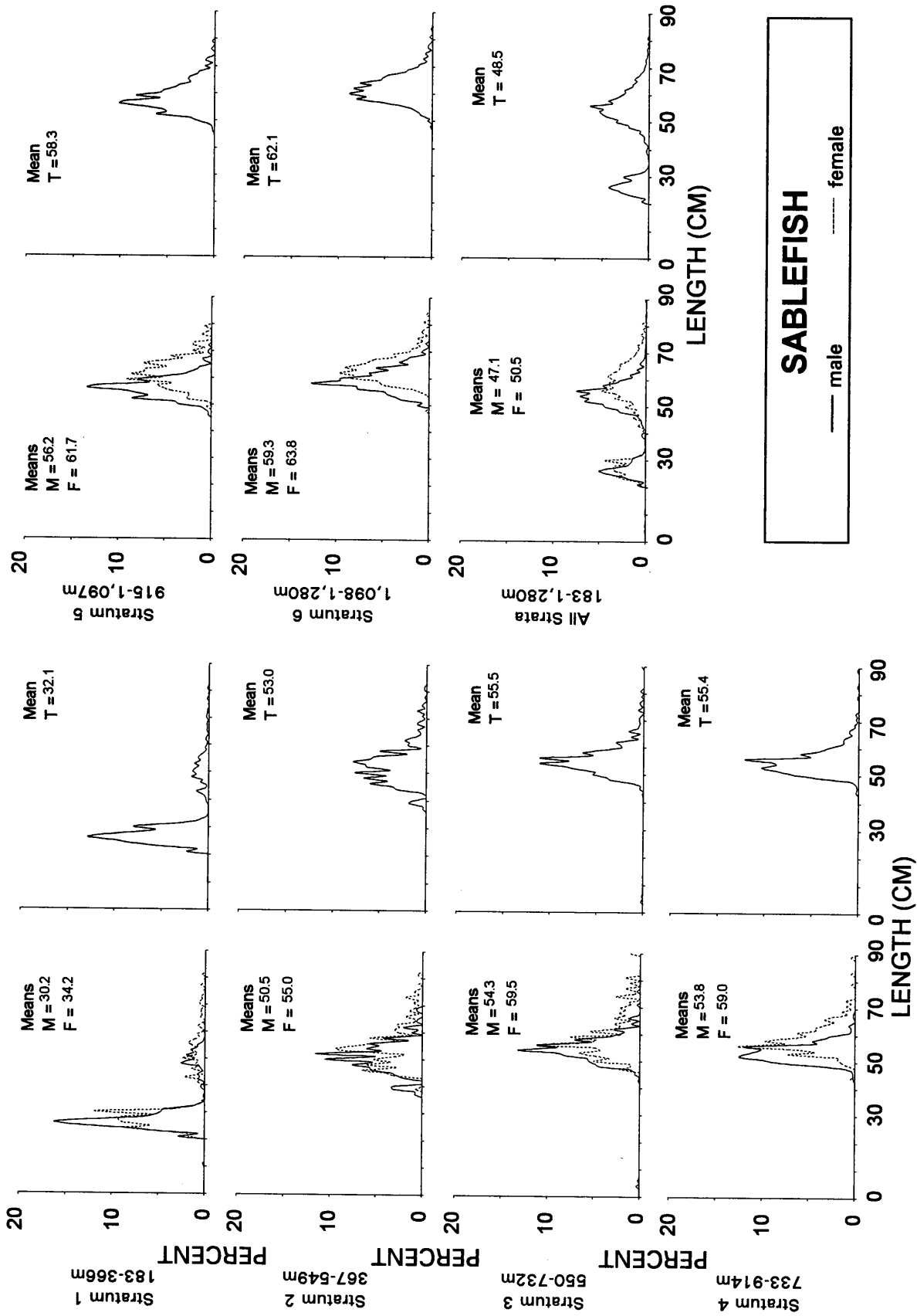


Figure 62.--Estimated population size composition and mean lengths (cm) of sablefish by depth stratum and by sex (T = males, females, and unsexed combined) for all International North Pacific Fisheries Commission areas sampled from the 1999 West Coast upper continental slope bottom trawl survey.

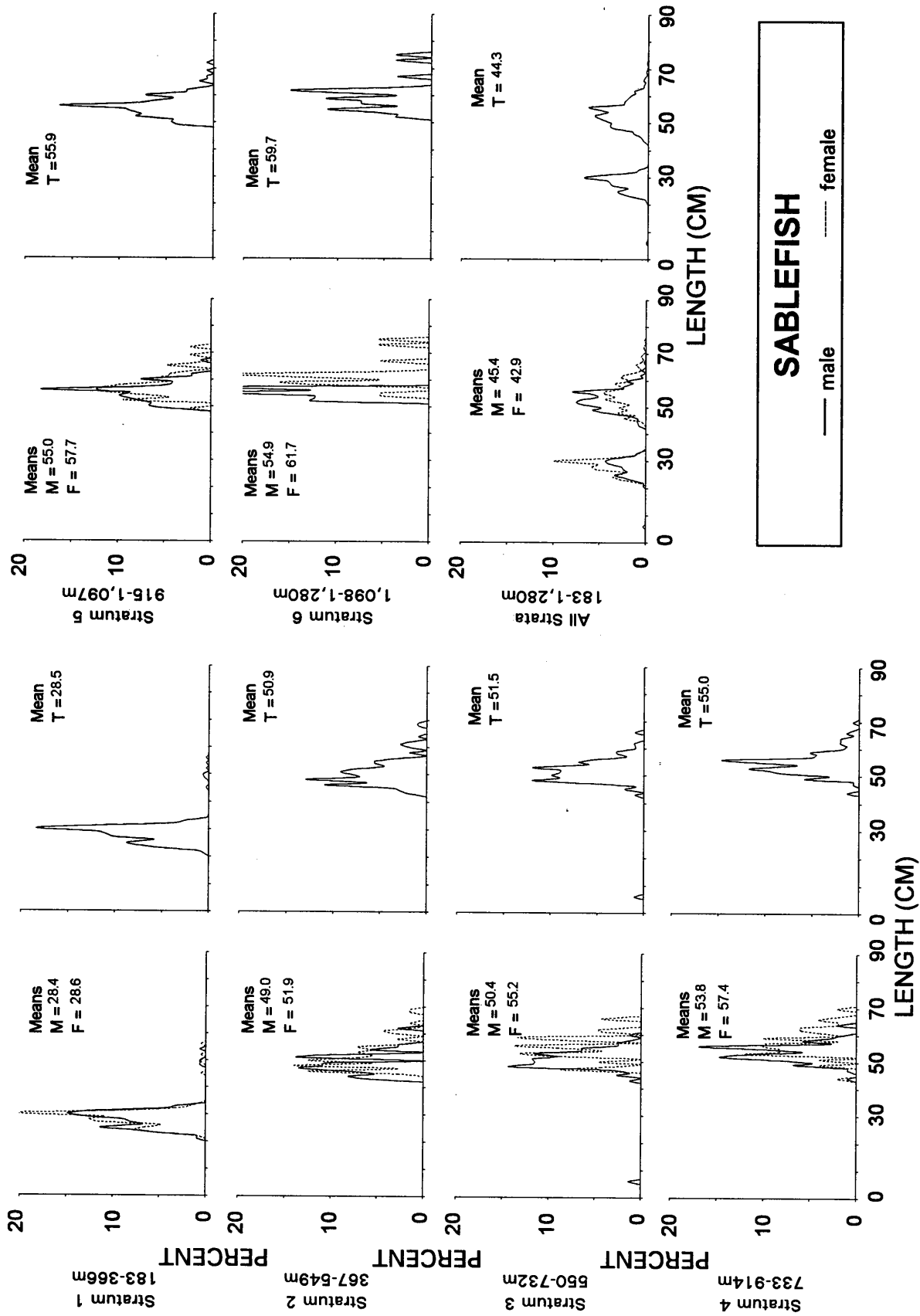


Figure 63.--Estimated population size composition and mean lengths (cm) of sablefish by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Conception area from the 1999 West Coast upper continental slope bottom trawl survey.

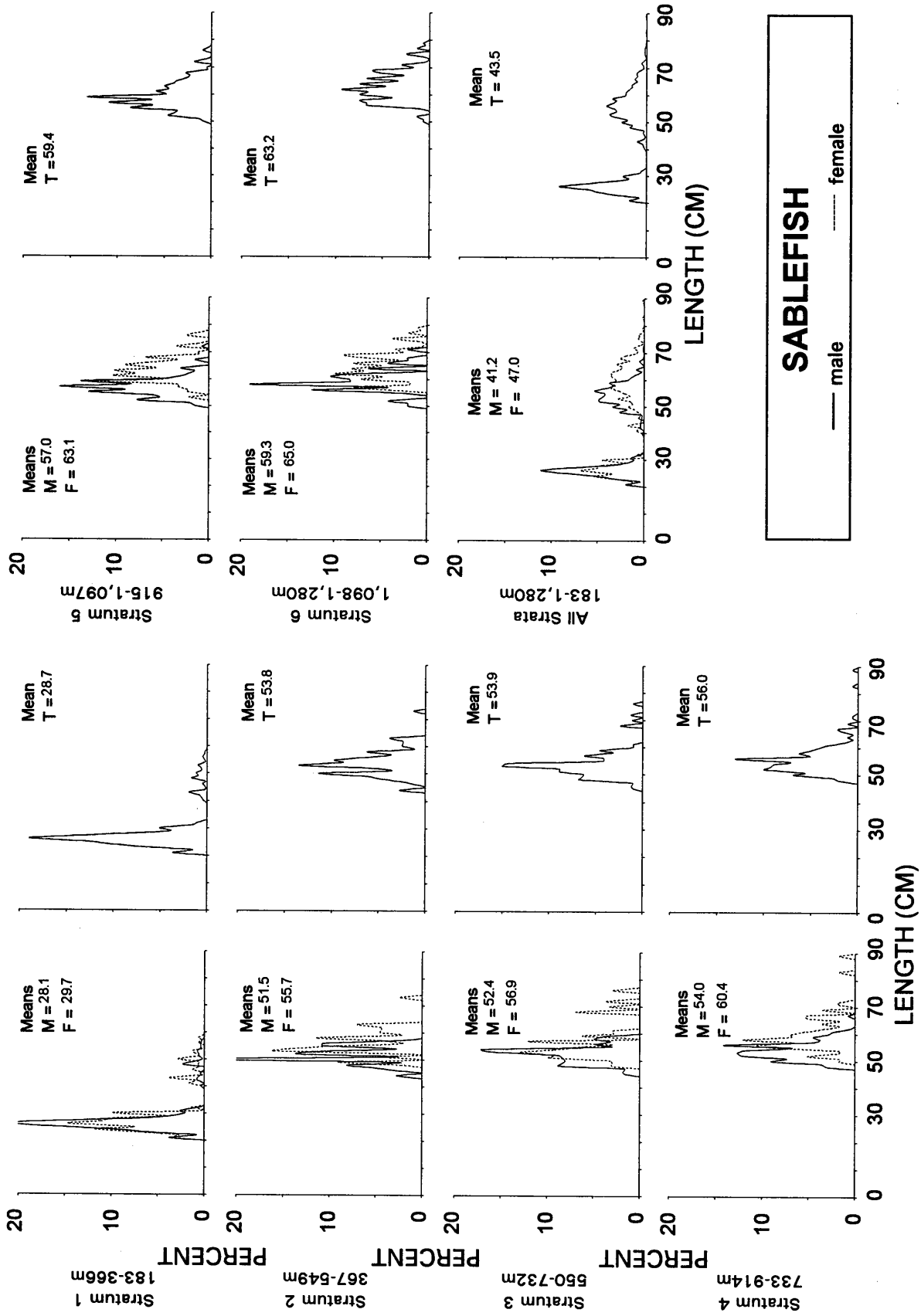


Figure 64.--Estimated population size composition and mean lengths (cm) of sablefish by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Monterey area from the 1999 West Coast upper continental slope bottom trawl survey.

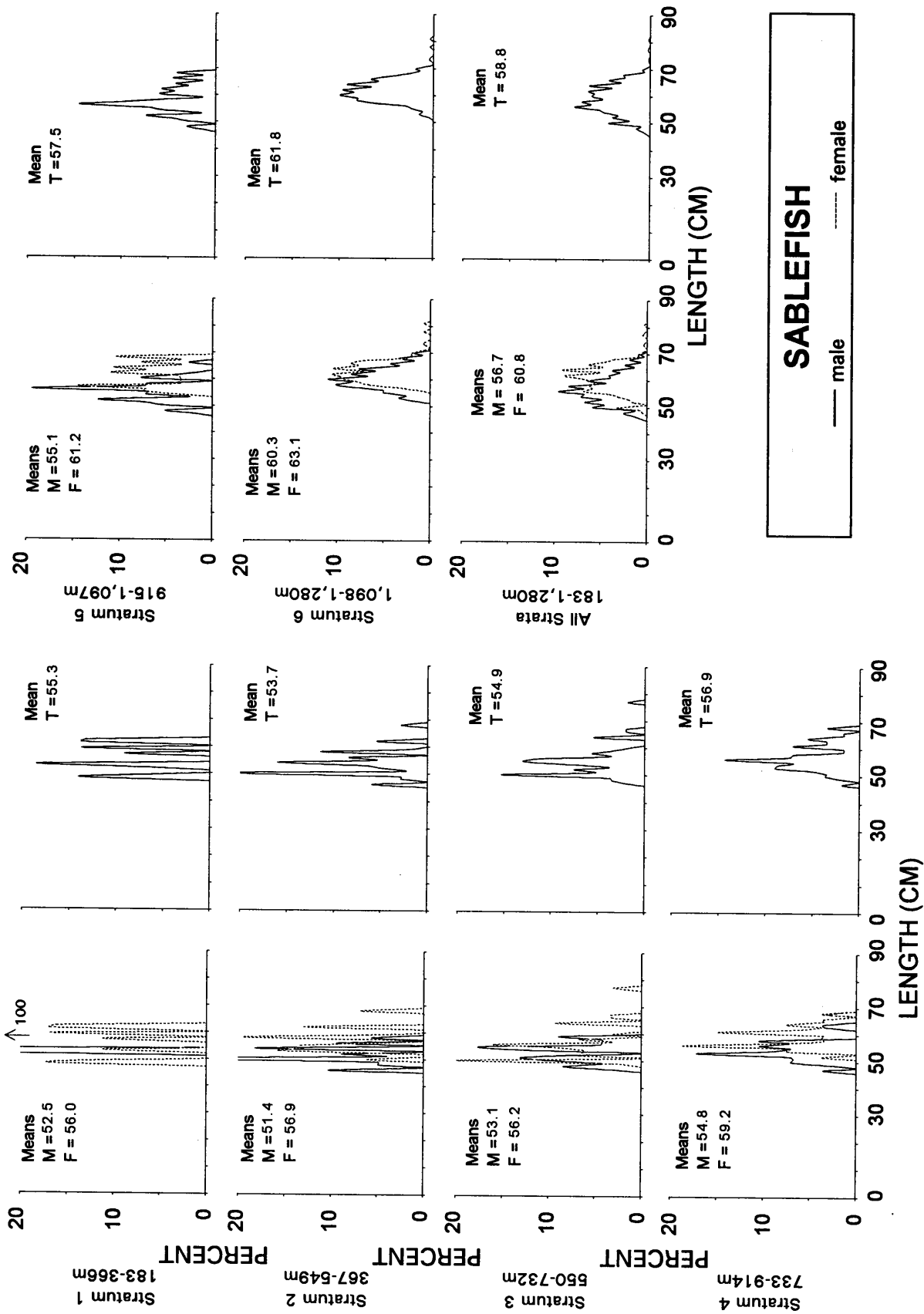


Figure 65.--Estimated population size composition and mean lengths (cm) of sablefish by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Eureka area from the 1999 West Coast upper continental slope bottom trawl survey.

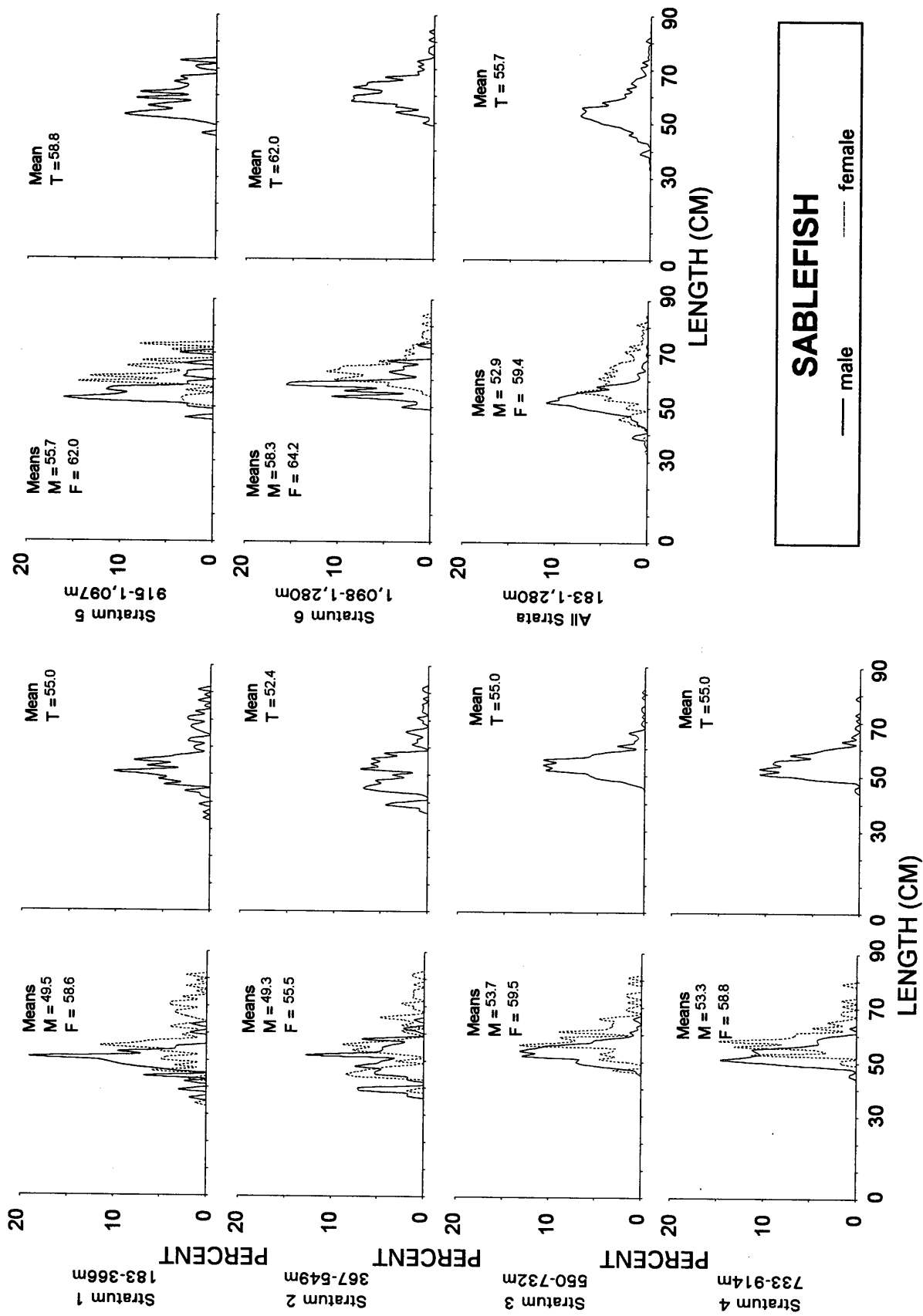


Figure 66.--Estimated population size composition and mean lengths (cm) of sablefish by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Columbia area from the 1999 West Coast upper continental slope bottom trawl survey.

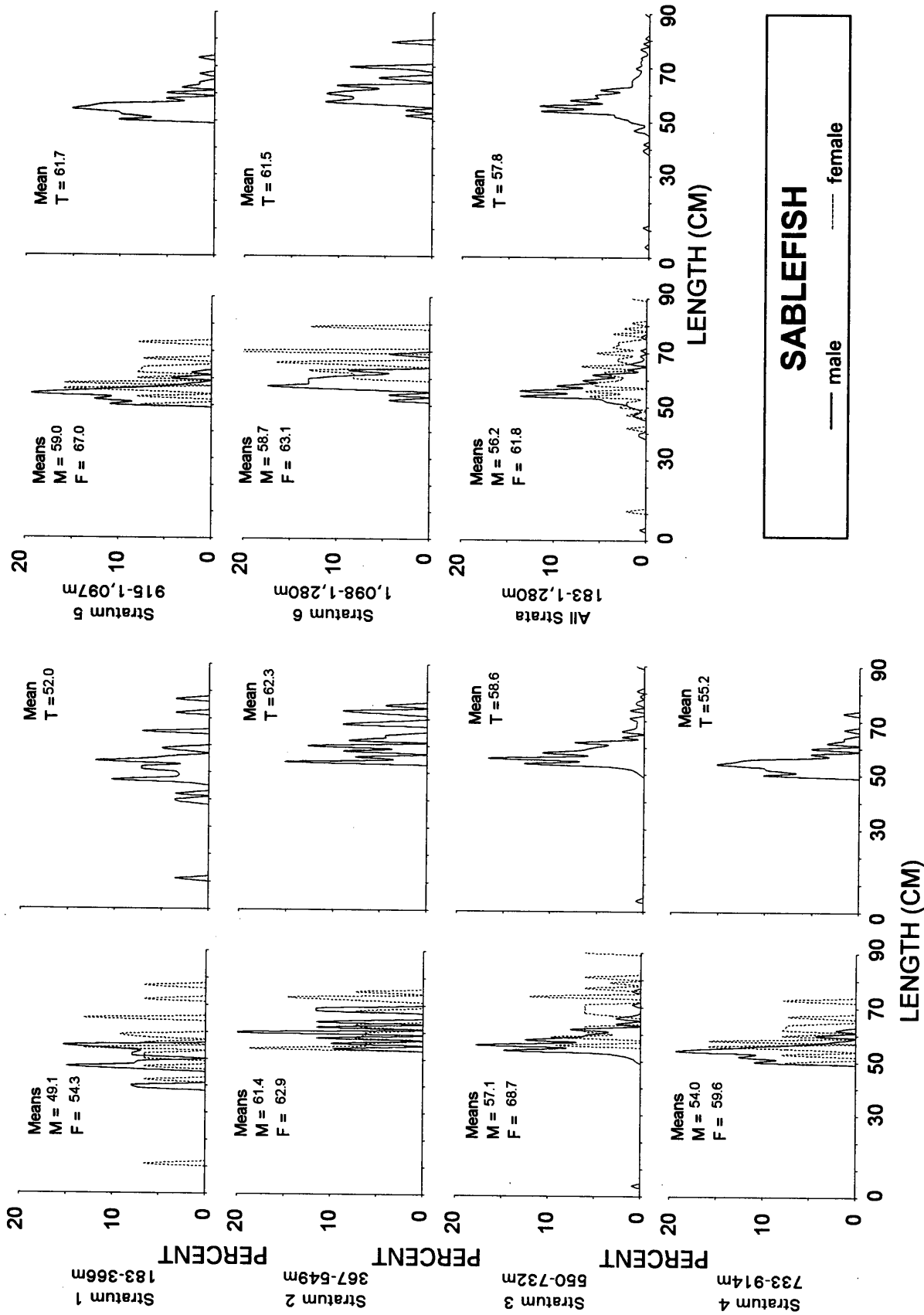


Figure 67.--Estimated population size composition and mean lengths (cm) of sablefish by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission U.S.-Vancouver area from the 1999 West Coast upper continental slope bottom trawl survey.

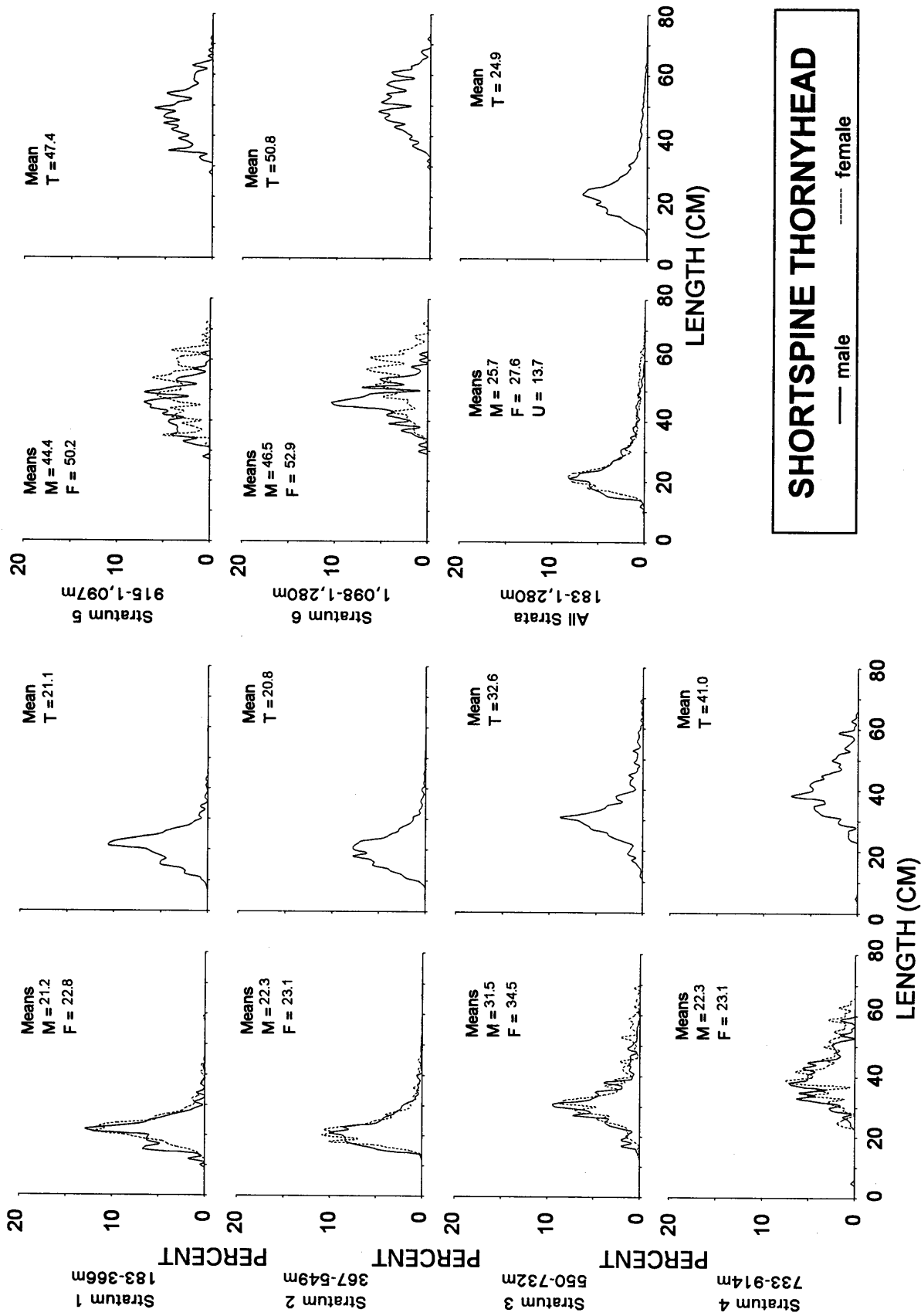


Figure 68.--Estimated population size composition and mean lengths (cm) of shortspine thornyhead by depth stratum and by sex (T = males, females, and unsexed combined) for all International North Pacific Fisheries Commission areas sampled from the 1999 West Coast upper continental slope bottom trawl survey.

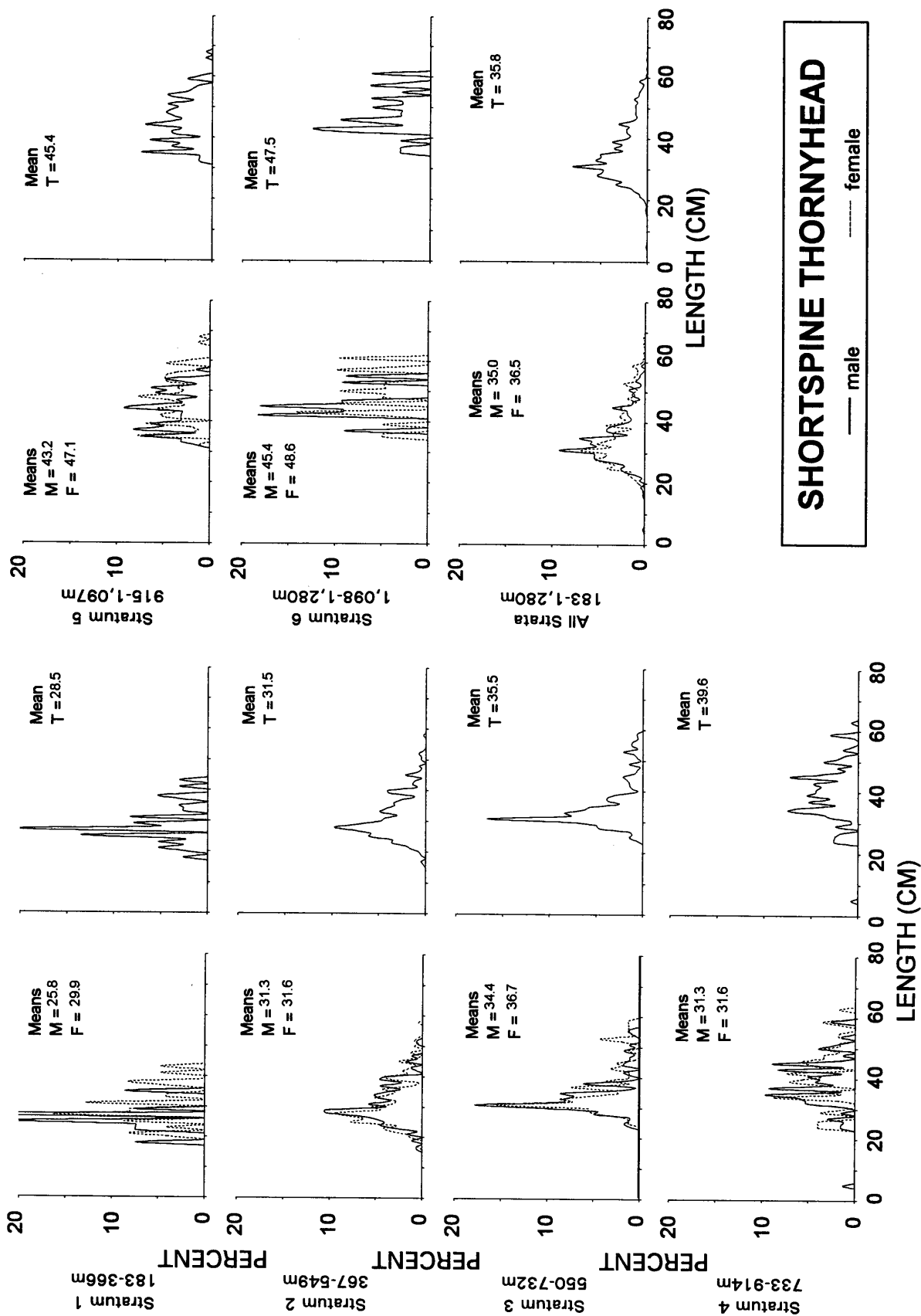


Figure 69.--Estimated population size composition and mean lengths (cm) of shortspine thornyhead by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Conception area from the 1999 West Coast upper continental slope bottom trawl survey.

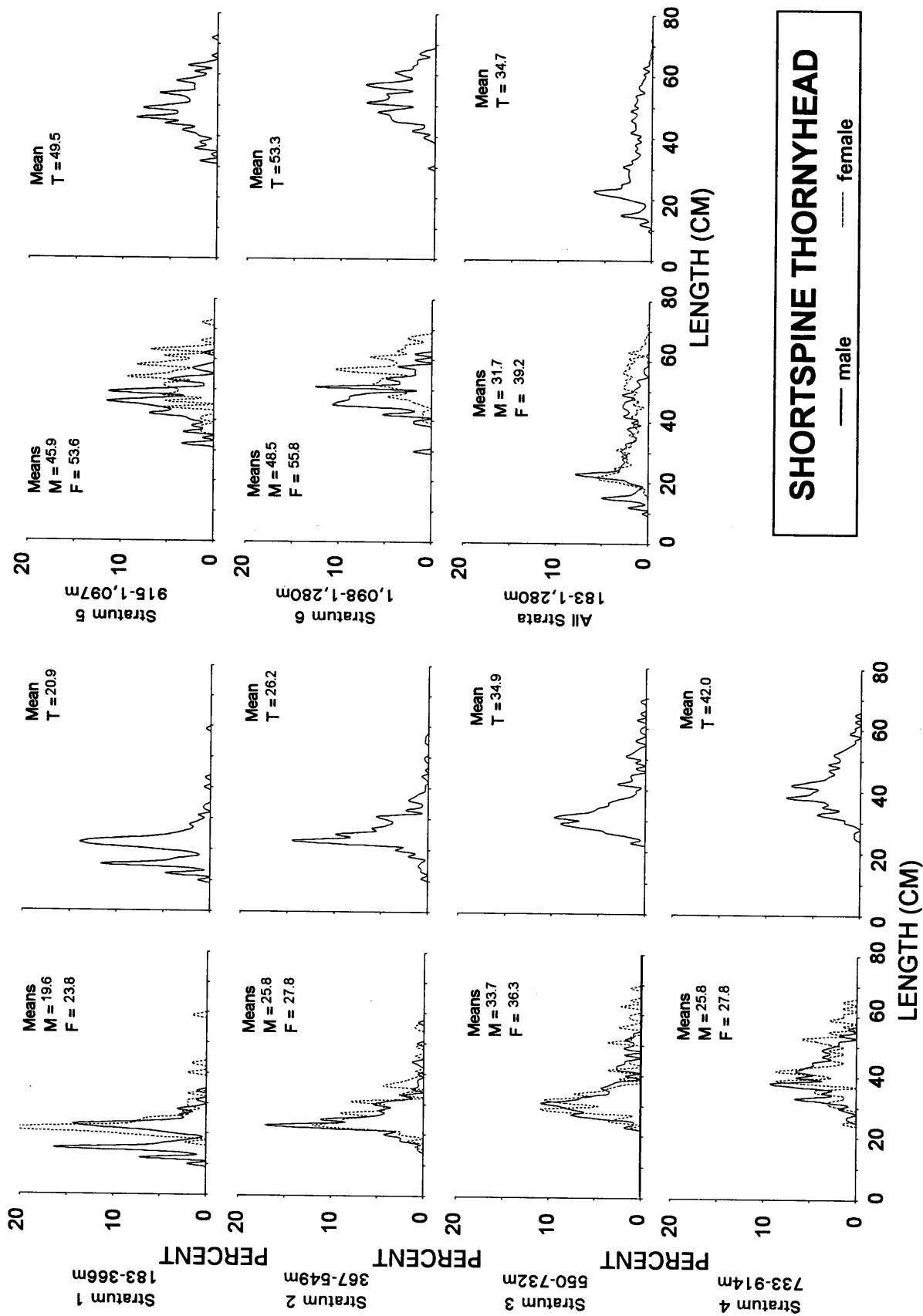


Figure 70.--Estimated population size composition and mean lengths (cm) of shortspine thornyhead by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Monterey area from the 1999 West Coast upper continental slope bottom trawl survey.

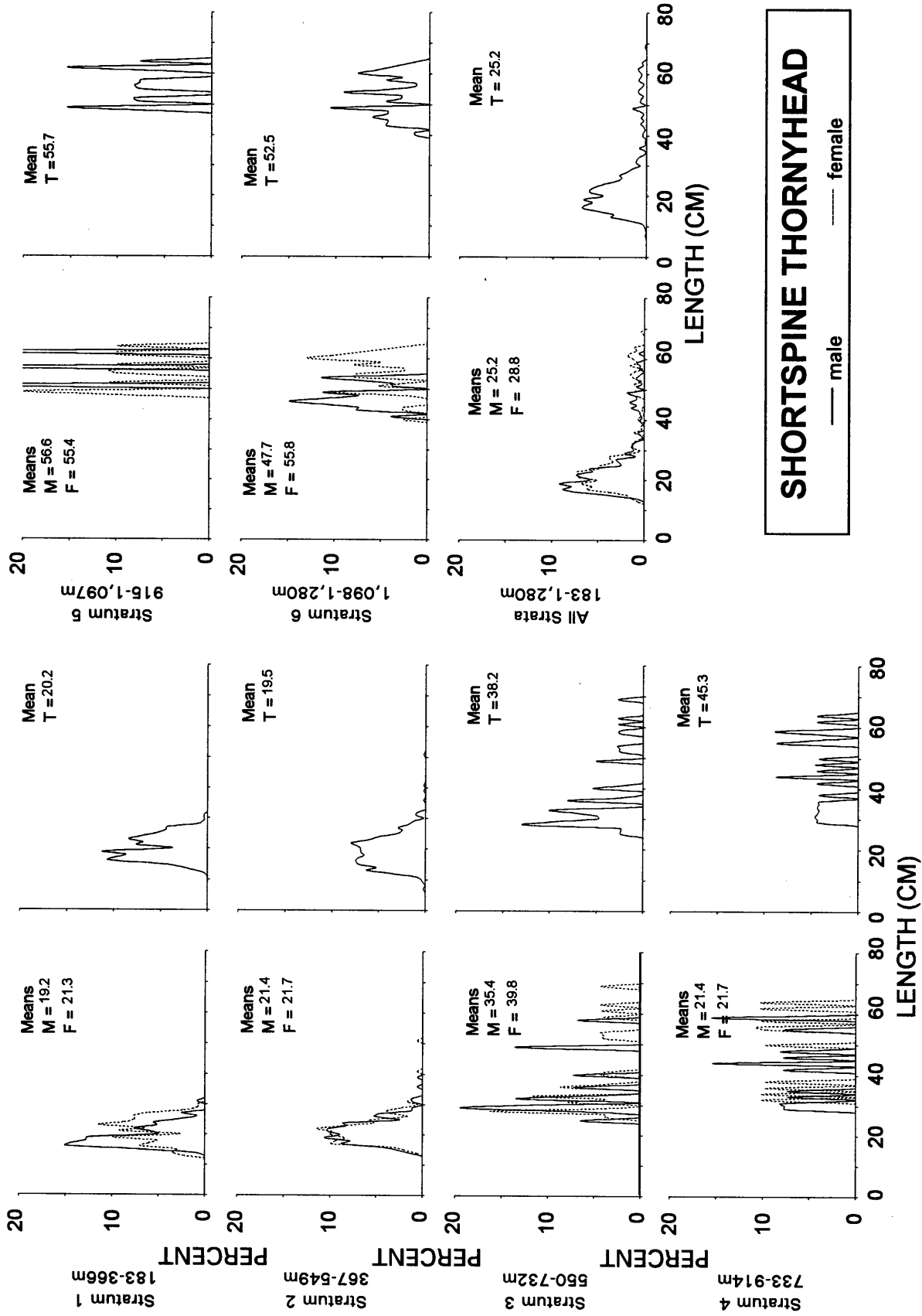


Figure 71.--Estimated population size composition and mean lengths (cm) of shortspine thornyhead by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Eureka area from the 1999 West Coast upper continental slope bottom trawl survey.

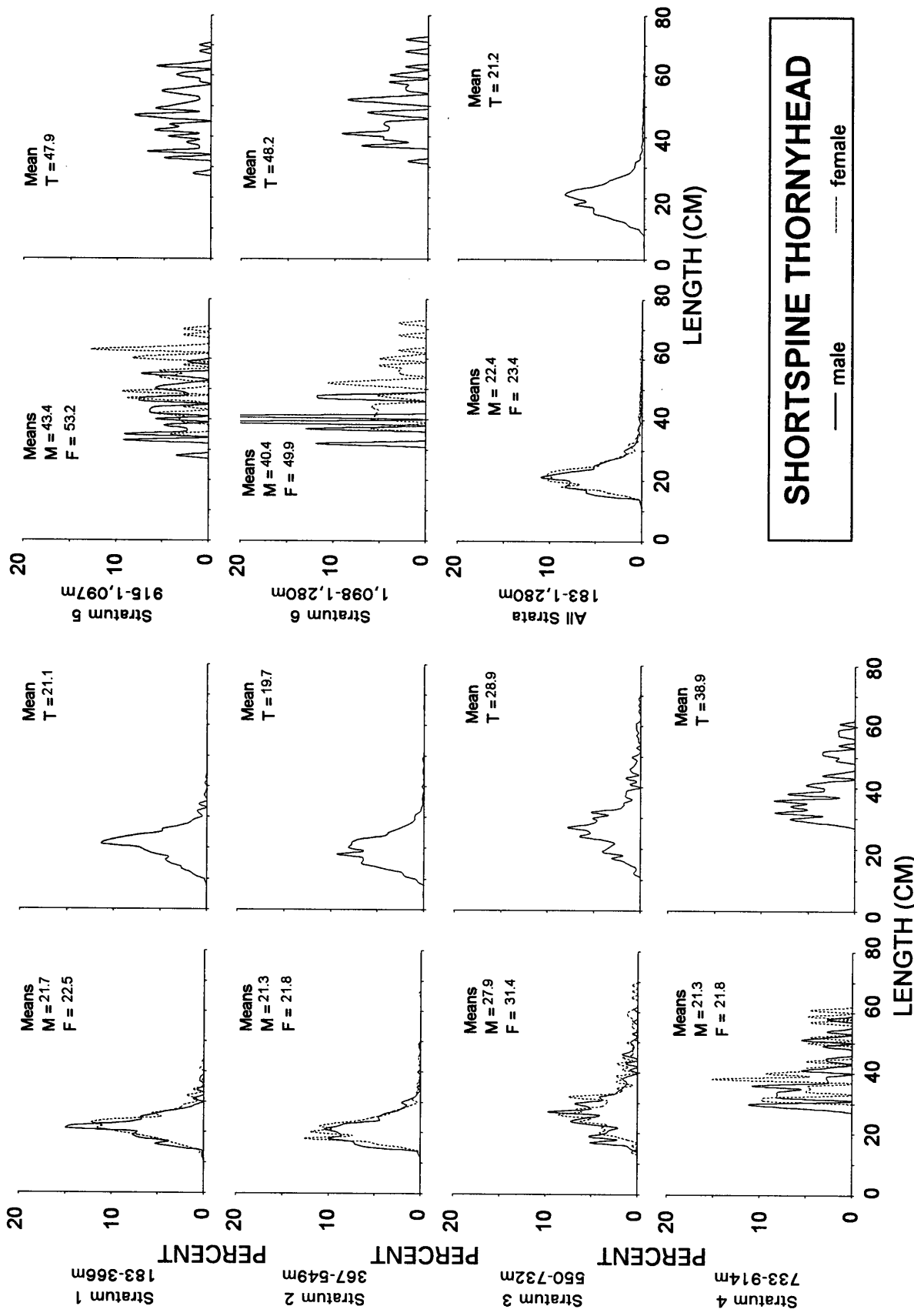


Figure 72.--Estimated population size composition and mean lengths (cm) of shortspine thornyhead by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission Columbia area from the 1999 West Coast upper continental slope bottom trawl survey.

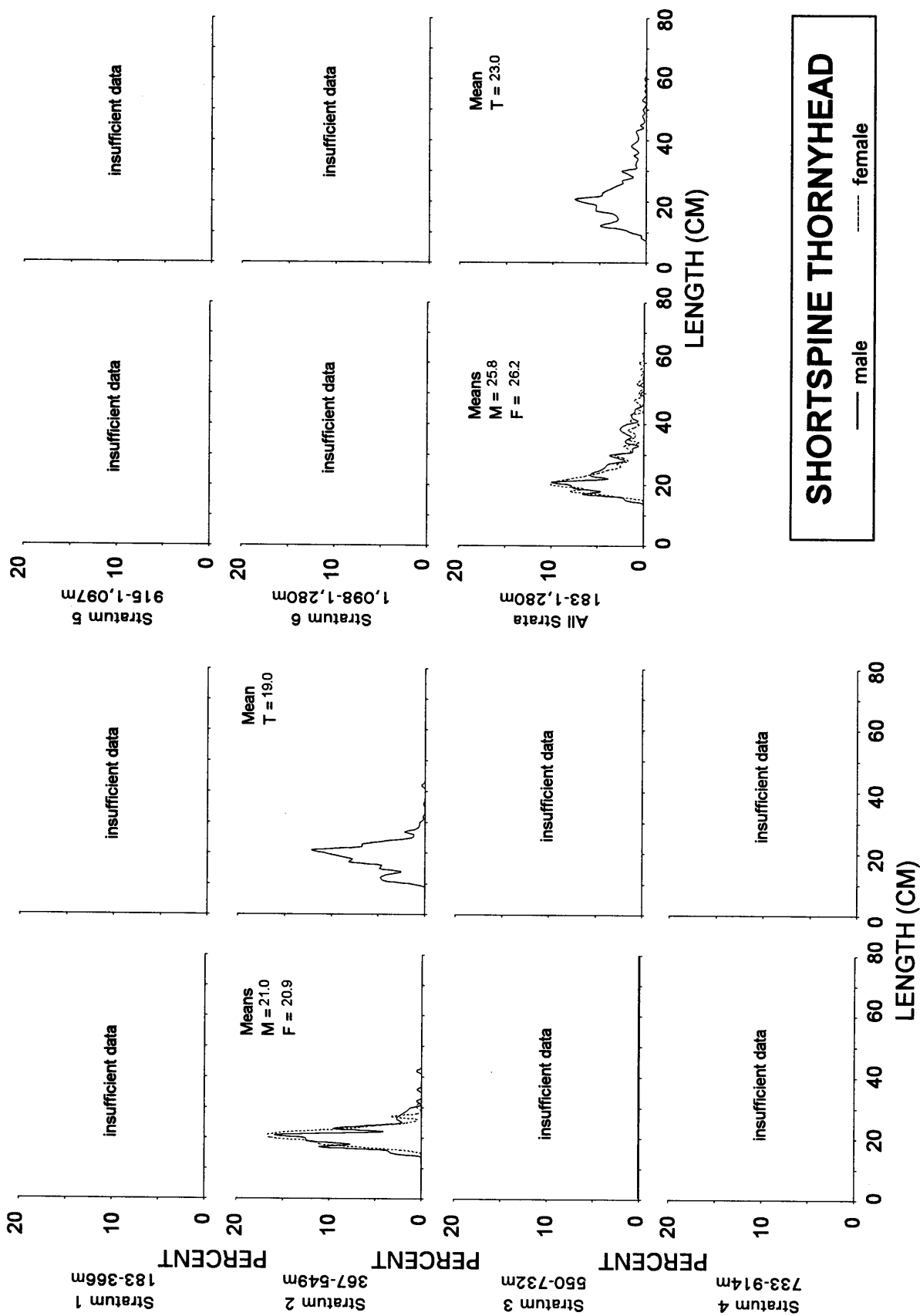


Figure 73.--Estimated population size composition and mean lengths (cm) of shortspine thornyhead by depth stratum and by sex (T = males, females, and unsexed combined) for the International North Pacific Fisheries Commission U.S.-Vancouver area from the 1999 West Coast upper continental slope bottom trawl survey.