Data Papers

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Food webs including parasites, biomass, body sizes, and life stages for three California/Baja California estuaries

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Abstract. This data set presents food webs for three North American Pacific coast estuaries and a "Metaweb" composed of the species/stages compiled from all three estuaries. The webs have four noteworthy attributes: (1) parasites (infectious agents), (2) body-size information, (3) biomass information, and (4) ontogenetic stages of many animals with complex life cycles. The estuaries are Carpinteria Salt Marsh, California (CSM); Estero de Punta Banda, Baja California (EPB); and Bahía Falsa in Bahía San Quintín, Baja California (BSQ). Most data on species assemblages and parasitism were gathered via consistent sampling that acquired body size and biomass information for plants and animals larger than ~1 mm, and for many infectious agents (mostly metazoan parasites, but also some microbes). We augmented this with information from additional published sources and by sampling unrepresented groups (e.g., plankton). We estimated free-living consumer–resource links primarily by extending a previously published version of the CSM web (which the current CSM web supplants) and determined most parasite consumer–resource links from direct observation. We recognize 21 possible link types including four general interactions: predators consuming prey, parasites consuming hosts, predators consuming parasites, and parasites consuming parasites. While generally resolved to the species level, we report stage-specific nodes for many animals with complex life cycles. We include additional biological information for each node, such as taxonomy, lifestyle (free-living, infectious, commensal, mutualist), mobility, and residency. The Metaweb includes 500 nodes, 314 species, and 11 270 links projected to be present given appropriate species' co-occurrences. Of these, 9247 links were present in one or more of the estuarine webs. The remaining 2023 links were not present in the estuaries but are included here because they may occur in other places or times. Initial analyses have examined and are examining the interrelationships among consumer strategy, body size, abundance, biomass, trophic level, life stages, and food-web structure and dynamics. Further use of these data may enable a more general exploration how infectious processes and parasites impact communities and ecosystems. Additionally, we present the data and metadata in a standardized format, attempting to provide a system-neutral template for future food-web assembly and publication.

Key words: Bahía San Quintín (Mexico);biomass; body size; Carpinteria Salt Marsh, California (USA); complex life cycles; consumer resource; Estero de Punta Banda (Mexico); estuary; food webs; infectious agents; parasites; trophic interactions.

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