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The gaps in knowledge to understand the link between resilience and trophic ecology in tropical octocorals

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The gaps in knowledge to understand the link between resilience and trophic ecology in tropical octocorals

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List of the 51 references used in the review.

	Title	Reference	Year	Publication
1	Distribution of lipids and fatty acids in corals by their taxonomic position and presence of zooxanthellae.	Imbs, A.B., Latyshev, N. A., Dautova, T.N., Latypov, Y. Y.	2010	<i>Marine Ecology Progress Series</i>
2	Distribution of lipids and fatty acids in the zooxanthellae and host of the soft coral <i>Sinularia</i> sp.	Imbs, A.B., Yakovleva, I. M., Pham, L.Q.	2010	<i>The Japanese Society of Fisheries Science</i>
3	Stable nitrogen and carbon isotope ($\delta^{15}\text{N}$ and $\delta^{13}\text{C}$) variability in shallow tropical Pacific soft coral and black coral taxa and implications for paleoceanographic reconstructions.	Williams, B., Grottoli, A.G.	2010	<i>Geochimica et Cosmochimica Acta</i>
4	Biosynthesis of Polyunsaturated Fatty Acids in Zooxanthellae and Polyps of Corals.	Imbs, A.B., Yakovleva, I.M., Latyshev, N.A., Pham, L.Q	2010	<i>Russian Journal of Marine Biology</i>
5	Sea fan corals provide a stable isotope baseline for assessing sewage pollution in the Mexican Caribbean.	Baker, D.M., Jordán-Dahlgren, E., Maldonado, M.A., Harvell, C.D.	2010	<i>Limnology and Oceanography</i>
6	Rearing cuttings of the soft coral <i>Sarcophyton glaucum</i> (Octocorallia, Alcyonacea): towards mass production in a closed seawater system.	Sella, I., Benayahu, Y.	2010	<i>Aquaculture Research</i>
7	Fatty acid composition as an indicator of possible sources of nutrition for soft corals of the genus <i>Sinularia</i> (Alcyoniidae)	Imbs, A.B., Latyshev, N.A.	2012	<i>Journal of the Marine Biological Association of the United Kingdom</i>
8	Prey selectivity of the octocoral <i>Carijoa riisei</i> at Pernambuco, Brazil.	Gomes, P.B., Lira, A.K., Naud, J.P., Santos, A.M., Pérez, C.D.	2012	<i>Annals of the Brazilian Academy of Sciences</i>
9	Differential morphological features of two <i>Dendronephthya</i> soft coral species suggest differences in feeding niches.	Grossowicz, M., Benayahu, Y.	2012	<i>Mar Biodiv</i>

	Title	Reference	Year	Publication
10	Dynamics of lipid and fatty acid composition of shallow-water corals under thermal stress: an experimental approach.	Imbs, A.B., Yakovleva, I.M.	2012	<i>Coral Reefs Journal of the International Coral Reef Society</i>
11	Inorganic nutrient availability affects organic matter fluxes and metabolic activity in the soft coral genus <i>Xenia</i>	Bednarz, V.N., Naumann, M.S., Niggel, W., Wild, C.	2012	<i>The Journal of Experimental Biology</i>
12	Lipid Content and Composition during the Oocyte Development of Two Gorgonian Coral Species in Relation to Low Temperature Preservation	Lin, C., Wang, L.H., Fan, T.Y., Kuo, F.W.	2012	<i>Plos One</i>
13	Gorgonian soft corals have higher growth and survival in electrical field	Fitri, D., Rachman, M. A.	2012	book - CRC Press
14	Influence of environmental gradients on C and N stable isotope ratios in coral reef biota of the Red Sea, Saudi Arabia.	Kürten, B., Al-Aidaros, A.M., Struck, U., Khomayis, H.S., Gharbawi, W.Y., Sommer, U.	2014	<i>Journal of Sea Research</i>
15	Biochemical composition of Caribbean gorgonians: Implications for gorgonian — <i>Symbiodinium</i> symbiosis and ecology	Shirur, K.P., Ramsby, B.D., Iglesias-Prieto, R., Goulet, T.L	2014	<i>Journal of Experimental Marine Biology and Ecology</i>
16	<i>Symbiodinium</i> Photosynthesis in Caribbean Octocorals.	Ramsby, B.D., Shirur, K.P., Iglesias-Prieto, R., Goulet, T.L	2014	<i>Plos One</i>
17	Diversity of fatty acid composition of symbiotic dinoflagellates in corals: Evidence for the transfer of host PUFAs to the symbionts.	Imbs, A.B., Yakovleva, I. M., Dautova, T.N., Bui, L. H., Jones, P.	2014	<i>Phytochemistry</i>
18	Fatty Acid, Lipid Class, and Phospholipid Molecular Species Composition of the Soft Coral <i>Xenia</i> sp. (Nha Trang Bay, the South China Sea, Vietnam).	Imbs, A.B., Dang, L.P., Rybin, V.G., Svetashev, V.I.	2015	<i>Lipids</i>
19	Productivity links morphology, symbiont specificity and bleaching in the evolution of Caribbean octocoral symbioses	Baker, D.M., Freeman, C.J., Knowlton, N., Thacker, R.W., Kim, K., Fogel, M.L	2015	<i>International Society for Microbial Ecology</i>
20	Seasonal variation in dinitrogen fixation and oxygen fluxes associated with two dominant zooxanthellate soft corals from the northern Red Sea.	Bednarz, V.N., Cardini, U., van Hoytema, N., Al-Rshaidat, M.M., Wild, C.	2015	<i>Marine Ecology Progress Series</i>
21	The effect of mixotrophic in the <i>ex situ</i> culture of the soft coral <i>Sarcophyton cf. glaucum</i>	Costa, A.P., Calado, R., Marques, B., Lillebø, A.I., Serôdio, J., Soares, A.M., ... Rocha, R.J.	2016	<i>Aquaculture</i>

	Title	Reference	Year	Publication
22	The influence of seasonality on benthic primary production in a Red Sea coral reef	van Hoytema, N., Bednarz, V.N., Cardini, U., Naumann, M.S., Al-Horani, F.A., Wild, C.	2016	<i>Mar Biol</i>
23	3D chemoecology and chemotaxonomy of corals using fatty acid biomarkers: Latitude, longitude and depth	Figueiredo, C., Baptista, M., Rosa, I.C., Lopes, A.R., Dionísio, G., Rocha, R.J., ... Rosa, R.	2017	<i>Biochemical Systematics and Ecology</i>
24	A Comparison of the Composition of Wax Ester Molecular Species of Different Coral Groups (Subclasses Hexacorallia and Octocorallia)	Bosh, T.V., Long, P.Q.	2017	<i>Russian Journal of Marine Biology</i>
25	Investigating Bermuda's pollution history through stable isotope analyses of modern and museum-held gorgonian corals	Baker, D.M., Murdoch, T. J., Conti-Jerpe, I., Fogel, M.	2017	<i>Marine Pollution Bulletin</i>
26	The effects of elevated seawater temperatures on Caribbean gorgonian corals and their algal symbionts, <i>Symbiodinium</i> spp.	Goulet, T.L., Shirur, K.P., Ramsby, B.D., Iglesias-Prieto, R.	2017	<i>Plos One</i>
27	Linking host morphology and symbiont performance in octocorals	Rossi, S., Schubert, N., Brown, D., Soares, M.D. O., Grosso, V., Rangel-Huerta, E., Maldonado, E.	2018	<i>Scientific Reports - Nature</i>
28	Species traits dictate seasonal-dependent responses of octocoral–algal symbioses to elevated temperature and ultraviolet radiation	McCauley, M., Banaszak, A.T., Goulet, T.L.	2018	<i>Coral Reefs</i>
29	Can organic pollution affect the growth rate of octocorals in the Caribbean?	Rey-Villiers, N., Sánchez, A.	2018	<i>Gayana</i>
30	Study of Total Lipidome of the <i>Sinularia siaesensis</i> Soft Coral	Sikorskaya, T.V., Imbs, A.B.	2018	<i>Russian Journal of Bioorganic Chemistry</i>
31	Warm seawater temperature promotes substrate colonization by the blue coral, <i>Heliopora coerulea</i>	Guzman, C., Atrigenio, M., Shinzato, C., Aliño, P., Conaco, C.	2019	<i>Peer J</i>
32	Caribbean gorgonian octocorals cope with nutrient enrichment	McCauley, M., Goulet, T.L.	2019	<i>Marine Pollution Bulletin</i>
33	Divergent Capacity of Scleractinian and Soft Corals to Assimilate and Transfer Diazotrophically Derived Nitrogen to the Reef Environment	Pupier, C.A., Bednarz, V. N., Grover, R., Fine, M., Maguer, J.F., Ferrier-Pagès, C.	2019	<i>Frontiers in Microbiology</i>
34	Productivity and carbon fluxes depend on species and symbiont density in soft coral symbioses.	Pupier, C.A., Fine, M., Bednarz, V.N., Rottier, C., Grover, R., Ferrier-Pagès, C.	2019	<i>Scientific Reports - Nature</i>

	Title	Reference	Year	Publication
35	Annual Thermal Stress Increases a Soft Coral's Susceptibility to Bleaching	Slattery, M., Pankey, M. S., Lesser, M.P.	2019	<i>Scientific Reports</i>
36	Trophic ecology of Caribbean octocorals: autotrophic and heterotrophic seasonal trends	Rossi, S., Schubert, N., Brown, D., Gonzalez-Posada, A., Soares, M.O.	2020	<i>Coral Reefs Journal of the International Coral Reef Society</i>
37	Nitrogen eutrophication particularly promotes turf algae in coral reefs of the central Red Sea	Karcher, D.B., Roth, F., Carvalho, S., El-Khaled, Y.C., Tilstra, A., Kürten, B., ... Wild, C.	2020	<i>Peer J</i>
38	Culture systems influence the physiological performance of the soft coral <i>Sarcophyton glaucum</i>	Chang, T.C., Mayfield, A. B., Fan, T.Y.	2020	<i>Scientific Reports - Nature</i>
39	Stable isotopes used to assess pollution impacts on coastal and marine ecosystems of Cuba and México	González-De Zayas, R., Rossi, S., Hernández-Fernández, L., Velázquez-Ochoa, R., Soares, M., Merino-Ibarra, M., ... Soto-Jiménez, M.F.	2020	<i>Regional Studies in Marine Science</i>
40	Dissolved Nitrogen Acquisition in the Symbioses of Soft and Hard Corals with Symbiodiniaceae: A Key to Understanding Their Different Nutritional Strategies?	Pupier, C.A., Grover, R., Fine, M., Rottier, C., Van de Water, J.A., Ferrier-Pagès, C.	2021	<i>Frontiers in Microbiology</i>
41	Vortex-induced vibrations: a soft coral feeding strategy?	Boudina, M., Gosselin, F. P., Étienne, S.	2021	<i>Journal of Fluid Mechanics</i>
42	Precision and cost-effectiveness of bio-indicators to estimate nutrient regimes on coral reefs	Vaughan, E.J., Wynn, P. M., Wilson, S. K., Williams, G.J., Barker, P. A., Graham, N.A.	2021	<i>Marine Pollution Bulletin</i>
43	Lipid biomarkers reveal the trophic plasticity of octocorals along a depth gradient	Pupier, C.A., Mies, M., Fine, M., Bastos Francini-Filho, R., Pereira Brandini, F., Zambotti-Villela, L., ... Ferrier-Pagès, C.	2021	<i>Limnology and Oceanography Association for the Sciences of Limnology and Oceanography</i>
44	Seasonal dynamics of fatty acid biomarkers in the soft coral <i>Simularia flexibilis</i> , a common species of Indo-Pacific coral reefs	Imbs, A.B., Dang, L.T.	2021	<i>Biochemical Systematics and Ecology</i>
45	Stable nitrogen isotopes in octocorals as an indicator of water quality decline from the northwestern region of Cuba	Rey-Villiers, N., Sánchez, A., González-Díaz, P.	2021	<i>Environmental Science and Pollution Research</i>

	Title	Reference	Year	Publication
46	Bleaching Susceptibility and Resistance of Octocorals and Anemones at the World's Southern-Most Coral Reef.	Steinberg, R.K., Ainsworth, T.D., Moriarty, T., Bednarek, T., Dafforn, K.A., Johnston, E.L.	2022	<i>Frontiers in Physiology</i>
47	Phosphate enrichment increases the resilience of the pulsating soft coral <i>Xenia umbellata</i> to warming.	Klinke, A., Mezger, S., Thobor, B., Tilstra, A., El-Khaled, Y.C., Wild, C.	2022	<i>Frontiers in Marine Science</i>
48	Reef-Building Corals Do Not Develop Adaptive Mechanisms to Better Cope With Microplastics.	Rades, M., Schubert, P., Wilke, T., Reichert, J.	2022	<i>Frontiers in Marine Science</i>
49	The pulsating soft coral <i>Xenia umbellata</i> shows high resistance to warming when nitrate concentrations are low	Thobor, B., Tilstra, A., Bourne, D.G., Springer, K., Mezger, S.D., Struck, U. ... Wild, C.	2022	<i>Scientific Reports</i>
50	The widely distributed soft coral <i>Xenia umbellata</i> exhibits high resistance against phosphate enrichment and temperature increase	Mezger, S.D., Klinke, A., Tilstra, A., El-Khaled, Y.C., Thobor, B., Wild, C.	2022	<i>Scientific Reports</i>
51	Symbiotic stony and soft corals: Is their host-algae relationship really mutualistic at lower mesophotic reefs?	Ferrier-Pagès, C., Bednarz, V., Grover, R., Benayahu, Y., Maguer, J.F., Rottier, C., ... Fine, M.	2022	<i>Limnology and Oceanography</i>