

Persistent spatial patterns of recruitment in a guild of Hawaiian coral reef fishes

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Supplement

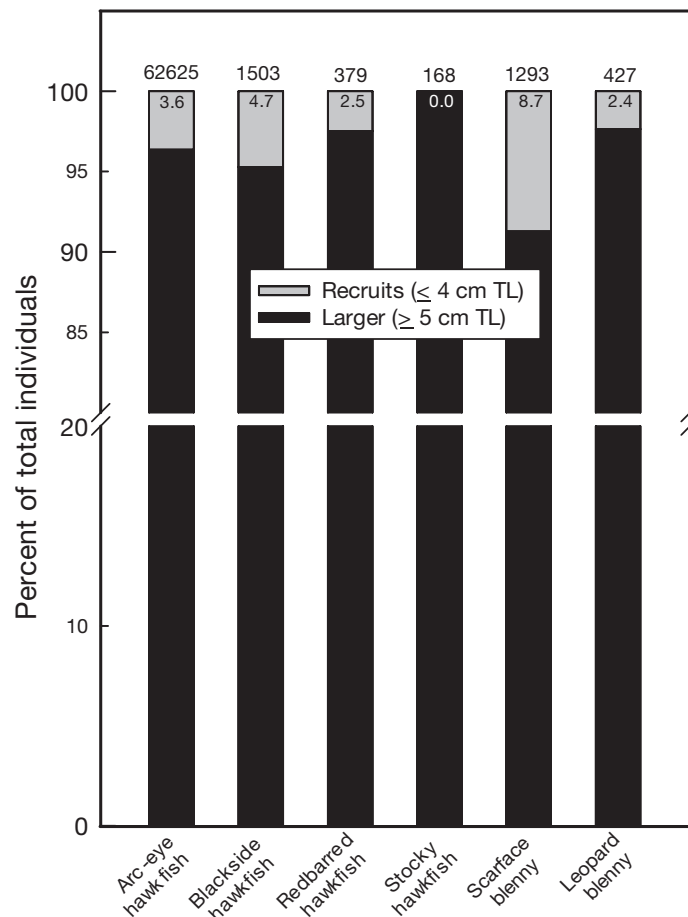


Fig. S1. Relative numbers of 'recruit' (≤ 4 cm TL) and larger (≥ 5 cm TL) resident-stage fish individuals of arc-eye hawkfish *Paracirrhites arcatus* and each of the other 3 cirrhitid and 2 salariine blenniid species; based on censuses conducted at the 7 Core Sites, North-South Kohala Coast, west Hawaii Island, during summer (July to September) censuses conducted during the April 1990 to August 2011 period. Numbers within histograms represent the percentage of all individuals that were recruits; sample sizes above histograms represent total number of individuals of both recruit and resident stages tallied for the respective species

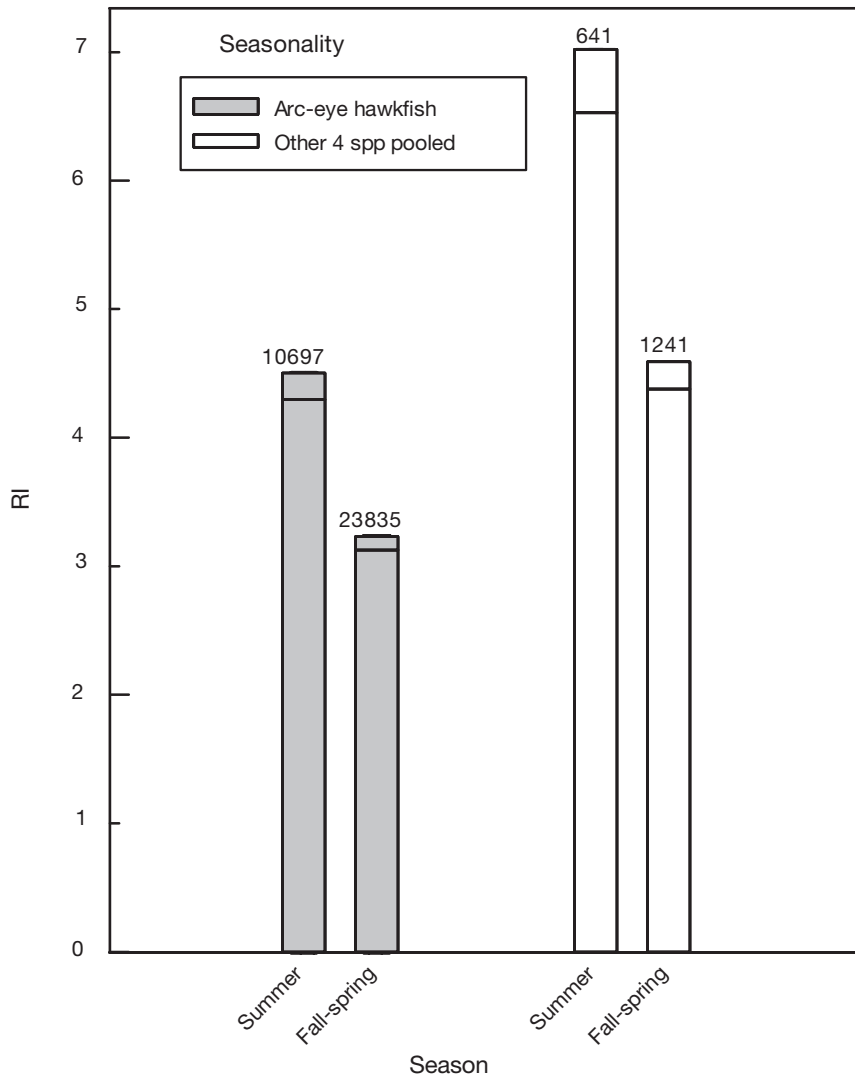


Fig. S2. Seasonality in the recruit index ($RI = 100 \times [N_1 \leq 4 \text{ cm} / N_2 \geq 5 \text{ cm}]$) for arc-eye hawkfish *Paracirrhites arcatus* and the other 2 cirrhitid and 2 salariine blenniid species pooled; based on censuses conducted at the 7 Core Sites, North-South Kohala Coast, west Hawaii Island, during summer (July to September) vs. ‘other’ (fall through spring) seasons over the period from April 1990 through August 2011. Total (recruit plus resident) numbers of fish of each taxon tallied are noted above respective histogram. Each histogram subdivided into 2 proportions that sum to 100%: ‘recruits’ (N_1 , the relatively small proportion in each case) and ‘residents’ (N_2)

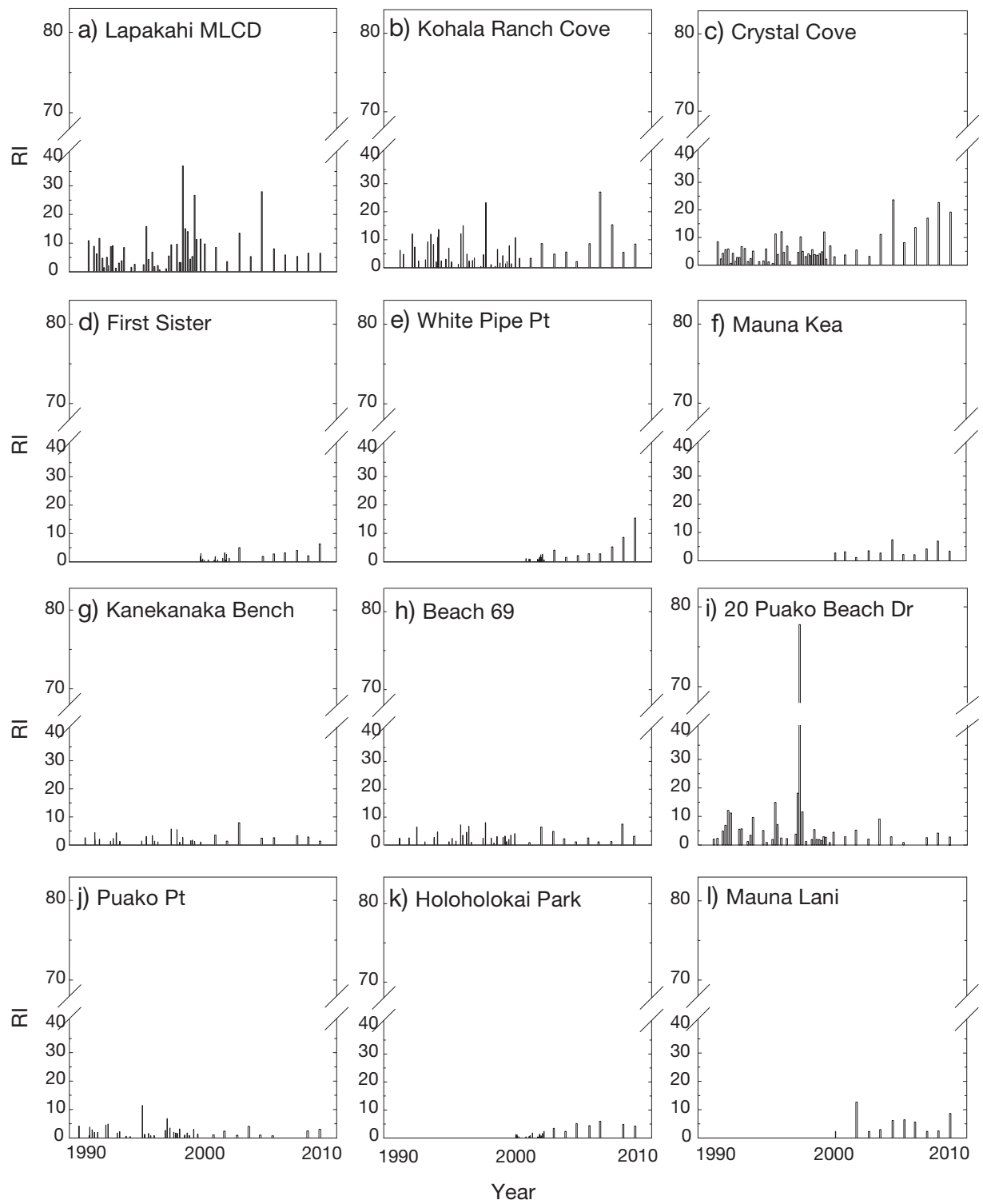


Fig. S3. Histogram plots of RIs at all 12 sites, North-South Kohala Coast, west Hawaii Island, for arc-eye hawkfish *Paracirrhites arcatus* and the 2 other cirrhitid and 2 salariine blenniid species pooled, on all censuses conducted during the April 1990 to August 2011 inclusive period

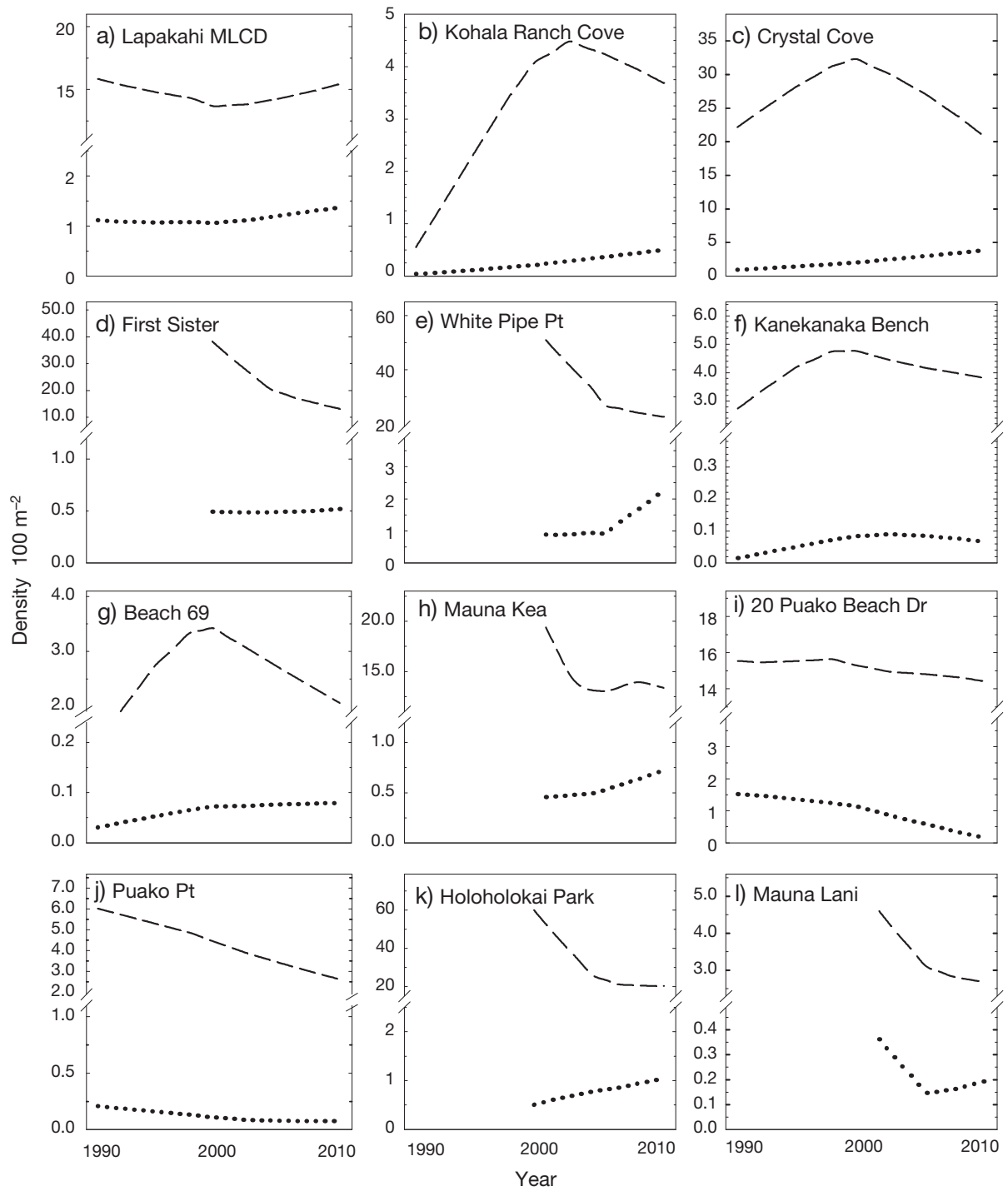


Fig. S4. Overlaid line plots of the densities of recruit and resident arc-eye hawkfish *Paracirrhites arcatus* at all 12 sites, North-South Kohala Coast, west Hawaii Island. Lines are best-fit spline curves based on all summer (July to September, inclusive) censuses conducted across the inclusive 22-yr (1990–2011) monitoring period. Dashed and dotted trend lines in each panel represent the respective resident and recruit densities at the site. Note differences among sites in scale of y-axis

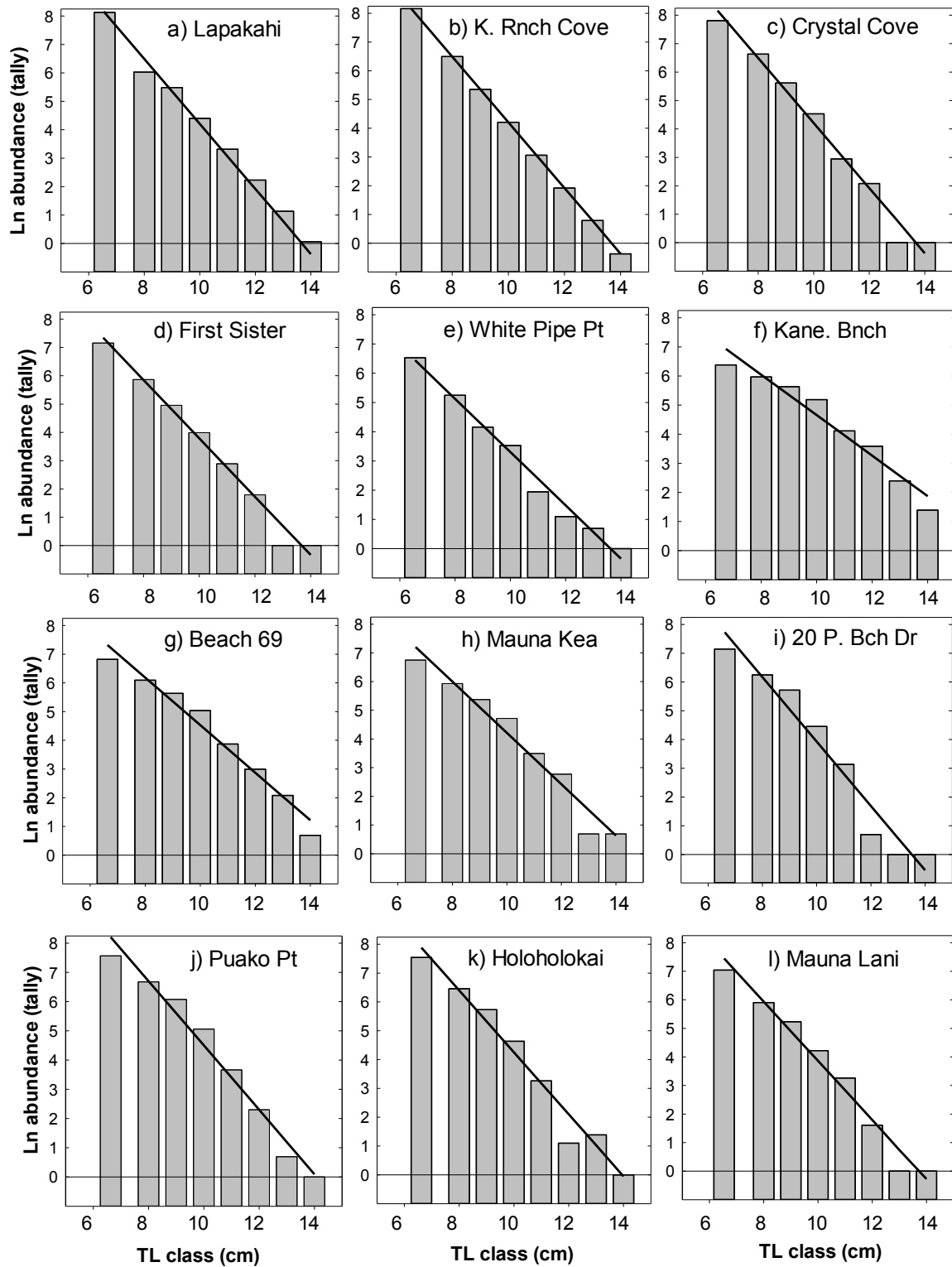


Fig. S5. Plots of Ln abundance (number of fish tallied) vs. length, for length classes ≥ 6 –7 cm total length (TL), at each of 12 sites, North-South Kohala Coast, west Hawaii Island, for arc-eye hawkfish *Paracirrhites arcatus*, based on all summer (July to September) censuses conducted at the respective site during the inclusive period spanning 1990–2011

Table S1. Tally of all agonistic bouts involving the coral-sheltering guild of fishes observed at all 12 census sites during the 1990–2011, inclusive, census period. Identities of all aggressor and aggressee interactants are noted, as is the foraging guild of each species of aggressee (source: Randall JE 2007 Reef and Shore Fishes of the Hawaiian Islands. Sea Grant College Program, University of Hawaii, Honolulu); sheltering guild of aggressee also noted if other species is a member of this coral-sheltering guild

Aggressor species	Aggressee species	N bouts	Foraging, sheltering guilds of aggressee species
Arc-eye hawkfish, <i>Paracirrhites arcatus</i>	Arc-eye hawkfish	109	Benthic-planktonic carnivore
Arc-eye hawkfish	Saddleback wrasse <i>Thalassoma duperrey</i>	16	Benthic carnivore
Arc-eye hawkfish	Bird wrasse <i>Gomphosus varius</i>	13	Benthic carnivore
Arc-eye hawkfish	Brighteye damselfish <i>Plectroglyphidodon imparipennis</i>	13	Benthic carnivore-omnivore
Arc-eye hawkfish	Blackfin chromis damselfish <i>Chromis vanderbilti</i>	7	Planktonic carnivore
Arc-eye hawkfish	Scarface blenny <i>Cirripectes vanderbilti</i>	4	Herbivore, coral-sheltering
Arc-eye hawkfish	Blue-eye damselfish <i>Plectroglyphidodon johnstonianus</i>	3	Corallivore-omnivore
Arc-eye hawkfish	Ornate wrasse <i>Halichoeres ornatus</i>	2	Benthic carnivore
Arc-eye hawkfish	Manybar goatfish <i>Parupeneus multifasciatus</i>	1	Benthic carnivore
Arc-eye hawkfish	Blue goatfish <i>Parupeneus cyclostomus</i>	1	Benthic carnivore
Arc-eye hawkfish	Yellowtail coris wrasse <i>Coris gaimard</i>	1	Benthic carnivore
Arc-eye hawkfish	Christmas wrasse <i>Thalassoma trilobatum</i>	1	Benthic carnivore
Arc-eye hawkfish	Eightstripe wrasse <i>Pseudocheilinus octotaenia</i>	1	Benthic carnivore
Blackside hawkfish <i>Paracirrhites forsteri</i>	Arc-eye hawkfish	2	Benthic-planktonic carnivore
Blackside hawkfish	Blackside hawkfish	1	Benthic carnivore-piscivore
Redbarred hawkfish <i>Cirrhites fasciatus</i>	Arc-eye hawkfish	7	Benthic-planktonic carnivore
Redbarred hawkfish	Redbarred hawkfish	1	Benthic carnivore-piscivore
Redbarred hawkfish	Bird wrasse	1	Benthic carnivore
Redbarred hawkfish	Saddleback wrasse	1	Benthic carnivore
Scarface blenny <i>Cirripectes vanderbilti</i>	Scarface blenny	2	Herbivore, coral-sheltering
Leopard blenny <i>Exallias brevis</i>	Leopard blenny	2	Corallivore, coral-sheltering