**Genetic evidence for Indo-Western Pacific olive ridley sea turtles in Mexican waters**

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Diagram, schematic, histogram

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Figure S1. UPGMA tree describing the relationships among olive ridley haplotypes from the Central Mexican Pacific and from worldwide ocean basins constructed under the Tamura 3 parameters model of nucleotide substitution. Red and green arrows show the haplotypes from the Eastern Pacific lineage reported in Indian East and Western Pacific nesting beaches, respectively (Shanker et al. [6]; Jensen et al. [14]); blue arrow shows the haplotype from a putative East Indian source found in this study in Mexican waters. Bootstrap values for critical nodes are derived from the UPGMA analysis. In brackets GenBank access numbers for *Lepidochelys kempii* and *Caretta caretta* sequences which were used as outgroups. On the x-axis genetic distances.

A picture containing map

Description automatically generated

Figure S2. Mean surface ocean currents in the Pacific region 40°N-40°S 60°E-70°W from the NOAA Ocean Surface Current Analyses Real Time program. (a) Average for the summer-autumn period during 1993-2013 indicating the strong and extensive eastward flowing North Equatorial Counter Current (NECC). (b) Average for the winter-spring period during 1993-2013 indicating the presence of weak and reduced NECC. Vector arrows indicate the current flow, color of the graph indicates the current speed (meters per second) according to the scale on the right. Map and data downloaded from https://podaac.jpl.nasa.gov/dataset/\_L4\_OC\_third-deg (Bonjean and Lagerloef, [74]).

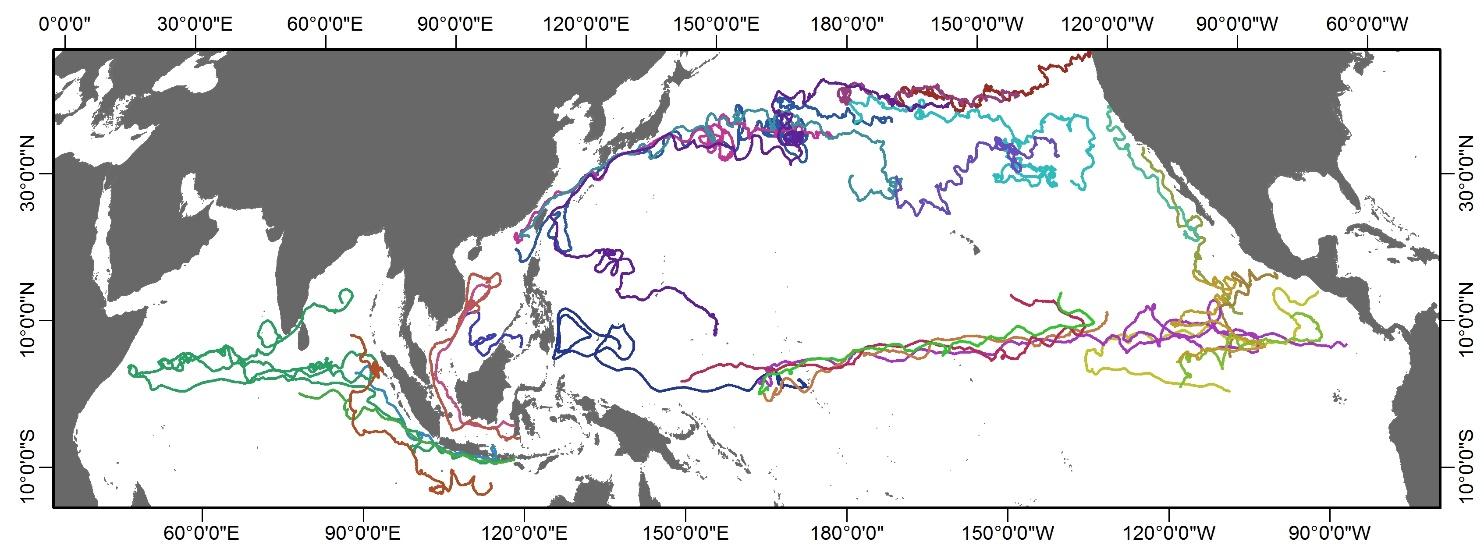


Figure S3. Satellite-tracked drifter buoy trajectories demonstrating potential ocean current pathways linking olive ridley turtle breeding areas in the Indian Ocean and Western Pacific with the Eastern Pacific (i.e., a net eastward transport). Drifter data from NOAA/AOML Global Lagrangian Drifter Data (<http://www.aoml.noaa.gov/envids/gld/krig/parttrk_id_temporal.php> (accessed on 7 December 2022)).

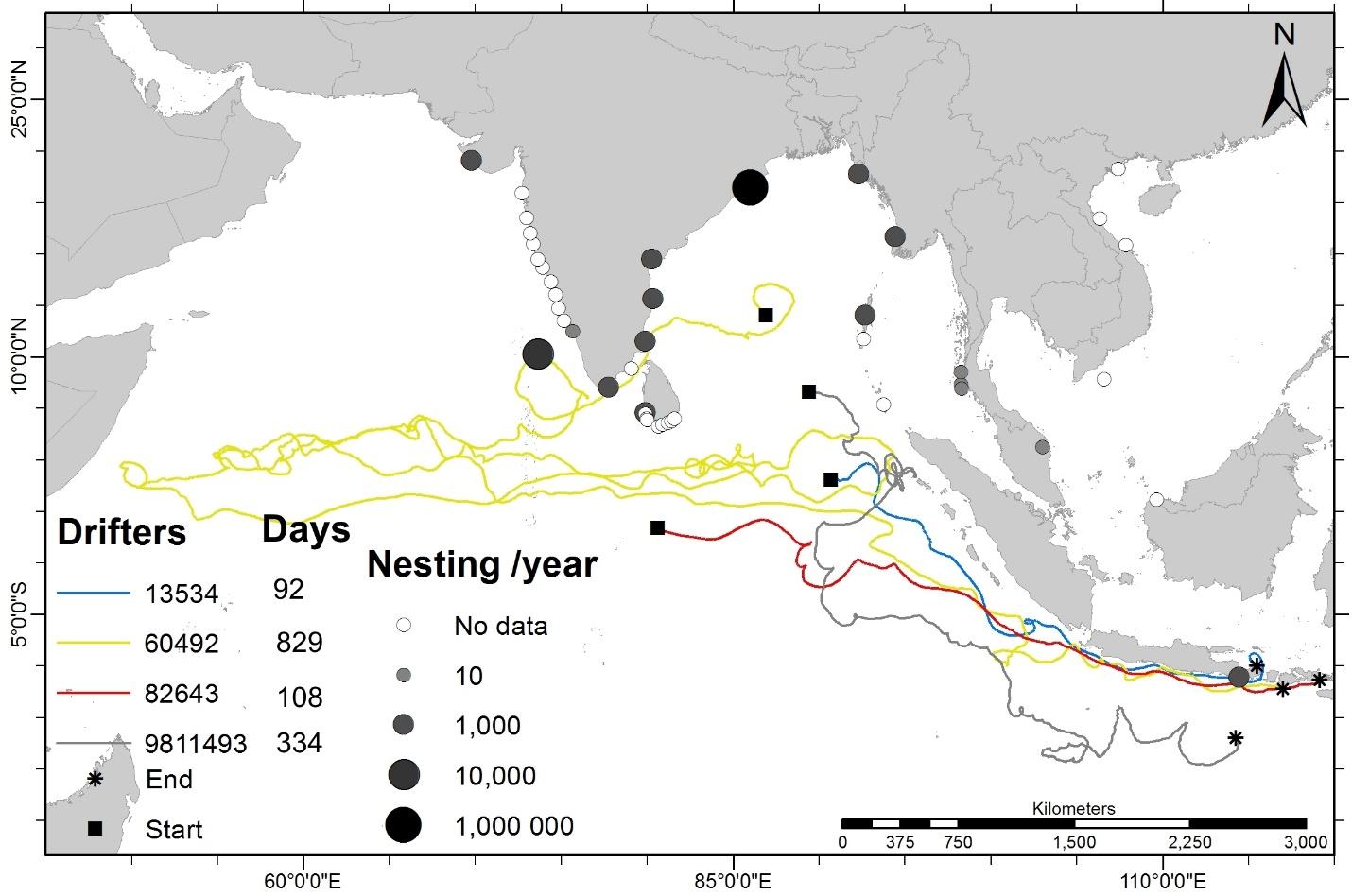


Figure S4. Satellite-tracked drifter buoy trajectories demonstrating potential ocean current pathways linking olive ridley turtle breeding areas in the Indian Ocean and the Java Sea (transport from west to east). Olive ridley rookery locations and abundances derived from Abreu-Grobois and Plotkin, 2008 olive ridley IUCN Database. Drifter data from NOAA/AOML Global Lagrangian Drifter Data (<http://www.aoml.noaa.gov/envids/gld/krig/parttrk_id_temporal.php> (accessed on 7 December 2022)).

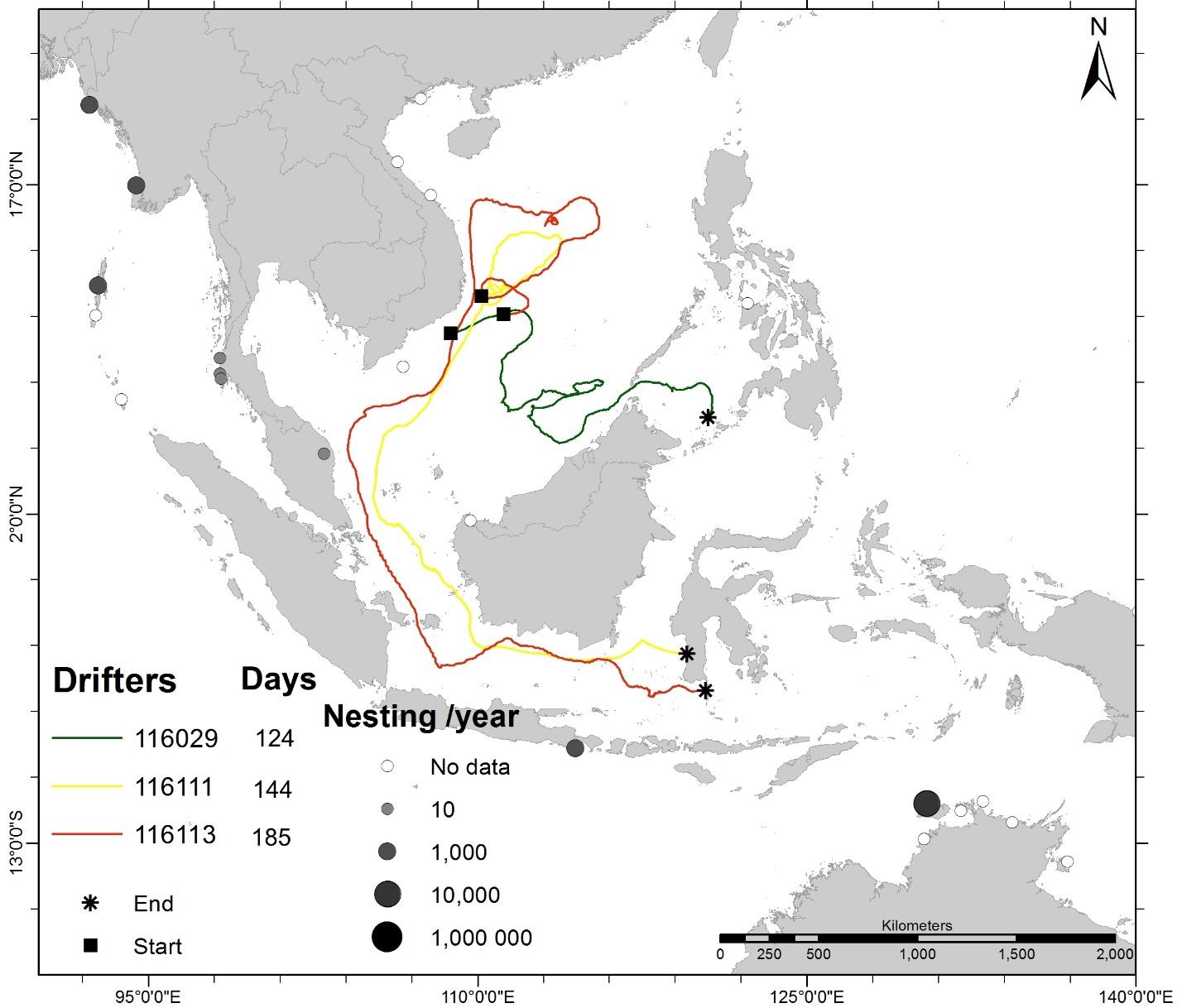


Figure S5. Satellite-tracked drifter buoy trajectories demonstrating potential ocean current pathways linking olive ridley turtle breeding areas in the Western Pacific (South China Sea) with the Celebes Sea and Java Sea. Olive ridley rookery locations and abundances derived from Abreu-Grobois and Plotkin, 2008 olive ridley IUCN Database. Drifter data from NOAA/AOML Global Lagrangian Drifter Data (<http://www.aoml.noaa.gov/envids/gld/krig/parttrk_id_temporal.php> (accessed on 7 December 2022)).

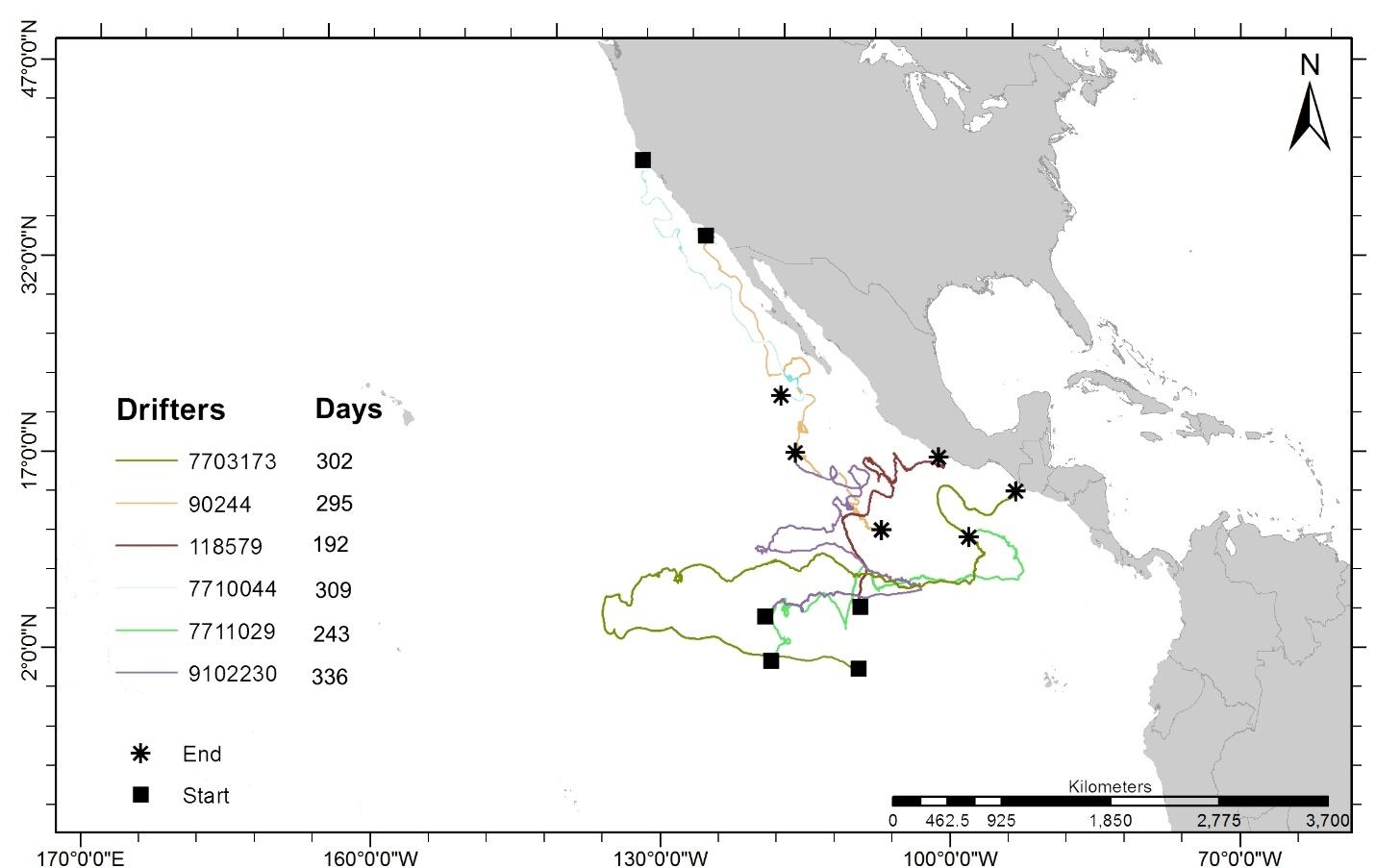


Figure S6. Satellite-tracked drifter buoy trajectories demonstrating potential ocean current pathways from NECC in the Eastern Tropical Pacific to the Costa Rica Dome and Mexican Tropical Pacific. Drifter data from NOAA/AOML Global Lagrangian Drifter Data (<http://www.aoml.noaa.gov/envids/gld/krig/parttrk_id_temporal.php> (accessed on 7 December 2022)).

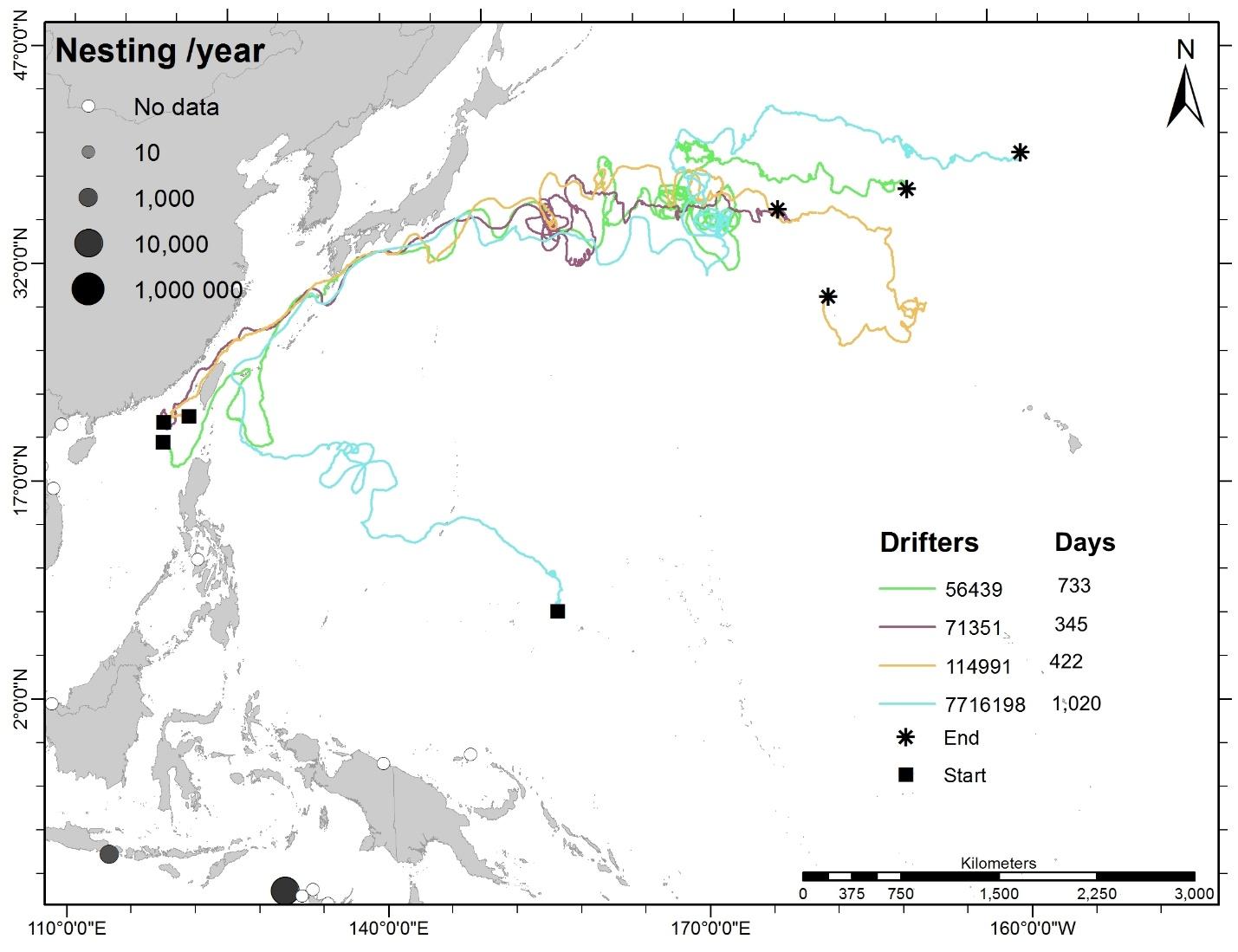
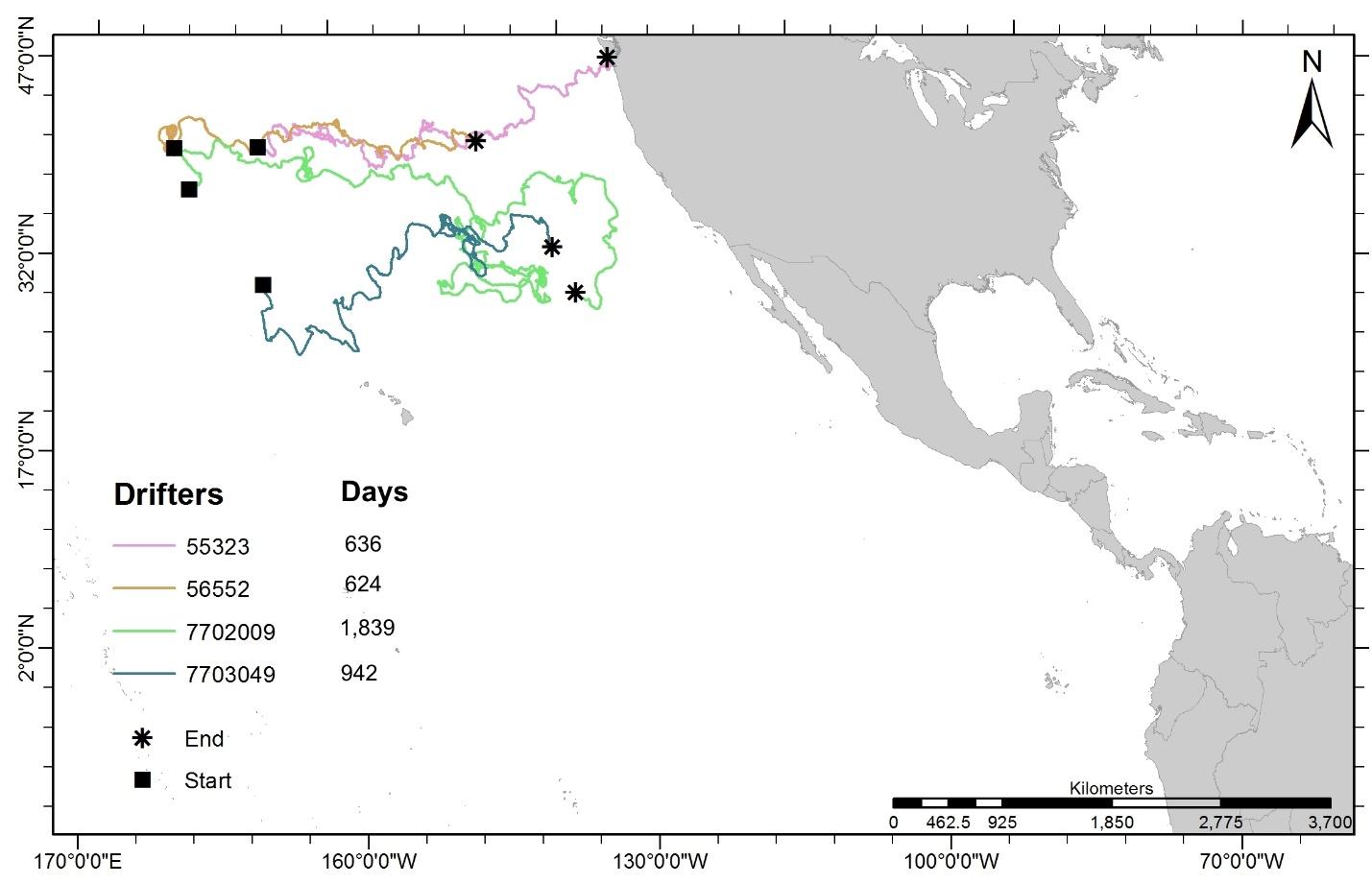


Figure S7. Satellite-tracked drifter buoy trajectories demonstrating potential ocean current pathways from NPC in the Eastern Tropical Pacific to the Central Pacific. Drifter data from NOAA/AOML Global Lagrangian Drifter Data (<http://www.aoml.noaa.gov/envids/gld/krig/parttrk_id_temporal.php> (accessed on 7 December 2022)).

 Figure S8. Satellite-tracked drifter buoy trajectories demonstrating potential ocean current pathways via the NPC in the Central Tropical Pacific to the Eastern Pacific. Drifter data from NOAA/AOML Global Lagrangian Drifter Data (http://www.aoml.noaa.gov/envids/gld/krig/parttrk\_id\_temporal.php (accessed on 7 December 2022)).