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**MOVEMENTS, DISPERSION, AND MIXING OF BIGEYE TUNA
(*THUNNUS OBESUS*) TAGGED AND RELEASED IN THE EQUATORIAL
EASTERN AND CENTRAL PACIFIC OCEAN, WITH CONVENTIONAL
AND ARCHIVAL TAGS**

Kurt Schaefer¹, Daniel Fuller¹, John Hampton², Sylvain Caillot², Bruno Leroy², David Itano^{2,3}

Bigeye tagging experiments conducted in the eastern and central Pacific Ocean were successful in releasing 49,941 fish with plastic dart tags (PDTs) and 772 fish with archival tags (ATs).

PDT and AT returns are about 43% and 50%, respectively, for fish released near 95°W, and 32% and 16%, respectively, for fish released between 140°W and 180°. The median and 95% of the days at liberty were 146 and 549 d, respectively, for fish released near 95°W, and 164 and 515 d, respectively, for fish released between 140°W and 180°. The median and 95% of the linear displacements, from release to recapture positions, for fish at liberty for >30 d, were 259 and 1,016 nmi, respectively, for fish released near 95°W, and 1,013 and 3,677 nmi, respectively, for fish released between 140°W and 180°. 99.4% of those linear displacements were confined to between 10°N and 10°S. The linear displacements were predominantly westward (80.4%), from releases near 95°W, and predominantly eastward (71%), for fish released between 140°W and 180°. The data indicate significant differences in the linear displacements by release locations, days at liberty, and fish length at release.

Analyses of AT data, utilizing the unscented Kalman filter model with sea-surface temperature measurements integrated (UKFsst), enabled the reconstruction of the most probable tracks (MPTs) of individual fish, the estimation of 95% volume contours for all positions along MPTs, by release longitude, and the estimation of movement parameterse by release longitude. Considerable variation was observed in movement patterns among individuals, both within and between release longitudes. The movement patterns for the releases along 155°W illustrate fairly strong regional fidelity to release location, but those for the releases along 140°W and 170°W illustrate less regional fidelity, and extensive eastward movements. In comparison, for releases at 95°W, the predominant movement patterns indicate strong regional fidelity to release location, with restricted westward movements.

These analyses of PDT and AT data suggest that three putative stocks (eastern, central, and western) occur across the equatorial Pacific Ocean, between 10°N and 10°S, with stock boundaries at about 120°W and 180°.

¹ Inter-American Tropical Tuna Commission, La Jolla, California

² Secretariat of the Pacific Community, Ocean Fisheries Programme, Noumea, New Caledonia

³ Current address: National Marine Fisheries Service, Pacific Islands Region, Honolulu, Hawaii