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P E R S O N A L I N F O R M A T I O N

NATIONALITY: AUSTRALIAN  
DATE OF BIRTH: 21 AUGUST 1960  
PLACE OF BIRTH: CLONCURRY, QUEENSLAND

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E D U C A T I O N

<b>University of Queensland</b> Brisbane, Queensland BACHELOR OF SCIENCE (MAJOR ZOOLOGY)	1978 - 1981
<b>University of Canberra</b> Canberra, Australian Capital Territory MASTER OF APPLIED SCIENCE (APPLIED ECOLOGY)	1992 - 1998
<b>University of Canberra</b> Canberra, Australian Capital Territory DOCTOR OF PHILOSOPHY (APPLIED ECOLOGY)	2001 - 2006

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P R O F E S S I O N A L   E X P E R I E N C E

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**Department of Primary Industries and Energy, Bureau of  
Resource Sciences, Canberra, ACT**

*1988-1994*

Position & Level: Senior Professional Officer Class C -  
Fisheries Scientist

Description of Duties:

Assess or assist with the development of models and other computer software (often in collaboration with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and State fisheries, Australian Fisheries Service (AFS) or the Australian Bureau of Agricultural and Resource Economics (ABARE)) useful for assessing the status of Commonwealth managed fish stocks. Report or provide information on current status of those stocks to scientific research committees, AFS, industry and the public. Provide advice to the AFS on continuing development of the Australian Fishing Zone Information System. Support and improve the Fisheries Resources Branch data processing capabilities.

Position & Level: Scientific Officer Level 5 - Scientific Programmer/Modeller

Description of Duties:

*Management strategy design and evaluation*

Develop methods and tools for the design and evaluation of strategies for managing Australia's living resources. Responsible for assisting in the development and implementation of mathematical models and modelling software for applications in risk assessment, bio-economic analysis, stock assessment and ecosystem modelling. Manage scientific team responsible for development and implementation of framework for management strategy evaluation for the Southern Bluefin Tuna (SBT) fishery (3 scientists).

*Population dynamics and management*

Responsible for assisting in the development (including software) and application of population models, statistical analyses, assessment methods and management strategies for the SBT resource. Manage scientific team responsible for the assessment of stock status for the SBT fishery (5 scientists)

Position & Level: SO Level 6 – Fisheries Scientist (CSIRO)

Description of Duties:

*Development and implement mathematical models and modelling software for applications in risk assessment, bio-economic analysis, stock assessment and ecosystem modelling in the Southern and Eastern Scalefish and Shark Fishery (SESSF).*

Develop automated systems for processing all SESSF species stock assessment data into common form, and to report diagnostics of missing or erroneous data. Annually process the stock assessment data and distribute them and automated data quality reports to stock assessment authors.

Facilitate an increase in the efficiency of data storage, correction and distribution of SESSF stock assessment data across organisations. Supervise a cross-organisational project with these aims.

Apply statistical procedures (primarily GLMs) to standardise abundance indices of major commercial fish species from long-term historical fisheries data from the SESSF.

Develop stock assessments for various SESSF species including pink ling, tiger flathead, redfish, deepwater flathead and Bight redfish using various tools including AD Model Builder, Coleraine and Stock Synthesis (SS2 and SS3). Present stock assessment results to Fishery Assessment Groups as required. Facilitate the standardisation of assessment procedures across species.

Participate in the development of training packages to assist with the education of industry in stock assessment methods and the application of harvest strategies.

Develop software to implement harvest strategy rules for species where no formal stock assessment exists, process and present results from these analyses as required.

Analyse multi-species aspects of the SESSF fishery and provide reports on trends in targeted assemblages and catch diversity.

Develop ecosystem models of SESSF shelf and slope communities to examine long-term changes in community composition (EcoSim).

Carry out fine-scale spatial analysis of SESSF logbook and observer data as required using GIS (Manifold, MapInfo, other).

Position & Level: Fisheries Consultant

Description of Duties:

*Private consultancy*

Development and implement mathematical models and modelling software for applications in risk assessment, bio-economic analysis, stock assessment and ecosystem modelling in fisheries. Development of procedures to assist the fisheries stock assessment process. Review and publication of scientific literature. Advise or review fisheries stock assessments.

*Association with CSIRO*

Continue an association with CSIRO as an Honorary Fellow. Assist with data and stock assessment processes. Mentoring of staff and students.

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## I N T E R N A T I O N A L   W O R K

**1991. Forum Fisheries Agency, Honiara, Solomon Islands.** Develop package using Windows SDK for display of fishing effort and catches in the region, and for monitoring activity of foreign vessels in the Solomon Island Exclusive Economic Zone. Package called FMS (Fisheries Mapping System) was developed and distributed widely.

**1991-1999. Far Seas Fisheries Agency, Shimizu, Japan.** Work with Japanese scientists (both in Australia and in Japan on a number of occasions) to ensure that the software systems used by Japan and Australia for the assessment and prediction of future stocks of Southern Bluefin Tuna are functionally the same. Participate in tri-lateral CCSBT scientific meetings rotated annually among Japan, New Zealand and Australia.

**1997. University of Alaska, Anchorage, Alaska, USA.** Attend conference on fisheries stock assessment methods for the 21st century and present our work on objective methods for weighting alternative assessment models based on lack of fit to observations.

**1998. National Marine Fisheries Service, Honolulu, Hawaii, USA.** On invitation by NMFS, contribute to a US workshop to develop monitoring methods for fisheries bycatch of marine turtles in the Hawaiian area.

**1998. University of Capetown, Capetown, South Africa.** Attend a conference on the use of management procedures, and present work on modelling the spatial relationship between SBT fishery catch rates and stock distribution.

**2001. University of Southern Denmark, Esbjerg, Denmark.** Attend a summer school and workshop sponsored by the History of Marine Animal Populations (HMAP) sub-project of the Sloan Foundation Census of Marine Life Project. The summer school examined the long-term ecosystem impacts of human activity on marine systems using a number of case studies. Present progress on the Western Pacific SEF case study.

**2002. University of New Hampshire, Durham, New Hampshire, USA.** Attend a summer school and workshop sponsored by HMAP extending from the 2001 programme. Present progress on the Western Pacific SEF case study.

**2004. University of Southern Denmark, Esbjerg, Denmark.** Attend a workshop sponsored by the History of Marine Animal Populations (HMAP) sub-project of the Sloan Foundation Census of Marine Life Project. Present final results for the Western Pacific SEF case study.

**2005. Oceans Past Conference, Kolding, Denmark.** Attend a conference sponsored by the History of Marine Animal Populations (HMAP) sub-project of the Sloan Foundation Census of Marine Life Project. Present final results for the Western Pacific SEF case study, chair conference session.

**2006. Stock Assessment Workshop, La Jolla, California, USA.** Attend a workshop on development and review of US West Coast groundfish assessments and harvest strategies. Present a summary of the application of similar methods in Australia and the effect on our fish resources.

**2007. Stock Assessment Review, Portland, Oregon, USA.** Participate in the US West Coast rockfish stock assessment review (STAR) panel as an independent reviewer. Provide a report of findings to the US Center for Independent Experts.

**2007. Stock Assessment Review, Woods Hole, Massachusetts, USA.** Participate in the 46th Northeast Regional Stock Assessment Workshop Stock Assessment Review Committee (SARC) Meeting for Striped Bass as an independent reviewer. Provide a report of findings to the US Center for Independent Experts.

**2008. Stock Assessment Review, Jacksonville, Florida, USA.** Participate in the 16th Southeast Data Assessment and Review (SEDAR) Stock Assessment Review Committee Meeting for King Mackerel as an independent reviewer. Provide a report of findings to the US Center for Independent Experts.

**2009. Stock Assessment Review, Juneau, Alaska, USA.** Participate in a review meeting on the 2008 assessment of Alaskan Sablefish as an independent reviewer. Provide a report of findings to the US Center for Independent Experts.

**2009. ICCAT SCRS meeting, Recife, Brazil.** Participate in an ICCAT inter-sessional meeting of the sub-committee on ecosystems to present estimates of seabird bycatch by ICCAT longline fisheries in the Atlantic Ocean.

**2010. Stock Assessment Review, Savannah, Georgia, USA.** Participate in the 19th SEDAR Stock Assessment Review Committee Meeting for the assessment of black grouper (*Mycteroperca bonaci*) and red grouper (*Epinephelus morio*) as an independent reviewer. Provide a report of findings to the US Center for Independent Experts.

**2011. Stock Assessment Review, Hawaii deepslope bottom fishery.** Conduct a desktop review of the Hawaii deepslope bottom fishery update of the 2008 stock assessment. Provide a report of findings to the US Center for Independent Experts.

**2011. Data poor fisheries workshop, Portland Oregon, USA.** Participate in a workshop on simple stock assessment tools for fisheries management on invitation from the Oregon State University.

**2011. Stock Assessment Review, Annapolis, Maryland, USA.** Participate in the 21st SEDAR Stock Assessment Review Committee Meeting for the 2011 assessment of U.S. South Atlantic Blacknose, Gulf of Mexico Blacknose, Sandbar, and Dusky Sharks as an independent reviewer. Provide a report of findings to the US Center for Independent Experts.

**2012. Marine Stewardship Council (MSC) Desktop Peer Review for Intertek Moody Marine, Nova Scotia Canada.** Conduct a peer review of the MSC certification of the NZ Hoki fishery.

**2012. Stock Assessment Review, Woods Hole, Massachusetts, USA.** Participate in the Stock Assessment Review Committee (SARC) 54th Stock Assessment Workshop Meeting for the 2012 assessment of Atlantic Herring (*Clupea harengus*) and Southern New England / Mid-Atlantic Bight Yellowtail Flounder (*Limanda ferruginea*) as an independent reviewer. Provide a report of findings to the US Center for Independent Experts.

**2013. Stock Assessment Review, Alaska Fisheries Science Center, Juneau Alaska, USA.** Participate in a review of rockfish stock assessments for the Bering Sea/Aleutian Islands and Gulf of Alaska regions as an independent reviewer. Provide a report of findings to the US Center for Independent Experts.

**2013. Agreement on the Conservation of Albatrosses and Petrels: Population and Conservation Status Working Group and Seabird Bycatch Working Group, La Rochelle, France.** Provide expert advice to the working groups in relation to seabird population trend analysis and types of analysis enabled by different levels of data requested from member States.

**2013. World Conference on Stock Assessment Methods Conference, Boston, USA.** Attend the conference and present results from our work on “Combining spatial sub-populations in a stock assessment - is it a problem?”.

**2013 and 2014. Expert consultation, Vina del Mar, Chile.** Participate as an invited expert by the Chilean Government in three workshops to assist in the development of stock biological reference points for all Chilean national fisheries.

**2014. Stock Assessment Review, Miami, Florida, USA.** Participate in a review of Gulf of Mexico gag grouper and greater amberjack. Provide a report of findings to the US Center for Independent Experts.

**2015. Stock Assessment Review, Panama City, Florida, USA.** Participate in a review of Gulf of Mexico smoothhound shark complex and Atlantic dusky smoothhound shark stock assessments. Provide a report of findings to the US Center for Independent Experts.

**2015. Stock Assessment Reviews, Pacific coast, USA.** Participate in all stock assessment reviews (STAR Panels) for the Pacific coast groundfish stocks in 2015 (darkblotched rockfish, canary rockfish, China rockfish, bocaccio, black rockfish, widow rockfish and kelp greenling) as the independent reviewer to attend all meetings to provide a level of consistency between the Panels. A mop-up Panel was also required that I also attended. Provide reports of findings to the US Center for Independent Experts.

**2015. Marine Stewardship Council (MSC) Desktop Peer Review for SCS Global Services, Emeryville CA, USA.** Conduct peer reviews of the MSC certification of the PNA western and central Pacific unassociated purse seine fishery for yellowfin tuna and the unassociated purse seine fishery for skipjack and yellowfin tuna by Tri Marine International.

**2016. Stock Assessment Review, Alaska Fisheries Science Center, Seattle, Washington, USA.** Participate in a review of Eastern Bering Sea and Aleutian Island Pacific cod stock assessments. Provide a report of findings to the US Center for Independent Experts.

**2016. International Council for the Exploration of the Sea (ICES) Inter-benchmark Desktop Peer Review.** Participate in a desktop and Skype review of an Inter-Benchmark Protocol for sea bass in the Irish Sea, Celtic Sea, English Channel, and southern North Sea stock assessment. Contribute to the inter-benchmark report.

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- Klaer, N.L.** 1994. Methods for standardisation of catch/effort and data requirements, pp. 86-89. In *Population Dynamics for Fisheries Management*, Hancock, D.A. (ed). Australian Society for Fish Biology Workshop Proceedings, Perth 24-25 August 1993.
- Klaer, N. and Pullen, G.** 1994. Jack Mackerel, pp. 87-90. In *Fishery Status Reports 1993 - Resource Assessments of Australian Commonwealth Fisheries*, McLoughlin, K., Staples, D. and Maliel, M. (eds). Bureau of Resource Sciences, Canberra.
- Klaer, N. and Smith, A.** 1994 Stock reduction analysis - computer implementation developed by CSIRO and BRS. *Agricultural Systems & Information Technology* Vol. 6:1. Bureau of Resource Sciences, Australia.
- Klaer, N. L. and Tilzey, R. D. J.** 1994. The multispecies structure of the fishery, pp. 72-94. In: *The South East Fishery - A Scientific Review With Particular Reference to Quota Management*, Tilzey, R.D.J. (ed). Bureau of Resource Sciences, Canberra.
- Klaer, N. and Polacheck, T.** 1997. By-catch of albatrosses and other seabirds by Japanese longline fishing vessels in the Australian Fishing Zone from April 1992 to March 1995. *Emu* Vol. 97, 150-167.
- Klaer, N. and Polacheck, T.** 1998. The influence of environmental factors and mitigation measures on by-catch rates of seabirds by Japanese longline fishing vessels in the Australian region. *Emu* 98: 305-316.
- Klaer, N.** 1998. Analysis of seabird by-catch in the Australian Fishing Zone using Japanese longline fishery observer data. Master of Applied Science Thesis, University of Canberra.
- Klaer, N.L.** 2001. Steam trawl catches from south eastern Australia from 1918 to 1957: trends in catch rates and species composition. *Marine and Freshwater Research* 52:399-410.
- Klaer, N.L.** 2004. Abundance indices for main commercial fish species caught by trawl from the south-eastern Australian continental shelf from 1918 to 1957. *Marine and Freshwater Research* 55:561-571.
- Klaer, N.L.** 2006. Changes in the Structure of Demersal Fish Communities of the South East Australian Continental Shelf from 1915 to 1961. PhD Thesis, University of Canberra.
- Klaer, N.L. and Smith, D.C.** 2012. Determining primary and companion species in a multi-species fishery: Implications for TAC setting. *Marine Policy* 36:606-612.
- Klaer, N.L.** 2012. Estimates of total seabird bycatch by Atlantic pelagic long-line fisheries from 2003 to 2006. *Marine Fisheries Review* (in press).
- Klaer, N.L., Wayte, S.E., and Fay, G.** 2012. An evaluation of the performance of a harvest strategy that uses an average-length-based assessment method. *Fisheries Research* 134-136:42-51.

**Klaer, N.L., O'Boyle, R.N., Deroba, J.J., Wayte, S.E., Little, L.R., Alade, L.A., Rago, P.J.** 2015. How much evidence is required for acceptance of productivity regime shifts in fish stock assessments: Are we letting managers off the hook? *Fisheries Research* 168:49-55.

**Tilzey, R.D.J., Zann-Schuster, M., Klaer, N.L., and Williams, M.J.** 1990. The South East Trawl Fishery: Biological synopses and catch distributions of seven major commercial fish species. BRR Bulletin no. 6.

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**Tilzey, R. D. J. and Klaer, N.L.**1994. Catch and effort summary, pp. 46-71. In: Tilzey, R.D.J. (ed). *The South East Fishery - A Scientific Review With Particular Reference to Quota Management*, Bureau of Resource Sciences, Canberra.

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## U N P U B L I S H E D R E P O R T S

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**Secretary** – Australian Fisheries Statistics Working Group 1991-1993.

**Chairman** – Conservation Commission for Antarctic Marine Living Resources Seabird Bycatch Working Group 1996.

**Scientific delegation member** – Southern Bluefin Tuna Trilateral Scientific Committee (Japan, Australia, New Zealand) 1988 – 1994. Commission for the Conservation of Southern Bluefin Tuna 1995 – 1999.

**Stock assessment member** - Southern and Eastern Scalefish and Shark Fishery Shelf and Great Australian Bight Resource Assessment Groups 2004 - 2014, SESSRAG 2009-2014.

**Co-Convenor** – The Modelling and Simulation Society of Australia International Congress on Modelling and Simulation, Hobart 1997 (MODSIM).

**Independent reviewer** – US stock assessments – 2007-present.

**Honorary Fellow** – CSIRO – 2014-present

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P R O F E S S I O N A L M E M B E R S H I P S

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