

## REGINALD ALAN WATSON

ACADEMIC QUALIFICATIONS: B.Sc.(Hon.), M.Sc., Ph.D.

CITIZENSHIP: Australian, Canadian

HEALTH: Excellent

### PRESENT POSITION

DESIGNATION: Professor of Fisheries and Ecological Modelling

EMPLOYER: Institute for Marine and Antarctic Studies (IMAS)  
University of Tasmania  
Sandy Bay, Tasmania, Australia

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## EMPLOYMENT HISTORY 1.

**POSITION:** PROFESSOR OF FISHERIES AND ECOLOGICAL MODELLING  
9/2013 to Present

**EMPLOYER:** Institute of Marine and Antarctic Studies (IMAS), University of Tasmania, Sandy Bay, Tasmania Australia

**PROJECT:** Fishing for change: enhancing Australia's seafood futures

**SUPERVISOR:** R. Coleman

**PROJECT DESCRIPTION:** Use historical data to minimize potential disasters to maximize opportunities by developing a model of Australia's fisheries and their response to future environmental and management change. Fisheries and seafood production are an important part of Australia's economy and future food security – but are vulnerable to, and a cause of changes in critical marine environments. A range of approaches will estimate what Australia's ultimate seafood production potential is, establish the environmental providence of Australia's seafood imports vital to the domestic industry and consumers, and add important environmental credentials to national fisheries stock assessments essential for future competitive exports.

**POSITION:** SENIOR SCIENTIST (ACADEMIC LEVEL E) 1/2013 to 9/2013

**EMPLOYER:** Institute of Marine and Antarctic Studies (IMAS), University of Tasmania, Sandy Bay, Tasmania Australia

**PROJECT:** Putting fisheries in the food bowl

**SUPERVISOR:** B. Green

**PROJECT DESCRIPTION:** Seafood is often overlooked in discussions of global food security even though it is the most highly traded food internationally. The footprint of fisheries globally is often presented in terms of overfishing and habitat destruction, but many fisheries are sustainable and the protein they provide is essential to food security. Further improving the sustainability of fishing would reduce starvation by 20 million people worldwide. Ensuring sustainability and food security requires detailed assessment of a range of impacts such as biodiversity loss, carbon emissions, water and land use and economic stability. We will use Life Cycle Assessment, comparing the ecological and economic footprints of Australian fishing and agriculture. This will create an objective scorecard of the breadth of the footprints enabling fisheries to be included in food security planning and putting fish in the global food bowl.

## EMPLOYMENT HISTORY 2.

POSITION: PROFESSOR OF ECOSYSTEM MODELLING 2008 – 2010 (Part-time)  
Commonwealth Environmental Research Facilities Research  
Fellowship

EMPLOYER: University of Tasmania, Sandy Bay, Tasmania Australia

PROJECT: Ecosystem model analysis to address fisheries management issues in south eastern Australia and the implications of climate change

SUPERVISOR: C. Buxton

PROJECT DESCRIPTION: Commercial and recreational fisheries and marine ecotourism (e.g. diving, marine mammals) provide significant social and economic contributions to Australian coastal communities. Impacts, such as climate change, can alter the productivity of marine ecosystems and consequently pose significant threats to industries and communities dependent on sustainable use of marine resources. This fellowship brings together expertise from some of the world's leading marine ecosystem modelling groups to assemble existing datasets across different institutions, with the aim of developing and adapting ecosystem models for the Australian marine environment. This will lead to enhanced skills in managing our marine resources.

DUTIES: Identify and gather the existing data sets working with the University (Tasmanian Aquaculture and Fisheries Institute), State Government agencies (DPIW include both fisheries and conservation and biodiversity managers and researchers working on marine mammals and birds) and CSIRO (oceanography). Evaluate existing models including the University of British Columbia's Ecopath model and CSIRO's Atlantis model. Adaptation and development of the model will be undertaken in collaboration with CSIRO's existing modeling research group. Linkages within the model will require consultation with DPIW (Conservation and Biodiversity and Fisheries Branches, Tasmanian Aquaculture and Fisheries Institute and the Tasmanian Fisheries Industry Council). Maximise opportunities for training of PhD students. Bring together the outcomes of these projects into an overarching modeling framework that will also provide opportunities for the next cohort of students.

### EMPLOYMENT HISTORY 3.

POSITION: SENIOR FISHERIES FELLOW 9/1999 to 12/2012  
SENIOR RESEARCH SCIENTIST  
EMPLOYER: Fisheries Centre, University of British Columbia, Vancouver, Canada

PROJECT: 'Sea Around Us' project

SUPERVISOR: D. Pauly

PROJECT DESCRIPTION: The 'Sea Around Us' project is a major Pew Trust-funded project which examines and reports on the state of marine ecosystems, and the impacts of fishing on these. To support this work a database of world fisheries catch and fishing effort has been developed with procedures for adjusting for unaccounted mortalities including discarding, misreporting etc. The project produces ecological models of major marine systems, conducts energy analysis on fishing fleets, and completes a wide range of analysis on data provided by official sources and by consultants around the world. Impacts and overlap between commercial fisheries and other groups (marine mammals, birds) and critical habitats (seamounts, coral reefs, mangrove etc) are an important part of current work. While the initial phase concentrated on the North Atlantic the work has expanded to include all oceans and seas.

DUTIES: Develop and support major global catch and effort databases, develop GIS databases and tools, provide spatial analysis, develop Fisheries Centre capacity for GIS work, support ecological modelling, supervise project staff and students involved with database work within the Pew-funded 'Sea Around Us' project.

**Additionally:**

2008-2009: Participant, National Center for Ecological Analysis and Synthesis Working Group: "Finding common ground in marine conservation and management"

2003-2007: Participant, National Center for Ecological Analysis and Synthesis Working Group: "Linking marine biodiversity to ecosystem functions and services"

2003-2005: Member of Marine Fish Subcommittee of COSEWIC (Committee on the Status of Endangered Wildlife in Canada). A committee of experts that assesses and designates which wild species are in some danger of disappearing from Canada

## EMPLOYMENT HISTORY 4.

POSITION: PRINCIPAL FISHERIES SCIENTIST (Level7-2) 5/97 to 2/01  
SENIOR FISHERIES SCIENTIST (Level6-4) 9/94 to 5/97  
EMPLOYER: Western Australian Fisheries Department

PROJECT: Trawl Section (prawns, scallop and bycatch)

SUPERVISOR: N. Caputi

PROJECT  
DESCRIPTION:

Commercial prawn fisheries are a major resource in Western Australia contributing to significant employment and foreign exchange. The major fisheries (Shark Bay and Exmouth Gulf) are intensively managed. This management requires close industry liaison, a comprehensive logbook scheme, extensive surveys of spawning and recruiting stocks, stock assessment, risk assessment, and simulation modelling.

DUTIES: Lead trawl section, supervise and coordinate fisheries research on trawl fisheries within the State. Develop fisheries models applicable to management needs. Coordinate research with policy/management and industry representatives. Significant periods heading Invertebrate branch as Supervising Scientist.

### Additional Projects:

PROJECT: Ecological Modelling and Stock Assessment

SUPERVISOR: T. Pitcher, C. Walters and D. Pauly

PROJECT Sept 1 to Feb 1/98

DESCRIPTION: Work while on long service leave at the University of British Columbia's Fisheries Centre developing new ecological modelling methods which investigate the impacts of marine protected areas, spatial closures, and other management changes on whole marine ecosystems.

SUPERVISOR: J. Penn

2/97 – 9/99

Bilateral Commonwealth Department of Industry , Science and Tourism funded collaborative modelling research with Mexico to optimize catch values from commercial shrimp fisheries in Shark Bay and the Gulf of Mexico

## EMPLOYMENT HISTORY 5.

POSITION: PRINCIPAL FISHERIES SCIENTIST PO4(3) 8/91 to 9/94  
SENIOR FISHERIES BIOLOGIST (I-S9) 4/89 to 8/91

EMPLOYER: Queensland Dept of Primary Industries

PROJECT: Project leader ACIAR “Underwater Visual Census Methods and their Application to Stock Assessment of Reef Fish 8/93 to 9/94

SUPERVISOR: M. Potter

PROJECT  
DESCRIPTION:

Using underwater visual census methods to assess reef fish stocks in the Solomon Islands, Fiji and Papua New Guinea. Teach UVC methodology and stock assessment techniques to biologists from these countries. Organize and conduct international workshops.

PROJECT: Supervision Trawl Projects 8/89 to 9/94

SUPERVISOR: M. Potter

PROJECT  
DESCRIPTION:

Major state prawn projects in northern Queensland including Gulf of Carpentaria, Torres Strait and Princess Charlotte Bay. Each study involves study of juveniles; growth, mortality and recruitment processes; fecundity; and historical commercial trends.

## EMPLOYMENT HISTORY 6.

### OVERSEAS PROJECTS:

8/89-5/90: Cooperative Institute for Marine and Atmospheric Studies (CIMAS), University of Miami, and U.S. National Marine Fisheries Service (NMFS)

Development of methods and collaborative work on commercial fisheries modelling especially examination of optimal seasonal closure strategies. Work presented at ICES Symposium in New Brunswick, Canada and at seminars at the University of Miami, Louisiana State Fisheries, Canadian Department of Fisheries and Oceans and elsewhere.

7/92-7/93: Environmental Management Development in Indonesia (EMDI), Jakarta

Coordination of a national marine biodiversity database (GIS SPANS) with the Indonesian Academy of Sciences (Research and Development Oceanography), the Ministry of Population and Environment, and other government agencies and NGOs. Prepare university lectures and popular/government articles on marine biodiversity and marine conservation strategies.

### PROJECT:

Torres Strait Prawn 9/89 to 8/89

### SUPERVISOR:

Dr R. Coles

### PROJECT DESCRIPTION:

This project was developed to investigate aspects of the shrimp and other fisheries resources of Torres Strait most relevant to management needs. Project includes study of juveniles; growth, mortality and recruitment processes; fecundity; and historical commercial trends.

### DUTIES:

Plan, develop and supervise Torres Strait project. Manage project staff, research vessel and budget. Liaise with other national and international research, management, industry and government bodies. Formulate research strategy.

## EMPLOYMENT HISTORY 7.

- PROJECT:** Red-spot King Prawn Bycatch 1/86 to 1/88
- SUPERVISOR:** Dr G. Goeden
- PROJECT DESCRIPTION:** Project investigated the effects of shrimp trawling on the Great Barrier Reef off Central Queensland, and described spatial and temporal associations in the demersal trawl 'community'.
- DUTIES:** Assist in project planning and staff supervision. Oversee analysis; interpret and publish findings.
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- PROJECT:** Gulf of Carpentaria Prawns 4/84 to 9/85
- SUPERVISOR:** Dr G. Goeden
- PROJECT DESCRIPTION:** This project investigated the biology and life-history of commercial shrimp species in the Gulf of Carpentaria fishery in order to facilitate their management.
- DUTIES:** Assist staff supervision, data analysis and interpretation.
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- POSITION:** SENIOR FISHERIES BIOLOGIST 8/82 to 4/84
- EMPLOYER:** Dept of Primary Industry, Fisheries Research and Survey Branch  
Government of Papua New Guinea  
Box 417, Konedobu, Port Moresby, Papua New Guinea
- SUPERVISOR:** Dr R. Branford
- DUTIES:** Duties as tuna biologist: supervise foreign and domestic commercial data base, ensure compliance of foreign operators with national statistics requirements, and liaise with the South Pacific Commission. Direct research into deepwater reef resources (hand-lining) and head trawl fish utilization task. Responsible for computer systems development, supervision of programmer and data entry personnel. Advise other biologists of their computer and statistical needs. Assist Principal biologist in the administration of the research station. Act as publications officer: edit/co-write research and annual reports.



## EMPLOYMENT HISTORY 8.

- POSITION: BIOLOGIST SYSTEMS SPECIALIST 4/78 to 6/79  
(BIOLOGIST ATYPICAL)
- EMPLOYER: Lake of the Woods/Rainy Lake Assessment Unit, Fish and Wildlife, Kenora District, Ministry of Natural Resources of Ontario  
Box 5080, Kenora, Ontario, Canada P9N 3X9
- SUPERVISOR: V. Macins
- DUTIES: Develop, implement and maintain a fisheries research data information system (systems analysis, programming, statistics). Assist chief biologist with design of sampling programs and aid in field collection (fish tagging, netting, bird banding etc.). Aid other units with computer analysis and data processing. Train and supervise computer operators and oversee hardware and software purchases.
- POSITION: LECTURER 1/78 to 4/78
- EMPLOYER: Dept of Zoology, Brandon University  
Brandon, Manitoba, Canada
- SUPERVISOR: Dr R. Smith
- DUTIES: Develop, teach and examine an introductory zoology course for teachers in training at the remote Indian Reservation of Nelson House, Manitoba; arrange transportation and shipping materials.
- POSITION: TECHNICIAN (3) 4/77 to 4/78
- EMPLOYER: Freshwater Institute, Fisheries and Oceans Canada  
501 University Crescent, Winnipeg, Manitoba, Canada
- SUPERVISOR: I. Davies
- DUTIES: Assist in the development of a computer model of dipteran biomass with primary productivity and test this model with field data. Obtain biomass measures using electrostatic mass balance. Supervise and train technician.

## EMPLOYMENT HISTORY 9.

POSITION: RESOURCE TECHNICIAN (2) 8/77 to 9/77

EMPLOYER: Lakehead Conservation Authority  
Oliver Road, Thunder Bay North, Ontario, Canada

SUPERVISOR: R. Hamilton

DUTIES: Assess Neebing River for rainbow trout spawning and nursery capabilities as baseline for proposed river canalization. Population census with electrofishing. Mapping and report preparation.

POSITION: COMPUTER DATA ANALYST; FIELD SUPERVISOR;  
TEACHING ASSISTANT; GRADUATE STUDENT 4/75 to 9/77

EMPLOYER: Dept of Zoology, University of Manitoba  
Winnipeg, Manitoba, Canada R3T 2N2

SUPERVISOR: Dr T.A. Dick

DUTIES: Develop and run practical demonstrations for zoology courses, supervise fish survey team, work as parasitology technician at remote research station, collect fisheries data, analyze data on mainframe systems (IBM 360/70) using packaged and programming languages (Fortran, VSAPL, SPSS etc.).

POSITION: TECHNICIAN 1 5-9/72 to 74 (Summers)

EMPLOYER: Freshwater Institute, Fisheries and Oceans Canada  
501 University Crescent, Winnipeg, Manitoba, Canada

PROJECT: Benthic Studies (Experimental Lakes)

SUPERVISOR: I. Davies

DUTIES: Design, construction and maintenance of benthic sampling equipment and schedules. Invertebrate identification and supervision of technicians. Work with fish, chemical and primary productivity projects.

PROJECT: Fish Studies (Heming Lake)

SUPERVISOR: J. Martin / J. Whitaker

DUTIES: Maintain fish survey schedule (gill, fyke, seining, and trawling) and collect biological data on fish. Feed and treat rainbow trout fingerlings until release. Work with chemical, limnological and aquaculture programs.

## PUBLICATIONS

### REFEREED PAPERS

- Watson, R.A.**, Pitcher, T.J., Jennings, S. (In Press) Plenty more fish in the sea? Fish and Fisheries.
- Watson, R.A.**, Green, B.S., Tracey, S., Farmery, A., Pitcher, T.J. (In Press) Provenance of global seafood Fish and Fisheries.
- McOwen, C.J., Cheung, W.W.L., Rykaczewski, R.R., **Watson, R.A.**, Wood, L.J. (In Press) Is fisheries production within Large Marine Ecosystems determined by bottom-up or top-down forcing? Fish and Fisheries.
- Watson, R.A.**, Nowara, G., Hartmann, K., Green, B.S., Tracey, S., Carter, C.G. (2015) Marine foods sourced from farther as their use of global ocean primary production increases. *Nature communications* 6 article 7365 DOI: 10.1038/ncomms8365
- Sunday, J.M., Pecl, G.T., Frusher, S., Hobday, A.J., Hill, N., Holbrook, N.J., Edgar, G.J., Stuart-Smith, R., Barrett, N., Wernberg, T., **Watson, R.A.**, Smale, D.A., Fulton, E.A., Slawinski, D., Feng, M., Radford, B.T., Thompson, P.A., Bates, A.E. (In Press) Species traits and climate velocity explain geographic range shifts in an ocean warming hotspot. *Ecology Letters*. DOI 10.1111/ele.12474
- Farmery, A.K., Green, B.G., Jennings, S., **Watson, R.A.**, Gardner, C. (In Press) Domestic or imported? An assessment of carbon footprints and sustainability of seafood consumed in Australia. *Environmental Science & Policy*.
- Hilborn, R., Fulton, E.A., Green, B.S., Hartmann, K., Tracey, S.R., **Watson, R.A.** (In Press) When is a fishery sustainable? *Canadian Journal Fisheries and Aquatic Sciences*. DOI: 10.1139/cjfas-2015-0062
- Sumaila, U.R., Lam, W.Y., Miller, D.D., Teh, L., **Watson, R.A.**, Pauly, D., Zeller, D., Cheung, W.W.L., Côté, I.M., Rogers, A.D., Roberts, C.M., Sala, E. (2015) Winners and losers in a world where the high seas is closed to fishing. *Nature Scientific Reports* 5.
- Christensen, V., Coll, M., Buszowski, J., Cheung, W.W.L., Frölicher, T.L., Steenbeek, J., Stock, C.A., **Watson, R.A.**, Walters, C.J. (2015) The global ocean is an ecosystem: simulating marine life and fisheries. *Global Ecology and Biogeography* 24, 507–517.
- Parker, R.W.R., Hartmann, K., Green, B.S., Gardner, C., **Watson, R.A.** (2015) Environmental and economic dimensions of fuel use in Australian fisheries. *Journal of Cleaner Production* 87, 78-86.
- Farmery, A., Gardner, C., Green, B., Jennings, S., **Watson, R.** (2015) Life cycle assessment of wild capture prawns: expanding sustainability considerations in the Australian Northern Prawn Fishery. *Journal of Cleaner Production* 87, 96-104.

## PUBLICATIONS

### REFEREED PAPERS

- Nichols, R., Yamazaki, S., Jennings, S., **Watson, R.A.** (2015) Fishing access agreements and harvesting decisions of host and distant water fishing nations. *Marine Policy* 54, 77–85.
- McOwen, C., Cheung, W., Rykaczewski, R., **Watson, R.**, Wood, L. Is fisheries production within Large Marine Ecosystems determined by bottom-up or top-down forcing? *Fish and Fisheries* (In Press)
- Cooke, S.J., Arlinghaus, R., Bartley, D.M., Beard, T.D., Cowx, I.G., Essington, T.E., Jensen, O.P., Lynch, A., Taylor, W.W., **Watson, R.** (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* 71, 1593-1601.
- Bates, A.E., Pecl, G., Frusher, S., Hobday, A.J., Wernberg, T., Smale, D.A., Sunday, J.M., Colewell, R.K., Dulvy, N., Edgar, G.J., Feng, M., Fulton, E.A., Hill, N., Holbrook, N., Radford, B.T., Slawinski, D., Thompson, P.A., **Watson, R.A.** 2014. Defining and observing stages of climate-mediated range shifts in marine systems. *Global Environmental Change*. 26: 27-38. DOI: 10.1016/j.goenvcha.2014.03.009
- Devillers, R., Pressey, R.L., Grech, A., Kittinger, J.N., Edgar, G.J., Ward, T., **Watson, R.** 2014. Reinventing residual reserves in the sea: are we favouring ease of establishment over need for protection? *Aquatic Conserv: Mar. Freshw. Ecosyst*. DOI: 10.1002/aqc.2445
- Jones, D.O.B., Yool, A., Wei, C., Henson, S.A., Ruhl, H.A., **Watson, R.A.**, Gehlen, M. 2014. Global reductions in seafloor biomass in response to climate change. *Global Change Biology* 20(6): 1861–1872 DOI: 10.1111/gcb.12480 (in Press)
- Pelletier, N., Andre´, J., Charef, A., Damalas, D., Green, B., Parker, R., Sumaila, R., Thomas, G., Tobin, R., **Watson, R.** 2014. Energy prices and seafood security. *2013 Global Environmental Change* 24:30-41 DOI: 10.1016/j.gloenvcha.2013.11.014
- McKinnon, A.D., Williams, A., Young, J., Ceccarelli, D., Dunstan, P., Brewin, R.J.W., **Watson, R.**, Brinkman, R., Cappo, M., Duggan, S., Kelley, R., Ridgway, K., Lindsay, D., Gledhill, D., Hutton, T., Richardson, A.J. 2014. Tropical Marginal Seas: Priority Regions for Managing Marine Biodiversity and Ecosystem Function. *Annual Review of Marine Science* 6:415-437
- Pikitch EK, Konstantine JR, Essington TE, Santora C, Pauly D, **Watson R**, Sumaila UR, Boersma PD, Boyd IL, Conover DO, Cury P, Heppell SS, Houde ED, Mangel M, Plaganyi-Lloyd E, Sainsbury K, Steneck RS, Geers TM, Gownaris N, Munch SP. 2014. The global contribution of forage fish to marine fisheries and ecosystems. *Fish and Fisheries* 15(1):43-64 DOI: 10.1111/faf.12004

## PUBLICATIONS

### REFEREED PAPERS

- Pauly, D., Belhabib, D., Blomeyer, R., Cheung, W., Cisneros-Montemayor, A., Copeland, D., Harper, S., Lam, V., Mai, Y., Le Manach, F., Österblom, H., Mok, K., van der Meer, L., Sanz, A., Shon, S., Sumaila, U. Swartz, W., **Watson, R.**, Zhai, Y., Zeller, D. 2014. China's distant water fisheries in the 21st century. *Fish and Fisheries*. 15(3): 474-488 DOI: 10.1111/faf.12032
- Watson, R.** and Pauly, D. 2014. Coastal catch transects as a tool for studying global fisheries. *Fish and Fisheries*. 15(3): 445-455 DOI: 10.1111/faf.1202
- Watson, R.**, Zeller, R. and Pauly, D. 2014. Primary productivity demands of global fishing fleets. *Fish and Fisheries*. 15(2): 231-241 DOI: 10.1111/faf.1201
- Srinivasana, J.T., Cheung, W.W.L., **Watson, R.**, Sumaila, U.R. 2013. Response to removing biases in forecasts of fishery status. *Journal of Bioeconomics* 16: 221-222.
- Kleisner, K.M., Longo, C., Coll, M., Halpern, B.S., Hardy, D., Katona, S.K., Le Manach, F., Pauly, D., Rosenberg, A.A., Samhour, S.F., Scarborough, C., Sumaila, U.R., **Watson, R.**, Zeller, D. 2013. Exploring patterns of seafood provision revealed in the global Ocean Health Index. *Ambio* 42: 910–922 DOI: 10.1007/s13280-013-0447-x
- Cheung, W., **Watson, R.**, Pauly, D. 2013. Signature of ocean warming in global fisheries catch. *Nature*. 497:365-368.
- Watson, R.**, Nowara, G., Tracey, S., Fulton, B., Bulman, C., Edgar, G., Barrett, N., Lyle, J., Frusher, S., Buxton, C. 2013. Ecosystem model of Tasmanian waters explores impacts of climate-change induced changes in primary productivity. *Ecological Modelling (Global Climate Change and Marine Ecosystems)* 264:115-129. DOI: 10.1016/j.ecolmodel.2012.05.008
- Watson, R.** and Pauly, D. 2013. The changing face of global fisheries - the 1950s vs. the 2000s. *Marine Policy* 42:1-4.
- Watson, R.**, Morato, T. 2013. Fishing down the deep: accounting for within-species changes in depth of fishing. *Fisheries Research*. 140:63-65.
- Swartz, W., Sumaila, U.R. and **Watson, R.** 2013. Global Ex-Vessel Fish Price Database revisited: a new approach for estimating 'missing' prices. *Journal of Environmental and Resource Economics*. doi:10.1007/s10640-012-9611-1
- Watson, R.**, Cheung, W., Anticamara, J., Sumaila, R.U., Zeller, D., and Pauly, D. 2013. Global marine yield halved with increasing fishing intensity. *Fish and Fisheries* 14: 493–503

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### REFEREED PAPERS

- Cheung, W.W.L., Sarmiento, J.L., Dunne, J., Frölicher, T.L., Lam, V., Palomares, M.L., **Watson, R.**, and Pauly, D. 2012. Shrinking of fishes exacerbates impacts of global ocean changes on marine ecosystems. *Nature Climate Change* 2(11) doi:10.1038/nclimate1691
- Sumaila U.R., Cheung, W., Dyck, A., Gueye, K., Huang, L., Lam, V., Pauly, D., Srinivasan, U., Swartz, W., **Watson, R.**, Zeller, D. 2012. Benefits of rebuilding global marine fisheries outweigh costs. *PLoS One* 7(7): doi:10.1371/journal.pone.0040542
- Allnutt, T., McClanahan, T., Baker, M., Lagabriele, E., McClennen, C., Rakotomanjaka, A., Tianarisoa, T., **Watson, R.**, Kremen, C. 2012. Comparison of Marine Spatial Planning Methods in Madagascar Demonstrates Value of Alternative Approaches. *PloS One* 7(2) 10.1371/journal.pone.0028969
- Coll, M., Piroddi, C., Albouy, C., Ben Rais Lasram, F., Cheung, W. W. L., Christensen, V., Karpouzi, V. S., Guilhaumon, F., Mouillot, D., Paleczny, M., Palomares, M.L., Steenbeek, J., Trujillo, P., **Watson, R.**, and Pauly, D. 2012. The Mediterranean Sea under siege: spatial overlap between marine biodiversity, cumulative threats and marine reserves *Global Ecology and Biogeography* 21:465-480.
- Sumaila, U.R., Cisneros-Montemayor, A., Dyck, A., Huang, L., Cheung, W., Jacquet, J., Kleisner, K., Lam, V., McCrea-Strub, A. Swartz, W., **Watson, R.**, Zeller, Z., Pauly, D. 2012. Impact of the Deepwater Horizon well blowout on the Economics of U.S. Gulf fisheries. *Canadian J Fisheries and Aquatic Sciences* 69(3): 499-510
- Srinivasan, U.T., **Watson, R.**, Sumaila, U.R. 2012. Global fisheries losses at the exclusive economic zone level, 1950 to present. *Marine Policy* 36: 544-549.
- Tremblay-Boyer, L., Gascuel, D., **Watson, R.**, Christensen, V., Pauly, D. 2011. Effects of industrial fisheries on the biomass of the world's oceans: 1950-2006 *Marine Ecology Progress Series* 442: 169-185.
- Norse, E.A., Brooke, S., Cheung, W.W.L., Clark, M.R., Ekeland, I., Froese, R., Gjerde, K.M., Haedrich, R.L., Heppell, S.S., T., M., Morgan, L.E., Pauly, D., Sumaila, R. and **Watson, R.** 2011. Sustainability of deep-sea fisheries. *Marine Policy*. 36: 307-320.
- Anderson, S.C., Flemming, J.M., **Watson, R.** and Lotze, H.K. 2011. Serial exploitation of global sea cucumber fisheries. *Fish and Fisheries* 12: 317-339.
- Lam, V.W.Y., Sumaila, U.R., Dyck, A., Pauly, D. and **Watson R.** 2011. Construction and first applications of a global cost of fishing database. *ICES Journal of Marine Science* ICES 68: 1-9.

## PUBLICATIONS

### REFEREED PAPERS

- Collette, B.B., Carpenter, K.E., Polidoro, B.A., Juan-Jordá, M.J., Boustany, A., Die, D.J., Elfes, C., Fox, W., Graves, J., Harrison, L., McManus, R., Minte-Vera, C.V., Nelson, R., Restrepo, V., Schratwieser, J., Sun, C., Amorim, A., Peres, M.B., Canales, C., Cardenas, G., Chang, S., Chiang, W., Leite, N., Harwell, H., Lessa, R., Fredou, F.L., Oxenford, H.A., Serra, R., Shao, K., Sumaila, R., Wang, S., **Watson, R.**, Yáñez, E. 2011. High value and long-life: double jeopardy for tunas and billfishes. *Science* 333: 291-292.
- Scrub-McCrea, A., Zeller, D., Sumaila, U.R., Swartz, W., Kleisner, K., **Watson, R.**, and Pauly, D. 2011. Potential impact of the Deepwater Horizon oil spill on commercial fisheries in the Gulf of Mexico. *Fisheries* 36(7): 332-336.
- Mouillot D., Albouy C., Guilhaumon F., Ben Rais Lasram F., Coll M., DeVictor V., Douzery E., Meynard C., Pauly D., Tomasini J. A., Troussellier M., Velez L., **Watson R.**, and Mouquet N. 2011. Protected and threatened components of fish biodiversity in the Mediterranean Sea. *Current Biology* 21(12): 1044-1050
- Anderson, S.C., Flemming, J.M., **Watson, R.** and Lotze, H.K. 2011. Global Expansion of Invertebrate fisheries: trends, drivers, and ecosystem effects. *PLoS ONE* 6(3): e14735.
- Anticamara, J., **Watson, R.**, Gelchu, A., Beblow, J., Pauly, D. 2011. Global fishing effort (1950-2010): Trends, gaps, and implications. *Fisheries Research* 107: 131–136
- Swartz, W., Sala, E, Tracey, S., **Watson, R.**, Pauly, D. 2010. The spatial expansion and ecological footprint of fisheries (1950 to present). *PLoS ONE* 5(12) e15143
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Anon. A prediversion analysis of the spawning and nursery potential and population of rainbow trout, *Salmo gairdneri*, of the Neebing River, Thunder Bay, Ontario. Ontario Ministry of Natural Resources, 1977. (Involved with data collection, analysis and initial report preparation)

### EXTENSION ARTICLES

New Perspectives of the Coastal Biodiversity Management Program. [Perspektif Baru dalam Program Pengelolaan Keanekaragaman Hayati Sumberdaya Lautan dan Pesisir] Serasi (Warta KLH).

Commercial Prawn Catches in Torres Strait. Aust. Fish. Jan. 88, pp23-26.

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## SCIENTIFIC CONFERENCES 1.

“Exploring the supply of seafoods for a changing world” (invited paper) Coral Studies Centre of Excellence Symposium entitled “Future of Marine Ecosystems” 6<sup>th</sup> October, 2015, Hobart, Australia

2<sup>nd</sup> International Marine Conservation Congress. Global changes in body size, distribution and productivity of marine fishes under climate change: implications for conservation. Cheung, W.W.L., Dunne, J., Lam, V.W.Y., Sarmiento, J.L., Watson, R., Zeller, D., Pauly, D. 14-18 May 2011, Victoria, Canada

2<sup>nd</sup> International Marine Conservation Congress. Are global marine fisheries starving seabirds? Paleczny, M., Furness, R.W., Hammill, E., Karpouzi, V., LeCorre, M., Trites, A.W., Watson, R., Pauly, D. 14-18 May 2011, Victoria, Canada

2<sup>nd</sup> International Marine Conservation Congress. Spatial overlap between marine biodiversity, cumulative threats and marine reserves in the Mediterranean Sea. Coll, M., Piroddi, C., Christensen, V., Karpouzi, V., Paleczny, M., Palomares, M.L., Steenbeek, J., Trujillo, P., Watson, R., Pauly, D., Abouy, C., Guilhaumon, F., Mouillot, D., Lasram, F.B.R., Nicolle, C., Cheung, W.W.L. 14-18 May 2011, Victoria, Canada

AAAS 2011. "Making Fishing Effort in the World Ocean Sustainable: Lessons from Historic Trends." In: "2050: Will There Be Fish in the Ocean?" Symposium Feb 19, 2011. Washington DC (with press briefing – appears on ABC Radio Science Show Feb 26, 2011)

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International Conference on Biodiversity Data Management, Bedford Institute, Nova Scotia, Canada. October 2-4, 2007. 'AquaMaps'; Kaschner, K., J. S. Ready, E. Agbayani, J. Rius, K. Kesner-Reyes, P. D. Eastwood, A. B. South, S. O. Kullander, T. Rees, C. H. Close, R. Watson, D. Pauly, and R. Froese.

PICES-ICES. The effect of climate on basin-scale processes and ecosystems. 2007. World fish catch driven by primary production. E Chassot, S Bonhommeau, F Mélin, O Le Pape, R Watson and D Gascuel

Australian Society for Fish Biology, 2006, Hobart, Australia. Global Fisheries: the Big Picture. Reg Watson, Adrian Kitchingman.

American Fisheries Society, 2006, Lake Placid, NY. The direct and indirect contribution of cephalopods to marine fisheries. Mary Hunsicker, Timothy Essington, Reg Watson and Rashid Sumaila

3<sup>rd</sup> FishBase Mini Symposium – Fish and More, 2005, Thessaloniki, Greece. ‘Fish and more: A global seabird-base is underway’ (Vasiliki S. Karpouzi, Reg Watson, Daniel Pauly)

## SCIENTIFIC CONFERENCES 2.

International Conference on Marine Biodiversity Data Management, Hamburg, Germany, 29 Nov – 1 Dec, 2004. Fisheries impact on global marine biodiversity and ecosystems: inference from large heterogeneous data sets. D. Pauly and R. Watson and Poster Mapping world-wide distributions of marine mammal species using a relative environmental suitability (RES) model. K. Kaschner, R. Watson, A.W. Trites and D. Pauly.

Fisheries Ecosystem Symposium (ASFB 2004), 20th September 2004, Adelaide, Australia. Invited presentation ‘Mapping global fisheries indicators and potential conflicts’ (jointly written with Kristin Kaschner)

Marine Fish Conservation Network, Annual meeting, June 2, 2004, Washington DC. Invited presentation ‘The future for global fisheries: several scenarios for action’.

‘Place matters – geospatial tools for marine science, conservation and management’ 2004 AAAS meeting, February 10-13, 2004, Seattle. Invited to co-present with Jackie Alder ‘Probing the depths: reverse engineering fisheries landings statistics’ (jointly written with Villy Christensen and Daniel Pauly).

The World Summit on Salmon, June 10-13, 2003, Vancouver, B.C. Canada. Invited presentation ‘Status of global fisheries’.

2<sup>nd</sup> International Symposium on GIS/Spatial Analysis in Fishery and Aquatic Sciences. Brighton, U.K. 2-6 September, 2002. Presented ‘Spatial allocation of global fisheries landings using rule-based procedures’.

World Congress on Aquatic Protected Areas 2002. Cairns, Australia, 14-17 June 2002. Presented ‘Multi-scale decision support for aquatic protected area placement’.

Marine fisheries, ecosystems, and societies in West Africa: a half century of change. Dakar, Senegal, June 26-28 2002. Presented ‘Mapping fisheries catches and related indices of West Africa: 1950 to the present’.

Modelling and mapping trophic overlap between marine mammals and commercial fisheries in the North Atlantic: Implications for fisheries management. Society of Marine Mammalogy Biennial Conf., Nov 28, 2001, Vancouver, Canada (with Kristin Kaschner)

A spatially explicit model of marine mammal food consumption in the North Atlantic – incorporation of habitat preferences using GIS (Abstract). 2nd Workshop on the Use of Geomatic Technologies for Marine Mammal Scientists - Society of Marine Mammalogy Biennial Conf., Nov 29 – Dec 3, 2001, Vancouver, Canada (with Kristin Kaschner)

17<sup>th</sup> Lowell Wakefield Fisheries Symposium on Spatial Processes and Management of Marine Populations, 27-30 October, 1999, Anchorage, Alaska.

### SCIENTIFIC CONFERENCES 3.

Essential Fish Habitat and Marine Reserves, William R. & Lenore Mote International Symposium in Fisheries Ecology, Sarasota, Florida, November 1998. 'Marine Reserves and the restoration of fisheries and marine ecosystems in the South China Sea'.

Second World Fisheries Congress, Brisbane July, 1996. Presented 'Computer simulation of fisheries closures'.

## WORKSHOPS AND SEMINARS

‘Exploring productivity changes on fisheries and ecosystems in Tasmanian waters’, Institute of Marine and Antarctic Sciences, Sustainable Marine Research Collaboration Overview, May, 2nd 2011, Hobart

‘Climate change: projecting impacts to fisheries globally and in Tasmanian waters’, Australian Society for Fish Biology, Melbourne, July 13, 2010.

‘Ecosystems model analysis to address fisheries management issues and the implications of climate change’ Cross Cutting Tools that assist Environmental Policy Session. Commonwealth Environmental Research Facilities Fellowship Presentations, Canberra, May 25, 2010

‘Integrating climate and ecosystem models’ Univ. Tasmania, Hobart, September 2-4, 2008

‘Global fisheries: the big picture’ Universidad Nacional Autonoma de Mexico Instituto de Ciencias del Mar y Limnologia August 22, 2007

‘The marine human footprint: mapping our impact on the world’s oceans’ presented at the Pristine Oceans working group hosted by the National Center for Ecological Analysis and Synthesis. Caterina D’Agrosa, Eric Sanderson and Reg Watson May 7-11 2004, Santa Barbara, U.S.A. Presented by C. D’Agrosa

‘Linking Marine Biodiversity to ecosystem functions and services’ a workshop hosted by the National Center for Ecological Analysis and Synthesis. May 7-11 2004, Santa Barbara, U.S.A. Invited to present ‘Mapping the decline’.

Marine Fishes Scientific Subcommittee Meeting of the Committee on the Status of Endangered Wildlife in Canada (10-13 September 2004, Winnipeg) invited to present ‘Mapping the decline’.

Modelling Antarctic Ecosystems, UBC Fisheries Centre, April 15-17, 2003. Presented “Mapping global landings: big plans – small boxes”

FAO workshop on the Use of Ecosystem Models to Investigate Multispecies Management Strategies for Capture Fisheries. 17-20 July 2002. UBC FC and FAO.

Advisory Committee on Fisheries Research, Working Party on Status and Trends of Fisheries, Rome, Italy, 30 November – 3 December, 1999.

Ecopath with Ecosim Workshop, 22-25 November 1999, UBC, Vancouver

Marine Biodiversity Management Workshop, 19<sup>th</sup> June, 1993, Ancol, Jakarta, Indonesia. Presented completion of national strategy. Project EMDI

## SCHOLARSHIPS, FELLOWSHIPS AND HONOURS

University of Tasmania's (Institute of Marine and Antarctic Studies) Australian Research Council Laureate Fellowship candidate. 2012

Sustainability Science Award, Ecological Society of America 2011 (jointly for paper in Science)

Commonwealth Environmental Research Facilities Research Fellowship (Professor of Marine Ecosystem Modelling, University of Tasmania) 2008-2010.

Canadian National Research Council Postdoctoral Fellowship: Apr 1984 (declined).

University of Queensland Postgraduate Research Scholarship: Jul 1979 -Jul 1982.

Manitoba Fellowship: Sept 1975 - May 1977, May 1977 - Sept 1977.

Canadian National Research Council Scholarship: May 1976 - May 1977, May 1977 (declined).

## CURRENT SOCIETY MEMBERSHIPS

Australian Society for Fish Biology (since 1979)  
Network of Tropical Fisheries Scientists (since 1983)  
Asian Fisheries Society (since 1988)  
American Fisheries Society (1990 - 2005)

## OTHER QUALIFICATIONS

Tasmanian Drivers License  
NAUI SCUBA Divers Certificate  
Restricted Radio Operators License  
St. John's Ambulance Senior First Aid

## HOBBIES & OTHER INTERESTS

Bush walking, tin whistle and Celtic music