

(H) SOCIAL ISSUES

The background to the social assessment of the Estuary Prawn Trawl FMS is given at the commencement of the Economic section (G).

The environmental assessment guidelines issued by Planning NSW require examination of social information on fishers and their communities. Australian Bureau of Statistics (ABS) data was obtained from the Bureau of Rural Science (BRS) social science unit, to examine the secondary level information available on the communities and fishers in the NSW fishing industry. The results of this fisher community profiling are presented in Appendix H1.

The second approach was a fisher telephone survey of all fishers in NSW to obtain more specific social information of relevance to appraising issues under the Fisheries Management Strategy process. An overview of the state-wide social survey is reported in Appendix H2.

The available information is used to address the social issues surrounding the introduction of the Estuary Prawn Trawl Fisheries Management Strategy. Given the lack of previous studies, the review cannot fully complete the Planning NSW guidelines and gaps have been identified. The need for future research is presented in section 3.

The Planning NSW guidelines for social issues will be followed below. The guidelines are presented as headings to guide the reader, with a response stated below each guideline. The environmental assessment guidelines issued by Planning NSW require that we:

“Assess the likely social impacts of the fishing activity proposed under the management plan”.

1) Review of the existing situation

(a) Describe the demographic profile of those employed in the fishery (by regions/sub-regions/fleets) – including:

- (i) direct employment eg boat owners, skippers and crew; identify those with multiple endorsements and those “part-time” fishers (eg with other sources of employment, or semi retired); and indirect employment (cold stores, traders, suppliers);

The Estuary Prawn Trawl fishers fish in five estuaries as reported in Table G1 and G4 of the economic section.

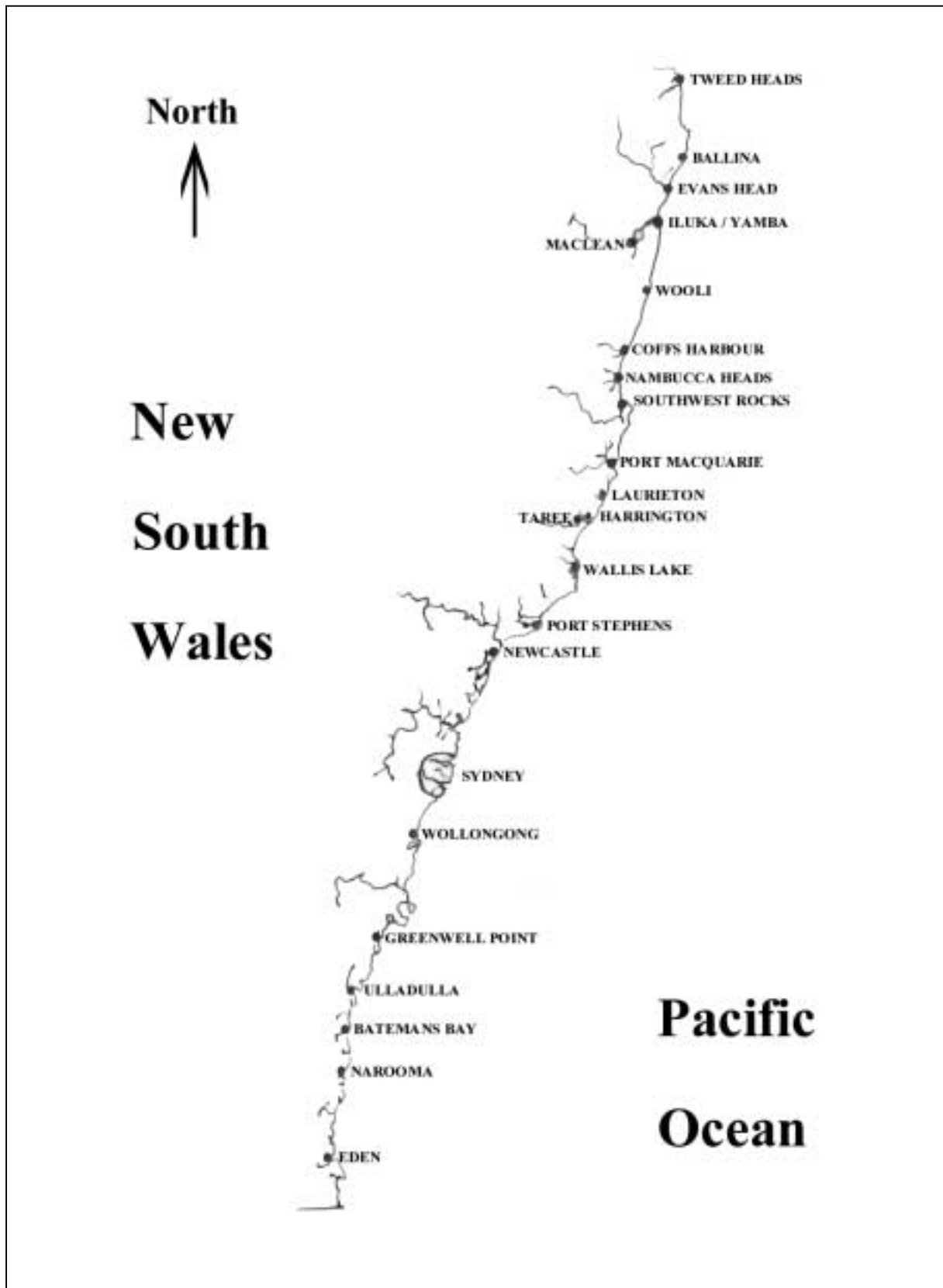
The profile of fisher communities in coastal NSW for all commercial fishers is reported in Appendix H1. The information on EPT fishers and their communities has been extracted and are summarised in Table H1, which reports social indices for EPT fishers at the zone and district level from ABS and licensing data. This can be used in appraising management impacts at district or grouped post code level. Figure H1 is a map of coastal fishing towns along the NSW coast and can be used in conjunction with district and postcode Tables.

Table H1: Summary table of social indices for EPT fishers in zones and districts of NSW (Source: ABS/BRS and NSW licence data).

Zone	Home District	P'code Population	P'code Fishers	EPT P'code Fishers	Un employed (%)	SEIFA	Med. Ind. Income (wk)	Employed in C.F. as (%) of labour force	Employed in EPT as (%) of labour force
1	TWEED	7,976	19	1	16.2	921	250	0.41	0.02
	RICHMOND	4,374	35	6	18.1	909	215	1.02	0.17
	Zone	12,350	54	7	17.1	915	233	0.72	0.10
2	CLARENCE	43,353	259	121	18.8	919	222	3.12	1.46
3	COFFS HARBOUR	44,336	72	5	18.1	958	250	0.35	0.02
	HASTINGS	27,129	53	4	19.0	921	215	0.78	0.06
	Zone	71,465	125	9	18.6	940	233	0.57	0.04
4	MANNING	9,566	45	5	19.3	896	180	0.65	0.07
	WALLIS LAKE	19,457	88	2	15.1	939	250	2.78	0.06
	PORT STEPHENS	52,562	101	6	13.0	967	250	1.33	0.08
	HUNTER	30,332	45	14	14.9	915	226	0.23	0.07
	CENTRAL COAST	159,297	62	25	10.6	978	270	0.00	0.00
Zone	189,629	341	52	12.7	946	248	0.11	0.04	
5	HAWKESBURY	2,380	30	28	7.4	1004	300	0.00	0.00
	SYDNEY	3,276,207	189	84	7.3	1047	350	0.00	0.00
	Zone	3,278,587	219	112	7.4	1026	325	0.00	0.00
6	ILLAWARRA	6,653	18	1	19.0	827	180	0.10	0.01
	SHOALHAVEN	53,871	75	2	15.1	945	215	0.81	0.02
	Zone	60,524	93	3	17.1	886	198	0.46	0.01
Grand Total		3,989,867	1,091	304	15.3	943	235	1.03	0.25

Key: Postcode population as of 1996; postcode fishers-for all NSW and EPT fishers; Unemployed by postcode as of 1996 census; SEIFA -Socio-economic index for areas (ABS), Med. Ind. Inc.- median individual income per week as of 1996 census; Employed in commercial fishing (or EPT) as percentage of labour force; see Appendix 1 for a fuller explanation of variables.

Figure H1: Map of fishing towns on the NSW coast.



In spite of operating in 5 estuaries only, EPT business owners inhabit a range of small towns and the social survey identified that there were 171 EPT endorsement holders using 26 “home ports” in NSW, 67% of which were in the 5 EPT estuaries. In Table H2 ABS postcode data enables EPT fishers to be identified as part of fishing communities in NSW¹. The definition of fisher communities is an area for further work.

In Table H1, EPT fishers are approximately 28% of all NSW fishers in the analysis. Unemployment by region is higher in rural NSW and will be investigated later in this section. The Socio-Economic Index for Areas (SEIFA) is a measure of socio-economic disadvantage, relative to 1,000 units. In Table H1, most of rural NSW fishing zones are under 950 on the SEIFA index, while Sydney exceeds 1,000. Median weekly income data for regions in 1996 show a similar situation.

In Table H1, EPT fishers are most numerous in the Clarence River region and from the Hunter River, south to Sydney. In Table H1, the second last column reports all commercial fishers as a percentage of the local working population and the last column reports EPT fishers as a percentage of the local working population. These are ABS data from the 1996 census. Fishers in the Clarence and Hunter areas, have the highest percentage of EPT fishers in the work force indicating economic and social dependence. In areas of higher general population, the fishers as percentage of labour force method does not reflect the size of the fishing community (for example, Hawkesbury River, Sydney Harbour and Botany Bay), as the general work force is large relative to the number of commercial fishers.

Table H2 reports major home post codes for EPT fishers within districts and illustrates the diversity in community structures and in the home locations of EPT fishers. EPT fishers are most numerous in the Clarence region and in postcodes from central coast to Sydney. EPT fishers form a substantial part of the NSW fishing community in many postcodes ranging from 1.7% to 100% of local fisher numbers. A significant number of postcode areas with EPT fishers fall below 920 on the SEIFA index of disadvantage and may well be more adversely impacted by changes under the FMS (For example: Broadwater/Coraki, Evans Head, Woombah/others and Iluka in the Clarence River region; Laurieton/others, Harrington/Coopernook, Mayfield and Stockton in the Hunter River). Similarly a range of areas record median individual weekly incomes below \$200 in the 1996 census. Several postcodes have a high percentage of EPT fishers in the work force (for example; Woombah/others, Yamba/others, Lawrence/others, Iluka, Maclean, Tea Gardens, and Stockton/others). Conversely some postcodes have relatively few EPT fishers as a percentage of the

¹ This is explained in Appendix H1, where the available data is for postcodes with over 10 NSW commercial fishers.

work force (eg. Hawkesbury, Sydney), though this should be interpreted with caution, given the weakness of this method in areas of high population. Table H2 indicates the numbers of EPT endorsed fishers in each post code and this should be referred to in any inference. For example the Hawkesbury River commercial fishers are a very small percentage of the total labour force, but number 10 and 18 EPT fishers.

The numbers of direct and indirect employees associated with the EPT fishery and the multiple endorsement structure are reviewed in the economic section, Chapter (G).

Table H2: ABS social index data on EPT fishing communities in NSW at the postcode level (Source ABS/BRS; NSWF licence data).

Zone	Home District	Post code	Town/Suburb	P'code Pop'n	P'code Fishers	P'code Fishers (EPT)	EPT fishers as % of all NSW	Un employed (%)	SEIFA	Med. Ind. Income (wk)	Employed in C.F. (%) of Labour force	Employed in EPT (%) of Labour force
1	TWEED	2487	CHINDERAH/OTHERS	7,976	19	1	5.3%	16.2	921	250	0.41	0.02
1	RICHMOND	2472	BROADWATER/CORAKI	1,761	10	2	20.0%	19.5	919	250	1.02	0.20
1	RICHMOND	2473	EVANS HEAD	2,613	25	4	16.0%	16.8	900	180	1.02	0.16
2	CLARENCE	2469	WOOMBAH/OTHERS	933	10	3	30.0%	27.2	854	180	1.02	0.31
2	CLARENCE	2464	YAMBA/OTHERS	5,340	64	14	21.9%	17.1	954	250	4.46	0.98
2	CLARENCE	2460	LAWRENCE/OTHERS	29,145	24	16	66.7%	14.8	951	250	1.21	0.81
2	CLARENCE	2466	ILUKA	1,863	65	24	36.9%	18.6	891	180	4.46	1.65
2	CLARENCE	2463	MACLEAN/OTHERS	6,072	96	64	66.7%	16.2	946	250	4.46	2.97
3	COFFS HARBOUR	2456	WOOLGOOLGA/URUNGA	11,848	20	1	5.0%	20.5	944	250	0.46	0.02
3	HASTINGS	2431	SOUTH WEST ROCKS	3,965	33	2	6.1%	18.6	926	180	0.78	0.05
3	HASTINGS	2440	CRESCENT HEADS/OTHERS	23,164	20	2	10.0%	19.3	916	250	0.78	0.08
3	COFFS HARBOUR	2450	COFFS HARBOUR	32,488	52	4	7.7%	15.8	971	250	0.24	0.02
4	PORT STEPHENS	2301	NELSON/SALAMANDER BAYS	25,046	27	1	3.7%	11.1	997	250	1.04	0.04
4	CENTRAL COAST	2261	BERKELEY VALE/OTHERS	32,623	19	1	5.3%	14.1	935	250	0.00	0.00
4	MANNING	2443	LAURIE/OTHERS	8,093	21	1	4.8%	20.6	909	180	0.60	0.03
4	HUNTER	2281	SWANSEA/OTHERS	11,349	15	1	6.7%	14.3	935	180	0.05	0.00
4	PORT STEPHENS	2315	NELSON BAY/OTHERS	8,393	54	2	3.7%	14.3	966	250	1.04	0.04
4	WALLIS LAKE	2428	FORSTER/TUNCURRY/OTHERS	19,457	88	2	2.3%	15.1	939	250	2.78	0.06
4	CENTRAL COAST	2250	ERINA/OTHERS	57,810	10	3	30.0%	7.7	1025	350	0.00	0.00
4	PORT STEPHENS	2324	TEA GARDENS/OTHERS	19,123	20	3	15.0%	13.6	937	250	1.91	0.29
4	CENTRAL COAST	2251	AVOCA BEACH/OTHERS	29,370	11	4	36.4%	8.5	1032	250	0.00	0.00
4	MANNING	2427	HARRINGTON/COOPERSNOOK	1,473	24	4	16.7%	18.0	883	180	0.71	0.12
4	CENTRAL COAST	2257	EMPIRE BAY/OTHERS	25,326	10	6	60.0%	11.6	957	250	0.00	0.00
4	HUNTER	2304	MAYFIELD/WARABROOK	13,925	18	6	33.3%	17.6	890	250	0.07	0.02
4	HUNTER	2295	STOCKTON/OTHERS	5,058	12	7	58.3%	12.8	918	250	0.56	0.32
4	CENTRAL COAST	2256	WOY WOY/OTHERS	14,168	12	11	91.7%	11.1	941	250	0.00	0.00
5	HAWKESBURY	2083	MOONEY MOONEY	1,450	12	10	83.3%	5.7	1042	350	0.00	0.00
5	HAWKESBURY	2775	SPENCER	930	18	18	100.0%	9.2	967	250	0.00	0.00
5	SYDNEY		SYDNEY NORTH & SOUTH	3,276,207	189	84	44.4%	7.3	1047	350	0.00	0.00
6	SHOALHAVEN	2541	NOWRA/OTHERS	29,663	16	1	6.3%	12.0	957	250	0.81	0.05
6	ILLAWARRA	2506	BERKELEY	6,653	18	1	5.6%	19.0	827	180	0.10	0.01
6	SHOALHAVEN	2540	GREENWELL POINT/OTHERS	24,208	59	1	1.7%	18.2	933	180	0.81	0.01
					1091	304						

The social survey enabled a social profile of EPT fishers to be developed as reported in Table H3.

Table H3: The demographics of fishers in the EPT fishery (Source: RM -SS and NSW licence data).

Statewide profile	All NSW	EPT
Mean age of fisher (years)*	54.4	47.1
Age range	16-88	20-85
Percent males	99.2%	100.0%
Mean years resident in town	24.2	23.8
Mean years in Fishing Ind.	20.8	21.7
Generations in Fishing Ind.	1.9	2.0
Median Hours /week in fishing industry	54.1	52.6
Percent currently employed in other industries	19.1%	22.5%
Housing Tenure		
Own	49.9%	49.1%
Paying off	32.8%	27.8%
Renting	15.8%	18.9%
Other	1.4%	4.1%
Education		
Did not finish PS	2.0%	4.2%
Did finish PS	3.6%	4.8%
Year 7	4.1%	4.8%
Year 8	9.6%	10.1%
Year 9	17.4%	16.7%
Year 10	32.1%	31.0%
Year 11	3.8%	3.0%
Year 12	11.4%	11.3%
Trade cert.	10.1%	11.3%
Ind/ business	1.7%	1.8%
Uni	3.3%	0.6%
Other	0.9%	0.6%
Marital Status		
Married or relationship	81%	80%
Single	11%	11%
Other (Divorced, separated, widowed)	8%	9%
Partner employed in Fishing Business	40%	41%
Mean number of Children <16 years	1.2	1.6
(Other) Dependants		
None	63%	69%
Spouse	23%	22%
Children - over 16 and other	14%	9%
Employed Status		
Owner operator	88%	95%
Non fishing owner/other	4%	2%
Nominated fisher/skipper	8%	3%
Employees (%)		
0	65%	73%
1 or more	35%	27%
Mean Individual net taxable income (all industries)	\$ 39,634	36,185
Mean Household net taxable income	\$ 42,483	39,395
< 6,000	3%	4%
6,000-9,999	2%	1%
10,000-19,999	7%	5%
20,000-29,999	20%	23%
30,000-39,999	20%	19%
40,000-49,999	11%	9%
50,000-59,999	8%	7%
60,000-69,999	8%	7%
70,000-79,999	5%	10%
80,000-89,999	5%	8%
90,000-99,999	1%	0%
100,000+	11%	7%

Table H3 reports that the average age of NSW commercial fishers is 54.4 years and is higher than the 45.3 years recorded for all Queensland fishers (Fenton and Marshall, 2000). The average age of the EPT fishers is 47.1. Participation of females in direct fishing is zero according to the survey, though 41% of fishers' partners are employed in EPT fishing businesses. Approximately 95% of EPT fishers are owner operators, average over 21.7 years of fishing experience, work a median of 52.6 hours per week, and 22.5% of EPT fishers work in other industries. Fishers have high levels of residency, averaging 23.8 years and high levels of home ownership, with 77% owning or paying off a home.

The 171 EPT fishers interviewed had low rates of formal education, with 72.6% achieving year 10 education or below. Approximately 13.1% had a trade or business training. Fishing forms a significant part of individual fishers income, with 85% of income from fishing (see Table G9 of the economics chapter). Fisher net taxable income from all industries was \$36,185 after tax, of an average household income of \$39,395, indicating the overall contribution of 92% by fishers to household income.

In examining dependants, it was found that 60% of EPT fishers had no dependent children below 16 years of age as reported in Box H1.

Box H1: Dependent children below 16 years of age for EPT businesses (RM-SS).

No. of Children	Freq.	Total Children	%
0	103	-	[60% of 171]
1	21	21	15%
2	24	48	34%
3	19	57	40%
4+	4	16	11%
Total	171	142	100%

The balance of 68 fishers had 142 dependent children under 16, representing families with an average of 2.1 children per family. Table H3 reports about 69% of 171 EPT fishers had no financial dependents, 22% had dependent spouses and 9% had dependent grandparents, parents, stepchildren and children over 16 years.

Of 171 EPT endorsement holders contacted, 139 had been fishing in EPT in the previous 12 months. The balance of sampled endorsement holders were fishing elsewhere.

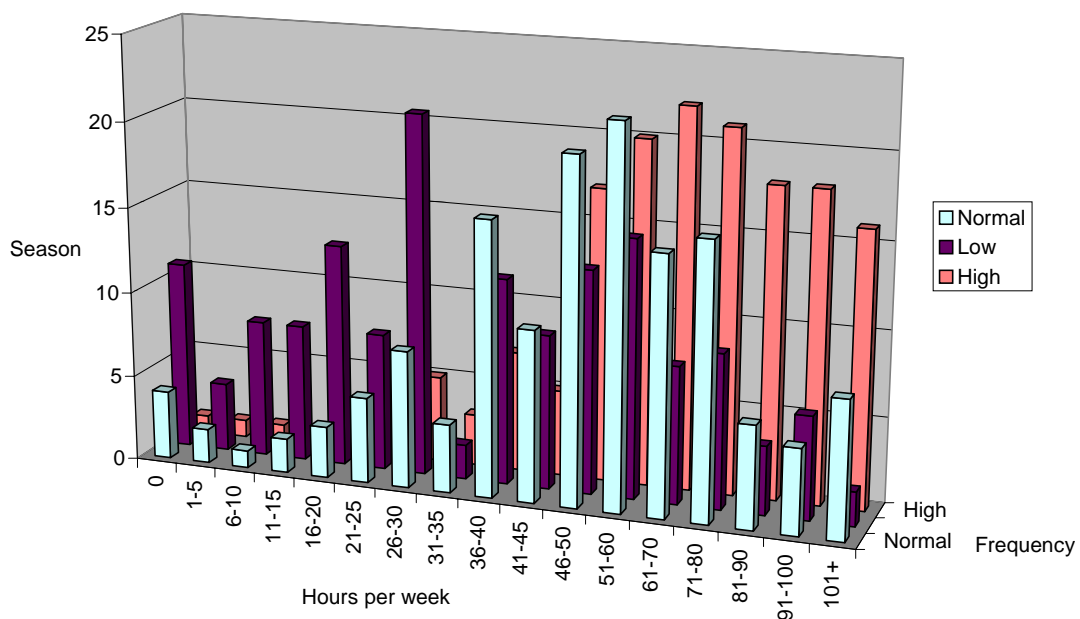
(b) Outline the community values associated with commercial fishing, in particular :

(i) fishers’ ways of life; fishing communities and trends associated with changes in fishing technology, communications and estuary management practices.

Industry working practices

The social survey asked questions to provide information on industry working practices. Part of the fishers life style, is that fishing takes more hours than the conventional 40 hour week. Fishers were asked to estimate their average working week in normal, low and high seasons. The estimates from the telephone interview are reported in Figure H2. The data suggest that normal working hours are 52.6 per week. This is significantly in excess of the 42 hours per week estimated by ABS for fishers nationally (ABS, 1996). High season estimates exceed 70 hours/week while low season hours are typically 26-30 hours/week.

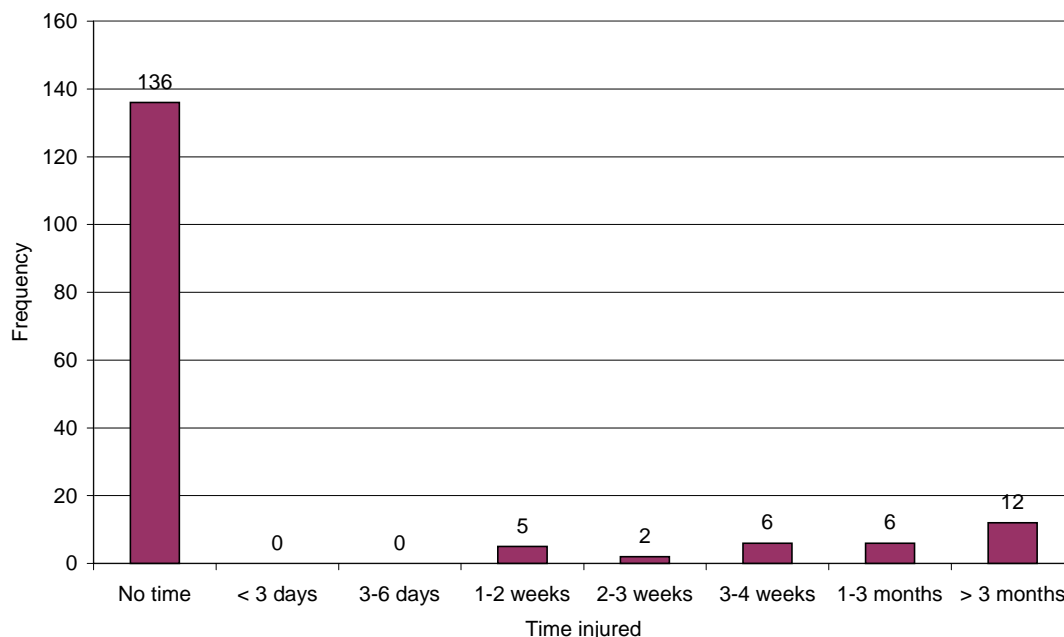
Figure H2: Hours worked per week in the Normal, Low and High seasons in the EPT fishery (Source: RM-SS).



Fishing is a diverse activity and can lead to industrial injury.

About 18% of the 171 fishers interviewed were not active in the fishing industry in 1999-2000 for a variety of reasons (Roy Morgan, 2001a). The graph indicates that 81% of fishers had no fishing injuries in the previous 12 months, but that 16% of fishers were out of fishing for 2 weeks or more in the year 1999-00 through industrial injury (26 fishers). This indicates the level of industry related injuries in the EPT fishery.

Figure H3: Duration of non-working time from industrial injury in commercial fishing in the EPT fishery (Source: RM-SS)



Investigate community/regional aspects of fishers

The regional location of fishers by district is reported in Tables H1 and H2. There is no accepted definition of “fishing communities” and this requires further analysis of economic and social interactions and linkages between fishers and between communities (Fenton et al. 2000).

The regional location of fishers by district has been reported in Tables H4a and H4b. Fishers were asked about their pattern of travel for their main fishing activity. In Table H4a about 9% of fishers show significant traveling behaviour of over 50km per day in their fishing operation. This may reflect the travel by EPT fishers arising from their other fishing activities.

Table H4a: Travel distance to main fishing site in the EPT fishery (Source: RM- SS)

	Frequency	%	
<25 km, 1hr by boat	117	69%	
25-50 km, 1-2hr by boat	32	19%	
50-100 km, 2-3hr by boat	13	8%	
>100 km, > 3hr by boat	2	1%	
Can't say	6	4%	n= 170

Fishers were asked how many years they have lived in their current postcode area? The results are reported in Table H4b.

Table H4b: Residency at current postcode (Source: RM-SS)

Years	Freq.	%	Years	Freq.	%
<1	3	2%	21-25	18	11%
1-5	20	12%	26-30	13	8%
6-10	21	12%	Over 30 yrs	66	39%
11-15	16	9%	Can't say	0	0%
16-20	14	8%	n=	171	100%

Table H4b shows 75% of fishers have been living in the same postcode area for 10 years or more. Less than 14% have moved their postcode residency in the last 5 years. The EPT fisher population is reasonably sessile, with limited operational travelling behaviour and has a significant number of fishers who have been resident in a local area for a long time. This is probably an indication of their community involvement in local areas.

- (i) social capital issues; age distribution of fishers; skill base and transferability of skills; consider trends by region or sub –region affecting entry or exiting of fishers, employees or boat owners in the sector

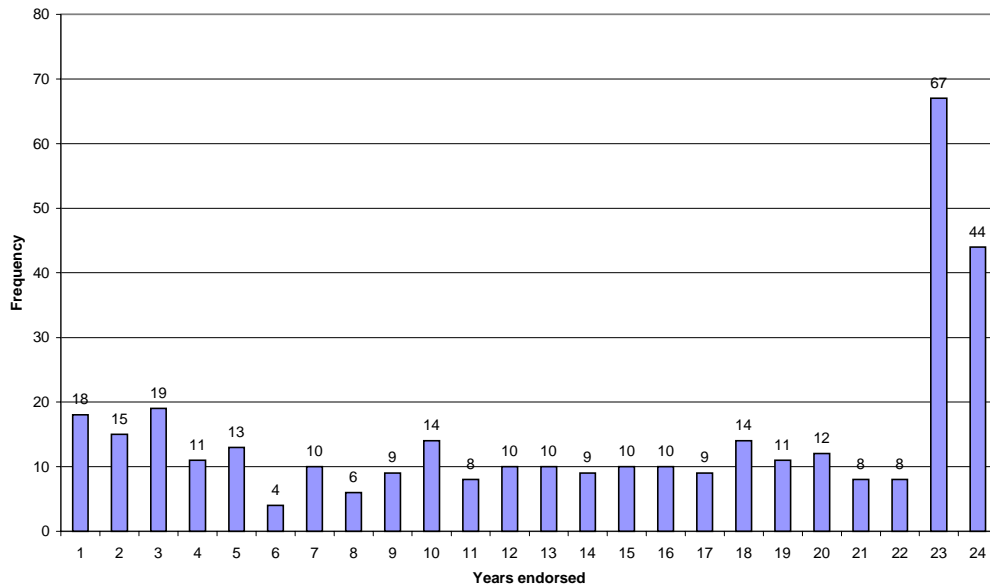
There is no one accepted measure of social capital (NSW government, 1997b). Fishers are often a significant part of the social infrastructure in small coastal communities. For example, an illustration of the potential contribution of fishers to local social capital is reported in Table H5 from McVerry (1996). Fishers and their club memberships in the Clarence community are reported. Clubs can be a place for fishers to socialise with other fishers, workers and the community. There is no other available information on fishers and social capital in NSW.

Table H5: Fishers as a percentage of club memberships in the Clarence region (McVerry, 1996).

Type of Club	Fishers as % of club membership
Bowling Club	41
Golf Club	27
RSL	18
Soccer, Football, Coastguard	4
Surf, Cricket, Lions Clubs	3
Softball, Rowing, Horse, Clarence Catchment Management	2
Bike Club, Naval Reserve	1

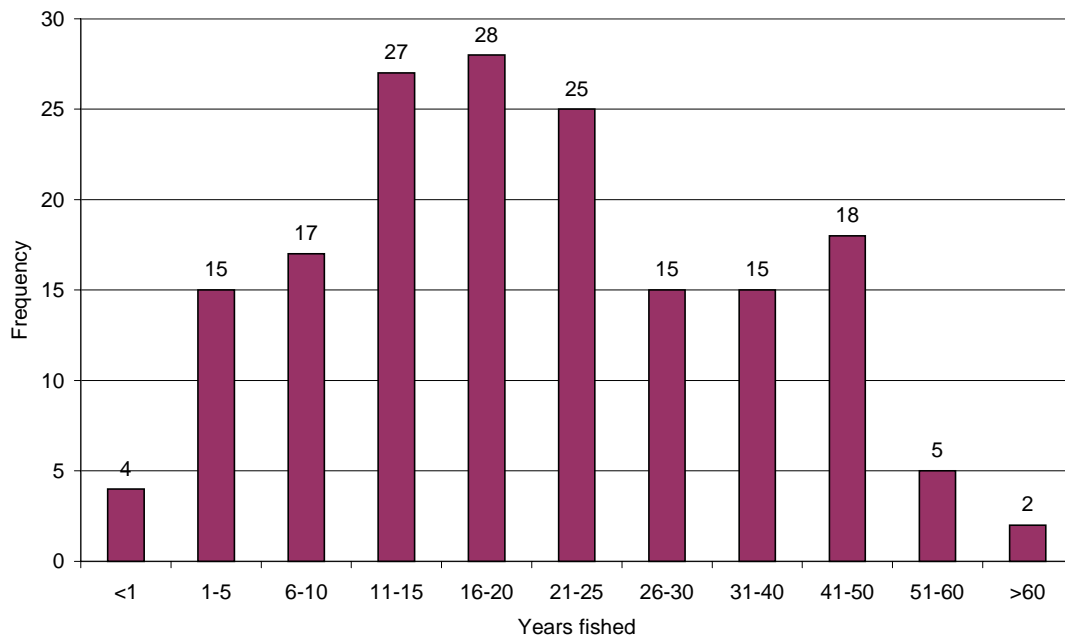
A measure of fisher's experience, which contributes to the sense of fishing industry involvement and community, is the years of fisher involvement with the industry. License record information goes back to 1977 for the EPT fishers, have been summarised in Figure H4 and shows that 31% of fishers interviewed were fishing prior to 1977 when current electronic licence records began.

Figure H4: Number of years EPT fishers have been licenced in NSW (NSWF licence data).



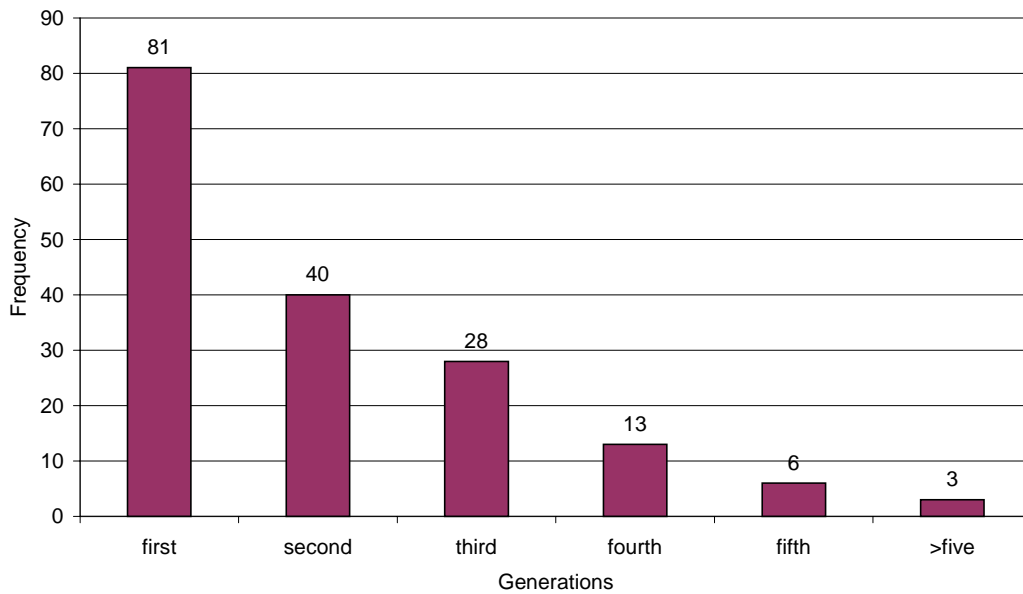
The mean licence duration is 15.0 years representing 5,241 person years fishing experience among 349 fishers. Of the 349 fishers for whom records are available, 60% have over 20 years of experience. Fishers have also been entering the EPT fishery in recent years. Figure H5 reports how many years fishers had been in the NSW fishing industry as recorded in the social survey.

Figure H5: Frequency plot of years fished by EPT fishers in NSW fishing industry (Source: RM-ES).



Both private and social capital are potentially seen in family involvement in fishing. Fishers were asked how many generations their family had been in the NSW Fishing industry and results are reported in Figure H6.

Figure H6: Frequency plot of number of generations in the EPT Fishery (Source: RM-SS).

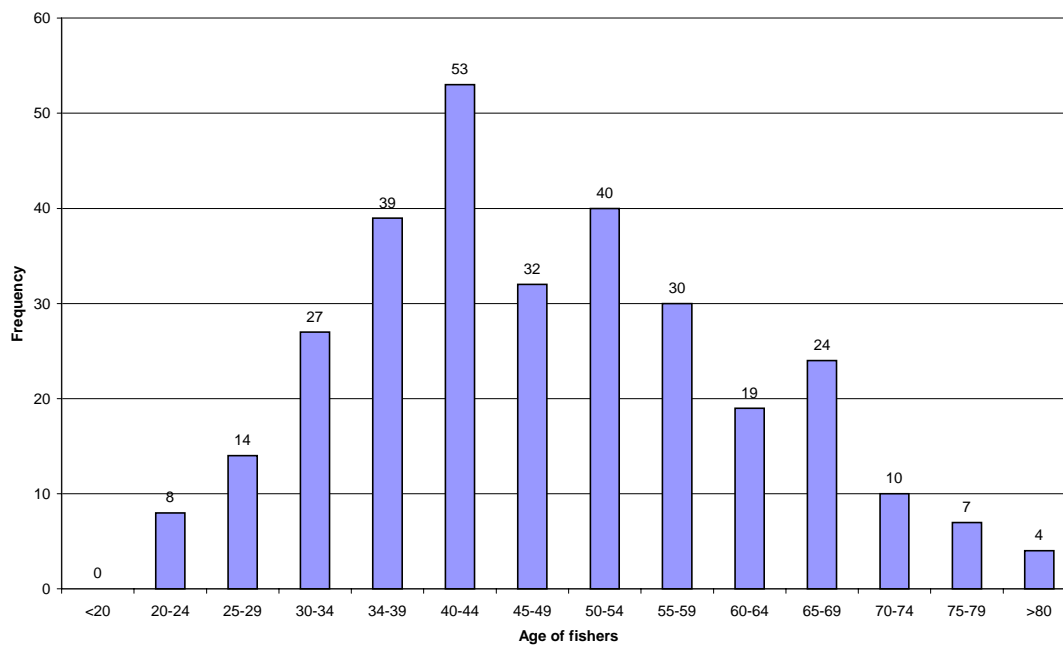


There are 47% of EPT fishers who are first generation fishers, 23% who are second generation and that 30% of EPT fishers were third or more generation. The 47% of first generation fishers, reflect entrants who may be more capable of adjustment, than fishers from multi-generational fishing families. There are 53% of fishers with a two or more generations of involvement in fishing, which may indicate longer term social association and integration with communities and potential to be significant contributors to social capital.

Age profile of licensed EPT fishers

The ages obtained from licence records of fishers operating in the 1999-2000 period are reported in Figure H7 for all EPT fishers and those active in 1999-2000. For 349 records the mean age is 47.1 years. Of these, 20 % are aged greater than 60 years and will be entitled to the age pension within the lifetime of the FMS.

Figure H7: Age distribution of EPT fishers (Source: NSW licence records)



The extent of part-time and full-time fishing is reported in the economic issues Chapter G, Table G9. The fisher skills base was investigated through questions in the social survey. Fishers were asked about their current work in other industries and their capacity and willingness to transfer from fishing to other industries. 22% of EPT fishers worked in other industries. Of these 38 EPT fishers (from 171 interviewed) who were undertaking paid work outside the industry:

- 26% would consider earning all their income from that other industry;
- 71% would not; and
- 3% were undecided.

All 171 EPT fishers were asked about their capacity to consider alternative employment either full-time, part-time, or could not get employed outside fishing, as fishing is “all I know”:

- 13% (23) could get FT employment outside fishing
- 15% (26) could get PT employment outside fishing and
- 67% (115) could not get employed outside fishing – fishing is “all I know”.
- 4% (7) Don’t know/ can’t say.

The 115 fishers from 171 who answered “I probably could not get employed outside fishing, as fishing is all I know” were asked if they would consider retraining. A total of 17% (19) would and 83% (96) would not, consider re-training or were undecided. The 96 fishers who would not consider retraining, were asked about their reasons which are reported in Table H6. Participants generally gave more than one response.

Table H6: Reasons for not considering retraining to industries outside fishing (Source: RM-SS).

	EPT	%
I'm too old	46	29%
I enjoy fishing	38	24%
Fishing is only industry I know	36	23%
I've invested in equipment	11	7%
It's a family business	8	5%
Bad health/injuries	4	3%
Illiterate/Low education	3	2%
Risk of unemployment	2	1%
Language barrier	2	1%
Other	6	4%
Can't say	0	0%
n=	96	100%

Age was the major reason for not considering retraining for 29% of the sample, followed by only having experience in the fishing industry and enjoying fishing. All of these are inhibitors to the mobility of labour. Those who indicated a willingness to retrain were asked about their interest in retraining into other industries. The results are reported in Table H7.

Table H7: Industries which fisher would consider retraining into (Source: RM-SS).

Industry	EPT	%
Charter fishing	3	16%
Landscaping	1	5%
Tourism	1	5%
Government	1	5%
Other	8	42%
Can't say	5	26%
n=	19	100%

Discussion

The social survey information show the EPT fishers to be dependent on the fishing industry with approximately 83% of fishers indicating they have limited capacity or willingness to move from fishing to other employment. Approximately 26% would be able to consider employment outside fishing. Of those who would not, experience, age, education and a high level of fisher self identification, inhibit fishers' capacity to move to other industries. This "psychic income" from fishing is highly regarded by fishers, who do not feel they would be satisfied by other work in the same way. This reduces fisher mobility in the work force.

There has been little investigation of fisher mobility in the Australian fishing industry, but some notable social studies, such as Bell and Nalson's seminal study in 1974, focus on issues for NSW dairy farmers facing industry viability and restructuring issues. Farmers were found to have strong identification with the land, farming and had low mobility. A range of quotes about the mobility of

farmers from Bell and Nalson, (1974) is presented in Box H2 and may apply to fishers in the EPT fishery.

Box H2: Quotes on social mobility issues for dairy farmers in northern NSW (Bell and Nalson, 1974).

It is not necessarily the worst farmers who leave the industry, but those who recognise other opportunities and are prepared to take the risk of turning to some other occupation.those that remain could be a hard core residue of economically and socially depressed farmers.

Farmers with off farm work were less inclined to be in poverty, compared with those without dual occupations. Few respondents had alternative work. Social explanations are that farmers are farmers by tradition and it may also reflect lack of available opportunities for alternative work in different areas.

Social reasons for exiting farming may be the long hours involved in the industry, affording little leisure time, the advanced age of respondents and their wives, a potential labour shortage through sons leaving the industry, and reasons such as sickness and disputes around farming issues.

Old farmers, with no one following in the business, were not prepared to invest in new equipment.

Parents may not be encouraging children into the industry, but encourage education etc.

“Retreat farming” with the farmer holding on until eligible to receive the old age pension. Wife dissatisfaction is a major social influence in the dairy sector.

Many respondents were third generation and value farming as a way of life. With the independence it affords, are loath to leave their local social environment, friends, neighbours and relatives and the voluntary associations in which they have been active.

Away from farming they will have to compete with others for land based jobs. There may be a shortage of part-time labouring jobs.

The intergenerational nature of occupational mobility - most farmers transfer from one type of farming to another. Socially many farmers stay within 30 miles of place of birth. These ties may prevent farmers taking opportunities outside their area.

Farmers are independent and have a history of shunning government initiatives preferring voluntary adjustment. They also tend to shun the CES (Commonwealth Employment Service) and rely on their own initiative.

A study analogous to the Bell and Nalson’s work, is required across all fishers in NSW to confirm this material. There are significant social issues for fishers below retirement age seeking other employment. These will vary from area to area as indicated later in the social assessment.

Regions fished and regional unemployment statistics

The regional importance of the EPT fishery to the local community is reported in Table H1 and H2. Unemployment data is available from current ABS statistics (ABS, 2001) only at a more aggregated level than the 1996 census data, which is available for each postcode. Table H8a reports recent ABS unemployment data as of February 2001 for rural areas of coastal NSW.

Table H8a: ABS statistical regions and rural coastal area male unemployment (ABS, Feb. 2001).

	Labour force ('000)	Unemployed Feb. 2001 ('000)	% Male
Richmond-Tweed & Mid-North Coast SRs	106.1	15.8	14.9%
Gosford -Wyong SR	71.4	6.2	8.7%
Hunter SR	171.8	18.1	10.5%
Newcastle SR	149.8	17.4	10.5%
Sydney	-	-	6.0%
Illawarra SR	112.2	8.4	7.5%
South Eastern SR	152.9	12.2	8.0%
NSW Total			7.2%

Regional unemployment data indicates higher rates of unemployment in areas away from Sydney, being higher in the north than in the south. Male unemployment by age group also varies in NSW as reported in Table H8b.

Table H8b: Percentage male unemployment in NSW (ABS, Feb. 2001).

Age	15-19	20-24	25-34	35-44	45-54	55 and over
%	21.9	10.6	6.6	5	4.8	4.9

The fishing population in the EPT fishery is almost entirely male, with only 2 female fishers, from 349 endorsements. More detailed statistics for unemployment by regional postcode are available from ABS 1996 census statistics in Table H2. This gives a longer term view of regional unemployment in postcodes of coastal NSW.

Fisher numbers and unemployment at the postcode level are reported in Table H1 and H2. The range of unemployment is from 7% in Sydney, to 27% in Woombah/Others area in the Clarence region. The impact of the FMS and unemployment are assessed in the second part of this report.

- (ii) community views and perceptions

Views of community

The EPT fishers are a part of the rural coastal NSW community, being aggregated around the five estuaries in which estuarine prawn trawling is permitted. There have been no formal studies of community values, views and perceptions and this require further research.

Views of the community on commercial prawn trawling in estuaries are varied. The Hunter, Port Jackson and Botany Bay have weekend closures and time for fishing, thus limiting the public awareness of commercial fishers. The public often note occasional dead fish, odours and wastes associated with commercial fishing as evidenced by letters received by NSW Fisheries. Similarly

landing sites and fish cleaning areas can reduce amenity. Definitive public views on fishing are difficult to obtain given the differing views on fishing issues within the community.

A public telephone survey was undertaken by Roy Morgan Research in 1999 investigating general community attitudes to a recreational fishing licence. There was a general community concern that the marine environment should be looked after. The Roy Morgan (1999) survey of 500 persons in NSW indicated that 95% of person felt it was important “that our fish stocks are well looked after”. In the same survey 44% of responses prioritise “looking after the environment” as the most important aspect of managing fisheries.

Other opinions from the public, have been aired as part of the Recreational Fishing Area (RFA) process. The views reflect the context of the RFA debate and are not cited here.

The community expect EPT fishers to provide fresh seafood for the majority of the population who do not catch their own prawns and fish. This is also difficult to measure, but is evidenced by local demand for prawns.

- (c) Identify current interaction of commercial fishing with the community including
 - (i) other recreational activities – boating, swimming, diving, whale/seal watching and other eco-tourism activities, discuss the potential for conflicts and synergies on a regional/subregional basis through interaction with recreational fishers, eco-tourism and related activities;

Regional marine leisure activity and integrated sea use between competing user groups

Coastal NSW has a great diversity in marine leisure activities. There is no definitive study on marine leisure activities in the NSW coastal region and data is lacking. Marine leisure activities tend to follow population distributions, or population movements, such as annual holidays to selected estuary regions.

Charter fishing usually goes offshore, but uses estuaries for some types of fishing, depending on the region. There is little formal whale watching activity, but general pleasure cruises occur in tourist venues close to Sydney (eg. Port Stephens etc). Recreational boating takes place along the NSW coast, but also in estuaries where many sail schools and water skiing activities prefer the shelter of

the estuary environment. Diving takes place along the coast and in estuaries, where spear fishing may also take place or be subject to restrictions.

The potential for conflict is minimised by commercial fishers not fishing openly at times of high tourist activity, or only fishing in areas not frequented by tourists. Commercial fishers in the Hawkesbury have agreed to close areas at weekends so as to reduce conflict with water skiing enthusiasts. Tourists enjoy the fish and prawns cooked at the local fish shop or Coop, as evidenced by seafood sales in tourist destinations, but are also concerned over loss of environmental amenity (Roy Morgan, 1999). Recreational fishers also use locally produced prawns as a major bait source. This local production of bait prawns is preferable to prawns being imported from other areas, or even abroad creating bio-security concerns.

(ii) the visual and amenity issues

The estuary fishers can both contribute and detract from visual amenity. Tourists expect to see small working boats pulled along side on the edge of the estuary, but may object to fish odours, nets drying and fish offal/ frames disposed of in inappropriate ways, such as on shore. Similarly, processing establishments and recreational fish cleaning areas can attract pelicans and birds to feed on scraps, which may not be seen as a visual or health amenity. This can be related to fish sorting practices which can leave small numbers of dead fish washed up on shore. Many of these issues can be addressed within industry and at the local council level.

(2) Likely social implications of implementing the plan

This section evaluates the social impacts of implementing the EPT Fisheries Management Strategy according to the environmental assessment guidelines issued by Planning NSW. Social impact assessment (SIA) of fishery management plans is a recent innovation in NSW. This is an assessment of social issues under the Planning NSW guidelines related to the implementation of the EPT FMS. The analysis is constrained by the available information, the resources available to the study and the lack of background information in this emerging area.

There is not an accepted fishery specific methodology to assessing social issues and relevant approaches are available from other natural resource industries. In the NSW Government's *Guidelines for assessing social impacts* (NSW Government 1997b) the following measure of community well being are recommended:

- Economic and financial measures - income measures, poverty lines, household expenditure, unemployment rates and indicators of business activity;
- Quality of life measures - leisure time, air and water quality, rates of illness and life expectancy, educational attainment levels, housing size and density, availability of social services;
- An assessment of intangible factors- quality of life measures, such as community spirit, levels of social cohesion, confidence in public institutions and intangible aspects of social well being including "social capital".

The NSW Government guidelines indicate there is no one measure of social well being and that while economic measures dominate many assessments, the quality of life measures and intangibles should be considered in policy assessment. Governments can use social assessments to "better anticipate the effects on policies and programs". When social impacts are made more transparent, policy trade-offs are highlighted and subsidiary policies to deal with negative impacts on particular areas and groups may be formulated" (NSW Government, 1997b). The social impact assessment in fisheries management plans in Australia is a new development.

Methods of Social Impact Assessment (SIA)

The NSW Government Guidelines suggest "it is not possible to establish a single SIA methodology to apply at a state-wide policy and program level because of the nature and impact of the policies often extend across regions and groups" (NSW Government, 1997b, p9). The guidelines set a broad perspective or framework for social assessment summarised in a "quick test summary table" (NSW Government, 1997b, p23) as shown in Box H4.

Box H4: Quick test summary table (adapted from NSW Government, 1997b, p23).

- 1) Describe the policy objective
- 2) Identify the social impacts of the proposed policy
- 3) Measuring change and social impacts
- 4) Evaluating social impacts and social justice principles
- 5) Responding to impacts (monitoring, management and mitigation)

Further Government guidelines extend to the *Rural Community Impacts Statements* (NSW Government 1997a). In these the economic and social characteristics of rural communities in NSW are specifically recognised and recommended to be included in government decision making as summarised in Box H5. It is likely that rural fishing communities in coastal NSW struggle with similar issues.

Box H5: Summary of Characteristics Rural Communities after NSW Government, (1997a).

Geographic isolation - business being based at a distance from suppliers or markets;

A narrow and variable economic base- being dependant on one industry, coal mining, forestry, fishing etc, also being influence by public sector employment changes;

Physical isolation and small population size – individual families may live outside community centres and a greater distance from a more substantial regional service centre. Isolation limits social interaction, cultural and employment opportunities and access to public sector services and facilities. Communities may have small populations and express feelings of vulnerability being at a distance from the central decision making process.

A strong ‘self help’ culture – rural and regional communities are often “typified by values of self reliance, resourcefulness and independence, often responding to opportunities or threats with a strong and cohesive communal spirit”.

A strong attachment to place – strong emotional/cultural attachments to as geographical location or place.

Rural industries have a major impact in the environment - rural and regional communities are custodians of most of the land of the state and intensively use natural resources.

Economic performance is dependent on environmental conditions – primary industries depend on environmental resources used as their inputs.

Social impacts and fisheries management

The social impact assessment of Fisheries management strategies in NSW is a new development and requires some adaptation of accepted analytical frameworks for assessment to suit the fisheries issues and to fulfil the environmental assessment guidelines issued by Planning NSW. In natural resource studies a four stage procedural framework is proposed by Fenton et al. (2000) as: Assessment (including scoping and profiling); Prediction; Mitigation; and Monitoring.

These steps concur with the Planning NSW and NSW Government Social Impact guidelines (NSW Government 1997b). However, the appraisal of social impacts of management of a natural resource also needs to incorporate the linkages between the changes in the social system induced by management and the affect on the resource system, and how changes in the resource system impact the social system. Fenton et al. (2000) recommend that the direction, strength, duration and positive and negative effects of the social system/resource system interactions, also need to be recognised. This can happen at several levels, but has a high information requirement beyond the scope of the current study and is recommended work in section 3.

Assessment of the social impacts of the FMS

It is proposed that the following approach will be taken to analysis of social impacts of the fisheries management strategy against the environmental assessment guidelines issued by Planning NSW seen in section H2.2.

Social issues arising from implementing a new management plan fall into several categories.

Firstly, there are socio-economic impacts arising directly from how the fisheries management strategy impacts the resource and the social system, including the community. Secondly, a plan brings change with social issues to be addressed by fishers. The socio-economic impacts are most readily quantified. Other measures of the capacity and willingness of fishers to respond or incorporate change are more difficult to estimate, requiring substantial fisher consultation and communication.

The current study prioritises the socio-economic impacts from the FMS. Other elements may be deemed to be important to individual fishers, but there is insufficient baseline information to independently evaluate fishers' opinions. The intention in a co-management consultation process,

is that the development of the FMS has taken the fisher's viewpoint into account through the management advisory committee system and port meetings, outlining the intention of the FMS. The following procedure was used to identify and rank social impacts. The fisheries management objective, with potential social impact and the response under the management strategy, are described and presented in Table form.

The social impacts of each management strategy response are identified on fishers and the community and responses ranked into three levels – High, Medium and Low. The ranking reflects the predicted scale of social impact. For example, social impact may be determined as a function of the number of fishers affected by a policy, times the degree of impact of the policy on each fisher, or on the community.

The assessment

The management goals and the responses in the FMS were examined and those with potential social impacts are presented in Table H9. They were then ranked in order of predicted social impact. Priority was given to the socio-economic dislocation arising from impacts identified in the previous economic assessment, given their potential impact greatest numbers of fishers and families in the fishing community.

Ranked medium after issues with socio-economic dislocation, are social impacts with implications for fisher practices, the community, or which may be socially contentious, or require social co-operation. For example, the establishment of the Prawn Resource Forum, the development of the indigenous fishing strategy, weekend closures and the scientific observer program will require considerable social co-operation and have social impacts. Similarly, changes in prawn count size rules, safefood practices, owner operator policy and maximum shareholdings will have social ramifications.

Thirdly, there are numerous responses which have social implications for industry with compliance issues and communication within the fishing community. These low ranked responses are socially impacting in that failure to keep addressing conflict, compliance and communication issues, will adversely impact the co-management process and hence management of the fishery, to the detriment of the community. These issues are central to the functioning of the new management strategy and to the reduction of conflict among stakeholders and with the community. Social impacts will be addressed in section 1.3(ii) below.

Table H9: Ranking of socially impacting responses for the EPT Fisheries Management Strategy.

RESPONSE	DESCRIPTION OF RESPONSE	GOALS	ISSUES	RANKING
2.1(f)	Review maximum counts for eastern king and school prawns	4,5	EFFORT	HIGH
2.2(a)	Encourage the appropriate level of fishing effort to minimise overfishing	4,5,8	EFFORT	HIGH
2.1(e)	Implement maximum counts on prawns in each zone	4,5	EFFORT	HIGH
2.3(a)	Implement separate management rules for each zone	4,5,8	EFFORT	HIGH
2.3(b)	TAC Committee to determine the Total Allowable Effort on primary species	4,5,7,8	EFFORT	HIGH
2.3(c) - pt 1	Minimum shareholdings to limit the number of vessels and operators in each zone.	1,4,5,7	EFFORT	HIGH
2.3(c) - pt 2	Limit the number of fishing days for each zone	1,4,5,7	EFFORT	HIGH
2.3(c) - pt 3	Limit the number of fishing days for businesses upon past participation	1,4,5,7	EFFORT	HIGH
2.4(b)	Establish minimum shareholdings at the fishing business level to contain effort	3,4,5,6,7	EFFORT	HIGH
5.1	Optimise the biological yield of prawns so that economic return is maximised	3	SE	HIGH
4.2(d)	Use the Prawn Resource Forum to discuss maximum counts and minimum lengths	2,5,6,8	SE	HIGH
5.1(a)	Determine a count and size at first capture for prawns and squid	1,2,4,5	SE	HIGH
5.3(b)	Prohibit shareholders in the fishery from owning maximum fisher shareholding	4	SE	HIGH
5.2	Promote the economic viability of EPT fishing	3,4	VIAB	HIGH
5.3	Provide secure fishing entitlement for EPT fishers	2,3,4,8	VIAB	HIGH
1.1(f) pt 1	Fishing closures to control area and time fished - conserve species	2,3,4,5	CLOSURES	MEDIUM
1.1(f) pt 5	Fishing closures to control area and time fished - promote harmony	2,3,4,5	CLOSURES	MEDIUM
2.4(a)	Implement an owner operator rule for estuary prawn trawl fishing businesses	3,4,5	EFFORT	MEDIUM
4.3(a)	Participate in development of the Indigenous Fishing Strategy	2,3,8	EQ	MEDIUM
5.4(a)	Co-operate with Safefood Production in the development of food safety programs		MARKET	MEDIUM
8.1(a)	Develop a scientific observer program for information and quality control.	1,2,3,7	SE	MEDIUM
4.4(a)	Investigate closing all zones to trawling on weekends and public holidays	1,2	SE	MEDIUM
2.1(d)	Promote research on prawn and squid populations	1,4,5,6,7,8	COMM	LOW
2.5(c)	EPT MAC contribute to NSW Fisheries reviews of the habitat management policy	1,6,8	COMM	LOW
2.5(d)	EPT MAC will contribute to policies and legislation of other Government agencies	1,6,8	COMM	LOW
6.3(a)	Utilise the EPT MAC as primary consultative body for issues affecting the fishery	1,3,4,7,8	COMM	LOW
6.3(b)	Utilise the services of an Independent Chair in the EPT MAC	3,5,8	COMM	LOW
8.1(c)	Issue of research permits under section 37 authorising research programs	6	COMM	LOW
7.1(a) pt 1	FMS & Environmental Assessment accessible to public via NSW Fisheries website	4,6,8	COMM	LOW
7.1(a) pt 2	FMS & Environmental Assessment accessible to public via Fisheries offices	4,6,8	COMM	LOW
7.1(a) pt 3	FMS & Environmental Assessment accessible to public via targeted mailouts	4,6,8	COMM	LOW
7.1(b)	Produce brochures, newsletters and educational programs	4,6,8	COMM	LOW
7.1(c)	Respond to inquiries by industry or the public with respect to FMS	4,6,8	COMM	LOW
7.2(a)	Publish educational information on the protection of fish habitat	4,6,8	COMM	LOW
4.1 (b)	Monitor commercial landings of prawn and squid species	2,5	COMP	LOW
2.5(a)	NSW Fisheries continue review development applications with impacts on fishery	1,3,5	COMP	LOW
2.5(b)	EPT MAC will consider the impacts of activities external to the fishery on the resource	1,3,6,8	COMP	LOW
4.1 (a)	Assess the size of the non-commercial and illegal catch	2,3,5,6,7,8	COMP	LOW
6.1(b)	Endorsement suspension and share forfeiture scheme for serious offences	4,7,8	COMP	LOW
8.2(a)	Periodic review of catch & effort forms - sufficient for environmental assessment?	1,2,4,6	COMP	LOW
8.2(b)	Determine accuracy of current recording of species identification in catch records	1,2,4,6,7	COMP	LOW
4.2(b)	Monitor commercial landings by zone	2,5	EFFORT	LOW
4.2(c)	Limit the quantities of byproduct species	1,2	EFFORT	LOW
2.1(g)	Ascertain the need for legal minimum length for squid	5	EFFORT	LOW
2.3(d)	Maintain the boat replacement policy	1,5,6,8	EFFORT	LOW
2.6(c)	Under a recovery plan for a species, implement precautionary actions	1,3,5	EFFORT	LOW
1.4(a)	Implement measures under Marine Pest or Disease Management Plans	3	SE	LOW
6.2(a)	Continue the prohibition of taking fish for sale as authorised by fishing license	2,5	SE	LOW
2.6(b)	Minor harvester of overfished species - Develop and implement a recovery plan	1,4,5,6	SE	LOW
2.6(a)	Major harvester of overfished species - Develop and implement a recovery plan	1,4,5,6	SE	LOW
4.2(a)	Monitor the catch of prawn and squid species taken in other commercial fisheries	2,3,5,6,7	SE	LOW

Categories: SE socio-economic, EQ Equity, IND Industry practices, COMP Compliance, COMM Communication.

(1.2) Health issues - Not in Dominion's TOR

(1.3) Social implication for fishers of any changes in resource allocations

(a) predict the likely social implications of maintaining the present resource allocation rules.

Appraise rules and social impact

The current rules in the EPT fishery impact fishers in several ways. The high number of EPT entitlements and latent effort, may reflect diversified fishing businesses where many fishers are part-time and fish seasonally in the EPT fishery. About 33% of EPT businesses revenue is from the EPT fishery (see Table G4).

Under the current management regime there are limited mechanisms to assist re structuring. Responses proposed under the FMS will reduce the number of fishing businesses through the introduction of category 2 share management and minimum entry requirements at the fishing business level, giving fishers stronger fishing rights and a market for shares, enabling fishers to exit with a payment on sale of shares.

The predicted social impact of maintaining the present rules on fishing effort are that they may not sufficiently address economic viability and resource sustainability concerns at the regional level and risk. The FMS will enable effort and stock concerns to be addressed by a total allowable effort limit and minimum shareholding provisions at the estuary level to reduce capacity in a given estuary. This will impact and displace some fishers.

The predicted outcomes from maintaining current rules are that in five years time there will be many older, low or non catching fishers, who will not readily be able to financially realise the value of their fishing endorsement or business. The move to shareholdings will enable fishers to exit the fishery with a payment. The resource will also be more adequately safeguarded through the ability of industry to respond to fluctuations through more transparent access mechanisms and ways to adjust effort in the fishery.

Current management of the Estuary Prawn Trawl fishery is in relative isolation from the management of the general prawn catch in the estuaries, through net and trap methods and from the Ocean Prawn Trawl fishery. The Prawn Resource Forum is proposed under the FMS to address collaborative management and optimal harvesting of the prawns species which migrate from estuary to sea. Several issues in the fishery, such as prawn minimum size limits may lead to increased social conflict within industry sectors and between industry and other sectors if not addressed as proposed under the FMS (NSWF, 2000).

- (b) outline any implications on fishers, their families or any local communities from any changes in the resource allocations including the likely social impacts on particular sectors (eg in certain locations, sub-regions or regions) if changes in the resource allocations were implemented; outline any possible measures which could be taken to mitigate any impacts

Implications of FMS changes

Significant social impacts are identified from Table H9 in the FMS. The implications of major impacts are examined on fishers, families and communities.

Managing businesses by minimum shareholdings

The FMS proposes to address industry viability and capacity through the implementation of category 2 share management and the use of minimum shareholdings at the business level (response 2.4b). Estimates of adjustment in the EPT fishery in the economic issues section (Chapter G) indicate that 36 of 241 businesses may be removed by share trading in the 2002-2007 period. In the next five years 15% of 254 EPT entitled fishers, approximately 38 fishers, will be displaced. These may be mostly elderly fishers, or latent effort holders and low catchers grossing less than \$10,000 per year.

The use of minimum shareholdings to address effort levels in regions, together with the total allowable effort limit (response 2.3c, pt 1) will also impact EPT fishers, but the extent in terms of exiting fishing depends on their business's other endorsement holdings. It is likely that the impact of adjusting businesses and effort at the endorsement level will have a cumulative effect on top of business adjustments. A value of 5% has been assumed over 5 years, but this depends on the extent of the effort limits in each area.

Given the number of multiple endorsed businesses, particularly with Estuary General endorsements, there may be significant cumulative impacts from the EG FMS on EPT business numbers. Similarly the RFA process will reduce EPT endorsement holdings to an unknown extent through cumulative impact.

It is predicted that the removed businesses would be a mix of latent effort holders, and fishers who catch below \$10,000 per year. The profile of these groups is investigated via the social survey and results reported in Appendix H3. Latent effort in the EPT is in regions 2, 4 and 5 where latent effort is 22%, 38% and 45% respectively (Appendix Table AH4). Businesses with less than \$10,000 revenue from all fishing are in regions 2,4 and 5 with 8%, 11% and 26% of fishers.

In summary, latent effort is held by fishers who have fished in the past, are not necessarily old and are probably undertaking some alternative employment. They have a mix of fishing experience and family connections with the fishing industry and have a limited capacity to retrain. Fishers earning less than \$10,000 are part-time prawn fishers stating a willingness to work in other industries full-time. For both latent effort and low catchers, there is a limited capacity and willingness to retrain.

Effort limits and minimum shareholdings

Other high ranking social issues are effort related measures with separate rules for each prawn estuary, limiting effort per zone through a total allowable effort limit and the implementation of minimum shareholdings. This will raise issues of displacement among fishers as about 5% of fishers may be displaced as estimated in section G.

This equates to 5% of endorsement holders being impacted on top of the 15% from the business adjustment. It is not possible to tell which estuaries will be most affected, but approximately 5% of 254 endorsed fishers would be impacted, approximately 13 fishers in all.

Optimal prawn management

Social and economic impacts will arise from the implementation of a range of measures surrounding more optimal management of the estuarine prawn resource. The establishment of the Prawn Resource Forum (PRF) and a range of measures such as minimum and maximum counts in each zone and on prawn species, will address the management of optimal economic and biological prawn yields. Alternative harvesting practices at different points of the prawn lifecycle could be implemented. Significant social cooperation will be needed in implementing the Prawn Resource Forum and in operationalising optimal management regimes, in which social implications should be addressed.

Several medium impacting policies are in introducing closed areas to protect stocks and promote species recovery. Part of the proposed closures are for the weekends and public holidays and will have social benefits through reduction of conflict and greater amenity for marine recreationalists and the community. Social cooperation will be needed in developing the indigenous fishing strategy and implementing the owner operator ruling.

Low level social issues will arise from processes requiring good communication between management, stakeholders and the community. Several compliance issues also arise which require social cooperation as do recovery plans and pest invasion responses.

Discussion

Regional impacts of any changes under the FMS can be estimated from the information reported from ABS social data in Table H1. The impacts of a 20% reduction in fisher numbers across the EPT fishing communities is assumed and is reported in Table H10.

Table H10: Summary table of social indices for EPT fishers with an estimated reduction of 20% in fisher numbers shown by district and zone (adapted from Table H1).

Zone	Home District	P'code Population	P'code Fishers	EPT P'code Fishers	20% of EPT Fisher numbers	Un employed (%)	SEIFA	Med. Ind. Income (wk)	Employed in C.F. as (%) of labour force	Employed in EPT as (%) of labour force
1	TWEED	7,976	19	1	0.2	16.2	921	250	0.41	0.02
	RICHMOND	4,374	35	6	1.2	18.1	909	215	1.02	0.17
	Zone	12,350	54	7	1.4	17.1	915	233	0.72	0.10
2	CLARENCE	43,353	259	121	24.2	18.8	919	222	3.12	1.46
3	COFFS HARBOUR	44,336	72	5	1.0	18.1	958	250	0.35	0.02
	HASTINGS	27,129	53	4	0.8	19.0	921	215	0.78	0.06
	Zone	71,465	125	9	1.8	18.6	940	233	0.57	0.04
4	MANNING	9,566	45	5	1.0	19.3	896	180	0.65	0.07
	WALLIS LAKE	19,457	88	2	0.4	15.1	939	250	2.78	0.06
	PORT STEPHENS	52,562	101	6	1.2	13.0	967	250	1.33	0.08
	HUNTER	30,332	45	14	2.8	14.9	915	226	0.23	0.07
	Zone	159,297	62	25	5.0	10.6	978	270	0.00	0.00
5	Zone	189,629	341	52	10.4	12.7	946	248	0.11	0.04
	HAWKESBURY	2,380	30	28	5.6	7.4	1004	300	0.00	0.00
	SYDNEY	3,276,207	189	84	16.8	7.3	1047	350	0.00	0.00
Zone	3,278,587	219	112	22.4	7.4	1026	325	0.00	0.00	
6	ILLAWARRA	6,653	18	1	0.2	19.0	827	180	0.10	0.01
	SHOALHAVEN	53,871	75	2	0.4	15.1	945	215	0.81	0.02
	Zone	60,524	93	3	0.6	17.1	886	198	0.46	0.01
Grand Total		3,989,867	1,091	304	60.8	15.3	943	235	1.03	0.25

The number of EPT fishers in zone 2, (Clarence), zone 5, (Hawkesbury) and zone 4 (Manning to Central Coast) are highest. An estimate of EPT fishing community vulnerability to social and economic impacts is reported in Table H11. This ranks EPT fishers as proportion of labour force, ranked highest to lowest to show dependence, and the SEIFA index, ranked lowest to highest to show relative disadvantage. They are combined to give a joint ranking of community vulnerability. Table H10 indicates the potential impact on fishing communities of a 20% reduction in fisher numbers. Table H11 is an index of the vulnerability of EPT fishing communities generated from ranking of community income dependence and the ranked SEIFA index giving each equal weighting.

Table H11: Joint ranking of community vulnerability for EPT fishers, (from ABS and NSWF data).

Home District	Employed in EPT as (%) of labour force	Rank Labour	SEIFA	Rank SEIFA	Joint rank score
CLARENCE	1.46	1	919	5	5
RICHMOND	0.17	2	909	3	6
MANNING	0.07	4	896	2	8
ILLAWARRA	0.01	11	827	1	11
HUNTER	0.07	4	915	4	16
HASTINGS	0.06	5	921	6	30
PORT STEPHENS	0.08	3	967	11	33
WALLIS LAKE	0.06	5	939	8	40
TWEED	0.02	7	921	6	42
SHOALHAVEN	0.02	7	945	9	63
COFFS HARBOUR	0.02	7	958	10	70
CENTRAL COAST	0.00	12	978	12	144
HAWKESBURY	0.00	12	1004	13	156
SYDNEY	0.00	12	1047	14	168

This indicates that the EPT fishing communities in the Clarence River area are most vulnerable, followed by the Hunter River postcode areas. They are most vulnerable to changes from the socio-economic impacts under the FMS given their higher dependence, lower SEIFA score, or a combination of both. For these communities, high unemployment, such as seen in the Clarence, also indicates potential difficulty in fishers finding alternative employment outside fishing.

It is apparent in Table H11, that outside of Sydney and the Central Coast, EPT fisher communities are more vulnerable to changes in their economic well being. This does not mean that fishing families in the Sydney/Central Coast area are less impacted by policies, but that these communities have more socio-economic alternatives than small rural isolated communities in coastal NSW. Table H2 presents SEIFA data at the post code level. Those postcodes within vulnerable districts with low SEIFA indices are identifiable and illustrate how small numbers of fishers in certain postcodes are vulnerable to socio-economic impacts. For example, Woombah in the Clarence region with SEIFA 864 and unemployment of 27.2% in the 1996 census (see Table H2)².

Under the FMS trading fishers can sell shares and receive a payment. This opportunity to exit may be taken by fishers over 60 years of age as a “superannuation package”. Licence records indicate that approximately 20% of EPT fishers are likely candidates in the next five years, indicating that a 20% adjustment in the fishery, could be filled by elderly fishers alone. Part of the mitigation would

² As noted in Appendix H1, the Tables combining ABS and NSWF licence data are for postcodes with more than 10 NSW fishers. In the EPT analysis approximately another 20% of fishers live in postcodes with fewer than 10 fishers in the NSW fishing industry. The EPT analysis does not include these 20% of fishers and their communities could be relatively more impacted than those postcodes with more fishers.

be to investigate the position of elderly fishers and the impact of selling shares and receiving money on their age pension. Preliminary discussions with Centrelink indicate that income and asset tests apply and that a home owning fisher with partner, would be able to have \$200,500 in assets in addition to their home, before the pension payment would be reduced. Few EPT businesses would exceed \$100,000 and pension entitlements are unlikely to be impacted, though this depends on the financial status of the fisher.

The majority of fishers are below 60 years of age and wish to operate in EPT fishing as a business or way of life. The results of the social survey indicate that both business and lifestyle are important aspects of familial and social identity among EPT fishers. Some fishers are rural, low income part-time fishers, representing a “cottage industry”, rather than the professional full-time industry proposed under the FMS (response 2.3b). This requires further study (see section 3).

The social impacts of displacement of between 15% and 20% of 310 fishers over 5 years, are estimated in Table H12, using data from the social survey results in Table H3.

Table H12: The number of dependants impacted by the removal of fishers in the 2002-2007 period (Source: RM-SS).

	Numbers		
Displaced fishers		36	48
Dependents			
Mean number of dependent children	1.6	58	77
No dependents	69%	0	0
Spouse	23%	13	18
Other dependents	14%	8	11
Total dependents		79	105

The numbers of dependants associated with 36-48 typical EPT fishers is between 79 and 105. This is an upper estimate, as if older fishers exit the fishery, then the number of dependent children below 16 reduce towards zero, making 21 to 29 dependants.

The impact of fisher displacement on the communities will also depend on the exiting fishers’ catch levels (their current contribution towards output) and their alternative income source on leaving fishing. A multiplier of 1.5-2.0 (Dr R. Powell, pers. comm.) would apply to impacts where no other income, including social security was available. Displacing 20% of fishers under share management will only reduce catch by a few percent. Many of the fishers will move to other opportunities, or to the age pension and welfare. Any negative multiplier effects from any the change would be small in

the regional economy. However, there may be local distributional impacts in small townships where fishers live. Payment received from selling shares may assist the local economy, depending on the pattern of trade. Debt levels among remaining fishers would likely rise with economic and social consequences. Should an area have a large number of low income, elderly fishers, the impact of adjustment might be greater in that area. The pattern of trading under share management should be monitored.

Other social impacts

Other social impacts are ranked as Medium and Low. Most social issues identified in Table H9 require good communication among fishers and with the community. Some FMS industry developments require the cooperation of fishers in supporting scientific observer programs and food safety program development. Both of these will depend on the cooperation of fishers. Fishery closures to conserve species and promote harmony among resource users through restricting areas and times of access, including weekend and public holiday closures, is ranked medium as it will impact many commercial fishers.

In Table H9 the low ranked issues involve communication in the management process, compliance initiatives which need the social cooperation of fishers and several recovery plan and catch monitoring initiatives.

From the social survey, there were 16% of fishers interviewed state-wide who refused to complete social surveys. Such levels of resistance to FMS initiatives, could also impact the acceptance of new operating rules, or codes of conduct, to the detriment of the fishery and the community. Most of the low impact social responses in the FMS require the cooperation of fishers and management, in order to increase compliance. The policy changes have been discussed at the EPT Management Advisory Committee and through a series of port meetings about the FMS. Fishers reactions have been noted by NSW Fisheries staff as part of the FMS consultative process.

Response 2.2 (c) compares the social implications of implementing the strategy in the short, mid or longer term and identify existing or likely conflicts within or between communities, and consider the effects on conflicts of proposed changes in resource allocations

The reduction of conflict is needed in the EPT fishery. Mechanisms for better cooperation among fishers include the area and time closures to lessen conflict between fishers and other users of waterways, such as water skiers. Communication and the management advisory committee process

are central to reducing conflict in the different estuaries. The Prawn Resource Forum should also help in managing concerns over prawn use in the estuary and ocean fisheries and will be an initiative with short term and long term benefits in reducing conflict and promoting more regulated harvesting.

Many social issues are larger than can be resolved by the FMS and will only be resolved in longer time frames. For example, an FMS objective is achieving a “full-time professional industry” and hence presumably maximising the direct monetary returns from the EPT. Does a “full-time professional industry” give a more sustainable industry, than one comprised of part-time fishers? Questions need to be asked as to whether this objective is socially desirable and what social equity implications it has, given that lifestyle values, not direct financial returns, are a major motivation for many fishing activities. Valuing the activities of full-time professionals over those of part-time amateurs and possibly those of recreational and indigenous fishers as well, embodies judgements that may not be in accord with community values. The FMS may limit the number of fisheries a business can operate in and thus tend to increase part-time or seasonal fishing. In EPT, seasonal access can be either by full-time or part-time fishers, with justification for both. The social and ESD aspects of this issue needs to be examined in NSW, and even nationally, and is recommended in further work.

(d) Identify the likely change in attitudes to compliance and the likely changes in the level of compliance.

The implementation of the FMS will bring several challenges for compliance. It is envisaged that if the FMS responses are followed and communication and compliance are recognised in the co-management framework, then this will assist with the levels of compliance. Endorsement suspension and share forfeiture are being implemented for serious offences. The increases in the cost of operations and displacement of fishers may lead to an increase in illegal fishing. This would have to be monitored, particularly through information from fishers in each EPT estuary.

The economic survey revealed the importance of accurate catch and price data to the management system. The integrity and accuracy of catch data needs to be upheld to guarantee sustainability. When days effort become limited and minimum shareholdings apply, there will need to be substantial monitoring of the catch in the EPT, as incentives will exist to sell unrecorded catch for cash in order to meet new FMS charges. This would then impact the ability of management to accurately monitor catch levels and to maintain sustainable stocks. Mitigation of this in the management system may be to recognise the high variability in the inter-annual abundance of

prawn stocks and have flexible mechanisms to allow fishers to respond to fluctuations, hence reducing frustration among producers. Local management arrangements and the Prawn Resource Forum could contribute to this cooperative process with benefits to compliance levels.

(c) Justify the preferred approach in terms of ESD principles.

The ESD principles for economic assessment are presented in NSW Government (1997; annex 5) and are the precautionary principle, intergenerational equity, biodiversity principle and the valuation principle.

The EPT FMS intends to contain latent effort and adjust active effort across the fishery, through business adjustment and specific regional total allowable effort restrictions which will enable minimum shareholding provisions to reduce the number of fishers. The management process has previously had insufficient economic and social input and lacked mechanisms and incentives for fishers to adjust effort in the face of resource issues. The FMS addresses this and thus it is pursuing the inter-generational objective of ESD. Implementing the changes to business numbers through minimum shareholdings is also a positive step in developing incentive and value. As adjustment takes place, the fish resource should start to develop more value to the remaining fishers, increasing the incentive to steward the resource.

There are major social issues that may not be sufficiently addressed by the EPT FMS. Cross sectoral issues with recreational fishers are complicated by the RFA process, the impacts of which are unknown. However, much recreational prawning occurs in non commercial fishing areas.

The economic review has indicated some commercially viable fishers and many low income, part-time, life style fishers. In seeking more sustainable resource use it is unlikely that the desire of government to create a professional full-time fishing industry will suit the majority of fishers in the seasonal EPT fishery. The seasonal nature of the EPT resources and the most appropriate harvesting need further discussion and evaluation under ESD criteria. The Prawn Resource Forum, proposed in the FMS will help in this process. The EPT FMS, is a first step in management of the EPT fishery under ESD principles.

(3) Data requirements in relation to the assessment of the impacts on the social issues

(a) Provide reference to technical data and other information relied upon to assess impacts; indicated its reliability and what uncertainties (if any) are associated with the use of the data in the assessment of the FMS

As there was little social information on commercial fishers in NSW, ABS survey data (ABS, 1996) and a Rapid Social Appraisal questionnaire (Roy Morgan, 2001b) was executed by a telephone. This was a first step towards the incorporation of social information in the management of fishers in NSW. 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 FMS.

The social survey was believed to be accurate, with minimal erroneous information. Responses to questions on income levels were lowest and the survey may have had some inaccurate responses on income levels. Mis-information was not readily detectable and a limited number of cross checks were available.

Data supplied from the Australian Bureau of Statistics (ABS) were related to the 1996 census and were dated, but the most accurate available at the postcode level for fishers. The ABS definition of fishers may be misleading including fishers in non Commonwealth fisheries, aquaculturists and also those who define themselves as “fishers”, as opposed to other industry categories in the census.

(b) Identify where there are gaps in knowledge important for the assessment of the impacts of the fishery

The social profile of EPT 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, employees, 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.

Investigation of lifestyle values related to fishing are required, as financial returns are marginal. Specific profiles of fisher lifestyles in different communities could be undertaken. The measurement of wider community values, views and perceptions could also be enhanced and formalised. Similarly, more time and the background from this study will allow more qualitative approaches to be taken. For example, applying anthropological or ethnographic methods, like in-depth interviews or group discussions, examining historical documents, media reports, oral histories as sources of information about fishers' and communities' values, attitudes and perceptions (Pers. comm. Dr Heather Aslin).

The economic and social merits of a full-time professional industry versus part-time fishers requires further investigation against the principles of ESD. This could also extend to study of cross sectoral studies involving recreational and indigenous fishing.

(c) Detail a timetable for developing the data sets important for understanding longer term resource issues.

Fuller social profiles and regional analysis of fishing communities in NSW should be undertaken in the next three years to assist in monitoring the impacts of adjustment and in preparation for appraisal of future management strategies. The survey information recently obtained is a start, but has a limited shelf life. A strategy for identifying social data needs and appraising social issues across all NSW fishing communities is required as soon as possible.

More complete regional industry and fishing community studies need to be undertaken in the next two years, recognising the communities can be impacted through multiple fisheries management strategies. In the longer term repeating social impact assessments for each fishery FMS risks ending up as a piece meal and duplicative process if progress is not made in more fundamental fishery community profiling and monitoring in the next 2 years. It is desirable for the fishing community profile and characteristics to be more clearly identified so as to enable impacts from different FMSs to be monitored.

With this community information it is then possible to address other information shortfalls on community attitudes, fisher profiles and to monitor the family and community impacts of specific fishery management plans in the next 1-5 years.

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Appendix H1: Fisher community profile of commercial fishers in NSW (Source: BRS/ABS data).

There has been no previous attempt to present a fishing community profile of the NSW Fishing Industry. The relevant social data of fishers in NSW was obtained from the ABS statistics via the Bureau of Rural Science Social Science unit and the numbers of commercial fishers in NSW from NSW Fisheries records. These are reported in Appendix Table H1. Maps are reported in Appendix 4.

Appendix Table HA1: Social index data for NSW Fishing communities at the postcode level (Source: ABS, 1996 /BRS and NSWF).

Zone	Home District	P. code	Town/Suburb	No. Fishers	Total Population	Unempl oyed (%)	SEIFA	Med. Ind. Income (wk)	Employed in C.F. (%) of labour force
1	TWEED	2485	TWEED HEADS	22	8,978	20.0	893	200-299	0.3
1	TWEED	2486	TWEED HEADS/BANORA POINT	22	24,984	14.4	953	200-299	0.41
1	TWEED	2487	CHINDERAH/OTHERS	19	7,976	16.2	921	200-299	0.41
1	RICHMOND	2472	BROADWATER/CORAKI	10	1,761	19.5	919	200-299	1.02
1	RICHMOND	2473	EVANS HEAD	25	2,613	16.8	900	160-199	1.02
1	RICHMOND	2478	BALLINA/OTHERS	52	24,184	13.7	972	200-299	0.52
2	CLARENCE	2460	LAWRENCE/OTHERS	24	29,145	14.8	951	200-299	1.212
2	CLARENCE	2463	MACLEAN/OTHERS	96	6,072	16.2	946	200-299	4.46
2	CLARENCE	2464	YAMBA/OTHERS	64	5,340	17.1	954	200-299	4.46
2	CLARENCE	2466	ILUKA	65	1,863	18.6	891	160-199	4.46
2	CLARENCE	2469	WOOMBAH/OTHERS	10	933	27.2	854	160-199	1.02
3	COFFS HARBOUR	2448	NAMBUCCA/OTHERS	18	8,690	19.1	927	160-199	0.8
3	COFFS HARBOUR	2450	COFFS HARBOUR	52	32,488	15.8	971	200-299	0.24
3	COFFS HARBOUR	2456	WOOLGOOLGA/URUNGA	20	11,848	20.5	944	200-299	0.46
3	COFFS HARBOUR	2462	WOOL/OTHERS	20	2,599	20.0	917	160-199	1.19
3	HASTINGS	2431	SOUTH WEST ROCKS	33	3,965	18.6	926	160-199	0.78
3	HASTINGS	2440	CRESCENT HEADS/OTHERS	20	23,164	19.3	916	200-299	0.78
3	HASTINGS	2444	PORT MACQUARIE	37	34,162	15.2	966	200-299	0.48
4	MANNING	2427	HARRINGTON/COOPERNOOK	24	1,473	18.0	883	160-199	0.71
4	MANNING	2430	TAREE/OTHERS	35	28,312	14.0	950	200-299	0.71
4	MANNING	2443	LAURIE/OTHERS	21	8,093	20.6	909	160-199	0.595
4	WALLIS LAKE	2423	BUNGWahl/OTHERS	17	3,247	14.5	939	200-299	2.78
4	WALLIS LAKE	2428	FORSTER/TUNCURRY/OTHERS	88	19,457	15.1	939	200-299	2.78
4	PORT STEPHENS	2301	NELSON/SALAMANDER BAYS/OTHERS	27	25,046	11.1	997	200-299	1.04
4	PORT STEPHENS	2315	NELSON BAY/OTHERS	54	8,393	14.3	966	200-299	1.04
4	PORT STEPHENS	2324	TEA GARDENS/OTHERS	20	19,123	13.6	937	200-299	1.91
4	HUNTER	2280	BELMONT/OTHERS	10	22,225	10.5	989	200-299	0.05
4	HUNTER	2281	SWANSEA/OTHERS	15	11,349	14.3	935	160-199	0.05
4	HUNTER	2295	STOCKTON/OTHERS	12	5,058	12.8	918	200-299	0.555
4	HUNTER	2304	MAYFIELD/WARABROOK	18	13,925	17.6	890	200-299	0.07
4	CENTRAL COAST	2250	ERINA/OTHERS	10	57,810	7.7	1025	300-399	0
4	CENTRAL COAST	2251	AVOCA BEACH/OTHERS	11	29,370	8.5	1032	200-299	0
4	CENTRAL COAST	2256	WOY WOY/OTHERS	12	14,168	11.1	941	200-299	0
4	CENTRAL COAST	2257	EMPIRE BAY/OTHERS	10	25,326	11.6	957	200-299	0
4	CENTRAL COAST	2261	BERKELEY VALE/OTHERS	19	32,623	14.1	935	200-299	0
4	CENTRAL COAST	2259	MANNERING PARK/TACOMA/OTHERS	40	46,846	10.6	972	200-299	0
5	HAWKESBURY	2083	MOONEY MOONEY	12	1,450	5.7	1042	300-399	0
5	HAWKESBURY	2775	SPENCER	18	930	9.2	967	200-299	0
5	SYDNEY	171400	SYDNEY NORTH & SOUTH	189	3,276,207	7.3	1047	300-399	0
6	ILLAWARRA	2500	WOLLONGONG	10	32,326	12.6	998	200-299	0.1
6	ILLAWARRA	2502	PRIMBEE/OTHERS	10	13,000	18.9	847	160-199	0.1
6	ILLAWARRA	2506	BERKELEY	18	6,653	19.0	827	160-199	0.1
6	ILLAWARRA	2533	KIAMA	12	13,553	7.6	1067	200-299	0.23
6	SHOALHAVEN	2540	GREENWELL POINT/OTHERS	59	24,208	18.2	933	160-199	0.81
6	SHOALHAVEN	2541	NOWRA/OTHERS	16	29,663	12.0	957	200-299	0.81
7	BATEMANS BAY	2536	BATEMANS BAY/OTHERS	32	14,335	15.5	970	200-299	1.175
7	BATEMANS BAY	2537	MORUYA/OTHERS	10	9,002	18.2	960	200-299	1.54
7	BATEMANS BAY	2539	ULLADULLA/OTHERS	63	11,499	17.4	942	160-199	0.81
7	MONTAGUE	2546	NAROOMA/OTHERS	53	8,135	15.9	955	160-199	1.54
7	FAR SOUTH COAST	2551	EDEN	61	3,726	12.1	916	200-299	2.56
			Total	1615					

Explanation of Relevant Social Data for NSW Fishing Post Code Areas.

The data contained within Appendix Table H1 has been acquired from the Australian Bureau of Statistics (ABS) Housing and Population census 1996. The data on zones, districts, postcodes and fishers numbers is from NSWFW.

Population -The total population is for the postcodes as in the 1996 census data (ABS, 1996).

Unemployment -Unemployment is the proportion of the labour force seeking either part-time or full-time employment, expressed as a percentage at postcode level from the 1996 census data (ABS, 1996).

SEIFA Index of Disadvantage - The Australian Bureau of Statistics (ABS) developed the Socio-Economic Index for Areas (SEIFA) of relative disadvantage from the 1996 population census. Areas with the greatest disadvantage have high proportions of low income families, unemployed people, people without educational qualifications, households renting public housing and people in low-skilled occupations. The SEIFA score for Australia as a whole is standardised at 1,000. Australia's non-metropolitan average is 972, so, a SEIFA³ score of 941 (as is the case with Woy Woy/others), which is 31 points lower than Australia's non-metropolitan average, would indicate the town's residents are more disadvantaged than most of non-metropolitan Australia.

Weekly Median Individual Income - The ABS' 1996 housing and population census derives information about individual income from income categories. The median income is that income category that splits the population, ie. it refers to the category where 50 percent of the population from an area selected area has income categories either above or of the same category as the median. For example, in Spencer, 50 percent of the population earned between \$0 and \$299 per week and 50 percent earned \$200 or more per week. Sydney's median individual income (\$300 - \$399) is one of the highest in this sample, compared to Woolli's in the Coffs Harbour district, which is one of the lowest (\$160 - \$199).

Employment in Fishing -Employment⁴ in the fishing industry has been expressed as a percentage of the Total Labour Force (TLF). For example, 2.78 percent of Forster/Tuncurry's labour force is employed in commercial fishing. The commercial fishing category includes all of the following

³ "The ABS does not supply SEIFA values at the post code level. Supply options are at the level of the Statistical Local Area (SLA) or census Collection District (CD). To present SEIFA values at the postcode level it was necessary to calculate a mean score from all SLAs that intersected the post code in question. While this method results in an estimated SEIFA value for postcodes, it can be regarded as a fairly accurate estimation because SEIFA scores are strongly correlated with local geography" (BRS, 2001).

⁴ "The BRS do not have a NSW data set on employment in commercial fishing at the postcode level. Data is at the SLA level. For consistency, the data is again presented at the postcode level by calculating a mean score from all SLAs that intersected the post codes. Again, it is considered that this is fairly accurate estimation given the circumstances of local geography" (BRS, 2001).

possible sub-categories: Rock lobster fishing; Prawn fishing; Finfish fishing; Squid jigging; Line fishing; Marine fishing; Marine fishing undefined; Aquaculture; and Commercial fishing undefined.

The data in Appendix Table H1 is for postcodes with more than 10 NSW commercial fishers. This means that 1,615 fishers from a total of 1,920 are included in the analysis. The other 305 live in postcodes areas with less than 10 fishers are omitted. This should be borne in mind in the analysis of results.

Appendix H2: The telephone Social Survey (Roy Morgan, 2001a).

The available information in NSW was previously limited and relied entirely on the NSWF licensing system. Recognising this a social survey was undertaken by telephone in May 2001 (Roy Morgan, 2001a). The social survey had 870 replies from 1,751 businesses contacted in NSW as reported in Appendix Table HA2.

Appendix Table HA2: The response rate for the NSW social telephone survey (Source: RM-SS).

	Frequency	%	
Completed questionnaires	870	50%	50%
No reply	115	7%	
Engaged	36	2%	
Unobtainable	136	8%	
Appointments	59	3%	
Repeated calls (6)	78	4%	
Total unable to contact	424		24%
Refusals	278	16%	
Terminations	179	10%	
Refusals/terminations	457	26%	
Total	1751		100%

The response rate across all fishers in NSW was 50%. These figures compare favourably with the telephone survey of Queensland fishers (Fenton and Marshall, 2000), though there are 26% of refusals/ terminations and approximately 24% of fishers were unable to be contacted.

Some 10% of interviews were terminated, usually due to language problems during the interview (Roy Morgan, 2001a). The completed interview results may not adequately reflect fishers from non-English speaking backgrounds. Approximately 16% of fishers refused to participate in the survey. This was due to a variety of reasons which can only be surmised, but which may indicate significant social discord between fishers and management in relation to the FMS and the Recreational Fishing Areas process and perceptions of management among fishers.

Of the total statewide replies, 171 replies (20%) were from Estuary Prawn Trawl endorsement holders who constitute 18% of all endorsement holders statewide. Of 171 EPT endorsement holders contacted, 139 (81%) interviewed in the social survey had been fishing in the EPT in the previous 12 months. Data records show there are 349 entitlement holders in the EPT and 179 (51%) went fishing in 1999-2000. The sampled fishers are more active than the endorsed population.

Appendix H3: Social profiling of fishers likely to exit the EPT fishery under the FMS

It is predicted that many elderly fishers will likely exit the fishery in the next five years. Two other categories of fishers are examined here to see their social profiles. They are those who are currently constitute latent effort and EPT fishers grossing under \$10,000 from all their fishing.

The social profile of latent effort share holders.

There are EPT endorsed fishers who are latent in all fisheries. This means they did not catch fish in any commercial fishery administered by NSW Fisheries in 1999-2000, but have previously fished in NSW. Appendix Table HA3 reports the regional dispersion of EPT fishers considered as latent effort and the proportion who responded to the social survey. Their characteristics can then be identified from the survey results.

Comparisons of latent effort holders and total endorsement numbers by zone are also presented in Appendix Table HA3. The average zone has 37% of total endorsements latent. Adjustment of endorsements by zoning will mean that a generic state-wide minimum shareholding rate would impact zones differently. If considering social impacts by numbers of latent fishers, then zone 5 has the largest number of latent effort fishers who may be potentially impacted by the FMS, whereas zone 1 and 3 have the highest percentage of latent endorsements.

Appendix Table HA3: The social survey coverage of latent EPT endorsed fishers (Yes is a SS response) (source: RM-SS).

Zones	Yes	No	Total Latent	Total Endorsed	Latent as % of Endorsed
1		4	4	7	57%
2	9	18	27	121	22%
3	3	4	7	14	50%
4	9	16	25	65	38%
5	12	44	56	125	45%
6		1	1	1	100%
7	4	2	6	6	100%
Total	37	89	126	339	37%

The following information is available on latent endorsement holders from the social survey:

- The median age bracket was 40-44 years old, with 30% of these fishers having lived in their current residence for over 30 years.
- 35% have dependent children.

- The median years fished was 16-20 years.
- 50% have more than one generation of fishing history.
- Gross income: 32 % of interviewees chose not to reply. Of those who did, the median income was \$35,000-\$39,999. 73% said that 90-100% of their income is from fishing.
- Most (74%) had no employees, while a further 18% had one or two employees.
- A minority (24%) claimed to have employment in other industries, and 22% claimed they could get full-time employment, and another 14% that they could get part-time employment in other industries. Only 18% would consider retraining, with the most common reasons for refusal being I'm too old (33%), or I enjoy fishing (22%).

In summary latent effort is held by fishers who have fished in the past, are not necessarily old and are probably undertaking some alternative employment. They have a mix of fishing experience and family connections with the fishing industry and have a limited capacity or willingness to retrain.

The social profile of EPT endorsement holders grossing less than \$10,000 per year.

Social impacts are also likely to arise from low earning EPT fishers with catch revenue estimated by the Sydney index at below \$10,000 across their fishing activities. It is likely that these fishers may sell shares rather than trading up to the minimum shareholding. For the EPT endorsement holders there were 54 fishers in 1999-00 who grossed less than \$10,000 in all their fishing in NSW. Appendix Table HA4 reports fishers numbers (< \$10,000 per annum) as percentages of total active fishers in each area. On average it is 15% state-wide with the greatest number (33) and percentage (26%) in zone 5.

Appendix Table HA4: Survey Coverage of EPT Endorsed Fishers earning less than \$10,000 in the fishing industry (Yes is a SS response).

Zones	Yes	No	Total < 10K	Total end.	<10K as % of total
1				7	0%
2	5	5	10	121	8%
3				14	0%
4	5	2	7	65	11%
5	10	23	33	125	26%
6				1	0%
7				6	0%
Total	20	30	50	339	15%

The characteristics of the EPT fishers involved with fishing businesses grossing less than \$10,000 of fish in 1999-00 are:

- The median age bracket was 50-54 years old, and the median number of years fished was 11-15 years. 45% of fishers have more than one generation of fishing history, and 50% of these fishers have lived in their current residence for over 20 years.
- Dependents: 55% of fishers had no dependent children under 16, 35% have more than 1 child under 16.
- Gross income: 25% of the interviewed fishers chose not to reply. Of those who did, the median income was \$25,000 - \$30,000, while 60% of those interviewed said that 90-100% of their income is from fishing.
- Most (80%) had no employees.
- Employment in other industries: About (35%) claimed to have employment in other industries. When asked if they could get full-time employment in another industry, over half (55%) chose not to reply. Of those who did reply, only 16% claimed they could get full-time employment in other industries, while another 32% claimed they could get part-time work. Only 10% would consider re-training, with the most common reasons given being too old (35%) and fishing is all I know (24%).

Fishers earning less than \$10,000 a year in 1999-00 have a range of ages, and length of involvement with the fishing industry. 35% work in other industries, and 25% chose not to answer the income question. 60% indicated they were full-time fishers and 35% considered themselves too old to retrain.

These fishers earning less than \$10,000 per annum are part-time fishers with 35% admitting to other employment, 60% claiming to be full-time fishers, possibly older fishers or lifestyle fishers.

