

REFERENCES

- Babcock, R. C., Bull, G. D., Harrison, P. L., Heyward, A. J., Oliver, J. K., Wallace, C. C. and Willis, B. L. (1986) Synchronous spawning of 105 scleractinian coral species in the Great Barrier Reef. *Marine Biology* 90:379-394.
- Baird, A. H. and Hughes, T. P. (1997) Spatial variation in the recruitment of corals around Lizard Island. *Proc. 8th. Int. Coral Reef Symp. Panama, Vol. 2*, pp. 1207-1210.
- Baird, A. H. and Hughes, T. P. (2000) Competitive dominance by tabular corals: An experimental analysis of recruitment and survival of understory assemblages. *J. Exp. Mar. Biol. Ecol.* 251(1):117-132.
- Barnes, D. J. (1970) Coral skeletons: an explanation of their growth and structure. *Science* 170:1305-1308.
- Barnes, D. J. and Lough, J. M. (1992) Systematic variation in the depth of skeleton occupied by coral tissue in massive colonies of *Porites* from the Great Barrier Reef. *J. Exp. Mar. Biol. Ecol.* 159:113-128.
- Bell, J. D. and Galzin, R. (1984) Influence of live coral cover on coral-reef fish communities. *Mar. Ecol. Prog. Ser.* 15:265-274.

- Bellwood, D. R. and Wainwright, P. C. (2001) Locomotion in labrid fishes: implications for habitat use and cross-shelf biogeography on the Great Barrier Reef. *Coral Reefs* 20:139-150.
- Black, K. P. (1978) Wave Transformation over shallow reef. Technical Report No. 42, James K. K. Look Laboratory of Oceanographic Engineering. University of Hawaii.
- Black, K. P. and Gay, S. L. (1990a) Reef-scale numerical hydrodynamic modelling developed to instigate crown-of-thorns starfish outbreaks. In: R. Bradbury (Ed.), *Acanthaster and the Coral Reef. A Theoretical Approach*. Springer-Verlag, Berlin, pp. 120-150.
- Black, K. P. and Gay, S. L. (1990b) A numerical scheme for determining trajectories in particle models. In: R. Bradbury (Ed.), *Acanthaster and the Coral Reef. A Theoretical Approach*. Springer-Verlag, Berlin, pp. 151-156.
- Black, K. P. and Rosenberg, M. A. (1992) Semi-empirical treatment of wave transformation outside and inside the breaker line. *Coastal Engineering* 16:313-345.
- Blythell, J. C., Gladfelter, E. H. and Blythell, M. (1993) Chronic and catastrophic natural mortality of three common Caribbean reef corals. *Coral Reefs* 12:143-152.

BOM (2003) The Australian Bureau of Meteorology. Canberra, Australia.

Buddemeier, R. W. and Oberdorfer, J. A. (1986) Internal hydrology and geochemistry of coral reefs and atoll islands: key to diagenetic variations. In: Schroeder, J. H. and Purser, B. H. (eds.) Reef diagenesis. Springer, Berlin Heidelberg New York, pp. 91-111.

Callister, W. D. (1994) Materials Science and Engineering: An Introduction. 3rd Ed. John Wiley and Sons, New York.

Carrington, E. (1990) Drag and dislodgment of an intertidal macroalga: consequences of morphological variation in *Mastocarpus papillatus* Kutzing. J. Exp. Mar. Biol. Ecol. 139:185-200.

Carstens, T. (1968) Wave forces on boundaries and submerged bodies. Sarsia 34:37-60.

Bock, H. (1984) Experimentation with the German Dynamic Probing Technique on the Great Barrier Reef. 4th Aust. N.Z. Conference on Geomechanics, Perth.

Chamberlain, J. A. (1978) Mechanical properties of coral skeleton: compressive strength and its adaptive significance. Paleobiology 4(4):419-435.

- Chamberlain, J. A. and Graus, R. R. (1975) Water flow and hydrodynamical adaptations of branched reef corals. *Bull. Mar. Sci.* 25(1):112-125.
- Chappell, J. (1980) Coral morphology, diversity and reef growth. *Nature* 286(5770):249-252.
- Chesson, P. (2000) Mechanisms of maintenance of species diversity. *Annu. Rev. Ecol. Syst.* 31:343-366.
- Colgan, M. W. (1987) Coral reef recovery on Guam (Micronesia) after catastrophic predation by *Acanthaster planci*. *Ecology* 68(6):1592-1605.
- Connell, J. H. (1973) Population ecology of reef-building corals. In: Jones, O. A. and Endean, R. (eds) *Biology and Ecology of Coral Reefs. II Biology 1*. Academic Press, New York.
- Connell, J. H. (1978) Diversity in tropical rainforests and coral reefs. *Science* 199:1302-1310.
- Connell, J. H. (1979) Tropical rainforests and coral reefs as open non-equilibrium systems. In: Anderson, R., Turner, B. and Taylor, L. (eds) *The Ecology of Natural Disturbance and Patch Dynamics*. Academic Press, Orlando, pp.125-151.

- Connell, J. H. and Keough, M. J. (1985) Disturbance and patch dynamics of subtidal marine animals on hard substrata. In: Pickett, S. T. A. and White, P. S. (eds.) *The Ecology of Natural Disturbance and Patch Dynamics*. Academic Press. pp. 125-151.
- Connell, J. H., Hughes, T. P. and Wallace, C. C. (1997) A 30-year study of coral abundance, recruitment, and disturbance at several scales in space and time. *Ecol. Monogr.* 67(4):461-488.
- Crow, T. R. (1980) A rainforest chronicle: a 30-year record of change in structure and composition at El Verde, Puerto Rico. *Biotropica* 12:42-55.
- Dayton, P. K. (1971) Competition, disturbance, and community organization: the provision and subsequent utilisation of space in a rocky intertidal community. *Ecol. Monogr.* 41:351-389.
- Darwin, C. (1842) *The structure and distribution of coral reefs*. D. Appleton and Co., New York.
- Denny, M. W. (1985) Wave forces on intertidal organisms: A case study. *Limnol. Oceanogr.* 30(6):1171-1187.
- Denny, M. W. (1988) *Biology and the Mechanics of the Wave-Swept Environment*. Princeton University Press, New Jersey.

- Denny, M. W. (1995) Predicting physical disturbance: Mechanistic approaches to the study of survivorship on wave-swept shores. *Ecol. Monogr.* 65(4):371-418.
- Denny, M. W. (1999) Are there mechanical limits to size in wave-swept organisms? *J. Exp. Biol.* 202(23):3463-3467.
- Denny, M. W. and Gaines, S. (1990) *Chance in Biology*. Princeton University Press, New Jersey.
- Denny, M. W. and Gaines, S. (1990) On the prediction of maximal intertidal wave forces. *Limnol. Oceanogr.* 35(1):1-15.
- Denny, M. W. and Gaylord, B. P. (1997) Flow and flexibility: II. The roles of size and shape in determining wave forces on the bull kelp *Nereocystis luetkeana*. *J. Exp. Biol.* 200(24):3165-3183.
- Denny, M. W. and Gaylord, B. P. (1997) The mechanics of wave-swept algae. *J. Exp. Biol.* 205(10):1355-1362.
- Denny, M. W. and Wethey, D. (2001) Physical processes that generate patterns in marine communities. In: Bertness, M. D. Gaines, S. M. and Hixon, M. E. (eds.) *Marine Community Ecology*. Sunderland, Mass: Sinauer Associates, pp. 3-37.

- Denny, M. W., Miller, L. P., Stokes, M. D., Hunt, L. J. H. and Helmuth, B. S. T. (2003) Extreme water velocities: Topographical amplification of wave-induced flow in the surf zone of rocky shores. *Limnol. Oceanogr.* 48(1):1-8.
- Dollar, S. J. (1982) Wave stress and coral community structure in Hawaii. *Coral Reefs* 1:71-81.
- Dollar, S. J. and G. W. Tribble (1993) Recurrent storm disturbance and recovery: a long-term study of coral communities in Hawaii. *Coral Reefs* 12:223-233.
- Done, T. J. (1983) Coral zonation: its nature and significance. In: Barnes, D. J. (ed) *Perspective on coral reefs*. Brian Clouston, Manuka, pp. 107-147.
- Eckart, C. (1952) The propagation of waves from deep to shallow water. In: *Gravity Waves*. Circulars of the National Bureau of Standards (USA) 521:165-173.
- Franklin, J. A. and Dusseault, M. B. (1989) *Rock Engineering*. McGraw-Hill Publishing Company, New York.
- Gaines, S. D. and Denny, M. W. (1993) The largest, smallest, highest, lowest, longest, and shortest: Extremes in ecology. *Ecology* 74(6):1677-1692.
- Gaylord, B. (1999) Detailing agents of physical disturbance: Wave-induced velocities and acceleration on a rocky shore. *J. Exp. Mar. Biol. Ecol.* 239:85-124.

- Gaylord, B. and Denny, M. W. (1997a) Flow and Flexibility: I. Effects of size, shape and stiffness in determining wave forces on the stipitate kelps *Eisenia arborea* and *Pterygophora californica*. J. Exp. Biol. 200:3141-3164.
- Gaylord, B. and Denny, M. W. (1997b) Flow and Flexibility: II. The roles of size and shape in determining wave forces on the bull kelp *Nereocystis luetkeana*. J. Exp. Biol. 200:3165-3183.
- Gaylord, B., Blanchette, C. A. and Denny, M. W. (1994) Mechanical consequences of size in wave-swept algae. Ecol. Monogr. 64(3):287-313.
- Gerhart, P. M., Hochstein, J. I. and Gross, R. J. (1992) Fundamentals of Fluid Mechanics. 2nd Ed. Pearson Addison Wesley, New York.
- Gladfelter, E. H. (1982) Skeletal development in *Acropora cervicornis* I. Patterns of calcium carbonate excretion in the axial corallite. Coral Reefs 1:45-51.
- Graus, R. R., Chamberlain, J. A. and Boker, A. M. (1977) Structural modification of corals in relation to waves and current. Stud. Geol. 4:135-153.
- Grime, J. P. (1977) Evidence for the existence of three primary strategies in plants and its relevance to ecological and evolutionary theory. Am. Nat. 111(982):1169-1194.
- Gumbel, E. J. (1958) Statistics of Extremes. Columbia University Press, New York.

- Hall, V. R. (2001) The response of *Acropora hyacinthus* and *Montipora tuberculosa* to three different types of colony damage: scraping injury, tissue mortality and breakage. *J. Exp. Mar. Biol. Ecol.* 264:209-223.
- Hall, V. R. and Hughes, T. P. (1996) Reproductive strategies of modular organisms: comparative studies of reef-building corals. *Ecology* 77:950-963.
- Hardy, T. A. and Young, I. R. (1996) Field study of wave attenuation on an offshore coral reef. *J. Geophys. Res.* 101(C6):14311-14326.
- Hart, A. M., Lasi, F. E. and Glenn, E. P. (2002) SLODS: slow dissolving standards for water flow measurements. *Aquaculture Engineering* 25:239-252.
- Helmuth, B. S. T. and Timmerman, B. E. H. (1997) Interplay of host morphology and symbiont microhabitat in coral aggregations. *Mar. Biol.* 130(1):1-10.
- Henderson-Sellers, A. et al. (1998) Tropical cyclones and global climate change; a post IPCC assessment. *Bull. Am. Meteorol. Soc.* 79:19-38.
- Heyward, A. J. and Negri, A. P. (1999) Natural inducers for coral larval metamorphosis. *Coral Reefs* 18:273-279.

- Highsmith, R. C. (1981) Coral bioerosion: damage relative to skeletal density. *Am. Nat.* 117:193-198.
- Highsmith, R. C. (1982) Reproduction by fragmentation in corals. *Mar. Ecol. Prog. Ser.* 7:207-226.
- Highsmith, R. C., Riggs, A. and D'Antonio, C. (1980) Survival of hurricane generated coral fragments and a disturbance model of reef calcification/growth rates. *Oecologia* 46:322-329.
- Highsmith, R. C., Lueptow, R. L. and Schonberg, S. C. (1983) Growth and bioerosion of three massive corals on the Belize barrier reef. *Mar. Ecol. Prog. Ser.* 13:261-271.
- Houghton, J. T., Meria Filho, L.G., Callander, B.A., Harris, N., Kattenberg, A. and Maskell, K. (1996) *Climate Change 1995: The Science of Climate Change "Contribution of WGI to the Second Assessment Report of the Intergovernmental Panel on Climate Change"* Cambridge University Press, New York pp. 572.
- Hubbell, S. P., Foster, R. B., O'Brien, S. T., Harms, K. E., Condit, R., Wechler, B., Wright, S. J. and Loo de Lao, S. (1999) Light-gap disturbances, recruitment limitation, and tree diversity in a neotropical forest. *Science* 283:554-557.

- Hughes, T. P. (1980) Do corals lie about their age? Some demographic consequences of partial mortality, fission, and fusion. *Science* 209:713-715.
- Hughes, T. P. (1987) Skeletal density and growth form of corals. *Mar. Ecol. Prog. Ser.* 35:259-266.
- Hughes, T. P. (1989) Community structure and diversity of coral reefs: the role of history. *Ecology* 70:275-279.
- Hughes, T. P. (1996) Demographic approaches to community ecology: A coral reef example. *Ecology* 77:2256-2260.
- Hughes, T. P. and Connell, J. H. (1999) Multiple stressors on coral reefs: A long-term perspective. *Limnol. Oceanogr.* 44:932-940.
- Hutchinson, G. E. (1987) *An Introduction to Population Ecology*. Yale University Press, USA.
- Jackson, J. B. C. (1979) Morphological strategies of sessile animals. In: Rosen B, Larwood G (eds) *Biology and Systematics of Colonial Animals*. Academic Press, London. pp. 499-555.
- Johnston, A. S. and Koehl, M. A. R. (1994) Maintenance of dynamic strain similarity and environmental stress factor in different flow habitats: Thallus allometry

and material properties of a giant kelp. *J. Exp. Biol.* 195:381-410.

Kaandorp, J. A. (1999) Morphological analysis of growth forms of branching marine sessile organisms along environmental gradients. *Mar. Biol.* 143:295-306.

Kaandorp, J. A. and Sloom, P. M. A. (2001) Morphological models of radiate accretive growth and the influence of hydrodynamics. *Mar. Biol.* 209:257-274.

Knowlton, N. (1992) Thresholds and multiple stable states in coral reef community dynamics. *Am. Zool.* 32:674-682.

Knowlton, N., Lang, J. C., Rooney, M. C. and Clifford, P. (1981) Evidence for delayed mortality in hurricane-damaged Jamaican staghorn corals. *Nature* 294:251-252.

Koehl, M. A. R. (1977) Mechanical organization of cantilever-like sessile organisms: sea anemones. *J. Exp. Biol.* 69:127-142.

Koehl, M. A. R. (1999) Ecological biomechanics of benthic organisms: Life history, mechanical design and temporal patterns of mechanical stress. *J. Exp. Biol.* 202(23):3469-3476.

Komar, P. D. (1997) *Beach Processes and Sedimentation* (2nd edition). Pearson Education.

Lang, J. C. (1974) Biological zonation at the base of a reef. *Am. Sci.* 62:272-281.

Lang, J. C. and Chornesky, E. A. (1990) Competition between scleractinian reef corals- a review of mechanism and effects. In: Dudinsky (ed) *Coral Reefs. Ecosystems of the World. Vol. 25.* Elsevier. pp.209-252.

Lassig, B. R. (1983) The effects of a cyclonic storm on coral reef assemblages. *Env. Biol. Fishes* 9(1):55-63.

Levin, P. S. (1991) Effects of microhabitat on recruitment variation in a Gulf of Maine reef
fish. *Mar. Ecol. Prog. Ser.* 75:183-189.

Levin, P. S. and Paine, R. T. (1974) Disturbance, patch formation and community structure. *Proc. Natl. Acad. Sci. USA* 71:2744-2747.

Lewis, A. R. (1998) Effects of experimental coral disturbance on the population dynamic of fishes on large patch reefs. *J. Exp. Mar. Biol. Ecol.* 230(1):91-110.

Longuet-Higgins, M. S. (1952) On the statistical distribution of the height of sea waves. *J. Mar. Res.* 11:245-266.

- Longuet-Higgins, M. S. (1980) On the distribution of the heights of sea waves: some effects of nonlinearity and finite band width. *J. Geophys. Res.* 85:1519-1523.
- Lourensz, H. (1981) Tropical cyclones in the Australian region, July 1909 to June 1980. Bureau of Meteorology, Melbourne.
- Lugo, A. E., Applefield, M., Pool, D. J. and McDonald, R. (1983) The impact of Hurricane David on the forests of Dominica. *Can. J. For. Res.* 13:201-211.
- Macintyre, I. G. (1985) Submarine cements – the peloidal question. *Soc. Econ. Paleontol. Mineral Spec. Publ.* 36:109-116.
- Macintyre, I. G. and Marshall, J. F. (1988) Submarine lithification in coral reefs: some facts and misconceptions. *Proc. 6th Int. Coral Reef Symp., Australia, Vol. 1.*
- Massel, S. R. (1989) *Hydrodynamics of Coastal Zones.* Elsevier, Amsterdam.
- Massel, S. R. and Done, T. J. (1993) Effects of cyclone waves on massive coral assemblages on the Great Barrier Reef: Meteorology, hydrodynamics and demography. *Coral Reefs* 12:153-166.
- Menge, B. A. (1976) Organisation of the New England rocky intertidal community: role of predation, competition, and environmental heterogeneity. *Ecol.*

Monogr. 46:355-393.

Mitchell, J. F. B., Manatabe, S., Meleshko, V. and Tokioka, T. (1990) Equilibrium climate change – and its implication for the future. In: Houghton, J. T., Jenkins, G. J., Ephraums, (eds) Climate Change. The IPCC Assessment. Cambridge University Press, Cambridge.

Molina, J.-F. and Sabatier, D. (2001) Tree diversity in tropical rain forests: A validation of the intermediate disturbance hypothesis. *Science* 294:1702-1704.

Morse, A. N. C., Iwao, K., Baba, M., Shimoike, K., Hayashibara, T. and Omori, M. (1996) An ancient chemosensory mechanism brings new life to coral reefs. *Biol. Bull.* 191:149-154.

Oliver, J. K., Chalker, B. E. and Dunlap, W. C. (1983) Bathymetric adaptations of reef-building corals at Davies Reef, Great Barrier Reef, Australia. I. Long-term growth responses of *Acropora formosa*. *J. Exp. Mar. Biol. Ecol.* 73:11-35.

Niklas, K. J. and Spatz, H. C. (2000) Wind-induced stresses in cherry trees: Evidence against the hypothesis of constant stress levels. *Trees* 14(4):230-237.

Niklas, K. J. (2002) Wind, size, and tree safety. *J. Arbor.* 28(2):84-93.

- Nott, J. and Haine, M. (2001) High frequency of 'super-cyclones' along the Great Barrier Reef over the past 5,000 years. *Nature* 413:508-512.
- Nowell, A. R. M. and Jumars, P. A. (1984) Flow environments of aquatic benthos. *Annu. Rev. Ecol. Syst.* 15:303-328.
- Paine, R. T. (1974) Intertidal community structure: Experimental studies on the relationship between a dominant competitor and its principal predator. *Am. Nat.* 100:65-75.
- Paine, R. T. (1979) Disaster, catastrophe, and the local persistence of the sea palm, *Postelsia palmaeformis*. *Science* 205:685-687.
- Paine, R. T. and Levin, S. A. (1981) Intertidal landscapes and the dynamics of pattern. *Ecol. Monogr.* 51:145-178.
- Patterson, M. R., Sebens, K. P. and Olson, R. R. (1991) In situ measurements of flow effects on primary production and dark respiration in reef corals. *Limnol. Oceanogr.* 36:936-948.
- Peck, R. B., Hanson, W. E., and Thornburn, T. H. (1974) *Foundation Engineering*. Wiley, NY.
- Pickett, S. T. A. and White, P. S. (1985) Patch dynamic: a synthesis. In: Pickett, S. T. A. and White, P. S. (eds.) *The Ecology of Natural Disturbance and Patch*

Dynamics. Academic Press. pp. 371-382.

Polous, H. G. and Davies E. G. (1980) *Pile Foundation and Design*. John Wiley and Sons, New York.

Porter, J. W., Woodley, J. D., Smith, G. L., Neigel, J. E., Battey, J. F. and Dallmeyer, D. G. (1981) Population trends among Jamaican reef corals. *Nature* 294:249-250.

Rasser, M. W. and Riegl, B. (2002) Holocene coral reef rubble and its binding agents. *Coral Reefs* 21:57-72.

Rayleigh, J. W. S. (1880) On the resultant of a large number of vibrations of the same pitch and arbitrary phase. *Phil. Mag.* 10:73-78.

Reilly, A. (1991) The effects of Hurricane Hugo in three tropical forests in the U.S. Virgin Islands. *Biotropica* 23:414-419.

Roberts, C. M. and Ormond, R. F. G. (1987) Habitat complexity and coral reef fish diversity and abundance on Red Sea fringing reefs. *Mar. Ecol. Prog. Ser.* 41:1-8.

Rogers, C. S. (1993) Hurricanes and coral reefs: the intermediate disturbance hypothesis revisited. *Coral Reefs* 12:127-137.

- Scharf, F. S., Juanes, F. and Sutherland, M. (1998) Inferring ecological relationships from the edges of scatter diagrams: comparison of regression techniques. *Ecology* 79(2):448-460.
- Schuhmacher, H. and Plewka, M. (1981) Mechanical resistance of reefbuilders through time. *Oecologia* 49:279-282.
- Sebens, K. P. (1991) Effects of water flow on coral growth and prey capture. *Am. Zool.* 31:59A.
- Sebens, K. P. (2001) Energetic constraints and size gradients in intertidal and subtidal marine invertebrates. *Am. Zool.* 41(6):1583-1583
- Sebens, K. P., Grace, S. P., Helmuth, B., Maney, E. J. J. and Miles, J. S. (1998) Water flow and prey capture by three scleractinian corals, *Madracis mirabilis*, *Montastrea vacernosa* and *Porites porites*, in a field enclosure. *Mar. Biol.* 131:347-360.
- Sheil, D. and Burslem, D. F. R. P. (2003) Disturbing hypotheses in tropical forests. *TREE* 18(1):18-26.
- Sheppard, C. R. C. (1982) Coral populations on reef slopes and their major controls. *Mar. Ecol. Prog. Ser.* 7:83-115.

- Shinn, E. (1976) Coral reef recovery in Florida and the Persian Gulf. *Envir. Geol.* 1:241-354.
- Smith, L. D. and Hughes, T. P. (1999) An experimental assessment of survival, re-attachment and fecundity of coral fragments. *J. Exp. Mar. Biol. Ecol.* 235(1):147-164.
- Spiegel, M. R. (1992) *Theory and Problems of Probability and Statistics*. McGraw-Hill, New York.
- Sousa, W. P. (1979) Disturbance in marine intertidal boulder fields: The nonequilibrium maintenance of species diversity. *Ecology* 60:1225-1239.
- Sousa, W. P. (1984) The role of disturbance in natural communities. *Ann. Rev. Ecol. Syst.* 15:353-391.
- Sousa, W. P. (2001) Natural Disturbance and the Dynamics of Marine Benthic Communities. *Marine Community Ecology*. M. D. Bertness, S. D. Gaines and M. E. Hay. Sunderland, Sinauer Associates.
- Stimson, J. (1985) The effect of shading by the table coral *Acropora hyacinthus* on understorey corals. *Ecology* 66:40–53.

- Stobutzki, I. C. and Bellwood, D. R. (1997) Sustained swimming abilities of the late pelagic stages of coral reef fishes. *Mar. Ecol. Prog. Ser.* 149:35-41.
- Stoddart, D. (1963) Effects of Hurricane Hattie on the British Honduras reefs and cays, October 30-31, 1961. *Atoll Res. Bull.* 95:1-142.
- Stoddart, D. (1969) Post-hurricane changes on the British Honduras reefs and cays: Re-survey of 1965. *Atoll Res. Bull.* 12:1-25.
- Symonds, G., Black, K. P. and Young, I. R. (1995) Wave-driven flow over shallow reefs. *J. Geol. Res.* 100(C2):2639-2648.
- Thomson, J. D., Weiblen, G. Thomson, B. A. Alfaro, S. and Legendre, P. (1996) Untangling multiple factors in spatial distributions: lilies, gophers, and rocks. *Ecology* 77(6):1698-1715.
- Thornton, E. B. and Guza, R. T. (1983) Transformation of wave height distribution. *J. Geophys. Res.* 88(C10):9499-9508.
- Tunncliffe, V. (1981) Breakage and propagation of the stony coral *Acropora cervicornia*. *Proc. Natl. Acad. Sci. USA* 78:2427-2431.
- Tunncliffe, V. (1982) The effects of wave-induced flow on a coral reef. *J. Exp. Mar. Biol. Ecol.* 64:1-10.

- U.S. Army Corps of Engineers (1984) Shore protection manual. Fourth edition. U.S. Government Printing Office, Washington, D.C., USA.
- Veron, J. E. N. (1993) Corals of Australia and the Indo-Pacific. University of Hawaii Press, Honolulu. pp. 132-133.
- Vogel, S. (1996) Life in Moving Fluids: The Physical Biology of Flow. Willard Grant Press, Boston.
- Vosburgh, F. (1977) The response to drag of the reef coral *Acropora reticulata*. 3rd Int. Coral Reef Symp., U.S.A.
- Vosburgh, F. (1982) *Acropora reticulata*: structure, mechanics and ecology of a reef coral. Proc. R. Soc. Lond. B 214:481-499.
- Wainwright, S. A., Biggs, S. A. Currey, J. D. and Gosline, J. M. (1982) Mechanical Design in Organisms. Princeton University Press, Princeton.
- Wainwright, P. C., Bellwood, D. R. and Westneat, M. W. (2002) Ecomorphology of locomotion in labrid fishes. Env. Biol. Fishes 65:47-62.
- Wallace, C. C. (1999) Staghorn Corals of the World: A Revision of the Coral Genus *Acropora*. CSIRO Publishing, Collingwood.

- Walsh, K., Hennessy, K., Jones, R., McInnes, K.L., Page, C. M., Pittock, A.B., Suppiah, R. and Whetton, P. (2001) Climate Change in Queensland under Enhanced Greenhouse Conditions (Third annual report 1999-2000, CSIRO Atmospheric Research, Aspendale, Victoria, Australia.
- Wethey, D. S. and Porter, R. (1976) Sun and shade differences in productivity of reef corals. *Nature* 262:281-282.
- Whitman, J. (1992) Physical disturbance and community structure of exposed and protected reefs: a case study from St. Johns, U.S. Virgin Islands. *Am. Zool.* 32:641-654.
- Williams, D. M. (1991) Patterns and processes in the distribution of coral reef fishes. In: Sale, P. F. (ed.) *The Ecology of Fishes on Coral Reefs*. Academic Press, Sydney, pp. 437-474.
- Woodley, J.D., Chornesky, E. A., Clifford P. A., Jackson, J. B. C., Kaufman, L. S., Knowlton, N., Lang, J. C., Pearson, M. P., Porter, J. W., Rooney, M. C., Rylaarsdam, K. W., Tunnicliffe, V. J., Wahle, C. M., Wulff, J. L., Curtis, A. S. G., Dallmeyer, M. D., Jupp, B. P., Koehl, M. A. R., Neigel, J. and Sides, E. M. (1981) Hurricane Allen's impact on Jamaican coral reefs. *Science* 214:749-755.

Woodley, J. D. (1992) The incidence of hurricanes on the north coast of Jamaica since 1870: are classical reef descriptions typical. *Hydrobiologia* 247:133-138.

Young, I. R. and Sobey, R. J. (1981) The numerical prediction of tropical cyclone wind waves. Department of Civil Engineering Res. Bull. CS-20, James Cook University, Townsville.