



Marine Stewardship Council Fishery Announcement

Name of Fishery	New Zealand albacore tuna troll
Assessment number	<i>First Re-assessment</i>
Reduced re-assessment (Y/N)	<i>N</i>
Statement that the fishery is within scope	<p>The fishery entering assessment meets the scope requirements (FCR 7.4) for MSC fishery assessments [FCR 7.8.3.1]. A series of actions were required to be undertaken prior to the CAB confirming this. These actions are [FCR 7.4 and associated guidance]:</p> <ul style="list-style-type: none"> • Ensuring that the fishery is within scope of the MSC standard, (i.e. it does not operate under a controversial unilateral exemption to an international agreement, use destructive fishing practices, target amphibians, birds, reptiles or mammals and is not overwhelmed by dispute); • Reviewing pre-assessment reports and other information; • Confirming the proposed units of assessment and certification; • Determining if the fishery has failed an assessment within the last two years; • Determining if the certificate may be shared with fishers not initially part of the client group • Determining if IPI stocks are caught; • Determining if the fishery is enhanced; • Determining if the fishery overlaps with another MSC certified or applicant fishery; • Determining if the fishery is based on an introduced species; • Ensuring that the fishery does not include an entity that has been successfully prosecuted for violations against forced labour laws.
Certificate sharing statement	N/A
Estimated Length of Full Assessment & Timeline	Publication of Public Certification Report is expected by January 2017. The PCDR is expected by October 2016 and Final Report by December 2016. For a full timeline please see assessment downloads.

Name of proposed Team Leader	<p>Jo Akroyd (P3) Jo is a fisheries management and marine ecosystem consultant with extensive international and Pacific experience. She has worked at senior levels in both the public and private sector as a fisheries manager and marine policy expert. Jo was with the Ministry of Agriculture and Fisheries in New Zealand for 20 years. Starting as a fisheries scientist, she was promoted to senior chief fisheries scientist, then Fisheries Management Officer, and the Assistant Director, Marine Research. She was awarded a Commemoration Medal in 1990 in recognition of her pioneering work in establishing New Zealand's fisheries quota management system. Among her current contracted activities, she is involved internationally in fishery certification of offshore, inshore and shellfish fisheries as Fisheries Management Specialist and Lead Assessor for the Intertek Fisheries Certification audit team. She has carried out the Marine Stewardship Council's (MSC) certification assessment for sustainable fisheries. Examples include New Zealand (hoki, southern blue whiting, albacore, scallops), Fiji (longline albacore) Japan (pole and line tuna, flatfish, snowcrab, scallops), China (scallops), and Antarctica (Ross Sea tooth fishery).</p>
Name(s) of proposed assessors	<p>Kevin McLoughlin (P1/P2) Kevin McLoughlin is a specialist fisheries consultant based in Australia who worked for more than 20 years (until 2008) with the Australian Bureau of Rural Sciences (BRS) as a Senior Fisheries Scientist engaged in a wide range of international and domestic fisheries issues. BRS provides an interface between science, policy and management. Responsibilities included production of annual Fishery Status Reports to provide information on the broader ecological aspects of Australia's federally-managed fisheries as well as on the status of target species (and included reporting on Australia's tuna fisheries). He represented BRS on many committees and groups such as fishery assessment groups and management advisory committees, providing advice on a wide range of fisheries and species (including tuna, shark, various finfish, scallop and prawn). Work in assessment groups involved assessment of target species, development of bycatch action plans and ecological risk assessments. Mr McLoughlin was Chair of Australia's Western Tuna and Billfish Resource Assessment Group and a member of the Management Advisory Committee for that fishery. Mr McLoughlin represented Australia on scientific issues at the Indian Ocean Tuna Commission and was Chair of the IOTC Working Party on Bycatch from its inception, assisting to establish this group to investigate the ecological aspects of the Indian Ocean tuna fisheries. From 2005 to 2008 Mr McLoughlin was Australia's representative at meetings of the IOTC Working Party on Tropical Tunas and the IOTC Scientific Committee, and presented the findings of the Scientific Committee to the Commission at its 2006 meeting. In 2006, he led</p>

	<p>Australia's delegation to 2006 scientific meetings of the Commission for the Conservation of Southern Bluefin Tuna. Prior to working with BRS, Mr McLoughlin worked as a scientist with Australia's Commonwealth Scientific and Industrial Research Organisation and was engaged in major tagging programs for southern bluefin tuna. Mr McLoughlin also led the Demersal Fisheries Section within BRS for a number of years. He was a member of the Australian Shark Implementation Group for the National Plan of Action for Sharks and Chair of Australia's National Shark Recovery Group for several years. Relevant MSC experience includes being a member of the team undertaking the full assessment of the Fiji albacore longline fishery and has undertaken pre-assessment of tuna fisheries. He was a member of a team that conducted a pre-assessment for Australia's Commonwealth government managed fisheries. He was a peer reviewer for the New Zealand albacore troll fishery and for the North and South Pacific American Albacore Fishing Association fisheries. Mr McLoughlin was also a member of the team undertaking first and second surveillance audits of the New Zealand albacore troll fishery. In 2011, Mr McLoughlin completed a training course on MSC Fishery Assessment held in Sydney. Kevin also works outside of MSC on a range of fisheries sustainability issues. Recent work includes risk assessment of fishing gear used in fisheries off eastern Australia as a precursor to the development of marine protected areas, and review of World Wildlife Fund tuna sustainability assessments.</p> <p>Full CVs available in Appendix 1.</p>
Assessment tree to be used	Acoura propose to use the default assessment tree as defined in CR2.0 for Principle 1 and CR1.3 for Principles 2 & 3.
Site visit	This surveillance audit will take place the week beginning the 30 th May 2016, onsite in Wellington and Nelson, New Zealand.
Tree modifications & stakeholder consultation	<i>Only complete if modifications are to be suggested to the default tree – otherwise delete row. Explain reasons for making modifications to the default tree and what the draft tree proposed will contain. Attach the draft modified tree in Appendix 3. [FCR 7.8.5 & sub-clauses]</i>

P1 Pilot Harmonisation process	<p>This fishery is participating in a pilot harmonisation process for Principle 1 to ensure assessment outcomes for similar fisheries in the MSC program are consistent. More information on this process can be found on the MSC Policy Microsite: https://improvements.msc.org/database/hms-harmonisation</p> <p>The P1 (stock status) assessment for this fishery will therefore be run separately from the P2 (environmental impacts) and P3 (management) assessments. Stakeholders are invited to provide comments on the P1 summary report - contact the CAB for more information and register your interest.</p>
---------------------------------------	---

The team will be visiting the fisheries in Nelson and Wellington, New Zealand throughout the week 30th May 2016. The intention is to meet with as many stakeholders (fishers, scientists, conservationists, indigenous representatives, managers, local residents, fish processors) as can be identified or present themselves.

We invite Stakeholders to contact Acoura Marine to receive updates on this assessment, to meet with the team during the dates specified above or to organise a call in the event that logistics present complications.

Acoura Marine fisheries@Acoura.com; tel: 0044 (0)131 335 6662

We also invite written Stakeholder submissions to the email above using the template to be found at [\(please click here\)](#)

Submitted by: Polly Burns

Date: 17th February 2016

Appendix 1: CVs of team leader and team

CURRICULUM VITAE FOR JO-ANNE AKROYD

Fisheries Management Specialist

1. **Family name:** Akroyd
2. **First names:** Jo-Anne (Jo)
3. **Date of birth:** 23/10/1952
4. **Nationality:** New Zealand
5. **Civil status:** Married
6. **Education:**

Institution (Date from – Date to)	Degree(s) or Diploma(s) obtained:
Auckland University of Technology, New Zealand, 2002	Masters of Applied Science (Hons).
University of Auckland, New Zealand	Masters of Philosophy (Comm). Papers
Victoria University, Wellington, New Zealand, 1974-75	Bachelor of Science in Zoology

7. **Language skills:** Indicate competence on a scale of 1 to 5 (1 – excellent; 5- basic)

Language	Reading	Speaking	Writing
English	1	1	1
Pidgin English	2	4	4
Maori	2	4	4

8. **Other skills:** MS Office Suite, Training, Facilitation (meetings, Workshops, Stakeholder involvement)
9. **Present position:** Independent Fisheries and Marine Ecosystem Consultant, Jo Akroyd Ltd.

10. Key qualifications

- Qualified with over 30 years of experience in the field of fisheries management with particular experience in both inshore and oceanic fisheries and institutional strengthening and capacity building activities
- Proven team leadership and management experience in senior public and private sectors in AsiaPacific with international donor-funded project experience, including:
 - Fisheries Management Specialist. Technical assistance to review and update fisheries information to formulate fisheries management plans for the Cook islands 2013, European Union funded project.
 - Fisheries Management Policy Advisor and Fisheries government Capacity Building Advisor. *Marine Resource Institutional Strengthening Project, Cook Islands, NZAID, 20062010*

- Fisheries Management Policy Advisor. *Marine Resources Organizational Strengthening Project*, Solomon Islands, NZAID, 2008-2010
- Fisheries Policy, Institutional Specialist. *Coastal and Marine Resource Pacific Coral Triangle Project*, Fiji, Solomons, Vanuatu, Papua New Guinea, Timor Leste, ADB, 2009-2010
- Lead Assessor and Fisheries Management Advisor assessing sustainable fisheries against Marine Stewardship Council Principles and Criteria.
- Extensive experience working on developing and facilitating fisheries management plans in the Pacific region
- Extensive experience in facilitating consultation processes with local authorities and communities and regional organisations eg SPC, FFA and WCPFC.
- Proven report writing - peer reviewed research papers and peer-reviewed assessment reports

11. Professional Experience

Date	Location	Company & reference person	Position	Description
2007- Present	Fiji, Japan, China, New Zealand, Australia Antarctica	Intertek Fisheries Certification Paul Knapman Programme Manager Paul.knapman@intertek.com	Team Leader, Fisheries Management Expert	Lead Assessor and Fisheries Management expert responsible for assessing various fisheries against the Marine Stewardship Councils' (MSC) certification Principles and Criteria to determine and award sustainable fisheries. Lead Assessor and Principle 3 expert for NZ hoki (since 2001), hake, southern blue whiting, albacore; Fijian albacore; Chinese scallops; Japanese tuna, flatfish and snowcrab and Antarctica Ross Sea toothfish. Also team member for Western Australia pre assessment reports for pearl oysters, beche de mer, trochus, prawns and scalefish.
2014	Myanmar	Adam Smith International. David Britian. Manager South Asia David.Britian@adamsmithinternational.com	Fisheries policy and management expert	Fisheries policy and management advisor for the NZ MFAT design project "Rural Economic Development Project" Rakhine State Myanmar for fisheries activities. A team of agricultural, horticultural and fisheries experts was selected to visit the Rakhine state to suggest and design projects that New Zealand could be seen to be supporting Myanmar and in particular the Rakhine state improve its economy post unrest . I was the sole fisheries advisor and also worked closely with the team members to design the project .
2013	Cook Islands	EU ACP Fish II project. Technical Fisheries Assistance. PatrickL@Landellmills.com	Fisheries Specialist	As Project Leader I worked with local government staff to update fisheries information to formulate Fisheries Plans for the Cook Islands. Responsible for collection, review and analysis of information and enhancing awareness on fisheries management concerns and solutions. Consulted with local communities and Island Councils in the Outer Is. and worked with government fisheries officials to ensure the outcomes where what they wanted and could carry on working with.
2009- 2010	Fiji, Solomons, Vanuatu, Papua new Guinea, Timor Leste	ADB/GEF RETA/Uniquist Project Coordinator M.King4@uq.edu.au	Fisheries Policy, Institutional Specialist	Strengthening Coastal and Marine Resource Management in the Coral Triangle Pacific. Responsible for reporting on the fisheries legislation and institutional arrangements in the Solomons, Timor Leste, Vanuatu, Fiji and Papua New Guinea. The work consisted of assessing the existing and planned national policy and legal environment to sustainably manage marine and fisheries resources, ensure socioeconomic aspects were fully covered, in line with an ecosystems approach, and to provide baseline

				economic parameters for incremental cost analysis development.
2008-2010	Solomon Islands	NZ Aid/Anzdec: Solomon Islands Marine Resources Organizational Strengthening Project Project Leader marlene.fuentes@anzdec.co.nz	Fisheries Management Policy Advisor	Responsible for the strengthening of the Ministry of Fisheries and Marine resources staff to improve capacity to manage the inshore fisheries of the Solomon Islands. The main focus was on stakeholder engagement, community based management involving fishing communities, traditional leaders and NGO's with Ministry staff taking a lead role in initiating and implementing community management plans and policy. This work included community fisheries management forum analysis; cabinet and policy papers with recommendations for the community fisheries management forum, meetings with provincial governments on community fisheries management, meetings with key government departments on community fisheries management; capacity building with Ministry of Fisheries and Marine Resources fisheries officers, and provincial fisheries officers.
2006 - 2010	Cook Islands	NZ Aid/Anzdec Cook Islands Marine Resources Institutional Strengthening Project Project Leader marlene.fuentes@anzdec.co.nz	Fisheries Management Policy Advisor Institutional Strengthening	Provided technical management and policy advice to the Cook Islands Minister for Marine Resources, staff of the Ministry of Marine Resources, industry and stakeholder organisations, and the Project Coordination Committee on issues relating to inshore and offshore fisheries management in the Cook Islands. Key areas of advisory responsibility included fisheries policy development, policy analysis, policy implementation and fisheries plans. It involved working with industry, government, private sector, communities and Pacific regional bodies (FFA, SPC). The work included the development and
		c.co.nz		implementation of fisheries plans for the Takitumu lagoon, the Palmerston parrot fishery, the Longline tuna fishery and the Aitutaki bonefish. Responsible for building capacity and skills in effective fisheries policy development. This included running training workshops, organising study tours, mentoring and other support, and working closely with Island Councils, Traditional leaders, Politicians, Heads of Government agencies, churches and local

				communities and the private sector.
1994-2006	New Zealand	Akroyd Walshe Ltd Business Partner Kim Walshe kwalshe@xtra.co.nz	Director and Researcher	Consultancies in fisheries management including inshore and offshore fisheries. Responsibilities included being Project manager and Team leader in: <i>SNA 9802 Estimation of mortality of juvenile snapper</i> <i>TOH 9801 Distribution and abundance of toheroa on Dargaville beach</i> <i>SEC 9802 Monitoring Performance of Commercial Fisheries Policy</i> <i>REC 9802 Motivations and perceptions of marine recreational fishers.</i> <i>SNA 1999-02 Estimation of mortality of juvenile snapper</i> <i>AKI 1999-01 Intertidal shellfish monitoring in the Auckland FMA</i> <i>REC 2000-04 Recreational fishers understanding of fisheries regulations</i> <i>AKI 2000-01 Intertidal shellfish monitoring in the Auckland FMA</i> <i>TOH 2000-01 Distribution and abundance of toheroa on Muriwai beach</i> <i>SEC 2000-02 Subsistence Fishers in New Zealand</i> <i>AKI 2001-01 Intertidal shellfish monitoring in the Auckland FMA</i> <i>AKI 2002-01 Intertidal shellfish monitoring in the Auckland FMA</i> <i>AKI 2003-01 Intertidal shellfish monitoring in the Auckland FMA</i> <i>AKI 2004-01 Intertidal shellfish monitoring in the Auckland FMA</i> <i>SEC 2000-04 Organisational structures for the delivery of fisheries management</i> Authored a number of scientific papers and research reports including: <i>Walshe, K.A.R. and Akroyd J.M. 2001. Fishers Understanding of the fisheries regulations. Research report to the Ministry of Fisheries on research project REC 2000/04.</i> <i>Millar, R., Akroyd, J.M., Walshe K.A.R. 2002. Incidental mortality of Juvenile Snapper. New</i>

				<p><i>Zealand Fisheries Assessment Report. Akroyd, J.M. 2002. The New Zealand Hoki Fishery. Philips, B et al In Eco-labelling in Fisheries. What is it? In press Blackwell Science.</i></p> <p><i>Akroyd, J.M. and Walshe, K.A.R. 1999. Intertidal shellfish monitoring in the Auckland Fisheries Management Area. Research report to the Ministry of Fisheries on research project AKI 1999/01</i></p> <p><i>Akroyd, J. A., C. Batstone, B. Sharp, and K.A.R. Walshe. 1999. Monitoring Performance of Commercial Fisheries Policy. Research report to the Ministry of Fisheries on research project SEC 9802</i></p> <p><i>Walshe, K. A. R., and Akroyd, J. M., 1999. Motivations and perceptions of marine recreational fishers. Research report to the Ministry of Fisheries on research project REC 9802</i></p> <p><i>Akroyd J.M. 1997. Oriental Bay Breakwater Construction and beach refurbishment Proposal. A marine ecological study. Opus Consulting NZ Ltd.</i></p> <p><i>Akroyd, J. M., Walshe, K.A.R., Miller, R. B. Abundance distribution and size structure of toheroa (Paphies Ventricosa) at Ripiro Beach Dargaville Northland. New Zealand Journal of Marine and Freshwater Research. Vol. 36:581-591</i></p> <p><i>Manly, B. F. J., Akroyd, J. M., Walshe, K.A.R. Two-phase stratified random survey on multiple populations at multiple locations. New Zealand Journal of Marine and Freshwater Research. Vol. 36:581-591</i></p>
1990-1992	New Zealand, China, Viet Nam, Cambodia	Auckland University of Technology	International Projects Manager	Managing and responsible for Universities International projects. Development, implementation, monitoring and evaluation. Responsible and accountable for all budgeting and finance.
1988-1990	New Zealand	Ministry of Agriculture and Fisheries, NZ	Assistant Director Marine Research	Responsible for scientific outcomes of NZ's Fisheries Research organisation, performance of ~ 400 staff, two research vessels, budgeting and finance.
1984-1988	New Zealand	Ministry of Agriculture and Fisheries, NZ	Senior Fisheries Management Officer	Development and implementation of the NZ Fisheries Quota management System to help ensure sustainable utilisation of fisheries resources through the direct control of harvest levels for each species in a nominated geographical area (awarded Commonwealth Medal for this work).

1974-1984	New Zealand	Ministry of Agriculture and Fisheries, NZ	Marine Biologist and Chief Scientist	Fish and shellfish research and management. Research and Scientific papers – abalone rock lobster Environmental Impact assessment – harbours and estuaries
-----------	-------------	---	--------------------------------------	--

Kevin McLoughlin

Personal Details:

Kevin John McLoughlin

Nationality Australian, British

Professional responsibilities

I am a specialist fisheries consultant based in Australia with more than 30 years' experience across a wide range of international and domestic fisheries science issues, with close links to government policy.

Marine Stewardship Council (MSC) experience has been predominantly on Principle 1 aspects of assessments, but also includes Principle 2 and 3 work, as well as peer review and surveillance audits for several fisheries. I was a team member for the full assessment of the Fiji albacore longline fishery, Australia's blue grenadier fishery, as well as the Western Australia Exmouth Gulf and Shark Bay prawn trawl fisheries. I was a peer reviewer for the New Zealand albacore troll fishery and for the North and South Pacific American Albacore Fishing Association fisheries, and have undertaken surveillance audits for a number of fisheries. I am currently a member of teams assessing the Northeastern Tropical Pacific Purse Seine Yellowfin and Skipjack Tuna Fishery, and the Tri-Marine Western and Central Pacific Skipjack and Yellowfin Tuna Fishery.

As a senior scientist, I represented the Australian Government on many committees and groups such as fishery assessment groups, providing advice on a diverse range of fisheries and species (including tuna, shark, various finfish, scallop and prawn). I was responsible for the production of annual status reports for Australian government-managed fisheries for a number of years. Work in assessment groups involved assessment of target species, development of bycatch action plans and ecological risk assessments. I was a member of the Northern Prawn Fishery Resource Assessment Group for over 5 years until 2005; and Chair of Australia's

Western Tuna and Billfish Resource Assessment Group and a member of the

Management Advisory Committee for that fishery. I was member of the Southern

Shark Fishery Assessment Group for over 10 years, a member of the Australian Shark Implementation Group for the National Plan of Action for Sharks and Chair of Australia's National Shark Recovery Group for several years.

I have represented Australia on scientific issues at the Indian Ocean Tuna Commission and was Chair of the IOTC Working Party on Bycatch for 3 years from its inception. From 2005 to 2008 I was Australia's representative at meetings of the IOTC Working Party on Tropical Tunas and the IOTC Scientific Committee. In 2006, I led Australia's delegation to 2006 scientific meetings of the Commission for the Conservation of Southern Bluefin Tuna.

Other consultancy work has included risk assessment of fishing gear used in fisheries off eastern Australia as a precursor to the development of marine protected areas, and review of World Wildlife Fund tuna sustainability assessments.

Professional Details:

University studies

1981	Bachelor of Science (majors in Mathematics and Biology)
1994	Graduate Diploma in Applied Mathematics
1996	Bureau of Rural Sciences development award to undertake 12 weeks of study at University of British Columbia Fisheries Centre

Additional Training has included courses on:

Project management/accounting

Information technology (numerous including programming, database, GIS, statistics)

Fisheries assessment

Leadership

Negotiation skills

Public speaking

Safety at sea and first aid

Employment History

October 2009 to present

Fisheries consultant

Contract work undertaken over this period includes undertaking of pre-assessment, assessment and peer review for fisheries undergoing certification by the Marine Stewardship Council, including:

- Australia's Blue Grenadier Fishery (full assessment)
- Australia's Small Pelagic Fishery (full assessment, ongoing)
- Western Australia's Exmouth Gulf Prawn Fishery (full assessment)
- Western Australia's Shark Bay Prawn Fishery (full assessment)
- Fiji albacore longline fishery (full assessment and surveillance audits)
- North Eastern Pacific purse seine yellowfin and skipjack fishery (full assessment, ongoing)
- Tri Marine Western and Central Pacific Skipjack and Yellowfin Tuna Fishery (full assessment, ongoing)
- New Zealand albacore troll fishery (surveillance audits and peer review)

- South Australia Spencer Gulf Prawn Fishery (surveillance audits and ongoing re-assessment)
- Western Australia (several fisheries) (pre-assessments)
- Australia's Commonwealth-managed fisheries (pre-assessments).

I have also undertaken risk assessment of fishing gear used in fisheries off eastern Australia as a precursor to the development of marine protected areas, as well as review of fisheries assessed under the World Wildlife Fund Common Wild Capture Fishery Methodology.

October 2008 to September 2009

Senior Fisheries Scientist, Bureau of Rural Sciences (BRS), Australia.

Duties: contractor working on BRS project *Reducing Uncertainty in Stock Status* to undertake research into species identified in BRS Fishery Status Reports as having uncertain stock status.

February 1996 to July 2008

Senior Fisheries Scientist, Bureau of Rural Sciences.

Duties: A broad range of responsibilities were undertaken over this period. I acted as leader of the Fisheries and Marine Sciences Program on numerous occasions and was closely involved in many aspects of the work of BRS fisheries. I had a major role in production of the BRS Fishery Status Reports which report annually on all major Australian Government-managed fisheries, including tuna fisheries operating on shared stocks in the Pacific and Indian Oceans. I was responsible for northern fisheries issues including Indonesian fishing and shark issues. I represented BRS on many committees and groups such as AFMA's fishery assessment groups (including as Chair of the Western Tuna and Billfish Fishery and a member of groups including the Southern and Eastern Scalefish and Shark Fishery, the Northern Prawn Fishery and the Bass Strait Scallop Fishery), DAFF's Shark Implementation Group for the National Plan of Action for Sharks, the Basslink Environmental Review Committee and others. I represented Australia on scientific issues at the Indian Ocean Tuna Commission and as Chair of their Working Party on Bycatch, as well as participating in meetings of the IOTC Working Party on Tropical Tunas and the IOTC Scientific Committee. I led Australia's delegation to 2006 scientific meetings of the Commission for the Conservation of Southern Bluefin Tuna. As former leader of the Demersal Fisheries Section I was responsible for provision of accurate, timely and relevant scientific advice to clients through the review of available data on Commonwealth-managed fisheries, requiring close liaison with other scientific organisations, fisheries managers and the fishing industry. My work involved development of research priorities and projects, the management of staff and budgets to undertake projects on and provide advice for Australia's demersal fisheries, and included preparation of reports, ministerials and question time briefs etc. I was a member of the team developing Australia's Harvest Strategy Policy and Guidelines.

December 1988 to February 1996

Fisheries Scientist, Bureau of Rural Sciences.

Duties: management of *Fishery Status Reports* project requiring a broad range of skills including an understanding of the resource assessments involved, writing and editorial skills, supervision of other professional staff, liaison with numerous external agencies and management of budgets and deadlines. I also made a major contribution other publications such as the fisheries chapter of the *State of the Marine Environment Report*. Other duties include management of computing resources, monitoring and analysis of fisheries data, development and application of numerical models to the assessment of Commonwealth fish stocks, and the provision of advice to fisheries policy makers, managers and the fishing industry.

January 1983 to December 1988

Experimental Scientist/Technical Assistant, CSIRO Division of Fisheries. *Duties:* the management of the northern shark database, analysis of these data for the estimation of parameters relevant to the biology and dynamics of the northern shark stocks, use of stock assessment models to provide advice to fisheries managers, as well as participation in the communication of results. Duties also included extensive involvement in tagging and ageing of southern bluefin tuna.

April 1979 to February 1981

Computer Programmer, Vickers Cockatoo Dockyard P/L, Sydney.

Duties: Development and maintenance of computer programs using mostly COBOL and some FORTRAN on an ICL mainframe. These duties often required preparation of documentation on the use of new systems and interaction with user departments for their cooperation and education in the use of these systems.

Appendix 3: Draft modified tree *[delete if not applicable]*

Insert draft modified tree if applicable.