

CHAPTER G. ECONOMIC ISSUES

This is only the third incorporation of an economic and social assessment of a management plan in the fisheries of NSW. It has been compiled from a limited amount of existing information, augmented by the results of economic and social surveys initiated by NSW Fisheries and undertaken by Roy Morgan Research (Roy Morgan, 2001a,b).

The following summary is based on the detailed consultants report prepared by Dominion Consulting Pty Ltd and presented in Appendix CG. The report on economic issues is in two sections; a review of existing information and then an assessment of the draft FMS against the Planning NSW guidelines.

1. Existing Information

Existing information is available from NSW Fisheries records and provides information on licensing, effort and catches at the primary level. Price, at first sale in Sydney, is also available and this enables an imputed Sydney fish price to be generated. Potentially, all “Sydney index” data in this report may understate revenue by 10% across all estuaries, as estimated by the recent economic survey (Roy Morgan, 2001a), and by 29% in regions 4 and 5. More accurate data is required on squid and prawn prices outside Sydney. Data on the fish processing industry is limited, being collected from annually renewed Registered Fish Receiver forms. The seafood processing, wholesale and retail industry in NSW requires further study.

An economic survey was undertaken by mail to enable a profile of the commercial fishers to be undertaken (Roy Morgan, 2001b). This had a response rate of 15.2%, 250 of 1,640 fishers statewide completing the surveys, of which 46 (15.6%) were from estuary prawn trawling endorsed businesses. This enabled the economic performance of businesses in the estuary prawn trawling catching sector to be appraised and gave an indication of the position of industry to pay additional charges and purchase shares under the draft FMS.

A rapid social appraisal telephone survey was undertaken by Roy Morgan Research (Roy Morgan, 2001a) and had a response rate of 50%, 870 fishers completing the questionnaire of which 171 estuary prawn trawling fishers (20%) completed surveys. This enabled the assessment process to have up to date information on industry, its social profile and an indication of the potential social impact of changes under the draft FMS, which are examined in Chapter H.

The review of existing catch, effort and endorsement information, indicated the Estuary Prawn Trawl Fishery is based in five estuaries north of Sydney, and it is seasonal with a high period between November and May. It is predominantly one person businesses, with business partnerships (8.3%) and a limited number of companies (3%). Approximately 22% of estuary prawn trawling fishers work in other industries.

There were 289 businesses in the Estuary Prawn Trawl Fishery in 2001, with 302 entitlements across the five estuaries. For the 310 estuary prawn trawling endorsement holders, 223 were actively fishing in a range of commercial fisheries in 1999-2000 and 87 were latent. Of the 223 active fishers, 48 could have fished in the fishery, but chose to catch fish in other fisheries for which they were endorsed. Of the 175 fishers who fished in the Estuary Prawn Trawl Fishery in the year 1999-2000, 62

fished only in the Estuary Prawn Trawl Fishery and 113 fished in estuary prawn trawling and other fisheries.

The employment associated with estuary prawn trawling endorsed fishing businesses was examined in the social survey. Between 257 to 474 persons are employed full-time and part-time in fishing businesses which hold an estuary prawn trawling endorsement. There is no indication as to the extent of part-time employment in this seasonal fishery. This estimate also includes processing staff and needs further research as a statewide profiling exercise in order to avoid double counting of employment in the fishing and processing sectors.

The economic survey obtained data on industry operating costs, revenues and capital for one financial year only. The fishery is highly variable in activity and capital investment levels, some fishers having low capital investment. Survey returns were analysed to measure economic profit and to estimate a net economic contribution to the economy.

Estimates of operating profit were made, as many operators did not include owner's payment from fishing. An economic approach was used to review long term viability. The economic test of long term viability subtracts economic costs from revenues and tests for evidence of a surplus. The economic costs have operating costs, fixed costs, including opportunity costs of capital, labour and economic depreciation. Having imputed a 7% risk adjusted opportunity cost of capital and imputed labour costs for all days worked from survey information, an estimate of economic depreciation was applied to test for long run viability, evidence of capacity to replace capital in the long term. Given the variation in the scale and scope of fishing operations, results were divided into estuary prawn trawling endorsed businesses receiving more than 20% of total revenue from estuary prawn trawling and estuary prawn trawling endorsed businesses with less than 20% of total revenue from estuary prawn trawling.

Long run economic surplus exists for 10% of all estuary prawn trawling fishing businesses examined, being greatest in the businesses which obtained less than 20% of total revenue from estuary prawn trawling. These businesses had an economic rate of return to capital of -13%, while businesses with more than 20% of revenue from the Estuary Prawn Trawl Fishery had an economic rate of return to capital of -30%. The average economic rate of return to capital across all the estuary prawn trawling businesses was -18%, the median being -25%. These results may under estimate the profitability of prawn fishing, due to possible under reporting of the prawn catch or other sources of income not detected in the survey.

Further economic annual surveying is required to monitor catch recording and economic performance between different years and in the longer term. The businesses currently operating below the long term viability criteria, are effectively subsidised by forgoing returns on capital and particularly on labour. This may be to accommodate lifestyle, or indicate barriers to fishers exiting the industry, such as lack of alternative employment in rural areas.

For the less viable operators, increased charges and requirements to purchase shares, will significantly reduce operational viability. There is a large range of operator performance given numerous part-time fishers, multiple fishing interests, and fishers with involvement in industries outside fishing, including subsidies from welfare. This is common in other rural industries, such as the NSW dairy industry, and requires on-going research on social structure of the industry and the economics of fishing households and communities.

Trends in licence values show no significant rise in estuary prawn trawling entitlement values in the last eight years, but this is a limited measure of economic performance, due to the restriction on transfers of endorsements and poor perceptions of management among fishers.

Limited information is available on non-Sydney fish market prices and shows higher prices for squid/calamari and school prawns, sold as high quality bait, particularly in the Hawkesbury River. Exports of seafood out of Australia by estuary prawn trawling fishers, was estimated as 8.1% of gross sales (Roy Morgan, 2001b).

Regional economic information on the NSW fishing industry is limited to several studies in northern and southern NSW in the late 1980s. Economic multipliers in the fishing industry are generally between 1.5 and 2.0 times the direct effect (Tamblyn and Powell, 1988; Powell *et al.*, 1989). Existing information from expenditures outside local towns infers that approximately 70% of expenditure stays in the local communities generating local multiplier effects (McVerry, 1996).

The social survey examined the type and location of major expenditure and regional purchase behaviour for major purchases made by estuary prawn trawling fishers, showing the importance of business links between estuary prawn trawling fishers in the Clarence and Brisbane, and between fishing centres and Sydney, Newcastle and Grafton in the north of the state. Nets, electronics and fuel/oil were 53% of the major purchase items for the estuary prawn trawling fishers interviewed.

2. Assessment

The assessment of the draft FMS draws on this background information and the responses under the draft FMS are ranked on their potential for larger scale economic impacts. There is insufficient cost and benefit information for a definitive ranking. The following issues are assessed:

- the intention under the draft FMS is to continue the annual 3% reduction in the number of fishing businesses seen under the Registered Fishing Operation policy, to decrease effort in industry through the category 2 share management regime and give the remaining fishers improved fishing rights. For assessment purposes a 15% reduction in business numbers under the first five years of the FMS is envisaged, reducing 289 fishing businesses in 2001, to 246 in 2006. The basis of share allocation has yet to be decided. It is envisaged that minimum share holdings may translate into businesses having to pay between \$900-\$1,200 per year to purchase shares to remain in the fishery, in addition to new management charges. Some businesses will exit, the most likely being latent effort holders and those businesses grossing below \$10,000 per year. Shares will be more readily purchased by the 10% of businesses in economic surplus. To the majority of fishers without an economic surplus, there is an incentive to increase effort to cover the new payments. It is essential to monitor latent effort and contain active effort levels within historical guidelines, as stated in the strategy. Given the low output associated with exiting fishers, the economic flow-ons from exiting businesses will be low. Social costs are reported in Chapter H, social issues
- effort management will be implemented regionally through a total allowable effort for each estuary. A minimum shareholding provision at the endorsement level will be implemented within each estuary to address the level of effort in each of the fishery estuaries. A 5% reduction has been envisaged for assessment purposes, equating to a payment of \$300-\$400 per year, for five years, to retain an endorsement in a given estuary. It is likely that latent effort holders and those businesses grossing less than \$10,000 per year, fishing less than 40 days a year will sell. If 5% of 310 endorsement holders exited in the first five years of the strategy, 16 fishers would be impacted to some degree, depending on their other fishing endorsements
- medium impacts may come from the establishment of the Prawn Resource Forum and alteration towards more optimal prawn harvesting practices. Changes in food safety practices are also envisaged
- low impact parts of the draft FMS, involve closures for species protection and also weekend and public holiday closures. Recovery plans and the implementation of an owner-operator policy may also impact fishers.

The costs and benefits of the major elements of the draft FMS are appraised through an environmental management cost account of the management of the fishery. To the estimate of economic surplus from fishing operations, the subsidised costs of management, research and compliance are added. Any change in the level of stocks is also counted to give a statement of current fishery status under environmental accounting principles. New costs to industry from the draft FMS and share purchase, are estimated and incorporated in the cost-benefit account.

The fishery has an economic deficit at the commencement of the draft FMS and seeks to have sound economic viability by 2006. Costs to fishers from new management charges and share purchase

are substantial, as the fishery moves towards full cost recovery after the first five years of the plan (2006-2008).

The economic achievement of the objectives of the draft FMS depends on the category 2 shareholding proposal being as effective as envisaged in the plan. This is new territory in fisheries management and fuller economic investigation of share allocation and subsequent monitoring of restructuring is warranted. Mitigation may involve shares being related to an amount of total effort, as proposed under the draft FMS.

By 2006, changes arising from the draft FMS will alter industry operations and cost recovery policy will address subsidies, moving towards full cost recovery by 2008. The draft FMS enables this process to occur and monitors the health of stocks underpinning industry and fishery viability. The draft FMS is a first step towards a more economically sustainable fishery in accordance with ESD principles.

3. Conclusions

This economic analysis of the draft FMS is done against a background of little available economic information with an economic survey indicating an economic loss for those businesses with less than 20% of revenue from estuary prawn trawling. The draft FMS will assist industry to remain economically viable by following the rate of adjustment under the established RFO process and addressing sustainable harvesting by controlling effort through a total allowable effort limit in each region and minimum shareholding provisions as required.

The analysis of the costs and benefits of the management plan, indicate that the fishery will be more profitable by 2006-07. The level of achievement of the draft FMS, through the new category 2 share management regime, needs to be monitored. There may also be cumulative impacts on estuary prawn trawling businesses from the restructuring of the Estuary General Fishery and from the recreational fishing area process. These will likely assist in reducing latent effort among estuary prawn trawling endorsement holders at limited cost to estuary prawn trawling fishers.

There are economic costs and social impacts for industry under the plan, as 44 to 58 of 289 businesses exit the Estuary Prawn Trawl Fishery in the 2002-2007 period. Many of these will be low catch or latent effort businesses, leading to minimal regional economic impacts due to their low output. The draft FMS should be seen as a significant step on the longer path towards achieving ESD objectives. The social issues are presented in Chapter H.

4. Data Requirements in Relation to the Assessment of the Impacts on the Economic Issues

a) Reference to technical data and other information relied upon to assess impacts

The data used in the assessment is from several sources. The catch and effort data is from NSW Fisheries and is logbook data joined with licensing data for tables that have fisher endorsements. The catch and effort data are segmented into each estuary. When licence data is used for spatial analysis and segmented by fisher district from general records there may be occasions that fishery activity in an estuary traverses two districts.

Effort data at the days fished level is complicated by the logbook system where fishing three methods in one day ends up being records as one day of effort against each of three methods. This limits the potential for accurate production modelling, or bio-economic analysis in the Estuary Prawn Trawl Fishery and other fisheries.

A significant issue for fishers is the use of the Sydney index for price imputation on declared catches. The monthly average price for a species from Sydney Fish Market is multiplied by the declared catch for a species. This enables both fishery wide and individual fisher revenue estimation. There are some inherent problems in this approach. Some species, such as calamari/squid may not have a representative monthly average price. The imputed price will likely be a minimum estimate of the price of species which are in strong demand. For example seafood such as larger prawns, are unlikely to be sent to Sydney market as local demand is strong at higher prices, without commission and freight. In some cases fishers in areas outside Sydney may receive prices closer to Sydney retail levels for valuable species.

The economic survey was done over a short time period and the responses may have been less accurate than verification of declared data through accounting records. The economic survey asked fishers to declare gross revenue from catch in 1999-2000 and this was compared with the predicted Sydney index for each fisher to see the inter relationship. The Sydney index may under estimate actual prices in estuary prawn trawling businesses by 10% and this varies by estuary, with regions 4 and 5 exceeding the Sydney index by 30% to 54%.

There are also uncertainties in the value of fishery businesses and endorsement values. Diversity among business packages mean the true value of access is difficult to determine. The move to share management will require examination of the structure of business and endorsement values.

b) Important knowledge gaps

Several gaps are apparent. The major one is the lack of an industry wide profile and input-output analysis of the seafood industry in NSW, including processing, wholesaling and the movements and values of seafood in the marketing chain. This would enable an evaluation of the secondary stages of the fish catch including transport, wholesaling, processing, exports, imports and employment derived from the NSW fish resource. It could also potentially extend to retailing.

Multiplier estimates could be verified and contribute to future assessments. The regional importance of the seafood industry in each zone could be evaluated. Part of this could use the Register

Fish Receiver annual renewal forms to include more information on processing activity in relation to the fisheries under management.

Fish price information outside Sydney needs to be collected on a regional and fishery basis. This is required, as several of the future assessment issues, such as the optimal harvesting time of prawns will require bio-value models using biological and size and price information for different prawn species during their migrations.

Economic viability is part of the objectives of the *Fisheries Management Act 1994* and annual surveys of economic profit are needed to account for strong annual variation. Business, endorsement and shares values is an area requiring more research. Similarly, longer term planning needs to be able to monitor the cost of operations and this could use existing survey information to establish a representative fishing cost index. This would monitor cost changes for producers and could parallel the Sydney price index for fish revenues. Economic linkages between fishing communities and within the fishing industry have been briefly addressed in the current social survey and could be augmented through time.

c) Timetable for developing the data sets

Data needs can be addressed in the next five year period through development of a strategy for improving the following data:

- investigation of available prawn species price data and establishment of price data monitoring system to enable valuation and modelling of resource management scenarios, such as maximising prawn bio-value through alternative harvesting regimes
- examination of the viability of businesses, business values, endorsement and share values and the basis of share allocation prior to trading. Subsequently, monitoring of share values to ensure industry viability and the achievement of the draft FMS objectives
- surveying the economic performance of businesses after the implementation of the plan (annual or biannual)
- develop a state-wide fishing industry economic restructuring model for predicting and appraising fishing business adjustments across fishery administrative divides
- revising the collection of effort data to enable more sensible modelling of catch per unit effort and productivity data. This would involve changing the fishery data logbook system and needs to happen within five years in preparation for long term sustainability issues, including economic modelling and monitoring
- developing an economic profile of the regional fishing and seafood processing industry in NSW. This could include marketing, economic infrastructure and regional benefits. This needs to be progressed by area and in conjunction with social community profiling as a basis for longer term planning.

CHAPTER H. SOCIAL ISSUES

This is the third formal incorporation of a social assessment of a management plan in the fisheries of NSW. It has been compiled from a limited amount of existing information, augmented by the results of a social survey initiated by NSW Fisheries and undertaken by Roy Morgan Research (Roy Morgan, 2001a,b).

The following summary is based on the detailed consultants report prepared by Dominion Consulting Pty Ltd and Umwelt (Australia) Pty Ltd and presented in Appendix CH1 and CH2, respectively. The report on social issues is in multiple sections; a review of existing information, an assessment of the draft FMS against the Planning NSW guidelines, health issues, heritage issues, Indigenous issues and data issues.

1. Existing Information

The regional and community location of fishers was identified from licensing data and compared with the ABS data for a range of social indices, at the post code level. This included local population, unemployment and fisher employment data from the 1996 national census and the SEIFA⁹ index of disadvantage for rural communities (ABS, 1996). The fishing communities tend to focus around key estuaries and towns, though a significant number of fishers reside in smaller communities. More in depth studies of fishing communities is an area for future work. A rapid social assessment telephone survey contacted 171 estuary prawn trawling fishers with a range of questions relevant to the draft FMS.

Total employment in businesses with an estuary prawn trawling endorsement, is estimated as between 257 and 474 persons (full-time and part-time), though those directly associated with the Estuary Prawn Trawl Fishery would be less. Some of the employees are probably in processing and there is no measure of the extent of part-time involvement. This requires further studies as recommended.

A demographic profile of estuary prawn trawling fishers was generated describing age, education levels, marital status and dependent children and relatives. The way of life of estuary prawn trawling fishers was investigated through questions on working hours in the normal, high and low seasons, and details of industrial injury through fishing. The estuary prawn trawling fishers were found to be an aged, highly resident population, with substantial fishing experience and strong family involvement with fishing, 30% of fishers having had more than two generations of family in the fishing industry. However, 47% are first generation fishers. Fishers in excess of 60 years of age, are 20% of all estuary prawn trawling fishers and a wide range of fishers of all ages are evident in the fishery.

The skill sets of fishers were examined through the social survey and 22% of fishers worked outside fishing, 13% being capable of working in another occupation full-time. Further investigation suggests that up to 26% of the estuary prawn trawling fisher population could consider working in other industries full-time or part-time. However, approximately 83% were insistent about their identity as fishers and were unable, or unwilling, to consider re training. This “psychic income” from fishing

⁹ (Socio-Economic Index For Areas)

and problems in mobility of fishers are similar to NSW dairy farmers and a range of issues are discussed. These require future research. Regional unemployment in NSW is higher on the North coast of NSW (15%) and areas outside Sydney, and is a significant issue for aging fishers considering alternative employment to fishing.

There is little independent opinion on community perceptions of fishing activities. In a community telephone survey in 1999, there was general concern among a random selection of the population for the well being of the fishery environment and for the need to manage and conserve fish stocks (Roy Morgan, 1999). Other community opinion about fishers, is less formal and is an area requiring development. Much commercial fishing activity is not evidenced by the public.

Recreational fishers are more aware of the commercial fishery and conflict over commercial prawn trawling in estuaries is common. The draft FMS seeks to reduce the conflict among commercial fishers and between commercial and recreational fishers. The recreational fishing area program is addressing these issues outside the FMS process.

The outcomes of the Prawn Resource Forum will assist in the management decisions of the Estuary Prawn Trawl Fishery to ensure that the management and harvest of prawns is equitable and efficient. The views of local people and representatives of community groups will also be incorporated into the management process.

2. Assessment

The social assessment followed the Planning NSW guidelines, but as there is no established social impact assessment framework for fishery management plans, an approach was developed from guidelines and available literature. The draft FMS management responses were ranked into high, medium and low impacts: firstly, those socio-economic issues arising from policy changes that could have broad impacts; secondly, issues of social process, where policy changes require these processes to function properly for management to be most effective.

The most highly impacting issues include the use of minimum business shareholdings and minimum shareholdings to reduce effort in each estuary. Each of these changes has the capacity to impact many families, local communities and regions, the assessment being able to examine regional and predicted family impacts from available data. Each of the impacts are assessed and mitigation is suggested where applicable.

The major social changes in the draft FMS involve the displacement of between 45 and 62 fishers in the first five years of the strategy, through the implementation of minimum business shareholdings and minimum shareholdings related to effort adjustment. These will probably impact part-time, and older fishers as 20% of fishers are over 60 years old and of pensionable age. A diverse range of people, who are either latent endorsement holders, or fishing businesses grossing less than \$10,000 per year will be impacted.

The predicted social impacts assume a 20% displacement of fisher numbers over the first five years of the FMS. The numbers of dependants associated with between 45 and 62 typical estuary prawn trawling fishers is between 86 and 122. This is an upper estimate, as if older fishers exit the fishery, then the number of dependants reduce to approximately 20 persons. Exiting fishers are likely to be low catchers, or have other income sources, if they are latent effort. This reduces the proportion of social impact attributable to the exiting of fishers under the draft FMS. The cumulative impacts of the estuary general FMS and the funds from the recreational fishing area process may impact the adjustment process indirectly and to an unknown extent.

The draft FMS will have different regional community impacts as indicated by the SEIFA index of disadvantage for fishing communities. On implementation of the draft FMS, the estuary prawn trawling fishing communities in Clarence River and Hunter River are most vulnerable to changes from the socio-economic impacts under the draft FMS, though other estuary prawn trawling fishing communities in Sydney and the Hawkesbury, are also potentially disadvantaged to some extent. Social impacts on communities will also depend on the economic responses of fishers to category 2 share management and to effort limitations, which will not be uniform between areas. The social impacts of the draft FMS may be mitigated by the rate at which adjustment of minimum shareholdings occurs.

Other measures in the draft FMS will require functioning social processes to ensure effective management. Responses involving communication, compliance and closing areas require cooperation between management and industry and a reduction in conflict to make the draft FMS successful. The draft FMS seeks to reduce conflict between estuary prawn trawling commercial fishers and recreational fishers through weekend and public holiday fishing closures. This needs to be monitored to ensure the effective implementation of the plan.

3. Conclusions

This is the third social assessment of a FMS in NSW. Available information, data and specially commissioned survey results, are used to describe the fishers and communities in the Estuary Prawn Trawl Fishery. It is notable that several rural areas away from Sydney in the Clarence River area, are socio-economically disadvantaged and will be less resilient to impacts under the draft FMS.

Most of the social issues arise from reallocation under category 2 share management and will impact fishers, employees, families and communities associated with the exiting of between 44 and 58 estuary prawn trawling businesses, with up to 62 fishers. It is predicted that older fishers, businesses earning less than \$10,000 per year and latent effort holders, will be likely to exit, with low levels of regional economic impact, due to the small loss of output associated with these fishers. An estimated 45-62 fishers, with between 86-122 dependents, will be impacted to differing extents in proportion to their age and income dependence on the Estuary Prawn Trawl Fishery.

The social impact will be noticeable in estuary prawn trawling fishing communities, given the lack of alternative employment for many aged fishers, though elderly fishers will now be able to retire with a payment from the sale of shares. Other social aspects of estuary prawn trawl fishing and NSW fishing communities, require further research in the next five years. This should prioritise understanding of fishing communities, as a base to appraise the cumulative impacts of successive fishery plans on a community as opposed to a series of impacts from different Fisheries Management Strategies in isolation. The current draft FMS is a step towards ESD objectives in the management of the Estuary Prawn Trawl Fishery.

4. Health Issues

a) Health risks related to the environment

The seafood safety scheme is based on the premise that some species and/or activities represent a potentially higher food safety risk than others. The highest food safety risk is associated with bivalve molluscan shellfish because they can readily accumulate harmful contaminants (bacteria, viruses, algal toxins and heavy metals) from their environment and transmit these to the consumer. Bivalve molluscs are not retained in the Estuary Prawn Trawl Fishery and the species that are targeted in the fishery do not need any special management arrangements. With the introduction of the Seafood Safety Scheme Regulation, responsibility for this fishery in terms of food safety will pass to SafeFood Production NSW.

i) Handling and processing health risks

As food producers, the provisions of current NSW food legislation, namely the *Food Act 1989* and the *Food Regulations 2001*, bind participants in the fishery. Vessels are included in the definition of “vehicles” in the *Food Act 1989*. There are no specific provisions relating to seafood specifically in the context of this fishery but general requirements about hygiene and cleanliness, keeping good records and keeping products cool apply to the handling of all foods including fish.

The *Food Production (Seafood Safety Scheme) Regulation 2001* due to be introduced by September 2001 will require all seafood businesses including those in the catching/harvest sector to be licensed with SafeFood Production NSW and prepare a Food Safety Program in respect of their activities.

With respect to the fishery, this will apply from the point at which the catch is brought on board the vessel. Where the same business or individual further processes or handles products on shore (after landing) the Food Safety Program will have to encompass each and all of those other activities.

For most participants who simply catch fish and transport them to land, the basic requirements would already be understood and met since they involve good handling and hygienic practices. Given the range of scale and sophistication of vessels and businesses engaged in the fishery, however, it is likely that some improvements will need to be made, primarily of a minor nature. Most such changes would probably be accommodated in the draft FMS.

Essentially the major food safety requirements on all participants in the fishery are to keep the catch clean, keep it cold and keep good records. The current level of compliance is largely unknown but with the introduction of the Seafood Safety Scheme all participants will be licensed and subject to audit and inspection.

ii) Health risks to fishers

There are a variety of occupational health and safety (OH&S) risks associated with the activity of fishing in the Estuary Prawn Trawl Fishery. These are related to the use of machinery, boats, powered winches, etc. Workcover administers the legislation, which controls these activities and protects workers' health. The fishing businesses are required by law to operate in a manner consistent

with the OH&S legislation. The draft FMS is not required to provide additional specific management responses to OH&S issues.

5. Heritage Issues

The following summary is based on the detailed consultants report prepared by Umwelt (Australia) Pty Ltd presented in Appendix CH2.

a) European heritage

This section reports the results of a review of the historic heritage that is located within the precincts of the five estuaries in which prawn trawling activities occur. 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 estuarine prawn trawling operations might have some impact on an element or vice versa.

For the purposes of this report, historic heritage has been differentiated between the transport and structural contexts. This differentiation is essentially dictated by the base source(s) or recording database(s) from which data has been derived. The transport context is specifically represented in the record of shipwrecks. The structural environment includes such resources as boatsheds, landing ramps, seawalls, breakwaters, wharves and boat harbours, but also includes such developments as structures for oyster culture, groynes and piles. This latter group of structures may have no physical connection to the shoreline.

i) The interaction of commercial fishing with historic heritage resources

The activities associated with the fishery are limited to associated boating, foreshore access and the use of trawl nets.

The physical and spatial presence of heritage resources within estuaries is likely to have only a marginal effect on commercial prawn trawling operations. With regard to shipwrecks, it appears likely that commercial prawn trawling in estuaries will have no impact on residual material evidence, having regard to the likely nature, bulk and mass of any residual material and the potential for sub-surface material to be covered by silt/sand. Nonetheless, in the reverse situation, it is possible for residual wreckage to pose a hazard, as a potential snag for nets.

b) Aboriginal Heritage

In general, the archaeological and ethnographic evidence clearly indicates that fishing and shell fish gathering were of great importance to Aboriginal people in pre-European times, right along the NSW coast, and the evidence suggests an increasing use of the full diversity of coastal resources over time. The evidence also suggests distinct differences in the styles of accessing the estuary and coastal fishery resources on the north and south coasts (e.g. in terms of seasonality and targeted species). Sullivan (1982) attributes these differences in the first instance to significant geomorphic differences between the north and south coasts.

i) Interactions between the Estuary Prawn Trawl Fishery and Aboriginal heritage sites

There are many Aboriginal sites along the banks of estuaries that provide abundant evidence of the value of estuarine resources to Aboriginal people, and in fact these sites underestimate the values of estuaries because no plant materials are preserved and only a portion of the more robust animal parts remain. There is, for instance, no archaeological evidence of prawn fishing and consumption,

just as there is no archaeological evidence of the widespread use of plant materials as foods, medicines, tools and equipment by Aboriginal people.

Estuary prawn trawling techniques involve the setting, towing and retrieval of nets. The nets are operated from small boats. In the large estuaries where prawn trawling is permitted, these fishery activities are most unlikely to impact on the stability of estuary banks or beds. Most prawn trawling areas, for instance, are within open estuary reaches where wind waves and tidal or flood currents are the dominant causes of bed and bank instability. The slow passage close to the bank of small trawling vessels would have relatively minimum impacts. There is some potential for boat passage to exacerbate bank erosion in narrow channels that may provide access to other parts of the estuary (e.g. along the narrow channels leading into Wooloweyah Lagoon), although prawn trawling vessels comprise only a small portion of total boating activity in these waterways.

The nature of estuary prawn trawling means that although the banks of estuaries are lined with known Aboriginal sites, there is a low risk that sites will be impacted by estuary prawn trawling activities.

There is potential for fishery related activities to impact on Aboriginal sites at restricted locations along estuarine waterways, for instance at boat ramps, and localities that are used for storage and maintenance of equipment. The extent of the risk associated with these activities will vary from one estuary to another and definition of the risk for an individual estuary will depend heavily on the availability of local knowledge (e.g. provided by discussions with local Aboriginal people and local NPWS officers).

Where potential impacts on Aboriginal sites are known to exist, it is important that they are addressed by liaison and management actions at the local level. This will ensure compliance with the requirements of the *National Parks and Wildlife Act 1974* (NPW Act) and will also enhance co-operation and understanding of cultural concerns.

In general, the physical evidence of past Aboriginal occupation of estuary banks is most severely threatened by land uses and activities other than estuary prawn trawling. Large midden sites in the Hunter estuary and north coast estuaries were exploited for lime in the nineteenth Century, and sometimes also for road base. Many sites have also been destroyed by agricultural land uses, urban and tourist development and some have been destroyed by bank erosion (that may have natural or anthropogenic causes).

In the cases of both Aboriginal sites along the banks of estuaries, the overall risk that activities authorised by the draft FMS will detrimentally impact on cultural heritage evidence is considered to be very small.

ii) Protocols to reduce the risk of harm to sites

Notwithstanding the low risk of impact on Aboriginal cultural heritage, several management actions are proposed to ensure that risks to archaeologically sensitive areas are minimised. These include:

- consultation with local Aboriginal community representatives in relation to any proposed commercial fishery facility that would be located on an estuary bank or foreshore. This would include maintenance of existing ramps, new launching ramps, wharves 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

- 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 (MAC).

6. Indigenous Issues

The following summary is based on the detailed consultants report prepared by Umwelt (Australia) Pty Ltd presented in Appendix CH2.

It is important to note that there are several other concurrent policy development initiatives by NSW Fisheries that will affect the interaction of Aboriginal fishers with the Estuary Prawn Trawl Fishery. In particular, NSW Fisheries is currently working with the Aboriginal community to develop an Indigenous Fisheries Strategy, that will provide a new framework for the management of Indigenous fishing. The information presented in this assessment draws on the work in progress towards the Indigenous Fisheries Strategy, and outlines a process for ongoing review of regulatory relationships, but in no way pre-empts the outcomes of that strategy.

a) Current access of Aboriginal communities to estuary fishing

Commercial fishing has existed in NSW estuaries since the mid nineteenth century, and by historical accounts from the late nineteenth century, it existed initially as a locally based activity because of the lack of effective refrigerated transport to bring catches to the Sydney or export markets. Commercial fishing operations moved to more remote estuaries early in the twentieth century. Commercial prawn trawling commenced in Port Jackson in 1926, spreading to the other four estuaries in the 1940s. There have been substantial increases in prawn trawling fishery effort since that time. Thus, although the interaction of traditional Aboriginal fishing activity with the commercial estuary sector in estuaries spans approximately 150 years in the Sydney area, and 100 years elsewhere on the NSW coast, the interaction with prawn trawling activities is restricted to only five estuaries and a period of 60 to 80 years.

From the late nineteenth century, a number of estuaries (or parts of estuaries) were closed to commercial fishing and prawn trawling, generally to conserve or to allow the regeneration of fish stocks. Traditional Aboriginal fishers (not holding commercial licences) would have continued to have access to the aquatic resources of these waterways during periods of commercial closure.

Since the mid 1980s, a number of new regulations have been introduced by NSW Fisheries. The broad objective of these regulations was to enhance the efficiency of the commercial fishery, and introduce greater control over fishing effort and impact. The number of Aboriginal people who are licensed as commercial fishers in the Estuary Prawn Trawl Fishery and the relative scale of their fishing effort, is not known.

The introduction of greater regulation in the fishery from the mid 1980s had several unintended consequences in relation to the access of Aboriginal communities to the estuary fishery. The impacts of the regulations continue to be of concern to Aboriginal fishers.

b) Management of interactions between Indigenous fishing and the Estuary Prawn Trawl Fishery

i) Outstanding issues of concern to coastal Aboriginal communities

The level of Aboriginal participation in the commercial fishery sector (based on interview data) appears to have declined substantially over the last twenty years. There are now perhaps less than fifteen active fishing licences (estuary general and estuary prawn trawl) held by Aboriginal

families along the coast. However, the lack of commercial participation is not an indication of declining Indigenous participation in fishing and prawning generally. There are four main categories of outstanding issues of concern to the Aboriginal community in relation to their participation in the management of fisheries in NSW (NSW Fisheries, 2000c) and each of these is also relevant to the impact of the draft FMS on Aboriginal communities:

- lack of recognition and accommodation of traditional Indigenous fishing practices
- declining participation of Aboriginal people in commercial, recreational and aquaculture fisheries
- insufficient meaningful presence and participation of Aboriginal people in the process for managing and conserving fisheries resources
- need for better communication and consultation with Aboriginal people.

Actions to address Aboriginal concerns in the draft FMS

The draft FMS identifies Indigenous people as stakeholders in the Estuary Prawn Trawl Fishery, noting that these interests arise from:

- direct participation in the fishery as commercial fishers
- traditional fishing practices, whereby people catch fish and prawns on behalf of themselves and their community
- lodgement of Native Title claims over estuarine areas that are used for commercial prawn trawling (e.g. the Banjalang claim in the Clarence estuary).

NSW Fisheries legislation does not currently recognise Indigenous fishers as a separate sector of the fisher population, and this is the main reason why none of the legislative reviews to date have given extensive consideration to Aboriginal community concerns.

The draft FMS does not specifically address the Aboriginal community's view that the evolution of the fisheries legislation in NSW has gradually but consistently undervalued the interests of Aboriginal people in the estuary fishery. The draft FMS does, however, foreshadow future amendments to the strategy to better accommodate Aboriginal community interests. For example, objective 4.3 specifically addresses Indigenous concerns:

Objective 4.3: To minimise any impacts of the Estuary Prawn Trawl Fishery on Aboriginal cultural heritage.

(a) participate in the development and subsequent reviews of the Indigenous Fisheries Strategy and make adjustments to this fisheries management strategy where needed.

This and other objectives demonstrate a commitment by the fishery to operate in an ecologically sustainable manner that recognises the needs of other stakeholders and the need for excellent communication and understanding of the perspectives of those stakeholders.

In the draft FMS the performance indicator listed for appropriate sharing of the fishery resource is the catch level (including estimates) of the commercial, recreational and Indigenous fishing sectors. A trigger point for review is noted as a shift in relative catch levels of 25% between sectors over the term of the strategy. It is important to note that such a shift in relative catch is unlikely to occur without significant changes to policies affecting access to the resource.

The performance indicators and trigger points will be reviewed when the overall strategy is reviewed to ensure that they provide appropriate guidance on the interaction between the estuary prawn trawl fishery and Indigenous fishers.

ii) Towards a NSW Indigenous Fisheries Strategy

NSW Fisheries has recognised that coastal Aboriginal communities have long standing and legitimate interests in the fishery resources of estuaries. The NSW Government now also acknowledges that Indigenous community interests in the estuary fishery are contemporary and do not only relate to past history. The traditional access of Aboriginal communities to natural resources has been restricted by existing fisheries management policies and legislation.

A recent working paper prepared by NSW Fisheries (2000c) indicates that consultation is progressing about how best to recognise and accommodate the rights and interests of Aboriginal people in the estuary fishery and other commercial fisheries. The working paper is part of the process for the development of an Indigenous Fisheries Strategy for NSW.

Interaction of the draft FMS and the Indigenous Fisheries Strategy

The time frame for the finalisation of the Indigenous Fisheries Strategy is not clear, and there are many complex issues to be resolved before the stakeholders agree to a sustainable strategy. It is most probable that the draft FMS will be assessed and will commence implementation before negotiations about the Indigenous Fishery Strategy are complete.

The preliminary indications are that the Indigenous Fisheries Strategy will, subject to Government funding, address many of the issues that remain as outstanding concerns to the Aboriginal community in relation to the Estuary Prawn Trawl Fishery. It is also possible that the strategy will include a staged series of actions to gradually improve Indigenous access to the natural resources of estuaries and other fisheries, ensuring that any necessary changes to the FMS will also be gradual.

Ongoing review of the FMS will be essential to ensure that any changes in the policy approach to Indigenous fisheries are adopted. It is proposed that the draft FMS will be reviewed in two years, with particular attention to ensuring consistency between any Indigenous Fisheries Strategy that exists at that time, and the management protocols contained in the FMS.

c) Summary

As noted above, the risk of impacts on Aboriginal sites from activities in the Estuary Prawn Trawl Fishery is considered to be low at the whole of industry level, although specific local issues may emerge that need careful management.

Many of the concerns of Aboriginal communities about the impact of current commercial fishery regulations on their livelihoods and lifestyles are being addressed through the partnership with NSW Fisheries to develop an Indigenous Fishery Strategy. However, this process may take some time, both to finalise to the satisfaction of all stakeholders, and to implement through changes to other strategies and legislation.

In the shorter term, several actions are recommended to minimise the risks of adverse interactions between Estuary Prawn Trawl Fishery activity, Aboriginal heritage and contemporary Indigenous community issues. These include:

- focus on enhancing communication between NSW Fisheries and Aboriginal communities at all levels
- prepare cultural awareness material for commercial fishers in the estuary prawn trawl sector (and other sectors) highlighting risks to Aboriginal sites and how these can be minimised
- ensure close co-ordination of the preparation of new fishery management strategies for commercial, conservation, recreational and Indigenous sectors, to enhance opportunities for identifying innovative cross sectoral management options
- explore opportunities for further Indigenous fishing or recreational fishing development in estuaries that are currently subject to a low level of commercial fishing activity
- the FMS should be reviewed after two years, so that changes to Indigenous fishing policies can be accommodated.

7. Data Requirements in Relation to the Assessment of the Impacts on the Social Issues

a) Reference to technical data and other information

Prior to this study there was little social information on commercial fishers in NSW. The survey data comes from a rapid social appraisal questionnaire executed by a telephone survey, which is a first step towards the incorporation of social information in the management of fishers in NSW. The survey is not a definitive social profiling exercise. Given the complexity of the fisheries production inter relationships, multiple communities and political climate among industry members facing significant allocation issues, the survey sought to gain a rapid over view of social issues raised under the draft FMS.

The survey revealed some inconsistencies in answers involving fisher income and these have been investigated by matching with the available Sydney price index information and preliminary results from the economic survey. There are some occasions in which the absence of a fisher submitting a catch return in the required time period will give inconsistent results.

b) Important knowledge gaps

The social profile of estuary prawn trawl fishers can be augmented through time by further studies. Regional analysis of fisher communities is a priority integrating with economic information on the importance of the fishing activity to the community infrastructure of towns in NSW. Other approaches examine expenditures by businesses and employees, and examines employee residential locations, social infrastructure services and existing social networks (Fenton and Marshall, 2001). Future social survey work should address community structure and inter-relationships at a regional level and articulate with regional economic studies previously recommended in section G. This could be developed to monitor community impacts through all the fishery management strategies being developed in the next few years.

c) Timetable for developing the data sets

More comprehensive social profiles and regional analysis should be undertaken in the next five years to assist in monitoring the impacts of adjustment and in preparation for appraisal of future management strategies. The survey information recently obtained can have existing NSW Fisheries data added to it for analysis, but has a limited shelf life.

More complete regional industry and fishing community studies need to be undertaken recognising that the fishing communities can be cumulatively impacted by multiple fishery management strategies. In time it is desirable for the fishing community profile and characteristics to be more clearly identified. This would enable impacts from different fisheries management strategies to be monitored. In the longer term repeating social impact assessments for each strategy risks ending up as a piecemeal and duplicative process if progress is not made in more fundamental fishery community profiling and monitoring in the next five years.