

Curriculum Vitae
Timothy E. Essington

PERSONAL

Date of Birth: 7 July 1969
Place of Birth: Grosse Pointe, MI

PROFESSIONAL ADDRESS:

School of Aquatic and Fishery Sciences
University of Washington
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RESEARCH INTERESTS:

Fisheries; Aquatic ecology; predator-prey interactions; ecological modeling; food webs;

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

| | |
|----------------|--|
| 2007 – present | Associate Professor. School of Aquatic and Fishery Sciences, University of Washington |
| 2003-2007 | Assistant Professor. School of Aquatic and Fishery Sciences, University of Washington |
| 2002-2003 | Assistant Professor. Marine Sciences Research Center, Stony Brook University |
| 1999-2001 | Post-Doctoral Research Associate, University of Wisconsin-Madison and National Marine Fisheries Service, Honolulu Laboratory |

PROFESSIONAL SERVICE

Subject-Matter Editor, Ecological Applications
Journal of the Ecological Society of America. 2003 – 2006

Assigning Editor, Ecological Applications
Journal of the Ecological Society of America. 2006 – present

PROFESSIONAL SOCIETIES:

American Fisheries Society
Ecological Society of America

GRANTS AWARDED AND PENDING

Ecological benefits derived from dedicated access fisheries? \$380,000. Effective 9/30/06 – 9/10. PI: T. Essington. Lenfest Oceans Program.

Intra-guild predation and cannibalism in pelagic predators: implications for the dynamics, assessment and management of Pacific tuna populations. \$153,000K. Effective 7/06 – 5/09. Pelagic Fisheries Research Program.

Evaluating the ecological role of geoducks and sea cucumbers in Hood Canal. Effective 3/07 – 9/09. \$524,500. PI: T. Essington. Co PI: D. Armstrong. L Conquest. G. VanBlaricom. Washington Department of Natural Resources.

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. \$114,000. Effective 9/01/06 – 8/31/09. PI: T. Essington NOAA Fisheries / JISAO.

Evaluating impacts of low DO on Hood Canal biota. Effective 6.06 – 9 / 08. 58K. PI: T. Essington. Hood Canal Dissolved Oxygen Program.

Linking benthic and pelagic ecosystems in Puget Sound. Effective 9/2006 – 8/2008. PI: T. Essington \$25,000. NOAA Fisheries:

What is natural in the Puget Sound Ecosystem? Establishing baseline conditions and identifying ecological indicators. Effective 1/07 – 12/08. \$35,000. PI: T. Essington. SeaDoc Society.

Snow Crab Female Effective Reproductive Output in the Eastern Bering Sea. P.I. Armstrong, \$206K North Pacific Research Board.

Atka Mackerel Food Habits Project. Principal Investigators: Timothy Essington. \$65 K. Effective 6/01/04- 6/01/06. (note: project P.I. status transferred to V. Gallucci in Fall '06). NOAA Fisheries / JISAO.

A spatially-explicit ecosystem model to examine the effects of fisheries management alternatives. Effective 6/01-04 – 6/01/05. \$100 K. PI: P. Levin. NOAA Fisheries

Principal Investigators: Harvey, C.J. Levin P.S., and Essington T.E. A critical analysis of Ecopath with Ecosim as a decision support tool. Effective 6/01/04 – 6/01/05. \$100 K. PI: C. Harvey. NOAA Fisheries

Spatial and temporal variation in the Puget Sound Food web. \$35K. Effective 7/01/04-7/01/05. PI: T. Essington. University of Washington Royalty Research Foundation.

Apex Predators in a Pelagic Ecosystem. Effective 9/02-9/07. \$750 K (Essington Share \$100 K). National Science Foundation. PI: James F. Kitchell.

Multi-species fisheries in an ecosystem context: Evaluating the ecological effects of cephalopod fisheries. Effective 2/02-2/04. \$140 K. New York Sea Grant. Principal Investigator: Timothy E. Essington.

Identifying crucial life stages of bluefish (*Pomatomus saltatrix*): A synthetic modeling approach. Effective 6/02-5/04. \$50 K. Striped Bass/ Bluefish Dynamics Research Program. Principal Investigator: Timothy E. Essington.

PUBLICATIONS

Beaudreau, A.H. and T.E. Essington. Development of a novel field-based approach for estimating consumption rates of large predatory fishes and comparison with a bioenergetics model for lingcod (*Ophiodon elongatus*). In press.

Watson, J., T.E. Essington, C. Lennert, and M. Hall. 2009. Silky shark bycatch in the eastern Pacific ocean tuna fishery. Conservation Biology. In press

Hunsicker, M.J. 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. Can. J. Fish. Aquat. Sci. 65:2524-2535

Reum, J. and T.E. Essington. 2008. Seasonal variation in the feeding guild structure of an estuarine demersal fish community. Estuaries and Coasts. 31: 790-801

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

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.

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 uncertainty in data inputs. Can. J. Fish. Aquat. Sci. 64: 628-637.

Beaudreau, A. H. and Essington, T.E. 2007. Spatial, temporal, and ontogenetic patterns of predation on rockfishes (*Sebastes* spp.) by lingcod (*Ophiodon elongatus*). Trans. Am. Fish. Soc. 136: 1438-1452.

- Ruckleshaus, M., T.E. Essington and P. Levin. How science can inform ecosystem-based management in the sea: Examples from Puget Sound. In: McLeod and Leslie, Eds. Ecosystem based management of marine ecosystems. Island Press. *In press*.
- Essington, T. E. 2006. Pelagic ecosystem response to a century of commercial fishing and whaling. 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.
- Wiedenmann, J. and Essington T.E. 2006. Density dependent overwinter survival in young-of-year bluefish (*Pomatomus saltatrix*)? A new approach for assessing stage-structured survival. *Can. J. Fish. Aquat. Sci.* 1934-1943.
- Essington, T.E., Beaudreau, A.H, and Wiedenmann, J. 2006. Fishing through marine food webs. *Proc. Nat. Ac. Sci.* 103: 3171-3175.
- Hunsicker, M.E. and Essington, T.E. 2006. Size structured patterns of piscivory of the longfin inshore squid (*Loligo paelei*) in the mid-Atlantic continental shelf ecosystem. *Can. J. Fish. Aquat. Sci.* 63: 754-765.
- 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.
- Vander Zanden, M. J., Essington, T. E. and Vadeboncoeur, Y. 2005 Is pelagic top-down control in lakes augmented by benthic energy pathways?. *Can. J. Fish. Aquat. Sci.* 62: 1422-1431
- Lessard, R., Martell, S.J.D., Essington T.E., Walters C.J., and Kitchell J.F. 2005. Should ecosystem management include active control of predators? *Ecology and Society.* 10: 1 [online] URL : <http://www.ecologyandsociety.org/vol10/iss2/art1/>
- 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.
- Martell, S.J.D., Essington T.E., Lessard, R., Kitchell, J.F., Walters C.J. and Boggs, C. 2005. Interactions of productivity, predation risk, and fishing effort in the efficacy of marine protected areas for the central Pacific. *Can. J. Fish. Aquat. Sci.* 62: 1320-1336.
- Essington, T.E. and Hansson, S. 2004. Predator-dependent functional responses and interaction strengths in a natural food web. *Canadian Journal of Fisheries and Aquatic Sciences.* 61: 2215-2226.
- Watters, G.M., Olson, R.J., Francis, R.C., Fiedler, P.C., Polovina, J.J., Reilly, S.B., Aydin, K.Y., Boggs, C.H., Essington, T.E., Walters, C.J., and Kitchell, J.F. 2004. 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.
- Essington, T.E. 2004. Getting the right answer from the wrong model: Evaluating the sensitivity of multispecies fisheries advice to uncertain species interactions. *Bulletin Marine Science.* 74: 563-581
- Essington, T.E. 2003. Development and sensitivity analysis of bioenergetics models for skipjack tuna (*Katsuwonus pelamis*) and albacore tuna (*Thunnus alalunga*). *Transactions of the American Fisheries Society.* 132: 759-770.
- Essington, T.E. and J.N. Houser. 2003. The effects of whole-lake nutrient enrichment on Hg contamination in age-1 yellow perch. *Transactions of the American Fisheries Society.* 132: 57-68.

- Essington, T. 2003. Apollonio, S. 2002. Hierarchical perspectives on marine complexities: searching for systems in the Gulf of Maine. Complexity in Ecological Systems Series. Columbia University Press, New York, New York, USA. Conservation Ecology 7(1): 13. [online] URL: <http://www.consecol.org/vol7/iss1/art13> (Book Review)
- Harvey, C.J., Cox, S.P., Essington, T.E., Hansson, S., and Kitchell J.F. 2003 An ecosystem model of food web and fisheries interactions in the Baltic Sea. ICES Journal of Marine Science. 60: 939-950.
- Cox, S.P, S.J.D. Martell, C.J. 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. Can. J. Fish. Aquat. Sci. 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. The trophic impacts of fishing and effects on tuna dynamics. Can. J. Fish. Aquat. Sci. 59:1736-1747.
- Essington T.E. 2002. The Biomass Spectrum: A predator-prey theory of aquatic production.. Trans. Am. Fish. Soc.131:589 (Book Review)
- Essington, T.E. D.E. Schindler, R.J. Olson, J.F. Kitchell, C. Boggs, and R. Hilborn. 2002 Ecological consequences of alternative fisheries: Examples from yellowfin tuna (*Thunnus albacares*) in the Pacific Ocean. Ecological Applications 12: 724-734.
- Schindler, D.E., T.E. Essington, J.F. Kitchell, C. Boggs and R. Hilborn. 2002. Sharks and Tunas: Trophic interactions and sustainable fisheries in an ecosystem context. Ecological Applications: 735-748.
- Kitchell, J.F., Essington, T.E., Boggs, C.H., Schindler, D.E., and Walters C.J. 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., J.F. Kitchell and C. Walters. 2001 The VonBertalanffy growth function, bioenergetics, and the consumption rates of fish. Can. J. Fish. Aquat. Sci. 58: 2129-2138
- Essington T.E. 2001. Precautionary approach in fisheries management: The devil is in the details. Trends in Ecology and Evolution. 13: 121-122.
- 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: experimental enrichment of lakes with contrasting food webs. Ecological Monographs 71:163- 186.
- Beard, T.D and Essington T.E. 2000 Evaluating the effects of life history processes on bluegill size structure: insights from an individual based model. Trans. Am. Fish. Soc. 129 (2) 561-568.
- Essington, T.E., T.P. Quinn, and V.E. Ewert. 2000. Intra- and interspecific competition and the reproductive success of sympatric Pacific salmon. Can. J. Fish. Aquat. Sci. 57: 205-213.
- Essington, T.E. and S.R. Carpenter. 2000 Nutrient cycling in lakes and streams: Insights from a comparative analysis. Ecosystems. 3: 131-143.
- Essington, T.E., J.R. Hodgson and J.F. Kitchell. 2000 The role of satiation in the functional response of a piscivore, largemouth bass. Can. J. Fish. Aquat. Sci. 57 (3) 548-556.

- 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. *Canadian Journal of Fisheries and Aquatic Sciences* 56 (Suppl. 1): 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.J. 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.

INVITED PRESENTATIONS

- 2008 'Trophic cascades in open oceans: absent or hard to sea'. Trophic Cascade Workshop.
- 2006 'The need for multi-species fisheries management'. Ocean Caucus Luncheon; House of Representatives. Washington, D.C.
2006. 'Patterns and consequences of Fishing Down the Food Web'. Alaska Fisheries Science Center
- 2006 'A preliminary investigation into the structure and dynamics of the Puget Sound food web'. University of Washington Climate Impacts Group
2006. 'Patterns and consequences of Fishing Down the Food Web'. University of Washington Department of Oceanography.
2006. 'Patterns and consequences of Fishing Down the Food Web'. Hatfield Marine Laboratory. Newport, OR.
2005. 'Patterns and consequences of Fishing Down the Food Web'. National Research Council, Ocean Sciences Board. Washington D.C. July.
- 2005 'Perspectives on bio-economic modeling: an applied ecologists perspective'. Linking Economic and Ecological Models Symposium, Sante Fe, NM
- 2005 'Patterns and consequences of Fishing Down the Food Web'. University of British Columbia Fisheries Centre. Feb.
- 2004 'What can your food web do for you?'. Washington Department of Fisheries and Wildlife. May.
- 2004 'Challenges, approaches, and opportunities in the study of large marine food webs'. University of Minnesota-Duluth. May.
- 2003 'The (promise) and limits of ecosystem based management.' National Marine Fisheries Service, Northeast Fisheries Science Center. Seattle, WA. May.
2003. Egg predation, cannibalism, and the reproductive success of Baltic Sea cod. American Fisheries Society Annual Meeting. Quebec City. August.
- 2002 'Marine Food Webs and Fisheries'. Syracuse University. Nov.
- 2002 'Food webs and Fisheries in the Baltic Sea'. Sigma Xi Distinguished Lecturer Series. Fairfield College. Nov.
2002. 'Complex trophic interactions in a simple food web: food-web dynamics in the Baltic Sea.' Fourth William and Lenore Mote International Symposium in Fisheries Ecology. Sarasota, FL. Nov.

2001. 'The (promise) and limits of ecosystem based management.' Pelagic Fisheries Research Program. Honolulu, HI. Dec 4.
2001. 'Food Web Dynamics in the Baltic Sea: Cod help us all.' Dept. Ecol. and Evolution. Stony Brook University. Oct.
2001. 'Hearing trees falling in the forest: Evaluating the ecological effects of high seas fisheries.' Marine Conservation Biology Symposium. San Francisco CA June
2000. 'Tunas in Space.' Pelagic Fisheries Research Program. Honolulu HI. December.
- 1999 'Size-structured density-dependence leads to complex population dynamics: A model for size-structured fish populations.' American Fisheries Society Annual Meeting. Charlotte NC.
- 1997 'Linking foraging behavior and habitat heterogeneity to the spatial distribution of largemouth bass (*Micropterus salmoides*). American Fisheries Society Annual Meeting. Monterey CA.