Ian G. Taylor

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Experience

Operations Research Analyst December 2010–present
National Marine Fisheries Service Northwest Fisheries Science Center
Assessment scientist developing stock assessment models for groundfish on the West Coast of the U.S. and researching current topics in stock assessment modeling, and helping improve software tools for stock assessments. Member of assessment teams for Pacific hake (*Merluccius productus*), spiny dogfish (*Squalus suckleyi*), yelloweye rockfish (*Sebastes ruberrimus*), darkblotched rockfish (*Sebastes crameri*), shortspine thornyhead (*Sebastolobus alascanus*), and longspine thornyhead (*Sebastolobus altivelis*).

Research Associate May 2008–December 2010
School of Aquatic & Fishery Sciences University of Washington
Working at National Marine Fisheries Service Northwest Fisheries Science Center with Dr. Richard Methot on projects related to the development and testing of the Stock Synthesis (SS) fisheries modeling platform with general implications for all age-structured stock assessment models. Addition activities includes development of an R package for analyzing SS output, improving support for Dr. André Punt's Rebuilder program, and advising SS users on model setup and interpretation of results.

Research Assistant September 2001–May 2008
School of Aquatic & Fishery Sciences University of Washington
Funded by National Marine Fisheries Service to investigate population dynamics of spiny dogfish in the Northeast Pacific.

Graduate School Recruitment Fellowship September 2000–June 2001
Quantitative Ecology & Resource Management University of Washington
Fellowship provided to facilitate coursework in statistics and ecological modeling.

Research Experience for Undergraduates June–September 1997
Department of Mathematics Michigan Technological University
National Science Foundation funded research program in combinatorics under Dr. Anant Godbole.

Education

University of Washington, Seattle, Washington September 2000–May 2008
Ph.D. in Quantitative Ecology and Resource Management
Dissertation: Modeling spiny dogfish population dynamics in the Northeast Pacific
Doctoral committee: Drs. Vincent Gallucci (chair), André Punt, Gordon McFarlane, Richard Methot, and Robert Gara (graduate school representative).
Coursework in advanced theoretical and applied statistics, experimental design, generalized linear models, Bayesian statistics, mathematical biology, ecological modeling, analysis of mark-recapture data, advanced fisheries stock assessment, risk analysis, Bayesian decision analysis, and numerical computing for fisheries assessment and management.

Budapest Semesters in Mathematics, Budapest, Hungary September 1995–June 1996
Coursework in graph theory, combinatorics, complex functions, number theory, set theory, geometry, and Hungarian language.

Carleton College, Northfield, Minnesota October 1993–June 1997
B.A. in Mathematics with coursework in mathematics and liberal arts. Graduated *cum laude*.

Refereed Publications

Thorson, J.T., **I.G. Taylor**, I. Stewart, A.E. Punt. Rigorous meta-analysis of life history correlations by simultaneously analyzing multiple population dynamics models. Ecological Applications. *In press.*

Thorson, J.T. and **I.G. Taylor**. A comparison of parametric, semi-parametric, and non-parametric approaches to selectivity in age-structured assessment models. Fisheries Research. *In press.*

I.G. Taylor, V. Gertseva, S.E. Matson. 2013. Spine-based ageing methods in the spiny dogfish shark, Squalus suckleyi: How they measure up. Fisheries Research 147, 83-92.

Thorson, J.T., I.J. Stewart, **I.G. Taylor**, A.E. Punt. 2013. Using a recruitment-linked multi-species stock assessment model to estimate common trends in recruitment for US West Coast groundfishes. Marine Ecology Progress Series 483, 245-256.

Stewart, I.J., A. Hicks, **I.G. Taylor**, J.T. Thorson, C. Wetzel, and S. Kupschus. 2013. A comparison of stock assessment uncertainty estimates using maximum likelihood and Bayesian methods implemented with the same model framework. Fish. Res. 142, pp 37-46.

Taylor, I.G. and R.D. Methot. 2013. Hiding or dead? A computationally efficient model of selective fisheries mortality. Fish. Res. 142, pp 75-85.

Piner, K.R., H.H. Lee, A. Kimoto, **I.G. Taylor**, M. Kanaiwa, C.L. Sun. 2013. Population dynamics and status of striped marlin (Kajikia audax) in the western and central northern Pacific Ocean. Mar. Fresh. Res. 64, 108-118.

Taylor, I.G., V. Gertseva, R.D. Methot, and M.N. Maunder. 2013. A stock-recruitment relationship based on pre-recruit survival, illustrated with application to spiny dogfish shark. Fish. Res. 142, pp 15-21.

Methot, R.D. and **I.G. Taylor**, 2011. Adjusting for Bias due to Variability of Estimated Recruitments in Fishery Assessment Models. Can. J. Fish. Aquat. Sci. 68, 1744–1760.

I.G. Taylor, G. Bargmann, G. Lippert, V.F. Gallucci. 2009. Movement patterns of spiny dogfish from historical tagging experiments in Washington State. In Biology, Management & Fisheries of Spiny Dogfish. Amer. Fish. Soc., Bethesda, MD, 435 pp.

I.G. Taylor and V.F. Gallucci. 2009. Unconfounding the effects of climate and density-dependence using 60 years of data on spiny dogfish. Can. J. Fish. Aquat. Sci. 66: 351–366. doi:10.1138/F08-211.

Gallucci, V.F., R.J. Foy, S.M. O'Brien, A. Aires-da-Silva, H. Nesse, B. Langseth, N. Vega, **I.G. Taylor**, and J. Goldman. 2008. Information from a pregnant salmon shark *Lamna ditropis* in the eastern North Pacific with observations on oophagous reproduction. J. Fish Bio. 73:732–739.

Gallucci, V.F., **I.G. Taylor**, and K. Erzini. 2006. Conservation and Management of Exploited Shark Populations Based on Reproductive Value. Can. J. Fish. Aquat. Sci. 63: 931–942. doi 10.1139/f05-267.

I.G. Taylor, and V.F. Gallucci 2005. Using reproductive value to evaluate surplus production models for sharks. In Proceedings of 21st Lowell Wakefield Fisheries Symposium: Fisheries Assessment and Management in Data-Limited Situations, Anchorage, Alaska, 22–25 October 2003. Edited by G. Kruse, V.F. Gallucci, D.E. Hay, R.I. Perry, R.M. Peterman, T.C. Shirley, P.D. Spencer, B. Wilson, and D. Woodby. University of Alaska, Fairbanks, Alaska. Alaska Sea Grant Rep. No. 05-2. pp. 807–829.

Technical Reports

Hicks, A.C. N. Taylor, C. Grandin, **I.G. Taylor**, S. Cox. 2012. Status of the Pacific hake (whiting) stock in U.S. and Canadian waters in 2013. Joint US and Canadian Hake Technical Working Group Report, 1-207.

Taylor, I.G. and A. Stephens. 2013. Stock Assessment of Shortspine Thornyhead in 2013. Pacific Fishery Management Council. Portland, Oregon. 159 pp.

Stephens, A. and **I.G. Taylor**. 2013. Stock Assessment and Status of Longspine Thornyhead (Sebastolobus altivelis) off California, Oregon and Washington in 2013. Pacific Fishery Management Council. Portland, Oregon. 123 pp.

Gertseva, V. and **I.G. Taylor** 2011. Status of the spiny dogfish shark resource off the continental U.S. Pacific Coast in 2011. Pacific Fishery Management Council. Portland, Oregon. 299 pp.

Taylor, I.G. 2011. Rebuilding analysis for yelloweye rockfish based on the 2011 update stock assessment. Pacific Fishery Management Council. Portland, Oregon. 114 pp.

Taylor, I.G. and Wetzel, C. 2011. Status of the U.S. yelloweye rockfish resource in 2011 (Update of 2009 assessment model). Pacific Fishery Management Council. Portland, Oregon. 228 pp.

Stephens, A., Hamel, O.S., **Taylor, I.**, Wetzel, C. 2011. Status and Future Prospects for the Darkblotched Rockfish Resource in Waters off Washington, Oregon, and California as Updated in 2011. Pacific Fishery Management Council. Portland, Oregon. 253 pp.

Stewart, I.J, Forrest, R.E., Grandin, C., Hamel, O.S., Hicks, A.C., Martell, S.J.D., **I.G. Taylor**. 2011. Status of the Pacific Hake (Whiting) stock in U.S. and Canadian Waters in 2011. Pacific Fishery Management Council. Portland, Oregon. 217 pp.

Piner, K. Lee, H-H., **Taylor, I.**, Katahira, L., Tagami, D. DiNardo, G. Preliminary Striped Marlin Stock Assessment. ISC Billfish Working Group Workshop document ISC/11/BILLWG-3/01.

Shono, H., Yeh, Y.-M., Okamoto, H., **Taylor, I.**, Herrera, M. and Million, J. 2010. Stock assessment for yellowfin tuna in the Indian Ocean from 1963 to 2009 by Stock Synthesis III (SS3) including tagging data. Indian Ocean Tuna Commission document IOTC-2010-WPTT-45.

Silva, A.A., **I.G. Taylor**, Punt, A.E., Gallucci, V.F., Kohler, N.E., Turner, P.A., Briggs, R. and Hoey, J.J.. 2004. A framework for estimating movement and fishing mortality rates of the blue shark, *Prionace glauca*, in the North Atlantic Ocean from tag-recapture data. International Commission for the Conservation of Atlantic Tunas, SCRS/2004/112.

Presentations at international meetings

Taylor, I.G. and Methot, R.D. Modeling recruitment along the continuum from data poor to data rich. NOAA Fisheries 11th National Stock Assessment Workshop. St. Petersburg, FL. 17–20 May, 2010.

Taylor, I.G. Modeling Population Processes in Stock Synthesis (a series of five 15 minute talks). IATTC workshop on Modeling Population Processes. NMFS SWFSC, La Jolla, 2–6 November, 2009.

Taylor, I.G. New ideas on bias correction for recruitment parameters. IATTC workshop on Modeling Population Processes. NMFS SWFSC, La Jolla, 2–6 November, 2009.

Taylor, I.G. and Methot, R.D. Spatial Structure and Movement in Stock Synthesis (part II). NOAA Spatial Modeling Workshop. NMFS AFSC, Seattle, 7–10 July, 2009.

Taylor, I.G. Modeling ontogenetic changes in depth of sablefish using spatial structure in Stock Synthesis. IATTC workshop on Spatial Analysis for Stock Assessment. NMFS SWFSC, La Jolla, 14–17 October, 2008.

Taylor, I.G. An integrated model for spiny dogfish in the NE Pacific: how much should tagging data influence estimates of abundance? IATTC workshop on Using Tagging Data for Fisheries Stock Assessment and Management. NMFS SWFSC, La Jolla, 16–19 October, 2007.

Taylor, I.G., Gallucci, V.F. Integration of historical and contemporary data for modeling spiny dogfish dynamics in the NE Pacific. 22nd annual meeting of the American Elasmobranch Society. New Orleans, 13–17 July, 2006.

Taylor, I.G., Bargmann, G., Lippert, G., Gallucci, V.F. Movement patterns of spiny dogfish from historical tagging experiments in Washington State. First International Symposium on the Management & Biology of Dogfish Sharks. Seattle, 13–15 June, 2005.

Taylor, I.G. Is There Sustainable Management for Low-Productivity, Long-Lived, High on the Food Chain Dogfish Sharks? Invited speaker at the symposium "Dogfish Sharks, the Fish in Fish and Chips and Ecosystem Function." Annual Meeting of the American Association for the Advancement of Science (AAAS). Seattle, 12–16 February, 2004.

Taylor, I.G., Gallucci, V.F. The Use of Reproductive Potential to Compare Age-Structured Models to Surplus Production Models. 21st Lowell Wakefield Fisheries Symposium. Anchorage, 22–25 October, 2003.

Taylor, I.G., Gallucci, V.F. Assessment of spiny dogfish in the Northeast Pacific. 19th Annual Meeting of the American Elasmobranch Society. Invited speaker at the symposium "Quantitative Methods for the Study and Assessment of Elasmobranch Populations." Manaus, Brazil, 26 June–1 July, 2003.

Teaching Experience

Center for the Advancement of Population Assessment Methodology. Instructor for all-day course on "Modeling Selectivity using Stock Synthesis" as part of Selectivity Workshop, La Jolla, March 11–14, 2013.

Institute of Marine Research. Co-instructor for 5-day course on Stock Synthesis modeling platform. Lysekil, Sweden 3–7 September, 2012.

National Marine Fisheries Service. Co-instructor for 3-day course on Stock Synthesis modeling platform. University of Washington, Seattle, WA. 31 July–2 August, 2012.

National Marine Fisheries Service. Instructor three half-day sessions on aspects of the R software. Northwest Fisheries Science Center, Seattle, WA. 24–28 May, 2010 and 2–6 May, 2011.

National Research Institute of Far Seas Fisheries Research, Japan. Co-Instructor for 3-day course in AD Model Builder software. Yokohama, Japan, 9–11 March, 2010

Instituto de Fomento Pesquero, Chile. Instructor for 5-day course in Stock Synthesis fisheries modeling platform. Valparaiso, Chile. 23-27 November, 2009.

University of Washington. Periodic guest lecturer in undergraduate mathematics and statistics classes. September 2001–present.

Vuti Secondary School, Vuti, Zimbabwe. Mathematics teacher in rural secondary school under United States Peace Corps. October 1997–December 1999.

Carleton College Math Skills Center. Undergraduate mathematics tutor. January 1994–June 1997.

Field Work

Scientific crew member, Southern California Hook and Line Survey. Recorded catch and biological measurements, collected biological samples and otoliths, September 2012.

Scientific crew member, West Coast Combined acoustic/trawl hake survey. Sorted and sub-sampled catch, operated on-deck computer system, recorded biological measurements, collected biological samples and otoliths, July 2012.

Scientific crew member, National Marine Fisheries Service West Coast groundfish trawl survey. Sorted and sub-sampled catch, operated on-deck computer system, recorded biological measurements, collected biological samples and otoliths, June—July 2002, July 2009, and September 2011.

Scientific crew member, University of Washington and Washington Department of Fish and Wildlife sixgill shark (*Hexanchus griseus*) tagging cruise in Puget Sound, Washington, January 2005.

Professional Service

Invited External Reviewer for the Indian Ocean Tuna Commission's meeting of the Working Party on Tropical Tunas. October 2010.

Editor and primary author of Frequently Asked Questions website for ADMB software: http://admb-project.org/documentation/faq

Co-developer of collaborative software development project, http://code.google.com/p/r4ss and associated R Package http://cran.r-project.org/web/packages/r4ss/index.html

Organizer, host, and web designer for weekly University of Washington fisheries quantitative seminar series, June 2006–April 2007, and for bi-weekly joint UW/National Marine Fisheries Service workshop series in fisheries stock assessment, September 2004–June 2005.

Skills

Programming languages: Proficient in AD Model Builder (ADMB), R, and Matlab programming languages. Developed and applied novel maximum likelihood and Bayesian population dynamics models in both ADMB and R.

Additional computing skills: knowledgeable of Windows and Unix/Linux operating systems, proficient in document development and graphics manipulation tools including LaTeX, HTML, GIMP, Inkscape, and Open Office and Microsoft Office suites.

Moderate skill in German, Hungarian, and Shona languages. Native speaker of English.

Certified in First Aid, CPR, and sea safety.