The space available in the colony is another limiting factor to *Trapezia ferrunginea* (Castro P.).

Environmental factors like inter-branch distance had non-significant effects and showed minimal variation in species-specific responses (Counsel et al.)

Mutualisms often involve one host supporting multiple symbionts, whose identity, density and intraguild interactions can influence the nature of the mutualism and performance of the host (6).

Coral that is more tightly branched should offer a refuge for smaller invertebrates like shrimp and Trapezid crabs to escape predation; especially since small invertebrates are a main food source for Hawkfish. Crabs may also be important to tightly branched corals for clearing out sediments as earlier experiments with branching corals in flume studies (1) suggested that densely packed branching colonies act as a solid body. Water flow (even for a relatively high flow velocity about 20 cms1) starts to circumvent the colony creating a stagnant region inside (2).

Hawkfishes are generally observed perched on raised substrata, often corals, which serve the purposes of protection against larger predators, a vantage point for hunting small fish and crustaceans [[32](https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0138136#pone.0138136.ref032),[33](https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0138136#pone.0138136.ref033)], and/or for courting and spawning (3,4).

Average branch width did not have a significant correlation but interstitial space or more of a volume measurement did.

**Work Cited**

1. Barry, C.K.: Ecological study of the decapod crustaceans commensal with branching coral Pocillopora meandrina var. nobilis Verrill, 64 pp. Master of Science thesis, University of Hawaii, Honolulu 1965
2. Castro, P. "Movements between Coral Colonies in Trapezia Ferruginea (Crustacea: Brachyura), an Obligate Symbiont of Scleractinian Corals." Marine Biology 46.3 (1978): 237-45. Web.
3. Chamberlain JA Jr, Graus RR (1975) Water flow and hydromechanical adaptations of branched reef corals. Bulletin of Marine Science 25: 112–125
4. Chindapol, Nol, Jaap A. Kaandorp, Carolina Cronemberger, Tali Mass, Amatzia Genin, and Edmund J. Crampin. "Modelling Growth and Form of the Scleractinian Coral Pocillopora Verrucosa and the Influence of Hydrodynamics (Modelling Growth and Form of Scleractinian Corals)." 9.1 (2013): E1002849. Web.
5. Coker, Darren J, Andrew S Hoey, Shaun K Wilson, Martial Depczynski, Nicholas A J Graham, Jean-Paul A Hobbs, Thomas H Holmes, and Morgan S Pratchett. "Habitat Selectivity and Reliance on Live Corals for Indo-Pacific Hawkfishes (Family: Cirrhitidae)." *PloS One* 10.11 (2015): E0138136. Web.
6. Counsell, Chelsie, W. Donahue, Megan Edwards, J. Franklin, and Kyle Hixon. "Variation in Coral-associated Cryptofaunal Communities across Spatial Scales and Environmental Gradients." Coral Reefs 37.3 (2018): 827-40. Web.
7. Donaldson, Terry. "Reproductive Behavior and Social Organization of Some Pacific Hawkfishes (Cirrhitidae)." *Japanese Journal of Ichthyology* 36.4 (1990): 439-58. Web.
8. Lavy, Adi, Gal Eyal, Benjamin Neal, Ray Keren, Yossi Loya, and Micha Ilan. "A Quick, Easy and Non‐intrusive Method for Underwater Volume and Surface Area Evaluation of Benthic Organisms by 3D Computer Modelling." Methods in Ecology and Evolution 6.5 (2015): 521-31. Web.
9. Neil E. Doszpot, Michael J. Mcwilliam, Morgan S. Pratchett, Andrew S. Hoey, and Will F. Figueira. "Plasticity in Three-Dimensional Geometry of Branching Corals Along a Cross-Shelf Gradient." *Diversity (Basel)* 11.3 (2019): 44. Web.
10. Renata Ferrari, Will F. Figueira, Morgan S. Pratchett, Tatiana Boube, Arne Adam, Tania Kobelkowsky-Vidrio, Steve S. Doo, Trisha Brooke Atwood, and Maria Byrne. "3D Photogrammetry Quantifies Growth and External Erosion of Individual Coral Colonies and Skeletons." *Scientific Reports* 7.1 (2017): 1-9. Web.
11. Reichert, Jessica, André R. Backes, Patrick Schubert, and Thomas Wilke. "The Power of 3D Fractal Dimensions for Comparative Shape and Structural Complexity Analyses of Irregularly Shaped Organisms." Methods in Ecology and Evolution 8.12 (2017): 1650-658. Web.
12. Stier, Adrian C., Michael A. Gil, C. Seabird McKeon, Sarah Lemer, Matthieu Leray, Suzanne C. Mills, Craig W. Osenberg, and Anna Dornhaus. "Housekeeping Mutualisms: Do More Symbionts Facilitate Host Performance? (Sediment Cleaning by Multiple Coral Mutualists)." *PLoS ONE*7.4 (2012): E32079. Web.
13. Zawada, Kyle, J. Dornelas, and A. Madin. "Quantifying Coral Morphology." Coral Reefs 38.6 (2019): 1281-292. Web.