

REFERENCES: Humpback Whale Critical Habitat

- Acebes, J. M. V., J. Darling, and M. Yamaguchi. 2007. Status and distribution of humpback whales (*Megaptera novaeangliae*) in northern Luzon, Philippines. *Journal of Cetacean Research and Management* 9: 37-43.
- Agostini, V. N., A. Bakun, and R. C. Francis. 2007. Larval stage controls on Pacific sardine recruitment variability: high zooplankton abundance linked to poor reproductive success. *Marine Ecology Progress Series* 345: 237-244.
- Aguilar, A., and A. Borrell. 1994. Reproductive transfer and variation of body load of organochlorine pollutants with age in fin whales (*Balaenoptera physalus*). *Archives of Environmental Contamination and Toxicology* 27: 546-554.
- Akiyama Y., T. Akamatsu, M.H. Rasmussen, M.R. Iversen, T. Iwata, Y. Goto, K. Aoki, and K. Sato. 2019. Leave or stay? Video-logger revealed foraging efficiency of humpback whales under temporal change in prey density. *PLoS ONE* 14(2): e0211138.
<https://doi.org/10.1371/journal.pone.0211138>.
- Amante, C., and B. Eakins. 2009. ETOPO1 Global Relief Model converted to PanMap layer format. NOAA-National Geophysical Data Center, doi 10.
- Andrews III, A. G., W. W. Strasburger, E. V. Farley Jr, J. M. Murphy, and K. O. Coyle. 2016. Effects of warm and cold climate conditions on capelin (*Mallotus villosus*) and Pacific herring (*Clupea pallasi*) in the eastern Bering Sea. *Deep Sea Research Part II: Topical Studies in Oceanography* 134: 235-246.
- Andrews, R. C. 1909. Observations on the habits of the finback and humpback whales of the eastern North Pacific. *Bulletin of the American Museum of Natural History* 26: 213-226, +211pls.
- Anthony, J., D. Roby, and K. Turco. 2000. Lipid content and energy density of forage fishes from the northern Gulf of Alaska. *Journal of Experimental Marine Biology and Ecology* 248: 53-78.
- Arimitsu, M. L., J. F. Piatt, M. A. Litzow, A. A. Abookire, M. D. Romano, and M. D. Robards. 2008. Distribution and spawning dynamics of capelin (*Mallotus villosus*) in Glacier Bay, Alaska: a cold water refugium. *Fisheries Oceanography* 17: 137-146.
- Arrigo, K. R., and G. L. van Dijken. 2015. Continued Increases in Arctic Ocean Primary Production. *Progress in Oceanography* 136: 60–70.
- Au, W. W., A. A. Pack, M. O. Lammers, L. M. Herman, M. H. Deakos, and K. Andrews. 2006. Acoustic properties of humpback whale songs. *The Journal of the Acoustical Society of America* 120: 1103-1110.
- Auth, T. D., E. A. Daly, R. D. Brodeur, and J. L. Fisher. 2018. Phenological and distributional shifts in ichthyoplankton associated with recent warming in the northeast Pacific Ocean. *Global Change Biology* 24: 259-272.
- Baker, C. S. 1985. The population structure and social organization of humpback whales (*Megaptera novaeangliae*) in the Central and Eastern North Pacific. University of Hawaii.

- Baker, C. S., and L. M. Herman. 1989. Behavioral responses of summering humpback whales to vessel traffic: Experimental and opportunistic observations. Final Report to the National Park Service, Alaska Regional Office, Anchorage, Alaska. U.S. Department of the Interior, National Park Service. NPS-NR-TRS-89-01. 50 pp.
- Baker, C. S., L. M. Herman, A. Perry, W. S. Lawton, J. M. Straley, and J. H. Straley. 1985. Population characteristics and migration of summer and late-season humpback whales (*Megaptera novaeangliae*) in Southeastern Alaska. Marine Mammal Science 1: 304-323.
- Baker, C. S., L. M. Herman, A. Perry, W. S. Lowton, J. M. Straley, A. A. Wolman, G. D. Kaufman, H. E. Winn, J. D. Hall, J. M. Reinke, and J. Ostman. 1986. Migratory movement and population structure of humpback whales (*Megaptera novaeangliae*) in the central and eastern north Pacific. Marine Ecology Progress Series 31: 105-119.
- Baker, C. S., V. Lukoschek, S. Lavery, M. L. Dalebout, M. Yong-Un, T. Endo, and N. Funahashi. 2006. Incomplete reporting of whale, dolphin and porpoise 'bycatch' revealed by molecular monitoring of Korean markets. Animal Conservation 9: 474-482.
- Baker, C. S., L. Medrano-Gonzalez, J. Calambokidis, A. Perry, F. Pichler, H. Rosenbaum, J. M. Straley, J. Urban-Ramirez, M. Yamaguchi, and O. Von Ziegesar. 1998. Population structure of nuclear and mitochondrial DNA variation among humpback whales in the North Pacific. Molecular Ecology 7: 695-707.
- Baker, C. S., A. Perry, and L. M. Herman. 1987. Reproductive histories of female humpback whales (*Megaptera novaeangliae*) in the North Pacific. Marine Ecology Progress Series 41: 103-114.
- Baker, C. S., D. Steel, J. Calambokidis, E. Falone, U. Gonzalez-Peral, J. Barlow, A. Burdin, P. Clapham, J. Ford, C. Gabriele, D. Mattila, L. Rojas-Bracho, J. Straley, B. Taylor, J. Urban, P. Wade, D. Weller, B. Witteveen, and M. Yamaguchi. 2013. Strong maternal fidelity and natal philopatry shape genetic structure in North Pacific humpback whales. Marine Ecology Progress Series 494: 291-306.
- Baker, C. S., J. M. Straley, and A. Perry. 1992. Population characteristics of individually identified humpback whales in southeastern Alaska: summer and fall 1986. Fishery Bulletin 90: 429-437.
- Bakun, A., B. A. Black, S. J. Bograd, M. Garcia-Reyes, A. J. Miller, R. R. Rykaczewski, and W. J. Sydeman. 2015. Anticipated effects of climate change on coastal upwelling ecosystems. Current Climate Change Reports 1: 85-93.
- Bakun, A., and K. Broad. 2003. Environmental 'loopholes' and fish population dynamics: comparative pattern recognition with focus on El Niño effects in the Pacific. Fisheries Oceanography 12: 458-473.
- Baraff, L. S., Phillip J. Clapham, David K. Mattila, Robert S. Bowman. 1991. Feeding behavior of a humpback whale in low-latitude waters. Marine Mammal Science 7: 197-202.
- Barber, R. T., and F. P. Chavez. 1983. Biological consequences of El Niño. Science 222: 1203-1210.

- Barlow, J. 2016. Cetacean abundance in the California Current estimated from ship-based line-transect surveys in 1991-2014. NOAA Southwest Fisheries Science Center Administrative Report LJ-16-01. 63 pp.
- Barlow, J., J. Calambokidis, E. A. Falcone, C. S. Baker, A. M. Burdin, P. J. Clapham, J. K. B. Ford, C. M. Gabriele, R. Leduc, D. K. Mattila, T. J. Quinn, L. Rojas-Bracho, J. M. Straley, B. L. Taylor, J. Urban-R., P. Wade, D. Weller, B. Witteveen, and M. Yamaguchi. 2011. Humpback whale abundance in the North Pacific estimated by photographic capture-recapture with bias correction from simulation studies. *Marine Mammal Science* 27: 793-818.
- Barlow, J., and P. J. Clapham. 1997. A new birth-interval approach to estimating demographic parameters of humpback whales. *Ecology* 78: 535-546.
- Barlow, J., and K. A. Forney. 2007. Abundance and population density of cetaceans in the California Current ecosystem. *Fishery Bulletin* 105: 509-526.
- Barlow, J., M. Kahru, and B. Mitchell. 2008. Cetacean biomass, prey consumption, and primary production requirements in the California Current ecosystem. *Marine Ecology Progress Series* 371: 285-295.
- Baum, J. K., and B. Worm. 2009. Cascading top-down effects of changing oceanic predator abundances. *Journal of Animal Ecology* 78: 699-714.
- Becker, E. A., K. A. Forney, P. C. Fiedler, J. Barlow, S. J. Chivers, C. A. Edwards, A. M. Moore, and J. V. Redfern. 2016. Moving towards dynamic ocean management: how well do modeled ocean products predict species distributions? *Remote Sensing* 8: 149.
- Becker, E. a., K. a. Forney, B. J. Thayre, A. J. Debich, G. S. Campbell, K. Whitaker, A. B. Douglas, A. Gilles, R. Hoopes, and J. A. Hildebrand. 2017. Habitat-based density models for three cetacean species off southern California illustrate pronounced seasonal differences. *Frontiers in Marine Science* 4: 121.
- Becker, E.A., Forney, K.A., Redfern, J.V., Barlow, J., Jacox, M.G., Roberts, J.J., Palacios, D.M., 2019. Predicting cetacean abundance and distribution in a changing climate. *Diversity and Distributions* 25: 626-643.
- Benoit-Bird, K. J., C.M. Waluk & J.P. Ryan. 2019. Forage species swarm in response to coastal upwelling. *Geophysical Research Letters* 46: 1537–1546. <https://doi.org/10.1029/2018GL081603>.
- Benson, S. R., D. A. Croll, B. B. Marinovic, F. P. Chavez, and J. T. Harvey. 2002. Changes in the cetacean assemblage of a coastal upwelling ecosystem during El Niño 1997–98 and La Niña 1999. *Progress in Oceanography* 54: 279-291.
- Berzin, A. A., and A. A. Rovnin. 1966. The distribution and migrations of whales in the northeastern part of the Pacific, Chuckchee and Bering Seas. Pages 103-136 in K. I. Panin, editor. *Soviet Research on Marine Mammals in the Far East*.

- Bettridge, S., C. S. Baker, J. Barlow, P. J. Clapham, M. Ford, D. Gouveia, D. K. Mattila, R. M. Pace lii, P. E. Rosel, G. K. Silber, and P. R. Wade. 2015. Status review of the humpback whale (*Megaptera novaeangliae*) under the Endangered Species Act. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southwest Fisheries Science Center.
- Blair, H. B., N. D. Merchant, A. S. Friedlaender, D. N. Wiley, and S. E. Parks. 2016. Evidence for ship noise impacts on humpback whale foraging behaviour. *Biology Letters* 12:20160005.
- Bograd, S. J., I. Schroeder, N. Sarkar, X. Qiu, W. J. Sydeman, and F.B. Schwing. 2009. The phenology of coastal upwelling in the California current. *Geophysical Research Letters* 36: L01602. doi:10.1029/2008GL035933.
- Boswell, K.M., G. Rieucau, J.J. Vollenweider, J.R. Moran, R.A. Heintz, J.K. Blackbur and D.J. Csepp. 2016. Are spatial and temporal patternd in Lynn Canal overwintering Pacific herring related to top predator activity? *Canadian Journal of Fisheries and Aquatic Sciences* 73: 1307-1318.
- Bowen, W. 1997. Role of marine mammals in aquatic ecosystems. *Marine Ecology Progress Series* 158: 267-274.
- Bradford, A. L., D. W. Weller, A. E. Punt, Y. V. Ivashchenko, A. M. Burdin, G. R. VanBlaricom, and R. L. Brownell Jr. 2012. Leaner leviathans: body condition variation in a critically endangered whale population. *Journal of Mammalogy* 93: 251-266.
- Brinton, E., and A. Townsend. 2003. Decadal variability in abundances of the dominant euphausiid species in southern sectors of the California Current. *Deep Sea Research Part II: Topical Studies in Oceanography* 50: 2449-2472.
- Brodeur, R. D., J. P. Fisher, R. L. Emmett, C. A. Morgan, and E. Casillas. 2005. Species composition and community structure of pelagic nekton off Oregon and Washington under variable oceanographic conditions. *Marine Ecology Progress Series* 298: 41-57.
- Brodeur, R. D., J. P. Fisher, D. J. Teel, R. L. Emmett, E. Casillas, and T. W. Miller. 2004. Juvenile salmonid distribution, growth, condition, origin, and environmental and species associations in the Northern California Current. *Fishery Bulletin* 102: 25-46.
- Brodeur, R. D., M. E. Hunsicker, A. Hann, and T. W. Miller. 2019a. Effects of warming ocean conditions on feeding ecology of small pelagic fishes in a coastal upwelling ecosystem: a shift to gelatinous food sources. *Marine Ecology Progress Series* 617-618: 149-163.
- Brodeur, R. D., T. D. Auth, and A. J. Phillips. 2019b. Major shifts in pelagic micronekton and macrozooplankton community structure in an upwelling ecosystem related to an unprecedented marine heatwave. *Frontiers in Marine Science* 6: 212. doi.org/10.3389/fmars.2019.00212.
- Brodie, P. F. 1977. Form, function and energetics of Cetacea: A discussion. Pages 45-58 in R. J. Harrison, editor. *Functional Anatomy of Marine Mammals*. Academic Press, London.

- Brower, A. A., J. T. Clarke, and M. C. Ferguson. 2018. Increased Sightings of SubArctic Cetaceans in the Eastern Chukchi Sea, 2008–2016: Population Recovery, Response to Climate Change, or Increased Survey Effort? *Polar Biology* 41(5): 1033–39.
- Brown, E. D. 2002. Life history, distribution, and size structure of Pacific capelin in Prince William Sound and the northern Gulf of Alaska. *ICES Journal of Marine Science* 59: 983-996.
- Brown, M. R., P. J. Corkeron, P. T. Hale, K. W. Schultz, and M. M. Bryden. 1995. Evidence for a sex-segregated migration in the humpback whale (*Megaptera novaeangliae*). *Proceedings of the Royal Society of London B* 259: 229-234.
- Brownell, R. L. J., M. F. Tillman, G. Notarbartolo Di Sciara, P. Berggren, and A. J. Read. 2000. Further scrutiny of scientific whaling. *Science* 290: 1696a.
- Brueggeman, J. J., G. A. Green, R. Grotfendt, and D. Chapman. 1987. Aerial surveys of endangered cetaceans and other marine mammals in the northwestern Gulf of Alaska and southeastern Bering Sea. NOAA/OCSEAP Environmental Assessment of the Alaskan Continental Shelf. Final Reports of Principal Investigators 61: 1-124.
- Brueggeman, J. J., G. A. Green, R. A. Grotfendt, and R. W. Tressler. 1989. Marine mammal habitat use in the northern Aleutian Basin, St. George Basin, and Gulf of Alaska. Pages 97-108 in L. K. L. E. T. Jarvela, editor. U.S. Department of Commerce, Anchorage.
- Bryant, P. J., G. Nichols, T. B. Bryant, and K. Miller. 1981. Krill availability and the distribution of humpback whales in southeastern Alaska. *Journal of Mammalogy* 62: 427-430.
- Burrows, J. A., D. W. Johnston, J. M. Straley, E. M. Chenoweth, C. Ware, C. Curtice, S. L. DeRuiter, and A. S. Friedlaender. 2016. Prey density and depth affect the fine-scale foraging behavior of humpback whales *Megaptera novaeangliae* in Sitka Sound, Alaska, USA. *Marine Ecology Progress Series* 561: 245-260.
- Calambokidis, J., and J. Barlow. 2004. Abundance of blue and humpback whales in the Eastern North Pacific estimated by capture-recapture and line-transect methods. *Marine Mammal Science* 20: 63-85.
- Calambokidis, J., J. Barlow, K. Flynn, E. Dobson, and G. H. Steiger. 2017. Update on abundance, trends, and migrations of humpback whales along the US West Coast. IWC Scientific Committee Report SC/A17/NP/13.
- Calambokidis, J., E. A. Falcone, T. J. Quinn, A. M. Burdin, P. J. Clapham, J. K. B. Ford, C. M. Gabriele, R. Leduc, D. K. Mattila, L. Rojas-Bracho, J. M. Straley, B. L. Taylor, J. Urbán-Ramirez, R. D. Weller, B. H. Witteveen, M. Yamaguchi, A. Bendlin, D. Camacho, K. Flynn, A. Havron, J. Huggins, and N. Maloney. 2008. SPLASH: Structure of Populations, Levels of Abundance and Status of Humpback Whales in the North Pacific. Cascadia Research. For U.S. Department of Commerce, Western Administrative Center, Seattle, WA. AB133F-03-RP-00078. 57 pp.
- Calambokidis, J., G. H. Steiger, C. Curtice, J. Harrison, M. C. Ferguson, E. Becker, M. DeAngelis, and S. M. Van Parijs. 2015. Biologically important areas for selected cetaceans within US waters-west coast region. *Aquatic Mammals* 41: 39.

Calambokidis, J., G. H. Steiger, and D. K. Ellifrit. 2004. Distribution and abundance of humpback whales (*Megaptera novaeangliae*) and other marine mammals off the northern Washington coast. Fishery Bulletin 102: 563–580.

Calambokidis, J., G. H. Steiger, J. R. Evenson, K. R. Flynn, K. C. Balcomb, D. E. Claridge, P. Bloedel, J. M. Straley, C. S. Baker, O. Vonziegesar, M. E. Dahlheim, J. M. Waite, J. D. Darling, G. Ellis, and G. A. Green. 1996. Interchange and isolation of humpback whales off California and other North Pacific feeding grounds. Marine Mammal Science 12: 215-226.

Calambokidis, J., G. H. Steiger, K. Rasmussen, J. Urbán R., K. C. Balcomb, P. Ladrón De Guevara, M. Salinas Z., J. K. Jacobsen, C. S. Baker, L. M. Herman, S. Cerchio, and J. D. Darling. 2000. Migratory destinations of humpback whales that feed off of California, Oregon, and Washington. Marine Ecology Progress Series 192: 295-304.

Calambokidis, J., G. H. Steiger, J. M. Straley, L. M. Herman, S. Cerchio, D. R. Salden, J. Urban, J. K. Jacobsen, O. Von Ziegesar, K. C. Balcomb, C. M. Gabriele, M. E. Dahlheim, S. Uchida, G. Ellis, Y. Miyamura, P. L. De Guevara, M. Yamaguchi, F. Sato, S. A. Mizroch, L. Schlender, K. Rasmussen, J. Barlow, and T. J. Quinn. 2001. Movements and population structure of humpback whales in the North Pacific. Marine Mammal Science 17: 769-794.

Calambokidis, J., G. H. Steiger, J. M. Straley, T. Quinn, L. M. Herman, S. Cerchio, D. R. Salden, M. Yamaguchi, F. Sato, J. R. Urban, J. Jacobsen, O. Vonzeigesar, K. C. Balcomb, C. M. Gabriele, M. E. Dahlheim, N. Higashi, S. Uchida, J. K. B. Ford, Y. Miyamura, P. Ladron De Guevara, S. A. Mizroch, L. Schlender, and R. K. 1997. Abundance and population structure of humpback whales in the North Pacific basin. 50ABNF500113, Cascadia Research Collective, Olympia, WA.

California Department of Fish and Wildlife. 2018. 2017-18 Summary of the Pacific Herring Spawning Population and Commercial Fisheries in San Francisco Bay. California Department of Fish and Wildlife, Aquaculture and Bay Management Project, Herring Management and Research.

Campbell, G. S., L. Thomas, K. Whitaker, A. B. Douglas, J. Calambokidis, and J. A. Hildebrand. 2015. Interannual and seasonal trends in cetacean distribution, density and abundance off southern California. Deep Sea Research Part II: Topical Studies in Oceanography 112: 143-157.

Carretta, J. V., K. A. Forney, M. S. Lowry, J. Barlow, J. Baker, D. Johnston, B. Hanson, R. L. Brownell Jr., J. Robbins, D. Mattila, K. Ralls, M. M. Muto, D. Lynch, and L. Carswell. 2010. U. S. Pacific marine mammal stock assessments: 2009. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southwest Fisheries Science Center, La Jolla, California.

Carretta, J. V., K. A. Forney, E. M. Oleson, D. W. Weller, A.R. Lang, J. Baker, M. M. Muto, B. Hanson, A. J. Orr, H. Huber, M. A. Lowry, J. Barlow, J. E. Moore, D. Lynch, L. Carswell, and R. L. Brownell Jr. 2018. U.S. Pacific Marine Mammal Stock Assessment: 2017. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southwest Fisheries Science Center, La Jolla, California. NOAA-TM-NMFS-SWFSC-602.

Carretta, J.V., K. A. Forney, E. M. Oleson, D. W. Weller, A. R. Lang, J. Baker, M. M. Muto, B. Hanson, A. J. Orr, H. Huber, M. S. Lowry, J. Barlow, J. E. Moore, D. Lynch, L. Carswell, and R. L. Brownell Jr.

2020. U.S. Pacific Marine Mammal Stock Assessments: 2019, U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-629.

Carroll, A. G., R. Przeslawski, A. Duncan, M. Gunning, and B. Bruce. 2017. A critical review of the potential impacts of marine seismic surveys on fish & invertebrates. *Marine Pollution Bulletin* 114: 9–24.

Cartwright, R., and M. Sullivan. 2009. Associations with multiple male groups increase the energy expenditure of humpback whale (*Megaptera novaeangliae*) female and calf pairs on the breeding grounds. *Behaviour* 146: 1573-1600.

Cartwright, R., A. Venema, V. Hernandez, C. Wyels, J. Cesere and D. Cesere. 2019. Fluctuating reproductive rates in Hawaii's humpback whales, *Megaptera novaeangliae*, reflect recent climate anomalies in the North Pacific. *Royal Society Open Science* 6: 181463.
<https://royalsocietypublishing.org/doi/10.1098/rsos.181463>.

Cerchio, S., and M. Dahlheim. 2001. Variation in feeding vocalizations of humpback whales *Megaptera novaeangliae* from southeast Alaska. *Bioacoustics* 11: 277-295.

Chaloupka, M., M. Osmond, and G. Kaufman. 1999. Estimating seasonal abundance trends and survival probabilities of humpback whales in Hervey Bay (east coast Australia). *Marine Ecology Progress Series* 184: 291-301.

Chavez, F. P., J. Ryan, S. E. Lluch-Cota, and M. Ñiquen. 2003. From anchovies to sardines and back: multidecadal change in the Pacific Ocean. *Science* 299: 217-221.

Chenoweth, E. M., J. M. Straley, M. V. McPhee, S. Atkinson, and S. Reifenstuhl. 2017. Humpback whales feed on hatchery-released juvenile salmon. *Royal Society Open Science* 4: 170180.

Chittleborough, R. 1958. The breeding cycle of the female humpback whale, *Megaptera nodosa* (Bonnaterre). *Marine and Freshwater Research* 9: 1-18.

Chittleborough, R. G. 1965. Dynamics of two populations of the humpback whale, *Megaptera novaeangliae* (Borowski). *Australian Journal of Marine and Freshwater Research* 16: 33-128.

Cholewiak, D., C. W. Clark, D. Ponirakis, A. Frankel, L. T. Hatch, D. Risch, J. E. Stanistreet, M. Thompson, E. Vu, and S. M. Van Parijs. 2018. Communicating amidst the noise: modeling the aggregate influence of ambient and vessel noise on baleen whale communication space in a national marine sanctuary. *Endangered Species Research* 36: 59-75.

Christiansen, F., A. M. Dujon, K. R. Sprogis, J. P. Arnould, and L. Bejder. 2016. Noninvasive unmanned aerial vehicle provides estimates of the energetic cost of reproduction in humpback whales. *Ecosphere* 7: 1-18.

Christiansen, F., G. A. Víkingsson, M. H. Rasmussen, and D. Lusseau. 2013. Minke whales maximise energy storage on their feeding grounds. *Journal of Experimental Biology* 216: 427-436.

Clapham, P. 2001. Why do baleen whales migrate? A response to Corkeron and Connor. *Marine Mammal Science* 17: 432-436.

Clapham, P., A. S. Kennedy, B. K. Rone, A. N. Zerbini, J. L. Crance, and C. L. Berchok. 2012. North Pacific Right Whales in the Southeastern Bering Sea, Final Report. US Department of Commerce, National Oceanic and Atmospheric Administration. OCS Study BOEM Contract Number M07RG13267.

Clapham, P. J. 1992. Age at attainment of sexual maturity in humpback whales, *Megaptera novaeangliae*. Canadian Journal of Zoology 70: 1470-1472.

Clapham, P. J. 1993. Social and reproductive biology of North Atlantic humpback whales (*Megaptera novaeangliae*). University of Aberdeen, Scotland.

Clapham, P. J. 1996. The social and reproductive biology of humpback whales: an ecological perspective. Mammal Review 26: 27-49.

Clapham, Baker, Brownell, Calambokidis, Cheeseman, Donovan, Ivashchenko, Kato, Kitakado, Matsuoka, Mizroch, Palacios, Palka, Punt, Urban, Wade, Weinrich, Yoshida, and Zerbini. 2020. Report of Intersessional Correspondence Group on North Pacific Humpback Whales. Paper SC/68B/ISG/01. Submitted to the IWC Scientific Committee. 7 pgs.

Clapham, P. J., S. Leatherwood, I. Szczepaniak, and R. L. Brownell Jr. 1997. Catches of humpback and other whales from shore stations at Moss Landing and Trinidad, California, 1919-1926. Marine Mammal Science 13: 368-394.

Clapham, P. J., and C. A. Mayo. 1990. Reproduction of humpback whales (*Megaptera novaeangliae*) observed in the Gulf of Maine, Individual recognition of cetaceans: use of photo-identification and other techniques to estimate population parameters. Pages 171-175 in G. P. P. S. M. S. A. D. Hammond, editor. Individual recognition of cetaceans: use of photo-identification and other techniques to estimate population parameters. International Whaling Commission, Cambridge, England.

Clapham, P. J., and J. G. Mead. 1999. *Megaptera novaeangliae*. Mammalian Species 604: 9-Jan.

Clapham, P. J., P. J. Palsbøll, D. K. Mattila, and O. Vasquez. 1992. Composition and dynamics of humpback whale competitive groups in the West Indies. Behaviour 122: 182-194.

Clark, C. W., and P. J. Clapham. 2004. Acoustic monitoring on a humpback whale (*Megaptera novaeangliae*) feeding ground shows continual singing into late spring. Proceedings of the Royal Society of London B 271: 1051-1057.

Clark, C. W., W. T. Ellison, B. L. Southall, L. Hatch, S. M. Van Parijs, A. Frankel, and D. Ponirakis. 2009. Acoustic masking in marine ecosystems: Intuitions, analysis, and implication. Marine Ecology Progress Series 395: 201-222.

Clark, F. N., and J. Janssen. 1945. Results of tagging experiments in California waters on the sardine (*Sardinops caerulea*). Fishery Bulletin 61: 1-93.

Clarke, J., K. Stafford, S. E. Moore, B. Rone, L. Aerts, and J. Crance. 2013. Subarctic cetaceans in the southern Chukchi Sea: evidence of recovery or response to a changing ecosystem. Oceanography 26: 136-149.

- Corkeron, P. J., and R. C. Connor. 1999. Why do baleen whales migrate? *Marine Mammal Science* 15: 1228-1245.
- Coyle, K., L. Eisner, F. Mueter, A. Pinchuk, M. Janout, K. Cieciel, E. Farley, and A. Andrews. 2011. Climate change in the southeastern Bering Sea: impacts on pollock stocks and implications for the oscillating control hypothesis. *Fisheries Oceanography* 20: 139-156.
- Craig, A. S., L. M. Herman, C. M. Gabriele, and A. A. Pack. 2003. Migratory timing of humpback whales (*Megaptera novaeangliae*) in the central North Pacific varies with age, sex and reproductive status. *Behaviour* 140: 981-1001.
- Croll, D. A., C. W. Clark, J. Calambokidis, W. T. Elison, and B. R. Tershy. 2001. Effect of anthropogenic low-frequency noise on the foraging ecology of Balaenoptera whales. *Animal Conservation* 4: 13-27.
- Cuccarese, S., and C. Evans. 1981. The North Pacific humpback whale (*Megaptera novaeangliae*): its status on Alaskan grounds. Report to the Arctic Environmental Information and Data Center, Anchorage, AK.
- Curé, C., L. D. Sivle, F. Visser, P. J. Wensveen, S. Isojunno, C. M. Harris, P. H. Kvadsheim, F.-P. A. Lam, and P. J. O. M. Miller. 2015. Predator sound playbacks reveal strong avoidance responses in a fight strategist baleen whale. *Marine Ecology Progress Series* 526: 267-282.
- D'Vincent, C. G., R. M. Nilson, and R. E. Hanna. 1985. Vocalization and coordinated feeding behavior of the humpback whale in southeastern Alaska. *Scientific Reports of the Whales Research Institute* 36: 41-47.
- Dahlheim, M. E., P. A. White, and J. M. Waite. 2009. Cetaceans of Southeast Alaska: distribution and seasonal occurrence. *Journal of Biogeography* 36: 410-426.
- Dalla Rosa, L., J. K. Ford, and A. W. Trites. 2012. Distribution and relative abundance of humpback whales in relation to environmental variables in coastal British Columbia and adjacent waters. *Continental Shelf Research* 36: 89-104.
- Darling, J.D., B. Goodwin, M.K. Goodoni, A.J. Taufmann, and M.G. Taylor. 2019a. Humpback whale calls detected in tropical ocean basin between known Mexico and Hawaii breeding assemblies. *Journal of the Acoustical Society of America* 145: EL534- EL 540.
- Darling, J.D. J. M. V. Acebes, O. Frey, R.J. Urbán, and M. Yamaguchi. 2019b. Convergence and divergence of songs suggests ongoing, but annually variable, mixing of humpback whale populations throughout the North Pacific. *Scientific Reports* 9: 1-14.
- Darling, J. D., and M. Bérubé. 2001. Interactions of singing humpback whales with other males. *Marine Mammal Science* 17: 570-584.
- Darling, J. D., J. Calambokidis, K. C. Balcomb, P. Bloedel, K. Flynn, A. Mochizuki, K. Mori, F. Sato, H. Suganuma, and M. Yamaguchi. 1996. Movement of a humpback whale (*Megaptera novaeangliae*) from Japan to British Columbia and Return. *Marine Mammal Science* 12: 281-287.

- Darling, J. D., and S. Cerchio. 1993. Movement of a humpback whale (*Megaptera novaeangliae*) between Japan and Hawaii. *Marine Mammal Science* 9: 84-89.
- Darling, J. D., and D. J. McSweeney. 1985. Observations on the Migrations of North Pacific Humpback Whales (*Megaptera novaeangliae*). *Canadian Journal of Zoology* 63: 308-314.
- Darling, J. D., and K. Mori. 1993. Recent observations of humpback whales (*Megaptera novaeangliae*) in Japanese waters Off Ogasawara and Okinawa. *Canadian Journal of Zoology-Revue Canadienne De Zoologie* 71: 325-333.
- Davis, N., K. Myers, and Y. Ishida. 1998. Caloric value of high-seas salmon prey organisms and simulated salmon ocean growth and prey consumption. *North Pacific Anadromous Fish Commission Bulletin* 1: 146-162.
- Dawbin, W. H. 1966. The seasonal migratory cycle of humpback whales. Pages 145-170 in K. S. Norris, editor. *Whales, dolphins and porpoises*. University of California Press, Berkeley, LA.
- Dawbin, W. H. 1997. Temporal segregation of humpback whales during migration in southern hemisphere waters. *Memoirs of the Queensland Museum* 42: 105-138.
- Demer, D. A., J. P. Zwolinski, K. A. Byers, G. R. Cutter, J. S. Renfree, T. S. Sessions, and B. J. Macewicz. 2012. Prediction and confirmation of seasonal migration of Pacific sardine (*Sardinops sagax*) in the California Current Ecosystem. *Fishery Bulletin* 110: 52-70.
- Di Clemente, J., F. Christiansen, E. Pirotta, D. Steckler, M. Wahlberg, and H. C. Pearson. 2018. Effects of whale watching on the activity budgets of humpback whales, *Megaptera novaeangliae* (Borowski, 1781), on a feeding ground. *Aquatic Conservation: Marine and Freshwater Ecosystems* 28: 810-820.
- Doherty, J. L., and C. M. Gabriele. 2002. Population characteristics of humpback whales in Glacier Bay and adjacent waters: 2002. Report to the National Park Service, Gustavus, AK. 32 pp.
- Dohl, T. P., R. C. Guess, M. L. Duman, and R. C. Helm. 1983. Cetaceans of central and northern California, 1980-83: Status, abundance, and distribution. Contract No. 14-12-0001-29090, Minerals Management Service.
- Dolphin, W. F. 1987. Prey densities and foraging of humpback whales, *Megaptera novaeangliae*. *Experientia* 43: 468-471.
- Dorman, J. G., W. J. Sydeman, M. García-Reyes, R. A. Zeno, and J. A. Santora. 2015. Modeling krill aggregations in the central-northern California Current. *Marine Ecology Progress Series* 528: 87-99.
- Doyle, L. R., B. Mccowan, S. F. Hanser, C. Chyba, T. Bucci, and J. E. Blue. 2008. Applicability of information theory to the quantification of responses to anthropogenic noise by southeast Alaskan humpback whales. *Entropy* 10: 33-46.
- Dunlop, R. A. 2016. The effect of vessel noise on humpback whale, *Megaptera novaeangliae*, communication behaviour. *Animal Behaviour* 111: 13-21.

- Dunlop, R. A. 2017. Potential motivational information encoded within humpback whale non-song vocal sounds. *The Journal of the Acoustical Society of America* 141: 2204-2213.
- Dunlop, R. A., D. H. Cato, and M. J. Noad. 2008. Non-song acoustic communication in migrating humpback whales (*Megaptera novaeangliae*). *Marine Mammal Science* 24: 613-629.
- Dunlop, R. A., D. H. Cato, and M. J. Noad. 2010. Your attention please: increasing ambient noise levels elicits a change in communication behaviour in humpback whales (*Megaptera novaeangliae*). *Proceedings of the Royal Society of London B: Biological Sciences* 277: 2521-2529.
- Dunlop, R. A., D. H. Cato, and M. J. Noad. 2014. Evidence of a Lombard response in migrating humpback whales (*Megaptera novaeangliae*). *Journal of the Acoustical Society of America* 136: 430-437.
- Dunlop, R. A., D. H. Cato, M. J. Noad, and D. M. Stokes. 2013. Source levels of social sounds in migrating humpback whales (*Megaptera novaeangliae*). *The Journal of the Acoustical Society of America* 134: 706-714.
- Dunlop, R. A., M. J. Noad, D. H. Cato, and D. Stokes. 2007. The social vocalization repertoire of east Australian migrating humpback whales (*Megaptera novaeangliae*). *The Journal of the Acoustical Society of America* 122: 2893-2905.
- Dunlop, R. A., M. J. Noad, R. D. McCauley, E. Kniest, R. Slade, D. Paton, and D. H. Cato. 2017a. The behavioural response of migrating humpback whales to a full seismic airgun array. *Proceedings of the Royal Society B* 284: 20171901.
- Dunlop, R. A., M. J. Noad, R. D. McCauley, L. Scott-Hayward, E. Kniest, R. Slade, D. Paton, and D. H. Cato. 2017b. Determining the behavioural dose-response relationship of marine mammals to air gun noise and source proximity. *Journal of Experimental Biology* 220: 2878-2886.
- Elfes, C. T., G. R. VanBlaricom, D. Boyd, J. Calambokidis, P. J. Clapham, R. W. Pearce, J. Robbins, J. C. Salinas, J. Straley, P. R. Wade, and M. M. Krahn. 2010. Geographic variation of persistent organic pollutant levels in humpback whale (*Megaptera novaeangliae*) feeding areas of the North Pacific and North Atlantic. *Environmental Toxicology and Chemistry* 29: 824-834.
- Ellison, W.T., B. L. Southall, C.W. Clark, and A. S. Frankel. 2012. A new context-based approach to assess marine mammal behavioral responses to anthropogenic sounds. *Conservation Biology* 26: 21-28.
- Emmett, R. L., R. D. Brodeur, T. W. Miller, S. S. Pool, P. J. Bentley, G. Krutzikowsky, and J. McCrae. 2005. Pacific sardine (*Sardinops sagax*) abundance, distribution, and ecological relationships in the Pacific Northwest. *California Cooperative Oceanic Fisheries Investigations Report* 46: 122.
- Ersts, P. J., and H. C. Rosenbaum. 2003. Habitat preference reflects social organization of humpback whales (*Megaptera novaeangliae*) on a wintering ground. *Journal of Zoology, London* 260: 337-345.
- Essington, T. E., P. E. Moriarty, H. E. Froehlich, E. E. Hodgson, L. E. Koehn, K. L. Oken, M. C. Siple, and C. C. Stawitz. 2015. Fishing amplifies forage fish population collapses. *Proceedings of the National Academy of Sciences*. 112: 6648-6652. doi:10.1073/pnas.1422020112.

- Essington, T. E., and S. B. Munch. 2014. Trade-offs between supportive and provisioning ecosystem services of forage species in marine food webs. *Ecological Applications* 24: 1543-1557.
- Ferguson, M. C., C. Curtice, and J. Harrison. 2015a. Biologically important areas for cetaceans within U.S. waters – Gulf of Alaska region. *Aquatic Mammals* 41: 65-78.
- Ferguson, M. C., C. Curtice, J. Harrison, and S. M. Van Parijs. 2015b. Biologically Important Areas for Cetaceans Within US Waters-Overview and Rationale. *Aquatic Mammals* 41: 2-16.
- Ferguson, M. C., J. M. Waite, C. Curtice, J. T. Clarke, and J. Harrison. 2015c. Biologically important areas for cetaceans within U.S. waters – Aleutian Islands and Bering Sea region. *Aquatic Mammals* 41: 79-93.
- Finneran, J. J. 2016. Auditory weighting functions and TTS/PTS exposure functions for marine mammals exposed to underwater noise. Space and Naval Warfare Systems Center Pacific San Diego United States. Technical Report 3026. <http://www.spawar.navy.mil/sti/publications/pubs/index.html>.
- Fisheries and Oceans Canada. 2013. Recovery Strategy for the North Pacific Humpback Whale (*Megaptera novaeangliae*) in Canada. Fisheries and Oceans Canada, Ottawa. 54 pp. + Appendices.
- Fleming, A., and J. Jackson. 2011. Global Review of Humpback Whales (*Megaptera novaeangliae*). U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. NOAA Technical Memorandum. NOAA-TM-NMFS-SWFSC-474.
- Fleming, A. H., C. T. Clark, J. Calambokidis, and J. Barlow. 2016. Humpback whale diets respond to variance in ocean climate and ecosystem conditions in the California Current. *Global Change Biology* 22: 1214-1224.
- Ford, J., A. Rambeau, R. Abernethy, M. Boogaards, L. Nichol, and L. Spaven. 2009. An assessment of the potential for recovery of humpback whales off the Pacific Coast of Canada. DFO Canadian Science Advisory Secretariat Research Document 15: 33.
- Ford, J. K. B., and R. R. Reeves. 2008. Fight or flight: antipredator strategies of baleen whales. *Mammal Review* 38: 50-86.
- Forestell, P.H. and J.Urban R. 2007. Movement of a humpback whale (*Megaptera novaeangliae*) between the Revillagigedo and Hawaiian Archipelagos within a winter breeding season. *Latin American Journal of Aquatic Mammals* 6: 97-102.
- Forney, K. A., and J. Barlow. 1998. Seasonal patterns in the abundance and distribution of California cetaceans, 1991-1992. *Marine Mammal Science* 14: 460-489.
- Forney, K. A., J. Barlow, and J. V. Carretta. 1995. The abundance of cetaceans in California waters. Part II: Aerial surveys in winter and spring of 1991 and 1992. *Fisheries Bulletin* 93: 15-26.
- Forney, K. A., B. L. Southall, E. Slooten, S. Dawson, A. J. Read, R. W. Baird, and R. L. Brownell Jr. 2017. Nowhere to go: noise impact assessments for marine mammal populations with high site fidelity. *Endangered Species Research* 32: 391-413.

- Forney, K. A., and R. L. Brownell, Jr. 1996. Preliminary report of the 1994 Aleutian Island marine mammal survey. Document number SC/48/0, International Whaling Commission, Cambridge, UK. 15 pp.
- Fournet, M. E., C. M. Gabriele, D. C. Culp, F. Sharpe, D. K. Mellinger, and H. Klinck. 2018a. Some things never change: multi-decadal stability in humpback whale calling repertoire on Southeast Alaskan foraging grounds. *Scientific Reports* 8: 13186. DOI: 10.1038/s41598-018-31527-x.
- Fournet, M. E., L.P. Matthews, C. M. Gabriele, S. Haver, D. K. Mellinger, and H. Klinck. 2018b. Humpback whales *Megaptera novaeangliae* alter calling behavior in response to natural sounds and vessel noise. *Marine Ecology Progress Series* 607: 251- 268.
- Frankel, A. S., C. W. Clark, L. M. Herman, and C. M. Gabriele. 1995. Spatial distribution, habitat utilization, and social interactions of humpback whales, (*Megaptera novaeangliae*), off Hawai'i, determined using acoustic and visual techniques. *Canadian Journal of Zoology* 73: 1134-1146.
- Frazer, L. N., and E. Mercado III. 2000. A sonar model for humpback whale song. *IEEE Journal of Oceanic Engineering* 25: 160-182.
- Friday, N. A., J. M. Waite, A. N. Zerbini, and S. E. Moore. 2012. Cetacean distribution and abundance in relation to oceanographic domains on the eastern Bering Sea shelf: 1999–2004. *Deep Sea Research Part II: Topical Studies in Oceanography* 65: 260-272.
- Friday, N. A., A. N. Zerbini, J. M. Waite, S. E. Moore, and P. J. Clapham. 2013. Cetacean distribution and abundance in relation to oceanographic domains on the eastern Bering Sea shelf, June and July of 2002, 2008, and 2010. *Deep Sea Research Part II: Topical Studies in Oceanography* 94: 244-256.
- Friedlaender, A. S., E. L. Hazen, D. P. Nowacek, P. N. Halpin, C. Ware, M. T. Weinrich, T. Hurst, and D. Wiley. 2009. Diel changes in humpback whale *Megaptera novaeangliae* feeding behavior in response to sand lance *Ammodytes* spp. behavior and distribution. *Marine Ecology Progress Series* 395: 91-100.
- Friedlaender, A. S., D. W. Johnston, R. B. Tyson, A. Kaltenberg, J. A. Goldbogen, A. K. Stimpert, C. Curtice, E. L. Hazen, P. N. Halpin, and A. J. Read. 2016. Multiple-stage decisions in a marine central-place forager. *Royal Society Open Science* 3: 160043.
- Fristrup, K. M., L. T. Hatch, and C. W. Clark. 2003. Variation in humpback whale (*Megaptera novaeangliae*) song length in relation to low-frequency sound broadcasts. *Journal of the Acoustical Society of America* 113: 3411-3424.
- Fulling, G. L., Fulling, P. H. Thorson, and J. Rivers. 2011. Distribution and abundance estimates for cetaceans in the waters off Guam and the Commonwealth of the Northern Mariana Islands. *Pacific Science* 65: 321-343.
- Gabriele, C. M., C. Lockyer, J. M. Straley, C. M. Jurasz, and H. Kato. 2010. Sighting history of a naturally marked humpback whale (*Megaptera novaeangliae*) suggests ear plug growth layer groups are deposited annually. *Marine Mammal Science* 26: 443-450.

- Gabriele, C. M., J. L. Doherty, and A. G. Andrews. 1997. Population characteristics of humpback whales in Glacier Bay and adjacent waters: 1997. Report to the National Park Service, Glacier Bay National Park and Preserve, Gustavus, AK. 31 pp.
- Gabriele, C. M. and J. L. Neilson. 2018. Continued Decline of Humpback Whale Calving in Glacier Bay and Icy Strait. Pages 105-106. In: Ecosystem Status Report 2018. Gulf of Alaska. Eds.: S. Zador and E. Yasumiishi. North Pacific Fishery Management Council SAFE Report.
https://www.afsc.noaa.gov/refm/stocks/plan_team/2018/ecosysGOA.pdf
- Gabriele, C. M., J. L. Neilson, J. M. Straley, C. S. Baker, J. A. Cedarleaf, and J. F. Saracco. 2017. Natural history, population dynamics, and habitat use of humpback whales over 30 years on an Alaska feeding ground. *Ecosphere* 8: 1- 18. Article e01641.
- Gabriele, C. M., J. M. Straley, L. M. Herman, and R. J. Coleman. 1996. Fastest documented migration of a North Pacific humpback whale. *Marine Mammal Science* 12:4 57-464.
- Gabriele, C. M., J. M. Straley, and J. L. Neilson. 2007. Age at first calving of female humpback whales in Southeastern Alaska. *Marine Mammal Science* 23: 226-239.
- Garland, E. C., A. W. Goldizen, M. L. Rekdahl, R. Constantine, C. Garrigue, N. D. Hauser, M. M. Poole, J. Robbins, and M. J. Noad. 2011. Dynamic horizontal cultural transmission of humpback whale song at the ocean basin scale. *Current Biology* 21: 687-691.
- Gavrishuk, K., V. Lesage, C. Ramp, R. Sears, M. Berube, S. Bearhop, and G. Beauplet. 2014. Trophic niche partitioning among sympatric baleen whale species following the collapse of groundfish stocks in the Northwest Atlantic. *Marine Ecology Progress Series* 497: 285-301.
- Geraci, J. R., D. M. Anderson, R. J. Timperi, D. J. St Aubin, G. A. Early, J. H. Prescott, and C. A. Mayo. 1989. Humpback whales (*Megaptera novaeangliae*) fatally poisoned by dinoflagellate toxin. *Canadian Journal of Fisheries and Aquatic Sciences* 46: 1895-1898.
- Goldbogen, J.A., A. S. Friedlaender, J. Calambokidis, M. F. McKenna, M. Simon, and Douglas P. Nowacek. 2013. Integrative approaches to the study of baleen whale diving behavior, feeding performance, and foraging ecology. *BioScience* 63: 90–100.
- Goldbogen, J. A., J. Calambokidis, D. A. Croll, J. T. Harvey, K. M. Newton, E. M. Oleson, G. Schorr, and R. E. Shadwick. 2008. Foraging behavior of humpback whales: kinematic and respiratory patterns suggest a high cost for a lunge. *Journal of Experimental Biology* 211: 3712-3719.
- Gomez, C., J. Lawson, A. J. Wright, A. Buren, D. Tollit, and V. Lesage. 2016. A systematic review on the behavioural responses of wild marine mammals to noise: the disparity between science and policy. *Canadian Journal of Zoology* 94: 801-819.
- Gong, Z., A. D. Jain, D. Tran, D. H. Yi, F. Wu, A. Zorn, P. Ratilal, and N. C. Makris. 2014. Ecosystem scale acoustic sensing reveals humpback whale behavior synchronous with herring spawning processes and re-evaluation finds no effect of sonar on humpback song occurrence in the Gulf of Maine in Fall 2006. *PLoS ONE* 9: e104733.

- Green, G. A., J. J. Brueggeman, R. A. Grotfendt, C. E. Bowlby, M. L. Bonnell, and K. C. Balcomb III. 1992. Cetacean distribution and abundance off Oregon and Washington, 1989-1990. Page 100 in J. J. Brueggeman, editor. Oregon and Washington Marine Mammal and Seabird Surveys. Minerals Management Service, Los Angeles, California.
- Gregr, E. J. 2000. An analysis of historic (1908-1967) whaling records from British Columbia, Canada. MSc. University of British Columbia.
- Gulland, F. M. D. 2006. Review of the Marine Mammal Unusual Mortality Event Response Program of the National Marine Fisheries Service. US Dept of Commerce. NOAA Technical Memorandum NMFS-OPR-33.
- Hain, J. H. W., G. R. Carter, S. D. Kraus, C. A. Mayo, and H. E. Winn. 1982. Feeding behavior of the humpback whale, *Megaptera novaeangliae*, in the Western North Atlantic. Fishery Bulletin 80: 259-268.
- Hamilton, T.A., J. V. Redfern, J. Barlow, L. T. Balance, T. Gerrodette, R. S. Holt, K. A. Forney, B. L. Taylor. 2009. Atlas of Cetacean Sightings for Southwest Fisheries Science Center Cetacean and Ecosystem Surveys: 1986 – 2005. National Oceanic and Atmospheric Administration, National Marine Fisheries Service. NOAA-TM-NMFS-SWFSC-440. 77 pp.
- Haraldsson, M., K. Tönnesson, P. Tiselius, T. F. Thingstad, and D. L. Aksnes. 2012. Relationship between fish and jellyfish as a function of eutrophication and water clarity. Marine Ecology Progress Series 471: 73-85.
- Harvey, C. N. Garfield, G. Williams, K. Andrews, C. Barceló, K. Barnas, S. Bograd, R. Brodeur, B. Burke, J. Cope, L. deWitt, J. Field, J. Fisher, C. Greene, T. Good, E. Hazen, D. Holland, M. Jacox, S. Kasperski, S. Kim, A. Leising, S. Melin, C. Morgan, S. Munsch, K. Norman, W.T. Peterson, M. Poe, J. Samhouri, I. Schroeder, W. Sydeman, J. Thayer, A. Thompson, N. Tolimieri, A. Varney, B. Wells, T. Williams, and J. Zamon. 2017. Ecosystem Status Report of the California Current for 2017: A Summary of Ecosystem Indicators Compiled by the California Current Integrated Ecosystem Assessment Team (CCIA). NOAA Technical Memorandum. NMFS-NWFSC-139. 61 pp.
- Hatch, L. T., C. W. Clark, S. M. V. Parijs, A. S. Frankel, and D. W. Ponirakis. 2012. Quantifying loss of acoustic communication space for right whales in and around a US. National Marine Sanctuary. Conservation Biology 26: 983-994.
- Hawkins, A.D. and A. N. Popper. 2017. A sound approach to assessing the impact of underwater noise on marine fishes and invertebrates. ICES Journal of Marine Science 74: 635–651.
- Hays, H. E., H. E. Winn, and R. Petricig. 1985. Anomalous feeding behavior of a humpback whale. Journal of Mammalogy 66: 819-821.
- Hazen, E. L., A. S. Friedlaender, M. A. Thompson, C. R. Ware, M. T. Weinrich, P. N. Halpin, and D. N. Wiley. 2009. Fine-scale prey aggregations and foraging ecology of humpback whales *Megaptera novaeangliae*. Marine Ecology Progress Series 395: 75-89.

- Hendrix, A. N., J. Straley, C. M. Gabriele, and S. M. Gende. 2012. Bayesian estimation of humpback whale (*Megaptera novaeangliae*) population abundance and movement patterns in southeastern Alaska. Canadian Journal of Fisheries and Aquatic Sciences 69: 1783-1797.
- Herman, L. M. 2017. The multiple functions of male song within the humpback whale (*Megaptera novaeangliae*) mating system: Review, evaluation, and synthesis. Biological Reviews of the Cambridge Philosophical Society 92: 1795-1818.
- Herman, L. M., and W. N. Tavolga. 1980. The communication systems of cetaceans. Pages 149-209 in L. M. Herman, editor. Cetacean Behavior: Mechanisms and Functions. John Wiley and Sons, New York.
- Hildebrand, J. A. 2009. Anthropogenic and natural sources of ambient noise in the ocean. Marine Ecology Progress Series 395: 5-20.
- Hill M.C., A.D. Ligon, M.H. Deakos, A.C. Ü, A. Milette-Winfree, A.R. Bendlin, and E.M. Oleson. 2014. Cetacean surveys in the waters of the southern Mariana Archipelago (February 2010 – April 2014). Prepared for the U.S. Pacific Fleet Environmental Readiness Office. PIFSC Data Report DR-14-013. 49 pp. + Appendix.
- Hill, M.C., A. L. Bradford, D. Steel, C. S. Baker, A. D. Ligon, A. C. Ü, J. M. V. Acebes, O. A. Filatova, S. Hakala, N. Kobayashi, Y. Morimoto, H. Okabe, R. Okamoto, J. Rivers, T. Sato, O. V. Titova, R. K. Uyeyama, E. M. Oleson. 2020. Found: a missing breeding ground for endangered western North Pacific humpback whales in the Mariana Archipelago. Endangered Species Research 41: 91–103.
- Hill M.C., E.M. Oleson, S. Baumann-Pickering, A.M. VanCise, A.D. Ligon, A.R. Bendlin, A.C. Ü, J.S. Trickey, and A.L. Bradford. 2016. Cetacean Monitoring in the Mariana Islands Range Complex, 2015. Prepared for the U.S. Pacific Fleet Environmental Readiness Office. PIFSC Data Report DR-16-01. 36 pp. + Appendix.
- Hill, K. T., P. R. Crone, and J. P. Zwolinski. 2017. Assessment of the Pacific Sardine Resource in 2017 for U.S. Management in 2017-18. Pacific Fishery Management Council, April 2017, Portland, Oregon.
- Hill, K.T., P. R. Crone, J. P. Zwolinski. 2019. Assessment of the Pacific sardine resource in 2019 for U.S. management in 2019-20. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-615.
- Horne, J. K., and P. E. Smith. 1997. Space and time scales in Pacific hake recruitment processes: latitudinal variation over annual cycles. California Cooperative Oceanic Fisheries Investigations Report: 90-102.
- Houser, D. S., D. A. Helweg, and P. W. Moore. 2001. A bandpass filter-bank model of auditory sensitivity in the humpback whale. Aquatic Mammals 27: 82-91.
- Huang, W., D. Wang, and P. Ratilal. 2016. Diel and spatial dependence of humpback song and non-song vocalizations in fish spawning ground. Remote Sensing 8:712.
- Hunt, G. L., and P. J. Stabeno. 2005. Oceanography and ecology of the Aleutian Archipelago: Spatial and temporal variation. Fisheries Oceanography 14: 292-306.

- Huyer, A. 1983. Coastal upwelling in the California current system. *Progress in Oceanography* 12: 259-284.
- Ichii, T., N. Shinohara, Y. Fujise, S. Nishiwaki, and K. Matsuoka. 1998. Interannual changes in body fat condition index of minke whales in the Antarctic. *Marine Ecology Progress Series* 175: 1-12.
- Industrial Economics 2020. Final Economic Analysis of Critical Habitat Designation of Marine Habitat for Humpback Whales. Final Report. July 9, 2020.
- Industrial Economics 2019b. Economic Impacts Associated with the Proposed Expansion of Critical Habitat Designation for Southern Resident Killer Whales. Draft Report. April 2. 2019.
- Ingebrightsen, A. 1929. Whales caught in the North Atlantic and other seas. *Rapports et Proces-Verbaux des Reunions Conseil International pour l'exploration de la Mer* 56: 26-Jan.
- Ivashchenko, Y., P. J. Clapham, A. E. Punt, P. R. Wade, and A. N. Zerbini. 2017. Assessing the status and pre-exploitation abundance of North Pacific humpback whales: Round II. IWC Scientific Committee, San Diego, California.
- Ivashchenko, Y., A. N. Zerbini, and P. J. Clapham. 2015. Assessing the status and pre-exploitation abundance of North Pacific humpback whales. IWC Scientific Committee, San Diego, California.
- Iverson, S. J., K. J. Frost, and S. L. C. Lang. 2002. Fat content and fatty acid composition of forage fish and invertebrates in Prince William Sound, Alaska: factors contributing to among and within species variability. *Marine Ecology Progress Series* 241: 161-181.
- Jacobson, L. D., and A. D. MacCall. 1995. Stock-recruitment models for Pacific sardine (*Sardinops sagax*). *Canadian Journal of Fisheries and Aquatic Sciences* 52: 566-577.
- Jakubas, D., K. Wojczulanis-Jakubas, R. Boehnke, D. Kidawa, K. Blachowiak-Samolyk and L. Stepniewicz. 2016. Intra-seasonal variation in zooplankton availability, chick diet and breeding performance of a high Arctic planktivorous seabird. *Polar Biology* 39: 1547–1561.
- Johnson, J. H., and A. A. Wolman. 1984. The humpback whale, *Megaptera novaeangliae*. *Marine Fisheries Review* 46: 30-37.
- Jones, T., J. K. Parrish, W.T. Peterson, E.P. Bjorkstedt, N.S. Bond, L.T. Ballance, V. Bowes, J. M. Hipfner, H. K. Burgess, J. E. Dolliver, K. Lindquist, J. Lindsey, H. M. Nevins, R. R. Robertson, J. Roletto, L. Wilson, T. Joyce, and J. Harvey. 2018. Massive mortality of a planktivorous seabird in response to a marine heatwave. *Geophysical Research Letters* 45: 3193–3202.
- Jourdain, E., and D. Vongraven. 2017. Humpback whale (*Megaptera novaeangliae*) and killer whale (*Orcinus orca*) feeding aggregations for foraging on herring (*Clupea harengus*) in Northern Norway. *Mammalian Biology - Zeitschrift für Säugetierkunde*.
- Jurasz, C. M., and V. P. Jurasz. 1979. Feeding modes of the humpback whale in southeast Alaska. *Scientific Reports of the Whales Research Institute* 31: 69-83.
- Kaplan, I. C., C. J. Brown, E. A. Fulton, I. A. Gray, J. C. Field, and A. D. Smith. 2013. Impacts of depleting forage species in the California Current. *Environmental Conservation* 40: 380-393.

- Kaplan, I. C., L. E. Koehn, E. E. Hodgson, K. N. Marshall, and T. E. Essington. 2017. Modeling food web effects of low sardine and anchovy abundance in the California Current. Ecological Modelling 359: 1-24.
- Kavanagh, A. S., K. Owen, M. J. Williamson, S. P. Blomberg, M. J. Noad, A. W. Goldizen, E. Kniest, D. H. Cato, and R. A. Dunlop. 2017. Evidence for the functions of surface-active behaviors in humpback whales (*Megaptera novaeangliae*). Marine Mammal Science 33: 313-334.
- Kawamura, A. 1980. A review of food of balaenopterid whales. Scientific Reports of the Whales Research Institute 32: 155-197.
- Kennedy, A. S., A. N. Zerbini, B. K. Rone, and P. J. Clapham. 2014. Individual variation in movements of satellite-tracked humpback whales *Megaptera novaeangliae* in the eastern Aleutian Islands and Bering Sea. Endangered Species Research 23: 187-195.
- Ketten, D., J. Lien, and S. Todd. 1993. Blast injury in humpback whale ears: evidence and implications. The Journal of the Acoustical Society of America 94: 1849-1850.
- Kieckhefer, T. R. 1992. Feeding ecology of humpback whales in continental shelf waters near Cordell Bank, California. M.S. Thesis. 79 pp + Appendices.
- Kight, K.R. and J. P. Swaddle. 2011. How and why environmental noise impacts animals: an integrative, mechanistic review. Ecology Letters 14: 1052–1061.
- King, J. R., V. N. Agostini, C. J. Harvey, G. A. McFarlane, M. G. Foreman, J. E. Overland, E. Di Lorenzo, N. A. Bond, and K. Y. Aydin. 2011. Climate forcing and the California Current ecosystem. ICES Journal of Marine Science 68: 1199-1216.
- Klumov, S. K. 1965. Food and helminth fauna of whalebone whales (Mystacoceti) in the main whaling regions of the world ocean. Fisheries Research Board of Canada, Biological Station, Nanaimo, B.C.
- Koehn, L. E., T. E. Essington, K. N. Marshall, W. J. Sydeman, A. I. Szoboszlai, and J. A. Thayer. 2017. Trade-offs between forage fish fisheries and their predators in the California Current. ICES Journal of Marine Science 74: 2448-2458.
- Kosma, M.M., A. J. Werth, A.R. Szabo and J.M. Straley. 2019. Pectoral herding: an innovative tactic for humpback whale foraging. Royal Society Open Science 6: 199104
<http://dx.doi.org/10.1098/rsos.191104>.
- Krieger, K. J., and B. L. Wing. 1984. Hydroacoustic surveys and identification of humpback whale forage in Glacier Bay, Stephens Passage, and Frederick Sound, southeastern Alaska, summer 1983. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northwest and Alaska Fisheries Center, Auke Bay Laboratory.
- Krieger, K. J., and B. L. Wing. 1986. Hydroacoustic monitoring of prey to determine humpback whale movements. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northwest and Alaska Fisheries Center. NOAA Technical Memorandum NMFS F/NWC-98.

- Ladd, C., G. L. Hunt, C. W. Mordy, S. A. Salo, and P. J. Stabeno. 2005. Marine environment of the eastern and central Aleutian Islands. *Fisheries Oceanography* 14: 22-38.
- Lagerquist, B. A., B. R. Mate, J. G. Ortega-Ortiz, M. Winsor, and J. Urbán-Ramirez. 2008. Migratory movements and surfacing rates of humpback whales (*Megaptera novaeangliae*) satellite tagged at Socorro Island, Mexico. *Marine Mammal Science* 24:8 15-830.
- Lammers, M.O., P.I. Fisher-Pool, W.W.L. Au, C.G. Meyer, K.B. Wong and R.E. Brainard. 2011. Humpback whale *Megaptera novaeangliae* song reveals wintering activity in the Northwestern Hawaiian Islands. *Marine Ecology Progress Series* 423: 261-268.
- Lasker, R., and A. MacCall. 1983. New ideas on the fluctuations of the clupeoid stocks off California.in Proceedings of the joint oceanographic assembly 1982—General symposia, Ottawa.
- Leduc, R., B. Taylor, K. Martien, K.M. Robertson, R.L. Pitman, J.C. Salinas, A.M. Burdin, A.S. Kennedy, P.R. Wade, P.J. Clapham, R.L. Brownell, Jr. 2012. Genetic analysis of right whales in the eastern North Pacific confirms severe extirpation risk. *Endangered Species Research* 18:163-167.
- Lien, J., S. Todd, P. Stevick, F. Marques, and D. Ketten. 1993. The reaction of humpback whales to underwater explosions: Orientation, movements, and behavior. *Journal of the Acoustical Society of America* 94: 1849.
- Ligon, A. D., M. H. Deakos, Adam C. Ü. 2011. Small-Boat Cetacean Surveys Off Guam And Saipan, Mariana Islands, February – March 2010. Report to Pacific Island Fisheries Science Center under Order No. AB133F-10-SE-0930.
- Litz, M. N., S. S. Heppell, R. L. Emmett, and R. D. Brodeur. 2008. Ecology and distribution of the northern subpopulation of northern anchovy (*Engraulis mordax*) off the US west coast. *California Cooperative Oceanic Fisheries Investigations Reports* 49: 167-182.
- Lluch-Belda, D., D. B. Lluch-Cota, S. Hernandez-Vazquez, C. A. Salinas-Zavala, and R. A. Schwartzlose. 1991. Sardine and anchovy spawning as related to temperature and upwell in the California current system. *CalCOFI Rep* 32: 105-111.
- Lockyer, C. 1981. Growth and energy budgets of large baleen whales from the southern hemisphere. Pages 379-487. *Mammals in the Seas*. Food and Agriculture Organization of the United Nations, Rome.
- Lockyer, C. 1986. Body fat condition in Northeast Atlantic fin whales, *Balaenoptera physalus*, and its relationship with reproduction and food resource. *Canadian Journal of Fisheries and Aquatic Sciences* 43: 142-147.
- Lockyer, C. 2007. All creatures great and smaller: a study in cetacean life history energetics. *Journal of the Marine Biological Association of the United Kingdom* 87: 1035-1045.
- MacCall, A. 1976. Density dependence of catchability coefficient in the California Pacific Sardine, *Sardinops sagax caerulea*, purse seine fishery. *Cal. Coop. Ocean. Fish. Invest.* 18: 136-148.
- MacCall, A. D., W. J. Sydeman, P. C. Davison, and J. A. Thayer. 2016. Recent collapse of northern anchovy biomass off California. *Fisheries research* 175: 87-94.

- Macewicz, B. J., and D. N. Abramenkoff. 1993. Collection of jack mackerel, *Trachurus symmetricus*, off southern California during 1991 cooperative US-USSR cruise. Southwest Fisheries Science Center.
- Magnusdottir, E. E., M. H. Rasmussen, M. O. Lammers, and J. Svavarsson. 2014. Humpback whale songs during winter in subarctic waters. *Polar Biology* 37: 427-433.
- Malme, C. I., P. R. Miles, P. Tyack, C. W. Clark, and J. E. Bird. 1985. Investigation of the potential effects of underwater noise from petroleum industry activities on feeding humpback whale behavior. Minerals Management Service, Alaska OCS Office, Anchorage, Alaska.
- Marshall, K. N., I. C. Kaplan, E. E. Hodgson, A. Hermann, D. S. Busch, P. McElhany, T. E. Essington, C. J. Harvey, and E. A. Fulton. 2017. Risks of ocean acidification in the California Current food web and fisheries: ecosystem model projections. *Global Change Biology* 23: 1525-1539.
- Mate, B., R. Mesecar, and B. Lagerquist. 2007. The evolution of satellite-monitored radio tags for large whales: One laboratory's experience. *Deep Sea Research Part II: Topical Studies in Oceanography* 54: 224-247.
- Mate, B. R., R. Gisiner, and J. Mobley. 1998. Local and migratory movements of Hawaiian humpback whales tracked by satellite telemetry. *Canadian Journal of Zoology* 76: 863-868.
- Mate, B. R., D. M. Palacios, C. S. Baker, B. A. Lagerquist, L. M. Irvine, T. Follett, D. Steel, C. E. Hayslip, and M. H. Winsor. 2018. Humpback Whale Tagging in Support of Marine Mammal Monitoring Across Multiple Navy Training Areas in the Pacific Ocean: Final Report for Feeding Areas off the US West Coast in Summer-Fall 2017, Including Historical Data from Previous Tagging Efforts. . Prepared for Commander, US Pacific Fleet and Commander, Naval Sea Systems Command. Submitted to Naval Facilities Engineering Command Southwest, San Diego, California, under Cooperative Ecosystem Studies Unit, Department of the Navy Cooperative Agreement No. N62473-17-2-0001. 19 October 2018. 135 pp.
- Matsuoka, K., J. Taylor, I. Yoshimura, J. Crane, and H. Kasai. 2018. Cruise report of the 2017 IWC-Pacific Ocean Whale and Ecosystem Research (IWC-POWER). IWC Scientific Committee Report SC/67B/ASI/12.
- Matthews, L. H. 1937. The humpback whale, *Megaptera nodosa*. *Discovery Reports* 17:1-Jul.
- Mattila, D. K., L. N. Guinee, and C. A. Mayo. 1987. Humpback whale songs on a North Atlantic feeding ground. *Journal of Mammalogy* 68: 880-883.
- McCauley, R. D., R. D. Day, K. M. Swadling, Q. P. Fitzgibbon, R. A. Watson, and J. M. Semmens. 2017. Widely used marine seismic survey air gun operations negatively impact zooplankton. *Nature Ecology and Evolution* 1: 1-8.
- McCauley, R. D., J. Fewtrell, A. J. Duncan, C. Jenner, M.-N. Jenner, J. D. Penrose, and K. McCabe. 2000. Marine seismic surveys: analysis and propagation of air-gun signals; and effects of air-gun exposure on humpback whales, sea turtles. Centre for Marine Science and Technology, Curtin University of Technology, Western Australia.

- McClatchie S. 2014. Scales of Variability Relevant to Fisheries in the Southern California Current System. In: Regional Fisheries Oceanography of the California Current System. Springer, Dordrecht. <https://doi.org/10.1007/978-94-007-7223-6> 4.
- McClatchie, S. 2009. Report on the NMFS California Current Ecosystem Survey (CCES): April and July-August 2008. NOAA Technical Memorandum. NOAA-TM-NMFS-SWFSC-438.
- McClatchie, S., I. L. Hendy, A. R. Thompson, and W. Watson. 2017. Collapse and recovery of forage fish populations prior to commercial exploitation. *Geophysical Research Letters* 44: 1877-1885.
- McFarlane, G. A., and R. J. Beamish. 2001. The re-occurrence of sardines off British Columbia characterises the dynamic nature of regimes. *Progress in Oceanography* 49: 151-165.
- McGowan, J. A., S. J. Bograd, R. J. Lynn, and A. J. Miller. 2003. The biological response to the 1977 regime shift in the California Current. Deep Sea Research Part II: Topical Studies in Oceanography 50: 2567-2582.
- McGowan, J. A., D. R. Cayan, and L. M. Dorman. 1998. Climate-ocean variability and ecosystem response in the Northeast Pacific. *Science* 281: 210-217.
- McHugh, J. 1954. Geographic variation in the Pacific herring. *Copeia* 1954: 139-151.
- McHugh, J. L. 1951. Meristic Variations and Populations of northern Anchovy: *Engraulis mordax*. University of California Press.
- McKibben, S. M., W. Peterson, A. M. Wood, V. L. Trainer, M. Hunter, and A. E. White. 2017. Climatic regulation of the neurotoxin domoic acid. *Proceedings of the National Academy of Sciences* 114: 239-244.
- McMillan, C. J. 2014. How important are herring to humpback whales? The role of herring in meeting the energetic requirements of humpback whales in a British Columbian feeding ground. Simon Fraser.
- McMillan, C.J., J.R. Towers, and J. Hildering. 2019. The innovation and diffusion of “trap-feeding,” a novel humpback whale foraging strategy. *Marine Mammal Science* 35: 779-796.
- McSweeney, D., K. Chu, W. Dolphin, and L. Guinee. 1989. North Pacific humpback whale songs: A comparison of southeast Alaskan feeding ground songs with Hawaiian wintering ground songs. *Marine Mammal Science* 5: 139-148.
- Mehta, A. V., J. M. Allen, R. Constantine, C. Garrigue, B. Jann, C. Jenner, M. K. Marx, C. O. Matkin, D. K. Mattila, G. Minton, S. A. Mizroch, C. Olavarria, J. Robbins, K. G. Russell, R. E. Seton, G. H. Steiger, G. A. Vikingsson, P. R. Wade, B. H. Witteveen, and P. J. Clapham. 2007. Baleen whales are not important as prey for killer whales *Orcinus orca* in high-latitude regions. *Marine Ecology Progress Series* 348: 297-307.
- Mercado, E. 2018. The Sonar Model for Humpback Whale Song Revised. *Frontiers in Psychology* 9: 1156.
- Messersmith, J. D., J. L. Baxter, and P. M. Roedel. 1969. The anchovy resources of the California current region off California and Baja California. *CalCOFI Rep* 13: 32-38.

- Mikhalev, Y. A. 1997. Humpback whales (*Megaptera novaeangliae*) in the Arabian Sea. *Marine Ecology Progress Series* 149: 13-21.
- Miller, P. J. O., N. Biassoni, A. Samuels, and P. L. Tyack. 2000. Whale songs lengthen in response to sonar: male humpbacks modify their sexual displays when exposed to man-made noise. *Nature* 405: 21-Jun.
- Mizroch, S. A., L. M. Herman, J. M. Straley, D. A. Glockner-Ferrari, C. Jurasz, J. Darling, S. Cerchio, C. M. Gabriele, D. R. Salden, and O. Von Ziegesar. 2004. Estimating the adult survival rate of central North Pacific humpback whales (*Megaptera novaeangliae*). *Journal of Mammalogy* 85: 963-972.
- Moore, S. E. 2016. Is It 'Boom Times' for Baleen Whales in the Pacific Arctic Region? *Biology Letters* 12(9): 20160251.
- Moore, S. E., J. M. Waite, N. A. Friday, and T. Honkalehto. 2002. Cetacean distribution and relative abundance on the central-eastern and the southeastern Bering Sea shelf with reference to oceanographic domains. *Progress in Oceanography* 55: 249-261.
- Moore, S.E., T. Haug, G. A. Víkingsson, G. B. Stenson. 2019. Baleen whale ecology in arctic and subarctic seas in an era of rapid habitat alteration. *Progress in Oceanography* 176: 102118.
- Moran, J.R. and J. M. Straley 2019. Long-term monitoring of humpback whale predation on Pacific herring in Prince William Sound. Annual Project Report to the *Exxon Valdez Oil Spill Trustee Council*. Project #19120114-O. 15 pp.
- Moran, J. R. and J. M. Straley. 2018. Long-term monitoring of humpback whale predation on Pacific herring in Prince William Sound. *Exxon Valdez Oil Spill Trustee Council Project 16120114-N*. Final Report. 73 pp.
- Moran, J. R., R. A. Heintz, J. M. Straley, and J. J. Vollenweider. 2018. Regional variation in the intensity of humpback whale predation on Pacific herring in the Gulf of Alaska. *Deep Sea Research Part II: Topical Studies in Oceanography* 147: 187-195.
- Murase, H., K. Matsuoko, T. Ichii, and S. Nichiwaki. 2002. Relationship between the distribution of euphausiids and baleen whales in the Antarctic (35°E – 145°W). *Polar Biology* 25: 135-145.
- Muto, M., V. Helker, R. P. Angliss, B. A. Allen, P. L. Boveng, J. M. Breiwick, M. F. Cameron, P. Clapham, S. P. Dahle, M. E. Dahlheim, B. S. Fadely, M. C. Ferguson, L. W. Fritz, R. C. Hobbs, Y. V. Ivashchenko, A. S. Kennedy, J. M. London, S. A. Mizroch, R. R. Ream, E. L. Richmond, K. E. W. Shelden, R. G. Towell, P. R. Wade, J. M. Waite, and A. N. Zerbini. 2018. Alaska marine mammal stock assessments, 2017. U.S. Department of Commerce, National Marine Fisheries Service. NOAA Technical Memorandum, NMFS-AFSC-378. 382 pp.
- Muto, M. M., V. T. Helker, B. J. Delean, R. P. Angliss, P. L. Boveng, J. M. Breiwick, B. M. Brost, M. F. Cameron, P. J. Clapham, S. P. Dahle, M. E. Dahlheim, B. S. Fadely, M. C. Ferguson, L. W. Fritz, R. C. Hobbs, Y. V. Ivashchenko, A. S. Kennedy, J. M. London, S. A. Mizroch, R. R. Ream, E. L. Richmond, K. E. W. Shelden, K. L. Sweeney, R. G. Towell, P. R. Wade, J. M. Waite, and A. N. Zerbini. 2020. Alaska marine mammal stock assessments, 2019. U.S. Department of Commerce, NOAA Technical Memorandum. NMFS-AFSC-404, 395 pp.

- National Marine Fisheries Service. 1991. Recovery Plan for the Humpback Whale (*Megaptera novaeangliae*). Prepared by the Humpback Whale recovery team for the National Marine Fisheries Service, Silver Spring, Maryland, 105 pp.
- National Marine Fisheries Service. 2016. Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing: Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts. U.S. Department of Commerce, NOAA.
- National Marine Fisheries Service. 2018. 2018 Revisions to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts. U.S. Department of Commerce, National Marine Fisheries Service. NOAA Technical Memorandum NMFS-OPR-59, 167 pp.
- NMFS 2020. Final Biological Report for the Proposed Designation of Critical Habitat for the Central America, Mexico, and Western North Pacific Distinct Population Segments of Humpback Whales (*Megaptera novaeangliae*). July 2020.
- National Oceanic and Atmospheric Administration. 2020. California Current Integrated Ecosystem Assessment (CCIEA) California Current Ecosystem Status Report. A report of the NOAA CCIEA Team to the Pacific Fishery Management Council, March 5, 2020. Editors: Dr. Chris Harvey (NWFSC), Dr. Toby Garfield (SWFSC), Mr. Greg Williams (PSMFC), and Dr. Nick Tolimieri (NWFSC). 22 pages.
- National Research Council. 2003. Ocean noise and marine mammals. National Academies Press, Washington, DC.
- National Research Council. 2005. Marine mammal populations and ocean noise: determining when noise causes biologically significant effects. National Academies Press.
- Neilson, J. L., and C. M. Gabriele. 2006. Results of humpback whale population monitoring in Glacier Bay and adjacent waters: 2006. Report to the National Park Service, Glacier Bay National Park and Preserve, Gustavus, AK. 22 pp.
- Neilson, J. L., and C. M. Gabriele. 2008. Results of humpback whale monitoring in Glacier Bay and adjacent waters: 2008. Report to the National Park Service, Glacier Bay National Park and Preserve, Gustavus, AK. 24 pp.
- Neilson, J. L., and C. M. Gabriele. 2010. Results of humpback whale population monitoring in Glacier Bay and adjacent waters: 2010. National Park Service, Gustavus, AK. 20 pp.
- Neilson, J.L., and C.M. Gabriele. 2019. Glacier Bay and Icy Strait humpback whale population monitoring: 2018 update. National Park Service Resource Brief, Gustavus, Alaska.
- Neilson, J. L., C.M. Gabriele, L.F. Taylor-Thomas. 2018. Humpback whale monitoring in Glacier Bay and adjacent waters 2017. Annual progress report. Natural Resource Report NPA/GLBA/NRR-2018/1660. Report to the National Park Service, Glacier Bay National Park and Preserve, Gustavus, AK. 56 pp.
- Neilson, J. L., C.M. Gabriele, L.F. Taylor-Thomas. 2017. Humpback whale monitoring in Glacier Bay and adjacent waters 2016. Annual progress report. Natural Resource Report NPA/GLBA/NRR-

2017/1503. Report to the National Park Service, Glacier Bay National Park and Preserve, Gustavus, AK. 51 pp.

Neilson, J. L., C. M. Gabriele, and P. B. S. Vanselow. 2012. Results of humpback whale population monitoring in Glacier Bay and adjacent waters: 2011. National Park Service, Gustavus, Alaska.

Neilson, J. L., C. Gabriele, and P. B. S. Vanselow. 2013. Results of humpback whale monitoring in Glacier Bay and adjacent waters 2012. Annual progress report. Natural Resource Technical Report NPS/GLBA/NRTR—2013/796. Report to the National Park Service, Glacier Bay Park and Preserve, Gustavus, AK. 37 pp.

Neilson, J. L., C. Gabriele, and P. Vanselow. 2015. Humpback whale monitoring in Glacier Bay and adjacent waters 2014. Annual progress report. Natural Resource Report NPS/GLBA/NRR-2015/949. National Park Service, Fort Collins, Colorado.

Nemoto. 1959. Food of baleen whales with reference to whale movements. Scientific Reports of the Whales Research Institute (Tokyo) 14: 149-290.

Nemoto, T. 1957. Foods of baleen whales in the northern Pacific Scientific Reports of the Whales Research Institute 12: 33-89.

Nemoto, T. 1970. Feeding pattern of baleen whales in the ocean. Marine Food Chains. Pages 241 – 252 in J.H. Steele (ed). University of California Press, Berkeley, California.

Nemoto, T. 1978. Humpback whales (*Megaptera novaeangliae*) observed within the continental shelf waters of the eastern Bering Sea. Scientific Reports of the Whales Research Institute 30: 245-247.

Nemoto, T., and A. Kawamura. 1977. Characteristics of food habits and distribution of baleen whales with special reference to the abundance of North Pacific sei and Bryde's whales. Reports of the International Whaling Commission, Special 1: 80-87.

Noad, M. J., and D. H. Cato. 2007. Swimming speeds of singing and non-singing humpback whales during migration. Marine Mammal Science 23: 481-495.

Norris, T. F., M. McDonald, and J. Barlow. 1999. Acoustic detections of singing humpback whales (*Megaptera novaeangliae*) in the eastern North Pacific during their northbound migration. Journal of the Acoustical Society of America 106: 506-514.

Nowacek, D.P., A.S. Friedlaender, P.N. Halpin, E.L. Hazen, D.W. Johnston, A.J. Read, B. Espinasse, M. Zhou, and Y. Zhu. 2011. Super-aggregations of krill and humpback whales in Wilhelmina Bay, Antarctic Peninsula. PLoS ONE 6(4): e19173. Doi:10.1371/journal/pone.0019173.

O'Connor, S., R. Campbell, H. Cortez, and T. Knowles. 2009. Whale Watching Worldwide: Tourism Numbers, Expenditures, and Expanding Economic Benefits: A Special Report from the International Fund for Animal Welfare. Yarmouth, MA, USA.

Ogawa, T., and T. Shida. 1950. On the sensory tubercles of lips and oral cavity in the sei and fin whale. Sci. Rep. Whales Res. Inst 3:1-16.

- Ohsumi, S. 1966. Allomorphs between body length at sexual maturity and body length at birth in the Cetacea. *Journal of the Mammal Society of Japan* 3:7-Mar.
- Ohsumi, S., and Y. Masaki. 1975. Japanese whale marking in the North Pacific, 1963-1972. *Bulletin of the Far Seas Fisheries Research Laboratory* 12: 171-219.
- Oleson, E, J. Calambokidis, E. Falcone, G Schorr, and J. Hildebrand. 2009. Acoustic and visual monitoring for cetaceans along the outer Washington coast. 45 FY 07 Grant Report to the Naval Postgraduate School, Monterey, California. 45 pp.
- Omura, H., and S. Ohsumi. 1964. A review of Japanese whale marking in the North Pacific to the end of 1962, with some information on marking in the Antarctic. *Norsk hvalfangst-tidende* 53: 90-112.
- Oregon Department of Fish and Wildlife. 2018. 2018 Synopsis Oregon Commercial Fishing Regulations. Oregon Department of Fish and Wildlife, Fish Division.
- Ormseth, O. A. 2014. Appendix 2. Forage species report for the Gulf of Alaska. Plan Team for Groundfish Fisheries of the Gulf of Alaska (compiler), Stock assessment and fishery evaluation report for the groundfish resources of the Gulf of Alaska: 1001-1039.
- Ormseth, O. A. 2015. Appendix Status of forage species in the Bering Sea and Aleutian Islands region. Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Bering Sea/Aleutian Islands Regions: 1225-1270.
- Ormseth, O. A. 2017. Status of forage species in the Bering Sea and Aleutian Islands region. Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Bering Sea/Aleutian Islands Regions. 38 pp.
- Ormseth, O. A. 2019. Status of forage species in the Bering Sea and Aleutian Islands region. Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Bering Sea/Aleutian Islands Regions. 46 pp.
- Ormseth, O. A., J. Moss, and D. McGowan. 2016. Forage species report for the Gulf of Alaska. Plan Team for Groundfish Fisheries of the Gulf of Alaska (compiler), Stock assessment and fishery evaluation report for the groundfish resources of the Gulf of Alaska: 671-692.
- Orsmeth, O.A., K.M. Rand and A. De Robertis. 2017. Fishes and invertebrates in Gulf of Alaska bays and islands: Results from inshore ecosystem surveys in 2011 and 2013. U.S. Dep. Commerce, NOAA Tech. Memo. NMFS-AFSC-344. 140 pp.
- Ostrand, W. D., T. A. Gotthardt, S. Howlin, and M. D. Robards. 2005. Habitat selection models for Pacific sand lance (*Ammodytes hexapterus*) in Prince William Sound, Alaska. *Northwestern Naturalist*: 131-143.
- Oviedo, L., and M. Solis. 2008. Underwater topography determines critical breeding habitat for humpback whales near Osa Peninsula, Costa Rica: implications for marine protected areas. *Revista De Biología Tropical* 56: 591-602.
- Pacific Fishery Management Council. 2018. Coastal Pelagic Species Fishery Management Plan as amended through amendment 16. Pacific Fishery Management Council, Portland, OR. 49 pp.

- Palacios, D.M., B.R. Mate, C.S. Baker, B.A. Lagerquist, L.M. Irvine, T.M. Follett, M.H. Winsor, C.E. Hayslip, and D. Steel. 2020. Humpback whale tagging in support of marine mammal monitoring across multiple Navy training areas in the Pacific Ocean: Final report of tagging efforts off the Pacific Northwest in Summer 2018. Prepared for Commander, U.S. Pacific Fleet and Commander, Naval Sea Systems Command. Submitted to Naval Facilities Engineering Command Southwest, under Cooperative Ecosystem Studies Unit, Department of the Navy Cooperative Agreement No. N62473-17-2-0001. Oregon State University, Newport, Oregon, 30 March 2020. 127 pp.
- Palumbi, S. R., and C. S. Baker. 1994. Contrasting population structure from nuclear intron sequences and mtDNA of humpback whales. *Molecular Biology and Evolution* 11: 426-435.
- Parks, S. E., D. A. Cusano, A. K. Stimpert, M. T. Weinrich, A. S. Friedlaender, and D. N. Wiley. 2014. Evidence for acoustic communication among bottom foraging humpback whales. *Scientific Reports* 4.
- Parsons, E., A. Wright, and M. Gore. 2008. The nature of humpback whale (*Megaptera novaeangliae*) song. *Journal of Marine Animals and their Ecology* 1: 22-31.
- Pauly, D., A. Trites, E. Capuli, and V. Christensen. 1998. Diet composition and trophic levels of marine mammals. *ICES Journal of Marine Science* 55: 467-481.
- Payne, R., and S. McVay. 1971. Songs of humpback whales. *Science* 173: 585-597.
- Pegau, S., M.A. Bishop, R. Bochenek, K. Boswell, T. Branch, M. Buckhorn, L. Butters, M. Collins, K. Gorman, R. Heintz, P. Hershberger, H. Hoover, T. Kline, S. Moffitt, P. Rand, F. Seawall, D. Thorne, J. Vollenweider, S. Wilde. 2018. Herring research and monitoring program. Exxon Valdez Oil Spill LongTerm Herring Research and Monitoring Program Final Report (Exxon Valdez Oil Spill Trustee Council Project 16120111), Exxon Valdez Oil Spill Trustee Council, Anchorage, AK.
- Pegau, S., J. Trochta, S. Haught. 2019. Prince William Sound Herring. Ecosystem Status Report 2019, Gulf of Alaska. Editors: S. Zador, E. Yasumiishi, and G. A. Whitehouse. Pages 109-110.
- Pendleton, Linwood. 2006. Understanding the Potential Economic Impact of Marine Wildlife Viewing and Whale Watching in California. Developed for the National Ocean Economics Program
- Peterson, W., N. Bond, and M. Robert. 2016. The blob (part three): Going, going, gone? PICES Press 24:46.
- Peterson, W. T., J. L. Fisher, P. T. Strub, X. Du, C. Risien, J. Peterson, and C. T. Shaw. 2017. The pelagic ecosystem in the Northern California Current off Oregon during the 2014–2016 warm anomalies within the context of the past 20 years. *Journal of Geophysical Research: Oceans* 122: 7267-7290.
- Piatt, J. F., and D. A. Methven. 1992. Threshold foraging behavior of baleen whales. *Marine Ecology Progress Series* 84:205-210.
- Pijanowski, B. C., A. Farina, S. H. Gage, S. L. Dumyahn, and B. L. Krause. 2011. What is soundscape ecology? An introduction and overview of an emerging new science. *Landscape Ecology* 26: 1213-1232.

- Pierszalowski, S. P., C. M. Gabriele, D. J. Steel, J. L. Neilson, P. B. S. Vanselow, J. A. Cedarleaf, J. M. Straley, and C. S. Baker. 2016. Local recruitment of humpback whales in Glacier Bay and Icy Strait, Alaska, over 30 years. *Endangered Species Research* 31: 177–189.
- Pinchuk, A. I., K. O. Coyle, and R. R. Hopcroft. 2008. Climate-related variability in abundance and reproduction of euphausiids in the northern Gulf of Alaska in 1998–2003. *Progress in Oceanography* 77: 203–216.
- Pitman, R. L., J. A. Totterdell, H. Fearnbach, L. T. Ballance, J. W. Durban, and H. Kemps. 2015. Whale killers: Prevalence and ecological implications of killer whale predation on humpback whale calves off Western Australia. *Marine Mammal Science* 31: 629–657.
- Popper, A. N., A. D. Hawkins, R. R. Fay, D. A. Mann, S. Bartol, T. J. Carlson, S. Coombs, W. T. Ellison, R. L. Gentry, M. B. Halvorsen, S. Løkkeborg, P. H. Rogers, B. L. Southall, D. G. Zeddes, W. N. Tavolga. 2014. Sound Exposure Guidelines for Fishes and Sea Turtles. ASA Press. ASA S3/SC1.4 TR-2014.
- Popper, A.N. and M.C. Hastings. 2009. The effects of anthropogenic sources of sound on fishes. *Journal of Fish Biology* 75: 455–489.
- Purcell, J. E., A. Malej, and A. Benović. 1999. Potential Links of Jellyfish to Eutrophication and. Coastal and estuarine studies 55: 241-263.
- Purcell, J. E., S. i. Uye, and W.-T. Lo. 2007. Anthropogenic causes of jellyfish blooms and their direct consequences for humans: a review. *Marine Ecology Progress Series* 350: 153-174.
- Radford, A.N., E. Kerridge, and S.D. Simpson. 2014. Acoustic communication in a noisy world: can fish compete with anthropogenic noise? *Behavioral Ecology* 25: 1022–1030.
- Rasmussen, K., J. Calambokidis, and G. H. Steiger. 2012. Distribution and migratory destinations of humpback whales off the Pacific coast of Central America during the boreal winters of 1996-2003. *Marine Mammal Science* 28: E267-E279.
- Rasmussen, K., D. M. Palacios, J. Calambokidis, M. T. Saborío, L. Dalla Rosa, E. R. Secchi, G. H. Steiger, J. M. Allen, and G. S. Stone. 2007. Southern Hemisphere humpback whales wintering off Central America: insights from water temperature into the longest mammalian migration. *Biology Letters* 3: 302-305.
- Reiss, C. S., D. M. Checkley Jr, and S. J. Bograd. 2008. Remotely sensed spawning habitat of Pacific sardine (*Sardinops sagax*) and northern anchovy (*Engraulis mordax*) within the California Current. *Fisheries Oceanography* 17: 126-136.
- Ressler, P. H., R. D. Brodeur, W. T. Peterson, S. D. Pierce, P. M. Vance, A. Røstad, and J. A. Barth. 2005. The spatial distribution of euphausiid aggregations in the Northern California Current during August 2000. *Deep Sea Research Part II: Topical Studies in Oceanography* 52: 89-108.
- Ressler, P. H., A. De Robertis, J. D. Warren, J. N. Smith, and S. Kotwicki. 2012. Developing an acoustic survey of euphausiids to understand trophic interactions in the Bering Sea ecosystem. *Deep Sea Research Part II: Topical Studies in Oceanography* 65: 184-195.

- Ressler, P.H., P. Dalpadado, G.J. Macaulay, N. Handegard, and M. Skern-Mauritzen. 2015. Acoustic surveys of euphausiids and models of baleen whale distribution in the Barents Sea. *Marine Ecology Progress Series* 527: 13-29.
- Rice, D. 1978. The humpback whale in the North Pacific: distribution, exploitation and numbers. Report on a Workshop on Problems Related to Humpback Whales in Hawaii, Report to the Marine Mammal Commission.
- Rice, D., and A. Wolman. 1982. Whale census in the Gulf of Alaska June to August 1980. Report of the International Whaling Commission 32: 491-497.
- Rice, D. W. 1963. Progress report on biological studies of the larger Cetacea in the waters off California. *Norsk hvalfangst-tidende* 52:1 81-187.
- Rice, S., J. Moran, J. Straley, K. Boswell, and R. Heintz. 2011. Significance of whale predation on natural mortality rate of Pacific herring in Prince William Sound. Exxon Valdez Oil Spill Restoration Project Final Report (Restoration Project: 100804). National Marine Fisheries Service, Juneau.
- Rice, S. D., and M. G. Carls. 2007. Prince William Sound Herring: An Updated Synthesis of Population Declines and Lack of Recovery. Exxon Valdez Oil Spill Restoration Project Final Report (Restoration Project: 050794). NOAA, National Marine Fisheries Service, Auke Bay Laboratory.
- Richardson, W. J., J. Charles R. Greene, C. I. Malme, and D. H. Thomson. 1995. Marine mammals and noise. Academic Press, Inc., San Diego, CA. ISBN 0-12-588440-0 (alk. paper). 576 pp.
- Richardson, A. J., R. J. Matear, and A. Lenton. 2017. Potential impacts on zooplankton of seismic surveys. Commonwealth Scientific and Industrial Research Organisation, Australia.
- Richardson, W. J., and B. Würsig. 1997. Influences of man-made noise and other human actions on cetacean behaviour. *Marine and Freshwater Behaviour and Physiology* 29: 183-209.
- Risch, D., P. Corkeron, W. T. Ellison, and S. Van Parijs. 2012. Changes in humpback whale song occurrence in response to an acoustic source 200 km away. *PLoS ONE* 7: e29741.
- Rockwood, R.C., J. Calambokidis, and J. Jahncke. 2017. High mortality of blue, humpback, and fin whales from modeling of vessel collisions on the U.S. West Coast suggests population impacts and insufficient protection. *Plos One* 12: e0183052. <https://doi.org/10.1371/journal.pone.0183052>.
- Rockwood, R.C., M.L. Elliott, B. Saenz, N. Nur, J. Jahncke. 2020. Modeling predator and prey hotspots: Management implications of baleen whale co-occurrence with krill in Central California. *PLoS ONE* 15(7): e0235603. <https://doi.org/10.1371/journal.pone.0235603>.
- Robbins, J. 2007. Structure and dynamics of the Gulf of Maine humpback whale population. PhD. University of St Andrews, Scotland.
- Rone, B. K., A. N. Zerbini, A. B. Douglas, D. W. Weller, and P. J. Clapham. 2017. Abundance and distribution of cetaceans in the Gulf of Alaska. *Marine Biology* 164:23.

- Salden, D. R., L. M. Herman, M. Yamaguchi, and F. Sato. 1999. Multiple visits of individual humpback whales (*Megaptera novaeangliae*) between the Hawaiian and Japanese winter grounds. Canadian Journal of Zoology 77: 504-508.
- Santora, J. A., N.J. Mantua, I.D. Schroeder, J.C. Filed, E.L. Hazen, S. J. Bogard, W.J. Sydeman, B.K. Wells, J. Calambokidis, L. Saez, D. Lawson and K.A. Forney. 2020. Habitat compression and ecosystem shifts as potential links between marine heatwave and record whale entanglements. Nature Communications 11: 536. doi.org/10.1038/s41467-019-14215-w.
- Santora, J. A., R. Zeno, J. G. Dorman, and W. J. Sydeman. 2018. Submarine canyons represent an essential habitat network for krill hotspots in a Large Marine Ecosystem. Scientific Reports 8: 7579.
- Santora, J. A., W. J. Sydeman, I. D. Schroeder, B. K. Wells, and J. C. Field. 2011. Mesoscale structure and oceanographic determinants of krill hotspots in the California Current: Implications for trophic transfer and conservation. Progress in Oceanography 91: 397-409.
- Saulitis, E., L. A. Holmes, C. Matkin, K. Wynne, D. Ellifrit, and C. St-Amand. 2015. Biggs killer whale (*Orcinus orca*) predation on subadult humpback whales (*Megaptera novaeangliae*) in Lower Cook Inlet and Kodiak, Alaska. Aquatic Mammals 41: 341-344.
- Schorr, G., E. Falcone, and J. Calambokidis. 2013. Summary of tag deployments on cetaceans off Washington, May 2010 to May 2013. Prepared for Commander, U.S. Pacific Fleet, Pearl Harbor, Hawaii. Submitted to Naval Facilities Engineering Command Pacific (NAVFAC PAC), Pearl Harbor, Hawaii 96860-3134, and Naval Facilities Engineering Command Northwest (NAVFAC NW), Silverdale, WA 98315-1101, under Contract # N62470-10-D-3011, issued to HDR Inc., San Diego, California 92123. 12 June 2013.
- Schuler, A., 2019. Whale-watching in Juneau, AK: Assessing potential effects on humpback whales and understanding passenger perceptions. Thesis. University of Alaska Fairbanks.
- Seyboth, E., K. R. Groch, L. Dalla Rosa, K. Reid, P. A. Flores, and E. R. Secchi. 2016. Southern right whale (*Eubalaena australis*) reproductive success is influenced by krill (*Euphausia superba*) density and climate. Scientific Reports 6: 28205.
- Sharpe, F. A. 2001. Social foraging of the Southeast Alaskan Humpback Whale, *Megaptera novaeangliae*. Dissertation. Simon Fraser University
- Sharpe, F. A., and L. M. Dill. 1997. The behavior of Pacific herring schools in response to artificial humpback whale bubbles. Canadian Journal of Zoology 75: 725-730.
- Shelden, K. E. W., R. C. Hobbs, C. L. Sims, L. Vate Brattström, J. A. Mocklin, C. Boyd, and B. A. Mahoney. 2017. Aerial surveys of beluga whales (*Delphinapterus leucas*) in Cook Inlet, Alaska, June 2016. AFSC Processed Rep. 2017-09, 62 pp. Alaska Fisheries Science Center, NOAA, National Marine Fisheries Service, 7600 Sand Point Way NE, Seattle WA 98115.
- Shevchenko, V. I. 1975. The nature of the interrelationships between killer whales and other cetaceans. Morsk Mlekopitayushchie Chast 2: 173-174.

- Sigler, M. F., K. J. Kuletz, P. H. Ressler, N. A. Friday, C. D. Wilson, and A. N. Zerbini. 2012. Marine predators and persistent prey in the southeast Bering Sea. Deep Sea Research Part II: Topical Studies in Oceanography 65: 292-303.
- Silber, G. K. 1986. The relationship of social vocalizations to surface behavior and aggression in the Hawaiian humpback whale (*Megaptera novaeangliae*). Canadian Journal of Zoology 64: 2075-2080.
- Simon, M., M. Johnson, and P. T. Madsen. 2012. Keeping momentum with a mouthful of water: behavior and kinematics of humpback whale lunge feeding. Journal of Experimental Biology 215: 3786-3798.
- Simonsen, K. A., P. H. Ressler, C. N. Rooper, and S. G. Zador. 2016. Spatio-temporal distribution of euphausiids: an important component to understanding ecosystem processes in the Gulf of Alaska and eastern Bering Sea. ICES Journal of Marine Science 73: 2020-2036.
- Sinclair, E. H., S. E. Moore, N. A. Friday, T. K. Zeppelin, and J. M. Waite. 2005. Do patterns of Steller sea lion (*Eumetopias jubatus*) diet, population trend and cetacean occurrence reflect oceanographic domains from the Alaska Peninsula to the central Aleutian Islands? Fisheries Oceanography 14: 223-242.
- Sivle, L. D., P. H. Kvadsheim, C. Cure, S. Isojunno, P. J. Wensveen, F.-P. A. Lam, F. Visser, L. Kleivane, P. L. Tyack, C. M. Harris, and P. J. O. Miller. 2015. Severity of expert-identified behavioural responses of humpback whale, minke whale, and northern bottlenose whale to naval sonar. Aquatic Mammals 41: 469-502.
- Sivle, L. D., P. J. Wensveen, P. Kvadsheim, F.-P. A. Lam, F. Visser, C. Curé, C. M. Harris, P. L. Tyack, and P. Miller. 2016. Naval sonar disrupts foraging in humpback whales. Marine Ecology Progress Series 562: 211-220.
- Slipper, E. 1979. Whales. Ithaca, NY: Cornell Univ. Press.
- Smith, J. N., A. W. Goldizen, R. A. Dunlop, and M. J. Noad. 2008. Songs of male humpback whales, *Megaptera novaeangliae*, are involved in intersexual interactions. Animal Behaviour 76: 467-477.
- Sousa-Lima, R. S., and C. W. Clark. 2008. Modeling the effect of boat traffic on the fluctuation of humpback whale singing activity in the Abrolhos National Marine Park, Brazil. Canadian Acoustics 36: 174-181.
- Southall, B. L., A. E. Bowles, W. T. Ellison, J. J. Finneran, R. L. Gentry, C. R. Greene, Jr., D. Kastak, D. R. Ketten, J. H. Miller, P. E. Nachtigall, W. J. Richardson, J. A. Thomas, and P. L. Tyack. 2007. Marine mammal noise exposure criteria: initial scientific recommendations. Aquatic Mammals 33: 411-521.
- Steiger, G. H., and J. Calambokidis. 2000. Reproductive rates of humpback whales off California. Marine Mammal Science 16: 220-239.
- Steiger, G. H., J. Calambokidis, R. Sears, K. C. Balcomb, and J. C. Cubbage. 1991. Movement of humpback whales between California and Costa Rica. Marine Mammal Science 7: 306-310.

- Steiger, G. H., J. Calambokidis, J. M. Straley, L. M. Herman, S. Cerchio, D. R. Salden, J. Urbán-R, J. K. Jacobsen, O. Von Ziegesar, K. C. Balcomb, C. M. Gabriele, M. E. Dahlheim, S. Uchida, J. K. B. Ford, P. Ladrón De Guevara-P, M. Yamaguchi, and J. Barlow. 2008. Geographic variation in killer whale attacks on humpback whales in the North Pacific: implications for predation pressure. *Endangered Species Research* 4: 247-256.
- Stevick, P. T., J. Allen, M. Bérubé, P. J. Clapham, S. K. Katona, F. Larsen, J. Lien, D. K. Mattila, P. J. Palsbøll, J. Robbins, J. Sigurjónsson, T. D. Smith, N. Øien, and P. S. Hammond. 2003. Segregation of migration by feeding ground origin in North Atlantic humpback whales (*Megaptera novaeangliae*). *Journal of Zoology* 259: 231-237.
- Stick, K. C., A. Lindquist, and D. Lowry. 2014. 2012 Washington State Herring Stock Status Report. Washington Department of Fish and Wildlife, Fish Program, Fish Management Division.
- Stimpert, A. K., W. W. Au, S. E. Parks, T. Hurst, and D. N. Wiley. 2011. Common humpback whale (*Megaptera novaeangliae*) sound types for passive acoustic monitoring. *The Journal of the Acoustical Society of America* 129: 476-482.
- Stimpert, A. K., W. W. L. Au, M. P. Johnson, D. N. Wiley, and Rolarsenault. 2007. Megapclicks: Tagged humpback whales produce click trains and buzzes during foraging. *Journal of the Acoustical Society of America* 120: 3012.
- Stimpert, A. K., L. E. Peavey, A. S. Friedlaender, and D. P. Nowacek. 2012. Humpback whale song and foraging behavior on an Antarctic feeding ground. *PLoS ONE* 7:e51214.
- Straley, J. M. 1989. Population characteristics of humpback whales (*Megaptera novaeangliae*) in Glacier Bay and adjacent waters, summer 1989, Report to the National Park Service, Gustavus, Alaska.
- Straley, J. M. 1990. Fall and winter occurrence of humpback whales (*Megaptera novaeangliae*) in southeastern Alaska. *Report of the International Whaling Commission Special*: 319-323.
- Straley, J. M. 1994. Seasonal characteristics of humpback whales (*Megaptera novaeangliae*) in southeastern Alaska. Master's thesis, University of Alaska - Fairbanks, Fairbanks, Alaska. 121 pp.
- Straley, J. M., C. M. Gabriele, and C. S. Baker. 1994. Annual reproduction by individually identified humpback whales (*Megaptera novaeangliae*) in Alaskan waters. *Marine Mammal Science* 10:87-92.
- Straley, J. M., C. M. Gabriele, and C. S. Baker. 1995. Seasonal characteristics of humpback whales (*Megaptera novaeangliae*) in southeastern Alaska. Pages 229-237 in D. R. Engstrom, editor. *Third Glacier Bay Science Symposium*. National Park Service, Anchorage, Alaska.
- Straley, J. M., J. R. Moran, K. M. Boswell, J. J. Vollenweider, R. A. Heintz, T. J. Quinn li, B. H. Witteveen, and S. D. Rice. 2018. Seasonal presence and potential influence of humpback whales on wintering Pacific herring populations in the Gulf of Alaska. *Deep Sea Research Part II: Topical Studies in Oceanography* 147: 173-186.
- Straley, J. M., T. J. Quinn, and C.M. Gabriele. 2009. Assessment of mark-recapture models to estimate the abundance of humpback whale feeding aggregations in Southeast Alaska. *Journal of Biogeography* 36: 427-438.

- Surma, S., and T. J. Pitcher. 2015. Predicting the effects of whale population recovery on Northeast Pacific food webs and fisheries: An ecosystem modelling approach. *Fisheries Oceanography* 24: 291-305.
- Szabo, A. 2015. Immature euphausiids do not appear to be prey for humpback whales (*Megaptera novaeangliae*) during spring and summer in Southeast Alaska. *Marine Mammal Science* 31: 677-687.
- Szabo, A., and D. Duffus. 2008. Mother-offspring association in the humpback whale, *Megaptera novaeangliae*: following behaviour in an aquatic mammal. *Animal Behaviour* 75: 1085-1092.
- Szabo, A. R. 2011. Aspects of the foraging ecology of humpback whales (*Megaptera novaeangliae*) in Frederick Sound and Stephens Passage, Southeast Alaska. Oregon State University.
- Szesciorka, A. R. 2015. Using new tag attachments to study humpback whale fine-scale spatiotemporal dive behavior, habitat use, and reaction to ships off northern California. San Jose State University, San Jose, California.
- Taylor, B. L., S. J. Chivers, J. Larese, and W. F. Perrin. 2007. Generation length and percent mature estimates for IUCN assessments of cetaceans. National Marine Fisheries Service, Southwest Fisheries Science Center.
- Teerlink, S., L. Horstmann, and B. Witteveen. 2018. Humpback Whale (*Megaptera novaeangliae*) Blubber Steroid Hormone Concentration to Evaluate Chronic Stress Response from Whale-Watching Vessels. *Aquatic Mammals* 44:411+.
- Teerlink, S. F., O. V. Ziegesar, J. M. Straley, T. J. Quinn II, C. O. Matkin, and E. L. Saulitis. 2015. First time series of estimated humpback whale (*Megaptera novaeangliae*) abundance in Prince William Sound. *Environmental and Ecological Statistics* 22: 345-368.
- Thompson, P. O., W. C. Cummings, and S. J. Ha. 1986. Sounds, source levels, and associated behavior of humpback whales, Southeast Alaska. *Journal of the Acoustical Society of America* 80: 735-740.
- Thompson, R. J. 1940. Analysis of stomach contents of whales taken during the years 1937 and 1938 from the north Pacific. University of Washington.
- Thompson, S. A., W. J. Sydeman, J. A. Santora, B. A. Black, R. M. Suryan, J. Calambokidis, W. T. Peterson, and S. J. Bograd. 2012. Linking predators to seasonality of upwelling: Using food web indicators and path analysis to infer trophic connections. *Progress in Oceanography* 101: 106-120.
- Tojo, N., G.H. Krusea, F.C. Funk. 2007. Migration dynamics of Pacific herring (*Clupea pallasii*) and responses to spring environmental variability in the southeast Bering Sea. *Deep Sea Research II* 54: 2832-2848.
- Trites, A. 2014. Chapter 6. The Marine Mammals. Pages 183-210 in R. Beamish and G. McFarlane, editors. *The Sea Among Us*. Harbour Publishing Mederia Park, B. C.
- Trites, A., and C. Donnelly. 2003. The decline of Steller sea lions *Eumetopias jubatus* in Alaska: a review of the nutritional stress hypothesis. *Mammal Review* 33: 3-28.

- Trites, A. W., V. Christensen, and D. Pauly. 1997. Competition between fisheries and marine mammals for prey and primary production in the Pacific Ocean. *Journal of Northwest Atlantic Fishery Science*.
- Tyack, P. L. 1981. Interactions between singing Hawaiian humpback whales and conspecifics nearby. *Behavioral Ecology and Sociobiology* 8: 105-116.
- Tyack, P. L. 1997. Studying how cetaceans use sound to explore their environment. Pages 251-297 in D. H. Owings, M. D. Beecher, and N. S. Thompson, editors. *Communication*. Springer, Boston, MA.
- Tynan, C. T., D. G. Ainley, J. A. Barth, T. J. Cowles, S. D. Pierce, and L. B. Spear. 2005. Cetacean distributions relative to ocean processes in the northern California Current System. *Deep Sea Research Part II: Topical Studies in Oceanography* 52: 145-167.
- Tyson, R. B. 2014. Fine-Scale Foraging Behavior of Humpback Whales *Megaptera novaeangliae* in the Near-Shore Waters of the Western Antarctic Peninsula. Duke University.
- Tyson, R.B., A.S. Friedlancer, and D.P. Nowacek. 2016. Does optimal foraging theory predict the foraging performance of a large air-breathing marine predator? *Animal Behavior* 116: 223 – 235.
- Urban-R, J., and A. Aguayo L. 1987. Spatial and seasonal distribution of the humpback whale, *Megaptera novaeangliae*, in the Mexican Pacific. *Marine Mammal Science* 3: 333-344.
- Urban, J., A. Jaramillo L, A. Aguayo L, P. Ladron De Guevara P, M. Salinas Z, C. Alvarez F, L. Medrano G, J. K. Jacobsen, K. C. Balcomb, D. E. Claridge, J. Calambokidis, G. H. Steiger, J. M. Straley, O. Von Ziegesar, J. M. Waite, S. Mizroch, M. E. Dahlheim, J. D. Darling, and C. S. Baker. 2000. Migratory destinations of humpback whales wintering in the Mexican Pacific. *Journal of Cetacean Research and Management* 2: 101-110.
- Van Parijs, S. M. 2015. Letter of Introduction to the Biologically Important Areas Issue. *Aquatic Mammals* 41: 1-1.
- Videsen, S. K. A., L. Bejder, M. Johnson, P. T. Madsen, and J. Goldbogen. 2017. High suckling rates and acoustic crypsis of humpback whale neonates maximise potential for mother-calf energy transfer. *Functional Ecology* 31: 1561-1573.
- Villegas-Zurita, F., and F. Castillejos-Moguel. 2013. First record of the humpback whale (*Megaptera novaeangliae*) as opportunistic feed of the coast of Oaxaca, Mexico. *Therya* 4: 113-119.
- Volkenandt, M., I.O'Connor, J.Guarini, S. Berrow and C. O'Donnell. 2015. Fine-scale spatial association between baleen whales and forage fish in the Celtic Sea. *Candanian Journal of Fisheries and Aquatic Sciences* 73: 197-204.
- Von Ziegesar, O. 2013. The Humpback Whales of Prince William Sound: Population Characteristics and Ecology, 1980-2009. Final Report to Exxon Valdez Oil Spill Trustee Council, Project Number 10100128, Historical Humpback Whale Abundance in Prince William Sound in Relation to Pacific Herring Dynamics.
- Von Ziegesar, O., B. Goodwin, R. DeVito. 2001. *A catalog of humpback whales in Prince William Sound, Alaska 1977 to 2001*. Homer, AK.

- Von Ziegesar, O., E. Miller, and M. E. Dahlheim. 1994. Impacts on humpback whales in Prince William Sound. Pages 173-191 in T. R. Loughlin, editor. *Marine mammals and the Exxon Valdez*. Academic Press, INC., San Diego, CA.
- Vrooman, A. M., P. A. Paloma, and J. R. Zweifel. 1981. Electrophoretic, morphometric, and meristic studies of subpopulations of northern anchovy, *Engraulis mordax*. California Fish and Game.
- Wade, P. R. 2017. Estimates of abundance and migratory destination for North Pacific humpback whales in both summer feeding areas and winter mating and calving areas revision of estimates in SC/66b/IA21. IWC Scientific Committee Report SC/A17/NP/11.
- Wade, P. R., A. Kennedy, R. Leduc, J. Barlow, J. Carretta, K. Sheldon, W. Perryman, R. Pitman, K. Robertson, B. Rone, J.C. Salinas, A. Zerbini, R.L. Brownell Jr., and P.J. Clapham. 2011. The world's smallest whale population? *Biology Letters* 7:83-85.
- Wade, P. R., T. J. Quinn II, J. Barlow, C. S. Baker, A. M. Burdin, J. Calambokidis, P. J. Clapham, E. A. Falcone, J. K. B. Ford, C. M. Gabriele, D. K. Matilla, L. Rojas-Bracho, J. M. Straley, B. Taylor, J. Urbán R., D. Weller, B. H. Witteveen, and M. Yamaguchi. 2016. Estimates of abundance and migratory destination for North Pacific humpback whales in both summer feeding areas and winter mating and calving areas. IWC Scientific Committee Report SC/66b/IA/21.
- Waite, J. M., M. E. Dahlheim, R. C. Hobbs, S. A. Mizroch, O. Von Ziegesar-Matkin, J. M. Straley, L. M. Herman, and J. Jacobsen. 1999. Evidence of a feeding aggregation of humpback whales (*Megaptera novaeangliae*) around Kodiak Island, Alaska. *Marine Mammal Science* 15:210-220.
- Walder, C. 2018. Humpback whale (*Megaptera novaeangliae*) location in Southeast Alaska: modeling the influence of mesoscale krill (*Euphausiacea*) patch depth and size. Masters Theseis. Lund University. 50 pp + Appendices.
- Wang, D., H. Garcia, W. Huang, D. D. Tran, A. D. Jain, D. H. Yi, Z. Gong, J. M. Jech, O. R. Godo, N. C. Makris, and P. Ratilal. 2016. Vast assembly of vocal marine mammals from diverse species on fish spawning ground. *Nature* 531: 366-370.
- Wartzok, D., A. N. Popper, J. Gordon, and J. Merrill. 2003. Factors affecting the responses of marine mammals to acoustic disturbance. *Marine Technology Society Journal* 37: 6-15.
- Weilgart, L. 2017. The impact of ocean noise pollution on fish and invertebrates. Oceancare and Dalhousie University. 24 pp.
- Weinrich, M., and C. Corbelli. 2009. Does whale watching in Southern New England impact humpback whale (*Megaptera novaeangliae*) calf production or calf survival? *Biological Conservation* 142: 2931-2940.
- Weinrich, M. T., M. R. Schilling, and C. R. Belt. 1992. Evidence for acquisition of a novel feeding behaviour: lobtail feeding in humpback whales, (*Megaptera novaeangliae*). *Animal Behaviour* 44: 1059-1072.
- Weir, C. R. 2007. Occurrence and distribution of cetaceans off northern Angola, 2004/05. *Journal of Cetacean Research and Management* 9: 225-239.

- Wells, B. K., I. D. Schroeder, S. J. Bograd, E. L. Hazen, M. G. Jacox, A. Leising, N. Mantua, J. A. Santora, J. Fisher, and W. T. Peterson. 2017. State of the California Current 2016–17: Still anything but normal in the north. CalCOFI. Rep 58: 1-55.
- Wensveen, P. J., P. H. Kvadsheim, F.-P. A. Lam, A. M. Von Benda-Beckmann, L. D. Sivle, F. Visser, C. Curé, P. L. Tyack, and P. J. O. Miller. 2017. Lack of behavioural responses of humpback whales (*Megaptera novaeangliae*) indicate limited effectiveness of sonar mitigation. The Journal of Experimental Biology 220: 4150-4161.
- Whitehead, H., and M. J. Moore. 1982. Distribution and movements of West Indian humpback whales in winter. Canadian Journal of Zoology 60: 2203-2211.
- Wiley, D. N., and P. J. Clapham. 1993. Does maternal condition affect the sex ratio of offspring in humpback whales? Animal Behavior 46: 321-324.
- Williams, R., C. W. Clark, D. Ponirakis, and E. Ashe. 2014. Acoustic quality of critical habitats for three threatened whale populations. Animal Conservation 17: 174-185.
- Wilson, B., R. S. Batty, and L. M. Dill. 2004. Pacific and Atlantic herring produce burst pulse sounds. Proceedings of the Royal Society Biology Letters (Suppl.) 271: S95-S97.
- Witteveen B.H., R.J. Foy, K.M. Wynne. 2006. The effect of predation (current and historical) by humpback whales (*Megaptera novaeangliae*) on fish abundance near Kodiak Island, Alaska. Fishery Bulletin 104: 10 - 20.
- Witteveen, B., R. Foy, K. Wynne, and Y. Tremblay. 2008. Investigation of foraging habits and prey preference of humpback whales (*Megaptera novaeangliae*) near Kodiak Island, Alaska using acoustic tags. Marine Mammal Science 24: 516-534.
- Witteveen, B., K. Wynne, and T. Quinn. 2007. A feeding aggregation of humpback whales near Kodiak Island, Alaska: Current and historic abundance estimation. Alaska Fisheries Research Bulletin 12: 187-196.
- Witteveen, B. H., A. D. Robertis, L. Guo, and K. M. Wynne. 2015. Using dive behavior and active acoustics to assess prey use and partitioning by fin and humpback whales near Kodiak Island, Alaska. Marine Mammal Science 31: 255-278.
- Witteveen, B. H., J. M. Straley, O. Von Ziegesar, D. Steel, and C. S. Baker. 2004. Abundance and mtDNA differentiation of humpback whales (*Megaptera novaeangliae*) in the Shumagin Islands, Alaska. Canadian Journal of Zoology 82: 1352-1359.
- Witteveen, B. H., G. A. Worthy, K. M. Wynne, and J. D. Roth. 2009. Population structure of North Pacific humpback whales on their feeding grounds revealed by stable carbon and nitrogen isotope ratios. Marine Ecology Progress Series 379: 299-310.
- Witteveen, B. H., G. A. J. Worthy, R. J. Foy, and K. M. Wynne. 2012. Modeling the diet of humpback whales: An approach using stable carbon and nitrogen isotopes in a Bayesian mixing model. Marine Mammal Science 28: E233-E250.

- Witteveen, B. H., J. M. Straley, E. Chenoweth, C.S. Baker, J. Barlow, C. Matkin, C.M. Gabriele, J. Neilson, D. Steel, O. von Ziegesar, A.G. Andrews, A. Hiron. 2011. Using movements, genetics, and trophic ecology to differentiate inshore from offshore aggregations of humpback whales in the Gulf of Alaska. *Endangered Species Research* 14: 217-225.
- Witteveen, B. H., and K. M. Wynne. 2016a. GAP12: A Synthesis of Findings and GAP13: Disseminating results and sharing long-term datasets. University of Alaska Fairbanks.
- Witteveen, B. H. and K. M. Wynne. 2016b. Trophic niche partitioning and diet composition of sympatric fin (*Balaenoptera physalus*) and humpback whales (*Megaptera novaeangliae*) in the Gulf of Alaska revealed through stable isotope analysis. *Marine Mammal Science* 32: 1319-1339.
- Witteveen, B.H. and K.M. Wynne. 2017. Site fidelity and movement of humpback whales (*Megaptera novaeangliae*) in the western Gulf of Alaska as revealed by photo-identification. *Canadian Journal of Zoology* 95: 165-175.
- Woodworth-Jefcoats, P.A., J.J. Polovina, and J.C. Drazen. 2017. Climate change is projected to reduce carrying capacity and redistribute species richness in North Pacific pelagic marine ecosystems. *Global Change Biology* 23: 1000-1008.
- Wright, D. L., B. Witteveen, K. Wynne, and L. Horstmann-Dehn. 2015. Evidence of two sub-aggregations of humpback whales on the Kodiak, Alaska, feeding ground revealed from stable isotope analysis. *Marine Mammal Science* 31: 1378-1400.
- Wright, D. L., B. Witteveen, K. Wynne, and L. Horstmann-Dehn. 2016. Fine-scale spatial differences in humpback whale diet composition near Kodiak, Alaska. *Marine Mammal Science* 32: 1099-1114.
- Wynne, K., and B. Witteveen. 2013. GAP09: whales as sentinels in a changing environment. NOAA Federal Program.
- Yi, D. H., and N. C. Makris. 2016. Feasibility of acoustic remote sensing of large herring shoals and seafloor by baleen whales. *Remote Sensing* 8: 693.
- Zador, S., and E. Yasumiishi. 2017. Ecosystem Considerations 2017: Status of the Gulf of Alaska Marine Ecosystem, Stock Assessment and Fishery Evaluation Report. North Pacific Fishery Management Council, 605 W 4th Ave, Suite 306, Anchorage, AK 99501.
- Zador, S., and E. Yasumiishi. 2018. Ecosystem Status Report 2018: Gulf of Alaska. Stock Assessment and Fishery Evaluation Report. North Pacific Fishery Management Council, 605 W 4th Ave, Suite 306, Anchorage, AK 99501.c
- Zerbini, A., J. Waite, J. Laake, and P. Wade. 2006. Abundance, trends and distribution of baleen whales off Western Alaska and the central Aleutian Islands. *Deep Sea Research Part I: Oceanographic Research Papers* 53: 1772-1790.
- Zerbini, A. N., N. A. Friday, D. M. Palacios, J. M. Waite, P. H. Ressler, B. K. Rone, S. E. Moore, and P. J. Clapham. 2016. Baleen whale abundance and distribution in relation to environmental variables and prey density in the Eastern Bering Sea. *Deep Sea Research Part II: Topical Studies in Oceanography* 134: 312-330.

- Zoidis, A. M., K. S. Lomac-Macnair, A. E. Chomos-Betz, A. J. Day, and A. S. Mcfarland. 2014. Effects of sex, seasonal period, and sea state on calf behavior in Hawaiian humpback whales (*Megaptera novaeangliae*). *Aquatic Mammals* 40: 44-58.
- Zoidis, A. M., M. A. Smultea, A. S. Frankel, J. L. Hopkins, A. J. Day, S. A. Mcfarland, A. D. Whitt, and D. Fertl. 2008. Vocalizations produced by humpback whale (*Megaptera novaeangliae*) calves recorded in Hawaii. *Journal of the Acoustical Society of America* 123: 1737-1746.
- Zwolinski, J. P., D. A. Demer, K. A. Byers, G. R. Cutter, J. S. Renfree, T. S. Sessions, and B. J. Macewicz. 2012. Distributions and abundances of Pacific sardine (*Sardinops sagax*) and other pelagic fishes in the California Current Ecosystem during spring 2006, 2008, and 2010, estimated from acoustic-trawl surveys. *Fishery Bulletin* 110: 110-122.
- Zwolinski, J. P., D. A. Demer, B. J. Macewicz, G. R. Cutter, B. Elliot, S. A. Mau, D. W. Murfin, J. S. Renfree, T. S. Sessions, and K. L. Stierhoff. 2016. Acoustic-trawl estimates of northern-stock pacific sardine biomass during 2015. US Department of Commerce, National Oceanic and Atmospheric Administration.
- Zwolinski, J. P., D. A. Demer, B. J. Macewicz, S. A. Mau, D. W. Murfin, D. Palance, J. S. Renfree, T. S. Sessions, and K. L. Stierhoff. 2017. Distribution, biomass and demography of the central-stock of northern anchovy during summer 2016, estimated from acoustic-trawl sampling. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southwest Fisheries Science Center.
- Zwolinski, J. P., R. L. Emmett, and D. A. Demer. 2011. Predicting habitat to optimize sampling of Pacific sardine (*Sardinops sagax*). *ICES Journal of Marine Science* 68: 867-879.