

- Abesamis, R.A., and G.R. Russ. 2005. Density-dependent spillover from a marine reserve: long-term evidence. *Ecol. Appl.*, 15:5:1798–1812.
- Airamé, S., J.E. Dugan, K.D. Lafferty, H. Leslie, D.A. McArdle, and R.R. Warner. 2003. Applying ecological criteria to marine reserve design: a case study from the California Channel Islands. *Ecol. Appl.*, 13:sp1:170–84.
- Allen, L.G., and D.J. Pondella. 2006. Ecological classification. Pp. 81-113. In: the ecology of marine fishes: California and adjacent waters. L.G. Allen, D.J. Pondella, and M.H. Horn (eds.). Univ. Calif. Press.
- Allison, G.W., S.D. Gaines, J. Lubchenco, and H. Possingham. 2003. ensuring persistence of marine reserves: catastrophes require adopting an insurance factor. *Ecol. Appl.*, 13:S8-S24.
- Anderson, E.S. 2016. The response of a predatory fish, *Ophiodon elongatus*, to a marine protected area: variation in diet, catch rates, and size composition. Master's Thesis, Calif. Polytechnic State Univ., San Luis Obispo
- Ashley, M.C., S.C. Mangi, and L.D. Rodwell. 2014. The potential of offshore windfarms to act as marine protected areas – a systematic review of current evidence. *Mar. Pol.*, 45:301-309.
- Babcock, E.A., and A.D. MacCall. 2011. How useful is the ratio of fish density outside versus inside no-take marine reserves as a metric for fishery management control rules? *Can. J. Fish. Aquat. Sci.*, 68:343–59.
- Baetscher, D.S., E.C. Anderson, E.A. Gilbert-Horvath, D.P. Malone, E.T. Saarman, M.H. Carr, and J.C. Garza. 2019. Dispersal of a nearshore marine fish connects marine reserves and adjacent fished areas along an open coast. *Mol. Ecol.*, 28:1611–23.
- Barceló, C., J.W. White, L.W. Botsford, and A. Hastings. 2021. Projecting the timescale of initial increase in fishery yield after implementation of marine protected areas. *ICES J. Mar. Sci.*, 781860–71.
- Barneche, D.R., D.R. Robertson, C.R. White, and D.J. Marshall. 2018. Fish reproductive-energy output increases disproportionately with body size. *Science*, 360:642–45.
- Barreto, G.C., M. Di Domenico, and R.P. Medeiros. 2020. Human dimensions of marine protected areas and small-scale fisheries management: a review of the interpretations. *Mar. Pol.*, 199:104040.
- Bashevkin, S.M., C.D. Dibble, R.P. Dunn, J.A. Hollarsmith, G. Ng, E.V. Satterthwaite, and S.G. Morgan. 2020. Larval dispersal in a changing ocean with an emphasis on upwelling regions. *Ecosphere*, 11(1)e03015.
- Baskett, M.L., F. Micheli, and S. Levin. 2007. Designing marine reserves for interacting species: insights from theory. *Biol. Conserv.*, 137:163-179.
- Baskett, M.L., and L.A.K. Barnett. 2015. The ecological and evolutionary consequences of marine reserves. *Annu. Rev. Ecol. Syst.*, 46:49–73.
- Bell, R.J., J. Odell, G. Kirchner, and S. Lomonico. 2020. Actions to promote and achieve climate-ready fisheries: summary of current practice. *Mar. Coast. Fish.*, 12:66–90.
- Blowes, S.A., J.M. Chase, A. Di Franco, O. Frid, N.J. Gotelli, P. Guidetti, T.M. Knight, et al. 2020. Mediterranean marine protected areas have higher biodiversity via increased evenness, not abundance. *J. Appl. Ecol.*, 57:578–89.
- Botsford, L.W., J.C. Castilla, and C.H. Peterson. 1997. The management of fisheries and marine ecosystems. *Science*, 277:509–15.

- Botsford, L.W., A. Hastings, and S.D. Gaines. 2001. Dependence of sustainability on the configuration of marine reserves and larval dispersal distance. *Ecol. Lett.*, 4:144–50.
- Botsford, L.W., J.W. White, M.-A. Coffroth, C.B. Paris, S. Planes, T.L. Shearer, S.R. Thorrold, and G.P. Jones. 2009. Connectivity and resilience of coral reef metapopulations in marine protected areas: matching empirical efforts to predictive needs. *Coral Reefs*, 28:327–37.
- Botsford, L.W., J. Wilson White, and A. Hastings. 2019. *Population dynamics for conservation*. Oxford Univ. Press.
- Botsford, L.W., J.W. White, M.H. Carr, and J.E. Caselle. 2014. Marine Protected Area Networks in California, USA, *Adv. Mar. Biol.*, 69:205–51.
- Burgess, SC., K.J. Nickols, C.D. Griesemer, L.A.K. Barnett, A.G. Dedrick, E.V. Satterthwaite, L. Yamane, S.G. Morgan, J.W. White, and L.W. Botsford. 2014. Beyond connectivity: how empirical methods can quantify population persistence to improve marine protected-area design. *Ecol. Appl.*, 24:257–70.
- Cabral, R.B., S.D. Gaines, M.T. Lim, M.P. Atrigenio, S.S. Mamauag, G.C. Pedemonte, and P.M. Aliño. 2016. Siting marine protected areas based on habitat quality and extent provides the greatest benefit to spatially structured metapopulations. *Ecosphere*, 7(11):e01533.
- California Department of Fish and Game. 2003. *History of the Channel Islands Marine Reserve Working Group Process*.
- California Department of Fish and Game. *Master Plan for Marine Protected Areas*, 2008.
- California Department of Fish and Wildlife and California Ocean Protection Council. 2018. *Marine Protected Area Monitoring Action Plan*.
- Carr, M.H., J.E. Caselle, K. Cavanaugh, J. Freiwald, K.J. Kroeker, D. Pondella, and B.N. Tissot. 2022. *monitoring and evaluation of kelp forest ecosystems in the MLPA marine protected area network*. California Sea Grant College System.
- Carr, M.H., J.E. Neigel, J.A. Estes, S. Andelman, R.R. Warner, and J.L. Largier. 2003. Comparing marine and terrestrial ecosystems: implications for the design of coastal marine reserves. *Ecol. Appl.*, 13:90–107.
- Carr, M., J.W. White, E. Saarman, J. Lubchenco, K. Milligan, and J.E. Caselle. 2019. Marine protected areas exemplify the evolution of science and policy. *Oceanogr.*, 32:94–103.
- Caselle, J.E., K.J. Nickols, J.G. Smith, C. Lopazanski, J. Brun, C. Free, C. Anderson, et al. 2022. *A Synthesis of Ecological and Social Outcomes from the California Marine Protected Area (MPA) Network*. NCEAS Working Group Final Report to the California Ocean Protection Council and the California Department of Fish and Wildlife. National Center for Ecological Analysis and Synthesis.
- Caselle, J.E. 2023. Marine protected areas. Pp. 217–20. In: *coastal and marine environments*. Y. Wang (ed.). CRC Press.
- Caselle, J.E., K. Davis, and L.M. Marks. 2018. Marine management affects the invasion success of a non-native species in a temperate reef system in California, USA. Edited by Franck Courchamp. *Ecol. Lett.*, 21:43–53.
- Caselle, J.E., A. Rassweiler, S.L. Hamilton, and R.R. Warner. 2015. recovery trajectories of kelp forest animals are rapid yet spatially variable across a network of temperate marine protected areas. *Sci. Rep.*, 5:14102.
- Charles, A., and L. Wilson. 2009. Human dimensions of marine protected areas. *ICES J. Mar. Sci.*, 66:6–15.

- Cheripka, A.M. 2018. Managing shifting species in MPA networks: disentangling the effects of climate velocity, interspecific competition, and MPA Configuration. Master's Thesis, Univ. North Carolina Wilmington,
- Christie, P., N.J. Bennett, N.J. Gray, T. 'A. Wilhelm, N. Lewis, J. Parks, N.C. Ban, et al. 2017. Why people matter in ocean governance: incorporating human dimensions into large-scale marine protected areas. *Mar. Pol.*, 84:273–84.
- Claudet, J., C. W. Osenberg, P. Domenici, F. Badalamenti, M, Milazzo, J.M. Falcón, I. Bertocci, L. Benedetti-Cecchi, J.A. García-Charton, and R. Goñi. 2010. Marine reserves: fish life history and ecological traits matter. *Ecol. Appl.*, 20:830–39.
- Claudet, J., P. Guidetti, D. Mouillot, N.T, Shears, and F. Micheli. 2011. Ecological effects of marine protected areas: conservation, restoration, and functioning. In: *Marine protected areas: a multidisciplinary approach (ecology, biodiversity and conservation)*. J. Claudet (ed.). Cambridge Univ. Press.
- Claudet, J., C.W. Osenberg, L. Benedetti-Cecchi, P. Domenici, J García-Charton, Á. Pérez-Ruzafa, F. Badalamenti, et al. 2008. Marine reserves: size and age do matter. *Ecol. Lett.*, 11:481–89.
- Convention on Biological Diversity. 2021. First draft of the post-2020 global biodiversity framework. Convention on Biological Diversity.
- Convention on Biological Diversity. 2022. Kunming-Montreal global biodiversity framework: draft decision Submitted by the President.
- Costello, C., A. Rassweiler, D. Siegel, G. De Leo, F. Micheli, and A. Rosenberg. the value of spatial information in MPA network design. 2010. *P. Natl. Acad. Sci.*, 107:18294–99.
- Costello, M.J. 2014. Long live marine reserves: a review of experiences and benefits. *Biol. Conserv.* 176:289–96.
- Davis, J.P., C.F. Valle, M.B. Haggerty, K. Walker, H.L Gliniak, A.D. Van Diggelen, R.E Win, and S.P. Wertz. 2019. Testing trophic indicators of fishery health in California's marine protected areas for a generalist carnivore. *Ecol. Indic.*, 97:419–28.
- Dedrick, A.G., K.A. Catalano, M.R. Stuart, J.W. White, Humberto R. Montes, and M.L. Pinsky. 2021. Persistence of a reef fish metapopulation via network connectivity: theory and data. Edited by Dustin Marshall. *Ecol. Lett.*, 24:1121–32.
- Di Lorenzo, M., J. Claudet, and P. Guidetti. 2016. Spillover from marine protected areas to adjacent fisheries has an ecological and a fishery component. *J. Nat. Conserv.*, 32:62–66.
- Di Lorenzo, M., P. Guidetti, A. Di Franco, A. Calò, and J. Claudet. 2020. Assessing spillover from marine protected areas and its drivers: a meta-analytical approach. *Fish and Fish.*, 21:906–15.
- Ditria, E.M., C.A. Buelow, M. Gonzalez-Rivero, and R.M. Connolly. 2022. Artificial intelligence and automated monitoring for assisting conservation of marine ecosystems: a perspective. *Front. Mar. Sci.*, 9:918104.
- Dugan, J.E., M. Marraffini, M. Ladd, D.M. Hubbard, S.L. Hamilton, Jose Marin-Jarrin, Mark Cowell, et al. 2022. Final report: evaluating performance of California's MPA network through the lens of sandy beach and surf zone ecosystems. California Sea Grant College System.
- Dunn, R.P., Jameal F. Samhouri, and M.L. Baskett. 2021. Transient dynamics during kelp forest recovery from fishing across multiple trophic levels. *Ecol. Appl.*, 31(6)e02367.

- Edgar, G.J., R.D. Stuart-Smith, T.J. Willis, S. Kininmonth, S.C. Baker, S.Banks, N.S. Barrett, et al. 2014. Global conservation outcomes depend on marine protected areas with five key features. *Nature*, 506:216–20.
- Eisaguirre, J.H., J.M. Eisaguirre, K. Davis, P.M. Carlson, S.D. Gaines, and J.E. Caselle. 2020. Trophic redundancy and predator size class structure drive differences in kelp forest ecosystem dynamics. *Ecology*, 101(5):e02993.
- Esgro, M.W., J. Lindholm, K.J. Nickols, and J. Bredvik. 2020. Early conservation benefits of a de facto marine protected area at San Clemente Island, California. *PLOS One*, 15(1):e0224060.
- Estes, J.A., and C.H. Peterson. 2000. Marine ecological research in seashore and seafloor systems: accomplishments and future directions. *Mar. Ecol. Prog. Ser.*, 195:281–89.
- Estes, J.A., and D.O. Duggins. 1995. Sea otters and kelp forests in Alaska: generality and variation in a community ecological paradigm. *Ecol. Mono.*, 65:75–100.
- Estes, J.A., and J.F. Palmisano. 1974. Sea otters: their role in structuring nearshore communities. *Science*, 185:1058–60.
- Field, J.C., A.E. Punt, R.D. Methot, and C.J. Thomson. 2006. Does MPA mean ‘major problem for assessments’? considering the consequences of place-based management systems. *Fish and Fish.*, 7:284–302.
- Fox, E., S. Hastings, M. Miller-Henson, D. Monie, J. Ugoretz, A. Frimodig, C. Shuman, et al. 2013a. Addressing policy issues in a stakeholder-based and science-driven marine protected area network planning process. *Ocean Coast, Manag.*, 74:34–44.
- Fox, E., M. Miller-Henson, J. Ugoretz, M. Weber, M. Gleason, J. Kirlin, M. Caldwell, and S. Mastrup. 2013b. Enabling conditions to support marine protected area network planning: california’s marine life protection act initiative as a case study. *Ocean Coast, Manag.*, 74:14–23.
- Freiwald, J. 2012. Movement of adult temperate reef fishes off the West Coast of North America. *Can. J. Fish. Aquat. Sci.*, 69:1362–74.
- Fuller, E., E. Brush, and M.L. Pinsky. 2015. The persistence of populations facing climate shifts and harvest. *Ecosphere*, 6:art153.
- Game, E.T., M. Bode, E. McDonald-Madden, H.S. Grantham, and H.P. Possingham. 2009a. Dynamic marine protected areas can improve the resilience of coral reef systems. *Ecol. Lett.*, 12:1336–46.
- Game, E.T., H.S. Grantham, A.J. Hobday, R.L. Pressey, A.T. Lombard, L.E. Beckley, K. Gjerde, R. Bustamante, H.P. Possingham, and A.J. Richardson. 2009b. Pelagic protected areas: the missing dimension in ocean conservation. *Trends Ecol. Evol.*, 24:360–69.
- Garavelli, L., J.W. White, I. Chollett, and L.M. Chérubin. 2018. Population models reveal unexpected patterns of local persistence despite widespread larval dispersal in a highly exploited species. *Conserv. Lett.*, 11(5):e12567-8.
- Garcia, S.M. J. Rice, A. Himes-Cornell, K.J. Friedman, A. Charles, D. Diz, J. Appiott, and M.J. Kaiser. 2022. OECMs in marine capture fisheries: key implementation issues of governance, management, and biodiversity. *Front. Mar. Sci.*, 9:920051.
- Giakoumi, S., C. Scianna, J. Plass-Johnson, F. Micheli, K. Grorud-Colvert, P. Thiriet, J. Claudet, et al. 2017. Ecological effects of full and partial protection in the crowded Mediterranean Sea: a regional meta-analysis. *Sci. Rep.*, 7:1:8940.
- Gillett, D.J., D.J. Pondella, J. Freiwald, K.C. Schiff, J.E. Caselle, C. Shuman, and S.B. Weisberg. 2012. Comparing volunteer and professionally collected monitoring data from

- the rocky subtidal reefs of Southern California, USA. *Environ. Monit. Assess.*, 184:3239–57.
- Gleason, M., E. Fox, S. Ashcraft, J. Vasques, E. Whiteman, P. Serpa, E. Saarman, et al. 2013. designing a network of marine protected areas in California: achievements, costs, lessons learned, and challenges ahead. *Ocean Coast, Manag.*, 74:90–101.
- Gleason, M., S. McCreary, M. Miller-Henson, J. Ugoretz, E. Fox, M. Merrifield, W. McClintock, P. Serpa, and K. Hoffman. 2010. Science-based and stakeholder-driven marine protected area network planning: a successful case study from North Central California. *Ocean Coast, Manag.*, 53:52–68.
- Gold, Z., J. Sprague, D.J. Kushner, E.Z. Marin, and P.H. Barber. 2021. eDNA metabarcoding as a biomonitoring tool for marine protected areas. *PLOS ONE*, 16(2):e0238557.
- Goñi, R., R. Hilborn, D. Díaz, S. Mallol, and S. Adlerstein. 2010. Net contribution of spillover from a marine reserve to fishery catches. *Mar. Ecol. Prog. Ser.*, 400:233–43.
- Graham, N.A.J., J.P.W. Robinson, S.E. Smith, R. Govinden, G. Gendron, and S.K. Wilson. 2020. Changing role of coral reef marine reserves in a warming climate. *Nature Comm.*, 11(1):2000.
- Grorud-Colvert, K., J. Claudet, B.N. Tissot, J.E. Caselle, M.H. Carr, J.C. Day, A.M. Friedlander, et al. 2014. Marine protected area networks: assessing whether the whole is greater than the sum of its parts. *PLoS ONE*, 9(8):e102298-7.
- Grorud-Colvert, K. J. Sullivan-Stack, C. Roberts, V. Constant, B. Horta e Costa, E.P. Pike, N. Kingston, et al. 2021. The MPA guide: a framework to achieve global goals for the ocean. *Science*, 373:6560:eabf0861.
- Grüss, A., D.M. Kaplan, S. Guénette, C.M. Roberts, and L.W. Botsford. 2011. Consequences of adult and juvenile movement for marine protected areas. *Biol. Conserv.* 144:692–702.
- Guidetti, P., and E. Sala. 2007. Community-wide effects of marine reserves in the Mediterranean Sea. *Mar. Ecol. Prog. Ser.*, 335:43–56.
- Gurney, G.G., E.S. Darling, G.N. Ahmadi, V.N. Agostini, N.C. Ban, J. Blythe, J. Claudet, et al. 2021. Biodiversity needs every tool in the box: use OECMs. *Nature*, 595:7869:646–49.
- Hall-Arber, M., S. Murray, L. Aylesworth, M. Carr, J. Field, K. Grorud-Colvert, P. Martone, K. Nickols, E. Saarman, and S. Wertz. 2021. Scientific guidance for California’s MPA decadal reviews: a report by the ocean protection council science advisory team working group and Calif. Ocean Science Trust. Calif. Ocean Protection Council. https://www.opc.ca.gov/webmaster/media_library/2022/01/Evaluating-Californias-Marine-Protected-Area-Network-2021_ADA_OST_revised12.2022.pdf.
- Halpern, B.S., S. Walbridge, K.A. Selkoe, C.V. Kappel, F. Micheli, C. D’agrosa, J.F. Bruno, et al. 2008. A global map of human impact on marine ecosystems. *Science*, 319:5865:948–52.
- Halpern, B.S., S.E. Lester, and J.B. Kellner. 2010. spillover from marine reserves and the replenishment of fished stocks. *Environ. Conserv.*, 36:268–76.
- Hamilton, S.L., J.E. Caselle, D.P. Malone, and M.H. Carr. 2010. Incorporating biogeography into evaluations of the Channel Islands Marine Reserve Network. *P. Natl. Acad. Sci.*, 107:18272–77.
- Hamilton, S.L., R.M. Starr, D.E. Wendt, B.I. Ruttenberg, J.E. Caselle, B. Semmens, L. Bellquist, S. Morgan, T. Mulligan, and J. Tyburczy. 2022. California collaborative fisheries research program (CCFRP) – monitoring and Evaluation of California marine

- protected areas. Calif. Sea Grant College System.
https://caseagrants.ucsd.edu/sites/default/files/CCFRP_Final_Report.pdf.
- Harrison, H.B., M. Bode, D.H. Williamson, M.L. Berumen, and G.P. Jones. 2020. A connectivity portfolio effect stabilizes marine reserve performance. *P. Natl. Acad. Sci.*, 117:25595–600.
- Harrison, H.B., D.H. Williamson, R.D. Evans, G.R. Almany, S.R. Thorrold, G.R. Russ, K.A. Feldheim, et al. 2012. Larval export from marine reserves and the recruitment benefit for fish and fisheries. *Curr. Biol.*, 22:1023–28.
- Harvell, C.D., D. Montecino-Latorre, J.M. Caldwell, J.M. Burt, K. Bosley, A. Keller, S.F. Heron, et al. 2019. Disease epidemic and a marine heat wave are associated with the continental-scale collapse of a pivotal predator (*Pycnopodia helianthoides*). *Science Advances* 5(1):eaau7042.
- Hastings, A., and L.W. Botsford. 2006. Persistence of spatial populations depends on returning home. *P. Natl. Acad. Sci.*, 103:6067.
- Heck, K.L., G. van Belle, and D. Simberloff. 1975. Explicit calculation of the rarefaction diversity measurement and the determination of sufficient sample size. *Ecology*, 56:1459–61.
- Hilty, J., G. Worboys, A. Keeley, S. Woodley, B. Lausche, H. Locke, M. Carr, et al. 2020. Guidance for conserving connectivity through ecological corridors and networks. International Union for the Conservation of Nature.
- Hofmann, G.E., E.L. Hazen, R.F. Ambrose, D. Aseltine-Neilson, H. Carter, J.E. Caselle, F. Chan, et al. 2021. Climate resilience and California’s marine protected area network: A Report by the Ocean Protection Council Science Advisory Team Working Group and Ocean Science Trust.
- Holbrook, S.J., A.J. Brooks, R.J. Schmitt, and H.L. Stewart. 2008. Effects of sheltering fish on growth of their host corals. *Mar. Biol.*, 155:521–30.
- Holland, D.S., and R.J. Brazee. 1996. Marine reserves for fisheries management. *Mar. Res. Econ.*, 11:157–72.
- Holling, C.S. 1996. Engineering Resilience versus ecological resilience. Pp. 31–44. In: Engineering within ecological constraints. P. Schulze (ed.). *Natl. Acad. Sci.*
- Hopf, J.K., and J.W. White. 2023. Extreme events delay the detection of marine protected area effects: implications for monitoring and management. *Biol. Conserv.*, 285:110250
- Hopf, J.K., J.E. Caselle, and J.W. White. 2022. Recruitment variability and sampling design interact to influence the detectability of protected area effects. *Ecol. Appl.*, 32(2):e2511.
- Horn, M.H., and J.S. Stephens. 2006. Climate change and overexploitation. Pp. 621–635. In: the ecology of marine fishes: California and adjacent waters. L.G. Allen, D.J. Pondella, and M.H. Horn (eds.). University of California Press,
- House, P.H., and L.G. Allen. 2022. differences in trophic and community structure of kelp forest fishes inside and outside of three long-standing MPAs in the Southern California Bight. *Bull. S. Calif. Acad. Sci.*, 121:1–26.
- Inger, R., M.J. Attrill, S. Bearhop, A.C. Broderick, W.J. Grecian, D.J. Hodgson, C. Mills, et al. 2009. Marine renewable energy: potential benefits to biodiversity? An urgent call for research. *J. Appl. Ecol.*, 46:1145–53.
- Jaco, E.M., and M.A. Steele. 2020. Pre-closure fishing pressure predicts effects of marine protected areas. *J. Appl. Ecol.*, 57:229–240

- Jacobi, M.N., and P.R. Jonsson. 2011. Optimal networks of nature reserves can be found through eigenvalue perturbation theory of the connectivity matrix. *Ecol. Appl.*, 21:1861–70.
- Jacquemont, J., R. Blasiak, C. Le Cam, M. Le Gouellec, and J. Claudet. 2022. Ocean conservation boosts climate change mitigation and adaptation. *One Earth*, 5:1126–38.
- Jones, G.P., M.I. McCormick, M. Srinivasan, and J.V. Eagle. 2004. Coral decline threatens fish biodiversity in marine reserves. *P. Natl. Acad. Sci.*, 101:8251–53.
- Kaplan, K.A., L. Yamane, L.W. Botsford, M.L. Baskett, A. Hastings, S. Worden, and J.W. White. 2019. Setting expected timelines of fished population recovery for the adaptive management of a marine protected area network. *Ecol. Appl.*, 29(6):e01949.
- Karpov, K.A., I.K. Taniguchi, and L. Rogers-Bennett. 2000. Serial depletion and the collapse of the California abalone (*Haliotis* spp.) fishery, In Workshop on Rebuilding Abalone Stocks in British Columbia, edited by A. Campbell. *Can. Spec. Pub. Fish. Aquat. Sci.*, 130:11-24.
- Kay, M.C., H.S. Lenihan, M.J. Kotchen, and C.J. Miller. 2012. Effects of marine reserves on California spiny lobster are robust and modified by fine-scale habitat features and distance from reserve borders. *Mar. Ecol. Prog. Ser.*, 451:137–50.
- Kelleher, G. 1999. Guidelines for Marine protected areas. IUCN World Commission on Protected Areas (WCPA), Coastal Zone Management Centre, NL, Cardiff University, Department of City and Regional Planning, UK, United States, NOAA, United Kingdom, Countryside Council for Wales: IUCN: International Union for Conservation of Nature.
- Kellner, J.B., I. Tetreault, S.D. Gaines, and R.M. Nisbet. 2007. Fishing the line near marine reserves in single and multispecies fisheries. *Ecol. Appl.*, 17:1039–54.
- Kellner, J.B., S.Y. Litvin, A. Hastings, F. Micheli, and P.J. Mumby. 2010. Disentangling trophic interactions inside a Caribbean marine reserve. *Ecol. Appl.*, 20:1979–92.
- Kelly, S., and A.B. MacDiarmid. 2003. Movement patterns of mature spiny lobsters, *Jasus edwardsii*, from a Marine Reserve. *New Zealand J. Mar. Fresh. Res.*, 37:149–58.
- Kerwath, S.E., H. Winker, A. Götz, and C.G. Attwood. 2013. Marine protected area improves yield without disadvantaging fishers. *Nat. Comm.*, 4:2347.
- Kinlan, B.P., and S.D. Gaines. 2003. Propagule Dispersal in marine and terrestrial environments: a community perspective. *Ecology*, 84:2007–20.
- Koehn, J.Z., D.R. Reineman, and J.N. Kittinger. Progress and promise in spatial human dimensions research for ecosystem-based ocean planning. 2013. *Mar. Pol.*, 42:31–38.
- Krueck, N.C., G.N. Ahmadi, A. Green, G.P. Jones, H.P. Possingham, C. Riginos, E.A. Treml, and P.J. Mumby. 2017. Incorporating larval dispersal into MPA design for both conservation and fisheries. *Ecol. Appl.*, 27:925–41.
- Krueck, N.C., C. Tong, C. Cox, E.A. Treml, K. Critchell, I. Chollett, D.S. Adhuri, et al. 2022. Benefits of measurable population connectivity metrics for area-based marine management. *Mar. Pol.*, 144:105210.
- Lafferty, K.D., S. Allesina, M. Arim, C.J. Briggs, G. De Leo, A. P. Dobson, J.A. Dunne, et al. 2008. Parasites in food webs: the ultimate missing links. *Ecol. Lett.*, 11:533–46.
- Lenihan, H.S., J.P. Gallagher, J.R. Peters, A.C. Stier, J.K.K. Hofmeister, and D.C. Reed. 2021. Evidence that spillover from marine protected areas benefits the spiny lobster (*Panulirus interruptus*) fishery in southern California. *Sci. Rep.*, 11:2663.

- Lester, S.E., B.S. Halpern, K. Grorud-Colvert, J. Lubchenco, B.I. Ruttenberg, S.D. Gaines, S. Airame, and R.R. Warner. 2009. Biological effects within no-take marine reserves: a global synthesis. *Mar. Ecol. Prog. Ser.*, 384:33–46.
- Lester, S.E., and B.S. Halpern. 2008. Biological responses in marine no-take reserves versus partially protected areas. *Mar. Ecol. Prog. Ser.*, 367:49–56.
- Lindfield, S.J., E.S. Harvey, J.L. McIlwain, and A.R. Halford. 2014. Silent fish surveys: bubble-free diving highlights inaccuracies associated with scuba-based surveys in heavily fished areas. *Method. Ecol. Evol.*, 5:1061–69.
- Love, M.S. 1991. Probably More than you want to know about the fishes of the Pacific Coast. Really Big Press.
- Love, M.S. 2006. Subsistence, recreational, and commercial fisheries. Pp. 566-594. In: the ecology of marine fishes: California and adjacent waters. L.G. Allen, D.J. Pondella, and M.H. Horn (eds.). Univ. Calif. Press,
- Love, M.S, J.E. Caselle, and K. Herbinson. 1998. Declines in nearshore rockfish recruitment and populations in the southern California bight as measured by impingement rates in coastal electrical power generating stations. *Fish. Bull.*, 96:492–501.
- Lowe, C.G., and R.N. Bray. 2006. Pp. 524-553. In: the ecology of marine fishes: California and adjacent waters. L.G. Allen, D.J. Pondella, and M.H. Horn (eds.). Univ. Calif. Press,
- Lowe, C.G., D.T. Topping, D.P. Cartamil, and Y.P. Papastamatiou. 2003. Movement patterns, home range, and habitat utilization of adult kelp bass *Paralabrax Clathratus* in a temperate no-take marine reserve. *Mar. Ecol. Prog. Ser.*, 256:205–16.
- MacArthur, R.H., and E.O. Wilson. 1967. The theory of island biogeography. Princeton Univ. Press.
- Marine Conservation Institute. 2023. MPA atlas. <https://marine-conservation.org/mpatlas/>
- Marshall, D.J., S. Gaines, R. Warner, D.R. Barneche, and M. Bode. 2019. Underestimating the benefits of marine protected areas for the replenishment of fished populations. *Front. Ecol. Environ.*, 17:407–13.
- Marshall, D.J., S.S. Heppell, S.B. Munch, and R.R. Warner. 2010. The relationship between maternal phenotype and offspring quality: do older mothers really produce the best offspring? 91:2862-2873.
- Mason, J., R. Kosaka, A. Mamula, and C. Speir. 2012. Effort changes around a marine reserve: the case of the California rockfish conservation area. *Mar. Pol.*, 36:1054–63.
- McArdle, D. 1997. California marine protected areas. Calif. Sea Grant College System.
- McGilliard, C.R., R. Hilborn, A. MacCall, A.E. Punt, and J.C. Field. 2011. Can information from marine protected areas be used to inform control-rule-based management of small-scale, data-poor stocks? *ICES J. Mar. Sci.*, 68:201–11.
- McGilliard, C.R., A.E. Punt, R.D. Methot, and R. Hilborn. 2015. Accounting for marine reserves using spatial stock assessments. *Can. J. Fish. Aquat. Sci.*, 72:262–80.
- Menge, B., K. Milligan, J. Caselle, J. Barth, C. Blanchette, M. Carr, F. Chan, R. Cowen, M. Denny, S. Gaines, G. Hofmann, K. Kroeker, J. Lubchenco, M. McManus, M. Novak, S. Palumbi, P. Raimondi, G. Somero, R. Warner, L. Washburn, and J.W. White. 2019. PISCO: advances made through the formation of a large-scale, long-term consortium for integrated understanding of coastal ecosystem dynamics. *Oceanogr.*, 32:16-25.
- Micheli, F., L. Benedetti-Cecchi, S. Gambaccini, I. Bertocci, C. Borsini, G.C. Osio, and F. Romano. 2005. Cascading human impacts, marine protected areas, and the structure of Mediterranean reef assemblages. *Ecol. Mono.*, 75:81–102.

- Micheli, F., B.S. Halpern, L.W. Botsford, and R.R. Warner. 2004. Trajectories and correlates of community change in no-take marine reserves. *Ecol. Appl.*, 14:1709–23.
- Micheli, F., A. Saenz-Arroyo, A. Greenley, L. Vazquez, J.A.E. Montes, M. Rossetto, and G.A. De Leo. 2012. Evidence that marine reserves enhance resilience to climatic impacts. *PLoS ONE* 7(7):e40832-8.
- Mitarai, S., D.A. Siegel, J. R. Watson, C. Dong, and J.C. McWilliams. 2009. Quantifying connectivity in the coastal ocean with application to the southern California bight. *J. Geophys. Res.*, 114:C10:C02010-21.
- Moffitt, E.A., J.W. White, and L.W. Botsford. 2013. accurate assessment of marine protected area success depends on metric and spatiotemporal scale of monitoring. *Mar. Ecol. Prog. Ser.*, 489:17–28.
- Mora, C., and P.F. Sale. 2011. Ongoing global biodiversity loss and the need to move beyond protected areas: a review of the technical and practical shortcomings of protected areas on land and sea. *Mar. Ecol. Prog. Ser.*, 434:251–66.
- Neubert, M.G. 2003. Marine reserves and optimal harvesting. *Ecol. Lett.*, 6::843–49.
- Nickols, K.J., J.W. White, D. Malone, M.H. Carr, R.M. Starr, M.L. Baskett, A. Hastings, and L.W. Botsford. 2019. Setting ecological expectations for adaptive management of marine protected areas. *J. Appl. Ecol.*, 56:2376-2385.
- Olson, A.M., R. Trebilco, and A.K. Salomon. 2019. expanded consumer niche widths may signal an early response to spatial protection. *PLOS One*, 14(10):e0223748.
- Osenberg, C.W., and R.J. Schmitt. 1996. Detecting Ecological impacts caused by human activities. Pp. 3–16. In: *Detecting ecological impacts: concepts and applications in coastal habitats* R.J. Schmitt, and C.W. Osenberg (eds.), Academic Press.
- Osmond, M., S. Aïramé, M. Caldwell, and J. Day. 2010. Lessons for marine conservation planning: a comparison of three marine protected area planning processes. *Ocean Coast, Manag.*, 53:2:41–51.
- Ovando, D., J.E. Caselle, C. Costello, O. Deschenes, S.D. Gaines, R. Hilborn, and O. Liu. 2021. Assessing the population-level conservation effects of marine protected areas. *Conserv. Biol.*, 35:1861–70.
- Ovaskainen, O., and I. Hanski. 2003. How much does an individual habitat fragment contribute to metapopulation dynamics and persistence? *Theor. Pop. Biol.*, 64:481–95.
- Paddack, M.J., and J.A. Estes. 2000. Kelp forest fish populations in marine reserves and adjacent exploited areas of Central California. *Ecol. Appl.*, 10:855-870.
- Paine, R.T. 1980. Food webs linkage, Interaction strength and community infrastructure. *J. Anim. Ecol.*, 49:667–85.
- Palumbi, S.R., P.A. Sandifer, J.D. Allan, M.W. Beck, D.G. Fautin, M.J. Fogarty, B.S. Halpern, et al. 2009. Managing for ocean biodiversity to sustain marine ecosystem services. *Front. Ecol. Environ.*, 7:204–11.
- Parker, S.J., S.A. Berkeley, J.T. Golden, D.R. Gunderson, J. Heifetz, M.A. Hixon, R. Larson, et al. 2000. Management of Pacific rockfish. *Fish.*, 25:22–30.
- Pelc, R.A., R.R. Warner, S.D. Gaines, and C.B. Paris. 2010. Detecting larval export from marine reserves. *P. Natl. Acad. Sci.*, 107:18266–71.
- Pelc, R.A., M.L. Baskett, T. Tanci, S.D. Gaines, and R.R. Warner. 2009. Quantifying larval export from South African marine reserves. *Mar. Ecol. Prog. Ser.*, 394:65–78.

- Perkins, N.R., M. Prall, A. Chakraborty, J.W. White, M.L. Baskett, and S.G. Morgan. 2021. Quantifying the statistical power of monitoring programs for marine protected areas. *Ecol. Appl.*, 31(1):e02215.
- Pershing, A.J., K.E. Mills, N.R. Record, K. Stamieszkin, K.V. Wurtzell, C.J. Byron, D. Fitzpatrick, W.J. Golet, and E. Koob. 2015. Evaluating trophic cascades as drivers of regime shifts in different ocean ecosystems. *Philos T. Roy. Soc. Lon. B*, 370:1659:20130265.
- Peters, J.R., D.C. Reed, and D.E. Burkepille. 2019. Climate and fishing drive regime shifts in consumer-mediated nutrient cycling in kelp forests. *Glob. Change Biol.*, 25:3179–92.
- Pikitch, E.K., E.A. Santora, A. Babcock, A. Bakun, R. Bonfil, D.O. Conover, P. Dayton, et al. 2004. Ecosystem-based fishery management. *Science*, 305:346–47.
- Pinsky, M.L., and N.J. Mantua. 2014. Emerging adaptation approaches for climate-ready fisheries management. *Oceanogr.*, 27:146–59.
- Polis, G.A., A.L. W. Sears, G.R. Huxel, D.R. Strong, and J. Maron. 2000. When is a trophic cascade a trophic cascade? *Trends Ecol. Evol.*, 15:473–75.
- Quennessen, V.I., E.A. Babcock, and J.W. White. 2023. Accounting for transient dynamics could improve the use of marine protected areas as a reference point for fisheries management. *Can. J. Fish. Aquat. Sci.*, 80:85–104.
- Rahman, M.K., M.M. Masud, R. Akhtar, and M.M. Hossain. 2022. Impact of community participation on sustainable development of marine protected areas: assessment of ecotourism development. *Inter. J. Tour. Res.*, 24:33–43.
- Rassweiler, A., C. Costello, and D.A. Siegel. 2012. Marine protected areas and the value of spatially optimized fishery management. *P. Natl. Acad. Sci.*, 109:11884–89.
- Rhoades, O.K., S.I. Lonhart, and J.J. Stachowicz. 2019. Human-induced reductions in fish predator boldness decrease their predation rates in kelp forests. *P. R. Soc. B*, 286:1900:20182745.
- Russell, M.W., B.E. Luckhurst, and K. C. Lindeman. 2012. Management of spawning aggregations. In: Reef fish spawning aggregations: biology, research, and management, Y. Sadovy de Mitcheson, and P. Colin (eds.). Fish Fish. Ser. 35. Springer.
- Saarman, E., M. Gleason, J. Ugoretz, S. Airamé, M. Carr, E. Fox, A. Frimodig, T. Mason, and J. Vasques. 2013. The role of science in supporting marine protected area network planning and design in California. *Ocean Coast, Manag.*, 74:45–56.
- Sayce, K., C. Shuman, D. Connor, A. Reisewitz, E. Pope, M. Miller-Henson, E. Poncelet, D. Monié, and B. Owens. 2013. Beyond traditional stakeholder engagement: public participation roles in California’s statewide marine protected area planning process. *Ocean Coast. Manag.*, 74:57–66.
- Scholz, A., K. Bonzon, R. Fujita, N. Benjamin, N. Woodling, P. Black, and C. Steinback. 2004. Participatory socioeconomic analysis: drawing on fishermen’s knowledge for marine protected area planning in California. *Mar. Pol.*, 28:335–49.
- Scholz, A.J., C. Steinback, S.A. Kruse, M. Mertens, and H. Silverman. 2011. Incorporation of spatial and economic analyses of human-use data in the design of marine protected areas: human-use data in design of MPAs. *Conserv. Biol.*, 25:485–92.
- Schramm, K.D., E.S. Harvey, J.S. Goetz, M.J. Travers, B. Warnock, and B.J. Saunders. 2020. A comparison of stereo-BRUV, diver operated and remote stereo-video transects for assessing reef fish assemblages. *J. Exp. Mar. Biol. Ecol.*, 524:151273.

- Schultz, J.A., R.N. Cloutier, and I.M. Côté. 2016. Evidence for a trophic cascade on rocky reefs following sea star mass mortality in British Columbia. *PeerJ* 4:e1980.
- Shears, N.T., R.C. Babcock, and A.K. Salomon. 2008. Context-dependent effects of fishing: variation in trophic cascades across environmental gradients. *Ecol. Appl.*, 18:1860-1873.
- Shrestha, J. 2020. Fish-derived nutrients in California kelp forest ecosystems. Master's Thesis, Calif. State Univ., Monterey Bay.
- Siegel, D.A., S. Mitarai, C.J. Costello, S.D. Gaines, B.E. Kendall, R.R. Warner, and K.B. Winters. 2008. The stochastic nature of larval connectivity among nearshore marine populations. *P. Natl. Acad. Sci.*, 105:8974–79.
- Solandt, J., T. Mullier, S. Elliott, and E. Sheehan. 2020. Managing marine protected areas in europe: moving from 'feature-based' to 'whole-site' management of Sites. Pp. 157–81. In: *Marine protected areas: science, policy and management*. J. Humphreys, and R.W.E. Clarke (eds.). Elsevier.
- Soulé, M.E., and D. Simberloff. 1986. What do genetics and ecology tell us about the design of nature reserves? *Biol. Conserv.* 35:19–40.
- Sterr, R.M., J. Caselle, A. Kahn, A. Lauermann, J. Lindholm, and B.N. Tissot. 2022. Monitoring and evaluation of mid-depth rock ecosystems in the California MLPA marine protected area network. Calif. Sea Grant College System.
- Stelzenmüller, V., F. Maynou, and P. Martín. 2009. Patterns of species and functional diversity around a coastal marine reserve: a fisheries perspective. *Aquat. Conserv.*, 19:554–65.
- Swearer, S.E., E.A. Treml, and J.S. Shima. 2019. A review of biophysical models of marine larval dispersal. Pp. 325–56. In: *Oceanography and marine biology*. S.J. Hawkins, A.L. Allcock, A.E. Bates, L.B. Firth, I.P. Smith, S.E. Swearer, and P.A. Todd (eds.). CRC Press.
- Tetreault, I., and R.F. Ambrose. 2007. Temperate marine reserves enhance targeted by not untargated fishes in multiple no-take MPAs. *Ecol. Appl.*, 17:2251–2267.
- Thorbjørnsen, S.H., E. Moland, D. Villegas-Ríos, K. Bleeker, H. Knutsen, and E.M. Olsen. 2021. Selection on fish personality differs between a no-take marine reserve and fished areas. *Evol. Appl.*, 14:1807–15.
- Topping, D.T., C.G. Lowe, and J.E. Caselle. 2005. Home range and habitat utilization of adult California sheephead, *Semicossyphus pulcher* (Labridae), in a temperate no-take marine reserve. *Mar. Biol.*, 147:301-311.
- Ueber, E., and A. MacCall. 1992. The rise and fall of the California sardine empire. Pp. 31–48. In: *Climate variability, climate change, and fisheries*. M.H. Glantz (ed.). Cambridge Univ. Press.
- Van Diggelen, A.D., S.E. Worden, A.J. Frimodig, and S.P. Wertz. 2022. California's lessons learned and recommendations for effective marine protected area network management. *Mar. Pol.*, 137:104928.
- Visconti, P., S.H.M. Butchart, T.M. Brooks, P.F. Langhammer, D. Marnewick, Sheila Vergara, Alberto Yanosky, and James E. M. Watson. 2019. Protected area targets post-2020. *Science*, 364:6437:239–41.
- Walters, C. 1986. Adaptive management of renewable resources. McMillan.
- Walters, C.J., R. Hilborn, and R. Parrish. 2007. An equilibrium model for predicting the efficacy of marine protected areas in coastal environments. *Can. J. Fish. Aquat. Sci.*, 64:1009–18.

- Warner, R.R., and P.L. Chesson. 1985. Coexistence mediated by recruitment fluctuations: a field guide to the storage effect. *Amer. Nat.*, 125:769.
- Watson, J.R., D.A. Siegel, B.E. Kendall, S. Mitarai, A. Rassweiler, and S.D. Gaines. 2011. Identifying critical regions in small-world marine metapopulations. *P. Natl. Acad. Sci.*, 108:E907–13.
- White, J.W. 2015. Marine reserve design theory for species with ontogenetic migration. *Biol. Lett.*, 11:1:20140511.
- White, J.W., C. Barceló, A. Hastings, and L.W. Botsford. 2022. Pulse disturbances in age-structured populations: life history predicts initial impact and recovery time. *J. Anim. Ecol.*, 91:2370–83.
- White, J.W., L.W. Botsford, M.L. Baskett, L.A.K. Barnett, R.J. Barr, and A. Hastings. 2011. Linking models with monitoring data for assessing performance of no-take marine reserves. *Front. Ecol. Environ.*, 9:390–99.
- White, J.W., L.W. Botsford, A. Hastings, M.L. Baskett, D.M. Kaplan, and L.A.K. Barnett. 2013a. Transient responses of fished populations to marine reserve establishment. *Conserv. Lett.*, 6:180–91.
- White, J.W., L.W. Botsford, E.A. Moffitt, and D.T. Fischer. 2010a. Decision analysis for designing marine protected areas for multiple species with uncertain fishery status. *Ecol. Appl.*, 20:1523–41.
- White, J.W., M. Carr, J. Caselle, L. Washburn, C.B. Woodson, S. Palumbi, P. Carlson, et al. 2019. Connectivity, dispersal, and recruitment: connecting benthic communities and the coastal ocean. *Oceanogr.*, 32:50–59.
- White, J.W., J.K. Hopf, N. Arafeh-Dalmau, N.C. Ban, A.E. Bates, J. Claudet, C. Lopazanski, J. M. Sunday, and J. E. Caselle. 2025. Measurements, mechanisms, and management recommendations for how marine protected areas can provide climate resilience. *Mar. Pol.*, 171:106419.
- White, J.W., K.J. Nickols, D. Malone, M.H. Carr, R.M. Starr, F. Cordoleani, M.L. Baskett, A. Hastings, and L.W. Botsford. 2016. Fitting state-space integral projection models to size-structured time series data to estimate unknown parameters. *Ecol. Appl.*, 26:2675–92.
- White, J.W., A.J. Scholz, A. Rassweiler, C. Steinback, L.W. Botsford, S. Kruse, C. Costello, et al. 2013b. A comparison of approaches used for economic analysis in marine protected area network planning in California. *Ocean Coast, Manag.*, 74:77–89.
- White, J.W., J. Schroeger, P.T. Drake, and C.A. Edwards. 2014. The value of larval connectivity information in the static optimization of marine reserve design. *Conserv. Lett.*, 7:533–44.
- White, J.W., M.T. Yamane, K.J. Nickols, and J.E. Caselle. 2021. Analysis of fish population size distributions confirms cessation of fishing in marine protected areas. *Conserv. Lett.*, 14(2):e12775.
- White, J.W., L.W. Botsford, A. Hastings, and J.L. Largier. 2010b. Population persistence in marine reserve networks: incorporating spatial heterogeneities in larval dispersal. *Mar. Ecol. Prog. Ser.*, 398:49–67.
- Williams, P.D., and A. Hastings. 2013. Stochastic dispersal and population persistence in marine organisms. *Amer. Nat.*, 182:271–82.
- Wood, C.L., K.D. Lafferty, and F. Micheli. 2010. Fishing out marine parasites? impacts of fishing on rates of parasitism in the ocean. *Ecol. Lett.*, 13:761–75.

- Wood, C.L., S.A. Sandin, B. Zgliczynski, A.S. Guerra, and F. Micheli. 2014. Fishing drives declines in fish parasite diversity and has variable effects on parasite abundance. *Ecology*, 95:1929–46.
- Yaffee, S.L. 2020. *Beyond Polarization: Public process and the unlikely story of California's marine protected areas*. Island Press.
- Yates, D.C., S.I. Lonhart, and S.L. Hamilton. 2020 Effects of marine reserves on predator-prey interactions in Central California kelp forests. *Mar. Ecol. Prog. Ser.*, 655:139–55.
- Zellmer, A.J., H. Burdick, I. Medel, D.J. Pondella, and T. Ford. 2018a. Aerial surveys and distribution models enable monitoring of fishing in marine protected areas. *Ocean Coast, Manag.*, 165:298–306.
- Zellmer, A.J., J.T. Claisse, C.M. Williams, and D.J. Pondella. 2018b. Long-term, spatial marine harvest intensity as an indicator of human impact on shallow rocky reef ecosystems. *Mar. Ecol.*, 39:e12463.
- Ziegler, S.L., R.O. Brooks, S.L. Hamilton, B.I. Ruttenberg, J.A. Chiu, R.T. Fields, G.T. Waltz, C. Shen, D.E. Wendt, and R.M. Starr. 2022. External fishing effort regulates positive effects of no-take marine protected areas. *Biol. Conserv.* 269:109546.
- Zupan, M, E. Fragkopoulou, J. Claudet, K. Erzini, B. Horta e Costa, and E.J. Gonçalves. 2018. marine partially protected areas: drivers of ecological effectiveness. *Front. Ecol. Environ.*, 16:381–87.