Volume 3

Appendices

This is the third of three volumes of the Environmental Impact Statement on the Lobster Fishery in NSW

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Volume 3 (*Appendices*)

APPENDIX A1 LIST OF PROPONENTS

Proponents in the Lobster Fishery as at 18 October 2004

Name	Address	Town	Postcode
A. MUSUMECI PTY LTD	11 HAMILTON STREET	FAIRY MEADOW	2519
ADAMS, Damien Peter	PO BOX 122	ANNA BAY	2316
AISH'S PTY LTD	43 KANAHOOKA ROAD	DAPTO	2530
AISH, Sandra Liliann	43 KANAHOOKA ROAD	DAPTO	2530
ASQUITH, Leslie John	HARRIS STREET	ANNA BAY	2316
ASQUITH, Raymond	24 GRAFTON STREET	NELSON BAY	2315
BAGNALL, Richard David	1 CUTTER CLOSE	CORLETTE	2315
BARBARIC, Eddi	1490 ORARA WAY	NANA GLEN	2450
BARRY JOHN CHARLESWORTH & STEVEN WAYNE SOUNNESS	20 WINDSOR STREET	TARBUCK BAY	2428
BIELBY, Peter Ernest	8 GLACKEN STREET	HARRINGTON	2427
BLAKE, Allan Robert	248 TUMBI RD	TUMBI UMBI	2261
BRAMBLE, Graham	1677 COOMBA ROAD	COOMBA BAY	2428
BRAMBLE, Noel James	LOT 310 CAMELLIA PLACE	GREEN POINT VIA FORSTER	2428
BRISLANE, Reala John	20 MANN STREET	NAMBUCCA HEADS	2448
BROADHURST, Allan Richmond	PO BOX 200	BERMAGUI	2546
BRYANT, Robert Douglas	10 VIMIERA CLOSE	NORAH HEAD	2263
BURLEY, Graeme John	10 THE JETTY	SALAMANDER BAY	2317
BURT, Steven John	17 BOUNDARY STREET	PORT MACQUARIE	2444
CAMPBELL, Alexander	3 SELWYN STREET	TRIABUNNA TAS	7190
CAMPISI, Anthony	194 SLAUGHTERHOUSE ROAD	ULLADULLA	2539
CAVALLO, James Richard	4 CAVE STREET	ILUKA	2466
CHALKLEY, James Bryce	10 FINGAL STREET	SHOAL BAY	2315
CHRISTENSEN, Peter John	3 LEE ANN CRESCENT	BELMONT	2280
CLARKE FISHERIES PTY LTD	16 STEFAN CLOSE	EMERALD HEIGHTS	2456
CLARKE, Mariane Ramos	16 STEFAN CLOSE	EMERALD HEIGHTS	2456
COOK, Stephen Noel	5 VESPER STREET	BATEMANS BAY	2536
COVERBASE PTY LTD	40 KANANOOK CRESENT	BELMONT	2280
CRAMERI, Barry Francis	256 BIRREL STREET	WAVERLEY	2024

Proponents in the Lobster Fishery as at 18 October 2004 (cont)

Name	Address	Town	Postcode
CUPIT, Brett Anthony	4 GLENEON DRIVE	FORSTER	2428
DALEY, Gregory Keith	88 THE SCENIC ROAD	KILLCARE HEIGHTS	2257
DAMIEN PETER ADAMS & LISA MAREE ADAMS	PO BOX 122	ANNA BAY	2316
DILLON, Shayne Stanley	1 JASMIN STREET	GERALDTON WA	6530
DOUCH, Colin Frederick	5 ROBINSON AVENUE	MINNAMURRA	2533
DOYLE, Paul Michael	98 TIRRIKI STREET	CHARLESTOWN	2290
DOYLE, William	PO BOX 294	MORUYA	2537
DRAKE, Steven John	2 SOUTH KIAMA DRIVE	KIAMA HEIGHTS	2533
DUNN, Charles Wayne	69 CHURCH STREET	ULLADULLA	2539
EATHER, Eric Peter	57 BARNEY STREET	KIAMA	2533
ECROYD, Peter William	20 BAY STREET	TATHRA	2550
EGGINS, Gary Albert	10 MILL STREET	LAURIETON	2443
ELFORD, Clifford James	33 NORTH SHORE DRIVE	PORT MACQUARIE	2444
ELFORD, Gregory Wayne	142 SETTLEMENT POINT ROAD	PORT MACQUARIE	2444
EVANS, Peter John	21 LUCAS AVENUE	MALABAR	2036
Estate of ROSS HAMILTON ABERCROMBIE	6 JUBLIEE AVENUE	ULLADULLA	2539
FARLEY, Raymond Lyall	PRYDES, IONA LANE	WOODVILLE	2321
FARRELL, Allan James	5 COMPTON STREET	ILUKA	2466
FARRINGTON, Grant Gordon	26 HIAWATHA ROAD	MINNIE WATERS	2462
FIRKIN, Michael John	122 VICTORIA STREET	MALABAR	2036
FIRKIN, Ronald Oliver	122 VICTORIA STREET	MALABAR	2036
FISH QUOTA MARKETING PTY LTD	SHOP 19-20 SHELLHARBOUR SQUARE	SHELLHARBOUR CENTRE	2529
FLETCHER, Anthony Victor	4 ANDERTON ST	COFFS HARBOUR	2450
FLETCHER, Peter John	PO BOX 328	EDEN	2551
GALLAGHER, Terry Leslie	PO BOX 250	KIAMA	2533
GLEN, Eric John	82 MORNA POINT ROAD	ANNA BAY	2316
GOGERLY, Daniel Albert	39 BENT STREET	TUNCURRY	2428
GOGERLY, Noel Albert	4 BALIHAI AVENUE	FORSTER	2428
GORRY, Malcolm Lionel	848 SUSSEX INLET RD	SUSSEX INLET	2540

Proponents in the Lobster Fishery as at 18 October 2004 (cont)

Name	Address	Town	Postcode
GUMLEY, Travis David	PO BOX 587	ULLADULLA	2539
HAREIDE, Gordon	19 HIAWATHA ROAD MINNIE WATER via	GRAFTON	2460
HARGRAVES, Allan Richard	23 MELITTAS AVENUE	COFFS HARBOUR	2450
HARRIS, Michael Gordon	4 FISHERMANS CRES	NAROOMA	2546
HEALEY, Warwick David	PO BOX 1088	MOSSMAN	4873
HILL, Owen William	2 COCHRANE ROAD	THIRROUL	2515
HOLLIS, Geoff	55 DUNBAR ST	STOCKTON	2295
HOWARD, Colin Richard	1 SCHOOL STREET	HARRINGTON	2427
HUNTER, Steven Barry	P O BOX 511	EDEN	2551
HYNES, Kenneth Bruce	31 MINAMURRA DRIVE	HARRINGTON	2427
JOEL THEODORE & JAYDE MURRAY THEODORE	430 TOMAKIN ROAD	MOGO	2536
JOHNSON, David	27 PARKWAY GROVE	TUNCURRY	2428
JONES, Brad John	RMB 3304 MARSH RD	BOBS FARM	2316
KENNY, Terence Raymond	LOT 2 PRINCES HIGHWAY	NORTH NAROOMA	2546
KEPPIE, Lester John	10 GRANTER STREET	HARRINGTON	2427
KING, Bernard John	KINKA ROAD	SEAL ROCKS	2423
KING, Craig David	92 LAKEVIEW PARADE	PRIMBEE	2502
LAVENDER, Ralph	27 LITTLE LAKE CRES	WARILLA	2528
LEE, Maurice Andrew	KINKA ROAD	SEAL ROCKS	2423
LENNON, Mark	21 OCEAN BEACH ROAD	SHOAL BAY	2315
LUMMIS, Francis John	P O BOX 27	WOOLI	2462
MAHER, Mark Anthony	788 MAIN ROAD	COLEDALE	2515
MANSON, Richard James	22 CALGA CRESENT	BATEMANS BAY	2536
MARIS, Wiltje	5 ALASKA STREET	CUNJURONG POINT	2539
MARK LENNON, ALAN LESLIE, WILSON & CLEM SPYROU	21 OCEAN BEACH ROAD	SHOAL BAY	2315
MARYVALE, Leslie David	39 DORRIGO AVENUE	EAST WOONONA	2517
MELLOWS, Anthony	2 BAY STREET	NELSON BAY	2315
MENMAR PTY LTD	25 FRANCES STREET	GWYNNEVILLE	2500
MERRELL, Robert Neil	23 THE MAINBRACE	YAMBA	2464

Proponents in the Lobster Fishery as at 18 October 2004 (cont)

Name	Address	Town	Postcode
MONIN, Lee Stewart	61 SPINNAKER WAY	CORLETTE	2315
MONKLEY, Mark Daniel	6 BERESFORD STREET	CONISTON	2500
MORGAN, David John	75 TORRES STREET	KURNELL	2231
MORGAN, Joseph Robert	5 GLEN HAVEN DRIVE	LAURIETON	2443
MORLEY, Terry	2 BENELONG STREET	BULLI	2516
MORRISON, Alexander Charles	11 BEMAGO STREET	NAMBUCCA HEADS	2448
MORRISON, Kevin Alexander	12 BEMAGO STREET	NAMBUCCA HEADS	2448
MOYCE, Edward Sydney	19 GOORAWAHL AVENUE	LA PEROUSE	2036
MULLER, Leslie Arnold	111 CAMPBELL STREET	NAROOMA	2546
MacBEAN, Barry Thomas	19 MYAN CLOSE	CORLETTE	2315
NORTH, Ian	8 PARK STREET	COLEDALE	2515
OFFNER, Susan Therese	LOT 212 PATANGA STREET	KINCUMBER	2251
PADDOCKMIST PTY LTD	PO BOX 6281	TWEED HEADS SOUTH	2486
PEMBERTON, Graham John	14 HIGHVIEW DRIVE	FARMBOROUGH HEIGHTS	2526
PEMBERTON, Paul John	200 CHARLES AVENUE	MINNAMURRA	2533
PERRY, Samuel George	PO BOX 1163	SOUTH COAST MC	2521
PETER WILLIAM OFFNER AND Estate of B J WESTAWAY	LOT 212 PATANGA STREET	KINCUMBER	2251
PINSAK, Dean	LOT 102 WYCOMBE ROAD	TERRIGAL	2260
PRAJA, Alex John	63 NURRAWALLEE STREET	ULLADULLA	2539
PRAJA, Zoran Hermann	63 NURRAWALLEE STREET	ULLADULLA	2539
PRINDABLE, Ronald James	54 RIVERVIEW STREET	ILUKA	2466
PUCKERIDGE, Ian Craig	9 GLASGOW AVENUE	BONDI	2026
PUGLISI, Frank	P.O. BOX 13A	BERMAGUI	2547
RD & CA STEWART PTY LTD	13 NELSON STREET	WOOLGOOLGA	2456
RICHARDSON, Thomas Michael	24 ANDREW CLOSE	BOAT HARBOUR VIA ANNA BAY	2316
RICHARDSON, William Stanley	20 GRAHAM STREET	BOAT HARBOUR VIA ANNA BAY	2316
RIPLEY, Adrian Clarence	39 RIGNEY STREET	SHOAL BAY	2315
ROBERT JOHN WILLIS & GRAHAM BANDERIA	PO BOX 1249	COOLONGATTA	4225
ROBINSON, Alan Ronald	12 BRIDGE STREET	SAWTELL	2452

Proponents in the Lobster Fishery as at 18 October 2004 (cont)

Name	Address	Town	Postcode
ROBINSON, Peter James	3 ELAINE AVENUE	AVALON	2107
ROELANDTS, William Ronald	LOT A HOSCHKE ROAD	LAURIETON	2443
ROSSETTI, Santo	34 BUNGARY ROAD	NORAH HEAD	2263
ROSSETTI, Santo Vincent	3 VICTORIA STREET	NORAH HEAD	2263
ROSSKELLY, Steven	4 PANORAMA CRESENT	FORSTER	2428
ROWBOTHAM, Kenneth Beaumont	43A BURRILL STREET	ULLADULLA	2539
SANDERS, Mitchell William	19 ELOORA ROAD	THE ENTRANCE	2261
SCHAECHE, Dale Russell	PO BOX 193	PORT MACQUARIE	2444
SCHNEIDER, Neil	93 GAN GAN ROAD	ANNA BAY	2316
SCHNEIDER, Steven	12 MICALO STREET	ILUKA	2466
SEGGAR, Grant Lewis	29 REGATTA AVENUE	FORSTER	2428
SEIFFERT, Douglas Edward	5 DACRE ST	MALABAR	2036
SEWELL, Keith Walter	51 ARNHEIM RD	ALLAMBIE HEIGHTS	2100
SHANKLAND, Gavin Barry	PO BOX 442	YAMBA	2464
SHANKLAND, Stewart George	PO BOX 407	MACLEAN	2463
SHILLITO, John Edward	35 WEST STREET	GREENWELL POINT	2540
SHORE, Phillip Gordon	20 Elizabeth Street	ILUKA	2466
SMITH, Kevin	7 FEDERAL AVENUE	BURRILL LAKE	2539
SMITH, Rodney Cecil	7 CASUARINA CLOSE	ANNA BAY	2316
SPROULE, Athol Paton	2 DALTON STREET	NELSON BAY	2315
SPROULE, Douglas William	RMB 737 GAN GAN ROAD	ANNA BAY	2316
SPROULE, Geoffrey Warren	50 GALOOLA DRIVE	NELSON BAY	2315
STACE, Ronald Francis	42 LAKE STREET	LAURIETON	2443
STADASTE PTY LTD	PO BOX 529	EDEN	2551
STANFORD, Darren John	1 EWIN CLOSE	ULLADULLA	2539
STEWART, Daniel David	31 SOUTH STREET	WOOLGOOLGA	2456
STEWART, Garry Peter	51 TRAFALGAR STREET	NELSON BAY	2315
SUTHERLAND, Jock Cameron	14 PEEL STREET	TUNCURRY	2428
SWEENEY, Michael John	5 TIMBARA CRESCENT	BATEMANS BAY	2536

Proponents in the Lobster Fishery as at 18 October 2004 (cont)

Name	Address	Town	Postcode
TARRANT, Alfred Colin	36 KERRIGAN STREET	NELSON BAY	2315
TARRANT, Glyn Edward	58 RIGNEY STREET	SHOAL BAY	2315
THEODORE, Christopher Benjamin	3 THOMSEN PLACE	TOMAKIN	2537
TOOVEY, Phillip Edwin	4 THIRD AVENUE	ARRAWARRA HEADLAND	2456
VAN DER NEUT, Thomas Cornelius	177 OCEAN BEACH ROAD	WOY WOY	2256
WALLACE, Paul Charles	32 BANGALOW ROAD	COOPERNOOK	2426
WARREN, Bradley	9 PARK STREET	MEREWETHER	2291
WARREN, Denise June	PO BOX 227	EDEN	2551
WARREN, Leslie James	P O BOX 227	EDEN	2551
WESTLEY, Scott Maxwell	119 RIVER ROAD	SUSSEX INLET	2540
WILLIAMS, Graeme Edward	13 GARDENIA AVE	PORT MACQUARIE	2444
WILLIAMS, Lloyd George	PO BOX 36	BERMAGUI	2546

APPENDIX A2 DEPARTMENT OF INFRASTRUCTURE, PLANNING, AND NATURAL RESOURCES' GUIDELINES

planningnsw

Guidelines for the Environmental Impact Assessment of Draft Fishery Management Strategies for the Commercial Abalone and Rock Lobster Fishing Activities

February 2003

NSW Department of Planning
Printed February 2003

Disclaimer

FOREWORD

The Environment Impact Assessment process under the *Environmental Planning and Assessment Act 1979* provides a framework for assessing the ecological sustainability of commercial fishery management strategies prepared for commercial fisheries under the *Fisheries Management Act 1994*. The Environmental Impact Statement is an important tool as it informs proponents of likely impacts and allows for the consideration of alternative management and mitigation measures when formulating the fishery management strategy. It enables the community to review the proposed strategy, its objectives and management regimes and to provide for community input. It also informs decision-makers of the likely costs and benefits of the proposed strategy and of the need for mitigation measures.

These guidelines outline the issues to be addressed in environmental impact statements for abalone and lobster commercial fisheries and the content and structure of the Fishery Management Strategies. They have been developed with input from Environment Australia, relevant State agencies, abalone and lobster management advisory committees, Fishery Advisory Councils, and representatives of the scientific and community organisations.

These guidelines have been issued by the Director-General under clause 230 (1)(a) of the *Environmental Planning and Assessment Regulation 2000* and must be considered by those parties responsible for preparing an EIS to assess the likely significance of impacts of implementing a Fishery Management Strategy. The guidelines replace the general requirements for the contents of an EIS under Schedule 2 of the EP&A Regulation 2000 and the more general guideline issued in 2001 for Commercial Fishery Management Strategies.

These guidelines only apply to commercial fisheries currently operating as Category 1 Share Management Fisheries. These guidelines prescribe the matters to be addressed in the EIS and remove the need to further consult the Director-General under clause 231 (3) of the EP&A Regulation.

These guidelines have included relevant matters to meet the Commonwealth "Benchmarks and Terms of Reference for Environmental Assessment of Fisheries" and to satisfy the Commonwealth Government "Guidelines for the Ecologically Sustainable Management of Fisheries" for the purposes of *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). The guideline has also highlighted the importance of identifying if the fishery activity is likely to affect the matters of national environmental significance set out in the EPBC Act. Matters of national environmental significance includes World heritage areas, declared Ramsar wetlands, listed threatened species and ecological communities, listed migratory species, nuclear actions and the environment of the Commonwealth marine area. If fisheries are likely to affect matters of national environmental significance (including listed marine species), the Commonwealth will need to be consulted to determine whether approval is required under the EPBC Act.

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1. Fishery Management Strategies for Commercial Abalone and Rock Lobster Fisheries

1.1 Overview

The Fisheries Management (FM) Act 1994 requires a management strategy to be developed for all major commercial fisheries. These strategies are to set out the management objectives and goals of each fishery, the management rules, performance indicators and monitoring regimes to determine if the strategy's objectives are being achieved. Information on the current operation and status of the fisheries, and the vision for future management of the fishery will be considered. The strategy will include all controls affecting the operation of the fishery and will focus on achieving sustainable performance objectives.

This guideline applies to fisheries management strategies for the abalone and lobster fisheries (both Category 1 Share Management Fisheries).

Prior to its finalisation, the draft strategy must undergo environmental assessment under the provisions of Part 5 of the Environmental Planning and Assessment (EP&A) Act 1979. The environmental assessment is an examination of the environmental impacts of the fishing activities and considers biological, biophysical, economic and social issues. It must also consider the impact on the resource from other fisheries and non-fishing activities.

The environmental assessment will rely on best available information to predict impacts of the proposed activities on the environment. The assessment may highlight areas where further information should be gathered, where practices should be changed and where alternative management regimes may be required. The broader community as well as the endorsement holders, Management Advisory Committees (MACs), Advisory Councils and the Fisheries Resource Conservation and Assessment Council (FRCAC) will be given an opportunity to comment on the EIS and the draft management strategy.

Licences and authorisations issued in accordance with the strategy are exempted from having to undergo environmental assessment of the impacts of fishing under each individual licence. There is a transitional period until 1 December 2003 exempting individual licences from the need for environmental assessment to provide NSW Fisheries time to prepare fisheries management strategies for commercial fisheries. After that time, environmental assessment will be required prior to issuing each individual license or authorisation which are not consistent with the strategy or in all fisheries where a strategy is not in place.

1.2 Purpose of a Fishery Management Strategy

A fishery management strategy is a document outlining the management goals, objectives, controls and other measures for achieving the objectives, performance measures and monitoring programs applying to a particular commercial designated fishing activity. The strategy must contain the "management tools" applying to the commercial fishery, as well as data collection protocols and triggers for the review of the strategy.

The strategy should be an informative document detailing the future vision for the management of the particular designated fishing activity – including:

- short, mid and long term vision for the fishery;
- regulatory controls, management arrangements and other measures for achieving the vision including setting target effort or fishing capacity of each fishery and any restructuring program;
- the framework for providing fishers and other stakeholders with greater certainty about the rules and administrative arrangements applying to the fishery; and,
- An information resource for the endorsement holders as well as the broader community on a particular fishery

The strategy is to be prepared in accordance with section 7E of the Fisheries Management Act and this guideline. The Minister must consult with the Fisheries Resource Conservation and Assessment Council on the preparation or revision of a fishery management strategy.

Under section 7E of the FM Act, the Fishery Management Strategy is to:

1. Describe the objectives of the Strategy
2. Describe the designated fishing activity
3. Outline any likely interaction of the designated fishing activities with other fishing activities
4. Outline the fishing regulatory controls or proposed fishing regulatory controls which apply to the designated fishing activity including:
   (a) Provisions in the Fisheries Management Act or Regulations
   (b) Any management plan or draft management plan
   (c) Fishing closures under section 8 of the FM Act
   (d) Fishing approvals
   (e) Any determinations of the TAC Committee under Division 4 of Part 2 of the FM Act
   (f) Policies approved by the Fisheries Minister
   (g) Any relevant provisions in environmental planning instrument
5. Identify performance indicators to monitor whether the objectives of the strategy are being achieved
6. Describe how the designated fishery activity is to be monitored
7. Specify at what point a review of the strategy is required when a performance indicator is not being satisfied.

1.3 Management tools

Fisheries management involves the implementation of policies and rules that affect fisher behaviour. A range of management tools are available under the FM Act or Regulation including: provisions limiting who has access to the fishery, where and when fishing can occur, input controls such as gear and boats or output controls such as the size, number and type of fish which may be taken (see Table 1). Other controls may be specified in management plans developed under the provisions of the FM Act or Regulation for share management fisheries and any associated determination made by a relevant Total Allowable Catch (TAC) Committee.

Management tools may include provisions relating to aquatic and other reserves under the FM Act or National Parks and Wildlife (NPW) Act, to marine parks under the Marine Parks Act 1997 or to environmental planning instruments under the EP&A Act. Other legislation and polices provide environmental protection measures relevant to the management of the fisheries. These include Wildlife Protection (Regulation of Export and Imports) Act, Environment Protection and Biodiversity Conservation (EPBC) Act, NPW Act and FM Act. International conventions relating to wetland, migratory birds and whale protection also are relevant. See Appendix 1 for a list of the relevant legislation and responsible authorities.

2 The EIA Process and Procedures

2.1 Steps in the EIA Process

The four steps below summarise steps in preparing and assessing a Commercial Fishery Management Strategy and in its review and updating.

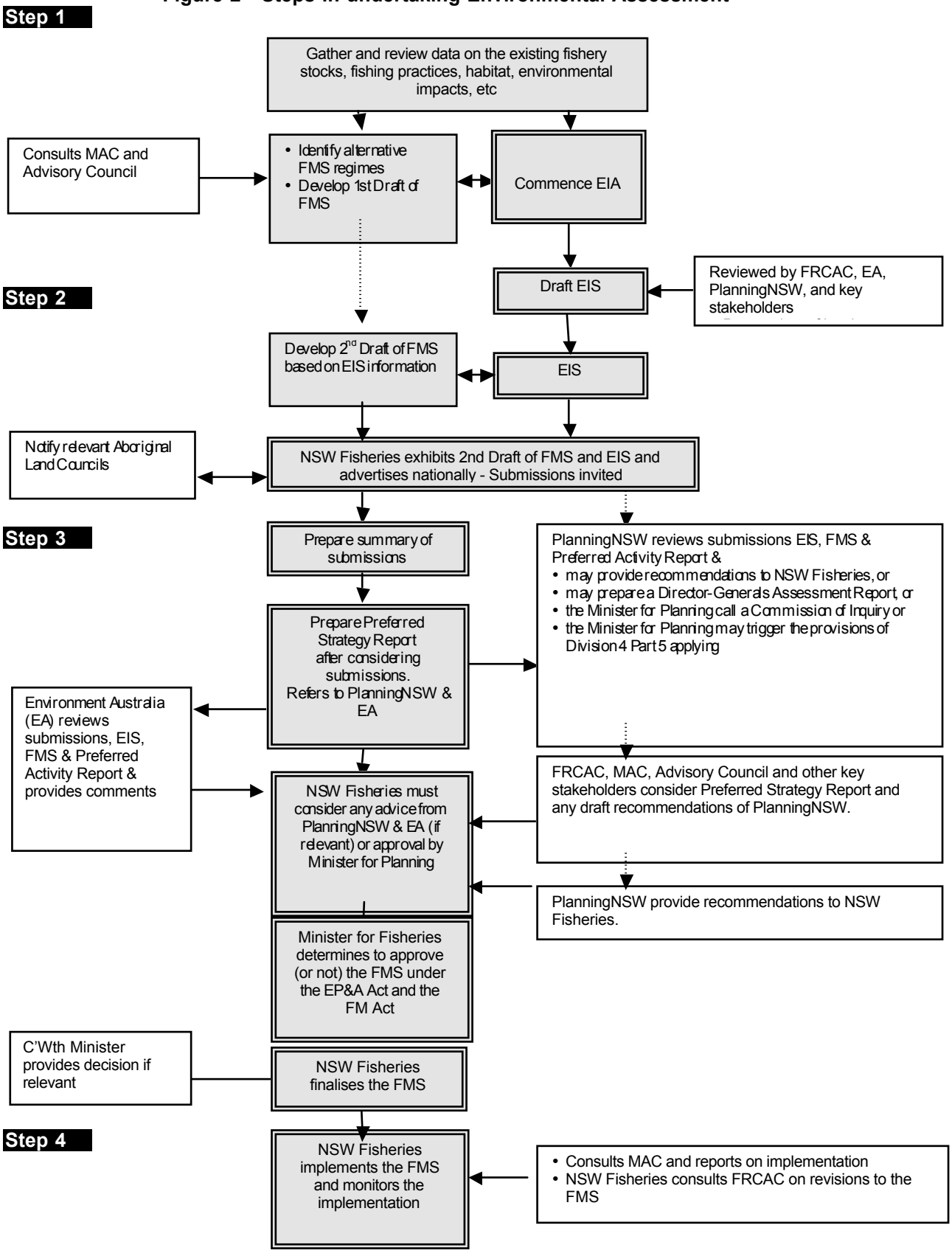
Step 1
- Assembles information from the fisheries management plans and monitoring of the implementation of the share management for the fisheries – stock issues, habitat issues, current fishing practices and environmental impacts, threats and other issues. Audit threats and risk of the current regime, consults with the MAC and identifies alternative management regimes and develops the first version of the Draft FMS

Step 2
- Assesses the impact on the environment of the Draft FMS (and the fishing activities undertaken under it) within the terms of the Environmental Assessment Guidelines and consult with FRCAC, EA and key stakeholders regarding the draft strategy and environmental assessment. Organise for independent peer review of key components of the draft strategy and environmental assessment.
- The EIS and the Draft FMS are displayed for public comment in a manner consistent with the relevant provisions of the EP&A Act and Environment Australia.
- Consult with MAC and relevant Aboriginal Land Councils.

Step 3
- NSW Fisheries sends submissions received as a result of exhibition to PlanningNSW and EA.
- NSW Fisheries reviews submissions and other advice and prepares a Preferred Strategy Report outlining the response to issues raised in submissions or by FRCAC and any proposed changes in the Draft FMS as a result to improved the sustainability of the strategy
- PlanningNSW reviews submissions, EIS, Draft FMS and Preferred Strategy Report and may (i) provide recommendations to NSW Fisheries, (ii) prepare an Director-General's Assessment Report with recommendations or (iii) the Minister for Planning can call a Commission of Inquiry or (iv) the Minister for Planning may trigger the provisions of Division 4 Part 5 applying. If option (i) or (ii), PlanningNSW will circulate draft recommendations to NSW Fisheries for consultation with the MAC, prior to finalisation of its advice.
- Environment Australia reviews the submissions, EIS, Draft FMS and Preferred Strategy Report and provides a preliminary advice.
- NSW Fisheries reviews submissions and any advice received from PlanningNSW or Environment Australia and determines whether the draft strategy should be recommended for the approval of the Minister for Fisheries. If an approval is required from the Minister for Planning or under C'wth legislation, the recommendation must be consistent with these approvals.
- Minister for Fisheries makes a determination under Part 5 of the EP&A Act and an approval of the finalised Draft FMS under the Fisheries Management Act.
- Commonwealth Minister makes a determination under Commonwealth legislation.

Step 4
- NSW Fisheries amends any existing management plans or tools (e.g. regulations which are not consistent with the Strategy) necessary to give effect to the approved strategy. NSW Fisheries consults with FRCAC, relevant Advisory Councils, MACs and other stakeholders and if relevant the general community in finalising the management plans. Minister for Fisheries approves management plans.
- NSW Fisheries monitors the implementation of the Strategy and reports to FRCAC, relevant Advisory Councils, MACs and stakeholders on the resource and environmental management performance.
- NSW Fisheries reviews the Strategy or aspects of the strategy (based on triggers in the Draft FMS).

Figure 2 Steps in undertaking Environmental Assessment



2.2 A strategic approach in the assessment of fisher activities

For each commercial fishery, the environmental impacts of issuing approvals under the provisions of the strategy are to be assessed in accordance with this guideline and the provisions of Division 5 Part 5 of the EP&A Act. The environmental assessment is to consider the impacts of the fishery as a whole rather than the impacts of individual fishers. However where there are regional/zone differences, the impacts of the fishers within these areas should be identified and assessed. The environmental assessment is to identify threats and the risk (likelihood and consequence) that those threats cause an impact.

The environmental assessment should test the sustainability of the proposed level of fishing activities authorised under the proposed fishery management strategy. This assessment must consider the cumulative implications of issuing approvals for the designated fishing activity along with interactions with the impacts of other fisheries on the fishery resources. The assessment must not only predict and consider the acceptability of the estimated impacts on target species, but also must consider effects on species taken incidentally, important habitat and the general environment. It must also consider the impact on the resource from other non-fishing related activities likely to affect the sustainability of the fishery.

The impact of commercial fishing on fish stocks and the surrounding environment to a lesser or greater extent depends on the specific nature of the fishery and the management regime. The environmental assessment of the Strategy aims to identify the level of impact and the appropriate level of control of fishing activity that ensures the impact is acceptable and the fishery is sustainable. The EIS should consider the relative impact of different level and type of controls and justify the preferred approach on biophysical, social and economic grounds.

2.3 Factors to be considered when preparing an EIS

The term environment includes biophysical, economic and social aspects and hence broader issues in addition to a stock assessment must be considered in the environmental assessment. The environmental assessment should deal with those issues of key importance to the particular fishery but should generally consider:

- Impacts of activation of latent effort or from effort shifts.
- Impacts on retained, bycatch and bait species.
- Impacts on the broader aquatic ecology, habitat and the environment.
- Economic issues associated with the fishery.
- Cost effectiveness of management.
- Protection of key habitats and protected or threatened species.
- Influences of other activities on the fishery.
- Social issues associated with the fishery.

The assessment should rely on the best available information to predict impacts. However where information is inadequate, the precautionary principle must be invoked and a cautious approach taken until such time as additional data collection, research and analysis can provide a sounder basis for management decision making. Nonetheless, when predicting the potential impacts, worst case scenarios should be considered as well as normal operational conditions.

General principles when undertaking assessment include:

- Available scientific information including catch and effort trends, information from any relevant fishery independent study, estimates of the catch of other user groups (where possible), and the life history, distribution and dynamics of the fished stock/s should be used in predicting likely impacts on stock/species and likely effectiveness of management responses.
- Risk based assessment approaches incorporating the likelihood of an impact and the consequences should an impact occur should be utilised to identify risk and prioritise the need for management responses.
- The assessment should take into account regional/zone differences and seasonal effects.
- The assessment should take into consideration the potential impact on habitat, habitat fragmentation and broader ecological issues (e.g. ecosystem function, species richness and evenness).

- Environmental risks and uncertainties in predicting impacts should be clearly stated including the levels of confidence in predictions and the likely resilience of the environment to recover form impacts.
- In the absence of quantitative data, qualitative or Delphic impact assessments (i.e. categorisation into high, medium or low) based on best available information should be used.
- Proposed management and monitoring arrangements should be cost-effective and take into consideration costs incurred in other fisheries.
- The proposed management measures to mitigate impacts should be justified taking into consideration the principles of ESD.

The EIS should be written in a style that is succinct as possible with minimal jargon and include a glossary and a table of acronyms. The structure of the EIS should be easy to follow with minimal duplication of content. Maps should be used where possible to convey any spatial information relevant to the fishery. A reference list should be provided and the material cited should be identified in the reference list as being either from a peer-reviewed (e.g. a journal) or a non peer-reviewed source (e.g. a technical report or internal report).

2.4 Overview of the environmental impact assessment

The following matters should be addressed in the environmental assessment of a Draft Fishery Management Strategy (Draft FMS) and the designated fishing activities described in the Draft FMS:

1. Describe the existing fishery (including any existing “rules”, current management plans, historical events, seasonal patterns and marketing factors likely to affect fisher behaviour) and undertake a risk based assessment of existing operation to identify areas where existing practices or management should be modified or changed
2. Consider alternative regimes to minimise risks (including alternative objectives, alternative fishing methods, alternative funding of management responses or research programs)
3. Describe the proposed regime under the Draft FMS including objectives and proposed management rules and responses (including any draft management plan). Identify performance indicators, triggers for reviewing the Draft FMS and the proposed monitoring regime for measuring the likelihood of the strategy meeting the objectives of the Draft FMS, including an assessment of the adequacy or appropriateness of the indicators, triggers and monitoring regime
4. Assess the impacts of implementing the Draft FMS taking into consideration likely future performance, particularly in relation to high risk aspects/factors
5. Justify the draft commercial Draft FMS and its management arrangements in terms of biophysical, economic and social factors and the principles of ecological sustainable development.

3 The contents of the EIS and FMS

A EXECUTIVE SUMMARY

An executive summary should be provided and be available separately for public information. The summary should give a short overview of the draft fishery management strategy and the potential stock, biophysical, social and economic impacts of implementing the strategy. It should include identification of the major risks to the environment from the fishing activity, and the impacts of implementing the Draft FMS on the economic viability of operators (including identifying any potential increases in management costs to fishers). It should be written in non-technical language to facilitate understanding of the fishery by the general public.

B REVIEW OF EXISTING OPERATIONS

This aim of this section of the EIS is to provide sufficient background to understand the nature of the fishery, where it occurs and review the environmental performance of current operation of the fishery. A risk based approach should be used to identify aspects of the existing operation of the fishery to identify areas where existing practices or management should be modified or changed. The risk-based assessments take into consideration the likelihood/frequency of an environmental impact and the consequence should that impact occur.

1. *GENERAL INFORMATION*

Using the Share Management Plan and/or TAC Committee reports as a basis outline the following:

(a) Identify the number of fishers on a State and regional basis.

(b) Identify the harvesting methods used in the fishery including the gear, equipment and boats

(c) Provide maps identifying:
  (i) The area of operation of the fishery including any regions or zones.
  (ii) The major ports used by the fishery.
  (iii) Any aquatic reserves, marine parks, or any other permanent closures that impact the fishery.
  (iv) Any no-take areas containing significant populations of the target species, or other areas open to fishing where significant populations are thought to occur, but which are not currently exploited.

(d) Describe interactions between fishers in this fishery and with other fisheries
  (i) under NSW jurisdiction.
  (ii) under other State or Commonwealth jurisdiction.

(e) Describe the existing management regime and measures for the fishery including the aims and objectives of any share management plan and role and operation of the Total Allowable Catch (TAC) Committee in setting catch levels in this fishery that incorporates harvest from all fishing sectors.
  (i) Outline current performance indicators and monitoring provisions for monitoring of the harvest of the fishery including the requirements for the reporting of catch and effort by the fishers (e.g. logbook returns), any observer programs any fisher independent information and discuss the reliability of the monitoring provisions.
  (ii) Describe the process for review and assessment of the dynamics and status of the fishery, including the nature and frequency of the review and assessment events.
  (iii) Describe any regulatory or other changes that may impact upon the Share Management Plan since its implementation (e.g. aquatic reserves)
  (iv) Outline any current major research initiatives related to management of the fishery.

(f) Outline current administrative arrangements in relation to enforcement and compliance, cost recovery, and community contribution payments.

2. *ECOLOGICAL ISSUES*

2.1 The target species

Using the Share Management Plan and/or TAC Committee reports as the basis:

(a) Identify the target stock[1] and document the relevant biology and ecology of the target species.

(b) Describe in detail the status of the stock, estimate the proportion of the population that is exploited by the fishery; identify how the fishery affects that stock and the likelihood that the stock is considered to be growth overfished and/or recruitment overfished. Outline the likelihood of contraction or fragmentation of the species range from the existing fishery.

(c) Describe significant factors (e.g. recruitment dynamics, oceanographic factors, grazing by animals such as sea urchins, water quality and pollution) external to the fishery that may significantly influence the abundance and dynamics of the target species.

(d) Describe any diseases (e.g. *Perkinsus*) that may significantly impact on the target species, the possible causes of disease outbreaks (e.g. water quality linked to sewage outfalls), and any mitigation measures.

(e) Summarise the overall risks from the operation of the fishery on the target species taking into consideration the likelihood/frequency of impacts and the consequence of the impacts occurring.

2.2 Byproduct and bycatch species

(a) Identify the byproduct (e.g. sea urchins and octopus) and bycatch species impacted directly by the fishery, and any management, monitoring or mitigation measures for byproduct and bycatch species.

(b) Identify the biological characteristics of the bycatch and byproduct species that may make their populations susceptible to the impacts from the fishery.

(c) Summarise the overall risks from the operation of the fishery on these species taking into consideration the likelihood/frequency of impacts and the consequence of the impacts occurring.

2.3 Bait Species

(a) Identify the species, volume and sources of bait species used in the fishery (if relevant). Identify any pests and diseases that may be introduced as a result of bait sources.

(b) Consider the likely effectiveness of any existing management regime to minimise the risk of introduction of pests and diseases in the bait organisms including procedures to ensure the measures are implemented.

(c) Summarise the overall risks from the operation of the fishery on these species taking into consideration the likelihood/frequency of impacts and the consequence of the impacts occurring.

2.4 Protected and threatened species

(a) Identify protected and threatened species, populations and ecological communities and their habitat listed under the Threatened Species Conservation Act, National Parks and Wildlife Act or Environment Protection and Biodiversity Conservation Act which may be affected by fishing activities.

(b) Identify information sources (e.g. surveys, studies etc.) on the level of interaction between the fishery on endangered, threatened or protected species and threatened ecological communities (and the reliability of this information).

(c) Identify measures in place to avoid impacts on endangered, threatened or protected species and threatened ecological communities.

(d) Summarise the overall risks from the operation of the fishery on these species taking into consideration the likelihood/frequency of impacts and the consequence of the impacts occurring.

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[1] Definition of the word stock is included in the Glossary. A description of the stock must include reference to its distribution and spatial structure.

2.5 Other species and species assemblages

(a) Identify any other species and species assemblages that are likely to be affected directly or indirectly by the fishing activity.

(b) Describe the possible impacts of the fishery on the species diversity of benthic invertebrate and fish assemblages and (where possible) any changes to predator and prey populations of the target, bycatch or byproduct species that may occur as a result of the activities of the fishery.

(c) Identify any organisms translocated as a result of the fishery operation (stock species, fouling organisms and other pests) including species and the likely implications. Outline a contingency plan for any pest species likely to be translocated by the fishery.

(d) Identify (where possible) the ecosystem functions that may be altered as a result of the fishery and describe how any alterations may occur.

(e) Summarise the overall risks from the operation of the fishery on these species assemblages taking into consideration the likelihood/frequency of impacts and the consequence of the impacts occurring.

2.6 Aquatic habitats

(a) Identify the primary habitat areas of the target species impacted by the fishery.

(b) Describe the spatial extent and scale of these impacts relative to the overall area of these habitats.
   (i) Identify how these impacts arise and describe the nature, intensity, magnitude, frequency and duration, reversibility of impacts.

(c) Identify any other habitat areas that may be impacted by the fishery, in particular any RAMSAR wetlands, areas registered in the National Estate or State Heritage Register, habitat issues associated with marine mammals and migratory birds (listed under JAMBA and CAMBA).
   (i) Identify how these impacts arise and describe the nature, intensity, magnitude, frequency and duration, reversibility of impacts.

(d) Summarise the overall risks from the operation of the fishery on habitats taking into consideration the likelihood/frequency of impacts and the consequence of the impacts occurring.

3. *PHYSICAL IMPACTS*

(a) Undertake an assessment to identify the likelihood and consequence of the current fishery operations causing impacts on :
   - Water quality.
   - Noise and light regimes.
   - Air quality or greenhouse gas emissions.

(b) Where risk is identified as unlikely and/or not of significant consequence, this position should be justified. Where this position is identified and justified, no further discussion of that impact is necessary in this section.

(c) Where risk is identified to be likely and/or of a significant consequence for a factor identified in the previous paragraph, the following detail should be included for that factor.

The assessment of these issues in the Estuary General or Ocean Haul EIS should contribute and the risk assessment.

3.1 Water quality

(a) Based on the current operation of the fishery, identify sources of pollutants/contaminants from the operation of the fishery likely to affect the water quality, and outline the characteristics, magnitude and probable frequency of these events, including, the use of substrate treatments (e.g. anti-fouling agents); Identify any incidences of accidental or deliberate discharge of chemicals; fuel or bilge water discharge; and dumping of debris (plastics, gear and general waste). Identify the likely assimilation capacity of the receiving water impacted by any pollutants/contaminants.

(b) Describe any existing management measures to mitigate any adverse impacts from the fishery on water quality. Assess the adequacy of mitigation and management measures

3.2 Noise and light regimes

(a) Based on the current operation of the fishery, identify any potential fixed and mobile noise and light sources (and the indicative hours of operation). Identify any birds or mammals whose behaviour (e.g. roosting, feeding, and migration) is likely to be significantly or permanently modified in response to noise or light from the fishery activities. Identify any residences likely to be affected by the noise or light.

3.3 Air quality, energy and greenhouse gas emissions

(a) Based on the current operation of the fishery, outline the any sources of odours or other air impacts. Identify the conditions under which any sensitive land uses are likely to be affected by odour. Outline any existing measures to manage air impacts to an acceptable level; assess the adequacy of mitigation and management measures.

4. *ECONOMIC ISSUES*

(a) Outline the investment in the fishing fleet and any significant processing facilities.

(b) Outline employment including direct and indirect employment by regions or sub-regions including the proportion of fishers with income from other commercial fisheries and/or other non-fishing employment, the seasonality of employment and the demographic profile of those direct and indirect employed in the fishery

(c) Outline the economic return from the fishery including its contribution to individual, regional, and state income, the value of shares in the fishery and trends in the market value of shares held by fishers and the economic multiplier effects, economic rents and community contributions.

(d) Summarise the overall risks to the economic viability of the fishery from the current operational regime taking into consideration the likelihood/frequency of impacts and the consequence of the impacts occurring.

5. *SOCIAL ISSUES*

(a) Outline the community values and views associated with the fishery (including social capital issues, skill base and transferability of skills) with a brief analysis of the basis of these views and perceptions.

(b) ***Health risks to fishers:*** Outline the health risks to fishers and related workers from current practices/methods and existing measures to minimise risks.

(c) ***Health risks to consumers***: Identify any health risks to consumers and existing measures for minimising or removing these risks up to the point of transfer of the product to the processor or receiver.

(d) ***Indigenous peoples*:** Identify the interests of Indigenous people in the resources harvested by the fishery and in habitats that may be impacted by the fishery.
   (i) Identify any important Aboriginal heritage sites/places likely to be affected by fishers operating within the fishery and outline any existing protocols/measures that aim to minimise risk of harm to these sites.
   (ii) Outline how the fishery interfaces or affects traditional fishing and access to fisheries resources.
   (iii) Outline the implication of the current fishery regime on Indigenous communities' well being, including economics, employment and community viability,

(e) ***Historic heritage:*** Identify any shipwreck sites or other sites of historic heritage that are affected by fishing activities and outline protocols/measures to minimise risk of harm to these sites.

(f) Summarise the overall risks from the current operational regime to any social issues taking into consideration the likelihood/frequency of impacts and the consequence of the impacts occurring.

C CONSIDERATION OF ALTERNATIVE MANAGEMENT REGIMES

Taking into consideration the key issues identified in the review of the fishery (Section B) and the risk assessment undertaken in relation to these issues, consider alternatives to current practices in the fishery to reduce the level of risk or improve the sustainability of the fish stock or the fishery. In this context, describe and discuss the feasible alternatives, including:

(a) The no fishery alternative.

(b) No changes to existing management arrangements.

(c) Alternative harvesting methods.

(d) Alternative performance indicators and monitoring programs.

(e) Alternative arrangements for cost recovery or funding sources for management responses or research programs.

D DRAFT FISHERY MANAGEMENT STRATEGY

This aim of this section is to set out the structure and content of the Draft Fishery Management Strategy for the Abalone or Lobster Fishery. It should respond to issues identified as having significant risks in the review of the current fishery operation and to alternatives evaluated to improve the management of these and other issues.

1. *OBJECTIVES OF THE DRAFT FMS*

The objectives should be outcomes-based. The objectives of the Draft FMS should be integrated (where possible) with the objectives of any existing Share Management Plans.

2. *DESIGNATED FISHING ACTIVITY*

(a) Identify the stock (target and by-product) to be harvested and/or affected by the fishery. Using available information, describe the status of the stock as under-fished, fully fished or overfished. Provide a table which documents the known status (and the level of certainty) for the following stock assessment and biological parameters:
   (i) Size and age at maturity.
   (ii) Distribution and stock structure.
   (iii) Age and growth information.
   (iv) Natural mortality.
   (v) Fishing mortality.
   (vi) Spawning season.
   (vii) Spawning areas.
   (viii) Stock recruitment relationship.
   (ix) Movements and migration.

(b) Provide maps identifying the future operational areas, key environmental protection areas and areas closed to the fishery including
   (i) The area of operation of the fishery including any regions or zones.
   (ii) The major ports used by the fishery.
   (iii) Aquatic reserves, marine parks, or any other permanent closures that impact the fishery.

   If the area of operation of the fishery as defined in the Draft FMS is not modified from that presented in section *"B Review of existing operations"* then cross-referencing back to that information is sufficient[2].

(c) Outline the following as they affect the operation of the fishery:
   (i) Any controls under the Share Management Plan and determinations of the TAC Committee under Division 4 of Part 2 of the FM Act.
   (ii) Any enforcement and compliance issues (including any Strategic Compliance Plans and the process for review of these plans).
   (iii) Any fees, charges, cost recovery and community contribution payments.
   (iv) Any provisions in the FM Act or Regulations including any fishing closures under Section 8 of the FM Act or policies approved by the Fisheries Minister.

[2] However, maps and associated information should be included in the Preferred Strategy Report and the Final FMS, which are stand alone documents.

(v) Any relevant bycatch or threatened/protected species plans or recovery programs and the measures in place to mitigate the operation of the fishery on the threatened/protected species.
(vi) Any provisions for ongoing consultation and participation by stakeholders in management.

3. *MANAGEMENT RESPONSES*

The Draft FMS is to identify specific management responses aimed at minimising risk to the environment and the sustainability of the fishery. Each management action should:

(a) Describe the risk trying to be addressed by the management response.
(b) Outline the management response itself.
(c) Identify the timeframe for implementing the management response.
(d) Outline the predicted outcome(s) from the management response.

4. *PERFORMANCE REPORTING AND MONITORING*

Performance reporting should link back to the management actions and objectives of the Draft FMS. The following approach is modified from the *FRDC ESD Reporting Framework "How to Guide"* which was put together under the auspices of the Standing Committee for Fisheries and Aquaculture (now the Marine and Coastal Group of NRMC). The proponent should be guided by this framework along with risk assessments presented as part of the EIS for determining issues (e.g. bycatch, habitat impacts) that require performance reporting. Existing applications of this approach to other fisheries (e.g. Western Rock Lobster) should be referred to for identifying the level of detail required for each component.

Performance reporting shall include the following:

(a) For each objective, an indicator is to be identified. This can be a direct measure of performance (e.g. employment numbers for employment) or a surrogate (e.g. catch per unit effort as an estimator of stock abundance).
(b) A trigger point (=reference point) which is necessary to define how to interpret the indicator to assess whether performance against the objective is acceptable or not.
(c) A brief discussion of the basis and justification for the selected indicator and trigger point.
(d) The data requirements and availability of data for the indicator. This is to be depicted using a table or matrix:

Data Required	Availability
Description of indicator/supporting data.	▪ Time period for which data are available or when data will become available. ▪ Details of the existing or proposed monitoring program

(e) The robustness of the current indicator and trigger point. The robustness of an indicator or trigger point is to be described as high, medium or low (with a brief textual justification for the assigned category).
(f) The action(s)[3] that will result if a trigger point is exceeded.
(g) A description of any external drivers - factors that are known to potentially impact on performance of the fishery but which are outside of the responsibility of NSW Fisheries.

5. *RESEARCH AND DEVELOPMENT PLAN*

(a) Describe the Strategic Plan for Research contained in the Share Management Plan.
(b) Review and update (as appropriate) this Plan in the light of the broader objectives of the Draft Draft FMS specifying short and long term aims of research and links with objectives of the Draft FMS.

[3] These Guidelines are not prescriptive in terms of what constitutes an appropriate action should a trigger point be exceeded. In some instances, specific decision rules with a direct management action may be specified, while in others a review of the reasons for the trigger being surpassed may be more appropriate provided this review can lead to appropriate action if necessary. What constitutes an appropriate action should be addressed on a case by case basis.

(c) Identify any knowledge gaps for the ecological, economic and social aspects of the fishery and incorporate appropriate research initiatives to fill these gaps into the Research and Development Plan.

E ASSESSMENT OF THE POTENTIAL IMPACTS OF IMPLEMENTING THE DRAFT FMS.

This section of the Guidelines sets out the information required for assessing the potential impacts that may occur as a result of implementing the Draft FMS. This Section should be informed by and link to the risk assessment undertaken as a component of Section B of these Guidelines. It should focus on the likely change in impacts and when those impacts are likely to be adverse, the adequacy of monitoring and management measures in the Draft FMS. The risk assessment should be used to prioritise management actions. This risk assessment approach applies throughout the relevant parts of Section E, including: E1.1.(c), E1.2.(c), E1.3.(b), E1.5.(b), and E1.6.(b).

1. *ECOLOGICAL ISSUES*

1.1 Target species

(a) Identify any likely changes in impacts from the fishery on target species as a result of implementing the Draft FMS compared with the current regime including in relation to their status, the likelihood that the stock will be overfished or the species range fragmented or contracted. When the impacts are likely to be adverse, consider the adequacy of monitoring and management measures in the Draft FMS and their ability to promote stock recovery if the stock is overfished.

(b) Identify any likely changes in external impacts on the fishery as a result of implementing the Draft FMS compared with the current regime including in relation to their status, the likelihood that the stock will be overfished or the species range fragmented or contracted. When the impacts are likely to be adverse, consider the adequacy of monitoring and management measures in the Draft FMS.

(c) Assess whether the risk to the sustainability of the target stock has changed (and the potential magnitude of this change) by the management responses in the Draft FMS.

1.2 Byproduct and bycatch target species

(a) Identify any likely changes in impacts on byproduct and bycatch target species as a result of implementing the Draft FMS compared with the current regime including in relation to their status, or the species range fragmented or contracted. Assess whether any risks on byproduct and bycatch are changed (and the potential magnitude of this change) by the management responses in the Draft FMS. When the impacts are likely to be adverse, consider the adequacy of monitoring and management measures in the Draft FMS

(b) Estimate the likelihood of any new markets being developed for bycatch and byproduct species and the likelihood the fishery could increasingly target these species if new markets developed.

(c) Assess whether the risk to the sustainability of the target stock has changed (and the potential magnitude of this change) by the management responses in the Draft FMS.

1.3 Bait Species

(a) Identify any likely changes in impacts on bait species (if relevant) as a result of implementing the Draft FMS compared with the current regime.

(b) Assess whether the risk to the sustainability of the bait species has changed (and the potential magnitude of this change) by the management responses in the Draft FMS.

1.4 Protected and threatened species and communities

(a) Identify any likely changes in impacts on protected and threatened species, populations and ecological communities and their habitat listed under the Threatened Species Conservation Act, National Parks and Wildlife Act or Environment Protection and Biodiversity Conservation Act which may be affected by fishing activities.

(b) For each species, systematically address each of the factors in *The Eight-Part Test* (see Appendix 3). Where one or more of the factors are not relevant to the species in question, identify this as "not applicable".

(c) Discuss the effectiveness of any measures in the Draft FMS to protect species listed under Threatened Species Conservation Act, Fisheries Management Act or Environment Protection and Biodiversity Conservation Act.

1.5 Other aspects of ecosystem structure and function

(a) Identify any likely changes in impacts on other aspects of ecosystem structure and function as a result of implementing the Draft FMS compared with the current regime.

(b) Assess (where possible) the potential impacts of the proposed management measures in the Draft FMS.

1.6 Aquatic habitats

(a) Identify any likely changes in impacts on primary habitat areas of the target species or other habitat areas as a result of implementing the Draft FMS compared with the current regime.

(b) Assess whether the risks to aquatic habitats have been changed (and the potential magnitude of this change) by the management measures in the Draft FMS.

1.7 Performance reporting, monitoring and research regime

(a) Evaluate the likely effectiveness of performance reporting and monitoring regime to provide appropriate information for monitoring the impacts on the ecosystem in particular target species.

(b) Evaluate the likely effectiveness of the research plan to identify and prioritise research to meet key knowledge gaps for the sustainable management of the ecosystem aspects of the fishery.

2. Physical issues

2.1 Water quality

(a) Identify any likely changes in water quality impacts as a result of implementing the Draft FMS compared with the current regime. Describe how the management actions in the Draft FMS mitigate any adverse impacts from the fishery. Assess the adequacy of mitigation and management measures.

2.2 Noise and light regimes

(a) Identify any likely changes in noise and light impacts as a result of implementing the Draft FMS compared with the current regime. Outline measures in the Draft FMS to manage any adverse impacts to an acceptable level; assess the adequacy of mitigation and management measures.

2.3 Air quality, energy and greenhouse gas emissions

(a) Identify any likely changes in air quality impacts as a result of implementing the Draft FMS compared with the current regime. Outline measures in the Draft FMS to manage any adverse impacts to an acceptable level; assess the adequacy of mitigation and management measures.

(b) Outline measures in the Draft FMS to increase energy use efficiency and minimise greenhouse gas emissions to an acceptable level; assess the adequacy of mitigation and management measures.

3. Economic and social issues

3.1 Economic issues

(a) Outline the potential change in economic viability of operators as a result of implementing the Draft FMS with a focus on
   (i) assessing the ability of fishers to pay increased management costs in this fishery (also taking into consideration increased costs accrued in other fisheries).

(ii) the potential market trends and developments likely to affect the fishery.
(iii) the potential impact on the value of shares in the fishery.

3.2 Social issues

(a) Identify any likely changes in social impacts (on fishers, their families or any local communities) as a result of implementing the Draft FMS. Assess whether the risk of social impacts are changed (and the potential magnitude of this change) by the management measures in the Draft FMS.

(b) Assess the potential change in impacts on Indigenous interests and values of implementing the Draft FMS including on:
(i) traditional fishing and access to fisheries resources and areas of cultural value
(ii) Indigenous communities' well being, including economics, employment and community viability,
(iii) the implementation of the NSW Indigenous Fisheries Strategy.
Identify whether the risk of impacts on Indigenous interests and values are likely to change (and the potential magnitude of this change) as a result of implementing the management responses in the Draft FMS.

(c) Identify any likely changes in impacts on heritage values as a result of implementing the Draft FMS. Assess whether the risk of impacts on heritage values are changed (and the potential magnitude of this change) by the management measures in the Draft FMS.

(d) Assess whether the risk to the economic viability of the fishery (and the potential magnitude of this change) by the management measures in the Draft FMS.

3.3 Performance reporting, monitoring and research regime

(a) Evaluate the likely effectiveness of performance reporting and monitoring regime to provide appropriate information for monitoring the impacts on the social and economic issues.

(b) Evaluate the likely effectiveness of any research plan to identify and prioritise research to meet key knowledge gaps for the sustainable management of the social and economic implications of the fishery.

F JUSTIFICATION FOR DRAFT FMS

Provide a clear and sufficient discussion demonstrating that the selection of the preferred options in the Draft FMS is justified. Justify in terms of the principles of ESD the selection of:

(a) the preferred management objectives in the Draft FMS;

(b) the preferred suite of "management responses" in the Draft FMS

(c) the preferred resource allocation approach.

Appendix 1 Roles and Responsibilities

Act	Relevant Authority	Regulatory provisions
NSW Legislation		
Fisheries Management Act 1994	NSW Fisheries	Fishing authorisations, fishing closures, declaration and management of aquatic reserves, protection of certain fish including threatened and protected species.
Environmental Planning and Assessment Act 1979	Department of Planning (PlanningNSW) and Local Councils	Administration of the environmental impact assessment and project approval system. Development of environmental planning instruments which may protect wetlands or certain other areas.
Marine Parks Act 1997	Marine Parks Authority	Declaration and management of marine parks
National Parks and Wildlife Act 1974 and Threatened Species Conservation Act 1995	National Parks and Wildlife Service	Declaration and management of nature reserves and national parks, protection of certain mammals, birds and foreshore species including threatened and protected species
Port Corporation and Waterways Management Act 1995	Waterways Authority or relevant Port Corporation	Use of ports, wharfs, berths, moorings etc, licensing of vessels and maintenance of safe navigation in waterways
Crown Lands Act 1989 and Rivers and Water Act 2000/ Foreshores Protection Act 1948	Department of Land and Water Conservation	Use of Crown land for wharfs, berths or moorings and protection of river, estuary and coastal foreshores.
Food Production (safety) Act 1998	Safefood	Fish products safe for human consumption
Commonwealth Legislation		
Wildlife Protection (Regulation of Export and Imports) Act 1982	Agriculture, Forestry and Fisheries Australia and Environment Australia	Licence to export protected wildlife
Environment Protection and Biodiversity Conservation (EPBC) Act 1999	Environment Australia	Environmental Assessment of matters of National Significance including those affecting protected or threatened species, Ramsar wetlands, bird and mammal species protected under international agreements

Appendix 2 Glossary

Biological diversity, biodiversity	the variability among living organisms from all sources (including marine and other aquatic ecosystems and the ecological complexes of which they are part). Includes 1) diversity within species and between species; and 2) diversity of ecosystems.
Bycatch	species that are discarded from the catch or retained for scientific purposes, and that part of the "catch" that is not landed but is killed as a result of interaction with fishing gear. This includes discards of commercially valuable species.
By-product	Are not target species but are species that are retained because they are commercially valuable
Designated fishing activities	As defined in the Fishery Management Act, are: • Category 1 Share Management Fisheries including abalone fishery and the lobster fishery • Category 2 Share Management Fisheries including ocean prawn trawl fishery, ocean fish trawl fishery, ocean hauling fishery, ocean trap and line fishery, the estuary general fishery and the estuary prawn trawl fishery. • Charter boat fisheries • Recreational fisheries • Fish stocking • Shark meshing, and • Other fishing activities proclaimed by the Governor on the recommendation of the Minister for Fisheries to be designated fishing activities.
Ecologically sustainable development, ESD	Ecologically sustainable development, ESD, is using, conserving and enhancing the community's resources so that the ecological processes, on which life depends, are maintained and the total quality of life now and in the future, can be increased (National Strategy for ESD, Council of Australian Governments 1992). Ecologically sustainable use of natural resources means the use of components of biological diversity in a way and at a rate that does not lead to the long term decline of biological diversity and to sustain natural processes within their capacity while maintaining the life-support systems of nature thereby maintaining their potential to meet the needs and aspirations of future generations. A sustainable fishery is consistent with ESD if that fishery conserves and enhances the community's resources so that the ecological processes, on which life depends, are maintained and the total quality of life now and in the future, can be increased Principles of Ecologically Sustainable Development (Intergovernmental Agreement on the Environment) 1 The precautionary principle— Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by: (a) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and (b) an assessment of the risk-weighted consequences of various options. 2 Intergenerational equity— the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations 3 Conservation of biological diversity and ecological integrity— conservation of biological diversity and ecological integrity should be a fundamental consideration. 4 Improved valuation, pricing and incentive mechanisms— (a) environmental factors should be included in the valuation of assets and services, (b) polluter pays— those who generate pollution and waste should bear the cost of containment, avoidance or abatement, (c) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

(d) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

Ecologically viable stock	ecological viable stock has a general rather than a specific meaning. It refers to the maintenance of the exploited population at high levels of abundance designed to maintain productivity, provide margins of safety for error and uncertainty and maintain yields over the long term in a way that conserves the stocks role and function in the ecosystem.
Ecosystem	the biotic (living) community and its abiotic (non-living) environment.
Fish	Fish are marine, estuarine or freshwater fish or other aquatic animal life at any stage of their life history (whether alive or dead) and include oysters and other aquatic molluscs, crustaceans, endinoderms, and beach works and other aquatic polychaetes. Fish does not include whales, mammals, reptiles, birds or amphibians.
Fish stock/resources	Means the living resources in the community or population from which catches are taken in a fishery. Fish stock may include one or several species of fish but may also include commercial invertebrates and plants. Recruits to a stock are the young fish entering the exploited component of the stock for the first time.
Fishery	A unit determined by an authority or other entity that is engaged in raising and /or harvesting fish. Under the Fisheries Management Act 1994, fishery is a class of fishing activity identified by reference to any one or more of the following: species or class of fish, area of water or seabed, method of fishing, class of boats, class of persons and purpose of activities.
Management Advisory Committee (MAC)	MACs have been established for each share management or restricted fishery. Members are elected by the commercial fishers of the fishery or appointed by the Minister. The MAC advises the Minister on the fishery matters including the preparation of regulations or management strategy, monitors their implementation and assists in reviewing the regulations or strategy.
Fishing activity	Fishing activity is the activity of taking fish and includes: searching for fish, any activity likely to result in locating, aggregating or taking of fish or carrying fish by boat from the places where they are taken to the place where they are to be landed.
Fishing effort	Represents the amount of fishing gear of the specific type used on the fishing grounds over a given unit of time eg hours trawled per day, number of hooks set per day or number of hauls of a beach seine per day
FRCAC	The Fisheries Resource Conservation and Assessment Council is a statutory body appointed by the Minister for Fisheries that will advise on the preparation, review and assessment of fishery management strategies.
Ministerial Advisory Council	Ministerial Advisory Councils for commercial, recreational, research and aquaculture sectors are appointed by the Minister for Fisheries to advise him on any matter relating to the sector for which the council has been established.
Overfishing	can be defined in two ways which can act independently or concurrently: "recruitment overfishing", where fishing activities are causing a reduction in recruitment in succeeding years and cause the mortality of too many fish in total, too many pre-productive fish, or too many fish that have only spawned a few times. The end result is that the stock can no longer replenish itself adequately. "growth overfishing": where fishing activities lead to a reduction in the size of the individuals of a species, as a consequence of which few specimens grow to the size for optimum yield.
Protected species	are species protected under the NSW legislation (FM Act or NPW Act) or Commonwealth legislation (Wildlife Protection (Regulation of Export and Imports) Act or Environment Protection and Biodiversity Conservation (EPBC) Act)
Stock	In the strict sense, a distinct, reproductively isolated population. In practice, a group of individuals of a species in a defined spatial range that is regarded as having a relatively low rate of exchange with others of the species.
Threatened species, populations or ecological communities	Are listed as vulnerable, endangered or presumed extinct under the FM Act 1993 or Threatened Species Conservation Act 1995 or Environment Protection and Biodiversity Conservation (EPBC) Act).

Appendix 3 Threatened Species Conservation Act

Threatened Species Conservation Act

This appendix contains an extract from the *Threatened Species Conservation (TSC) Act* 1995 and the provisions for assessing impacts on the conservation of critical habitat and threatened species, populations or ecological communities and their habitats.

What are critical habitat, threatened species, populations or ecological communities and threatening processes?

Critical habitats are habitats for endangered species, population or ecological communities which are declared and threatened species, populations or ecological communities and threatening processes are prescribed by the:

- Minister for Environment in accordance with Part 3, Part 2 and Schedules I and 2 of the TSC Act of the *TSC Act* and
- Minister for Fisheries under Part 7A ,Schedules 4, 5 and 6 of the FM Act of the *Fisheries Management (FM) Act* 1994.

When is a Species Impact Statement required?

Under section 77 (3) (dI) and section 112 (IB) of the EP&A Act, if a proposal :

- is on land that contains "critical habitat" or
- is likely to significantly affect threatened species, populations or ecological communities, or their habitats,
- a species impact statement (SIS) must be prepared in accordance with Division 2 of Part 6 of the TSC Act and with Division 6 of Part 7 A of the FM Act.

Factors when deciding if an SIS is required

The following factors must be taken into account in deciding whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats:

a) in the case of a threatened species, whether the life cycle of the species is likely to be disrupted such that a viable local population of the species is likely to be placed at risk of extinction,
b) in the case of an endangered population, whether the life cycle of the species that constitutes the endangered population is likely to be disrupted such that the viability of the population is likely to be significantly compromised,
c) in relation to the regional distribution of the habitat of a threatened species, population or .ecological community, whether a significant area of known habitat is to be modified or removed,
d) whether an area of known habitat is likely to become isolated from currently interconnecting or proximate areas of habitat for a threatened species, population or ecological community,
e) whether critical habitat will be affected,
f) whether a threatened species, population or ecological community, or their habitats, are adequately represented in conservation reserves (or other similar protected areas) in the region,
g) whether the development or activity proposed is of a class of development or activity that is recognised as a threatening process,
h) whether any threatened species, population or ecological community is at the limit of its known distribution.

Form and content of an SIS

Under section 110 of the TSC Act and sections 221J and 221K of the FM Act, the general requirements on the form and content of an SIS are as follows.

General Information

A species impact statement must include a full description of the action proposed, including its nature, extent, location, timing and layout and, to the fullest extent reasonably practicable, the information referred to in this section.

Information on threatened species and populations

A species impact statement must include the following information as to threatened species and populations:

a) a general description of the threatened species or populations known or likely to be present in the area that is the subject of the action and in any area that is likely to be affected by the action,
b) an assessment of which threatened species or populations known or likely to be present in the area are likely to be affected by the action,
c) for each species or population likely to be affected, details of its local, regional and State-wide conservation status, the key threatening processes generally affecting it, its habitat requirements and any recovery plan or threat abatement plan applying to it,
d) an estimate of the local and regional abundance of those species or

populations,

e) a general description of the threatened species or populations known or likely to be present in the area that is the subject of the action and in any area that is likely to be affected by the action,
f) a full description of the type, location, size and condition of the habitat (including critical habitat) of those species and populations and details of the distribution and condition of similar habitats in the region,
g) a full assessment of the likely effect of the action on those species and populations, including, if possible, the quantitative effect of local populations in the cumulative effect in the region,
h) a description of any feasible alternatives to the action that are likely to be of lesser effect and the reasons justifying the carrying out of the action in the manner proposed, having regard to the biophysical, economic and social considerations and the principles of ecologically sustainable development,
i) a full description and justification of the measures proposed to mitigate any adverse effect of the action on the species and populations, including a compilation (in a single section of the statement) of those measures,
j) j) a list of any approvals that must be obtained under any other Act or law before the action may be lawfully carried out, including details of the conditions of any existing approvals that are relevant to the species or population.

Information on ecological communities

A species impact statement must include the following information as to ecological communities:

a) a general description of the ecological community present in the area that is the subject of the action and in any area that is likely to be affected by the action,
b) for each ecological community present, details of its local, regional and State-wide conservation status, the key threatening processes generally affecting it, its habitat requirements and any recovery plan or any threat abatement plan applying to it,
c) a full description of the type, location, size and condition of the habitat of the ecological community and details of the distribution and condition of similar habitats in the region,
d) a full assessment of the likely effect of the action on the ecological community, including, if possible, the quantitative effect of local populations in the cumulative effect in the region,
e) a description of any feasible alternatives to the action that are likely to be of lesser effect and the reasons justifying the carrying out of the action in the manner proposed, having regard to the biophysical, economic and social considerations and the principles of ecologically sustainable development,
f) a full description and justification of the measures proposed to mitigate any adverse effect of the action on the ecological community, including a compilation (in a single section of the statement) of those measures,
g) a list of any approvals that must be obtained under any other Act or law before the action may be lawfully carried out, including details of the conditions of any existing approvals that are relevant to the ecological community.

Credentials of persons undertaking an SIS

A species impact statement must include details of the qualifications and experience in threatened species conservation of the person preparing the statement and of any other person who has conducted research or investigations relied on in preparing the statement.

State-wide conservation status

The requirements of subsections (2) and (3) [above] in relation to information concerning the State-wide conservation status of any species or population, or any ecological community, are taken to be satisfied by the information in that regard supplied to the principal author of the species impact statement by the NPWS, which information that Service is by this subsection authorised and required to provide.

Procedures for preparing an SIS

Under section 111 of the TSC Act, the Director-General of National Parks and Wildlife and under section 221L of the FM Act, the Director of NSW Fisheries must be consulted in writing for the requirements for an SIS. These requirements must be provided within 28 days from when a request is made.

Because of the circumstances of the case, the Director-General of National Parks and Wildlife/Director of NSW Fisheries may limit or modify the extent of matters prescribed in sections 110 TSC Act and 221J and 221K FM Act. In other cases if the impacts are considered to be trivial or negligible, the Director-General of National Parks and Wildlife/Director of NSW Fisheries may dispense with the requirements for an SIS to be prepared.

An SIS may be prepared as a separate document or incorporated in an EIS. If the SIS is separate to the EIS, it must be exhibited concurrently with the EIS.

The SIS must be in writing and be signed by the principal author of the document and the applicant/proponent.

Appendix 4 Fishery Management Tools

Limiting who has access	***Limited access regimes*** can be used to limit entry to participants in a particular fishery or part of a fishery. They usually include eligibility rules and rules relating to the transfer of entitlements.
	Restructuring programs can provide a concentrated or focused change in management procedures to achieve an accelerated change in expected outcomes[4]. These may include minimum entitlement holdings, buy back schemes and restructuring through transferability programs.
Limiting where and when the fishing can occur	***Fishing closures*** which restrict commercial and/or recreational fishing for a specified period of time, any fishing or fishing for certain classes of fish in any waters or from specified waters.
	Recreational fishing havens which are a form of fishing closure may give preferential fishing rights to recreational fishers and may partly or totally restrict commercial fishers
	Recognised fishing grounds are areas used regularly or intermittently for net fishing by commercial fisheries and which have been mapped and approved by the Director and where commercial net fishers are given priority under clause 105 of the FM Regulation.
Input controls limiting the equipment used to take fish	***Gear restrictions*** limit the size and type of gear (in possession or that can be used to take fish) such as size and number of nets/traps/lines/etc, mesh or size configurations, gear design, and marking of gear
	Boat controls limit the size and engine capacity of boats
Output controls limiting the amount and type of fish able to be landed	***Total allowable catch*** (TAC's) is a specified total catch for a share management fishery determined by an independent Total Allowable Catch Committee fished on a competitive basis or by people holding individual quotas.
	Species size limits restricts the minimum size, maximum sizes or range of sizes specified for fish of a particular species that can be landed (by measurement or weight);
	Bag limit is the maximum quantity of fish of a specified species or of a specified class that a person may take on any one day. – daily limit.
	Possession limit is the maximum quantity of fish of a specified species or specified class that a person may have in possession in any specified circumstances
	Protected fish are certain species of fish completely prohibited from being in a person's possession.
	Protected fish from commercial fishing are certain species of fish completely prohibited from commercial fishing and from taking for sale.
	Quality assurance controls are the controls on the harvest of shellfish such as mussels and pipis to protect health
Protection of ecosystems	***Protected or threatened species, populations and ecological communities and their habitats*** (eg fish, aquatic vegetation, marine mammals, platypus, birds etc). listed under the FM Act, NPW Act or EPBC Acts.

[4] Definition extracted from Metzner, R. & Rawlinson, P. (1998) Fisheries Structural Adjustment: towards a national framework. Commonwealth Department of Primary Industries and Energy, Canberra, p.2.

APPENDIX B1 ECONOMIC SURVEYS, MULTIPLIERS AND RETURN

Appendix B1.1 – Economic survey of fishers

In May 2001, an economic survey of operators across 7 of the 8 NSW managed fisheries (i.e. excluding Abalone) was undertaken in order to collect information on the net return of operators (Roy Morgan 2001b). Information was collected on the costs of going fishing, along with the number of days spent in each fishery and percentage of total gross sales from each different type of fishing. The information was recorded for operations undertaken in 1999/2000. A total of 220 fishing businesses were surveyed. Of these, approximately 27 held endorsements in the Lobster Fishery (Table AB1.1).

Table AB1.1 Proportion of fishers surveyed

	Number of active fishers	Survey sample	Proportion surveyed
Ocean trap and line	438	102	23%
Ocean prawn trawl and ocean fish trawl	289	50	17%
Estuary prawn trawl	200	39	20%
Estuary general	698	144	21%
Ocean haul	188	58	31%
Lobster	151	26	17%

Source: Roy Morgan 2001b

Given that, on average, only 22% of fishers were surveyed, the sample would not be considered to be very representative of the population. For this reason, inferences about the population of fishers made from the results of the economic survey of fishers should be treated with caution

The number of lobster fishers surveyed from the four regions is compared to the number of lobster fishers per region in Table AB1.2.

Table AB1.2 Regional distribution of fishers surveyed

	Number active fishers	Survey sample	Proportion surveyed
Far North	26	6	23%
Mid North	24	7	29%
Sydney South	61	9	15%
Far South	40	4	10%

Three groups of shareholdings: under 35 shares, 35 to 75 shares and above 75 shares, were used to present the survey data. A comparison of average shareholdings of lobster fishers to average shareholdings of the population is given below for the three groups of shareholdings in which the economic data is presented (Table AB1.3).

Table AB1.3 Groups of shareholdings used in the economic survey

Number of shares	No. active fishers	Survey sample	Proportion surveyed
Less than 35	74	11	15%
Between 35 and 75	42	6	14%
Greater than 75	35	9	26%

A potential bias that may have been introduced into the results of the economic survey is as a result of the survey technique used to collect the data, as well as access of the surveyor to detailed information about lobster fishing, particularly in NSW.

Roy Morgan Research undertook the survey via a mail out to commercial fishers. The data was entered by members of this organization, without any process of verification against written records, or by persons with knowledge of the fishery. This allowed potential outliers to enter the survey sample undetected. If detected, these outliers may have been removed, or the responses flagged for further investigation or for follow up with the respondent.

There were several possible outliers detected by the authors of this report. However, given, the sample size was already small, removal of these outliers would have reduced the sample size to such an extent that it would have been almost unusable.

Appendix B1.2 – Economic multipliers

Economic multipliers are derived from input-output tables and are used estimate the magnitude of these flow-on effects. Several assumptions on the state of the economy need to hold for these multipliers to give a true account of the benefits from an expansion in production. Multipliers relate to a closed economy system, thus if part of the inputs are sourced from outside the economy under examination (could be regional or national), the multiplier effect will be lessened. Similarly, employment multipliers will estimate the effects that expenditure in the area under study has on employment.

Employment in the Lobster Fishery is low compared with regional and state employment, as there is only 161 licensed fishing businesses. As discussed in earlier sections, the direct employment of individuals in lobster businesses is small, with 55% not employing any outside employees apart from the licence holder. Further to this, the effects of employment in the Lobster Fishery depend not only on the direct employment, but also on levels indirect employment. Services employed by lobster fishers, such as dealings with co-ops, transport, and cold stores amongst others leads to further employment in these other industries. The extent of these flow-on effects is what multipliers estimate, and will vary according to levels of both direct and indirect employment.

Household incomes of fishers interviewed as part of the Roy Morgan Social Survey, were relatively high when compared to national and state median income. The median income levels for fishers were between $50,000 and $59,000 per year in 1999/2000, compared with the national result of just under $28,000 per year (ABS 2002, p.160). This suggests that whilst employment effects may be limited depending on the level of indirect employment, the capacity of lobster fishers to create flow on effects due to income earned is comparably high to other members of the community.

In the section on regional expenses, if was found that 59 of the 109 lobster fishers surveyed had experienced a large expense (over $1000) due to the operation of their business. As such, it can be seen that the lobster fishing activity creates demand for products made from other industries. These products are used as inputs into the lobster fishing activities carried out by fishers. This purchase of products creates production in other industries, which has an effect on jobs, and income in other sectors.

Multipliers are classified into two types, called Type I and Type II. Type I multipliers are those which are based on the direct and indirect results of an exogenous change in demand, and Type II are those based on the direct, indirect and induced results of the exogenous shift in demand (Bradley and Gander 1967). Under Type II, final demand is made up of households, government spending, investment expenditures and foreign purchases.

Type II multipliers were chosen for the analysis presented in section 4.3.3. The reason for the choice of Type II over Type I is that Type II capture a greater range of influences. From the definition given previously, Type II multipliers will capture shifts caused by changes in household consumption, those external to the country (foreign purchases) as well as influences from governments and investment. As a proportion of commercial fish catch is exported, foreign purchases are important.

Appendix B1.3 – Economic return of lobster fishers

Fishing enterprise viability is estimated through costs and earning data collected through the Roy Morgan Economic Survey (Roy Morgan, 2001a). This data allows the net return of fishers from an accounting perspective to be determined. In order to estimate the 'economic return' from fishing, several adjustments are made to this data as detailed below.

The residual of total revenue less operating costs is operating profit. Depreciation and the opportunity cost of capital are deducted to give economic profit or loss (Campbell and Nicholl, 1994). A 7% opportunity cost of capital was included in economic costs after ABARE, (2000) which is 3% less than applied in Reid and Campbell, (1998) and Hassall and Associates (1999).

Labour costs are imputed from questions in the survey regarding days fished and unpaid days worked by fishers and family members in the fishing industry. Wage rates for employees in the farm sector were used to calculate an imputed value of labour (ABARE, 2003). For owner operators this wage rate was $475 per week, while for crew it was $436 per week.

Depreciation was included as a discounted annualised sum and was calculated in respect of meeting the replacement cost of the assets at the end of their lifespan, from current income flows.

APPENDIX B2 SOCIAL SURVEY RESULTS

Appendix B2.1 – Social survey of fishers

In June 2001, a social survey of operators across 7 of the 8 NSW managed fisheries (i.e. excluding Abalone) was undertaken in order to collect information on the net return of operators (Roy Morgan 2001a). Information was collected about the demographics of the operators in the commercial fishing industries ranging from household incomes, number of dependants to willingness to retrain in alternate industries. The information was recorded for 1999/2000. A total of 870 fishers responded to the survey from a total of 1,751 contacted. Of these, approximately 109 held endorsements in the Lobster Fishery (Table AB2.1). The response rate for the survey was 50% for fishers in NSW with 10% of interviews terminated, usually due to language problems, and 16% declining to participate (Roy Morgan 2001a). The lack of response from non-English speaking fishers may mean the results do not adequately reflect fishers from non-English speaking backgrounds.

Table AB2.1 Proportion of fishers surveyed

	no. of active fishers	survey sample	proportion surveyed
Estuary General	698	502	72%
Estuary Prawn Trawl	200	171	86%
Ocean Fish Trawl/Ocean Prawn Trawl	289	260	90%
Ocean Haul	188	222	118%
Ocean Trap And Line	438	384	88%
Rock Lobster	151	109	72%
Abalone/Something else	n.a	98	n.a

An average of 88% of active fishers were surveyed as part of the social survey. Given this, the sample is likely to be representative of the population of fishers as a whole. The break down of fishers surveyed per region is given in Table AB2.2. It can be seen that in the Far South, the greatest proportion of fishers were surveyed, with the lowest proportion in the Far North. Despite this, the proportions are high allowing for the survey to be representative of the lobster fisher population. There were a high number recorded as not fitting into one of the four regions as no home port was given by the respondent.

Table AB2.2 Regional distribution of fishers surveyed

	no. of active fishers	survey sample	proportion surveyed
Far North	26	19	73%
Mid North	61	39	64%
Sydney South	40	28	70%
Far South	24	17	71%
Can't Say	n.a	13	n.a

The survey was undertaken via telephone by Roy Morgan Research. The data was entered by members of this organization who did not have access to detailed information about lobster fishing, particularly in NSW. This allowed potential outliers to enter the survey sample undetected. If detected, these outliers may have been removed, or the responses flagged for further investigation or for follow up with the respondent. However, as this data were of a social nature and often concentrated on demographic statistics, the effect of this lack of information about the industry may be minimal.

APPENDIX B3 ROCK LOBSTER FISHERY MANAGEMENT STRATEGY – ASSESSMENT OF INDIGENOUS ISSUES AND HISTORIC HERITAGE ISSUES

(UMWELT [AUSTRALIA] PTY LTD)

NSW Fisheries

DRAFT
Rock Lobster Fishery Management Strategy – Assessment of Indigenous Issues and Historic Heritage Issues

June 2004

Umwelt
Environmental Consultants

NSW Fisheries

DRAFT
Rock Lobster Fishery Management Strategy – Assessment of Indigenous Issues and Historic Heritage Issues

June 2004

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APPENDICES

1.0 INTRODUCTION

NSW Fisheries is currently preparing a Fishery Management Strategy for the Rock Lobster sector of the commercial fisheries of NSW. Concurrent with the preparation of the Fishery Management Strategy, NSW Fisheries is required to prepare an Environmental Impact Statement (EIS) to accompany a Part 5 development application for the continuation of the fisheries. This report has been prepared to address a range of cultural heritage issues that are noted in the Director's Requirements for the EIS. **Part 1** of the report addresses Aboriginal cultural heritage issues. It documents places and practices of cultural importance to Aboriginal people along the NSW coast, identifies interactions and impacts and assesses the ways in which potential impacts are proposed to be managed. **Part 2** of the report addresses issues associated with the protection of historic heritage values.

1.1 EIS GUIDELINES (DEPARTMENT OF INFRASTRUCTURE, PLANNING AND NATURAL RESOURCES)

PlanningNSW (now the Department of Infrastructure, Planning and Natural Resources) has issued guidelines for the preparation of the Fishery Management Strategy and Environmental Impact Statement. **Table 1.1** identifies the Indigenous and historic heritage issues that are required to be addressed in the EIS and indicates where each issue is identified in the report.

Table 1.1 - Indigenous and Heritage Issues – Rock Lobster FMS and EIS

Indigenous/Heritage Issue	Section of this Document
Part B	
(d) Indigenous peoples: Identify the interests of Indigenous people in the resources harvested by the fishery and in habitats that may be impacted by the fishery.	Sections 4, 5 and 6
(i) Identify any important Aboriginal sites/places likely to be affected by fishers operating within the fishery and outline any existing protocols/measures that aim to minimise risk of harm to these sites.	Sections 4.1, 4.2, 4.3, 4.4 and 5.1
(ii) Outline how the fishery interfaces or affects traditional fishing and access to fisheries resources.	Sections 5.2, 5.3, 5.4 and 5.5
(iii) Outline the implication of the current fishery regime on Indigenous communities' well being, including economics, employment and community viability.	Sections 5.6, 7.1 and 7.2
(e) Historic Heritage: Identify any shipwreck sites or other sites of historic heritage that are affected by fishing activities and outline protocols/measures to minimise risk of harm to these sites.	**Part 2**
Part E	
3(b) Assess the potential changes in impacts on Indigenous interests and values of implementing the Draft FMS including on:	Sections 8 and 9
(i) traditional fishing and access to fisheries resources and areas of cultural value.	Sections 8 and 9
(ii) Indigenous communities' well being, including economics, employment and community viability.	Sections 8 and 9
(iii) the implementation of the NSW Indigenous Fisheries Strategy.	Sections 8 and 9

Table 1.1 - Indigenous and Heritage Issues – Rock Lobster FMS and EIS (cont)

Indigenous/Heritage Issue	Section of this Document
Identify whether the risk of impacts on Indigenous interests and values are likely to change (and the potential magnitude of this change) as a result of implementing the management responses in the Draft FMS.	Section 9
(c) Identify any likely changes in impacts on heritage values as a result of implementing the Draft FMS. Assess whether the risk of impacts on heritage values are changed (and the potential magnitude of this change) by the management measures in the Draft FMS.	**Part 2**

1.2 THE NSW COMMERCIAL ROCK LOBSTER FISHERY

The Commercial Rock Lobster Fishery extends from the Queensland border to the Victorian border and includes all waters within the jurisdiction of NSW under the Offshore Constitutional Settlement to around 80 nautical miles from the coast. Lobster trapping is prohibited in marine parks and aquatic reserves, including Cook Island, Julian Rocks, Cape Byron Marine Park, Solitary Islands Marine Park, Fly Point/Halifax Park, Long Reef, Cabbage Tree Bay, Towra Point, Ship Rock, Bushrangers Bay and Jervis Bay Marine Park.

The eastern rock lobster (*Jasus verreauxi*) is the main species harvested. Other species that are occasionally caught are the southern rock lobster (*Jasus edwardsii*) and the tropical rock lobster (*Panulirus longipes* and *Panularis ornatus*).

The rock lobster fishery is characterised by inshore and offshore components. The inshore component utilises small beehive or square traps in waters to about 20 metres. Offshore fishers use larger traps and catch larger lobsters. The offshore fishery is quite seasonal because of lobster migratory patterns and because offshore waters are subject to strong currents at certain times of the year. The Lobster Fishery does not have a closed season, however, fishing effort is concentrated at different times along the coast and throughout the range of depths fished.

The early commercial rock lobster fishery operated between Evans Head and Crowdy Head in the northern part of the state. Commercial lobster fishing in the southern part of the state became significant during the 1960s when offshore grounds were discovered off Sydney and subsequently around Ulladulla and Batemans Bay. Currently the major regions for rock lobster activities are Port Stephens, Illawarra and Batemans Bay.

Management strategies to control the level of exploitation of rock lobster have evolved since 1902 when the first legal carapace length on the eastern rock lobster was set at 104 mm. Today the commercial lobster fishery is a share management fishery. There are 161 shareholders in the fishery at present (January 2004) and most hold endorsements in other NSW commercial fisheries. The fishing is controlled through a quota management system. A Total Allowable Commercial Catch (TACC) is set each year by the statutory and independent Total Allowable Catch Setting and Review Committee. The TACC is proportionately allocated annually to shareholders on the basis of their shareholding in the fishery.

Commercial shareholders have a wide distribution along the coast, with the highest numbers at Port Stephens (25 shareholders), Illawarra (22 shareholders) and Batemans Bay (18 shareholders). There are relatively few commercial shareholders in the Far North Coast, Hastings, Hunter, Sydney Metropolitan, Shoalhaven and farthest South Coast areas.

Commercial and total lobster catch statistics maintained by NSW Fisheries indicate that the lobster harvest has been very variable over more than 100 years of records. Very low caches (with significant falls from preceding years) were estimated for the late nineteenth century, 1916-22, 1940-46 (no records kept in each of these periods) and 1977-79. From about 1970, separate statistics have been maintained on 'unreported' commercial catch and non-commercial catch as well as the reported commercial catch. The available information shows a dramatic increase in 'unreported' commercial catch in the late 1970s and 1980s, with a smaller increase in non-commercial catches during this period. Apart from small spikes in catch in about 1982 and 1993, reported commercial catches have remained steady at a relatively low level since 1980 or so. Since 1994, both unreported commercial catches and non-commercial catches have also declined, so that the total estimated lobster catch over the last ten years or so has remained lower than for any previous period, other than the estimates for the last years of the nineteenth century, World War 1 and World War 2.

The Fishery Management Strategy also provides information about the geographic distribution of fishing effort in the commercial sector (as at 2001). As noted above, traps used in deep ocean waters have a much larger capacity than those used in inshore waters. In 2001, by far the largest commercial lobster fishing effort for waters less than 10 metres deep was concentrated between 33 and 35 degrees south latitude, with a greater focus on mid depth trap lifts at 31 and 32 degrees latitude. Relatively few trap lifts are recorded in deep shelf waters at all latitudes. In terms of reported catch, the largest return also occurred in shallow water at 34 degrees south. However, reported catch from deep waters is considerable at 32, 33 and 34 degrees south, exceeding shallow water catches at 32 and 33 degrees south. The largest overall demand on the resource is in waters at 32 degrees (Port Stephens), 34 and 35 degrees (Illawarra and Batemans Bay areas) south latitude.

Comments from Aboriginal fishers in the Batemans Bay area (see **Section 5.5**) reveal a number of issues associated with conflicting views about resource access and fairness of allocation. An Aboriginal community representative from the Port Stephens area suggested that the lobster fishery in that area was no longer accessible to Indigenous people (totally fished out in his view).

PART 1: INDIGENOUS ISSUES

2.0 GOALS OF THE NSW COMMERCIAL ROCK LOBSTER FISHERY MANAGEMENT STRATEGY

Goal 4 of the Rock Lobster FMS relates to social impacts and includes a range of objectives that are intended to respect and protect the interests of Indigenous people in the management and resources of the fishery. The relevant objectives are outlined in **Table 2.1.**

In addition to the objectives that are directly relevant to the interests of Indigenous people, a number of objectives also address issues that are of interest to Indigenous people, in relation to sustainable management of the natural resources that are targeted by the fishery, and the sharing of information about the condition of those natural resources.

Table 2.1 - Rock Lobster FMS – Goals and Objectives relevant to Indigenous issues

Goal	Objective
Goal 4 Appropriately share the resource and carry out fishing in a manner that minimises negative social impacts.	*Objective 4.1* Provide an appropriate allocation of the rock lobster resource between harvesting sectors, acknowledging the need of seafood consumers to access fresh quality product. *4.1(a)* Refine, as far as practicable, estimates of total catches of eastern rock lobster, taking into account commercial catch and estimates of recreational, Indigenous and illegal catches, for use on stock assessment models and reports to the TAC Committee
	Objective 4.2 Provide for fair and equitable sharing of the eastern rock lobster resource within the Lobster Fishery *4.2(b)* Provide for the transmission of a shareholding to more than one person
	Objective 4.4 Identify and mitigate any negative impacts of the Lobster fishery on Aboriginal or other cultural heritage. *4.4(a)* Manage the Lobster Fishery in a manner consistent with the Indigenous Fisheries Strategy and Implementation Plan *4.4(b)* Modify the activity, where relevant, in response to new information about areas or objects of cultural significance in order to minimise the risk from lobster fishing activities
	Objective 4.5 Promote harmony between the commercial fishery and other resource users, including recreational fishers, Indigenous fishers and local communities, through fair and equitable sharing of the resource *4.5(a)* In consultation with the Lobster MAC, identify areas of high interaction between the Lobster Fishery and other resource users and respond appropriately to resolve any conflicts

3.0 ASSESSMENT METHOD

The aim of this assessment is to identify the ways in which the operation of the commercial rock lobster fishery in NSW interacts with the values of Indigenous people, and to determine the extent to which the draft Rock Lobster Fishery Management Strategy (FMS) addresses any significant impacts or issues that arise from that interaction.

The assessment draws on two principal types of information:

- a review of literature that describes traditional, historical and contemporary Indigenous community marine fishing practices, the cultural importance of marine/coastal landscapes and their resources, and Indigenous involvement in the commercial fishery sector. This review reveals that there is limited documentary evidence about Indigenous lobster fishing practices and lobster is also poorly represented in the archaeological record, partly because of the fragility of lobster shell compared with other marine resources and partly because of the nature of lobster fishing and its relationship to other fishing and community social practices; and

- conversations with Indigenous people, including members of coastal Aboriginal communities, Local Aboriginal Land Councils, Indigenous Fisheries officers employed by NSW Fisheries and members of the NSW Fisheries Indigenous Advisory Group about community fishing practices and issues, including access to fishery resources by Aboriginal people.

The Indigenous values that are taken into consideration include:

- Aboriginal sites – the physical evidence of past Aboriginal land use;

- Aboriginal places – the locations that are associated with stories about the landscape or with personal and community totemic associations with the natural world. Aboriginal places may also be associated with historic settlements or events;

- Aboriginal cultural landscapes – the places and species in the landscape that are important to Aboriginal people. As a separate issue from Aboriginal places, this refers to the presence and distribution of Aboriginal foods and medicines in the coastal and marine landscape;

- Aboriginal cultural fishing practices and the maintenance of Traditional Fishing Knowledge (TFK); and

- Aboriginal socio-economic participation in the commercial fishing sector, as well as potential Indigenous community health issues associated with reduced access to fishery resources.

Although there have now been several detailed local studies of cultural resources in coastal areas of NSW, the information about the relative and absolute cultural value of Indigenous community fishing is still patchy.

3.1.1 Consultation

The assessment process involved a staged Aboriginal community consultation program. The program aimed to respect particularly the principles of inclusiveness (broad consultation and feedback) and accessibility (clear information and easy contact).

Discussions were initially held with NSW Fisheries in order to clearly establish the scope and objectives of the Rock Lobster FMS and any potential issues. Discussions were also

held with the Indigenous Fisheries Strategy Advisory Committee regarding potential issues and appropriate consultation method. Consultation methods were also discussed with a number of Indigenous Fisheries Officers and a Department of Aboriginal Affairs representative.

An information brochure (see **Appendix 1**) was prepared for distribution to all Aboriginal communities along the NSW coastline. The brochure outlined how the commercial Rock Lobster Fishery operates and the EIS process for the FMS. A questionnaire regarding the fishing activities of communities today and how they are affected by the commercial rock lobster fishery was also attached. An invitation was also extended to attend a meeting to provide input regarding commercial rock lobster fishing, its effect on Indigenous communities, and Indigenous participation in the industry.

Information brochures (and meeting invitations) were sent to all coastal Local Aboriginal Land Councils, other Indigenous community organisations (as suggested by Local Aboriginal Land Councils) and individuals from relevant government organisations (as suggested by Indigenous Fisheries Strategy Working Group). Follow up phone calls were then made to each Land Council/organisation.

Meetings were held at Wyong (Land Councils/organisations in the Sydney-Newcastle area); Kempsey (Land Councils/organisations in the central to north coast area), Lismore (Land Councils/organisations in the north coast to far north coast area); and Batemans Bay (Land Councils/organisations in the south coast to far south coast area).

The regional meetings were attended by only small numbers of community representatives, with four people at Wyong, three people at Kempsey, five (plus two apologies) at Batemans Bay and approximately fifteen people at Evans Head (a meeting of the Ngulingah Local Aboriginal Land Council, Bunjalung Elders and others). All these people are thanked for their time and advice. Feedback from those who attended the meetings indicates that the low attendance can be attributed to the following factors:

- there is a very high demand on Aboriginal community time for attendance at various 'consultation' events, associated with both government programs and new private sector development. For instance, on the day of the Batemans Bay meeting, there were three separate consultation events on the far south coast on topics associated with Aboriginal views about and participation in natural resource management;

- the number of meetings and travel distances for Elders or people with limited financial resource means that these events place a significant demand on the community;

- there is a view that consultation is not leading to any change in policy or practice – people do not feel that their input makes a difference; and

- individuals may not consider that they can speak on behalf of other members of the community.

3.2 THE INDIGENOUS FISHERIES STRATEGY AND IMPLEMENTATION PLAN

Item E(b) (iii) of the Director's Requirements specifies an assessment of any impacts of the FMS on the implementation of the Indigenous Fisheries Strategy.

The Indigenous Fisheries Strategy was released in 2002 after consultation with Aboriginal communities at several regional meetings. The Implementation Plan that accompanies the Strategy identifies actions for 2003 and 2004, and the progress towards priority actions is

monitored by the Indigenous Fisheries Advisory Committee. Although there continues to be some regional criticism of the structure and operations of the IFS Advisory Committee (see for instance Cozens 2003), it is a major step forward in terms of Indigenous community involvement in fishery management in NSW. The advisory role of the IFS Advisory Committee extends well beyond the Indigenous Fisheries Strategy itself and includes advice on the development, consultation process and implementation of fishery management strategies in all sectors. It can be anticipated that as the IFS Advisory Committee develops, it will be able to provide strong support to Indigenous community representatives on other Fishery Management Committees and also enhance feedback of information about fishery management to and from regional Indigenous communities.

Whilst the development of individual commercial Fishery Management Strategies is not specifically identified as a core task of the IFS Advisory Committee, several of the priority issues and actions for implementing the Indigenous Fisheries Strategy will indirectly benefit Indigenous involvement in the management of ocean resources such as rock lobster. For instance, the development of mechanisms to enhance Indigenous participation in the commercial fishing sector generally is a very high priority for the Indigenous Fisheries Advisory Committee, and has been the subject of a workshop to develop an action plan during 2003 (see Callaghan and Associates 2003).

Actions from the IFS Implementation Plan, that are relevant to the assessment of the commercial rock lobster Fishery Management Strategy include:

- develop and facilitate a model for community input to fishery management planning (and marine park management) and progressive involvement in fishery management strategies (to be completed in 2004);

- review current Indigenous cultural access to fisheries, review options with IFWG and prepare advice after reviewing input from communities;

- cultural awareness training completed for all existing NSW Fisheries staff, all management advisory committees and new NSW Fisheries staff (as part of Induction);

- project manager to identify strategies to maintain levels of Indigenous involvement in commercial fishing;

- develop an employment strategy for NSW Fisheries in consultation with the IFS Working Group (completed June 2003); and

- review aquaculture and commercial fishing opportunities, consult with IFWG and prepare advice to communities on the skills required to sustain these businesses.

The interaction between these actions and the Rock Lobster FMS is discussed in **Section 8.**

4.0 INDIGENOUS CULTURAL HERITAGE AND ROCK LOBSTER FISHING

This section reviews the archaeological and ethnographic evidence for Aboriginal access to and management of the rock lobster resources along the NSW coast. As noted in **Section 2**, the physical record (from excavation of coastal midden sites) provides limited information about traditional use of lobster (which is relatively invisible archaeologically), and the recorded observations by early European settlers of Aboriginal people fishing for lobster are also limited.

4.1 THE ETHNOGRAPHIC RECORD

Archaeological and ethnographic records indicate that rock lobster has formed part of the diet of coastal Aboriginal people for thousands of years. The few ethnographic references to rock lobster fishing indicate that fishing for this species was undertaken in the near shore environment, around rock platforms or shallow rock reefs, where people could dive or swim or use small canoes to obtain them.

Threlkeld, a 'Missionary to the Aborigines' in the Lake Macquarie area in the early nineteenth century recorded the method and dangers involved in lobster fishing:

> *The craw-fish is a favourite food, and much hazard was often undergone by the aborigines in endeavouring to obtain them. Their general mode was to go out, choosing a calm day at sea, in one of their frail canoes, and dive along side of the rocks, and pull the fish out of the holes in the rock under water, by their long horns, sometimes a shark would make its appearance, when the utmost agility would be required to escape the monster, who would, as readily seize the legs of the biped animal and devour him as that animal would the tail of the cretaceous one* (Threlkeld in Gunson 1974:56).

William Scott, a resident of the Port Stephens area during the mid 1800s recalled that:

> *...At fixed seasons they would set off to the heads to catch lobsters, and this indeed was a mighty task, when it is considered that they had no equipment for the sport. The lobsters were caught by the gins who, on the sea front, dived down among the rocks for them. Their menfolk played a somewhat important, if commendably cautious, part in the business by throwing stones into the water as the gins dived, the purpose being to scare away the sharks...*(Bennett 1929:19).

A watercolour by Joseph Lycett, from the earliest years of European settlement in Newcastle depicts Aboriginal people in the Newcastle area (around Nobbys Headland or Merewether?) diving for lobster and spearing fish, and others cooking fish on a fire. A group of people (lookouts?) is also shown on the top of the headland.

4.2 THE ARCHAEOLOGICAL RECORD

Archaeological sites preserve the physical evidence of past Aboriginal land use and culture. They can be expected to provide some indications of the activities that people were carrying out and how they went about those activities. This information can be interpreted from the organic content of the sites (eg species composite of shell, bone, plant seeds or other remains, presence of charcoal etc), from the implements that are present (different types of flaked or ground stone implements, bone implements etc known to have been used for specific purposes), artefact frequency etc and patterns of site distribution in the landscape (eg continuity, density, spatial and temporal relationship to resources). Unfortunately, for most

sites, much of the context and content that would facilitate interpretation has been differentially lost by weathering, decay, erosion or disturbance. For coastal sites, the harsh marine interface environment together with the extent of development means that many sites have disappeared completely. Where some archaeological evidence of economic and social activity remains, it is frequently very difficult to determine the extent of information that has been lost – ie how indicative of the full record the remaining evidence is likely to be.

In relation to fishing practices, the equipment used by traditional Aboriginal fishers included tools made using a range of plant materials, none of which are preserved in open campsites or middens. These implements include nets, fish traps made of matted brush barriers (rather than stone), look out trees, canoes, fishing lines, spear shafts etc. In this context, much past Indigenous fishing activity is archaeologically invisible. In the case of rock lobster, which were gathered by hand, archaeological evidence is limited to the remains of the lobsters themselves.

Some broad observations of archaeological evidence of coastal fishing activity are noted below.

- In excess of 1500 midden sites and similar large numbers of open campsites without shell material have been recorded along the NSW coast, mostly in open contexts, although in some regions (eg the Sydney region), rock shelter sites containing midden deposits are relatively abundant.

- Very large estuarine middens have been recorded from north coast valleys such as the Macleay, Richmond and Clarence, and ethnographic reports link some of these to substantial village settlements at the mouths of estuaries. Middens of equivalent size in open coastal contexts are relatively rare. This is likely to reflect preservation issues in coastal dune fields (aeolian impacts) and back beach areas (wave impacts). Very large middens (dominated by pipi shell, but with some rock platform species) are known to have formerly occurred along Stockton Bight, north of Newcastle, at Dark Point in Myall Lakes National Park, and some mounded coastal sites are also known from the south coast (eg at Pambula).

- Many coastal midden sites are located in close proximity to other resources such as fresh water (creeks or springs) and terrestrial plants and animal resources. This is consistent with the strongly expressed view by the Aboriginal community that fishing, shellfishing and other gathering of marine resources were parts of a broader resource access strategy in which stocks of all resources were carefully managed.

- There is a tendency towards increasing variety of fish species in the upper layers of sites in NSW. Several authors suggest that this is due to the introduction of new fishing technologies (particularly line fishing) over time. Dates for fish hooks are all less than 1000 years and appear to have been more common on the south coast. In terms of shell species, on the south coast there is a clear change towards hairy mussel and edible mussel over the last 1000 years.

- In Tasmania, a study of a series of middens in the Furneaux Island group in Bass Strait found that there was a change between about 3500 and 3000 BP in the type of shellfish being collected (Flood 1995:206). Species found in middens older than 4000 BP mainly contained species which could be collected by walking around the rocks or wading. The study suggested that substantial consumption of subtidal shellfish and crustacean (crayfish) began in Tasmania when people began to dive and swim around 3500 to 3000 years ago. Before this time, the majority of fishing activity involved wading and collecting shellfish from tidally exposed rocks (Flood 1995:206).

- In addition to economic materials (foods, medicines and tools), some midden sites contain human burials (eg the Dark Point midden in Myall Lakes National Park). Sullivan (1982) suggests that many of these burials, which include males and females (adults) and children, are relatively recent (last 200 years). Wherever they occur and whatever their age, the presence of a burial in a midden deposit is highly significant to the Aboriginal community.

4.3 ABORIGINAL PLACES AND COMMUNITY STORIES

English (2002) discusses the reasons that places associated with 'wild resources' are valued by Aboriginal communities and highlights eight primary factors (based on experience with the Yarrawarra community on the north coast). He notes that these places may be associated with:

1. *'past family, group or individual activities that are remembered by the participants or because they feature in stories passed down through generations;*

2. *a highly valued type of food or medicine that is still highly sought by people today or else remembered as an integral part of people's life and knowledge systems;*

3. *a species that has totemic significance or which features in a story or tradition;*

4. *independence and self reliance in the face of economic and social hardship;*

5. *the concept of past of continuing interaction with the landscape in a way that affirms cultural identity;*

6. *physical remains such as middens, scarred trees, or tin huts that bear witness to people's long term and continuing association with the land;*

7. *enjoyment of the land gained through having access to personal and group space in which to reflect and carry out enjoyable activities such as fishing;*

8. *people's custodial interests in land that are maintained by continuing use and the opportunity to observe change in the landscape's condition.'*

These eight factors highlight the complexity of Indigenous community relationships to fishery resources and their views about appropriate sustainable management practices. Similar patterns of resource relationship are repeated right along the coast, although details clearly change from one social grouping to another and with the specific environmental resources that may be available in different areas (eg the differences between the long sandy beach coasts of the north and the rocky embayments of the south).

Aboriginal people attribute cultural value to some coastal features because of their spiritual associations. Some of these features are listed as Aboriginal Places and have status under the NPW Act (an example of this type of feature is Goanna Headland at Evans Head), but many are not well documented and are not formally gazetted as Aboriginal Places.

For example Mick Leon (pers comm 2003), from the mid north coast of NSW, noted that there was a story that Julian Rocks near Byron Bay were thought to be connected in a spiritual way to Seal Rocks. People could travel spiritually between the two places and come out at either end.

4.4 ABORIGINAL MARINE TOTEMS

The traditional social structure of Aboriginal communities includes familial or totemic relationships to natural features, plants and animals. Faulkner (2000) notes that a '*general characteristic of Aboriginal totemic relationships was the basic tenant of not consuming one's totem, and taking some degree of responsibility for its survival*.' (p3). In some cases, the relationship was expressed in terms of ceremonies at particular sites (Increase sites) to ensure the continuation of the species. For example, Radcliffe-Brown, in Schnierer and Faulkner (2002) recorded a bream increase site on the lower Clarence River, for the Yaegal people.

Some totems were marine species and many were coastal species, but the full range of totems from the NSW coast, and the variations between groups along the coast, has not been documented. People's totemic relationship with species such as the rock lobster is unknown. Notwithstanding this, it is apparent that the values associated with totems would have encouraged Aboriginal people to manage their marine resources carefully, to protect both economic and spiritual values.

5.0 INDIGENOUS SOCIAL ISSUES AND ROCK LOBSTER FISHING

5.1 WILD RESOURCE USE BY INDIGENOUS COMMUNITIES IN COASTAL AREAS

On the advice of the Chair of the NSW Indigenous Fisheries Advisory Group, discussions were held with John Jarrett. John is one of a few Aboriginal people currently holding a commercial fishery licence, and has been at sea since the age of 12 years. During these discussions with John, he also talked about local cultural fishing with his family. As a child, he gathered shellfish with his mother and grandmother, and they also got prawns at Arrawarra. His mother also gathered lobsters at Woody Head, as well as sea urchin eggs and pipi. Every species was targeted at different times and people knew what would be available at different locations throughout the year. This is the same 'circle fishing' concept that was described by south coast communities (Egloff 1981 and Cozens 2003).

John Jarrett thought that even though most traditional fishing on the north coast would have been from the beach and close to land, people had canoes and they could have fished further offshore on calm days, both historically and before European settlement. Elsewhere along the NSW coast there is abundant evidence that people took canoes to islands close to the shore (eg Broughton Island in Myall Lakes National Park), so canoes were certainly seaworthy on calm days.

Schnierer and Robinson (1993) in Zann (1996), described the historical and contemporary uses of marine resources, particularly fin-fish and invertebrates in northern NSW. They found that contemporary local communities continue to utilise seafood as a food source (for instance, making up 30% of the diet in the lower Clarence valley). They also noted the desire of Indigenous peoples to become more involved in commercial fishing industries based on the assertion that they were the original owners of the coast and its resources, which were never ceded to anyone.

English (2002) reports the results and implications of a detailed study of Aboriginal wild resource use on the NSW Mid North Coast. The study was conducted with the Gumbaingirr people, based at the Yarrawarra Aboriginal Corporation at Corindi Beach. Gumbaingirr people have lived in camps and villages near Corindi Beach since the 1890s. The project reported by English sought to map the patterns of natural resource use described by the current Indigenous residents of the area. The patterns that are described reflect the changing lifestyles of Aboriginal communities from the 1940s to the present. Whilst these patterns, which draw on the experience of current community elders, do not necessarily represent activities extending to the late nineteenth century or earlier, they do highlight the importance of different types of resources to this community. The study also clearly demonstrates the continuity of attachment to the land. Even though young people in the Yarrawarra community do not use all of the places that were once important for community subsistence, they continue to express an interest in and connection to these places.

With regard to the current assessment, the key issue is the extent to which this coastal community nominates marine resources (including lobster with other fin fish and shell fish) and marine places as being an important part of their subsistence and cultural activities. The wild resource use that is reported by English clearly demonstrates the diversity of resources that were important, but it also suggests a strong focus on the nearshore environment. This partly reflects the social importance of subsistence activities, with Gumbaingirr elders reporting how important it was that everyone took their turn and worked together to provide the food and medicines needed for the community.

The places mapped in this project that related to marine or estuarine resources are noted below (**Table 5.1**), (drawing directly on Appendix 2 of English 2002).

Table 5.1 - Aboriginal fishing places, Corindi area

Place	Activities
Corindi Lake crab spot	Good location for finding crabs in 1950s and 1960s, later became polluted.
Headland near old camp	Used from early 1900s to present for abalone and other shellfish.
Corindi beach and rock platform	Used '*for thousands of years. Has been the main spot to obtain shellfish for decades and remains important. There is living memory of people singing to whales and dolphins at or near this location*.'
Fishing area on Corindi Beach	Used from 1950s to 1990s, regarded as the best spot to catch Jew Fish. Now within the Marine Park.
Tuny's camp	Aboriginal people lived here in huts. Others used to visit regularly and spend Christmas (good fishing).
Wash away camp	Used by many families throughout the year. Good camp at Christmas time with fresh water, bush tucker and good fishing.
Massacre place and sea cave	A plaque at this location commemorates the mid to late nineteenth century killing of Aboriginal people. Some were shot and others jumped off the cliff into the sea. It is believed that some people escaped by going into the sea cave and emerging at another cave. This place is avoided by Gumbaingirr people.
Arrawarra Camp	Used from 1920s as a permanent camp. Freshwater swamp with turtles, eels, good fishing and various plants.
Arrawarra headland and fish trap	Used from distant past to present (although now within Marine Park Sanctuary Zone which inhibits fishing). Headland was a men's area and rain increase site.
Oyster place	Accessed by walking up the beach from the old camp.
Corindi Beach	Used by the community for decades and still the main fishing spot for elders and young people. Rock platform is a good place to get shellfish.
Fishing spot on Corindi Creek	Used in 1950s. Currently no access and the creek is also polluted.
Eel spot on Corindi Creek	As above.

The list of places identified by the Gumbaingirr people provides a great deal of local detail about and differentiation of Corindi Beach, with quite specific locations nominated as the preferred sites along the beach for fishing or other marine resources. Although there are headlands and rock platforms in the area, gathering of rock lobster is not specifically mentioned as a fishing activity. Conspicuously absent in this account is any reference to offshore fishing. All the fishing references are to activities conducted from the shore or nearshore area.

Considerable detail about late nineteenth to mid twentieth century Aboriginal community fishing practices is provided in Egloff (1981) who researched the history of the Aboriginal community at Wreck Bay on the NSW South Coast. These observations clearly indicate that Aboriginal fishers at this time were accessing offshore resources, although the focus of their activities was generally in inshore waters.

Egloff (1981) refers to abundant archaeological evidence of Aboriginal fishing and shell fish gathering along the shorelines at Wreck Bay, with extensive middens containing shellfish, fish hooks (using shell), edge ground axes, bone points and flaked stone implements. Axe grinding grooves, open campsites, bora rings and burial sites are also reported from the

Beecroft Peninsula, indicating a well established population with tools and strategies to work with diverse local marine and terrestrial resources.

Egloff describes fishing by men using spears that had hard wood prongs tipped with bone points. These spears were used in Jervis Bay and in the shallow coastal waters over rocky reefs. Women also fished using hook and line. As with the Corindi example, there is no specific reference to the gathering of lobster and the descriptions focus n shell fish and fin fish.

The Aboriginal population on this part of the south coast was decimated after European settlement. Eventually the remaining Aboriginal people were settled at reserves at Roseby Park and Jervis Bay, although a few people had continued to live in these areas throughout the nineteenth century. Egloff (1981) reports that the Office of the Protector of Aborigines provided a boat and fishing gear to Aboriginal people at Broughton Creek in 1882, at Jervis Bay in 1883, as well as other camps and reserves along the south coast.

Aboriginal crews therefore fished the south coast throughout the latter part of the nineteenth century and for a large part of the twentieth century.

These two detailed studies reveal information about two different aspects of Aboriginal community involvement in fishing in marine waters, although it is clear from both studies that coastal Aboriginal people were skilled fishers, with extensive community knowledge of the resources that were available and how to best access them for community needs. From these two examples it could be concluded that the nature of fishing depended somewhat on the access that the community had to European style fishing boats and also to transport (for marketing of fish). The Corindi example shows long continuity of subsistence and cultural fishing from coastal beaches (as well as the estuary) by a community outside the institutional system of missions. In general, this was not commercial fishing, and the community did not refer to the use of ocean going boats.

The Jervis Bay/Wreck Bay example illustrates the adaptation of traditional fishing to the small scale commercial sector, although clearly local subsistence and cultural fishing continued to be practiced. The Wreck Bay case study reinforces comments from the NSW Aboriginal Land Council (pers comm 2002) who note that many of the missions (and other government sponsored settlements) established in the late nineteenth and early twentieth centuries were on estuaries or coastal headlands. Aboriginal people who were placed in these institutions would have been expected to provide a substantial proportion of their food supply by fishing and shell fish gathering, utilising existing skills and traditional practices, augmented by other equipment where it was available.

5.2 CONTEMPORARY INDIGENOUS FISHING PRACTICES AND PREFERENCES

This section reviews the results of surveys of contemporary Aboriginal community fishing practices in NSW, and elsewhere in Australia. Also included in this section are the views expressed by Aboriginal people who attended community meetings about the current project (**Section 5.5**).

5.2.1 Survey of Recreational Fishing in NSW

Documentation of the contemporary fishing practices, catches etc (whether commercial or cultural) of Indigenous people in NSW is patchy, and many questions remain unanswered. Some information is available from the results of a survey of recreational fishing (NSW Fisheries 2002b), in which data about Indigenous fishing practices was analysed separately

from the general population. Fishing households were first contacted by telephone (ie a phone survey) and then encouraged to participate in a diary program where monthly information was collected about fish catches, fishing effort and fishing expenditure. Basic information about each household included household structure and demographic character (including ethnicity).

Of 10,300 households who were sampled by the phone survey in NSW (containing 19,600 people over 5 years of age), 1.4% were Indigenous people. Of 1836 households who participated in the diary program, 1.3% of households (144 households), with 1.7% of people (approximately 330 adults and children), were Indigenous. This is a relatively small sample, given the Indigenous population in NSW and the importance of fishing to Indigenous communities. However, the sample does provide a preliminary indication of some of the characteristics of Aboriginal fishing that distinguish it from other groups. Although this was a recreational fishing survey, it should be noted that most Aboriginal fishers who participated would not have considered that they were fishing for recreational purposes. Rather, Indigenous people consistently report that they are fishing for cultural purposes or subsistence purposes, such as for the reasons noted below and in **Sections 5.1, 5.3, 5.4** and **5.5.**

> eg '*Grandfather told me that 2-3 hunters used to go out and take some young to teach and they would catch enough for the full tribe. In amongst that group there would be up to 30 people'*.
>
> (Uncle Doug Pearce, Indigenous Fisheries Forum Group, Yamba)
>
> '*Indigenous fishing is cultural. It's about being a part of the land and water to get back to your roots. We don't look at size of bag limits, we look at what needs to be taken home. If an 8 year old goes and gets a feed and doesn't bring enough back for everyone at home, they are going to get their arse kicked*.'
>
> (Aboriginal interviewee (south coast), quoted in Cozens 2003)

Table 5.2 indicates the results of diary records kept by Aboriginal fishing households as part of the Recreational Fishing Survey.

Table 5.2 - Recreational Fishing Survey, Aboriginal Households

Species Common Name	Kept	Released	Total
Bream – unspecified	*32*	*66*	*98*
Carp	37	1	38
Catfish – freshwater	1	2	3
Catfish – unspecified		6	6
Cod - Murray/Murray perch	4	20	24
Cod - red rock/red scorpion/coral perch		2	2
Cod – unspecified		1	1
Fish – other		12	12
Flathead – unspecified	43	79	122
Flounder/sole/flatfish – unspecified		6	6
Garfish – unspecified	30		30
Gurnard	3		3
Leatherjacket	6		6
Lobster – unspecified	**12**	**11**	**23**

Table 5.2 - Recreational Fishing Survey, Aboriginal Households (cont)

Species Common Name	Kept	Released	Total
Morwong – blue	0		0
Mullet – unspecified	4	7	11
Mulloway/jewfish/kingfish	3		3
Non-Fish – other	1		1
Perch - golden/yellowbelly/callop	42		42
Perch – pearl	1		1
Perch - redfin/English		1	1
Pike – unspecified		1	1
Salmon - Australian east/west/kahawai		1	1
Shark – unspecified	1		1
Snapper - pink/southern/squire	2	13	15
Tailor/chopper/jumbo	9	7	15
Trout – brown		1	1
Trout – rainbow	10		10
Whiting -unspecified	10	39	49
Yabbies	7		7
Yabbies/nippers/bass yabbies	40		40
Grand Total	**298**	**276**	**574**

The fishing effort by these fishers over the period of the survey is greater than the average across the state, hinting at the broader Aboriginal community consumption of the catches of Aboriginal fishers. Also of interest is the high proportion of catch, including lobster, that is reported to have been released (close to 50%, and in some cases the majority of the reported catch). The reason for this is not clear from the preliminary statistics, and the high release rate is not consistent with the results of the more detailed surveys of Indigenous fishers in northern Australia (see below), where negligible amounts of the catch were not retained by Indigenous fishers. It is of note that some Indigenous people in NSW report that they have a clear cultural practice of returning small fish (and presumably small crustacaea as well).

> *'We know when a fish is too small to eat, chuck him back grow up bigger*'.
>
> (Uncle Doug Pearce, Indigenous Fisheries Forum Group, Yamba.)

This view is not however, expressed consistently across the community, as evidenced by the following comment:

> *'Aboriginal people do not go recreational fishing. When the Wallaga Lads go fishing they go fishing to get a feed. Aboriginal people do not catch fish and kiss them and throw them back, they catch them to eat them*.'
>
> (Aboriginal interviewee (south coast), quoted in Cozens 2003)

5.3 A DESCRIPTION OF ABORIGINAL FISHERIES IN NSW

Schnierer and Faulkner (2002) document the results of consultation with Aboriginal people in coastal communities in NSW, about the ways in which they utilise aquatic resources for

food, medicines and other parts of their daily lives. The research draws on the results of 150 questionnaires and multiple interviews with individuals, families and communities. Some of the consultation was conducted during the development of the NSW Indigenous Fisheries Strategy.

The results of the consultation enhance the information available from the Recreational Fishing Survey and provide strong community views not only about which species are targeted, when and how, but also the reasons for fishing. It is these reasons, and particularly the cultural identity of Aboriginal fishing, which separate the fishing activities reported by Indigenous people from other fishing in the general community.

Schnierer and Faulkner (2002) also report on comments by Indigenous people about their current participation in the commercial fishery sector, their concerns about the trends that are evident in participation rates, constraints to improved participation and ideas for how the specific cultural character of Indigenous fishing could be incorporated into commercial fishery management. These issues and suggested solutions generally relate to the broad concepts of commercial and indigenous fishing, and do not specifically concern the rock lobster fishery.

Schnierer and Faulkner provide a comprehensive list of species that are targeted by contemporary indigenous fishers. Their list of invertebrate species is reproduced below as **Table 5.3**, and includes lobster species.

Table 5.3 - Aquatic Invertebrates Targeted by Indigenous Communities in Coastal NSW (Schnierer and Faulkner 2002)

(N = Northern, C = Central, S = Southern, M = Marine, E = Estuarine, F = Freshwater, C = Commercial, R = Recreational)

Common name	Scientific name	Region	Habitat	Fishery
Abalone	*Haliotis ruber*	C,S	M	C, R
Beach worm spp.	*various*	All	M	C, R
Bearded mussel	*Trichomya hirsuta*	All	M	
Bimbla cockles spp.	*various*	C,S	E	
Blue swimmer crab	*Portunus pelagicus*	All	M,E	C, R
Cobra	*Teredo navalis*	N	E	
Eastern king prawn	*Penaeus plebejus*	N,C	E	C
Edible mussel	*Mytilus planulatus*	All	M,E	
Freshwater mussel	*various*	All	F	
Greasy back prawn	*Metapenaeus bennettae*	All	E	C, R
Lobster spp.	***various***	**All**	**M**	**C, R**
Mud crab	*Scylla serrata*	All	E	C, R
Mud oysters	*Ostrea angasi*	All	E	
Octopus spp.	*various*	All	M,E	
Pacific oyster	*Crassostrea gigas*	All	M,E	
Periwinkle spp.	*various*	All	M, E	
Pipi	*Donax deltoides*	All	M	C, R
School prawn	*Metapenaeus macleayi*	All	E	C, R
Sea urchin	*various*	All	M	
Shrimp	*Machrobrachium sp*	All	E,F	
Squid spp.	*various*	All	M,E	C, R
Sydney cockle	*Anadara trapezia*	All	E	
Sydney rock oyster	*Saccostrea commercialis*	All	M,E	C, R
Tapestry cockle	*Tapes watlingi*		E	
Yabby	*Cherax destructor*		F	

Responses to survey questions about the frequency of fishing events and the destination of the catch both reinforce views expressed in other discussions about the reliance of Indigenous people on fish and shellfish catches as a significant part of their diet, and the importance of sharing catches with the extended family. Eighty-one percent of respondents noted that they fished either to supplement their family's diet or to share with their extended family (especially Elders). However, whilst these subsistence/dietary reasons for fishing are clearly important and continue traditional practices, other reasons for fishing also indicate particular characteristics of Indigenous fishing that distinguish it from fishing by other groups in the community. For instance, many fishers from lower income families fish to supplement their family diet, and several ethnic groups are known to target particular species for food or income or to fish seasonally to take advantage of fish breeding or migratory behaviours.

None of these other groups have the cultural ties to the land and water that Aboriginal people express. The quotes noted below reflect both the subsistence/dietary values of fishing and the cultural values of fishing for Aboriginal people.

'Fishing has always been in our family and will continue because it is a main meal for us.'

'We catch fish for our Elders and for children to help them with their health.'

'Limits set by Fisheries don't take into account how we fish and collect for our communities as well as for ourselves.'

'Fishing is for relaxation; family outings; getting a feed of fish.'

'It's our birthright to collect seafood and freshwater fish even though we eat white fella food, we still eat our traditional foods (kangaroo, possum, spiny ant eater, salt water and fresh water foods).'

'I feel it's important that we keep fishing regardless of whether we do it traditional or not, we need to pass our methods down to our children so as we can keep the culture going…. Not forget who we are.'

'Fishing is a tradition and a culture throughout Aboriginal people today – letting the younger generation know of what Aboriginal bush food is.'

'How can we continue on with our cultural right of families visiting, camping and sharing stories, obtaining fish and pipis when we have no access to the special place. These are concerns. The fishing co-ops continue to mine pipis, all sizes are collected, not just like Goories only take what is needed.'

'Recognition of Goorie culture which includes fishing as a means of keeping families.'

Schnierer and Faulkner (2002) highlight two important issues associated with Indigenous involvement in the commercial fishery sector.

They note the competition for resources and the conflicts that have been present since the early days of European settlement along the NSW coast. Historical records of nineteenth century resource exploitation (eg Thompson 1993) highlight the depletion of stocks and environmental degradation brought about as European settlement expanded. An example is the harvesting/mining of oyster beds in estuaries such as the Hunter, Port Stephens, Camden Haven and Clarence where extensive natural oyster reefs were removed (both for shellfish meat and for lime) during the nineteenth century and have never recovered. Apart from the ecological implications of this change to estuary morphology and species abundance, such practices would clearly have had a dramatic impact on the resources available to Indigenous people. Schnierer and Faulkner (2002) argue that despite the evidence of failed management of fishery resources by European fishers, they have maintained control of the resource, largely to the exclusion or 'marginalization' of Indigenous people.

The second key issue is the recognition of distinctive Indigenous commercial fishing practices that do not necessarily fit with the general commercial fisher concept. It is argued that failure to recognise these practices as valid commercial activities has led to a decrease in the participation of Indigenous people in the commercial sector generally and created barriers to continuing commercial participation (including fee structures, return requirements, licence transfers and access to training to update skills).

The final quote from an Indigenous commercial fisher (in Schnierer and Faulkner (2002)) highlights the frustrations felt by Indigenous fishers about the management of the commercial sector generally. It is important to note however, that the issues raised link back

to the focus of Indigenous fishing on nearshore species and are not made in the context of the Rock Lobster Strategy in particular.

> *'I want to continue supplying the community and the elders with pipis and seafood when I can. Pipis and fish have kept the Aboriginal community in this area going for generations since non-Aboriginal people came here and now it's getting harder for Aboriginal people to get licences to fish these days. Fishing is something that is very important to Aboriginal people and their culture and I would like to stay in business so that the community can at least maintain some involvement in the fishing industry.'*

5.4 NATIONAL RECREATIONAL AND INDIGENOUS FISHERIES SURVEY

Henry and Lyle (2003) report the full results of the National Recreational and Indigenous Fishing Survey. This research report provides a separate analysis of the fishing practices of Indigenous people in northern Australia. Whilst it cannot be assumed that northern Australian communities (across Western Australia, Northern Territory and Queensland) would have the same fishing practices or specific cultural values as those in southern Australia, the survey results do indicate some very clear distinctions in the focus of fishing effort, particularly between offshore and inshore waters in northern Australia.

It is understood and acknowledged that some Indigenous communities have expressed dissatisfaction with the research methods used in this survey (Schnierer pers comm.). The study does provide useful baseline statistical data, and highlights areas for further consultation with communities to ensure culturally acceptable processes and outcomes.

Table 5.4 shows the relative fishing effort by water type of Indigenous households across the northern Australia survey area, for 370,000 fishing events that were reported in diary records.

Table 5.4 - Annual fishing effort (events) for Indigenous Households in Northern Australia (fishers aged 5 years and over)

Type of waters	% of fishing events
Offshore	1%
Inshore	55%
Estuary	15%
Rivers	19%
Lakes/dams	9%

These figures show a very strong focus on nearshore marine resources that can be obtained from land or from small boats close to shore. Although there were reported to be regional variations, it is apparent that very little Indigenous fishing in this survey area is conducted in offshore marine waters. This is reinforced by statistics about whether fishing took place from shore or boat. Overall, some 93% of Indigenous fishing in the study area was conducted from the shore, although 21% of fishing households in Queensland reported fishing from boats.

The survey also provided some information about the method of fishing (ie the equipment used). The results show that line fishing is by far the most important (53% of all fishing effort), followed by hand collection (26%) (note that the statistics include shellfish), nets (12%), spear (9%) traps (0.5%) and diving (0.1%). The amount of hand gathering by

Indigenous fishers is substantially more than the general recreational fishing population. Hand collection was particularly important in the Northern Territory.

Henry and Lyle (2003) also report the species targeted by Indigenous fishers in northern Australia (see **Table 5.5**).

Table 5.5 - Annual Harvest of Major Fishery Groupings by Indigenous People in Northern Australia

Fishery grouping	Number harvested (x1000)
Finfish	914
Small baitfish	98
Crabs/lobsters	**181**
Prawns/yabbies	655
Molluscs	1149
Miscellaneous	93

As noted above, these results are not necessarily transferable to southern Australia, where there is a very different level of traditional fishing and there are risks in assuming that cultural practices are the same or that Aboriginal people's fishing activities in southern Australia could be explained in the same cultural terms. However, if the results are considered to be *broadly* indicative of Indigenous community fishing behaviour, then several features emerge that are relevant to the current assessment of the impact of the commercial Rock Lobster fishery in NSW. These include:

- Aboriginal fishers who are not commercial licence holders tend to access marine resources almost entirely in inshore areas, and most often from the beach rather than from boats.

- Note that the extent of offshore fishing and its relationship to long documented cultural fishing in estuaries, bays and along beaches and headlands, is not well documented in NSW, and informed management would benefit from further consultation/research in this regard.

- The species most often reported to be caught by Indigenous fishers in northern Australia reflect the habitats in which they most frequently fish.

- Indigenous fishers target a wider variety of marine species than other 'recreational' fishers (see also Schnierer and Faulkner 2002).

- Large crustacaea are a relatively minor component of the marine resources collected, when compared with finfish, shellfish and prawns.

5.5 COMMUNITY CONSULTATION FOR THIS PROJECT – REINFORCING AND CLARIFYING EXISTING DOCUMENTARY EVIDENCE

As noted in **Section 2**, community consultation for this assessment involved discussions with Indigenous representatives on the IFS Advisory Committee, communication with Aboriginal communities along the entire NSW coast and four regional meetings with local community representatives. The following information is derived from conversations with community representatives in each of those situations. Many of the comments also relate to the management of access to other commercial fisheries and reflect a general community

discontent with the ways that access to traditional fishery resources have been curtailed, rather than specific concerns about access to lobster. However, lobster, like abalone, has stringent bag limits, and these appear to be a specific concern.

- It was reported that there is a big midden at Black Head (on the mid north coast) which contains abalone shell, lobster and whale bone. One person said that his auntie had told him that people used to make holes in limpet shells and place them over their eyes when diving. He had also been told about the women keeping watch for sharks while the men were in the water diving or swimming for fish/shellfish/lobster off the rocks (note the reversal in roles for males and females in this story when compared to some historical references). Mick Leon told of a short film in the ATSIS archive that shows his family diving for lobster at Forster in the 1940s.

- On the north coast, oysters and pipi were generally considered to be more important than lobster – these are species that can be collected on a daily basis, in estuaries and on the beach, will little risk. They are still available to Aboriginal people at minimal cost to collect and are accessible to family groups, including children and old people. A few old people still know where the lobsters can be obtained on the north coast, and it was felt that NSW Fisheries did not really know the amount of lobster that was still collected by Aboriginal people. A number of people expressed the view that commercial fishers had overexploited the resource and cleaned out natural breeding areas. Aboriginal people had also been taught to be greedy and selfish, rather than to share with others. It was suggested that some commercial fishery areas should be closed down for periods of five to ten years to allow for restoration of stocks.

- Aboriginal people want to be able to reclaim their culture and their rights to the fishing way of life. There should be respect for culture and respect for elders before anything else. Aboriginal people (especially Elders) should not have to fill out all sorts of paperwork to e able to fish for cultural reasons. The north coast groups suggested that the current Recreational Fishing Licence Exemption Paper for Land Council members was offensive and demeaning. They thought that the papers remind people of when they were taken away from their traditional homes and put into missions. People are very worried about getting fined if they fulfil their obligations to family and elders, and even when they are not scared, they still don't like the forms and regulations that they have to contend with to fish legally.

- A number of people were unsure of rock lobster fishing regulations or believed that the bag limits were too low for people to be able to fulfil cultural obligations. It was stated that consequently, many Indigenous people are too scared to fish for lobster because they are worried about being fined or jailed. A number of people felt that Indigenous people had been harassed by NSW Fisheries about their fishing practices. Almost everyone had a story or knew someone who had been fined by NSW Fisheries for bag limit offences, and many on the north coast referred to the "trouble" on the south coast.

- Current regulations for 'recreational fishers' do not allow the transfer of daily bag limits to an individual who represents a broader group. This means that Aboriginal people cannot carry out fishing on behalf of Elders or other people who are physically unable to fish. If people collect sufficient lobster to allow for elderly members of the community, they will be in breach of the bag limit regulations (unless the lobsters are gathered under a special event permit).

- On the south coast, people expressed widespread dissatisfaction with the Indigenous exemption process, for people who are members of a Land Council and are fishing within the Land Council boundaries. They noted as an example that on the south coast, there are seven or more Land Councils within a short distance, all within the region that local Aboriginal people might consider to be their traditional fishing grounds. Under

the current system, people would need to have multiple exemption certificates if they want access to resources along the coast. These geographic limitations do not apply to other 'recreational' fishers when they obtain a licence.

- Community representatives consider that current fishing regulations hinder Indigenous people from undertaking cultural fishing activities and exercising their rights as Indigenous people. For example, communities on the north coast are now restricted from collecting pipi and blood worms for their extended families and to earn a small amount of money. Fines are large for even small breaches of the regulations.

- On the south coast, Aboriginal people have always depended on the sea for their lifestyle and livelihood. Prior to 1967, everyone fished and no-one needed a licence – so most of the parents and grandparents of the current generation would have fished to feed their families and passed on their skills and experience to their children. People didn't have other jobs – they were fishermen.

- Community representatives report that lobster fishing was a seasonal activity. The elders knew the signs for when lobster became available (as they did for other species such as mullet). Lobster fishing on the south coast was usually a winter activity. At these times people would have a big feed but take only what was needed for the family and community. They always left enough for other people and they didn't fish the same area two days in a row. At different times people fished for relatively small quantities of many different species. Most people believed that Koori fishers would not exploit marine resources to the extent that they believe commercial fishers do.

- Community representatives suggest that fishing in the sea has always been a 'commercial' activity for Aboriginal people. Even before European settlement, people would have traded some of what they caught for other things obtained by other members of their own or neighbouring communities.

- The introduction of licences and particularly endorsements and quotas changed everything for families who had traditionally practiced small scale cultural and commercial fishing. Representatives who attended the regional meetings stated that because Aboriginal people had been generalist fishers (annual) and seasonal specialists, they were not able to demonstrate the catch histories necessary to obtain licences and endorsements under the new licensing arrangements. It was suggested that quotas and endorsements made licences more valuable and further out of the reach of aboriginal people.

- On the south coast it was suggested that there are still a lot of people who are experienced lobster divers (around Nowra and Wreck Bay), but no-one holds an endorsement for lobster. The differential in lobster catch per fishing effort between shallow inshore waters and deeper waters on the shelf was discussed. The group felt that there were clear advantages in having a large vessel and heavy equipment that could access the deep water lobster, but also felt that these costs were outside the potential investment scope of the Aboriginal community.

- It was suggested that the bag limit for Kooris (non-commercial operators) should be raised to 10 lobsters per person. One person should be able to carry all the allowable catch for a group in a single 'bag'. Aboriginal people who hold general commercial licences should be allowed to have a few lobster pots, as was the case prior to 1967. Currently they (like other commercial fishers who do not have a lobster endorsement) cannot have any lobster pots and cannot retain any lobster that they may catch as by catch. It was stated that Aboriginal divers and fishers should be able to fish on behalf of old people (ie the previous generation who had taught them their skills).

- The group on the south coast felt that the current regulatory framework created a spiral of fines that was hard to escape. In a community with high unemployment levels and a culture of fishing rather than any other activity to earn a living, they suggested that people cannot earn the money to pay fines unless they go back into the water to get more product to sell on the black market. Then they get fined again. The people at the meeting also thought that some Aboriginal people would not go to court or would plead guilty, even when they might have an arguable defence.

- Fish and ocean resources used to be a fundamental part of Indigenous people's diets and have helped Indigenous people survive in missions and other settlements by supplementing the food provided. The general health of Indigenous people has deteriorated as a result of fishing restrictions. Ocean resources provided healthy food at very low cost.

- A number of people said that they feel that NSW Fisheries have taken little notice of what Indigenous people have told them previously and continue not to listen or take into account cultural issues.

- On the south coast, it was suggested that Aboriginal people should be given a 'monopoly' on aquaculture of species that were traditional foods, in the same way as Aboriginal people believe that commercial fishers have been given a "monopoly" on abalone and lobster.

- It was also suggested that on the south coast, conflicts about access to lobster and abalone resources could be reduced by NSW Fisheries employing more Indigenous people, to improve attitudes and culturally appropriate communication.

- There was a strong view that the consultation conducted by NSW Fisheries over the last ten years about the IFS and licensing issues has been a token effort. Some people thought that consultation in recent years was 'too little and too late', after stocks had already been destroyed by European commercial practices. Although there have been multiple consultation events, people stated that they felt there had been very little progress on the 'big' issues. Concern was expressed that Indigenous people are in advisory roles rather than decision-making roles, they therefore feel powerless.

- The consultation methods used by NSW Fisheries remain inadequate because they do not take into account the fact that one Indigenous community can not speak for another community, and that one community member cannot speak for the entire community. It was suggested that there are a lot of factions and people do not work together outside their own family. In addition, although Land Councils have the capacity to represent everyone in the local Aboriginal community equally, in practice not everyone belongs to a Land Council and communication via the Land Council can be very slow (information about invitations to comment on issues does not always get out to members in time). One suggestion was that committees, etc should advertise in the Koori Mail so that people could respond as individuals, rather than representatives of any group. However, this process would detract from the 'face to face' consultation that has been favoured to date, unless it were followed up with focus groups meetings with interested individuals.

- The groups provided an explanation for the difficulty experienced by NSW Fisheries in having Aboriginal people nominate for Fishery Management Advisory Committees (eg currently there is no Indigenous representative in the Lobster MAC). They felt that it was unfair to have only one Aboriginal person on each committee, suggesting that they would always be outnumbered and could not influence the decisions made by commercial sector representatives on the committees.

- It was suggested that some progress cold be made towards more equitable Indigenous participation in the various commercial sectors if several groups worked together, and if grants to assist with employment and community development projects were made on a whole of community basis. In this way, it might be possible to target all grants in one year to a single major project, which might then have sufficient funding for real progress to be made. It was suggested that the current system of multiple small grants ('drip feeding') meant that a lot of money was wasted with no substantial outcomes for the community.

5.5.1 Key Messages

The issues raised during the four regional meetings were wide ranging, and express broad concerns about the system of regulating Indigenous access to fisheries generally, rather than specific restrictions associated with the lobster fishery. Some key themes and management remedies suggested by community representatives are noted below. These themes and management concepts respond particularly to perceived socio-cultural impacts and impacts on the economic well being of Aboriginal communities.

- Indigenous people want to reclaim their right to undertake cultural fishing, which they see as a key cultural characteristic of coastal communities.

- There is still some traditional knowledge about lobster fishing practices and the cultural and spiritual value of lobster to Aboriginal communities, but it is poorly documented and held by a diminishing group of elders.

- There have been multiple rounds of consultation. People are tired of consultation and want to see some policies and actions that demonstrably take Indigenous concerns into account. They would also prefer to be able to move into decision making roles rather than be 'consulted', with no obligation to take account of the views expressed.

- NSW Fisheries should consider increasing the number of Indigenous employees on the south coast in order to improve attitudes and communication about the lobster and other fisheries. They should also consider having two Indigenous community representatives on MACs, at least until Aboriginal people feel more comfortable with the MAC process and some current conflicts have been resolved.

- NSW Fisheries should make the regulation of Aboriginal fishing more flexible, particularly in relation to bag limits for routine fishing (rather than special events), so that people do not feel threatened if they fish to meet their family of community cultural obligations. The importance of these obligations may not be appreciated by NSW Fisheries.

- It was suggested that NSW Fisheries could allocate an endorsement for lobster fishing to the Indigenous community (although community representatives acknowledged that the community as a whole would need to work out how the values of this endorsement in terms of employment, income and access to resources would be shared equitable within the community.

- There are still quite a lot of Aboriginal people with good diving and fishing skills, learnt from their parents generation. An effective fishery management program dealing with equity issues would try to maintain and enhance these skills in the community before they are lost totally.

- Grant money currently provided by NSW Fisheries to assist with the establishment of aquaculture enterprises is not sufficient to cover the required capital expenditure. Small scale 'drip feed' funding does not achieve substantial outcomes. The community representatives recognise that alternative more targeted funding regimes will require new levels of intra community co-operation.

5.6 INDIGENOUS PARTICIPATION IN THE COMMERCIAL OCEAN FISHERIES, INCLUDING LOBSTER

The increased regulation of both the recreational and commercial fishing sectors was brought about by the need to manage rapidly growing pressures on resources, associated with increased fishing effort (and increased catch efficiency for fishing effort) in a sustainable fashion. Indigenous people argue that environmental degradation and unsustainable harvesting practices since European settlement has resulted in the need to regulate recreational and commercial fishing (Schnierer & Faulkner 2002). Indigenous people, who have always practiced sustainable fishing, however, have been impacted by this environmental degradation and the increasing regulation designed to sustain marine resources. They have therefore been marginalised because they have little control over their ocean resources, how they are managed and the economic benefits that accrue from the exploitation of marine resources.

There are currently no Aboriginal people holding endorsements in the commercial rock lobster fishery and participation is limited in the commercial sector in general. Aboriginal people consider that this falling level of participation in the commercial sector is a result of inconsistencies between cultural practices (Traditional Fishing Knowledge) and a range of historical changes to both regulation and the circumstances of Aboriginal people. Schnierer (pers comm 2004) argues that the removal of many Indigenous people from their traditional territories and lifestyles reduced their capacity to adopt new fishing technologies and methods gradually as they were introduced through the twentieth century. In addition, the low economic status of many Aboriginal families also tended to reduce the financial capacity of Indigenous fishers to subsequently catch up with new technologies. More importantly, the lack of provisions in the NSW legislation to protect Indigenous fishing rights has discounted the ability of Indigenous people to enter newly developing fisheries or to stay in ones where management strategies squeezed out so called 'inefficient fishers'. (Schnierer pers comm 2004)

During a discussion with John Jarrett who owns and operates an ocean prawn trawler on the NSW north coast (December 2003 pers comm), John noted that he is the only Aboriginal person on the east coast with a prawn trawl licence (king prawns) for offshore waters (more than 3 nautical miles offshore). John also holds an Estuary General Fishery Licence, which he chooses not to use, as the estuary resources are the basic income for other Indigenous commercial fishers. John noted several important constraints to young Aboriginal people getting involved in the offshore commercial sector. His comments (see below) support the comments made by people who attended the regional meetings to discuss the Lobster FMS.

- Licences are expensive and are linked to the boat. So to enter the industry you need the capital to buy the boat and the business.

- People entering the commercial industry need multiple skills. They must not just be skilled fishermen, but be up to date on all the regulations etc, know about mechanics and maintenance, be able to cook etc. Many young Aboriginal people do not have the right mix of skills. As noted in the Indigenous Fishery Strategy (IFS) (see **Section 3** improved skills for Indigenous people to facilitate their entry into the commercial sector is a priority for the IFS Working Group. John Jarrett suggested that the capital needed to buy multiple licenses as a commercial venture for the Indigenous community could be as

much as $10 million. He suggested that one possibility that could be considered would be a scheme like the CDEP, seeking to provide the right mix of skills and capital to assist Aboriginal employment and business development.

Indigenous fishers comment that over the last twenty years or so, the restructuring of the commercial fisheries to enhance efficiency and provide controls to protect biodiversity has tended to reduce the involvement of Indigenous fishers in the commercial sector. They believe that when they were more involved in the commercial sector, their approach was an extension of traditional cultural fishing (mixed sectors and diverse species, seasonally opportunistic but also conservationist in approach, community oriented).

At a workshop held in June 2003, to address low participation of Indigenous fishers in commercial fisheries generally, participants identified significant constraints to the commercial viability of indigenous fishing. In particular, the workshop group, which included licensed Indigenous commercial fishers, and members of the Indigenous Fisheries Advisory Committee, noted five key constraints (Callaghan and Associates 2003, for the IFAG, page 4):

- closures of ocean, beach and estuary fisheries have excluded Aboriginal fishers from traditional fishing areas (commercial and non commercial);

- difficulty in passing on of licences within families;

- costs of licences, particularly restricted licences, can exclude Aboriginal fishers by making their activity uneconomic;

- the gradual and continuing decline of Aboriginal commercial fishers in the industry means loss of an accessible and appealing employment base for Aboriginal communities. Aboriginal commercial fishers who fish within cultural frameworks as well as for employment and income, may be more successful with additional flexibility in licensing arrangements, such as nominating crew members, subleasing of licences, and assistance with licence fees. In addition, gaps in fishing work due to licence losses etc make it more difficult to maintain or enhance skills – and therefore more difficult to return to commercial fishing; and

- exclusion zones, restructuring more fishers into smaller areas, make commercial survival for Indigenous fishers very difficult.

For Aboriginal people, regulation of the lobster fishery includes not only the commercial sector regulatory framework that is the focus of the Fishery Management Strategy, but also the regulation of recreational (or Indigenous) access to the resource. Both components are elements of the NSW Fisheries strategy to control harvesting of lobster to maintain long term sustainable stocks. There is a view from the Aboriginal community however, that in striving for sustainability and efficient regulation of harvesting the lobster (and other fishery) resources, the balance has shifted away from small scale fishers to large scale commercial fishers with the capital and equipment to maximise returns. A number of Indigenous community representatives suggested during the consultation for this assessment that the balance should be shifted back a little to allow some small scale operators access to specific localities, and that some of these operators should be Indigenous people.

While Indigenous fishers are categorised with recreational fishers cultural access to traditional community fishing areas, and the tightening of regulation of the commercial sector continues, Aboriginal people feel that they will continue to be excluded and marginalised.

6.0 INDIGENOUS VIEWS ABOUT SUSTAINABLE NATURAL RESOURCE MANAGEMENT

During interviews about fishery management on the NSW south coast (see Cozens 2003), Aboriginal people referred to 'sea country' – generally encompassing estuary and near shore waters, but rarely offshore waters, to which people were attached and for which they had some responsibility to 'look after'. The Indigenous fishers who were involved in these interviews were licensed Estuary General fishers, and Indigenous representatives on various Fishery Advisory Committees, plus some 'advocates' for Indigenous rights.

Cozens' interviews clearly reveal the nature of Aboriginal fishing (whether or not conducted with a commercial licence) and the intent and framework of that fishing. For instance (p56), she quotes:

> '*Aboriginal fishing is a sustainable fishing practice. We practiced circular fishing. We fished for what was around. We fished for mullet in April and May, prawns in spring and summer and salmon from March to November (as) it's a winter fish. We fished for abalone and lobster in the summer when the water was warmer. We didn't fish them one step to extinction – we didn't have to. We didn't just fish for one species*.'

The views expressed by this interviewee are similar to those noted by Faulkner (2000) that Aboriginal people had specialised ecological knowledge of their local landscape, and that they used this local understanding to guide their fishing practices throughout the year. Traditional ecological knowledge includes knowing when and where a particular species will be present, the most favourable time in its lifecycle for consumption, breeding cycles, relationships between lunar cycles, species mobility in its habitat and favoured fishing and collecting opportunities, medicinal values (Faulkner 2000:6). Faulkner suggests that this traditional ecological knowledge is the feature that makes Indigenous fishing ecologically sustainable and distinguishes Indigenous fishing from other fishing. The teaching and transfer of traditional knowledge is an important aspect of Indigenous fishing.

Whilst the views expressed about the restrained, conservation oriented management of fishery resources by traditional indigenous fishers need to be seen in the context of the relatively small population that was being fed, and the less invasive technologies that were used, there is no doubt that the intent of fishing strategies was not only to feed the community this year, but to ensure they could be fed and meet their obligations next year too.

A broader perspective of the Indigenous concept of sustainable natural resource management is discussed in the 'Boomanulla Statement', which presents the outcomes of the Boomanulla Conference for Country (March 2002). The Conference involved natural resource representatives from Aboriginal communities across NSW. In terms of natural resources, the focus of this conference was the management of terrestrial catchments (land, rivers and vegetation). However, the principles and recommendations endorsed by the Conference are very similar to less formal statements that have been made in relation to Indigenous involvement in the management of coastal fishery resources over the last few years. Some important principles, noted in the Boomanulla Statement and stressed frequently by representatives of Indigenous communities, include:

- *the health and livelihood of Aboriginal communities is related to the health of the river systems and the land* (and in the current case, the coast, estuaries and beaches);

- *cultural and biological diversity are two sides of the same issue for people who relate to the land and the rivers spiritually*;

- *consultation with Aboriginal communities means negotiation with them about the meaning of land* (and sea) *management and about what must be done*. Aboriginal representatives must be linked to the community and Elders Councils; and

- *the economic future of Aboriginal communities will be tied to natural resources. There must be benefit sharing as a principle for any planning approach*. Aboriginal communities will expect employment, education, and training outcomes from natural resource management plans. Aboriginal people have a traditional custodian's right in relation to natural resources which they have never given up.

6.1.1 Indigenous Rights to Coastal Waters and Marine Resources – Implications for Participation in Commercial Fishing

Two of the key issues of concern to Indigenous people about the management of commercial fisheries in marine waters is the extent to which commercial fishing activities impact on the conservation of traditional resources and 'country' and also the extent to which Aboriginal people have been able to actively participate in the wealth generating activities of commercial fisheries that operate in waters that they consider to be 'country'.

The Lingiari report on Indigenous Rights to Offshore Waters (2002), and Tsamenyi and Mfodwo (2000), both argue that much of the focus about Indigenous rights to waters so far has focused on customary or cultural rights (ie the right to practice cultural fishing), with little real attention to commercial fishing rights for Indigenous peoples. Tsamenyi and Mfodwo (2000) argue that commercial fishing rights for Indigenous people are an important part of the right to self determination. In Australia, there is no legal recognition (and little policy recognition) of the right of Indigenous people to participate in commercial fishing as a specific group, differentiated from other commercial fishers, although there is clear recognition of the customary rights of Aboriginal people to marine resources. There is also recognition that commercial fishing activities should minimise their impact on customary fishing practices.

Lingiari (2002) and Tsamenyi and Mfodwo (2000) suggest that outcomes of the lack of positive legislation in regard to Indigenous rights to participation in commercial fisheries include:

- Aboriginal people having little direct say in the management of fishery resources (eg in setting policy about target species and harvest rates, about appropriate fishing technology and about the management of waste); and

- restricted Aboriginal participation and benefit from the economic values of the commercial sector, either as owners of the resource, or as owners of licences (rather than as employees).

Clearly these are major issues for state and National policy on the management of Australia's coast and seas and their resolution extends well beyond the scope of any individual Fishery Management Strategy in NSW. However, the apparent low participation of Indigenous people in the ocean trawl fishery is consistent with the noted National situation, and the issues that have been raised in NSW about access to the commercial sector generally are consistent with those put forward on the national agenda.

In terms of the assessment of the Rock Lobster FMS, a key question is whether the FMS adequately recognises these Indigenous rights to customary fishing and self determination. To a large extent this will depend on broader NSW Fisheries policy development, in consultation with the Indigenous Fisheries Advisory Committee. As a minimum, the Rock Lobster FMS can note the ongoing need to enhance Indigenous participation and foreshadow

progressive reviews of actions within the strategy as new positive initiatives are introduced at the broader policy level.

7.0 SUMMARY – INDIGENOUS COMMUNITY OBJECTIVES, VALUES AND ISSUES FOR THE ROCK LOBSTER FISHERY

7.1 INTERACTIONS BETWEEN THE ROCK LOBSTER FISHERY AND ABORIGINAL CULTURAL HERITAGE

Commercial Fishers' and Indigenous Fishers' use of the Sub-tidal Environment

Some commercial rock lobster fishers and Indigenous fishers fish in the same rocky near shore environments, although commercial fishers also access the deep waters o the continental shelf. On the nearshore reefs and rock platforms, commercial divers (and trap setting), recreational divers and Indigenous divers target the same species. This means that, in some locations, resources may be limited by the activities of the other resource users. The concentration of commercial endorsements in three key locations highlights these areas as locations where there is potential for real or perceived conflicts about access to the valuable lobster resource.

The majority of lobster catch is taken by traps, with only a very small proportion taken by diving. The majority of commercial catch on the north coast (north of Newcastle) is taken from the shelf environment (ie, in depths of 10-30 metres). On the south coast, nearshore catches are high (as is trap lift effort), but there are also significant catches in waters of more than 20 metres depth. Lobster fishing is clearly identified as a traditional Indigenous activity on the south coast. Although many north coast communities state that they also fished for lobster (particularly in the Forster to Port Stephens areas), the focus appears to have been less. Consequently, the available data suggests that there is a higher likelihood that Indigenous fishers and commercial rock lobster fishers will interact on the south coast.

Some Aboriginal people suggested that commercial rock lobster fishers are gaining large economic benefits from 'our waters' and so the Aboriginal community should also be benefiting from the exploitation of marine waters (eg employment opportunities, royalties).

There is a strong body of anecdotal evidence from Aboriginal community representatives that Indigenous access to nearshore environments is less under the current regulatory framework than it was within the last 40 years or so. This does not apply to lobster habitats alone, but is broadly symptomatic of Indigenous concerns about loss of access to 'country' and to places and circumstances where traditional knowledge and responsibilities can be passed from one generation to another.

Cultural Heritage Sites and Places

The overall risk that activities authorised by the Rock Lobster FMS will detrimentally impact on Aboriginal cultural heritage objects (sites) or gazetted Aboriginal Places along the NSW coastline is considered to be small. Commercial rock lobster fishing in the nearshore area is generally undertaken with traps which are set from a small boat. This method of fishing is unlikely to affect archaeological sites because such sites are generally located on the shoreline rather than offshore. The fishing operation, however, does have the potential to impact cultural heritage sites when the sub tidal zone is being accessed. Boat ramps and car parks are generally located in areas where Aboriginal sites and important places are commonly located. Many of these facilities were constructed before there was an awareness of archaeological issues and so may be built on or near cultural heritage sites. However, commercial fishers access the coastline via access routes that have been endorsed by local Councils and NPWS. It is assumed that in agreeing to continuing access to such routes, NPWS has considered the risk that ongoing vehicle access may have on any archaeological sites.

As discussed in **Sections 3**, **4** and **5** many local Aboriginal communities also value places because of traditional community associations, whether or not there is a specific spiritual association. In this category are places where communities have fished or celebrated special events in historical times and where elders have taught younger members of the community about traditional fishing practices. In addition to these community ties, some individuals and families have demonstrated traditional owner status, particularly on the north and south coasts where some families have maintained their contact throughout the period of European settlement.

Access to Employment and Economic Independence

There is a strong view in the Indigenous community that the level of employment of Indigenous people in commercial fisheries has declined. Notwithstanding this, Indigenous members of many coastal communities still regard themselves as fishing people, and a number of intra community responsibilities and obligations are linked to fishing activities – as a way to supplement diet for the whole community, as a way to share knowledge and resources across generations, as a way to earn a living and as a way to maintain traditional culture.

Aboriginal people describe their past fishing practices as 'circle fishing', mostly based in nearshore waters (estuarine and shallow marine), with simple fishing equipment (small boats, nets, traps and handlines) and targeting a small sample of what ever species were seasonally abundant. Although nominally commercial, in many cases the fishing was closer to a subsistence lifestyle. Access to licences for this type of fishing is no longer available.

As a consequence, Aboriginal men who attended meetings about the lobster FMS stated that they felt communities were losing traditional skills, and did not currently have the capital or the commercial experience to enter the modern, higher technology and efficiency focused commercial sector.

Although excluded from some traditional small scale commercial fishing activities, Indigenous people have continued to attempt to maintain what they consider to be culturally responsible fishing, outside the limits of the recreational sector. In practice, these activities contravene the NSW Fishery regulations, leading to accusations of poaching, close scrutiny of fishing practices and a number of fines and jail sentences. Some Indigenous people now claim that they are confused and intimidated by the enforcement of fishery regulations and have withdrawn from what they consider to be traditional rights. Others maintain that they will persist in fishing to meet their community obligations, others have adjusted their activities in the short to medium term to recognise the significant detrimental impacts of fines and jail sentences on the community.

These matters cannot be addressed through the Lobster FMS alone. **Section 8** describes measures already included in the Lobster FMS and protocols that may allow greater flexibility in allocations across recreational, Indigenous and commercial sectors over time, whilst always maintaining the principle objective of sustainable resource management.

7.2 SUMMARY OF INDIGENOUS COMMUNITY OBJECTIVES

The following key values and objectives can be deduced from the current consultation program and other broader studies into Indigenous participation in commercial ocean fisheries (eg Cozens 2003, Tsamenyi & Mfodwo 2000). These values and objectives are consistent for all NSW commercial ocean fisheries (see Umwelt 2004a, 2004b, 2001).

These views are based on a small sample of the Indigenous community and should not be taken as representing the views of all members of the Indigenous community who participate

in fishing. It is anticipated that there will be local and regional differences in emphasis and detail.

The key values that have been taken forward into the assessment in relation to Indigenous marine fishing are:

1. Communities value access to marine resources in the nearshore (inter tidal) environment. The species that occur on rocky headlands, nearshore reefs and islands, along beaches and in the shallow marine waters close to shore are an important part of contemporary Indigenous community diet. Different species are targeted at different times of the year with the aim of providing food for the whole community (or at least an extended family group). Rock Lobster is generally fished for during the winter months. Fishing in the nearshore area continues a long tradition of Indigenous dependence on and conservation of marine resources.

2. Rock lobsters are a common target for all sectors of the fishing community, including Indigenous fishers. The sustainable management of rock lobsters must therefore take into consideration the concerns of a wide cross section of the community, including Indigenous cultural concerns and requirements.

3. Communities value access to fish species or to places for the purpose of teaching younger members of the community about traditional values, particularly respect. In general, these places and species are those that occur on or near to the shore.

4. Indigenous people in coastal areas have 'totems' that include marine species. Whilst these vary from one tribal area to another, they are known to include some marine birds, whales, dolphins, turtles and some fish species. The relationship to these totem species may include beliefs about protection, mutual support, environmental or other information. It is not known whether totems include rock lobsters or the common by products of this industry.

5. Active participation in the protection of places and habitats that are or have been used by the community as part of the social activity of food gathering.

6. Active participation (ie real influence or control) in the management of any aspect of the fishery that impinges on Indigenous community socio-cultural values (this is distinguished from consultation).

7. Employment or other economic advantage from participation in the activity that will help to support the social and cultural values of the community. Employment and economic gain from marine commercial fisheries is seen as an important pathway to economic self determination.

With these values in mind, the objectives of the Indigenous community in relation to the management of the Rock Lobster fishery could be considered to be as follows:

1. To continue to document the species and places of traditional cultural or spiritual value to the Indigenous community along the coast, so that any potential impacts can be better defined and reversed.

2. To ensure that there is clear and open communication between fishery managers and the Indigenous community about catches, methods, impacts, benefits and opportunities to be involved in management.

3. To enhance the skills and capacity of the Indigenous community to participate in the fishery sector, both as fishers (owners, operators and crew) and in terms of active involvement in the Management Advisory Committee.

4. To provide opportunities for active participation in the Rock Lobster Fishery.

5. To ensure that the commercial Rock Lobster Fishery is managed in a manner that is consistent with sustainable resource use – ie that does not result in irreversible damage to habitats, or irreversible decline in the population of rock lobster.

6. To ensure that fishery regulation and compliance methods are sensitive to Indigenous community dynamics and culture.

8.0 ENVIRONMENTAL AND SOCIAL ASSESSMENT OF THE ROCK LOBSTER FISHERY MANAGEMENT STRATEGY (INDIGENOUS ISSUES)

The overall vision for the management of the lobster fishery is stated in the FMS as:

> *A lobster fishery that is ecologically sustainable and profitable and that works to improve the understanding and management of this valuable species through a high standard of research and compliance and pro-active co-operation with stakeholders.*

The goals and objectives of the Rock Lobster Fishery Management Strategy were outlined in **Section 2** The objectives listed under Goal 4 are intended to respect and protect the interests of Indigenous people in the management and resources of the fishery. In addition to the objectives that are directly relevant to the interests of Indigenous people, a number of objectives also address issues that are of interest to Indigenous people. These issues include the sustainable management of the rock lobster resource, sharing of information about the condition of the rock lobster resource and effective compliance strategies (Goal 6).

To assess the potential for interactions between the commercial lobster fishery and Indigenous fishers to be detrimental to the interests of Indigenous people, impacts on sites, places, cultural practices and the economic autonomy of Indigenous communities along the NSW coast are considered.

Table 8.1 shows the extent of consistency between the objectives under Goal 4 of the FMS, actions proposed in relation to these objectives, the objectives and priority actions of the Indigenous Fisheries Strategy and the Aboriginal community objectives for the commercial lobster sector that have been deduced from the information presented in this report.

Table 8.1 - Assessment of the Rock Lobster Fishery Management Strategy

Rock Lobster FMS Objective	IFS Implementation Plan Priority Actions	Indigenous Community Values and Objectives (Section 4.4)	Recommended Action
Goal 4 *Appropriately share the resource and carry out fishing in a manner that minimises negative social impacts.*			
Objective 4.1 Provide an appropriate allocation of the rock lobster resource between harvesting sectors, acknowledging the need of seafood consumers to access fresh quality product. *4.1(a)* Refine, as far as practicable, estimates of total catches of eastern rock lobster, taking into account commercial catch and estimates of recreational, Indigenous and illegal catches, for use on stock assessment models and reports to the TAC Committee. Measures to enhance accuracy of documentation and reporting of catches in the commercial sector are described in the FMS.	Review current Indigenous cultural access to fisheries, review options with IFAC and prepare advice after reviewing input from communities. Note this action is supported by other NSW Fisheries projects to better define Indigenous cultural fishing practices and preferred species (eg through research flowing from the Recreational Fishing Survey) Current estimates of Indigenous catches are patchy and often qualitative.	Communities value access to marine resources in the shore and nearshore area of the NSW coast for customary or traditional fishing, for community subsistence and for the transfer of traditional knowledge. The species that occur on rocky headlands, nearshore reefs and islands, and around shallow reefs close to shore, including rock lobster, are an important part of contemporary Indigenous community diet. Different species are targeted at different times of year with the aim of providing food for the whole community (or at least an extended family group). On the south coast, the Indigenous community has traditionally targeted rock lobster during the winter months. The recreational and commercial fishing sectors also target rock lobster (less seasonally). The values and objectives of all these sectors need to be taken into consideration when managing this resource.	Ensure that funds are available to support projects that will clarify and document Indigenous community fishing practices and contexts. The design and implementation of these projects should be culturally appropriate and should be developed in association with the Indigenous Fisheries Strategy Working Group. This information will ensure that the commercial rock lobster industry is as informed as possible regarding the respect of Indigenous cultural heritage and avoidance of impacts.

Table 8.1 - Assessment of the Rock Lobster Fishery Management Strategy (cont)

Rock Lobster FMS Objective	IFS Implementation Plan Priority Actions	Indigenous Community Values and Objectives (Section 4.4)	Recommended Action
Improved documentation of total catch will be achieved through ongoing surveys of both the unreported component of the commercial catch and recreational/Indigenous catches. Estimates of total recreational (and Indigenous) catch are based on the results of the National Survey of recreational fishing, which will be repeated periodically. NSW Fisheries should consult with ISAG about survey design and delivery to achieve effective and culturally appropriate coverage of Indigenous fishers.		Access to marine species or to places for the purpose of teaching younger members of the community about traditional values, particularly respect. In general, these places and species are those that occur on or near to the shore. The Aboriginal community has expressed clear aspirations for developing opportunities for greater direct participation in the commercial sector	To enhance access to the resources of the rock lobster fishery by commercial Indigenous fishers, a series of actions would be required, including amendments to the Fisheries Management Act to recognise Indigenous rights, changes to licensing arrangements, training etc. None of these actions will happen in relation to the Rock Lobster fishery in isolation. Therefore the key action at this stage in relation to access to the Rock Lobster Fishery is to progress consideration of Indigenous fishing rights generally within NSW Fisheries, initially in consultation with the Indigenous Fisheries Advisory Committee.
Objective 4.4 Identify and mitigate any negative impacts of the Lobster Fishery on Aboriginal or other cultural heritage. *4.4(a)* Manage the Lobster Fishery in a manner consistent with the Indigenous Fisheries Strategy and Implementation Plan	Develop and facilitate a model for community input to fishery management planning (and marine park management) and progressive involvement in fishery management strategies (to be completed in 2004). Cultural awareness training completed for all existing NSW Fisheries staff, all management advisory committees and new NSW Fisheries staff (as part of Induction).	To ensure that there is clear and open communication between fishery managers and the Indigenous community about catches, methods, impacts, benefits and opportunities to be involved in management. To enhance the skills and capacity of the Indigenous community to participate in the fishery sector, both as fishers and in terms of active involvement in the Management Advisory Committee.	Prepare a Fishery Code of Practice for the commercial lobster sector that includes appropriate actions and responses to Indigenous issues. Provide awareness training for Rock Lobster licence holders (and other commercial fishers) and encourage discussion about Indigenous rights and how they can be accommodated in the commercial sector.

Table 8.1 - Assessment of the Rock Lobster Fishery Management Strategy (cont)

Rock Lobster FMS Objective	IFS Implementation Plan Priority Actions	Indigenous Community Values and Objectives (Section 4.4)	Recommended Action
4.4(b) Modify the activity, where relevant, in response to new information about areas or objects of cultural significance in order to minimise the risk from lobster fishing activities.	Project manager to identify strategies to maintain levels of Indigenous involvement in commercial fishing; Develop an employment strategy for NSW Fisheries in consultation with the IFS Working Group (completed June 2003); Review aquaculture and commercial fishing opportunities, consult with IFWG and prepare advice to communities on the skills required to sustain these businesses.	To ensure that the commercial Rock Lobster Fishery is managed in a manner that is consistent with sustainable resource use – ie that does not result in irreversible damage to habitats, or irreversible decline in the rock lobster population.	Maintain liaison with the IFAC about the community input model for ongoing management of the fishery (eg in terms of support for an Indigenous community representative on the Rock Lobster MAC). Consider whether the Boomanulla model or other models would enhance Indigenous input to fishery planning In overall fishery management planning (not restricted to the Rock Lobster FMS) identify the most appropriate opportunities for community capacity building and investment support, in terms of generating employment and income. Further progress the actions identified in the Discussion Document and Action Plan for Enhancing the Participation of Indigenous People in Commercial Fishing (2003), with particular attention to additional consultation requirements and review of Fisheries policy.

Table 8.1 - Assessment of the Rock Lobster Fishery Management Strategy (cont)

Rock Lobster FMS Objective	IFS Implementation Plan Priority Actions	Indigenous Community Values and Objectives (Section 4.4)	Recommended Action
Objective 4.5 Promote harmony between the commercial fishery and other resource users, including recreational fishers, Indigenous fishers and local communities, through fair and equitable sharing of the resource. *4.5(a)* In consultation with the Lobster MAC, identify areas of high interaction between the Lobster Fishery and other resource users and respond appropriately to resolve any conflicts.	As for Objective 4.1 and 4.4.	As for Objective 4.1 and 4.4.	Lack of harmony, where it occurs appears to be associated with Indigenous community perceptions that their access to traditional resources and fishing practices has been curtailed, so that people feel they are not able to fulfil their cultural obligations. Regional communities state that they feel harassed by fisheries officers enforcing regulations. Measures that will support greater Indigenous participation in the management of the commercial fishery (such as support for Indigenous representatives on the LMAC) may assist improved communication and sharing of understanding about both cultural issues and ecological drivers of change. The employment of additional Indigenous people as fisheries officers may also help to bridge cultural gaps. NSW fisheries could also consider amendments to the Fisheries Management Act to clarify the rights of Indigenous fishers. From the community side, consideration of how groups can co-operate to achieve adequate funding to support real involvement in the commercial sector is important. This should be supported by carefully targeted training and capacity building.

8.1 OTHER RELEVANT GOALS AND OBJECTIVES

As noted in **Section 3.2**, the Indigenous Fisheries Strategy Implementation Plan includes two actions relating to capacity building and skill development in the Indigenous community to enhance their ability to participate as licensed fishers in the commercial sector. This issue was also raised during the current consultation.

The Indigenous community objectives noted in **Section 7.2** relate to sharing of cultural and resource management information, but also to Indigenous community participation in the management of conservation issues and in the economic benefits accruing from the fishery, by enhancing the community's capacity to be constructively involved.

The draft FMS does include some objectives outside Goal 4 that relate to these matters, although they are not worded to highlight the Indigenous community as a specific stakeholder. Additional goals, objectives and actions that have relevance to the values and objectives expressed by the Indigenous community are noted in **Table 8.2**.

Two goals in particular relate to the issues that have been raised by the community as concerns about management of the fishery (and other fisheries) and in terms of their participation in natural resource management generally. Goal 6 (compliance)

9.0 IMPACT EVALUATION AND RECOMMENDATIONS

The Indigenous communities along the NSW coast have a long standing and important relationship with marine resources. Rock lobsters are a popular marine resource to Indigenous coastal communities. There is therefore a high likelihood that Indigenous fishers and commercial rock lobster fishers will interact.

The Planning guidelines for this assessment require that the **risks** to Indigenous people's values are noted, both for the current situation and with the strategies nominated in the FMS in place. The impact assessment has addressed four key issues about the relationship of commercial ocean trawl fishing and the fishery practices and values of the Indigenous community. These issues are noted in **Table 9.1**, together with a summary statement about the anticipated risk to Indigenous values with current management and with the strategies noted in the FMS in place.

The concept of risk incorporates both a probability factor (how likely an impact is to occur) and a consequence or magnitude factor (how severe the impact would be). A standard risk assessment approach is difficult to apply with the type of information that is available about Indigenous fishery and marine habitat values. **Table 9.1** therefore presents a simple qualitative assessment and ranking of risk, based on the information that is provided in **Sections 1** to **5** of this report.

Table 9.1 - Risks to Indigenous Values with FMS Strategies in Place

Broad issue/value	Risk – existing management	Risk – FMS strategies implemented
Aboriginal sites – the physical evidence of past Aboriginal land use	Low. There is a low probability that the commercial rock lobster fishery will impact Aboriginal sites.	Low. Further information obtained as a result of FMS strategies being implemented will result in a more complete knowledge of the location and significance of Aboriginal sites and so less risk that the fishery will impact such sites.
Aboriginal places – the locations that are associated with stories about the landscape or with personal and community totemic associations with the natural world	Low	Low. The involvement of Indigenous people in the management of the fishery (eg through encouraging membership of the LMAC) will help to improve awareness and understanding of the cultural importance of fishing places along the coast.
Aboriginal marine totem species	Low	Low (as above)

Table 9.1 - Risks to Indigenous Values with FMS Strategies in Place (cont)

Broad issue/value	Risk – existing management	Risk – FMS strategies implemented
Aboriginal cultural landscapes – the places and species in the landscape that are important to Aboriginal people. As a separate issue from Aboriginal places, this refers to the presence and distribution of Aboriginal foods and medicines in the marine landscape	Low to moderate	Low to moderate. This traditional knowledge is the basis for links to country and is passed down through communities during their participation in activities that appear to be subsistence based but also have cultural and spiritual purposes. Current conflicts about access to the resource in some areas (compliance issues) appear to derive from the implementation of cultural responsibilities
Aboriginal socioeconomic participation in the commercial fishing sector.	High – currently very low participation	Low to moderate – the strategy may facilitate enhanced opportunities for economic participation and skill development, in association with the actions that are priorities in the Indigenous Fisheries Strategy and are further explored in the Indigenous Commercial fishing opportunities action plan. Adoption of key recommendations of the Indigenous Fisheries Advisory Committee will help to open up opportunities and reduce the risk that commercial fishing strategies present to Indigenous rights.

Table 9.1 indicates the objectives and actions proposed in the Rock Lobster FMS present generally low risks to Indigenous values. The FMS will not result in additional impacts on Aboriginal sites or places, and the measures proposed are expected to reduce currently recognised impacts, within the limitations imposed by the existing *Fisheries Management Act*.

Some broad areas for consideration by NSW Fisheries, which would help to address concerns and frustrations about fishery management in the Aboriginal community are suggested in **Sections 9.1**, **9.2** and **9.3**. Some of these potential actions are outside the scope of the lobster FMS alone, and would require a broader review of fisheries policy.

9.1 AN INDIGENOUS FISHER CATEGORY

During the consultation program for the assessment of various fishery management strategies, the main issue raised repeatedly was a concern and rejection of the inclusion of Indigenous fishers with recreational fishers. The Aboriginal community representatives have repeatedly stated that the Recreational regulations do not provide the flexibility necessary to take Indigenous cultural obligations and practices into account. Nor do they reflect the long

standing involvement of Aboriginal communities in low key commercial/subsistence/cultural fishing in coastal areas and the loss of identity that comes with marginalisation of access to fishing. This results in people being unable to fulfil their cultural responsibilities. This issue cannot be addressed in the Rock Lobster FMS in isolation. However, the issue is relevant to the commercial sector generally in that Indigenous fishers argue that they would prefer to be regarded as a distinct fishing sector which recognises the rights of Indigenous people and respects their cultural traditions. Recognition of Indigenous fishers as a distinct management group could be accommodated within a sustainable fishery management strategy (in terms of total catch and in terms of protecting lobster habitat). Recognition of a separate category of Indigenous fisher may also reduce the workload of compliance enforcement, and cold be expected to have significant benefits for the Aboriginal community. These benefits relate both to capacity to deliver cultural obligations within the community and the reduction of strains on communities managing high levels of unemployment, fines and jail sentences.

9.1.1 Protocols to Reduce Impacts to Aboriginal Cultural Heritage Sites

While the risk which commercial rock lobster fishing poses to cultural heritage sites and places is considered to be low, the extent of the risk will vary from location to location. The definition of the risk for an individual location will depend heavily on the availability of local knowledge (eg provided by discussions with local Aboriginal people and local NPWS officers).

Where the potential for an impact on cultural heritage is known to exist, it is important that this potential is addressed by liaison and management actions at the local level. This will ensure compliance with the requirements of the NPW Act, and will also enhance co-operation and understanding of cultural concerns. An example is the presence of Aboriginal cultural heritage material at the boat ramp at Arrawarra. This ramp is also adjacent to a stone structure considered to be an Aboriginal fish trap.

Several management actions are proposed to ensure that risks to cultural heritage is minimised. These include:

- consultation with local Aboriginal community representatives in relation to any proposed commercial fishery facility that would be located on a shoreline. This would include maintenance of existing ramps, new launching ramps and regional boat storage or maintenance sites. In general, such facilities will require separate environmental assessment and development consent including assessment of potential impacts on Aboriginal cultural heritage. Often these facilities are used by the fishing community generally, rather than by only operators in one commercial sector, and the key requirement is that consultation occurs;

- preparation of cultural awareness information for holders of rock lobster endorsements;

- ongoing consultation with local Aboriginal communities about developments in the commercial sector. This will occur, for instance, through Aboriginal representation on regional management advisory committees (MACs). NSW fisheries should consider actions to encourage Indigenous people to participate in MACs, which currently have a very low level of Indigenous participation. Actions to consider include allowing additional supporting representatives, allowing alternative representatives, training and capacity building in committee processes, assistance with dissemination of information from the MACs to Indigenous communities (individuals and groups); and

- inclusion of clauses to be aware of and protect Aboriginal cultural heritage within the Rock Lobster Code of Conduct. For example, the Ocean Haul Code of Conduct, while not specifically identifying cultural heritage, states that ‘Endorsed fishers will comply

with local Council and NPWS bylaws' and 'Endorsed fishers will use local Council or NPWS approved access points'.

In addition to these participation issues, two areas would benefit from further research and consultation and the information arising from these studies would greatly enhance the certainty that risks are being effectively managed.

The first key issue for further research is to obtain more information about traditional cultural fishing practices in all regions of the NSW coast. This should include fishing practices, fishing purpose, participation, locations, links to totems, places and other objects of value to local Aboriginal communities. It is important that any special characteristics of Indigenous fishing practices are documented and also made more widely available – to illustrate a particular set of community cultural values and the long standing connections between Aboriginal people and sea country. It is critical that the concept of Indigenous fishing is more widely understood, if any progress is to be made towards recognising Indigenous fishers as a specific group with specific rights.

The second issue is to further explore measures to encourage and maintain Aboriginal participation in the commercial sector, including the Rock Lobster fishery. It should not be anticipated that this issue can be resolved through the Rock Lobster FMS alone. However, Rock Lobster fishers and the Indigenous community should both participate in discussions about potential changes to the *Fisheries Management Act* and the potential introduction of affirmative action programs to enhance Indigenous capacity to enjoy their rights to economic independence.

The implementation and review of the Rock Lobster FMS, in association with the Indigenous Fisheries Strategy, is likely to have some benefits for Indigenous stakeholders.

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PART 2

11.0 HISTORIC HERITAGE

This part of the assessment addresses the issues identified in Part B 5(e) and Part E 3(c) of the EIS Guidelines for the Rock Lobster Fishery, issued by DIPNR in February 2003 (see **Section 1.4**).

The key issue arising from these requirements is an assessment of the relative risks presented to historic heritage sites and values (but principally shipwreck sites) by the current management strategies for the rock lobster fishery and by the proposed management of the fishery.

The activities associated with diving for and trapping rock lobster have a low potential to have an impact on cultural heritage values. In broad terms, the potential risks to historic heritage derive from direct impacts by vessels or traps on shipwrecks.

As noted in the DIPNR Director's Requirements, risk comprises a combination of probability and consequence. Risk assessment concepts and methods are defined in Australian Standard (AS) 4360:1990. Risk assessment processes can vary from qualitative preliminary considerations which use broad consequences and likelihoods to give an understanding of comparative risk, to highly quantified assessments that provide detailed ranking of the risks associated with all aspects of a proposal or operation. For the purposes of this assessment, detailed quantification and ranking of risks is not considered necessary and risk has been considered in qualitative terms.

11.1 STRUCTURE OF THIS ASSESSMENT

The assessment reports the results of a review of the historic heritage that is located off the southern NSW coastline. The review of historic heritage has defined those elements of the resource that are, or appear to be, located in such a position that either rock lobster fishing commercial operation might have some impact on an element or vice versa.

For the purposes of this report, historic heritage has been confined to the transport context having regard to the location of the study area. It is considered unlikely that other types of historic heritage (buildings, wharves etc) will have any interaction with the rock lobster fishery (undertaken in the inter tidal zone). The transport context is specifically represented in the record of shipwrecks.

This assessment therefore addresses shipwrecks that have been recorded in offshore NSW and Australian waters. It is heavily based on data contained in the 'Maritime Heritage Online – NSW' database (the database), which is maintained by the NSW Heritage Office. Only a sample of the information from the database has been analysed, for the waters off the coastlines of the Northern Rivers, Mid North Coast, Illawarra and South East regions. These areas have a strong maritime history and high concentration of offshore shipwrecks and are recognised rock lobster fishing grounds. The analysis that is presented demonstrates that shipwrecks are common right along the NSW coast in waters used by rock lobster fishers.

Section 11.2 of the assessment identifies the sources of information that have been used to provide guidance on the nature and location of shipwrecks in NSW coastal waters. This section also reviews the statutory controls that must be taken into account by fishery managers where there is potential for trawling activities to interact with shipwreck sites.

Section 11.4 of the assessment discusses the results of data base search, with particular reference to the accuracy and reliability of entries. This section also provides information about the concept of significance. The significance of a site is an important factor when considering the risks associated with the interaction of the fishery and the cultural heritage resource.

Sections 11.5 and **11.6** reviews the objectives and actions that are identified in the draft Fishery Management Strategy, and considers whether these actions adequately reduce or manage the potential risks to heritage values.

11.2 METHOD – DATA COMPILATION AND ASSESSMENT

For this component of the study, the sources of data were the database with additional source material obtained from:

- *The Register of British Shipping;*
- Annual reports of government departments, particularly in the latter quarter of the 19th Century;
- The Register of the National Estate, maintained by Environment Australia;
- The (NSW) State Heritage Register, maintained by the NSW Heritage Office;
- The (NSW) State Heritage Inventory, maintained by the NSW Heritage Office;
- *Bar Dangerous: A Maritime History of Newcastle* (Callan 1986) and *Bar Safe* (Callan 1994);
- Index of shipwrecks on the NSW Coast Between the Hawkesbury and Manning Rivers, 1788-1970 (Fletcher nd);
- *Australian Shipwrecks* (Loney 1980);
- *Wrecks on the New South Wales Coast* (Loney 1993);
- *Shipwreck Atlas of New South Wales* (NSW Heritage Office 1996);
- *Centenary: NSW Steamship Wrecks* (Parsons 1995);
- *Scuttled and Abandoned Ships in Australian Waters* (Parsons & Plunkett 1998);
- Navigational charts of the coastline and estuaries; and
- Information from statewide and local newspapers.

The sources of data are collectively referred to as ‘the marine archaeological record’.

Search of the marine archaeological record indicated that hundreds of shipwrecks have been recorded along the NSW coastline. One of the difficulties posed by the database, and by the marine archaeological record generally, was that the location of many shipwrecks could not be specified with any degree of accuracy, particularly regarding shipwrecks of the 19th Century. The judgment involved in differentiating offshore from onshore and estuarine shipwrecks was guided by the following criteria:

1. Detail of the geographical location of the wreck and/or precision in description of geographical features relevant to the wreck. For example, while a wreck described as located east of Green Cape is relatively definitive, one that refers to the wreck location as being simply 'Port Stephens' may refer to the estuary, or offshore or inshore but a reference to 'Hannah ([sic: Anna] Bay' will probably place the wreck in inshore waters.

2. The nature of the vessel's voyage, eg international, inter-colonial, coastal intra-state, or port service. Thus, a vessel described only as having been wrecked 'east of Green Cape' in transit from Clarence River to Melbourne with sawn hardwood will have been unlikely to have been inshore at that stage of the voyage.

3. The circumstances of the loss, e.g. navigation error, failure of equipment, condition of wind and/or weather. The examples of such causes are boundless and need to be read in conjunction with criteria 1 and 2 above.

Greater precision in describing the disposition of shipwrecks might only be achieved by an exhaustive research of primary sources and is not considered necessary at this stage.

Appendix 2 tabulates the shipwrecks that are recorded in the marine archaeological record in the regions studied. Land based sites noted in the Register of the National Estate are listed in **Appendix 3**.

11.3 STATUTORY FRAMEWORK

This section outlines the historic heritage protection that is required by State, Federal and local legislation and indicates specific statutory constraints that may affect proper management of heritage resources in the context of the use of NSW offshore waters for commercial fishing.

The seventh column, headed 'Protection', in the data base presented in **Appendix 2**, indicates against each shipwreck recorded, the level at which protection is/or is not afforded by Commonwealth or State legislation. The level of protection is explained in **Sections 11.3.1** and **11.3.2**.

11.3.1 National Constraints

Apart from general heritage and planning legislation at Commonwealth and State levels, shipwrecks may be protected under the *Historic Shipwrecks Act* 1976. The Act applies within Commonwealth waters and, upon the declaration by a State that the Commonwealth Act so applies, to the waters of a State. New South Wales has made such a declaration. The seventh column of **Appendix 2** indicates to which shipwrecks the *Historic Shipwrecks Act* 1976 applies**.** The *Historic Shipwrecks Act*, s4A, sets out the base criteria for consideration of a shipwreck as historic as being that the shipwreck be:

(a) situated in Australian waters, or waters above the continental shelf of Australia, adjacent to the coast of a Territory; and

(b) at least 75 years old.

The Act further provides that:

- the Minister may declare historic the remains of disturbed or fragmented shipwrecks and artefacts related to shipwrecks (s4A(5), –(6), –(7));

- whether or not within the base criteria, the Minister may declare historic individual shipwrecks, the individual remains of disturbed or fragmented shipwrecks and individual artefacts related to shipwrecks (s5);

- whether or not within the base criteria, the Minister may make a provisional declaration of a shipwreck or of artefacts associated with a shipwreck pending determination (s6);

- the Minister may declare a 'protected zone' not exceeding 200 hectares as the curtilage of a shipwreck (s7);

- upon publication in the Gazette of a notice declaration a shipwreck and/or site and/or article historic, a person holding an artefact related to the declaration must give it to the Minister (s9) and the minister is empowered to demand the surrender of such an article by notice (s10);

- the Minister may give directions as to the custody of material the subject of declaration (s11);

- it is an offence to destroy, damage, disturb or interfere with an historic shipwreck or artefact or to attempt to dispose of any material to which a declaration applies (s13);

- it is an offence to enter a protected zone with tools, explosives, equipment for diving and/or conducting any prohibited activities; to trawl, dive or undertake any other underwater activity; or to moor (s14);

- the Minister is empowered to issue permits to allow the exploration or recovery of a shipwreck or artefacts associated with a shipwreck (s15); and

- any person discovering a shipwreck or artefacts from a shipwreck must report the find to the Minister (s17).

The Act also provides penalties for offenders against its provisions.

11.3.2 State Constraints

The seventh column of **Appendix 2** indicates shipwrecks that are listed on the NSW State heritage registers. The requirements of the (NSW) *Heritage Act* 1977 must therefore be taken into account by any management planning that affects those resources. The *Heritage Act* established measures for the protection of heritage resources. Heritage sensitivity may be indicated by historical research and/or by various on-site archaeological surface surveys. The basic unit for the assessment of heritage significance pursuant to the *Heritage Act* is the 'relic'. The *Heritage Act* defines a relic as:

> *Any deposit, object or material evidence –*
>
> *(a) which relates to the settlement of the area that comprises NSW, not being Aboriginal settlements; and*
>
> *(b) which is 50 or more years old.*

The Act further provides that:

- sites and relics in a range of descriptions are protected from disturbance and damage (ss. 24-34, 35A-55B, 130, 136-7, 139) and ss. 47-52 inclusive apply specifically to 'Protection of Historic Shipwrecks';
- relics may be the subject of conservation orders (ss. 26(2)(b), 35A,36,37, 44, 48);
- relics in shipwrecks are protected in situ on all sites (ss. 26(2)(a), 35A36, 37, 44, 51);
- if a site or relic is listed on the NSW Heritage Register no activity may proceed that will disturb, or for the discovery of, relics except with an Excavation Permit (ss. 57, 60);
- no activity may proceed that will disturb, or for the discovery of, relics (not subject to a conservation instrument) except with an Excavation Permit (ss. 47, 139, 140);
- location of relics must be reported to the Heritage Council (s. 146); and
- recovery of relics from excavation must be reported to the Heritage Council (s. 146A).

The Act provides penalties for offenders against its provisions (s. 157).

11.4 RESULTS

It is clear from **Appendix 2** that it is difficult to pinpoint the locations of these wrecks, or the amount of wreckage that may still remain, with any certainty. For many wrecks, only limited, broadly descriptive information is available, and the extent to which parts of the wreck may be exposed to snagging on ropes, traps, etc is difficult to determine. The condition of a shipwreck will depend on the nature of the vessel (size and type of construction), depth of water, the circumstances that caused the wreck, subsequent disturbance, and marine processes such as waves, currents and sediment transport. For many shipwrecks, little of this information is known directly.

As discussed in **Sections 11.3.1 and 11.3.2** and noted in **Appendix 2**, almost all the shipwrecks along the NSW coast are protected by either the Commonwealth heritage legislation (*Historic Shipwrecks Act*) or by the *NSW Heritage Act*.

11.4.1 The Concept of Significance

The extent to which an item of historic heritage may be a constraint to the operation of the Rock Lobster fishery is strongly influenced by the assessment of its significance. This section explains the concept of cultural significance and the following section notes the significance that has been attributed to various heritage resources. The protection afforded by Commonwealth and State heritage and planning legislation is also noted.

The *Heritage Act* 1977 (NSW) defines items of environmental heritage to be:

> *Those buildings, works, relics or places of historic, scientific, cultural, social, archaeological, architectural, natural or aesthetic significance for the state of New South Wales.*

In the context of this report, significance is the measure of the value and importance of elements of the archaeological record to cultural heritage. While the fabric of the archaeological record is the subject of the assessment of heritage significance, the assessment itself is conditioned by the environmental and historic context of the site. Furthermore, an evaluation of heritage significance is not static but evolutionary, as a function of evolving community perspectives and cultural values.

The Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (the Burra Charter) classifies the *nature* of cultural significance in terms of historical, aesthetic, scientific and social criteria. The implications of these classifications are as follows:

- Aesthetic significance addresses the scenic and architectural values of an item and/or the creative achievement that it evidences. Thus, an item achieves aesthetic significance if it has visual or sensory appeal and/or landmark qualities and/or creative or technical excellence.

- Historical significance considers the evolutionary or associative qualities of an item with aesthetics, science and society, identifying significance in the connection between an item and cultural development and change.

- Scientific significance involves the evaluation of an item in technical and/or research terms, considering the archaeological, industrial, educational and/or research potential. Within this classification, items have significance value in terms of their ability to contribute to the better understanding of cultural history or environment and their ability to communicate, particularly to a broad audience within a community.

- Social significance is perhaps the most overtly evolutionary of all classifications in that it rests upon the contemporary community appreciation of the cultural record. Evaluation within this classification depends upon the social spiritual or cultural relationship of the item with a recognisable community. (Marquis-Kyle & Walker 1992, 21-23).

Historical study looks to the documentary record of human development and achievement, as interpreted by the authors of the documents that comprise the primary and secondary resources. In parallel, historical archaeology is concerned not only with the documentary record but also with material evidence. The archaeological record may provide information not available from historical sources. An archaeological study focuses on the identification and interpretation of material evidence to explain how and where people lived, what they did and the events that influenced their lives. Considerations material to archaeological study include:

- whether a site, or the fabric contained within a site, contributes knowledge or has the potential to do so (perhaps, whether the archaeological record validates or contradicts the historical). If a site can contribute knowledge within the *nature* criteria above, the availability of comparative sites and the extent of the historical record should be considered in assessing the strategies that are appropriate for the management of the site; and

- the level at which material evidence contributes knowledge in terms of current research themes in historical archaeology and related disciplines.

The 'level of contribution' is thus a critical determinant and is assessed according to the same protocols as is cultural significance, that is, in terms of representativeness/rarity and local/regional/state associations.

In relation to "research themes and historical archaeology and related disciplines", the direction of historical archaeology implies, and is conditioned by, consideration of historic, scientific, cultural, social, architectural, aesthetic and natural values. It is a convenient method of classifying the values of material evidence, within the Nature criteria above, in terms of the following broad model:

- *Historical* value lies at the root of many of the other values by providing a temporal context and continuity, thereby providing an integrating medium for the assessment of social, cultural and archaeological significance;

- *Scientific* value depends upon the ability of an item to provide knowledge contributing to research in a particular subject or a range of different subjects;

- *Cultural* value attaches to artefacts which embody or reflect the beliefs, customs and values of a society or a component of a society and/or have the potential to contribute to an understanding of the nature and process of change and its motivation;

- *Social* value derives from the way people work(ed) and live(d) and from an ability to understand the nature, process of change and its motivation. Social significance is closely related to cultural significance, in its concern with the practicalities of socio-cultural identification;

- *Architectural* value depends on considerations of technical design (architectural style, age, layout, interior design and detail), the personal consideration (i.e. the work of a particular architect, engineer, designer or builder) and technical achievement (construction material, construction technique, finish);

- *Aesthetic* value addresses the manner in which an item comprises or represents creative achievement, epitomising or challenging accepted concepts or standards; and

- *Natural* value attaches to items that either support or manifest existing natural processes and/or systems or which provide insights into natural processes and/or systems.

Within this general framework, the assessment of significance is made in the light of two distinct measures: the degree of significance and the level of significance.

- The *degree of significance* of heritage material is evaluated as being either representative or *rare*. *Representative* items are those which are fine distinctive, characteristic and/or illustrative examples of an important class of significant item or a significant aspect of the environment. *Rare* items are those which singularly represent or represent an endangered, discrete, or uncommon aspect of, history or cultural environment. By derivation, items considered within the context of broader investigation as being insignificant may be dismissed by an evaluation of *little or none.*

- The *level of significance* of heritage material is assessable in five classifications depending upon the breadth of its identifiable contemporary community or historical or geographical context. Thus –

  - a *local* classification recognises an item as being significant within a local historical/geographical context or to an identifiable contemporary local community;

- a *regional* level of significance recognises the item as significant within a similar regional historical/geographical context or identifiable contemporary regional community; and

- a *state* level of significance identifies that item as significant in a statewide historical/geographical context or to an identifiable contemporary statewide community (Heritage Office 1996, 4-7).

and by derivation:

- a *national* level of significance attaches to an item that is significant in a nationwide historical/geographical context or to an identifiable contemporary nationwide community; and

- an *international* level of significance has the appropriate connection to international context or the international community.

11.5 RISKS TO HISTORIC HERITAGE VALUES

11.5.1 The Interaction of Commercial Fishing with Historic Heritage Resources

The physical and spatial presence of heritage resources along the ocean floor is likely to have only a marginal effect on commercial fishing operations. The navigation of boats may have an impact on heritage items and vice versa; the traps utilised by rock lobster fishers may impact heritage items and vice versa; and divers targeting rock lobster have the potential to disturb underwater relics. Such relics are by their nature fragile while their *in situ* preservation is most frequently either precarious or on/or within a horizon of fine silt or sand. Disturbance of a relic in either of these environments can not only modify, damage or destroy a relic but alternatively or concurrently modify the environment in which it is located by moving, exposing or burying the relic.

11.5.2 Risk Considerations

Guidance on concepts for a qualitative risk assessment is provided in AS 4360. **Tables 11.1** and **11.2** summarise qualitative descriptions of likelihood and consequence. These concepts have been used in considering potential risks to historic heritage associated with the operation of the rock lobster fishery. It is stressed that the assessment presented here is preliminary and qualitative in scope.

Table 11.1 - Qualitative Description of Likelihood

Almost certain	May occur at least several times a year
Likely	May arise about once a year
Possible	May arise at least once in a ten year period
Unlikely	Likely to occur at some time during the next ten to twenty five years
Rare	Very unlikely to occur within the next twenty five years

Table 11.2 – Indicative Consequence Scales

Catastrophic	Long term harm – significant, extensive and irreparable damage to highly valued structures or locations of cultural significance
Major	Major damage to highly valued locations or structures of cultural significance
Moderate	Damage to valued structures or places of cultural significance (not likely to be permanent or irreparable)
Minor	Minor damage to places or structures of cultural value
Insignificant	Negligible damage to structures or locations of cultural value

Even with a qualitative risk assessment, it is possible to grade the risk that results, in terms of the urgency of action to reduce risk to the environment, cultural places or safety. Descriptors and indicative responses are noted in **Table 11.3**.

Table 11.3 - Qualitative Risk Descriptors

Extreme risk	Immediate action required to reduce risk
High	Urgent action required to reduce risk
Medium	Manage risk by monitoring or improving procedural guidelines etc
Low	Manage by routine procedures, unlikely to need specific additional resources

Table 11.4 presents consideration of two aspects of rock lobster fishing that have the potential to interact with historic heritage places (shipwrecks), and provides a preliminary evaluation of risks to historic heritage values. In an assessment conducted strictly in accordance with the National Standard, this assessment process would be conducted by a panel of people involved in the activities in question. The use of a panel ensures that all aspects of activities and risks are taken into consideration. For this process, which is intended only to provide an indication of the scope of risks to historic heritage items/sites, the assessment has referred to the data base information rather than an expert panel.

Table 11.4 - Qualitative Risk Assessment Considerations

Aspect	Likelihood	Consequence	Risk
Boat navigation – collision with shipwrecks	Unlikely to rare	Moderate	Low
Entanglement and impact of ropes and traps in shipwrecks	Possible	Moderate	Low to medium

The risk presented to historic shipwrecks by the activities of the rock lobster fishery is generally low, extending to medium for snagging in some cases. In this context, the types of response that would be appropriate in the Fishery Management Strategy relate to procedures for monitoring (for instance locations, frequency and consequence) and reporting incidents.

The draft Fishery Management Strategy requires that fishers respond to new information about heritage resources. Although the risk that rock lobster activities will detrimentally impact on historic heritage resources is generally low, the operation of the rock lobster fishery does present an opportunity to further reduce risks in the long term by contributing to improved spatial data about the locations of shipwrecks.

A key constraint to the accurate assessment of risk is that details about the locations and condition of many shipwrecks are poor. Rock Lobster fishers may from time to time encounter shipwreck remains on the sea floor. When this occurs, fishers could report location (GPS co-ordinates, water depth) and any other information they detect about the structure to the NSW Heritage Office and NSW Fisheries. This information will add to the data base, so that fishers can be alerted about potential obstacles on the sea floor (with heritage and safety implications), and the Heritage Office will have more accurate information about the location of shipwrecks.

Implementation of routine reporting of potential shipwreck sites to the Heritage Office will contribute to the demonstration of due diligence (by showing that fishers are aware of potential risks and are taking steps to reduce them), as well as refining the available information.

A second appropriate management response is to provide licence holders with basic information about their responsibilities under the *Heritage Act*, including the provisions relating to damage to structures, exclusion zones and collection of any historic artefacts that may be observed.

Note that the *Heritage Act* requires notification of the Heritage Office if a relic is found (or suspected) and also requires that relics not be disturbed without obtaining a permit. In rare cases, this would mean that rock lobster fishing in the vicinity of a structure that has been reported to the Heritage Office should cease until the nature and significance of a relic has been investigated and confirmed.

11.6 RECOMMENDATIONS

These recommendations are made on the basis of:

- the review of the heritage assets in the area of operation of the Rock Lobster fishery contained in this report in **Appendix 2**;

- the limited descriptions of the fabric and the precise locations of some of the material evidence offshore relating to shipwrecks;
- synthesis of the archaeological and historical contexts that is available from the review;
- the appreciation of the significance of the heritage resources; and
- consideration of the management issues and potential impacts of the proposed use.

It is recommended that in general in connection with the operation of the commercial rock lobster fishery, the attention of all authorities and agencies has been, and that of all commercial fishers, their contractors and employees will be, directed to:

a) the provisions of the Commonwealth *Historic Shipwrecks Act* 1976 and in particular to:

   i) the definition of shipwreck under that Act (s.4A);

   ii) the provisions of ss.4A, 5, 7, 9, 10, 11, 13, 14, 15 and 17 of that Act;

b) the provisions of the NSW *Heritage Act* 1977:

   i) the definition of relic under the Act (s.4);

   ii) the provisions of sections 24-34, 35A-55B, 57, 60, 130, 136-7, 139 and 140 of that Act;

c) submarine shipwrecks and/or relics may be exposed or covered from time to time as the result of current fluctuations and movement of ocean floor sediments. If an item suspected of being part of an historic shipwreck or other shipwreck becomes visible as a result of water conditions or inadvertent disturbance it should be reported in the first instance to the Minister pursuant to the *Historic Shipwrecks Act* 1976 and/or to the NSW Heritage Office pursuant to the *Heritage Act* 1977;

d) if any activity is proposed that will, or may, cause the disturbance of a shipwreck/relic that is registered on the SHR, an application should be made pursuant to s.57 of the *Heritage Act* for issue of an excavation permit pursuant to s.60 of the Act;

e) if any activity is proposed that will, or may, cause the disturbance of a shipwreck/relic that is not registered on the SHR, an application should be made pursuant to s.139 of the *Heritage Act* for issue of an excavation permit pursuant to s.140 of the Act;

f) the basic requirements that, in relation to any commercial fishing activity, if:

   - a shipwreck or relic is suspected or if there are reasonable grounds to suspect a relic that is likely to be disturbed, damaged or destroyed by commercial fishing activity; and/or

   - any relic is discovered in the course of commercial fishing activity that will be disturbed, damaged or destroyed by further such activity;

   the NSW Heritage Office must be informed forthwith and commercial fishing activities suspended that might have the effect of disturbing, damaging or destroying such relic, until the requirements of the Heritage Office have been satisfied.

12.0 REFERENCES

Annual reports of government departments, particularly in the latter quarter of the 19th Century.

Callan (1994). *Bar Dangerous: A Maritime History of Newcastle* (Callan 1986) and *Bar Safe*

Fletcher (nd). Index of shipwrecks on the NSW Coast between the Hawkesbury and Manning Rivers, 1788-1970

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Parsons & Plunkett (1998). *Scuttled and Abandoned Ships in Australian Waters*

Register of the National Estate, maintained by Environment Australia

Standards Association of Australia, Australian and New Zealand Standard AS/NZS/4360: Risk Management. 1999

The Register of British Shipping

APPENDIX 1

Information Brochure

Indigenous Communities and Commercial Rock Lobster Fishing in NSW

An Invitation

NSW Fisheries and Umwelt Australia Pty Limited (Umwelt) invite you to contribute to the development of a plan for sustainable Commercial Rock Lobster Fishing.

Meetings to discuss Rock Lobster Fishing will be held at the following venues. The aim of the meetings will be to establish how Indigenous people are involved or affected by Commercial Rock Lobster Fishing and how Indigenous people would like this Fishery to be managed.

Location	Date and Time
Darkinjung Local Aboriginal Land Council Shop 3 61 Howarth Street Wyong NSW 2259	Thursday, 18 March 2004 10:00 am
Central Coast Regional Aboriginal Land Council Branch Office Top floor Corner Belgrave and John Streets (entrance on John Street) Kempsey NSW 2440	Thursday, 25 March 2004 10:00 am
Ngulingah Local Aboriginal Land Council 53 Conway Street South Lismore NSW 2480	Friday, 26 March 2004 10:00 am
Batemans Bay Local Aboriginal Land Council Unit 2 34D Orient Street Batemans Bay NSW 2536	Wednesday, 31 March 2004 10:00 am

Morning tea and lunch will be provided.

Please contact Pam Dean-Jones if you would like to attend:

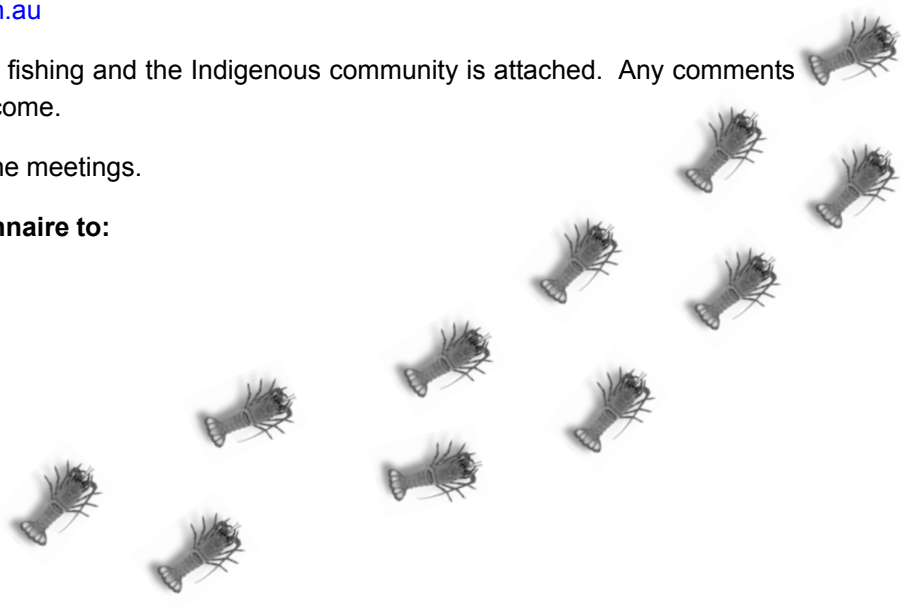
Phone 02 49505322
Fax 02 49505737
Email pdeanjones@umwelt.com.au

A questionnaire regarding rock lobster fishing and the Indigenous community is attached. Any comments you might like to contribute will be welcome.

We will talk about these questions at the meetings.

Please send the completed questionnaire to:

Pam Dean-Jones
Umwelt Australia Pty Limited
PO Box 838
Toronto NSW 2283



Background

NSW Fisheries has begun the preparation of a Fishery Management Strategy and Environmental Impact Statement (EIS) for the Commercial Rock Lobster Fishery.

The aim of the EIS is to evaluate how the proposed fishing management strategy will interact with the environment and affect people who may have an interest in rock lobster fishing.

The EIS helps to determine whether the fishery is sustainable in terms of fish stocks, income and employment, and social and cultural values. Potential impacts on or benefits for Indigenous communities are an important consideration in the assessment process.

The Rock Lobster Fishery

The Commercial Rock Lobster Fishery extends from the Queensland border to the Victorian border and includes all waters under the jurisdiction of NSW Government to around 80 nautical miles from the coast.

The eastern rock lobster (*Jasus verreauxi*) is the main species harvested. Other species that are occasionally caught are the southern rock lobster (*Jasus edwardsii*) and the tropical rock lobster (*Panulirus longipes* and *Panularis ornatus*).

The rock lobster fishery is characterised by inshore and offshore components. The inshore component utilises small beehive or square traps in waters to about 20 metres. Offshore fishers use larger traps and catch larger lobsters. The offshore fishery is quite seasonal because of lobster migratory patterns and because offshore waters are subject to strong currents at certain times of the year.

Industry Representatives

The Lobster Management Advisory Committee (LOBMAC) provides advice about the lobster fishery to the Minister for Fisheries. It comprises five elected industry representatives (including the Chairperson), a recreational representative, a conservation representative, a NSW Fisheries representative and a vacant Indigenous position.

Management System and Regulations

Management strategies to control commercial rock lobster fishing have evolved since 1902 when the first legal carapace length on the eastern rock lobster was set at 104 mm. Today the commercial lobster fishery is a share management fishery. There are 161 shareholders in the fishery at present (January 2004) and most hold endorsements in other NSW commercial fisheries. The fishing is controlled through a quota management system.

It is an offence:

- to fish for lobsters in Marine Parks and some Aquatic Reserves;
- to retain berried (with egg) lobsters;
- to remove eggs from a lobster;
- to retain lobsters smaller than 10.4 cm;
- to retain lobsters larger than 20 cm;
- for non-endorsed commercial fishers to be in possession of rock lobsters aboard their licensed vessels;
- to take lobsters using Scuba or hookah apparatus or take lobsters by any other method than hand picking;
- for recreational fishers to use more than one trap; and
- for recreational fishers to exceed the bag and possession limit of two rock lobsters.

Indigenous people may obtain a permit from the Minister of Fisheries, when certain circumstances exist, which allows them to meet traditional obligations with regard to fishing. This may include exceeding the recreational bag limit of two rock lobsters.

APPENDIX 2

Shipwrecks recorded in the Modern Archaeological Record in the Regions Studied

Shipwrecks recorded in the Marine Archaeological Record in the Regions Studied

The database hereunder has been prepared from source(s) that sometimes provide incomplete information. The database seeks to indicate sites that lie within the Ocean Trawl, Trap and Line Fishery however specification of the location of some wrecks has required subjective judgment of the site of the event based on evidence of the activities of a vessel at the time of loss, the nature of its voyage and on the nature of rescue and reporting of the loss. Where shown below, "HSA, Federal" in the Protection" column indicates a wreck subject to the Historic Shipwrecks Act 1976, Commonwealth legislation: "NSW HA, State" indicates a wreck subject to the (NSW) Heritage Act 1977.

Region	Vessel: Type	Date Lost	Location	How Lost	Detail	Protection
Northern Rivers	Agnes: Wood Carvel Schooner	12/3/1890	6 miles North of Brunswick River Heads	Lost sails, foundered in gale that claimed Anne Moore, Bannockburn, Fawn, Hastings, Spurwing, Jessie Matilda and Mallagate	80 tons, 23.62x6.156m, Built 1875 Brisbane Water, Voyage/cargo unknown, 8 lost	HSA, Federal
Northern Rivers	Alberta: Steel Steamer, Screw	19/10/1890	Sutherland Reef off Tweed Heads, Lat28.253783 Long153.592217	Aground on reef, pilot error.	3398 tonnes gross, 103.6x12.86m, built 1888 Newcastle UK, voyage Japan-Melbourne, cargo coal, none lost	HSA, Federal
Northern Rivers	Alert: Wooden Schooner	_/6/1854	L-spit of Richmond River	Unknown	66 tonnes, 18.8x4.5m, built 1851 Pyrmont, voyage/cargo unknown	HSA, Federal
Northern Rivers	Anne Moore: Wooden Brigantine	3/7/1889	1 mile south of Sandon River, Solitary Islands	Aground on Anne Moore reef in gale that claimed Agnes, Bannockburn, Fawn, Hastings, Spurwing, Jessie Matilda and Mallagate (in Northern Rivers). Vessel broke up and portion of the hull later seen floating between Ballina and Byron Bay, final resting place unknown.	90 tonnes, 26.2x6.7m, built 1865, Table Cape, voyage Newcastle to Richmond River, cargo coal	HSA, Federal
Northern Rivers	Annie C Lynn: Wooden Schooner	_/_/1891	Rocks off North Head of Brunswick River	Struck rocks	54 tonnes, 21.8x5.6m, built 1876 Stockton, voyage Byron Bay-Brunswick River, cargo unknown	HSA, Federal
Northern Rivers	Annie D: Wooden Brigantine	_/7/1868 (last seen 11/7/1868)	Off Richmond River	Stranded in gale	76 tonnes, 24.99x5.882m, built 1868 Manning River, voyage to Richmond River, cargo alcohol and general cargo, nil lost.	HSA, Federal
Northern Rivers	Arrow: Wood Carvel Brigantine	3/7/1859	Tweed River bar	Foundered in easterly gale	124 tonnes, 24.14x6.52m, built unknown, voyage/cargo unknown, none lost	HSA, Federal
Northern Rivers	Atalanta: Schooner	28/2/1868	Outbound on Tweed River bar	Struck bar	Vessel details unknown, voyage from Tweed River, cargo cedar timber, none lost	HSA, Federal
Northern Rivers	Atalanta: Wooden Steamer, Paddle	_/_/1878-79	Off Clarence River	Unknown	21 tonnes, 23.9x3.2m, built 1867 Balmain, voyage/cargo unknown	HSA, Federal
Northern Rivers	Beaver: Wooden Dropsail Schooner	23/9/1851	Solitary Islands Group	Struck shore or rocks when wind failed	77 tonnes, 20.3x5.03m, built 1849 Clarence River, voyage Sydney-Moreton Bay, cargo unknown	HSA, Federal
Northern Rivers	Bramble: Wooden Schooner	28/9/1850	6 miles south of Long Point, between Richmond and Clarence River mouths	Foundered in squal	53 tonnes, 17.6x4.9m, built 1840 Moruya, voyage Richmond River-Sydney, cargo cedar timber, more than 2 lost	HSA, Federal
Northern Rivers	Cahors: Steel Steamer, Screw	10/6/1885	Evans Reef off Evans Head	Struck reef	1254 tonnes gross, 76.4x9.6m, built 1883 Fife UK, voyage Sydney-Brisbane with passengers and general cargo, 1 lost	HSA, Federal
Northern Rivers	Callender: Wooden Brig	6/6/1871	Rocks north of the Richmond River Entrance	Wind failed	139 tonnes, 27.4x7.8m, built 1846 Newport USA, voyage Melbourne-Richmond River, cargo unknown	HSA, Federal
Northern Rivers	City of Sydney: Wooden Brigantine	9/11/1868	North spit of Clarence River Heads	Struck North Spit	88 tonnes, 21.1x5.6m, built 1841 Sydney, voyage Clarence River-Geelong, cargo 1100 bags of maize	HSA, Federal
Northern Rivers	Clara: Ketch	_/_/1869	Between Richmond River and Tweed River	Lost, foundered?	40 tonnes, 19.5x4.937m, built 1867 Brisbane Water, voyage/cargo unknown	HSA, Federal
Northern Rivers	Clarence: Dredge	12/3/1890	Off Clarence River	Moored offshore during flood, broke moorings in gale	Displacement unknown, 31.39x8.534m, built 1877 place unknown, voyage Clarence River-Clarence River	HSA, Federal
Northern Rivers	Collector: Wooden Steamer, Screw	_/7/1887	Off Tweed River bar	Lost at sea, foundered?	24 tonnes, 17.6x3.4m, built 1866 Grafton, voyage/cargo unknown, apparently no loss of life	HSA, Federal
Northern Rivers	Comet: Wooden Schooner	30/3/1851	Northside of Tweed River entrance	Attempting to cross bar	34 tonnes, 14.5x4.2m, built 1843 Williams River, voyage/cargo unknown	HSA, Federal

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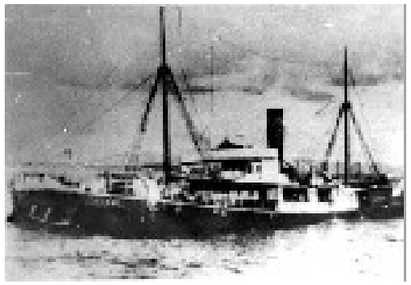
Region	Vessel: Type	Date Lost	Location	How Lost	Detail	Protection
Northern Rivers	Comet: Wooden Steamer, Screw	19/3/1890	Off Richmond at mouth	Struck sand spit	82 tonnes, 29.65x5.09m, built 1883 Stockton, voyage to Broadwater with empty molasses casks	HSA, Federal
Northern Rivers	Favourite: Iron Steamer, Screw	10/6/1896	Off the North Spit, Clarence River	Foundered	29 tonnes, 23.2x4.0m, built 1870 Pyrmont, voyage Clarence River-Clarence River, in ballast, fishing	HSA, Federal
Northern Rivers	Fido: Steel Steamer, Screw	19/07/1907	Fido Reef', near Cook Island, off lighthouse, Tweed Heads, Lat28.199217 Long153.590367	Struck reef	1433 tons, 70.53x10.696m, Built 1904 Tvdestrund Norway, Voyage Nauru-Sydney with phosphate and mail	HSA, Federal

Contemporary depiction of the wreck of ss Fido



Source: Maritime Heritage Online, NSW Heritage Office

Part of the residual wreck of ss Fido

The remains of the boiler of ss Fido

Northern Rivers	Frederick Davis: Wood Carvel Steamer, Screw	26/12/1908	In 6 fathoms off Bear Point Solitary Islands	Sprang a leak and sank at anchor	61 tonnes, 26.21x5.669m, built 1907 Coraki, voyage Ballina-Melbourne, cargo unknown, none lost	HSA, Federal
Northern Rivers	Friar's Craig:	_/9/1893	Near Clarence River	Lost at sea, foundered?	No details known, voyage Newcastle-Iquique, built West Coast South America, cargo unknown	HSA, Federal
Northern Rivers	Friendship: Wood Carvel Steamer, Screw	28/11/1912	Rocks at the end of Tweed River head	Unknown, presumably struck rocks	192 tonnes gross, 30.8x8.2m, built 1897 Brisbane Water, voyage from Tweed River, cargo tallow etc, no losses	HSA, Federal
Northern Rivers	Golden Fleece: Wooden Barquentine	_/4/1847	South Spit of Richmond River mouth	Drifted after wind failed	123 tonnes, 25.9x5.8m, built 1845 Sydney, voyage from Richmond River with 100,000 ft of cedar timber	HSA, Federal
Northern Rivers	Goodiron: Wooden Lighter	_/_/1895	Off entrance to Richmond River	Broke moorings	40 tonnes, 18.98x5.486m, built 1886 Balmain, voyage from Richmond River, cargo unknown, no losses	HSA, Federal
Northern Rivers	Helen Macgregor: Iron Steamer, Screw	_/_/1875 (probably 13-14/3/1875)	Reef off South Head, Clarence River	Struck reef	251 tonnes, 46.5x6.3m, built 1866 Whiteinch UK, voyage Grafton-Sydney with general cargo, passengers and prisoners, 8 lost (6 of 18 crew and 2 of 11 passengers)	HSA, Federal
Northern Rivers	Henry: Wood Carvel Brigantine	6/3/1861	North Spit Richmond River mouth	Drifted after wind failed	101 tonnes, 22.68x6.49m, built USA, voyage Ballina-Sydney with cedar timber	HSA, Federal
Northern Rivers	Hilander: Wood Carvel Brigantine	7/10/1872	North Spit of Richmond River Heads	Unknown	93 tonnes, 20.8x6m, built 1850 Tabishuifack near Brunswick Canada, voyage/cargo unknown	HSA, Federal
Northern Rivers	J and T Fenwick: Wooden Steamer, Screw	1/4/1883	Off entrance, Richmond River	Fouled towing hawser	26 tonnes, 17.9x4m, built 1871 Pyrmont, voyage Richmond River-Richmond River as tug	HSA, Federal
Northern Rivers	Jane: Wooden Schooner	_/7/1848	Tweed River or off Tweed River	Unknown	41 tonnes, 14.26x4.541m, built 1836 Manning River, voyage and cargo unknown, no losses	HSA, Federal
Northern Rivers	Jane: Wooden Schooner	_/_/1862	Richmond River or off Richmond River	Unknown	188 tonnes, 26.6x7.5m, built 1852 Cape Elizabeth (Maine) USA, voyage and cargo unknown, no losses	HSA, Federal
Northern Rivers	Jane Scott: Wooden Cutter	6/5/1849	Off Tweed River	Struck reef in SW gale, hull broke up half sinking north and half sinking south of the river mouth	36 tonnes, 14.6x4.3m, built 1842 Port Macquarie, voyage Tweed River-Sydney with cedar timber, no losses	HSA, Federal

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Northern Rivers	Jessie Matilda: Wooden Brigantine	21/7/1889	Evans Reef ~18 miles south of Ballina	Struck reef in the gale which caused the loss of the Agnes, Anne Moore, Bannockburn, Hawn, Hastings, Spurwing and Mallagate	88 tonnes, 26.4x6.3m, built 1877 Cape Hawk, voyage Sydney-Richmond River with general cargo, no losses	HSA, Federal
Northern Rivers	Kalara: Iron Steamer, Paddle	8/11/1886	2 miles off Point Danger, Tweed	Unknown	166 tonnes, 39.62x6.111m, built 1881 Brisbane, voyage Tweed River-Brisbane with passengers and general cargo, no losses	HSA, Federal
Northern Rivers	La Perouse: Wood Carvel Schooner	27/12/1878	Off Clarence River	Unknown	113 tonnes, 27.3x7.1m, built 1878 Jervis Bay, voyage Clarence River-Lyttelton, NZ, with ironbark girders, no losses	HSA, Federal
Northern Rivers	Liffy: Wood Carvel Brigantine	18/7/1898	Off North Head, Richmond River	Tow rope parted, struck rocks	102 tonnes, 29.32x6.705m, built 1885 Brisbane Water, voyage Wollongong-Richmond River with coal	HSA, Federal
Northern Rivers	Limerick: Steel Steamer, Screw	26/04/1943	35 km northeast of Cape Byron	Either torpedoed	8724 tonnes, 140.3x19.11m, built 1925 Port Glasgow UK, voyage/cargo unknown, 2 lost	Not protected
Northern Rivers	Lismore: Wood Carvel Schooner	1/11/1891	Off Clarence River	Collision with Eurimbla	181 tonnes, 30.57x7.01m, built 1878 Port Stephens, voyage Richmond River-Clarence River, cargo unknown, 2 lost	HSA, Federal
Northern Rivers	Mabel White: Wood Carvel Topsail Schooner	20/3/1894	~8 miles off Richmond River	Sprang a leak	84 tonnes, 24.84x6.278m, built 1881 Cape Hawk, voyage Newcastle-Townsville with coal, no losses	HSA, Federal
Northern Rivers	Madge Wildfire: Wooden Schooner	28/3/1851	Off Richmond River bar	Easterly gale	26 tonnes, 14.72x4.206m, built 1850 Broulee, voyage Richmond River-Richmond River, in ballast, 5 lost	HSA, Federal
Northern Rivers	Mary Ann: Wood Carvel Brigantine	13/1/1874	Off Clarence Head	Wind failed drifted onto northern spit	134 tonnes, 26.06x5.334m, built 1851 Sorel Canada, voyage Newcastle-Clarence River with coal, no losses	HSA, Federal
Northern Rivers	Mary Jane: Wood Carvel Schooner	_/7/1861	Between Sydney and Tweed River	Unknown	46 tonnes, 18.47x4.846m, built 1861 Bellinger River, voyage Tweed River-Sydney, cargo unknown	HSA, Federal
Northern Rivers	Matilda Ann: Wooden Schooner	6/5/1849	Off North Head, Richmond River	Wrecked in the gale that also wrecked the Jane Scott, Tweed, Louisa, Swift and capsized the Helen	48 tonnes, 18.11x4.3m, built 1847 Broulee, voyage/cargo unknown, no losses	HSA, Federal
Northern Rivers	Nautilus: Wooden Schooner	3/3/1844	Off Richmond River mouth	Wind failed drifted onto southern spit	43 tonnes, 14.17x4.27m, built 1837 Brisbane Water, voyage Richmond River-Sydney with cedar timber, unknown losses	NSW HA, State
Northern Rivers	No name: Launch	8/06/1938	Off Tweed Heads	Burnt	Unknown	NSW HA, State
Northern Rivers	Northumberland: Wooden Schooner	17/1/1845	South Spit of Richmond River entrance	Slow crew response	43 tonnes, 12.8x4.57m, built 1841 Hawkesbury River, voyage Sydney-Richmond River, cargo unknown	HSA, Federal
Northern Rivers	Panic of 66: Wooden Topsail Schooner	20/5/1870	Rocks off North Head of Tweed River	Wind failed, drifted onto rocks	52 tonnes, 19.96x6.573m, built 1866 Brisbane Water, voyage Sydney-Tweed River with flour and general cargo	HSA, Federal
Northern Rivers	Pioneer: Wood Carvel Ketch	13/1/1877	Rocks at the entrance of Tweed River	Wind changed	73 tonnes, 23.59x6.065m, built 1874 Manning River, voyage unknown, cargo general	HSA, Federal
Northern Rivers	Reliance: Wood Carvel Schooner	12/7/1887	East of Mt Warning	Sprang a leak	74 tonnes, 23.95x6.035m, built 1876 Macleay River, voyage Sydney-Normanton with general cargo	HSA, Federal
Northern Rivers	Restless: Wood Carvel Brig	24/8/1872	20 miles off North Solitary Island	Sprang leak in a gale	258 tonnes, 35.78x7.985m, built 1862 Maine USA, voyage Solomon Islands-Brisbane, cargo unknown	HSA, Federal
Northern Rivers	River Chief: Wooden Brig	25/11/1865	At or off Richmond River heads	Unknown	159 tonnes, 21.91x6.858m, built 1845 Murray River, voyage/cargo unknown	HSA, Federal
Northern Rivers	Rose: Wood Carvel Cutter	_/1/1847	Off Tweed Heads	Unknown	28 tonnes, 11.64x4.21m, built 1841 Brisbane Water, voyage/cargo unknown	HSA, Federal

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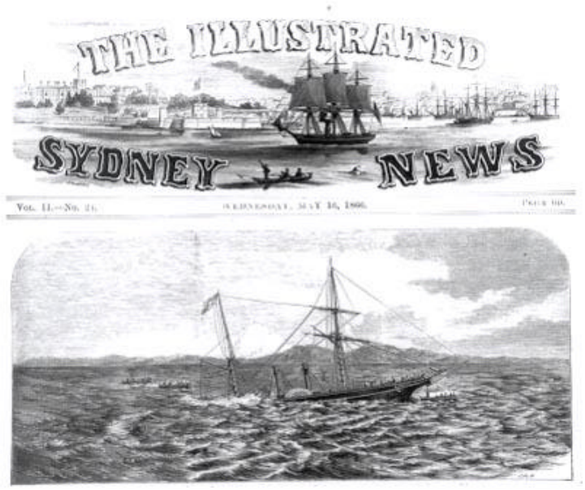
Northern Rivers	Samuel Merritt: Wood Carvel Barquentine	13/1/1877	Richmond River entrance	Struck north spit	259 tonnes, 39.47x8.473m, built 1854 Bath (Maine) USA, voyage unknown, in ballast	HSA, Federal
Northern Rivers	Sarah: Wooden Schooner	22/5/1848	Richmond River entrance	Wind failed, drifted onto rocks at North Head	50 tonnes, 20.73x4.54m, built 1842 Balmain, voyage to Richmond River, cargo unknown	HSA, Federal
Northern Rivers	Settlers Friend: Woodec Carvel Schooner	17/8/1877	Off Tweed River entrance	Stranded	65 tonnes, 22.18x5.882m, built 1867 Brisbane Water, voyage Sydney-Tweed River, in ballast	HSA, Federal
Northern Rivers	Sisters: Wood Carvel Schooner	5/5/1880	Off North Spit, Richmond River entrance	Broached in heavy sea	37 tonnes, 17.55x5.12m, built 1873 Brisbane Water, voyage from Richmond River with hardwood timber	HSA, Federal
Northern Rivers	Sophia Ann: Wood carvel Steamer, Screw	9/04/1908	Southern sand spit at Richmond River entrance	Unknown	165 tonnes, 36.97x6.583m, voyage/cargo unknown	HSA, Federal
Northern Rivers	St Leonard: Wooden Schooner	_/_/1849	At or off Tweed Heads	Unknown	56 tonnes, 16.52x5.33m, built 1847 Brisbane Water, voyage/cargo unknown	HSA, Federal
Northern Rivers	Star of the Sea: Wood Carvel Schooner	22/2/1878	South Spit of Brunswick River entrance	Wind failed, drifted onto spit	59 tonnes, 23.25x5.486m, built 1867 Macleay River, voyage to Brunswick River ind ballast	HSA, Federal
Northern Rivers	Sussex: Wood Carvel Schooner	_1-2/1890	Last seen off Richmond River	Unknown - left Trial Bay in company of Schooner Kent - neither vessel seen again - vessels may have collided in foul weather and sunk	87 tonnes, 28.7x6.7m, built 1885 Brisbane Water, voyage Port Stephens-Tweed River, cargo unknown	HSA, Federal
Northern Rivers	Sylvanus: Wood Carvel Schooner	13/4/1871	Rocks off North Head, Richmond River entrance	Unknown	50 tonnes, 19.29x5.181m, built 1861 Brisbane Water, voyage Sydney-Richmond River, cargo unknown	HSA, Federal
Northern Rivers	Titania: Wood Carvel Ketch	_6-7/1879	Entrance to Brunswick River	Wind shift	51 tonnes, 15.78x4.663m, built 1855 Shoalhaven, voyage Sydney-Brunswick River in ballast	HSA, Federal
Northern Rivers	True Blue: Wood Carvel Ketch	_9-10/1881	Rocks off North Head of Tweed River entrance	Unknown	49 tonnes, 21.03x5.547m, built 1876 Batemans Bay, voyage from Tweed River, cargo unknown	HSA, Federal
Northern Rivers	Tweed: Wooden Vessel (type unknown)	_/_/1858	Near Tweed River	Capsized?	Details unknown, built nd Tweed River, voyage/cargo unknown	HSA, Federal
Northern Rivers	Tweed: Steel Steamer, Screw	19/4/1888	At or off Tweed River entrance	Unknown	240 tonnes, 39.07x6.918m, built 1885 Newcastle-on-Tyne UK, voyage/cargo unknown	HSA, Federal
Northern Rivers	Urara: Wooden Steamer, Paddle	2/5/1866	At or off Clarence River entrance, loss illustrated below:	Struck South Reef	382 tons gross, 55.01xBuilt 1859 Birkenhead UK, 7.376m, Voyage Sydney-Grafton via Newcastle with passengers and general cargo	HAS, Federal

Source: Maritime Heritage Online, NSW Heritage Office



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Northern Rivers	Vesta: Iron Steamer, Paddle	26/3/1873	Richmond River entrance	Inbound at night, struck south spit	93 tonnes, 28.04x4.45m, built 1842 Melbourne, voyage Richmond River-Richmond River in ballast	HSA, Federal
Northern Rivers	Waimea: Iron Steamer, Screw	10/1/1872	Off northside Richmond River entrance	Caught in break, capsized?	229 tonnes gross, 39.92x6.309m, built 1868 Sydney, voyage Richmond River-Sydney with maize and timber	HSA, Federal
Northern Rivers	Wallaby: Wood Carvel Schooner	14/5/1874	Richmond River entrance	Wind failed, drifted to north spit	78 tonnes, 22.61x6.278m, built 1864 Brisbane Water, voyage Richmond River-Sydney with iron timber	HSA, Federal
Northern Rivers	Wanganui: Iron Steamer, Screw	20/6/1880	1 mile off Clarence River entrance	Struck reef	221 tonnes gross, 44.166x6.37m, built 1863 Dundee UK, voyage Newcastle-Clarence River with general cargo, 2 lost	HSA, Federal
Northern Rivers	West Hartley No. 1: Iron Schooner	11/2/1874	Off Brunswick River entrance	Wind failed	69 tonnes, 27.21x5.364m, built 1863 Blackball UK, voyage to Brunswick River in ballast	HSA, Federal
Northern Rivers	William and James: Wooden Schooner	15/7/1856	At or off Richmond River	Unknown	75 tonnes, 18.1x5.7m, built 1849 Brisbane Water, voyage/cargo unknown	HSA, Federal
Northern Rivers	William Buchanan: Wood Carvel Barque	8/12/1864	Offshore reef 10 miles south of Clarence River entrance	Struck reef, subsequent explosion and fire	155 tonnes gross, 28.25x7.38m, built 1848 Maine USA, voyage from Sydney with 14 carboys of acid	HSA, Federal
Mid North Coast	Abbey:	15/2/1868	3 miles north, Crowdy Head	Foundered in gale	90 tonnes, 22.6x5.7m, built 1853 Newcastle UK, voyage Sydney-Newcastle in ballast	HSA, Federal
Mid North Coast	Adonis: Wood Brigantine	22/12/__	~15 miles south, Crowdy Head	Sprang leak, foundered	108 tonnes gross, 28.166x6.309m, built 1874 Jervis Bay, voyage Wollongong-Richmond River with coal	HSA, Federal
Mid North Coast	Agnes Irving: Iron Side Paddle Steamer	28/12/1879	Off South Spit old entrance to the Macleay River, Trial Bay	Struck and foundered	431 tonnes gross, 62.02x7.467m, built 1862 Deptford Green Kent UK, voyage Sydney-Macleay River with passengers and freight	HSA, Federal
Mid North Coast	Albany: Iron Steamer Screw	26/03/1905	2 miles north and 3/4-1 mile off Nambucca Heads	Aground, wreck	889 tonnes gross, 70.5x8.7m, built 1862 Northumberland UK	HSA, Federal
Mid North Coast	Aleda: Wood Carvel Schooner	17/06/1914	At Big Hill north of Point Plummer, Port Macquarie	Foundered in gale	83 tonnes gross, 28.7x7.3m, built 1897 Whangaroa NZ, voyage Sydney-Nambucca River in ballast, Master and 5 crew lost	HSA, Federal
Mid North Coast	Alert: Wood Steamer Screw	21/02/1901	Nambucca Heads, off	Wrecked, cause unknown	27 tonnes gross, 18.3x4.2m, built 1882 Sydney, voyage and cargo unknown	HSA, Federal
Mid North Coast	Alfred Fenning: Wood Ketch	_/6/1914	2 km south, Crescent Head	Lost at sea, cause unknown	74 tonnes, 24.38x6.522m+F101	
Mid North Coast	Alice: Wood Ketch	5/7/1877	Off North Spit Camden Haven	Aground after wind failed	24 tonnes, 16.2x4.5m, built 1865 Brisbane Water, voyage Camden Haven-Sydney with timber	HSA, Federal
Mid North Coast	Alpha: Wood Schooner	21/2/1897	Off Nambucca Heads	Struck rocks	82 tonnes, 26.9x6.3m, built 1867 Port Stephens, voyage Sydney-Nambucca River in ballast	HSA, Federal
Mid North Coast	Amity: Wood Ketch	12/3/1870	Off Manning River	Foundered in gale	29 tonnes, 15.1x4.7m, built 1866 Hawkesbury River, Captain and 4 crew lost	HSA, Federal
Mid North Coast	Annandale: Wood Carvel Ketch	12/03/1907	20 miles SE, Smokey Cape	Sprang leak, foundered	108 tonnes gross, 29.4x7.3m, built 1899 Tomakin, voyage Sydney-Bellinger River with coal	HSA, Federal
Mid North Coast	Annie Ogle: Wood Carvel Brig	_/2/1875	5 miles south, Smokey Cape	Foundered in gale	210 tonnes, 35.48x7.74m, built 1874 Balmain, voyage Grafton-Sydney in ballast, Master and 8 crew lost	HSA, Federal
Mid North Coast	Barwon: Wood Brigantine	15/2/1868	Off Crowdy Head	Foundered in gale	56 tonnes, 20.5x5.5m, built 1865 Macleay River, voyage Sydney-Newcastle in ballast, Master and 4 crew lost	HSA, Federal
Mid North Coast	Bertha: Wood Schooner	26/7/1891	Off Nambucca Heads	Foundered in southerly gale	87 tonnes, 23.5x6.8m, built 1885 Brisbane Water, voyage and cargo unknown	HSA, Federal
Mid North Coast	Black Jack: Wood Schooner	_/_/1823	Off the bar, Port Macquarie, lat31.434-31.4005, long152.93.˙	Pilot's neglect: presumably foundered	28 tonnes, dimensions unknown, built 1820 Sydney Harbour, voyage Sydney-Port Macquarie in ballast ?	HSA, Federal
Mid North Coast	Britannica: Wood Carvel Ketch	22/8/1878	Top entrance Nambucca River	Steering gear failed	50 tonnes gross, 22.31x5.638m, built 1877 Cape Hawk, voyage Sydney-Nambucca River in ballast	HSA, Federal
Mid North Coast	Candidate: Wood Carvel Ketch	_/5/1912	South of Camden Haven	Foundered in gale	86 tonnes, 26.82x7.42m, built 1885 Brisbane Water, voyage Camden Haven-Sydney, cargo unknown, at least 1 lost	HSA, Federal

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Mid North Coast	Caroline: Wood Schooner	9/12/1835	Off, near Trial Bay, Macleay River	Unknown	69 tonnes, 16.3x5.5m, built 1827 Sydney Harbour	HSA, Federal
Mid North Coast	Challenger: Wood Cutter	_/8/1845	Off Manning River	Unknown	31 tonnes, 12.66x3.9m, built 1840 Williams River	HSA, Federal
Mid North Coast	Chance: Wood Ketch	12/6/1874	Manning River, off	Capsized in gale	41 tonnes, 17.9x5.2m, built 1870 Brisbane Water, 3 lost	HSA, Federal
Mid North Coast	Daphne: Wood Launch	11/04/1933	5 miles SE South West Rocks	Foundered after catching fire	Displacement unknown, 12.19x4.267m, built details unknown, presumed Manning River, presumed 1933, 1 lost	NSW HA, State
Mid North Coast	Dart: Wood Cutter	13/3/1832	Outside Port Macquarie bar	Struck rocks	21 tonnes, 12.19x3.657m, built 1826 Sydney Harbour, voyage Port Macquarie-Sydney with cedar timber and maize	HSA, Federal
Mid North Coast	Deva: Wood Brig	4/12/1870	25 miles off Smokey Cape	Sprang a leak, foundered	244 tonnes, 25.2x6.9m, built 1838 Hylton Durham UK, voyage New Calidonia-Newcastle in ballast, 0 lost	HSA, Federal
Mid North Coast	Deveron: Wood Barquentine	16/7/1833	Off Port Macquarie-Trial Bay	Sprang a leak and foundered in gale	Built 1814 Monkwearmouth Durham UK, voyage unknown - whaler, 0 lost	HSA, Federal
Mid North Coast	Dredge Punt: Details unknown		Camden Haven or off Camden Haven, minimum lat31.600667, long153.117833-152.8	Struck rock, foundered	Voyage details unknown - information from MSB unsourced list of vessels wrecked on or near the coast of NSW	Not protected
Mid North Coast	Ellen: Wood Topsail Schooner	24/6/1879	Off Trial Bay	Foundered in gale	Built 1877 Oxley Island Manning River, voyage Sydney-Richmond River in ballast, 5 lost	HSA, Federal
Mid North Coast	Emily Anne: Wood Schooner	27/12/1864	Off Crowdy Head (after having been sunk at Manning River bar)	Capsized in high sea	Built 1864 Balmain, 20.29x5.029m, voyage Sydney-Manning River with sawmill machinery and provisions, 4 lost	HSA, Federal
Mid North Coast	Emma: Wood Ketch	_/_/1853	Off Manning River	Unknown	31 tonnes, 14x4m, built 1846 Brisbane Water, voyage and cargo unknown	HSA, Federal
Mid North Coast	Emmeline: Wood Ketch	19/6/1880	Between Camden Haven and Port Macquarie	Wind failed?	43 tonnes gross, 19.3x5.6m, built 1877 Brisbane Water, voyage Camden Haven to unknown destination with timber	HSA, Federal
Mid North Coast	Euphemia: Wood Schooner	_/_/1863	Off Macleay River	Unknown	25 tonnes, 17.7x4.6m, built 1857 Macleay River, voyage and cargo unknown	HSA, Federal
Mid North Coast	Fairy: Wood Schooner	_/5/1839		Unknown	25 tonnes, 11.2x4.2m, built 1838 Manning River, voyage and cargo unknown	HSA, Federal
Mid North Coast	Fingal: Steel Steamer Screw	5/05/1943	Off Nambucca Heads	Torpedoed	2137 tonnes gross, 84.12x13.31m, built 1923 Moss, Norway, voyage Sydney-Darwin with military cargo, 12 lost	NSW HA, State
Mid North Coast			Off Camden Haven, max lat31.683. Max long163.366.	Capsized	48 tonnes, 15.164x4.52m, built 1836 Clarencetown, more than 4 lost	HSA, Federal
Mid North Coast	Glossariel: Wood Topsail Schooner	_/_/1886	5-6 miles east Manning River heads	Sprang a leak, foundered	86 tonnes gross, 24.9x6.3m, built 1876 Shoalhaven, voyage Sydney-Richmond River with coal and general cargo	HSA, Federal
Mid North Coast	Gloucester: Wood Barquentine	29/7/1877	31 miles off Smokey Cape	Sprang a leak, foundered	591 tonnes gross, 42.06x8.656m, built 1852 Sunderland UK, voyage Newcastle-Japan with 526 tonnes coal, 0 lo+F102st	HSA, Federal
Mid North Coast	Guiding Star: Wood Schooner	_/9/1864	Off Point Plummer, Port Macquarie	Foundered in gale?	39 tonnes, 17.3x4.8m, built 1859 Hawkesbury River, voyage Manning River-Sydney (?), cargo unknown	HSA, Federal
Mid North Coast	Henne De Fraine: Wood Carvel Topsail Schooner	4/05/1900	Off Camden Haven	Sprang a leak, foundered	96 tonnes gross, 27.98x7.437m, built 1899 Kincumber, voyage Camden Haven to unknown destination, cargo unknown	HSA, Federal
Mid North Coast	Isabella: Wood Schooner	20/9/1824	Off Port Macquarie	Stolen, presume foundered	37 tonnes, 10.363x3.658m, built 1822 Sydney Harbour, seized by Port Macquarie pilot crew (convicts), pilot and crew set adrift, voyage Port Macquarie to unknown port, cargo unknown	HSA, Federal
Mid North Coast	Janet: Wood Schooner	_/_/1867	Off Macleay River, Trial Bay	Unknown	39 tonnes, 18.4x4.8m, built 1858 Shoalhaven, voyage and cargo unknown	HSA, Federal
Mid North Coast	Jolly Rambler: Wooden Sloop	_/12/1836	Off Macleay River	Unknown	37 tonnes, 14.2x4.7m, built 1813 Broadstairs Kent UK, voyage and cargo unknown	HSA, Federal

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Region	Vessel: Type	Date Lost	Location	How Lost	Detail	Protection
Mid North Coast	Just-in-Time: Wood Topsail Schooner	4/4/1893	Off Charlotte Bay, 15 miles north Smokey Cape	Sprang a leak, foundered	109 tonnes gross, 27.9x6.3m, built 1884 Stavanger/Havenger Norway, voyage Sydney-Tweed River with iron and general cargo	HSA, Federal
Mid North Coast	Kooroongaba: Steel Steamer Screw	~9/1/1972	Off Crowdy Head	Tow line parted, foundered	313 tonnes gross, 47.7x12.62m, built 1921 Newcastle NSW, former Sydney ferry under tow to breakers, voyage Sydney-destination not recorded: Japan (?)	HSA, Federal
Mid North Coast	Laura: Wood Carvel Ketch	9/6/1878	15 miles south Manning Heads	Sprang a leak, foundered	30 tonnes, 18.1x5.12m, built 1874 Cape Hawk, voyage Camden Haven-Sydney with timber	HSA, Federal
Mid North Coast	Lizzie Coleson: Wood Carvel Schooner	_/6/1870	North of Macleay River	Foundered in gale	61 tonnes, 23.1x5.76m, built 1868 Brisbane Water, voyage Clarence River-Sydney with timber, more than 2 lost	HSA, Federal
Mid North Coast	Lombard: Unknown construction material, Barquentine	_/5/1867(?)	Off Nambucca Heads	Unknown	208 tonnes, 32.88x7.863m, built 1856 Essex Massachusetts USA, voyage Gladstone-New Zealand with cattle	HSA, Federal
Mid North Coast	Lorenzo Sabine: Wood Carvel Barquentine	10/4/1869	In 21 feet of water in Trial Bay	Sprang a leak, foundered	157 tonnes, 27.61x6.4m, built 1852 Robertstown USA, voyage Newcastle-Brisbane with coal and hay	HSA, Federal
Mid North Coast	Macksville: construction material unknown, Tug	2/01/1924	Off Scotts Head	Foundered under tow	Details of construction, building and voyage unknown.	HSA, Federal
Mid North Coast	Madjus: Iron Steamer Screw	6/10/1884	Off Port Macquarie	Sprang a leak, foundered	400 tonnes gross, 48.768x8.534m, built 1884 Sunderland UK, voyage England-Sydney, "almost" in ballast (?)	HSA, Federal
Mid North Coast	Manurewa: Iron Barquentine	9(?)/04/1922	Between Camden Haven and Clarence River	Presumed foundered, loss not explained	371 tonnes gross, 43.61x7.955m, built 1884 Glasgow UK, voyage Newcastle-Clarence River with 167 tonnes coal, 14 lost	HSA, Federal
Mid North Coast	Martha: Wood Ketch	12/2/1871	Near Nambucca River	Unknown	42 tonnes, 16.46x4.63m, built 1854 Brisbane Water, voyage and cargo unknown	HSA, Federal
Mid North Coast	Mary: Wood Carvel Schooner	25/2/1866	Bellinger River, off	Unknown	47 tonnes	HSA, Federal
Mid North Coast	Metaris: Wood Carvel Barquentine	29/7/1881	50 miles east off Port Macquarie	Sprang a leak, foundered in a gale	244 tonnes, 31.54x7.498m, built 1857 Sunderland UK, voyage Newcastle-Honolulu with 393 tonnes coal	HSA, Federal
Mid North Coast	Mikado: Construction unknown Tug	25/7/1897	Trial Bay	Foundered in gale	No details known of dimensions, voyage or cargo	HSA, Federal
Mid North Coast	Minnie Lowe: Wood Carvel Schooner	27(?)/9/1880	Off Port Macquarie	Foundered in gale (?)	75 tonnes, 24.8x5.8m, built 1877 Cape Hawk, voyage unknown in ballast, 6 lost	HSA, Federal
Mid North Coast	Mousam: Wood Barquentine	3/6/1860	Between 16 and 13 miles SE of Port Macquarie	Sprang a leak, foundered	197 tonnes, 30.51x7.315m, built 1846 Kennebunk Maine USA, voyage Newcastle-Melbourne with coal	HSA, Federal
Mid North Coast	Naomi: Unknown material, Schooner	26/9/1880	Lost at sea after being seen near Port Macquarie	Presumably foundered	72 tonnes, 22.25x6.1m, built 1872 Brisbane Water, voyage Sydney-Port Macquarie in ballast, 6 lost (vessel also referred to in various papers as "Namoi" and "Meomi")	HSA, Federal
Mid North Coast	Narara: Wood Schooner	_/5/1849	Off (south?) Solitary Island	Foundered in gale	24 tonnes, 13.32x3.75m, built 1842 Brisbane Water	HSA, Federal
Mid North Coast	Noongah: Steel Motor Vessel	25/08/1969	8 miles off Crescent Head	Foundered in gale	1464 tonnes gross, 71.63mx11.31m, built 1952 Port Glasgow UK, voyage Newcastle-Townsville with 100 tonnes of steel, 20 lost	Not protected
Mid North Coast	Oceana: Wood Carvel Steamer Screw	7/10/1903	Off Manning River bar	Unknown	34 tonnes, 18.77x4.785m, built 1886 Lavender Bay, voyage Sydney-Marshall Islands with general cargo	HSA, Federal
Mid North Coast	Octoroon: Wood Carvel Top Sail Schooner	22/2/1878	Crowdy Head, off (12 miles off Port Macquarie)	Sprang a leak and foundered	52 tonnes, 20.72x5.638m, built 1865 Brisbane Water, voyage Port Macquarie-Sydney with timber	HSA, Federal
Mid North Coast	Orara: Wood Carvel Steamer Screw	30/12/1895	Off Woolgoolga (Solitary Islands)	Screw shaft broke, struck rocks, foundered	66 tonnes gross, 21.54x5.547m, built 1894 Brisbane Water, voyage Clarence River-Sydney in ballast	HSA, Federal
Mid North Coast	Pelican: Composite Steamer Paddle	_/4/1888	3 miles north of Nambucca Heads	Sprang a leak, foundered	69 tonnes gross, 27.79x4.511m, built 1854 Sydney Harbour, voyage Nambucca Heads-Bellinger River with stores and timber	HSA, Federal

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Mid North Coast	Portmar: Iron Steamer Screw	16/06/1943	Off Smokey Cape	Torpedoed	5551 tonnes gross, 124.9x16.52m, built 1919 Portland Oregan USA, voyage Sydney-Brisbane, cargo unknown, 2 lost	HSA, Federal
Mid North Coast	Premier: Wood Carvel Ketch	24/05/1916	Off Nambucca Heads, Wellington Rock	Unknown	135 tonnes gross, 32.09x8.686m, built 1896 Port Macquarie, voyage Newcastle-Nambucca River, cargo unknown	HSA, Federal
Mid North Coast	Ranger: Wood Carvel Steamer Screw	13/2/1887	1 mile south Trial Bay/Macleay River	Foundered in easterly gale	40 tonnes gross, 17.12x4.724m, built 1885 Long Nose Point Balmain, voyage Macleay River-Macleay River, tug, 2 lost	HSA, Federal
Mid North Coast	Richmond: Wood Schooner	_/3/1837	Trial Bay, Macleay River	Possibly struck bar?	41 tonnes, 14.32x4.57m, built 1834 Tamar River TAS, voyage and cargo unknown	HSA, Federal
Mid North Coast	Rosedale: Iron Steamer Screw	_/9/1911	Off Smokey Cape	Presumed foundered in southerly gale	274 tonnes gross, 42.7x6.431m, built 1877 Dundee UK, voyage Nambucca River-Sydney, cargo unknown but with ~11 passengers and 18 crew, ~29 lost	HSA, Federal
Mid North Coast	Samson: Wood Carvel Steamer Paddle (Drogher)	_/12/1908	Off Manning River Heads	Sprang a leak, foundered	101 tonnes gross, 27.43x6.096m, built 1885 Myall River Port Stephens, voyage unknown (cargo possibly timber, otherwise unknown)	HSA, Federal
Mid North Coast	Sarah Nicholl: Wood Carvel Schooner	25/3/1875	5 miles north of Bellinger River	Presumed foundered	68 tonnes, 25.05x5.364m, built 1866 Brisbane Water, voyage Sydney-Port Macquarie-Macleay River with timber, 3 passengers, 5 lost	HSA, Federal
Mid North Coast	Sea Bird: Unknown material, type	12/02/1916	Off Laurieton between Crowdy Head and Port Macquarie	Capsized	Nothing known of description, origin, voyage or cargo, 3 lost	HSA, Federal
Mid North Coast	Shamrock: Wood Carvel Steamer Screw	19/02/1911	Off Camden Haven	Fire, foundered	30 tonnes gross, 20.81x3.749m, built 1895, Tweed River, voyage and cargo unknown	HSA, Federal
Mid North Coast	Shelbourne: Wood Carvel Ketch	14/2/1893	At sea off Crowdy Head	Sprang a leak, foundered	61 tonnes, 24.1x5m, built 1887 Clarencetown, Williams River, voyage Camden Haven-Sydney with 40,000 timber shingles. Vessel had been converted from a steamer to a sailing vessel in 1890.	HSA, Federal
Mid North Coast	Sir George: Wood Carvel Ketch	12/11/1903	2 miles north, Smokey Cape	Foundered in gale	94 tonnes, 28.37x7.071m, built 1892 Brisbane Water, voyage Port Macquarie-Sydney with 40,000 SFT hardwood timber, 2 lost	HSA, Federal
Mid North Coast	Somaki: Wood Motor Vessel	12/12/1946	At or off Port Macquarie	Fire, foundered	11 tonnes gross, 9.966x3.2m, built 1933 Coffs Harbour, voyage and cargo unknown	HSA, Federal
Mid North Coast	Sumatra: Steel Steamer Screw	26/06/1923	Between Port Macquarie and Crescent Head	Missing presumed foundered	584 tonnes gross, 52.24x8.29m, built 1889 Keel Germany (seized by Commonwealth Government during WWI and transferred to New Guinea administration), crew of 31 New Guineans, 6 Chinese, 7 others and included Mrs Bell (the Captain's mother), voyage Sydney-Rabaul with supplies, 45 lost	HSA, Federal
Mid North Coast	Sun Beam: Wood Carvel Ketch	_/10/1896	North of Camden Haven	Lost at sea, presumed foundered	33 tonnes, 17.19x5.12m, built 1879 Brisbane Water, voyage Sydney-Brisbane-Rockhampton with 170 cases of explosives, 3 lost	HSA, Federal
Mid North Coast	Tam O'shanter: Wood Cutter	22/2/1846	Off Manning River entrance	Capsized	12 tonnes, 9.14x3.26m, built 1844 Brisbane Water, voyage Sydney-Manning River with general cargo including flour, 1 lost	HSA, Federal
Mid North Coast	Telegraph: Iron Steamer Paddle	9/10/1867	Off Perpendicular Point Camden Haven	Struck rock, foundered	521 tonnes gross, 67.36x7.223m, built 1854 Glasgow UK, voyage Sydney-Brisbane with passengers, general cargo and sheep	HSA, Federal
Mid North Coast	The Queen: Wood Schooner	_/2/1892	Off Camden Haven	Unknown	71 tonnes, 23.3x6.6m, built 1879, Tomaga Moruya, voyage unknown origin to Port Macquarie, cargo unknown, 5 lost	HSA, Federal
Mid North Coast	Titan: Steel Barge (Crane)	29/12/1992	Off Smokey Cape lat31.665833 long152.872333	Capsized	Gross tonnage unknown, 53.58x24.29m, built 1919 Cockatoo Island Sydney Harbour, voyage Sydney-unknown destination port, under tow	Not Protected

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Mid North Coast	Trial: Wood Brig	_/9/1816	3 miles NW of Smokey Cape, Trial Bay, lat30.884667-30.834833, long153.083667-153.000667	Capsized	Structural details unknown, voyage Sydney-unknown destination (vessel was sezied at …… Pigs Reef in Sydney by escaping convicts and the crew put ashore off Newcastle), all hands lost, number not known	HSA, Federal
Mid North Coast	Trial: Wood Ketch	_/10/1824(?)	Off Manning River	Unknown	23 tonnes, other details unknown, voyage and cargo unknown	HSA, Federal
Mid North Coast	Triumph: Wood Carvel Ketch	13/02/1903	5 miles south Attacking Point, Port Macquarie	Struck bar, sprang a leak and foundered	83 tonnes, 23.83x7.559m, built 1894 Brisbane Water, voyage Camden Haven-Sydney with timber	HSA, Federal
Mid North Coast	Trusty: Wood Carvel Schooner	6/5/1885	Manning River, off	Unknown	61 tonnes, 21.27x5.455m, built 1877 New Haven Philip Island, voyage unknown origin-Manning River, cargo unknown	HSA, Federal
Mid North Coast	Unidentified vessel: no description	No date	Trial Bay	Unknown	No particulars of vessel, voyage or cargo	Unknown
Mid North Coast	Unidentified vessel: no description	No date	Off Laurieton	Unknown	No particulars of vessel, voyage or cargo	Unknown
Mid North Coast	Urana: Steel Steamer Screw	31/08/1937	Off Manning River	Struck reef, split in two and foundered	119 tonnes gross, 46.63x10.54m, built 1924 Glasgow UK, voyage Newcastle-Macleay River with coal	HSA, Federal
Mid North Coast	Violet Doepal: Wood Carvel Top sail Schooner	24/01/1905	4 miles north and 1.5 miles off Bellinger River	Sprang a leak, foundered	127 tonnes, 32.43x8.29m, built 1898 Bellinger River, voyage Sydney-Bellinger River with coal, 0 lost	HSA, Federal
Mid North Coast	Wanderer: Wood Topsail Schooner	15/11/1851	Off Jail Point, Port Macquarie	Unknown	84 tonnes, other details unknown, built UK, voyage Guadal Canal Solomon Islands-Port Macquarie with general cargo	HSA, Federal
Mid North Coast	Wollongbar: Steel Steamer Screw	29/04/1943	Between Port Macquarie and Crescent Head	Sunk by enemy action (torpedoed)	2239 tonnes gross, 86.89x12.83m, built 1922 Glasgow UK, voyage unknown, cargo unknown, 32 lost	NSW HA, State
Mid North Coast	Wotonga: Iron Steamer Screw	2/1/1882	Off Tacking Point, Port Macquarie	Struck rock	997 tonnes gross, 70.01x8.039m, built 1876 Dunbarton UK, voyage Sydney-Brisbane with passengers and general cargo	HSA, Federal
Mid North Coast	Yvonne: Wood Launch	12/02/1937	Off Smokey Cape	Foundered in gale	Details unknown, voyage Taree-Northerly with a cargo of fish	HSA, Federal
Illawarra	Agnes: Wood Carvel Ketch	_/_/1883	Off Jervis Bay	Foundered?	38 tons, 22.95x4.328m, Built 1877 Williams River, Voyage/cargo unknown	HSA*, Federal~
Illawarra	Annie Powell: Wood Carvel Schooner	5/8/1886	About 5-6 miles off Five Islands, Wollongong	Sprang leak, foundered	122 tons, 30.48x7.437m, Built 1884 Macleay River, Voyage Kiama-Botany Bay	HSA, Federal
Illawarra	Botany: Dredge	9/10/1936	Off Jervis Bay	Foundered under tow	Voyage Newcastle-Bermagui	Not protected
Illawarra	Buonaparte: Wooden Schooner	17/10/1864	8 miles north of Bellambi, 10 miles offshore	Sprang leak, foundered	119 tons, 25.2x6.7m, Voyage Bellambi-Invercargill, cargo 100 tons coal	HSA, Federal
Illawarra	Christopher George: Wooden Schooner	_/2/1869	Off or near Wollongong	Foundered in gale	57 tons, 18.9x4.8m, Built 1849 Macleay River, Voyage Sydney-Wollongong, Cargo unknown, 5 lost	HSA, Federal
Illawarra	Clio: Wood Carvel Ketch	12/2/1869	Off Wollongong	Foundered?	42 tons, 19.14x5.516m, Built 1868 Port Stephens, voyage/cargo unknown	HSA, Federal
Illawarra	Coast Farmer: Iron Steamer, Screw	20/07/1942	Off Jervis Bay	Torpedoed	3290 tons gross, 98.75x14.08m, Built 1920 Newark USA, 1 lost	Not protected
Illawarra	Colac, HMAS: Steel Steamer, Screw	17/02/1987	Off Jervis Bay	Scuttled after use as gunnery target by HMAS Ovens	Built 1941, Morts Dock	Not protected
Illawarra	Comboyne: Wooden, Steamer, Screw	27/11/1920	1 mile off Bass Point	Struck object	Timber carrier, 281 tons, 42.42x9.052m, built 1911 at Tuncurry NSW	HSA, Federal
Illawarra	Corio: Iron, Steamer, Screw	12/7/1866	Off Wollongong	Wrecked in gale	170 tons, 39.8x5.5m, built 1854 Greenock Scotland, voyage unknown, 10 lost	HSA, Federal
Illawarra	Dandenong: Iron Steamer, Screw	_/9/1876?	Off Jervis Bay	Sprang leak, foundered during the 'Dandenong' gale	743 tons, 61.3x8.6m, built 1865 Howden Northumberland, Voyage with passengers Hobsons Bay -Sydney, 40 lost	HSA, Federal

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Illawarra	Duke of Wellington: Wooden Brigantine	14 June 1863	Off Bellambi	Capsized while standing off Bellambi in a storm, in ballast	88 tons, 21.5x.6.2m, Build unknown but former Brazil trade slaver, Voyage to Bellambi in ballast, 5 lost	HSA, Federal
Illawarra	Echo: Wood Carvel Schooner	21/3/1863	Near Long Point, Shellharbour	Struck rock	21 tons, 11.3x3.444m, built Sydney 1843. In Voyage Shoalhaven-Sydney: cargo wheat, maize, potatoes	HSA, Federal
Illawarra	Elizabeth: Wooden Schooner	_/10/1868	Off Bulli	Capsized in squall	46 tons, 21.0x5.1m, built 1862 Doughboy Creek, Qld,	HSA, Federal
Illawarra	Esther Maria: Wooden Ketch	29/2/1882	6 miles north of Beecroft Point	Collision with 'Kameruka	52 tons, 21.2x5.7, Built 1867 Hawkesbury River, Voyage Sydney-Jervis Bay, 1 lost	HSA, Federal
Illawarra	Fairey Firefly: naval aircraft	Not advised	Not advised	Not advised	Not advised	
Illawarra	Franz: Wooden Schooner	9/9/1879	Off Shellharbour, north of Lake Illawarra, near Five Islands	Foundered in gale	148 tons gross, 25.2x6.5m, Built Hamburg Germany, Voyage Sydney-Kiama in ballast	HSA, Federal
Illawarra	Free Selector: Wooden Ketch	13/2/1869	Off Wollongong	Foundered	47 tons, 18.9x5.56, Built 1867 Brisbane Water, Voyage/Cargo unknown	HSA, Federal
Illawarra	Frolic: Wooden Ketch	nk	Kiama	Wrecked	26 tons, 13.9xs4.24m, Built 1853 Brisbane Water, Voyage/cargo unknown	HSA, Federal
Illawarra	Gabriella: Steel Motor Vessel	10/12/1986	Dutch heavy lift vessel, capsized and sank at mooring Port Kembla 14/8/1986, 2 lost. Vessel refloated upside down, declared total loss, towed out to sea 30 miles off Port Kembla and…	...Scuttled	Built 1974 Netherlands,	Not protected
Illawarra	George: Wood carvel Schooner	_/7/1867	Off? Bulli	Wrecked	98 tons, 21.39x5.76m, Built 1846 Sunderland UK	HSA, Federal
Illawarra	George s [or M] Livanos: Steel Steamer, Screw	20/7/11942	15 miles off Jervis Bay,	Torpedoed	4835 tons, 134.4x17.58m, Built 1938 Hartlepool UK, Voyage/cargo unknown	Not protected
Illawarra	Henrietta: Wooden Schooner	4/2/1880	Crookhaven Reef, off Shoalhaven Head	Foundered	29 tons, 18.3x 4.6m, Built 1871 Brisbane Water, Voyage Sydney-Shoalhaven in ballast	HSA, Federal
Illawarra	Julie Heyn: Wood Carvel Barque	_/5/1865	Off Cape St George, Jervis Bay	Sprang leak, foundered	318 tons, 33.92x7.99m, Built 1848 Stettin? New Britain?Pomerania Germany, Voyage to Adelaide with coal	HSA, Federal
Illawarra	Koraaga: Steel Steamer, Screw	9/09/1931	5 miles east of Black Head, Gerringong	Struck reef	221 tons, 34.93x6.644m, Built 1915 Middlesborough UK, Fishing out of Sydney	Not protected
Illawarra	Lady of the Lake: Wooden Schooner	31/7/1879	7 miles offshore, Shoalhaven Bight	Wrecked	41 tons, 16.45x4.876m, Built unknown, Voyage unknown, in ballast	HSA, Federal
Illawarra	Little Pet: Wood Carvel Schooner	13/6/1885	Bellambi Reef, Wollongong	Struck reef	78 tons, 20.02x5.608m, Built 1851 North Shields UK, Voyage/cargo unknown	HSA, Federal
Illawarra	Lucy: Wooden Schooner	_/7/1847	Off Wollongong	Foundered	47 tons, 14.93x 4.785m, Built 1845 Ulladulla, Voyage Sydney-Port Phillip with wheat, timber	HSA, Federal
Illawarra	Maggie Scott: Wood Carvel Ketch	14/6/1889	Off Black Point, Shoalhaven Bight	Sprang leak, foundered30 tons, 18.1x	30 tons, 18.1x5.09m, Built 1868 Brisbane Water, Voyage Tomkin Creek-Sydney with sawn hardwood	HSA, Federal
Illawarra	Malcolm: Wood carvel Brigantine	_/2/1898	In the vicinity of Bulli	Foundered in gale	182 tons, 32.06x7.162m, Built 1862 Prince Edward Island Canada, Voyage Wollongong-Sydney with coal, 7 lost	HSA, Federal
Illawarra	Margaret: Wooden clinker Ketch	28/12/1879	Off Black Point, near Gerringong	Lost rudder, foundered	25 tons, 15.84x3.931, Built 1867 Durham UK, Voyage Shoalhaven-Sydney with timber	HSA, Federal
Illawarra	Marvel: Wood Carvel Steamer Screw	24/11/1892	4 miles off Pilot Station, Shoalhaven Bight	Sprang leak, foundered	71 tons, 22.98x5.547m Built 1891 Jervis Bay, Voyage Jervis Bay-Sydney with timber logs	HSA, Federal
Illawarra	Mary Warner: Wood Carvel Top-sail Schooner	20/4/1894	Off Kiola	Sprang leak, abandoned	65 tons, 23.65x6.4m, Built 1873 Lake Macquarie, Voyage Beagle Bay-Sydney with timber	HSA, Federal
Illawarra	Unnamed steel launch	15/06/1939	Off Shellharbour	Caught fire	Details unknown, reported by fishermen	Not protected
Illawarra	Norman: Wood Carvel Schooner	28/8/1895	Bellambi Reef, Wollongong	Struck reef	51 tons, 20.6x6.3, Built 1880 Lake Macquarie, Voyage Wollongong-Sydney with 81 tons of coal	HSA, Federal
Illawarra	North Briton: Wooden Sloop	17/12/1828	Off Wollongong	Wrecked	Details, voyage and cargo unknown	HSA, Federal
Illawarra	Northern Firth: Steel Steamer, Screw	22/02/1932	Off Brush Island, Ulladulla	Struck submerged object	1954 tons, 85.4x12.77m, Built 1922 Grangemouth UK, Voyage Melbourne-Sydney with general cargo	Not protected

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Illawarra	Palmerston: Iron Steamer, Screw	29/05/1929	18 miles south of Jervis Bay	Collision	463 tons, 53.43x7.62m, Built 1878 Glasgow UK, Voyage unknown, cargo fish	Not protected
Illawarra	Perseverance: Wooden, Type unknown	_/1/1842	Illawarra region	Cause not known	Details not known	HSA, Federal
Illawarra	Petrel: Wooden Schooner	_/1/1850	Between Wollongong-Sydney	Cause not known	7 tons, 8.11x2.74, Built 1838 Sydney, Voyage Wollongong-Sydney, Cargo unknown	HSA, Federal
Illawarra	Phoebe: Barquentine	_/5/1876?	Offshore north of Jervis Bay?	Sprang leak?	Details unknown, said to be transit Hong Kong-Newcastle, Cargo unknown - information derived from message in bottle	HSA, Federal
Illawarra	Prince Alfred: Wooden clinker Ketch	_/6/1891	Off Five Islands, Wollongong	Supposedly foundered	56 tons, 22.82x5.577m, Built 1868 Balmain, Voyage Sydney-Mosquito Bay in ballast	HSA, Federal
Illawarra	Resolute: Wooden Steamer, Screw	12/07/1907	1 mile offshore, Bellambi Reef, Wollongong	Struck sand/reef	211 tons, 39.92x7.101m, Built Auckland, Voyage Sydney-Kiama in ballast1880	HSA, Federal
Illawarra	Result: Wood Carvel Schooner	30/9/1893	Near Abrahams Bosom, Shoalhaven Bight	Missed stays	56 tons, 25.23x5.699, Built 1882 Wangaroa NZ, Voyage Sydney-St Georges Basin in ballast	HSA, Federal
Illawarra	Ruby: Wood Carvel Fishing boat	9/12/1895	Sir John Young Banks off Beecroft Head	Sprang leak	8 tons, 9.174x2.164, Built 1872 Balmain, Voyage Sydney-Beecroft Head with fish	HSA, Federal
Illawarra	Saxonia: Iron Steamer, Screw	17/5/1898	Bellambi Reef, off Wollongong	Struck reef (navigation error), in 'Maitland' gale	257 tons gross, 49.49x7.406m, Built 1856 Hull UK, Voyage Wollongong-Bulli with coal	HSA, Federal
Illawarra	Spec: Wood Carvel Schooner	17/10/1865	1.5 miles off Black Head near Gerringong	Heeled over, foundered in squall	17 tons, 13.13,x3.535m, Built 1856 Sydney, Voyage/cargo unknown, 2 lost	HSA, Federal
Illawarra	Spray: Wood Carvel Brig	24/4/1870	Near the Bulli jetty at Coal Cliff	Cause not known	142 tons, 23.89x6.522m, Built 1850 Launceston, Wollongong, Cargo unknown	HSA, Federal
Illawarra	Taramung: Iron Steamer, Screw	_/5 or 6/1891	In or near Wreck Bay	Foundered in gale	1281 tons gross, 75.07x10.24m, Built 1880 Port Glasgow UK, Voyage Newcastle-Melbourne with 1647 tons coal, 30 lost	HSA, Federal
Illawarra	Tiger: Wood Carvel Schooner	11/7/1866			76 tons, 18.1x5.303m, Built 1821 Barrington Nova Scotia, Voyage to Wollongong, cargo unknown, 3 lost	HSA, Federal
Illawarra	Unidentified wreck	nd	Approximately 5 miles off Shellharbour	Unknown	Details unknown; wooden wreckage reported by fishermen - nd	Not protected
Illawarra	Unique: Wooden Steamer, Screw	4/03/1934	Off Shoalhaven Heads	Sprang leak	84 tons, 23.1x5.547m, Built 1902 Blackwall Brisbane, Voyage Sydney-Port Kembla with fish,	Not protected
Illawarra	Wandra: Wooden Steamer, Screw	15/12/1915	Off Drum& Drumsticks, Jervis Bay [found at Lat35.044833-Long 50.839, in 26 m water]. Deck winch pictured below (Source: Maritime Heritage Online, NSW Heritage Office)… 	Swamped by heavy seas	164 tons gross, 36.72x7.924m, Built 1907 Coopernook, Voyage Moruya-Sydney with full cargo	HSA, Federal
Illawarra	William Combe: Wooden Steamer, Screw	16/04/1931	Off Drum & Drumsticks, Jervis Bay	Hit rock, foundered	39 tons, 18.28x6.035m, Built 1929 Drummoyne, Voyage unknown, Cargo fish,	Not protected
South-east	Alice Jane: Wood Carvel Schooner	11/1/1888	Off Tomakin, Batemans Bay	Unknown	80 tons, 25.2x5.73m, Built 1873 Cape Hawke, Voyage unknown, Cargo timber	HSA, Federal
South-east	Almeda: Wooden Brigantine	9/7/1863	7 miles NE Cape Howe	Sprang leak, foundered	210 tons, 28.9x7.3m, Built Connecticut USA, Voyage Sydney-Melbourne with maize/general cargo	HSA, Federal
South-east	Ann and Maria: Wooden Brig	5/7/1869	9-10 miles south Green Cape	Unknown	236 tons, 28.3x8.0m, Built 1849 Sunderland UK, Voyage Newcastle-Melbourne, Cargo unknown	HSA, Federal

Shipwrecks recorded in the Marine Archaeological Record in the Regions Studied

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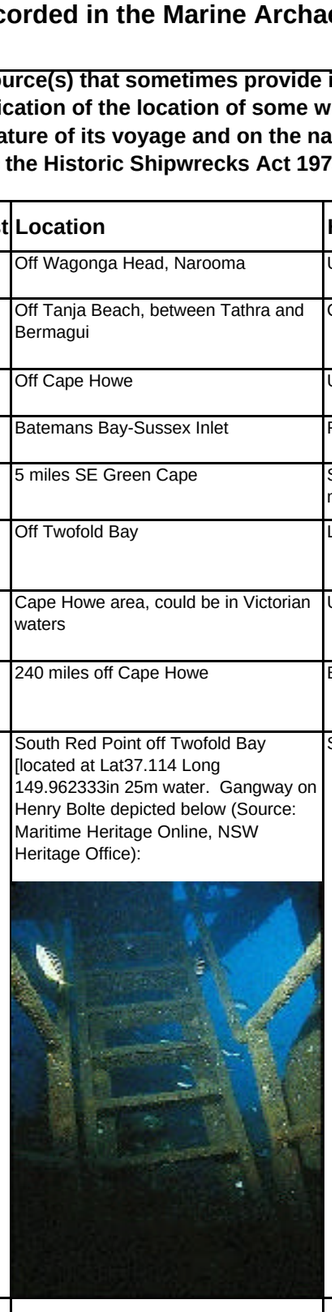
Region	Vessel: Type	Date Lost	Location	How Lost	Detail	Protection
South-east	Arthur: Wooden Ketch	_/_/1883	Off Wagonga Head, Narooma	Unknown	61 tons, 23.4x5.7m, Built 1879 Manning River, Voyage/cargo unknown,	Not protected
South-east	Bega: Iron Steamer, Twin-screw	5/04/1908	Off Tanja Beach, between Tathra and Bermagui	Capsized	567 tons gross, 57.7x7.5m, Built 1883 Greenock UK, Voyage Tathra-Sydney with passengers and cargo, 1 lost (heart attack during rescue)	HSA, Federal
South-east	Carrick: Iron Barque	16/12/1896	Off Cape Howe	Unknown	998 tons nett, other details unknown, Voyage Newcastle-Valparaiso with coal,	HSA, Federal
South-east	Conjola: Wooden Steamer, Paddle	221/7/1927	Batemans Bay-Sussex Inlet	Foundered	35 tons, 18.28x6.096m, Built 1920 Balmain, Voyage/cargo unknown	Not protected
South-east	Cumberland: Steel Steamer, Screw	11/08/1917	5 miles SE Green Cape	Sank under tow after struck mine or torpedoed	8993 tons gross, 144.4x18.28m, Built 1915 Glasgow UK, Voyage Townsville-Eden with frozen meat	HSA, Federal
South-east	Dunkeld: Wood Carvel Barquentine	27/6/1870	Off Twofold Bay	Lost at sea	390 tons, 40.14x5.974m, Built 1852 Nova Scotia Canada, Voyage Newcastle-Melbourne with coal, 2+ lost	HSA, Federal
South-east	Favorite: Wooden Ketch	17/5/1852	Cape Howe area, could be in Victorian waters	Unknown	15 tons, 13.1xm, Built Brisbane Water, Voyage Melbourne-Sydney with 2000 oz gold dust and 8+ passengers, 8+ lost	HSA, Federal
South-east	Glimpse: Wooden Barque	20/10/1881	240 miles off Cape Howe	Bows opened in gale	347 tons gross, 40.08x9.2m, Built 1856 Newbury NY USA, Voyage Burrards Islet BC-Melbourne with timber, 3 lost	HSA, Federal
South-east	Henry Bolte: Steel Motor Vessel, Tug	_/8/1988	South Red Point off Twofold Bay [located at Lat37.114 Long 149.962333in 25m water. Gangway on Henry Bolte depicted below (Source: Maritime Heritage Online, NSW Heritage Office): 	Scuttled as dive site	393 tons gross, 40.72x10.21m, Built 1966 Newcastle,	Not protected
South-east	Indus: Wooden Barque	17/3/1872	100 miles off Mt Dromedary	Lost at sea	368 tons, 33.1x8.49m, Built 1839 Dumbarton UK, Voyage unknown, with coal	HSA, Federal
South-east	Industry: Wooden clinker Sloop	_/6/1845	Off Broulee	Unknown	14 tons, 9.144x3.505m, Built 1834 Hawkesbury River, Voyage/cargo unknown	HSA, Federal
South-east	Iron Knight: Steel Steamer, Screw	8/02/1943	30 kms off Montague Island	Torpedoed	4812 tons gross, 123.2x17.12m, Voyage Whyalla-Newcastle with iron ore, Built 1937 Glasgow UK, 36 lost	Not protected
South-east	Julius Vogel: Wood Carvel Schooner	16/4/1890	Off Tomakin, Batemans Bay	Foundered in gale	56 tons, 20.23x5.882m, Built 1873 Auckland, Voyage/cargo unknown	HSA, Federal
South-east	Kali: Wooden Motor Vessel	_/9/1986	12 miles South Bermagui	Unknown	42.5 tons, 16.46x5.03m, Built 1958 Ulladulla	Not protected

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Region	Vessel: Type	Date Lost	Location	How Lost	Detail	Protection
South-east	Kameruka: Steel Steamer, Screw	16/10/1897	Pedro Reef, Moruya [cf former collision with 'Esther Marie' 1882 above]	Unknown	515 tons gross, 54.74x7.467m, Built 1880 Greenock UK, Voyage Twofold Bay-Sydney with passengers and cargo	HSA, Federal
South-east	Kedumba: Wooden Steamer, Screw [Vehicular Ferry]	21/12/1932	25 miles NW Montague Island	Sprang leak, foundered	291 tons, 40.08x11.06m, Built 1913 Sydney, Voyage Sydney-Melbourne in ballast	Not protected
South-east	Lady Darling: Iron Steamer, Screw	_/11/1880	Approximately 4 miles SW Montague Island, in 15 fathoms. Located Lat36.318333 Long150.168333. View of stem to Engine Room below (Source: Maritime Heritage Online, NSW Heritage Office): 	Struck submerged object in gale	895 tons gross, 73.03x8.564m, Built Liverpool UK, Voyage Newcastle-Melbourne with coal	HSA, Federal
South-east	Lillian: Wooden Ketch	20/6/1882	Grasshopper Island, Batemans Bay	Unknown	33 tons, 18.71x5.059m, Built 1865 Balmain, Voyage to Newcastle, Cargo unknown	HSA, Federal
South-east	Malaita: Motor Vessel	28/05/1948	Off Narooma	Unknown	Details unknown	Not protected
South-east	Mary: Wooden Schooner	26/5/1821	Twofold Bay, Range Lat37.101-37.034333, Lon149.950667-149.850667	Anchor cables parted	Details unknown, Voyage Sydney-Port Dalrymple with spirits	HSA, Federal
South-east	Mimmie Dyke: Wood Carvel Schooner	16/7/1887	South of Twofold Bay	Unknown	87 tons, 23.77x5.76m, Built 1854 Dundee UK, Voyage Melbourne-Sydney, Cargo unknown	HSA, Federal
South-east	Mimosa: Iron Steamer, Paddle	9/9/1863	Off Bulga Head, north of Tathra. Located Lat 36.58295 Long150.05755. View of the Mimosa's boiler below (Source: Maritime Heritage Online, NSW Heritage Office): 	Struck submerged rock	153 tons gross, 49.65x5.455m, Built 1854 Renfrew UK, Voyage Merimbula-Sydney with passengers and coastal cargo, 2 lost	HSA, Federal
South-east	Mina, Wood Carvel Brig	23/6/1888	East of Green Cape	Sprang leak, foundered	265 tons, 32.88x7.65m, Built 1867 Rounebeck Germany, Voyage Clarence River-Melbourne with sawn hardwood	HSA, Federal
South-east	Motor Gem: Wooden Motor Vessel	15/03/1917	Off Tathra Head	Unknown	57 tons gross, 24.78x5.425m, Built 1907 Sydney, Voyage/cargo unknown,	HSA, Federal
South-east	Olivia: Wooden Schooner	19/11/1827	South of Twofold Bay	Unknown	60 tons, other details unknown, Built 1826 Port Dalrymple, Voyage/cargo unknown	HSA, Federal
South-east	Picard: Wood carvel Schooner	8/10/1867	15 miles East of Cape Dromedary	Lost Stern post	165 tons, 27.92x6.86m, Built 1846 Portsmouth New Hampshire USA, Voyage Launceston -unknown, Cargo unknown	HSA, Federal
South-east	Porpoise: Wooden Schooner	16/5/1866	Off Wagonga Heads, Narooma	Unknown	39 tons, 14.11x4.54m, Built 1851 Shoalhaven, Voyage/cargo unknown,	HSA, Federal

Shipwrecks recorded in the Marine Archaeological Record in the Regions Studied

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Region	Vessel: Type	Date Lost	Location	How Lost	Detail	Protection
South-east	Provincial Trader: Steel Motor Vessel	24/03/1995	Off Twofold Bay	Scuttled after sinking at moorings	419 tons, 42.367xm Built 1959 Brisbane as a fire-fighting tug, converted to fishery9.957, Voyage from Twofold Bay	Not protected
South-east	Recina: Steel Steamer, Screw	11/04/1943	32 km North of Cape Howe	Unknown	4732 tons gross, 122.1x16.52m, Built 1930 Sunderland UK as 'Lady Plymouth', Voyage Whyalla-Newcastle with iron ore	Not protected
South-east	Riptide: Wooden Motor Vessel	5/06/1949	Near Tathra	Unknown	26 tons, 14.52xm, Built 1948 Gladesville, Voyage/cargo unknown	Not protected
South-east	Robert J Walker: Steel Steamer, Screw	26/12/1944	East of Bermagui	Torpedoed	7180 tons, 128.8x17.37m, Built 1943 Portland Oregon USA, Voyage Fremantle-Sydney, Cargo unknown	Not protected
South-east	Tasman Hauler: Steel Motor Vessel	1/10/1988	Off Twofold Bay, Located Lat36.112 Long149.962	Scuttled as dive site after running aground	418 tons, 42.4x9.96m, Built 1959 Brisbane as firefighting tug 'BP Cockburn', Voyage from Twofold Bay, No cargo	Not protected
South-east	Tea Tephi: Wooden Schooner	27/8/1894	Off Twofold Bay	Collided with whale	23 tons, 14.99x3.474m, Built 1884 Eden, Voyage/cargo unknown	HSA, Federal
South-east	Teazer: Wooden carvel Brigantine	11/10/1854	Off Twofold Bay	Abandoned in gale	58 tons, 14.99x4.572m, Built Melbourne, Voyage Launceston-Melbourne in ballast	HSA, Federal
South-east	Victory: Wood Carvel Brigantine	6/11/1893	Near Cape Howe	Abandoned after sprang leak	142 tons, 27.79x7.376m, Built 1873 Jervis Bay, Voyage Warrnambool-Newcastle in ballast	HSA, Federal
South-east	Wear: Steel Steamer, Screw	8/09/1944	15 kms off Montague Island	Collision	1892 tons, 81.68x11.55m, Built 1911 Sunderland UK, Voyage/cargo unknown, 1 lost	Not protected
South-east	William Dawes: Steel Steamer, Screw	22/07/1942	Off Tathra Head	Torpedoed	7176 tons, 126.97x17.343m, Built 1942 Portland Oregon USA, Voyage/cargo unknown, 5 lost	Not protected
South-east	Zvir: Steel Steamer, Screw	15/11/1942	150 kms South of Port Kembla	Collision	5607 tons, 118.9x16.45m, Built 1926 Glasgow UK, Voyage Whyalla-Newcastle with iron ore	Not protected

APPENDIX 3

Coastal Sites in the Register of National Estate

Appendix 3 - Coastal Sites in Register of National Estate

Region	Place/Name	Location	Detail	Heritage Register/Database
South coast	Bass Point Marine Area	Shellharbour	The Bass Point Marine Area consists of an ancient temperate reef system extending from high water mark to the 36 m underwater contour line, and lying between Cowrie Island, north of Shellharbour, and Stack Island, north of Stack Island. It has high marine species diversity and supports many crustacean, mollusc and cnidarian species uncommon in the Illawarra region.	Register of the National Estate (Registered)
Far North Coast	Cook Island Aquatic Reserve Proposal	Fingal Head	1 km north east of Fingal Head town. Comprising 31 hectares of sea and seabed within 500 m of mean high water mark on Cook Island.	Register of the National Estate (Indicative)
North Coast	Broken Head Marine Reserve Proposal	Broken Head	1 km south east of Broken Head town. Comprises the strip of sea and seabed extending from the southern end of Broken Head Beach to the northern end of Seven Mile Beach and from the mean high water mark to 100 m offshore from the mean low water mark, including offshore rocks within the strip. Comprises an area of approx. 40 ha.	Register of the National Estate (Indicative)
Central Coast	Bouddi National Park Marine Section	Killcare Heights	1 km east of Killcare Heights. Comprises approx. 287 ha between Gerrin Point and Bombi Point. The marine extension to the Bouddi National Park preserves a representative example of central coast rocky shore and sublittoral rocky reef habitat adjacent to a scenic stretch of coastline.	Register of the National Estate (Registered)
Mid North Coast	Fly Point, Halifax Park Aquatic Reserve	Nelson Bay	1 km north east of Nelson Bay. Comprises approx. 75 ha along mean high water mark between Fly Point and Nelson Head, extending 500 m offshore. Characterised by deep submerged cliffs and strong tidal currents. The invertebrate fauna is dominated by sedentary filter feeding forms, and particularly spectacular sponge gardens occur in the deeper areas.	Register of the National Estate (Registered)
Mid North Coast	Fish Rock Marine Reserve Proposal	South West Rocks	8km south east of South West Rocks. Approx. 10ha comprising the seabed and superjacent waters extending to 100m from the mean high water mark of Fish Rock and immediately adjacent rocks. The major feature of the site is a cave through the south west corner of the Rock. A large number of tropical lobsters (Panuhrus sp.) inhabit crevices throughout the cave.	Register of the National Estate (Indicative)
North Coast	Julian Rocks Aquatic Reserve	Byron Bay	4 km north north east of Byron Bay. Approx. 80 ha comprising all the area below Low Water Mark enclosed by a circle of 500 m radius centred on the trigonometrical station located on the southern peak of the Julian Rocks. The position of this Reserve (in the tropical/temperate overlap zone) and the diversity of its underwater terrain combine to allow a large range of tropical, subtropical and warm temperate species of flora and fauna to coexist.	Register of the National Estate (Registered)

Appendix 3 - Coastal Sites in Register of National Estate

Region	Place/Name	Location	Detail	Heritage Register/Database
South Coast	Jervis Bay and Surrounds	Jervis Bay	Approx. 30 000 ha surrounding and including Jervis Bay. Significant marine and terrestrial environment, flora and fauna species. Unusual geomorphologically because it is a drowned syncline, rather than the more usual drowned valleys of the NSW coast.	Register of the National Estate (Registered)
South West Pacific Ocean	Lord Howe Island Group and Maritime Environs	Lord Howe Island	480 km east of Australia and 700 km north east of Sydney. Approx. 1300 ha comprising the Admiralty Group, Mutton Bird Island, Gower Island, Lord Howe Island and Balls Pyramid Rock. Important in the evolution of the landscapes, flora and fauna of the region due to: its geological structures which include the remnants of a Miocene submarine volcano; its previous connectivity via island chains with Malaysia and New Zealand which has influenced the biota; and its animal fossils which are related to fossils on the Australian mainland.	Register of the National Estate (Registered)
Central Coast	Long Reef Aquatic Reserve	Collaroy, Sydney	Off Long Reef Point to a distance of 100 D7m seawards of the low water mark. Has numerous tropical invertebrate species.	Register of the National Estate (Indicative)
Central Coast	Towra Point Aquatic Reserve	Kurnell, Sydney	Approx. 300 ha extending from the northern shore of Kurnell Peninsula. Diverse and rare flora and fauna.	Register of the National Estate (Registered)
North Coast	Solitary Islands Marine Area	Wooli	East of Wooli. Approx. 85 000 ha extending from Muttonbird Island in the south to Plover island in the north. The meeting of the southward flowing East Australian Current with the colder northward flowing inshore current results in a complex mixture of communities in which marine species normally associated with the Great Barrier Reef can be found alongside species which occur as far south as Tasmania.	Register of the National Estate (Registered)
Central Coast	Shiprock Aquatic Reserve	Port Hacking, Sydney	Approx. 2 ha off Little Turriell Point on the western side of Burraneer Bay. Rich and varied marine fauna.	Register of the National Estate (Indicative)
Central Coast	North Sydney Harbour Aquatic Reserve	Manly, Sydney	Approx. 250 ha comprising intertidal and subtidal Rocky Reef areas between North Head and Little Manly Point, and between Grotto Point and Forty Baskets Beach and the waters between. Preserves examples of typical outer Sydney Harbour underwater terrain and its flora and fauna in a relatively natural condition.	Register of the National Estate (Indicative)
Mid North Coast	PS Ballina Shipwreck	Port Macquarie	110 m north of the eastern end of the southern breakwall at Port Macquarie. A 123 year old iron paddle steamer that sank at the entrance to the Hastings River 109 years ago.	Register of the National Estate (Indicative)
	PS Mimosa Shipwreck	Tanja	Approx. 11 km north east of Tanja and 150 m east of Bunga Head. Built in 1854. An important coastal steamer (iron paddle steamer) in Tasmanian and NSW waters. Collided with rocks.	Register of the National Estate (Registered)