

# **Curriculum Vitae**

## **Timothy E. Essington**

### **PROFESSIONAL ADDRESS**

School of Aquatic and Fishery Sciences  
University of Washington  
Box 355020  
Seattle WA 98195

Phone: (206) 616-3698  
FAX: (206)-685-7471  
E-mail: [essing@uw.edu](mailto:essing@uw.edu)

### **RESEARCH INTERESTS**

Fisheries; ecological modeling; food webs; predator-prey; policy evaluation; climate impacts; rights-based management; marine conservation

### **EDUCATION**

1991 B.S. (Biology) University of Michigan, Ann Arbor MI.  
1995 M.S. (Fisheries) University of Minnesota, St. Paul MN  
1999 Ph.D. (Zoology) University of Wisconsin, Madison WI

### **PROFESSIONAL EMPLOYMENT**

2013 – Present	Professor, School of Aquatic and Fishery Sciences, University of Washington. Director, Quantitative Ecology and Resource Management Interdisciplinary Graduate Program
2012- Present	Associate Director, School of Aquatic and Fishery Sciences, University of Washington
2007 – 2013	Associate Professor. School of Aquatic and Fishery Sciences, University of Washington, Wakefield Endowed Professor (Promotion to Full Professor approved by Provost, 4/2013)
2003-2007	Assistant Professor. School of Aquatic and Fishery Sciences, University of Washington
2002-2003	Assistant Professor. Marine Sciences Research Center, Stony Brook University

### **OTHER APPOINTMENTS**

Principal Scientist, Climate Impacts Group 2007- 2013

Faculty, Center for Quantitative Studies 2007 - present  
Graduate Faculty, Quantitative Ecology and Resource Management 2012 - present

**BIBLIOGRAPHY (N=109; H=36)**

- Moriarty, PE, Essington, TE, Ward, EJ. 2016. A novel method to estimate prey contributions to predator diets. *Canadian Journal of Fisheries and Aquatic Sciences*:1-10.
- Oken, K. L., and T. E. Essington. 2016. Evaluating the effect of a selective piscivore fishery on rockfish recovery within marine protected areas. *ICES Journal of Marine Science: Journal du Conseil*:fsw074.
- Hodgson, E. E., T. E. Essington, and I. C. Kaplan. 2016. Extending Vulnerability Assessment to Include Life Stages Considerations. *PLoS ONE* **11**:e0158917.
- Selkoe, K. A., T. Blenckner, M. R. Caldwell, L. B. Crowder, A. L. Erickson, T. E. Essington, J. A. Estes, R. M. Fujita, B. S. Halpern, M. E. Hunsicker, C. V. Kappel, R. P. Kelly, J. N. Kittinger, P. S. Levin, J. M. Lynham, M. E. Mach, R. G. Martone, L. A. Mease, A. K. Salomon, J. F. Samhuri, C. Scarborough, A. C. Stier, C. White, and J. Zedler. 2015. Principles for managing marine ecosystems prone to tipping points. *Ecosystem Health and Sustainability* **1**:art17.
- Koehn, L. E., T. E. Essington, K. N. Marshall, I. C. Kaplan, W. J. Sydeman, A. I. Szoboszlai, and J. A. Thayer. 2016. Developing a high taxonomic resolution food web model to assess the functional role of forage fish in the California Current ecosystem. *Ecological Modelling* **335**:87-100.
- Punt, A. E., A. D. MacCall, T. E. Essington, T. B. Francis, F. Hurtado-Ferro, K. F. Johnson, I. C. Kaplan, L. E. Koehn, P. S. Levin, and W. J. Sydeman. 2016. Exploring the implications of the harvest control rule for Pacific sardine, accounting for predator dynamics: A MICE model. *Ecological Modelling* **337**:79-95.
- Koehn, L. E., T. E. Essington, K. N. Marshall, I. C. Kaplan, W. J. Sydeman, A. I. Szoboszlai, and J. A. Thayer. 2016. Developing a high taxonomic resolution food web model to assess the functional role of forage fish in the California Current ecosystem. *Ecological Modelling* **335**:87-100.
- Oken, K.L. and T.E. Essington. In press. Evaluating the effect of a selective piscivore fishery on rockfish recovery within marine protected areas. *ICES J. Mar. Sci.*
- Kamikawa, K. T., E. Cruz, T. E. Essington, J. Hospital, J. K. T. Brodziak, and T. A. Branch. 2015. Length-weight relationships for 85 fish species from Guam. *Journal Of Applied Ichthyology* **31**:1171-1174.
- Jacobsen, N. S., T. E. Essington, and K. H. Andersen. 2016. Comparing model predictions for ecosystem based management. *Canadian Journal of Fisheries and Aquatic Sciences*.
- Stawitz, C. C., T. E. Essington, T. A. Branch, M. A. Haltuch, A. B. Hollowed, and P. D. Spencer. 2015. A state-space approach for detecting growth variation and application to North Pacific groundfish. *Canadian Journal of Fisheries and Aquatic Sciences* **72**:1316-1328.
- Selkoe, K. A., T. Blenckner, M. R. Caldwell, L. B. Crowder, A. L. Erickson, T. E. Essington, J. A. Estes, R. M. Fujita, B. S. Halpern, M. E. Hunsicker, C. V. Kappel, R. P. Kelly, J. N. Kittinger, P. S. Levin, J. M. Lynham, M. E. Mach, R. G. Martone, L. A. Mease, A. K. Salomon, J. F. Samhuri, C. Scarborough, A. C. Stier, C. White, and J. Zedler. 2015. Principles for managing marine ecosystems prone to tipping points. *Ecosystem Health and Sustainability* **1**:art17.
- McDonald, P. S., T. E. Essington, J. P. Davis, A. W. E. Galloway, B. C. Stevick, G. C. Jensen, G. R. Vanblaricom, and D. A. Armstrong. 2015. Distribution, Abundance, and Habitat Associations of a Large Bivalve (*Panopea generosa*) in a Eutrophic Fjord Estuary. *Journal of Shellfish Research*

**34**:137-145.

- Kuriyama, P. T., M. C. Siple, E. E. Hodgson, E. M. Phillips, M. Burden, D. Fluharty, A. E. Punt, T. E. Essington, J. Henderschedt, and D. A. Armstrong. 2015. Issues at the fore in the land of Magnuson and Stevens: A summary of the 14th Bevan Series on Sustainable Fisheries. *Marine Policy* **54**:118-121.
- Froehlich, H. E., S. B. Roberts, and T. E. Essington. 2015. Evaluating hypoxia-inducible factor-1alpha mRNA expression in a pelagic fish, Pacific herring *Clupea pallasii*, as a biomarker for hypoxia exposure. *Comp Biochem Physiol A Mol Integr Physiol* **189**:58-66.
- Essington, T. E., M. C. Siple, E. E. Hodgson, L. E. Koehn, P. E. Moriarty, K. L. Oken, and C. C. Stawitz. 2015. Reply to Szuwalski and Hilborn: Forage fish require an ecosystem approach. *Proc Natl Acad Sci U S A*.
- 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. *Proc Natl Acad Sci U S A* **112**:6648-6652.
- Oken, K. L., and T. E. Essington. 2015. How detectable is predation in stage-structured populations? Insights from a simulation-testing analysis. *Journal of Animal Ecology* **84**:60-70.
- Essington, T. E., M. L. Baskett, J. N. Sanchirico, and C. Walters. 2015. A novel model of predator-prey interactions reveals the sensitivity of forage fish: piscivore fishery trade-offs to ecological conditions. *ICES Journal of Marine Science*.
- Whitehouse, G. A., K. Aydin, T. E. Essington, and G. L. Hunt. 2014. A trophic mass balance model of the eastern Chukchi Sea with comparisons to other high-latitude systems. *Polar Biology* **37**:911-939.
- Stachura, M. M., T. E. Essington, N. J. Mantua, A. B. Hollowed, M. A. Haltuch, P. D. Spencer, T. A. Branch, and M. J. Doyle. 2014. Linking Northeast Pacific recruitment synchrony to environmental variability. *Fisheries Oceanography* **23**:389-408.
- Sadorus, L. L., N. J. Mantua, T. Essington, B. Hickey, and S. Hare. 2014. Distribution patterns of Pacific halibut (*Hippoglossus stenolepis*) in relation to environmental variables along the continental shelf waters of the US West Coast and southern British Columbia. *Fisheries Oceanography*:n/a-n/a.
- Plagányi, E. E., and T. E. Essington. 2014. When the SURFs up, the forage are key. *Fisheries Research* **159**:68-74.
- Pikitch, E. K., K. J. Rountos, T. E. Essington, C. Santora, D. Pauly, R. Watson, U. R. Sumaila, P. D. Boersma, I. L. Boyd, D. O. Conover, P. Cury, S. S. Heppell, E. D. Houde, M. Mangel, É. Plagányi, K. Sainsbury, R. S. Steneck, T. M. Geers, N. Gownaris, and S. B. Munch. 2014. The global contribution of forage fish to marine fisheries and ecosystems. *Fish and Fisheries* **15**:43-64.
- Melnychuk, M. C., T. E. Essington, T. A. Branch, S. S. Heppell, O. P. Jensen, J. S. Link, S. J. D. Martell, A. M. Parma, and A. D. M. Smith. 2014. Which design elements of individual quota fisheries help to achieve management objectives? *Fish and Fisheries*:n/a-n/a.
- Froehlich, H. E., T. E. Essington, A. H. Beaudreau, and P. S. Levin. 2014. Movement patterns and distributional shifts of Dungeness crab (*Metacarcinus magister*) and English sole (*Parophrys vetulus*) during seasonal hypoxia. *Estuaries and Coasts* **37**:449-460.
- Ferriss, B. E., and T. E. Essington. 2014. Can fish consumption rate estimates be improved by linking bioenergetics and mercury mass balance models? Application to tunas. *Ecological Modelling* **272**:232-241.

- Ferriss, B. E., and T. E. Essington. 2014. Does trophic structure dictate mercury concentrations in top predators? A comparative analysis of pelagic food webs in the Pacific Ocean. *Ecological Modelling* **278**:18-28.
- 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.
- Essington, T. E., and K. Criddle. 2014. Putting a price tag on whales: Are conservation markets a viable conservation tool. *Ecological Applications* **24**:3.
- Defeo, O., M. Castrejón, R. Pérez-Castañeda, J. C. Castilla, N. L. Gutiérrez, T. E. Essington, and C. Folke. 2014. Co-management in Latin American small-scale shellfisheries: assessment from long-term case studies. *Fish and Fisheries*:n/a-n/a.
- Cooke, S. J., R. Arlinghaus, D. M. Bartley, T. D. Beard, I. G. Cowx, T. E. Essington, O. P. Jensen, A. Lynch, W. W. Taylor, and R. Watson. 2014. Where the waters meet: Sharing ideas and experiences between inland and marine realms to promote sustainable fisheries management. *Canadian Journal of Fisheries and Aquatic Sciences*.
- Baker, M. R., D. E. Schindler, T. E. Essington, and R. Hilborn. 2014. Accounting for escape mortality in fisheries: implications for stock productivity and optimal management. *Ecological Applications* **24**:55-70.
- Reum, J. C. P., T. E. Essington, C. M. Greene, C. A. Rice, P. Polte, and K. L. Fresh. 2013. Biotic and abiotic controls on body size during critical life history stages of a pelagic fish, Pacific herring (*Clupea pallasii*). *Fisheries Oceanography* **22**:324-336.
- Peck, M. A., S. Neuenfeldt, T. E. Essington, V. M. Trenkel, A. Takasuka, H. Gislason, M. Dickey-Collas, K. H. Andersen, L. Ravn-Jonsen, N. Vestergaard, S. F. Kvamsdal, A. Gardmark, J. Link, and J. C. Rice. 2013. Forage Fish Interactions: a symposium on "Creating the tools for ecosystem-based management of marine resources". *ICES Journal of Marine Science* **71**:1-4.
- Froehlich, H. E., T. E. Essington, A. H. Beaudreau, and P. S. Levin. 2013. Movement Patterns and Distributional Shifts of Dungeness Crab (*Metacarcinus magister*) and English Sole (*Parophrys vetulus*) During Seasonal Hypoxia. *Estuaries and Coasts*.
- Essington, T. E., and É. E. Plagányi. 2013. Pitfalls and guidelines for "recycling" models for ecosystem-based fisheries management: evaluating model suitability for forage fish fisheries. *ICES Journal of Marine Science* **71**:90-104.
- Essington, T. E., K. Dodd, and T. P. Quinn. 2013. Shifts in the estuarine demersal fish community following a fishery closure in Puget Sound, Washington. *Fisheries Bulletin* **111**:205-217.
- Collie, J. S., W. L. Adamowicz, M. W. Beck, B. Craig, T. E. Essington, D. Fluharty, J. Rice, and J. N. Sanchirico. 2013. Marine spatial planning in practice. *Estuarine, Coastal and Shelf Science* **117**:1-11.
- Reum, J. C. P., and T. E. Essington. 2012. Spatial and seasonal variation in  $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}$  values in a mesopredator shark, *Squalus suckleyi*, revealed through multitissue analyses. *Marine Biology* **160**:399-411.
- Pikitch, E. K., P. D. Boersma, I. L. Boyd, D. O. Conover, P. Cury, T. E. Essington, S. S. Heppell, E. D. Houde, M. Mangel, D. Pauly, E. E. Plaganyi, K. Sainsbury, and R. Steneck. 2012. Little fish, big impact: Managing a crucial link in ocean food webs. Lenfest Ocean Program, Washington D.C.
- Melnichuk, M. C., T. E. Essington, T. A. Branch, S. S. Heppell, O. P. Jensen, J. S. Link, S. J. D.

- Martell, A. M. Parma, J. G. Pope, and A. D. M. Smith. 2012. Can catch share fisheries better track management targets? *Fish and Fisheries* **13**:267-290.
- Lucey, S. M., A. M. Cook, J. L. Boldt, J. S. Link, T. E. Essington, and T. J. Miller. 2012. Comparative analyses of surplus production dynamics of functional feeding groups across 12 northern hemisphere marine ecosystems. *Marine Ecology Progress Series* **459**:219-229.
- Link, J. S., S. Gaichas, T. J. Miller, T. Essington, A. Bundy, J. Boldt, K. F. Drinkwater, and E. Moksness. 2012. Synthesizing lessons learned from comparing fisheries production in 13 northern hemisphere ecosystems: emergent fundamental features. *Marine Ecology Progress Series* **459**:293-302.
- Hunsicker, M. E., R. J. Olson, T. E. Essington, M. N. Maunder, L. M. Duffy, and J. F. Kitchell. 2012. Potential for top-down control on tropical tunas based on size structure of predator-prey interactions. *Marine Ecology Progress Series* **445**:263-277.
- Holsman, K. K., T. Essington, T. J. Miller, M. Koen-Alonso, and W. J. Stockhausen. 2012. Comparative analysis of cod and herring production dynamics across 13 northern hemisphere marine ecosystems. *Marine Ecology Progress Series* **459**:231-246.
- Gutierrez, N. L., S. R. Valencia, T. A. Branch, D. J. Agnew, J. K. Baum, P. L. Bianchi, J. Cornejo-Donoso, C. Costello, O. Defeo, T. E. Essington, R. Hilborn, D. D. Hoggarth, A. E. Larsen, C. Ninnes, K. Sainsbury, R. L. Selden, S. Sistla, A. D. Smith, A. Stern-Pirlot, S. J. Teck, J. T. Thorson, and N. E. Williams. 2012. Eco-label conveys reliable information on fish stock health to seafood consumers. *PLoS ONE* **7**:e43765.
- Gaichas, S., R. Gamble, M. Fogarty, H. Benoît, T. Essington, C. Fu, M. Koen-Alonso, and J. Link. 2012. Assembly rules for aggregate-species production models: simulations in support of management strategy evaluation. *Marine Ecology Progress Series* **459**:275-292.
- Essington, T. E., M. C. Melnychuk, T. A. Branch, S. S. Heppell, O. P. Jensen, J. S. Link, S. J. D. Martell, A. M. Parma, J. G. Pope, and A. D. M. Smith. 2012. Catch shares, fisheries, and ecological stewardship: a comparative analysis of resource responses to a rights-based policy instrument. *Conservation Letters* **5**:186-195.
- Reum, J. C. P., T. E. Essington, C. M. Greene, C. A. Rice, and K. L. Fresh. 2011. Multiscale influence of climate on estuarine populations of forage fish: the role of coastal upwelling, freshwater flow and temperature. *Marine Ecology-Progress Series* **425**:203-215.
- Reum, J. C. P., and T. E. Essington. 2011. Season- and depth-dependent variability of a demersal fish assemblage in a large fjord estuary (Puget Sound, Washington). *Fishery Bulletin* **109**:186-197.
- Hunsicker, M. E., L. Ciannelli, K. M. Bailey, J. A. Buckel, J. Wilson White, J. S. Link, T. E. Essington, S. Gaichas, T. W. Anderson, R. D. Brodeur, K. S. Chan, K. Chen, G. Englund, K. T. Frank, V. Freitas, M. A. Hixon, T. Hurst, D. W. Johnson, J. F. Kitchell, D. Reese, G. A. Rose, H. Sjodin, W. J. Sydeman, H. W. van der Veer, K. Vollset, and S. Zador. 2011. Functional responses and scaling in predator-prey interactions of marine fishes: contemporary issues and emerging concepts. *Ecology Letters* **14**:1288-1299.
- Hollowed, A. B., K. Y. Aydin, T. E. Essington, J. N. Ianelli, B. A. Megrey, A. E. Punt, and A. D. M. Smith. 2011. Experience with quantitative ecosystem assessment tools in the northeast Pacific. *Fish and Fisheries* **12**:189-208.
- Ferriss, B. E., and T. E. Essington. 2011. Regional patterns in mercury and selenium concentrations of yellowfin tuna (*Thunnus albacares*) and bigeye tuna (*Thunnus obesus*) in the Pacific Ocean. *Canadian Journal of Fisheries and Aquatic Sciences* **68**:2046-2056.
- Estes, J. A., J. Terborgh, J. S. Brashares, M. E. Power, J. Berger, W. J. Bond, S. R. Carpenter, T.

- E. Essington, R. D. Holt, J. B. C. Jackson, R. J. Marquis, L. Oksanen, T. Oksanen, R. T. Paine, E. K. Pikitch, W. J. Ripple, S. A. Sandin, M. Scheffer, T. W. Schoener, J. B. Shurin, A. R. E. Sinclair, M. E. Soule, R. Virtanen, and D. A. Wardle. 2011. Trophic Downgrading of Planet Earth. *Science* **333**:301-306.
- Essington, T. E., and A. E. Punt. 2011. Implementing Ecosystem-Based Fisheries Management: Advances, Challenges and Emerging Tools. *Fish and Fisheries* **12**:123-124.
- Essington, T. E., T. Klinger, T. Conway-Cranos, J. Buchanan, A. James, J. Kerschner, I. Logan, and J. West. 2011. The biophysical condition of Puget Sound. Pages 205-423 *in* M. Ruckelshaus, Conway-Cranos, T., editor. Puget Sound Science Update. Puget Sound Partnership, Olympia, WA.
- Walters, C. J., and T. E. Essington. 2010. Recovery of bioenergetics parameters from information on growth - overview of an approach based on statistical analysis of tagging and size at age data. *The Open Fish Science Journal* **3**:52-68.
- Link, J. S., B. A. Megrey, T. J. Miller, T. Essington, J. Boldt, A. Bundy, E. Moksness, K. F. Drinkwater, and R. I. Perry. 2010. Comparative analysis of marine ecosystems: international production modelling workshop. *Biology Letters* **6**:723-726.
- Hunsicker, M. E., T. E. Essington, R. Watson, and U. R. Sumaila. 2010. The contribution of cephalopods to global marine fisheries: can we have our squid and eat them too? *Fish and Fisheries* **11**:421-438.
- Hunsicker, M. E., T. E. Essington, K. Y. Aydin, and B. Ishida. 2010. Predatory role of the commander squid *Beryteuthis magister* in the eastern Bering Sea: insights from stable isotopes and food habits. *Marine Ecology-Progress Series* **415**:91-108.
- Essington, T. E., and C. E. Paulsen. 2010. Quantifying hypoxia impacts on an estuarine demersal community using a hierarchical ensemble approach. *Ecosystems* **13**:1035-1048.
- Essington, T. E., L. Correa, C. J. Harvey, and C. E. Paulsen. 2010. Ecological impacts of hypoxia on marine food webs. Hood Canal Dissolved Oxygen Program, Seattle, WA.
- Essington, T. E. 2010. Ecological indicators display reduced variation in North American catch share fisheries. *Proceedings of the National Academy of Sciences* **107**:754-759.
- Essington, T. E. 2010. Trophic cascades in open ocean ecosystems. Pages 91-105 *in* J. W. Terborgh and J. A. Estes, editors. *The science of trophic cascades*. Island Press, Washington D.C.
- Courtenay, W. R., B. B. Collette, T. E. Essington, R. Hilborn, J. W. Orr, D. Pauly, J. E. Randall, and W. F. S. Vaniz. 2010. North Atlantic Fisheries: A Response to Criticism of the Proactive Proposal Reply. *Fisheries* **35**:298-298.
- Beaudreau, A. H., and T. E. Essington. 2010. Use of pelagic prey subsidies by demersal predators in rocky reefs: insight from movement patterns of lingcod. *Marine Biology*.
- Winder, M., D. E. Schindler, T. E. Essington, and A. H. Litt. 2009. Disrupted seasonal clockwork in the population dynamics of a freshwater copepod by climate warming. *Limnology and Oceanography* **54**:2493-2505.
- Watson, J. T., T. E. Essington, C. E. Lennert-Cody, and M. A. Hall. 2009. Trade-Offs in the Design of Fishery Closures: Management of Silky Shark Bycatch in the Eastern Pacific Ocean Tuna Fishery. *Conservation Biology* **23**:626-635.
- Courtenay, W. R., B. B. Collette, T. E. Essington, R. Hilborn, J. W. Orr, D. Pauly, J. E. Randall, and W. F. Smith-Vaniz. 2009. Risks of Introductions of Marine Fishes: Reply to Briggs. *Fisheries* **34**:181-186.
- Beaudreau, A. H., and T. E. Essington. 2009. Development of a new field-based approach for

- estimating consumption rates of fishes and comparison with a bioenergetics model for lingcod (*Ophiodon elongatus*). *Canadian Journal of Fisheries and Aquatic Sciences* **66**:565-578.
- Watters, G. M., R. J. Olson, J. C. Field, and T. E. Essington. 2008. Range expansion of the Humboldt squid was not caused by tuna fishing. *Proceedings of the National Academy of Sciences* **105**:E5-E5.
- Reum, J. P., and T. E. Essington. 2008. Seasonal variation in guild structure of the Puget Sound demersal fish community. *Estuaries and Coasts* **31**:790-801.
- Hunsicker, M. E., and T. E. Essington. 2008. Evaluating the potential for trophodynamic control of fish by the longfin inshore squid (*Loligo pealeii*) in the Northwest Atlantic Ocean. *Canadian Journal of Fisheries and Aquatic Sciences* **65**:2524-2535.
- Galloway, A. W. E., B. C. Lee, T. E. Essington, G. R. Van Blaricom, G. C. Jensen, P. S. McDonald, and D. A. Armstrong. 2008. Evaluating abundance and depth distribution of subtidal *Panopea abrupta* and *Parastichopus californicus* in Hood Canal, Washington. *Journal of Shellfish Research* **27**:469-470.
- de Mutsert, K., J. H. Cowan, T. E. Essington, and R. Hilborn. 2008. Reanalyses of Gulf of Mexico fisheries data: Landings can be misleading in assessments of fisheries and fisheries ecosystems. *Proceedings of the National Academy of Sciences* **105**:2740-2744.
- Hansson, S., O. Hjerne, C. Harvey, J. F. Kitchell, S. P. Cox, and T. E. Essington. 2007. Managing Baltic Sea fisheries under contrasting production and predation regimes: Ecosystem model analyses. *Ambio* **36**:265-271.
- Essington, T. E. 2007. Evaluating the sensitivity of a trophic mass-balance model (Ecopath) to imprecise data inputs. *Canadian Journal of Fisheries and Aquatic Sciences* **64**:628-637.
- Beaudreau, A. H., and T. E. Essington. 2007. Spatial, Temporal, and Ontogenetic Patterns of Predation on Rockfishes by Lingcod. *Transactions of the American Fisheries Society* **136**:1438-1452.
- Wiedenmann, J., and T. E. Essington. 2006. Density-dependent overwinter survival in young-of-year bluefish (*Pomatomus saltatrix*)? A new approach for assessing stage-structured survival. *Canadian Journal of Fisheries and Aquatic Sciences* **63**:1934-1943.
- Kitchell, J. F., S. J. D. Martell, C. J. Walters, O. P. Jensen, I. C. Kaplan, J. Watters, T. E. Essington, and C. H. Boggs. 2006. Billfishes in an ecosystem context. *Bulletin of Marine Science* **79**:669-682.
- Hunsicker, M. E., and T. E. Essington. 2006. Size-structured patterns of piscivory of the longfin inshore squid (*Loligo pealeii*) in the mid-Atlantic continental shelf ecosystem. *Canadian Journal of Fisheries and Aquatic Sciences* **63**:754-765.
- Essington, T. E., A. H. Beaudreau, and J. Wiedenmann. 2006. Fishing through marine food webs. *Proceedings of the National Academy of Sciences* **103**:3171-3175.
- Essington, T. E. 2006. Pelagic ecosystem response to a century of commercial whaling and fishing. Pages 38-49 in J. A. Estes, D. P. DeMaster, D. F. Doak, T. M. Williams, and R. L. Brownwell, editors. *Whales, whaling and ocean ecosystems*. University of California Press, Berkeley, CA.
- Zanden, M. J. V., T. E. Essington, and Y. Vadeboncoeur. 2005. Is pelagic top-down control in lakes augmented by benthic energy pathways? *Canadian Journal of Fisheries and Aquatic Sciences* **62**:1422-1431.
- Martell, S. J. D., T. E. Essington, B. Lessard, J. F. Kitchell, C. J. Walters, and C. H. Boggs. 2005. Interactions of productivity, predation risk, and fishing effort in the efficacy of marine

- protected areas for the central Pacific. *Canadian Journal of Fisheries and Aquatic Sciences* **62**:1320-1336.
- Lessard, R. B., S. J. D. Martell, C. J. Walters, T. E. Essington, and J. F. Kitchell. 2005. Should ecosystem management involve active control of species abundances? *Ecology and Society* **10**:1. [online] URL: <http://www.ecologyandsociety.org/vol10/iss12/art11/>.
- Kitchell, J. F., I. C. Kaplan, S. P. Cox, S. J. D. Martell, T. E. Essington, C. H. Boggs, and C. J. Walters. 2004. Ecological and economic components of alternative fishing methods to reduce by-catch of marlin in a tropical pelagic ecosystem. *Bulletin of Marine Science* **74**:607-619.
- Essington, T. E., and S. Hansson. 2004. Predator-dependent functional responses and interaction strengths in a natural food web. *Canadian Journal of Fisheries and Aquatic Sciences* **61**:2215-2226.
- Essington, T. E. 2004. Getting the right answer from the wrong model: Evaluating the sensitivity of multispecies fisheries advice to uncertain species interactions. *Bulletin of Marine Science* **74**:563-581.
- Watters, G. M., R. J. Olson, R. C. Francis, P. C. Fiedler, J. J. Polovina, S. B. Reilly, K. Y. Aydin, C. H. Boggs, T. E. Essington, C. J. Walters, and J. F. Kitchell. 2003. Physical forcing and the dynamics of the pelagic ecosystem in the eastern tropical Pacific: simulations with ENSO-scale and global-warming climate drivers. *Canadian Journal of Fisheries and Aquatic Sciences* **60**:1161-1175.
- Harvey, C. J., S. P. Cox, T. E. Essington, S. Hansson, and J. F. Kitchell. 2003. An ecosystem model of food web and fisheries interactions in the Baltic Sea. *ICES Journal of Marine Science* **60**:939-950.
- Essington, T. E., and J. N. Houser. 2003. The effect of whole-lake nutrient enrichment on mercury concentration in age-1 yellow perch. *Transactions of the American Fisheries Society* **132**:57-68.
- Essington, T. E. 2003. Development and sensitivity analysis of bioenergetics models for skipjack tuna and albacore: A comparison of alternative life histories. *Transactions of the American Fisheries Society* **132**:759-770.
- Schindler, D. E., T. E. Essington, J. F. Kitchell, C. Boggs, and R. Hilborn. 2002. Sharks and tunas: Fisheries impacts on predators with contrasting life histories. *Ecological Applications* **12**:735-748.
- Kitchell, J. F., T. E. Essington, C. H. Boggs, D. E. Schindler, and C. J. Walters. 2002. The role of sharks and longline fisheries in a pelagic ecosystem of the Central Pacific. *Ecosystems* **5**:202-216.
- Harvey, C. J., P. C. Hanson, T. E. Essington, P. B. Brown, and J. F. Kitchell. 2002. Using bioenergetics models to predict stable isotope ratios in fishes. *Canadian Journal of Fisheries and Aquatic Sciences* **59**:115-124.
- Essington, T. E., D. E. Schindler, R. J. Olson, J. F. Kitchell, C. Boggs, and R. Hilborn. 2002. Alternative fisheries and the predation rate of yellowfin tuna in the Eastern Pacific Ocean. *Ecological Applications* **12**:724-734.
- Cox, S. P., S. J. D. Martell, C. Walters, T. E. Essington, J. F. Kitchell, C. Boggs, and I. Kaplan. 2002. Reconstructing ecosystem dynamics in the central Pacific Ocean, 1952-1998 I. Estimating population biomass and recruitment of tunas and billfishes. *Canadian Journal of Fisheries and Aquatic Sciences* **59**:1724-1735.
- Cox, S. P., T. E. Essington, J. F. Kitchell, S. J. D. Martell, C. J. Walters, C. Boggs, and I. Kaplan. 2002. Reconstructing ecosystem dynamics in the central Pacific Ocean,



- 1952-1998. II. A preliminary assessment of the trophic impacts of fishing and effects on tuna dynamics. *Canadian Journal of Fisheries and Aquatic Sciences* **59**:1736-1747.
- Essington, T. E., J. F. Kitchell, and C. J. Walters. 2001. The von Bertalanffy growth function, bioenergetics, and the consumption rates of fish. *Canadian Journal of Fisheries and Aquatic Sciences* **58**:2129-2138.
- Carpenter, S. R., J. J. Cole, J. R. Hodgson, J. F. Kitchell, M. L. Pace, D. Bade, K. L. Cottingham, T. E. Essington, J. N. Houser, and D. E. Schindler. 2001. Trophic cascades, nutrients, and lake productivity: whole-lake experiments. *Ecological Monographs* **71**:163-186.
- Essington, T. E., T. P. Quinn, and V. E. Ewert. 2000. Intra- and inter-specific competition and the reproductive success of sympatric Pacific salmon. *Canadian Journal of Fisheries and Aquatic Sciences* **57**:205-213.
- Essington, T. E., J. R. Hodgson, and J. F. Kitchell. 2000. Role of satiation in the functional response of a piscivore, largemouth bass (*Micropterus salmoides*). *Canadian Journal of Fisheries and Aquatic Sciences* **57**:548-556.
- Essington, T. E., and S. R. Carpenter. 2000. Nutrient cycling in lakes and streams: Insights from a comparative analysis. *Ecosystems* **3**:131-143.
- Beard, T. D., and T. E. Essington. 2000. Effects of angling and life history processes on bluegill size structure: Insights from an individual-based model. *Transactions of the American Fisheries Society* **129**:561-568.
- Essington, T. E., and J. F. Kitchell. 1999. New perspectives in the analysis of fish distributions: a case study on the spatial distribution of largemouth bass (*Micropterus salmoides*). *Canadian Journal of Fisheries and Aquatic Sciences* **56**:52-60.
- Essington, T. E., P. W. Sorensen, and D. G. Paron. 1998. High rate of redd superimposition by brook trout (*Salvelinus fontinalis*) and brown trout (*Salmo trutta*) in a Minnesota stream cannot be explained by habitat availability alone. *Canadian Journal of Fisheries and Aquatic Sciences* **55**:2310-2316.
- Carpenter, S. R., J. T. Cole, T. E. Essington, J. R. Hodgson, J. N. Houser, J. F. Kitchell, and M. L. Pace. 1998. Evaluating alternative explanations in ecosystem experiments. *Ecosystems* **1**:335-344.
- Essington, T. E., and P. W. Sorensen. 1996. Overlapping sensitivities of brook trout and brown trout to putative hormonal pheromones. *Journal of Fish Biology* **48**:1027-1029.

#### GRANTS SINCE 2007

1. Intra-guild predation, cannibalism, and the production of pelagic tunas. Pelagic Fisheries Research Program. 7/06 – 6/08. \$151,033. PI: Essington, co-PI Olson, Maunder, Kitchell
2. An exploratory model of the impacts of hypoxia on the Hood Canal food web: Identifying critical uncertainties and research priorities.: Hood Canal Dissolved Oxygen. 6/06 – 9 / 08. \$56,000. PI: Essington
3. Investigations of the trophic pathways and spatial variations of mercury concentrations in yellowfin (*Thunnus albacares*) and bigeye tuna (*Thunnus Obesus*) in the central North Pacific. NOAA Fisheries. 9/01/06 – 8/31/07. \$194,978. PI: Essington
4. Evaluating the ecological role of geoducks and sea cucumbers in Hood Canal. Hood Canal Salmon Enhancement Group / Washington DNR. 3/07 – 6/09. Total amount (distributed in two awards) = \$534,524. PI: Essington. Co-PI: Armstrong, Conquest, VanBlaricom

5. Quantifying biological impacts of dedicated access fishery programs. Lenfest Oceans program. 8/07 – 12/10. \$335,539. PI: Essington
6. Linking benthic and pelagic ecosystems in Puget Sound. NOAA Fisheries. \$25,000. 9/2006 – 8/2008. PI: Essington
7. What is natural in the Puget Sound Ecosystem? Establishing baseline conditions and identifying ecological indicators. SeaDoc Society. \$35,000. 1/07 – 12/08. PIs: Essington and Simenstad
8. Ecosystem based management of Puget Sound. NOAA Fisheries; 2009-2010. \$78,785. P.I. Essington
9. Identifying indicators for Puget Sound groundfish. Puget Soundkeepers Alliance, \$25,000. 2008 – present. PIs Quinn and Essington
10. Evaluating distributional shifts in response to Hypoxia in Hood Canal, WA. Washington Sea Grant. 2010 – 2012. \$185,000. WA Sea Grant. PI: Essington, co-PI Levin, Armstrong
11. Measuring trade-offs in ecosystem services to support an ecosystem-approach to fisheries management. Pew Marine Conservation Fellows. \$150,000. 2011-2014. PI: Essington
12. Consequences of hypoxia on food web linkages in a pelagic marine ecosystem. National Science Foundation. (NSF). 6/2012-5/2015. \$1,194,242. PI: Essington. Co-PIs Horne, Keister, Parker-Stetter
13. Improving ecosystem-based stock assessment and forecasting by using a hierarchical approach to link fish productivity to environmental drivers. National Oceanic and Atmospheric Administration (NOAA). 7/2010-6/2013. \$178,385. PI: Essington. Co-PI Branch, Haltuch, Hollowed, Mantua, Spencer.
14. Ecological effects of catch share programs in New England and U.S. West Coast groundfish fisheries. Gordon and Betty Moore Foundation (flow through MRAG Americas). 3/2012-5/2016. \$325,000. PIs Essington and Branch
15. Vulnerability assessment of California Current food webs and economics to ocean acidification. NOAA Fisheries. 9/2012 – 8/2015. \$208,000. PI Kaplan, co-PIs Busch, Essington, Gorton, Hermann, Harvey, Leonard, McElhany (UW share covers Essington and Hermann).
16. Valuation of forage fish in the California Current ecosystem. Pew Charitable Trusts 9/2012 – 12/2014. \$102,000. PI Essington.
17. Evaluating the potential for economic and ecological from a selective lingcod trap fishery. The Nature Conservancy. 6/1/14-6/1/15. \$90,000. PIs Essington and Anderson
18. Fishery ecosystem planning task force. Lenfest Ocean Program. 7/14-6/16. \$623,000. PI Essington and Levin
19. Recovering historical baselines in Puget Sound. Washington Sea Grant 2/16-1/18. \$243,000
20. Distribution & application of a new geostatistical index standardization & habitat modeling tool for stock assessments & essential fish habitat designation in AK & NW Atlantic regions. NOAA Fisheries. 9/15-9/17. \$193,000
21. Incorporating time-varying factors in stock assessment models. NOAA Fisheries. 9/15-9/17. &187,564

## **PROFESSIONAL OFFICES / AWARDS/ SERVICE**

### **HONORS AND AWARDS**

Pew Marine Conservation Fellow 2011  
Wakefield Endowed Professor

### **PROFESSIONAL SERVICE AND ADVISORY BOARDS**

Associate Editor, *Ecosystems*. June 2012 –present  
Member, Technical Advisory Board, Marine Stewardship Council, 2011 – present  
Member, Puget Sound Partnership Science Panel, 2014-present  
Assigning Editor, *Ecological Applications*, Journal of the Ecological Society of America. 2006 – present  
Member, Washington State Marine Spatial Planning Science Advisory Board 2014-present  
Member, Ecosystem Science and Management Working Group of the NOAA Science Advisory Board. 2010 – 2014  
Member, National Resource Council Post Doctoral Fellowship Board 2009-2010  
Lead Author, 2010 Puget Sound Science Update “ Biophysical Status of Puget Sound”: <http://www.psp.wa.gov/scienceupdate.php>  
Chair, Scientific Steering Committee, Comparative Analysis of Marine Ecosystem Organization (CAMEO). 2009 – 2010  
Member, Science Advisory Board, National Center for Ecological Analysis and Synthesis, 2008 – 2011  
Subject-Matter Editor, *Ecological Applications*, Journal of the Ecological Society of America. 2003 – 2006  
Subject-Matter Editor, *Marine and Coastal Fisheries*. 2009-2010  
Member, Resource Policy Committee, American Fisheries Society, Member. 2003-2006  
Guest Editor, *Proceedings of the National Academy of Sciences* (2008,2011)

### **UNIVERSITY SERVICE**

Co-Director, Center for Quantitative Studies 9/15 - present  
Faculty Search Committee 2015-2016. Marine invertebrate ecologists  
Director, Quantitative Ecology and Resource Management Interdisciplinary Graduate Program, 9/13 - present  
Associate Director, SAFS 7/12 –present  
Chair, SAFS Recruitment, Awards and Scholarship Committee, 7/12- present  
Faculty Search Committee 2010-2011 (Fisheries Economist)  
Conservation of Living Systems Graduate Program Committee 2008 - 2011  
College of the Environment College Council 2010  
Co-Convener, Bevan Seminar Series 2010  
Chair, Faculty Search Committee 2009-2010 (Quantitative Ecologist)  
COFS College Council 2008 – 2009  
SAFS Recruitment and Scholarship Committee 2007  
Co-Convener, SAFS Young Investigator Seminar Series, 2006-2007  
SAFS School Council 2004 – present

Faculty Search Committee 2005 -2006 (Large Scale Forcing)  
Chair, Conservation Colloquium Steering Committee 2005  
Faculty Senate 2004 – 2006

## GRADUATE STUDENT MENTORSHIP

### Committee Chair

Current: Emma Hodgson (Ph.D.); Laura Koehn (Ph.D.); Pamela Moriarty (Ph.D.); Kiva Oken (Ph.D.); Megsie Siple (Ph.D.); Christine Stawitz (Ph.D.);

Former: Anne Beaudreau (Ph.D.); Bridget Ferriss (Ph.D.); Halley Froehlich (Ph.D.) ; Mary Hunsicker (M.S.; Ph.D.); Kristin Marshall (M.S.); Caroline Paulsen (M.S.); Michelle Staudinger (M.S.); Jonathan Reum (M.S.; Ph.D.); John Wiedenman (M.S.); Jordan Watson (M.S.); G. Andy Whitehouse (M.S.);

### Committee Member

Current: Casey Clark(M.S); Lee Cronin-Fine(Ph.D); Brianna Dailey(M.S); Alicia Godersky(M.S); Anneesh Hariharan(Ph.D); Eliza Heery(Ph.D); Megan Hintz(M.S); Felipe Hurtado Ferro(Ph.D); Kelli Johnson(Ph.D); Peter Kuriyama(Ph.D); Jennifer Lang(M.S); Qi Lee(M.S); Hannah Linder(M.S); Ben Miller(Ph.D); Cole Monnahan(Ph.D); Eleni Petrou(Ph.D); Kristin Privitera-Johnson(M.S); Shelby Richins(M.S); Michael Tillotson(Ph.D); John Trochta(M.S); Chantel Wetzel (M.S; Ph.D.);

Former: Patrick Adam(M.S); Matt Baker (Ph.D); Steve Barbeaux(Ph.D); Kale Bentley(M.S); Joe Bizzarro(Ph.D); John Brandon(M.S); Julian Burgos(Ph.D); Josh Chamberlin(M.S); Keith Denton(M.S); Elizabeth Duffy; Gavin Fay(Ph.D); Goetz Fred(Ph.D); Madi Gamble(M.S); Jason Halyer(M.S); Adam Hanson(Ph.D);Jessica Hayden-Spear; (M.S); Allan Hicks(Ph.D);Gerry Hoff;Kirstin Holsman;Rachel Hovel; Iris Kemp(M.S); Doug Kinzey; Mike Cooksey(M.S); Hilary Limont(M.S); Erin Lowery(M.S); Beth Matta(M.S); Carey McGilliard(Ph.D); Tony Orr(Ph.D); Adam Pope(M.S); Kim Rand(M.S); Harry Rich(M.S); Konstantine Routos(Ph.D); Emily Runnels(M.S); Lauri Sadorus(M.S); Erik Schoen(M.S; Ph.D); Elizabeth Sosik(M.S); Megan Stachura(M.S); Sarah Stienessen(Ph.D); Jim Thorson(Ph.D); Katyana Vert-Pre(M.S); Tim Walsworth(Ph.D); Eric Ward(Ph.D); Chad Wilsey(Ph.D);