

Figure S1. Study site, Kiritimati (Christmas) Island, showing the 23 sampling locations around the atoll.

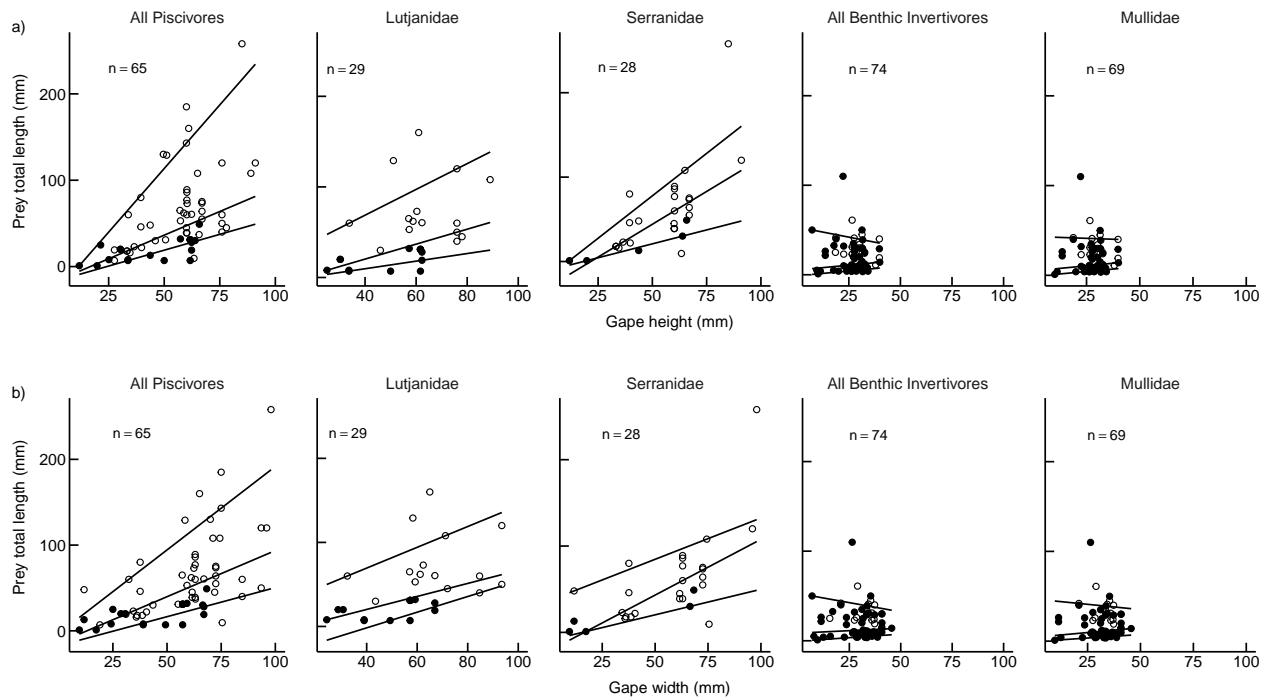


Figure S2. Quantile regressions (10th, 50th, and 90th quantiles) of the relationships between prey total length (mm) and (a) predator gape height (mm) and (b) for predator gape width for all piscivores, the two most sampled piscivore families Lutjanidae and Serranidae, all benthic invertivores, and the most sampled benthic invertivore *Parupeneus insularis*. Each point represents a single fish (open circles) or invertebrate (solid circles) prey item found in a predator stomach. Prey size is the measured length (mm) of the intact or partially digested prey items, and hence taken to be the minimum prey size.

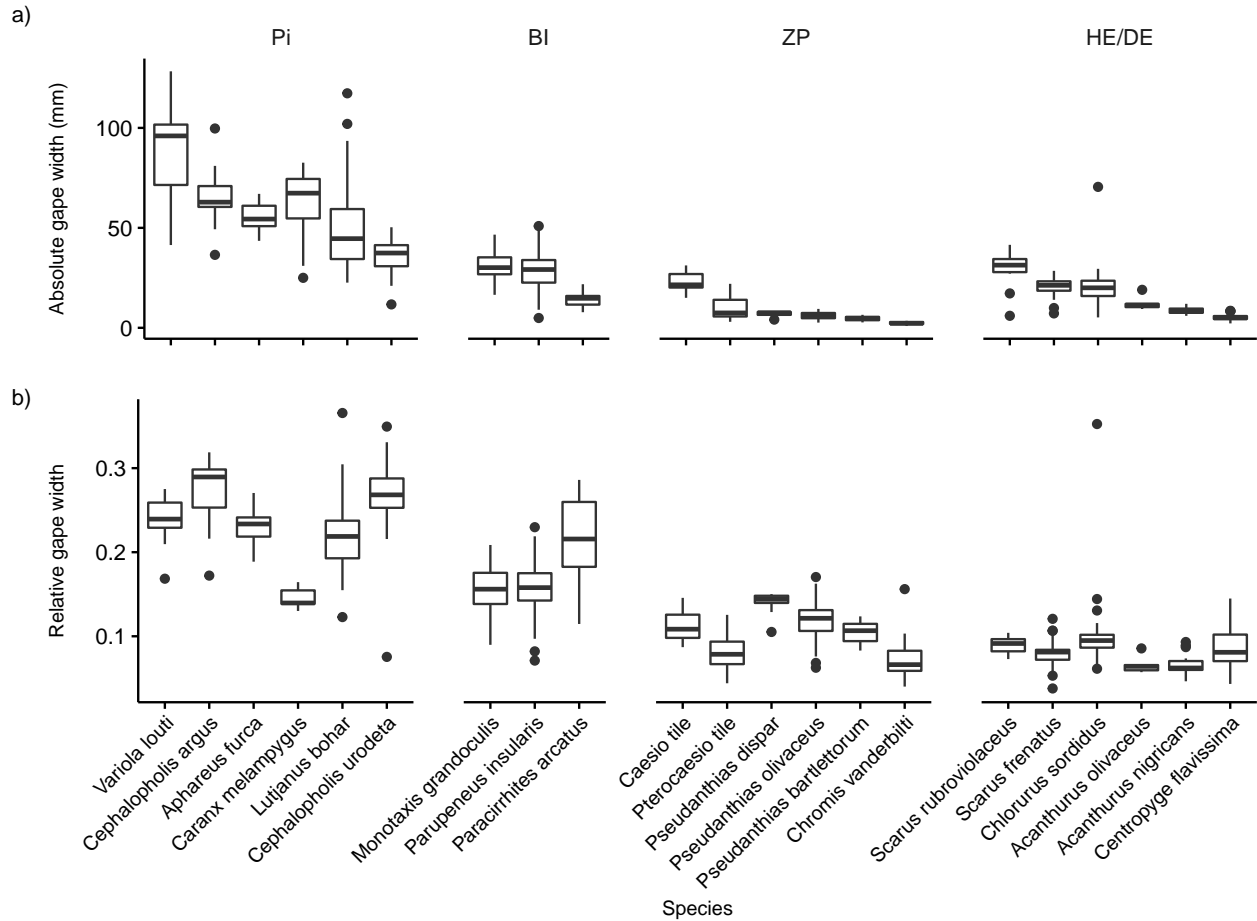


Figure S3. (a) Absolute gape width (mm) and (b) relative gape width, calculated as gape width (mm) / standard length (mm) for all species ordered within each functional group by decreasing absolute gape height. A single outlier (67 mm) for *Cephalopholis argus* is not shown.

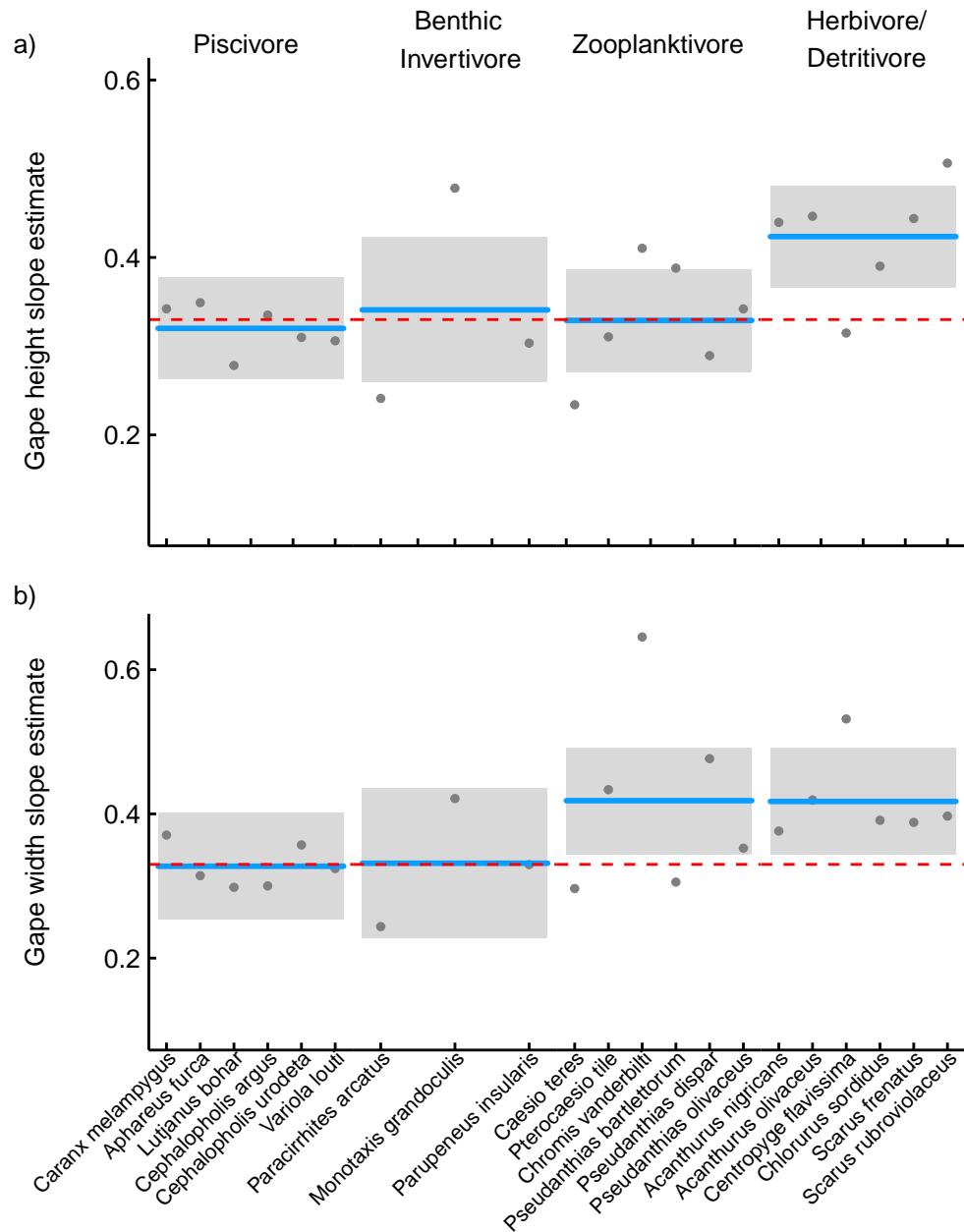


Figure S4. Comparison of allometric coefficients across functional groups, calculated using a linear model for (a) gape height \sim body mass and (b) gape width \sim body mass relationships. Estimates of functional group mean slopes are shown by the blue line, species mean slopes are plotted as grey points, and confidence limits are bounded by the grey box. For reference, isometry (slope = 0.33) is plotted as the red dashed line.

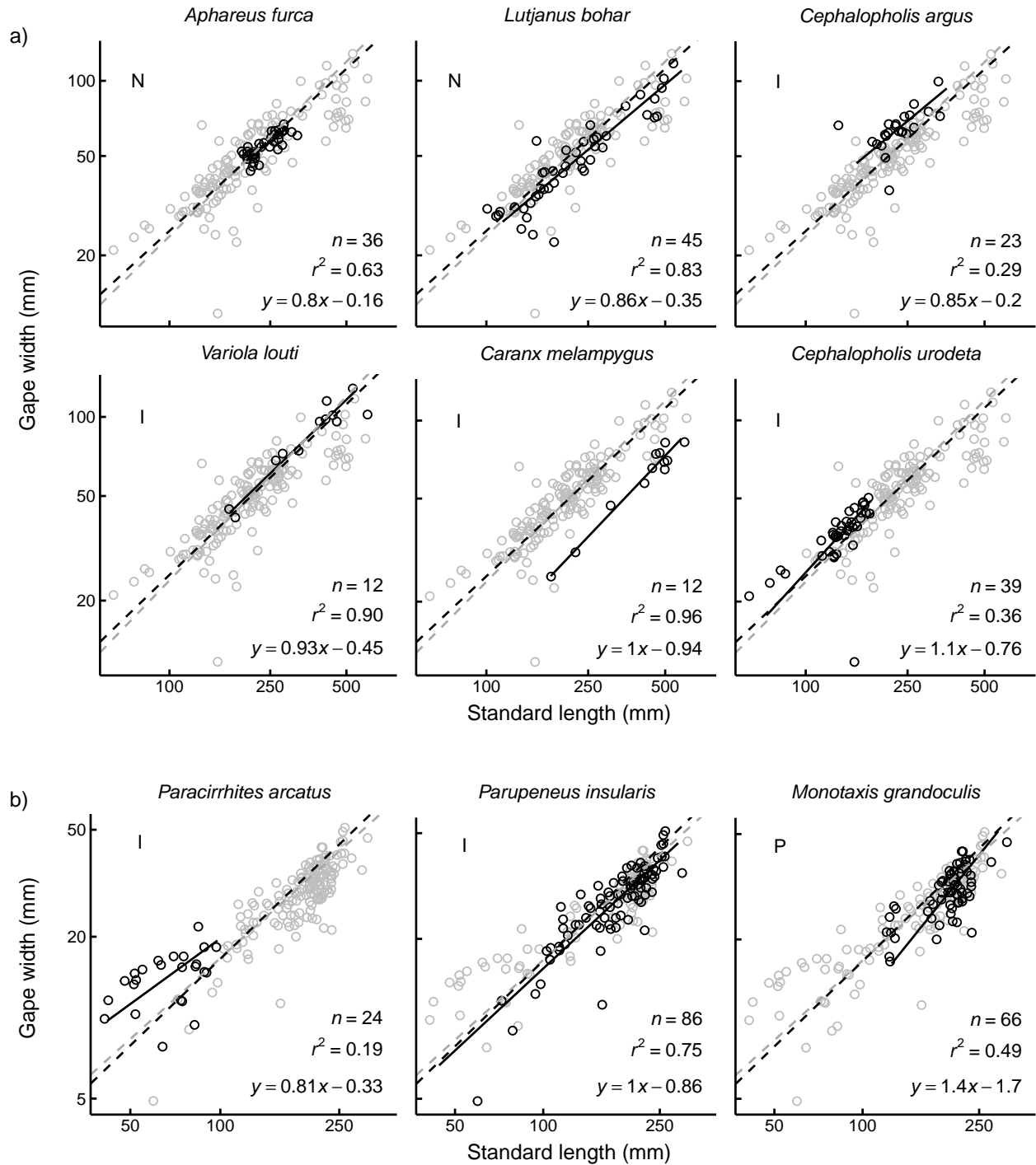


Figure S5. Gape width ~ standard length relationships for the nine species sampled from two predatory functional groups: (a) piscivores and (b) benthic invertivores. Plot details are the same as in Figure 4.

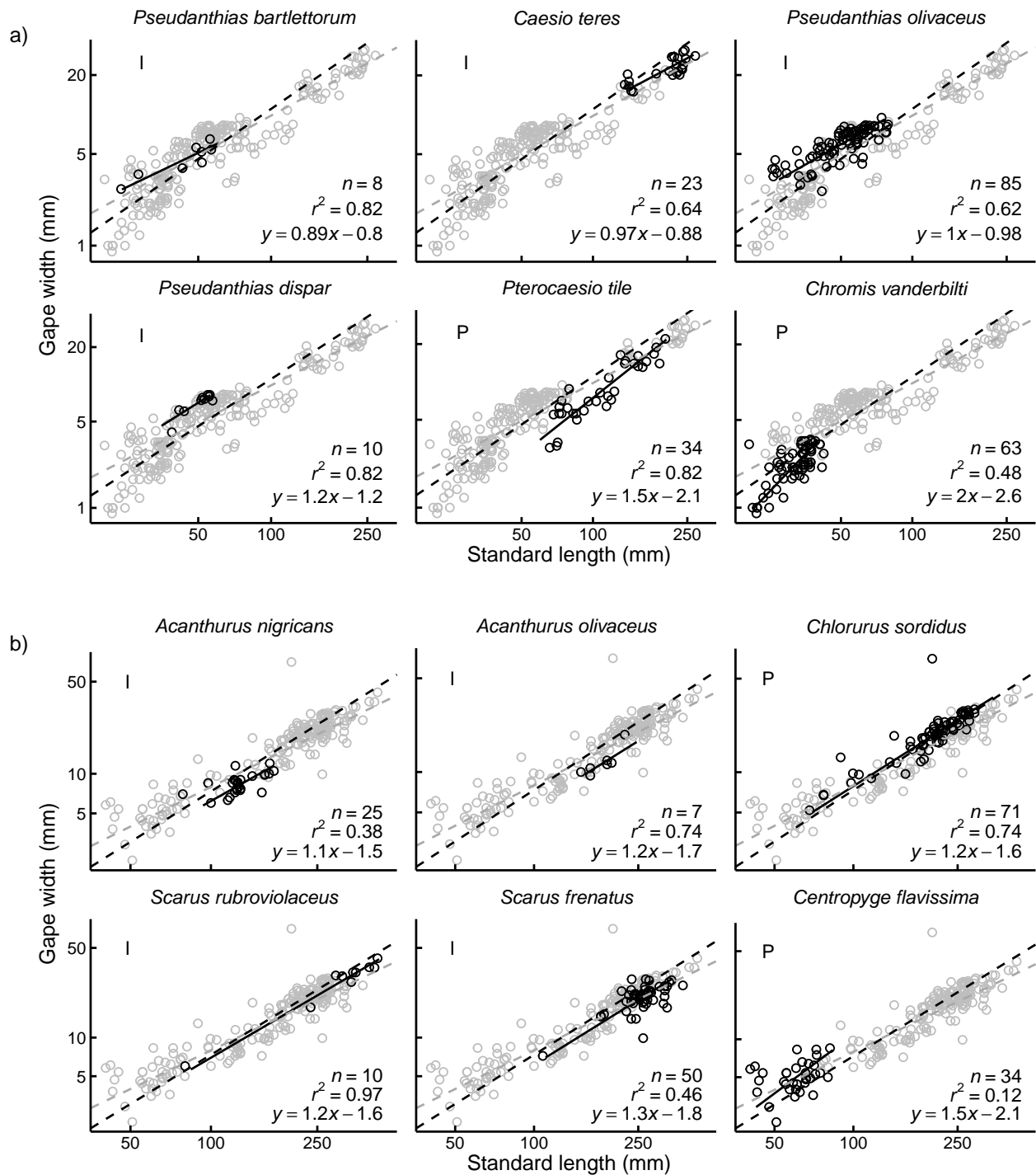


Figure S6. Gape width ~ standard length relationships for the (a) six zooplanktivore and (b) six energy-sharing herbivorous and detritivorous species, in order of increasing slope. Plot details are the same as in Figure 4.