**References**

Carpenter, S. R., J. F. Kitchell, and J. R. Hodgson. 1985. Cascading trophic interactions and lake productivity. BioScience10: 634-639.

Chasco, B. E., I. C. Kaplan, A. Thomas, A. Acevedo-Gutierrez, D. Noren, M. J. Ford, M. B. Hanson, J. Scordino, S. Jeffries, S. Pearson, K. Marshall, and E. J. Ward. 2017. Estimates of Chinook salmon consumption in Washington State inland waters by four marine mammal predators from 1970 to 2015. Canadian Journal of Aquatic and Fishery Sciences 74: 1173-1194.

Chassot, E., S. Bonhommeau, N. K. Dulvy, F. Mélin, R. Watson, D. Gascuel, and O. Le Pape. 2010. Global marine primary production constrains fishery catches. Ecology Letters13: 495-505.

Chikaraishi, Y., N. O. Ogawa, Y. Kashiyama, Y. Takano, H. Suga, A. Tomitani, H. Miyashita, H. Kitazato, and N. Ohkouchi. 2009. Determination of aquatic food-web structure based on compound-specific nitrogen isotopic composition of amino acids. Limnology and Oceanography Methods 7: 740-750.

Choi, B., H. Sun-Yong, J. S. Lee, Y. Chikaraishi, N. Ohkouchi, and K. Shin. 2017. Trophic interaction among organisms in a seagrass meadow ecosystem as revealed by bulk δ13C and amino acid δ15N analyses. Limnology and Oceanography62: 1426-1435.

Corwith, H. L., and P. A. Wheeler. 2002. El Niño related variations in nutrient and chlorophyll distributions off Oregon. Progress in Oceanography54: 361-380.

de la Vega, C., C. Mahaffey, R. E. Tuerena, D. J. Yurkowski, S. H. Ferguson, G. B. Stenson, E. S. Nordøy, T. Haug, M. Biuw, S. Smout, J. Hopkins, A. Tagliabue, and R. M. Jeffreys. 2020. Arctic seals as tracers of environmental and ecological change. Limnology and Oceanography Letters 6: 24-32.

Duguid, W. D. P., J. L. Boldt, L. Chalifour, C. M. Greene, M. Galbraith, D. Hay, D. Lowry D., S. McKinnell, C. M. Neville, J. Qualley, T. Sandell, M. Thompson, M. Trudel, K. Young, amd F. Juanes. 2019. Historical fluctuations and recent observations of Northern Anchovy *Engraulis mordax* in the Salish Sea. Deep Sea Research II159: 22-41.

Estes, J. A., M. T. Tinker, T. M. Williams, and D. F. Doak. 1998. Killer whale predation on sea otters linking oceanic and nearshore ecosystems. Science 282: 473-476.

Feddern, M. L., G. W. Holtgrieve, and E. J. Ward. 2021. Stable isotope signatures in archival harbor seal bone link food web-assimilated carbon and nitrogen to a century of environmental change. Global Change Biology00: 1–15.

Fox, J., and S. Weisberg. 2019. An R companion to applied regression, Third edition. Sage, Thousand Oaks, CA.

Germain, L. R., P. L. Koch, J. Harvey, and M. D. McCarthy. 2013. Nitrogen isotope fractionation in amino acids from harbor seals: implications for compound-specific trophic position calculations. Marine Ecology Progress Series 482: 265-277.

Greene, C., L. Kuehne, C. Rice, K. Fresh, and D. Penttila. 2015. Forty years of change in forage fish and jellyfish abundance across greater Puget Sound, Washington (USA): anthropogenic and climate associations. Marine Ecology Progress Series 525: 153-170.

Goñi, R. 1998. Ecosystem effects of marine fisheries: an overview. Ocean and Coastal Management 40: 37-64.

Heithaus, M. R., A. Frid, A. J. Wirsing, B. Worm. 2008. Predicting ecological consequences of marine top predator declines. Trends in Ecology and Evolution 23: 202-210.

Hunter, M. D., and Price P. W. 1992. Playing chutes and ladders: heterogeneity and the relative roles of bottom-up and top-down forces in natural communities. Ecology 73: 724-732.

Iitembu, J. A., T. W. Miller, K. Ohmori, A. Kanime, and S. Wells. 2012. Comparison of ontogenic trophic shift in two hake species, *Merluccius capensis* and *Merluccius paradoxus*, from the Northern Benguela Current ecosystem (Namibia) using stable isotope analysis. Fisheries Oceanography21: 215-225.

Jeffries, S. J., H. R. Huber, J. Calambikidis, and J. Laake. 2003. Trends and status of harbor seals in Washington State: 1978-1999. Journal of Wildlife Management 67: 208-219.

Kordas, R. L., C. D. G. Harley, and M. I. Connor. 2011. Community ecology in a warming world: the influence of temperature on interspecific interactions in marine systems. Journal of Experimental Marine Biology and Ecology 400: 218-226.

Lance, M. M., W. Chang, S. J. Jeffries, S. F. Pearson, and A. Acevedo-Gutiérrez. 2012. Harbor seal diet in northern Puget Sound: implications for the recovery of depressed fish stocks. Marine Ecology Progress Series 464: 257-271.

Magera, A. M., J. E. Mills Flemming, K. Kaschner, L. B. Christensen, and H. K. Lotze. 2013. Recovery trends in marine mammal populations. PLoS One8: e77908.

Marshall, K. N., A. C. Stier, J. F. Samhouri, R. P. Kelly, and E. J. Ward. 2015. Conservation challenges of predator recovery. Conservation Letters9: 70-78.

Martínez del Rio, C., N. Wolf, S. A. Carleton, and L. Z. Gannes. 2009. Isotopic ecology ten years after a call for more laboratory experiments. Biological Reviews 84: 91-111.

Mantua, N. J., and S. R. Hare. 2002. The Pacific Decadal Oscillation. Journal of Oceanography 58: 35-44.

McClelland, J. W., and J. P. Montoya. 2002. Trophic relationships and the nitrogen isotopic composition of amino acids in plankton. Ecology83: 2173-2180.

McMahon, K. W., M. D. McCarthy, O. A. Sherwood, T. Larsen, and T. P. Guilderson. 2015. Millennial-scale plankton regime shifts in the subtropical North Pacific Ocean. Science 350: 1530-1533.

McMahon, K. W., C. I. Michelson, T. Hart, M. D. McCarthy, W. P. Patterson, and M. J. Polito. 2019. Divergent trophic responses of sympatric penguin species to historic anthropogenic exploitation and recent climate change. PNAS 116: 25721-25727.

McMahon, K. W., and M. D. McCarthy. 2016. Embracing variability in amino acid δ15N fractionation: mechanisms, implication, and applications for trophic ecology. Ecosphere 7: e01511.

Moore, J. K., W. Fu, F. Primeau, G. L. Britten, K. Lindsay, M. Long, S. C. Doney, N. Mahowald, F. Hoffman, and J. T. Randerson. 2018. Sustained climate warming drives declining marine biological productivity. Science359: 1139-1143.

Mohamedali, T., M. Roberts, B. S. Sackmann, and A. Kolosseus. 2011. Puget Sound dissolved oxygen model: nutrient load summary for 1999–2008. Publication no. 11-03-057, Washington State Department of Ecology, Olympia, Washington.

Nelson, B. W., C. J. Walters, A. W. Trites, and M. K. McAllister. 2018. Wild Chinook salmon productivity is negatively related to seal density and not related to hatchery releases in the Pacific Northwest. Canadian Journal of Fisheries and Aquatic Sciences 76: 447-462.

Nielsen, J. M., B. N. Popp, and M. Winder. 2015. Meta-analysis of amino acid stable nitrogen isotope ratios for estimating trophic position in marine organisms. Oecologia178: 631-642.

Ohlberger, J., D. E. Schindler, E. J. Ward, T. E. Walsworth, and T. E. Essington. 2019. Resurgence of an apex predator and the decline in prey body size. PNAS 116: 26682-26689.

R Core Team. 2019. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. <https://www.R-project.org/>.

Reum, J. C., T. E. Essington, C. M. Greene, C. A. Rice, and K. L. Fresh. 2011. Multiscale influence of climate on estuarine populations of forage fish: the role of coastal upwelling, freshwater flow and temperature. Marine Ecology Progress Series 425: 203-215.

Rykaczewski, R. R., and J. P. Dunne J.P. 2010. Enhanced nutrient supply to the California Current Ecosystem with global warming and increased stratification in an earth system model. Geophysical Research Letters37: L21606.

Schweigert, J. F., J. L. Boldt, L. Flostrand, and J. S. Cleary J.S. 2010. A review of factors limiting recovery of Pacific herring stocks in Canada. ICES Journal of Marine Science 67: 1903-1913.

Siple, M. C., and T. B. Francis. 2016. Population diversity in Pacific herring of the Puget Sound, USA. Oecologia 180: 111-125.

Sherwood, O. A., M. F. Lehmann, C. J. Schubert, D. B. Scott, and M. D. McCarthy. 2011. Nutrient regime shift in the western North Atlantic indicated by compound-specific δ15N of deep-sea gorgonian corals. PNAS 108: 1011-1015.

Smith, R. S., L. M. Weldon, J. L. Hayward, and S. M. Henson. 2017. Time lags associated with effects of oceanic conditions on seabird breeding in the Salish Sea region of the northern California Current system. Marine Ornithology 45: 39-42.

Steneck, R. S. 2012. Apex predators and trophic cascades in large marine ecosystems: learning from serendipity. PNAS109: 7953-7954.

Thomas, A. C., M. M. Lance, S. J. Jeffries, B. G. Miner, and A. Acevedo-Gutiérrez. 2011. Harbor seal foraging response to a seasonal resource pulse, spawning Pacific herring. Marine Ecology Progress Series441: 225-239.

Thomas, A. C., B. W. Nelson, M. M. Lance, B. E. Deagle, and A. W. Trites. 2017. Harbour seals target juvenile salmon of conservation concern. Canadian Journal of Fisheries and Aquatic Sciences 74: 907-921.

Ware, D. M., and R. E. Thomson. 2005. Bottom-up ecosystem trophic dynamics determine fish production in the Northeast Pacific. Science 308: 1280-1284.

Washington Department of Fish & Wildlife and Puget Sound Indian Tribes. 2017. Comprehensive Management Plan for Puget Sound Chinook: Harvest Management Component. Northwest Indian Fisheries Commission, Olympia, WA. 247 pages.

Wilson, K., M. Lance, S. Jeffries, and A. Acevedo-Gutiérrez. 2014. Fine-scale variability in harbor seal foraging behavior. PLoS One 9: e92838.