NSW Gamefish Tournament Monitoring – Angling Research Monitoring Program. Final report to the NSW Recreational Fishing Trust.

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5. DISCUSSION AND SUMMARY

This report is a synthesis of the data collected through the NSW Gamefish Tournament Monitoring Program from the 1995/96 season to the 2004/05 season. The purpose of this report is to disseminate the data collected, provide an interpretation of these data and comment on implications for the status of the main species. As the tournaments monitored are a subset of all tournaments, the total catch at monitored tournaments is less meaningful than the catch composition, trends in catch rates over time and zone and the size composition of the populations. This report also incorporated other sources of information such as the NSW DPI Gamefish Tagging Program and the NSW DPI Charter Logbook Program to compare trends with the Gamefish Tournament Monitoring Program.

Species composition of the monitored tournaments was dynamic, with the relative proportions of species fluctuating among years. Most notable through the time series was the decline in the proportion of blue marlin in the catch and the corresponding increase in the proportion of striped marlin. This is supported anecdotally and in the literature (Bromhead, Pepperell et al. 2004; Kalish, Campbell et al. 2001).

Through the monitoring period there was an increase in the proportion of vessels targeting billfish with a corresponding decrease in the proportion of those targeting sharks. This appears to be coincident with an increase in the proportion of fish tagged and increased catch rates of striped marlin.

There was an increasing rate of fish tagged compared to those retained and weighed over the period. Tournament results indicated that the tagging rate increased from 75.7% to 88.6% over the twelve years of monitoring but interviews indicated a greater change, with tagging rates increasing from 47% to 79% tagged in the six years from 1998/99 to 2004/05. The introduction of minimum sizes of marlin allowed for weighing in the point-score by the NSW GFA and would have influenced tagging rates. This also reflects changing attitudes by gamefishers in NSW to tagging and releasing fish. In 1985 a minimum weight of 50 kg was introduced, this was increased to 60 kg in 1989 and then, in May 1997, a minimum weight of 80 kg was introduced for marlin caught on 15 kg line class and above (Kalish, Campbell et al. 2001).

Strike rates can be used as a further indicator of interaction of anglers with target species (Campbell, Pepperell et al. 2003; Kalish, Campbell et al. 2001). The temporal trends in strike rate reflect the trends in catch rate for the main target species. Billfish anglers have had a fluctuating average strike rate among seasons, though the trend is consistent with the hook-up rate and catch rate. The strike rate of shark fishers fluctuated less and showed a declining trend through the monitoring period. Similarly, the catch rate of tiger sharks has declined over the time period. There was a difference in the relative success of the interactions between the targeting groups; billfish anglers had a higher strike rate per day though a lower hook-up rate than shark fishers, while shark fishers had a lower catch rate than billfish anglers. This reflects the nature of the techniques, with billfish fishers tending to use mobile live baits or lures, while shark fishers use stationary dead baits.

There was a distinct change in recent seasons in the number of billfish caught by bait-type. This was particularly evident in black and striped marlin that are mostly now caught on live baits. Live bait usage has accounted for increasing numbers of striped marlin and black marlin caught at tournaments since 2000/01; its use has been linked to improved catch rates. This would have an effect on nominal CPUE comparison through time. To account for this bias, future CPUE calculation should standardise for bait-type. The use of live bait by commercial longliners was found to increase the likelihood of catching a striped marlin, though was inconclusive as to whether
it influenced the number of marlin caught in those sets in which at least one striped marlin was caught (Bromhead, Pepperell et al. 2004).

The three resource sectors catching pelagic fish are the gamefish fishery, recreational charter fishery and the domestic longline fishery. These sectors overlap in that the two recreational fisheries target striped marlin and the commercial longline fishery, while not permitted to target striped marlin, may sell striped marlin as a by-product species (Findlay, Cross et al. 2003). The importance and value of striped marlin for each of these sectors has resulted in direct conflict over the resource. Management of marlins in Australian waters has responded to the conflict between recreational and commercial sectors (Findlay, Cross et al. 2003). The competition for the same population of striped marlin has been demonstrated through tag recaptures. Longliners have reported 54% of the tag returns from recreationally tagged striped marlin. Both sectors also compete for the same life-stage of striped marlin. This is illustrated by the similar size composition of the catch and the spatio-temporal overlap in striped marlin catch between sectors. This overlap is most notable off the south-coast of NSW in late summer and is more fully described in Bromhead et al. (2006) and Knight et al. (2006). The commercial longline and recreational charter fisheries have had declining catch rates of striped marlin in recent years, this is not evident in tournament catch rate trends, though the increasing use of live bait in tournaments may have resulted in biases.

5.1. Species overviews

5.1.1. Striped Marlin

Catch rates of striped marlin in monitored tournaments were between 0.071 and 0.187 fish per day. This is lower than that recorded at Cabo San Lucas of 0.6 striped marlin/day (Ortega-Garcia, Klett-Traulsen et al. 2003). Though Ortega-Garcia et al. (2003) did not indicate if the sportfish fleet were charter vessels or recreational gamefishers. The NSW charter vessel logbook indicated a much higher CPUE of 0.5 to 2.6 striped marlin per day per vessel (Bromhead, Pepperell et al. 2004). New Zealand catch rates from the charter fishery rose from 0.0565 to 0.201 per vessel-day in the ten years following a cessation of the striped marlin longline take in the NZ EEZ (Holdsworth 2001). This is comparative with the range of values for NSW.

The mean tournament CPUE for striped marlin increased through the 2000/01 to 2003/04 seasons then declined in 2004/05. The NSW commercial longline and charter fisheries both had consistently declining catch rates through this period. Tournament catch rates do reflect the charter and commercial results, though this may be confounded by an increased catchability of striped marlin in tournaments due to increased usage of live-bait. Catch probability (the likelihood of catching at least one striped marlin) has been found to be higher in longline operations using live-bait (Bromhead, Pepperell et al. 2004). Bromhead et al. (2004) and (Knight, Park et al. 2006) noted that while the probability of longliners catching at least one striped marlin had increased, in sets in which at least one striped marlin was caught, the mean number of striped marlin caught per hook actually decreased. They suggested that this either indicated an increase in abundance of striped marlin off eastern Australia in the late 1990s; or there was an increase in the catchability of striped marlin due to increased targeting or increased efficiency. Standardisation of striped marlin CPUE in other studies has focussed on SST, as they are known to prefer temperatures of 22 – 24°C, (Holdsworth 2001; Ortega-Garcia, Klett-Traulsen et al. 2003). Additionally, the Southern Oscillation Index and individual vessel have been used in standardisations (Bromhead, Pepperell et al. 2004). Results here suggest future standardisation of recreational CPUE should incorporate bait-type.
There are no clear shifts in the size frequencies of tagged striped marlin per annum, mean inter-season sizes appear relatively stable and similar for tag and tournament data. In contrast, Bromhead et al. (2004) found a trend of increasing annual mean size from commercial longline caught striped marlin from 77.5 kg in 1997 to 81.9 kg in 2000. Bromhead et al. (2004) also found an increase in the mean size estimates of recreationally tagged striped marlin from 66.6 kg to 82.5 kg over the same period. Data presented here illustrate that this period is somewhat anomalous and not consistent for the full monitoring period. Rather this increase in mean size may correspond to the growth of a dominant cohort. In 1996/97, there was a significant recruitment pulse as shown by increased numbers of striped marlin reported in the smallest size categories and the lowest mean size of tagged striped marlin in the monitoring period (65.8 kg). Alternatively, between the 1996/97 and the 1997/98 seasons the NSW GFA increased the minimum size of marlins caught on 15 kg or greater to be weighed. This would have had some influence in increasing the average sizes of striped marlin tagged as well as those retained for weighting between these seasons. In New Zealand, the mean weight of striped marlin from club records declined 24 kg (from 124 kg in 1925) over a 79-year period (Kopf, Davie et al. 2005).

There was a definite increase in the average size of striped marlin with increasing latitude; the mean size in the Northern Zone was 74.8 kg, in the Central Zone 84.1 kg and in the Southern Zone 89.1 kg. This latitudinal trend is consistent in commercial longline caught striped marlin (Bromhead, Pepperell et al. 2004).

The mean size of NSW tournament reported striped marlin for the monitoring period (84 kg) and those from the Gamefish Tagging Program over the same period (80 kg) are smaller than that of New Zealand; given as 100.1 kg in 2003 (Kopf and Davie, 2005) and 100.3 kg in 2001/02 (Holdsworth and Saul 2003). Though both NSW mean sizes are larger than that given for Baja California (51.0 kg male and 54.78 kg female) (Ortega-Garcia, Klett-Traulsen et al. 2003) or off southern California (64.4 kg) (Squire, 1983).

Striped marlin are shorter lived than blue or black marlin; a maximum age of 8 years has been assigned to striped marlin in New Zealand (Davie and Irene 1990). As striped marlin mature at around 36 kg (Holdsworth and Kopf 2005), most of the striped marlin captured by the NSW recreational fishery are mature fish.

There is an interaction between the recreational gamefishers and commercial longliners off the southern coast of NSW. Competition between these sectors exists as they have been shown to fish the same striped marlin stock as shown by tag releases and recaptures. They also capture the same size striped marlin and have a significant spatio-temporal overlap off the south coast of NSW in late summer-early autumn. This competition for the same striped marlin resource has recently increased the level of conflict between these sectors. It is this conflict that is likely to be the principal fisheries management issue for striped marlin for some time. This report gives a ‘worst-case scenario’ estimate (if hooking mortality were 26% and if the tagging rates of the whole recreational-gamefish fishery are equal to the gamefish-tournament fishery) of mortality rates from the gamefish sector as 8.5% that of the longline sector in NSW and closer to 5% that of the commercial longline catch for the entire east coast of Australia. This also indicates that the reduction of hooking mortality through use of circle hooks should be encouraged.

The importance of striped marlin as a component of the gamefish fishery highlights the importance of NSW involvement in management of this resource.
5.1.2. **Black Marlin**

There are no clear trends in the CPUE of black marlin at tournaments in NSW. Black marlin CPUE was generally low at around 0.05 fish per vessel-day in most seasons however in certain seasons the average CPUE increased dramatically at monitored tournaments when large numbers of juveniles were caught. The overall CPUE at monitored tournaments for the 1996/97, 1998/99 and 2004/05 seasons was 0.77, 0.21 and 0.26 black marlin per vessel-day for fishers targeting billfish.

The daily catch rate of juvenile black marlin was highest during the Port Stephens Interclub, in the 1996/97 season there were 852 black marlin reported caught, with an average CPUE of 1.0 black marlin per vessel-day. The juvenile black marlin were also caught relatively close to shore on the continental shelf making them accessible to the numerous smaller vessels in the tournament. The nature of the generally low annual catch rates interspersed with occasional seasons of very high catch rates makes interpretation of CPUE trends difficult. Moreover, as the population targeted in NSW is not a spawning population, but rather juveniles, the catch rate may reflect patterns of recruitment, rather than an index of spawning stock abundance. NSW tournament CPUE ranged from 0.03 to 0.76 fish per day with a mean over the monitoring period of 0.12 black marlin per day.

A study of the adult spawning stock off Cairns from charter records produced a CPUE of 0.86 black marlin per day during the 1990s (Campbell, Pepperell et al. 2000).

The recreational fishery off NSW predominantly catches juvenile black marlin. The mean size of black marlin at monitored NSW tournaments was 71 kg while the mean of those tagged off NSW was 53 kg. This equates to 4 and 3 year old fish respectively (Kalish, Campbell et al. 2000; Speare 1998; Speare 2003). Male black marlin are thought to mature at around 50 to 60 kg (3 to 4 years) and females, though less clear, are thought to mature at around 70 kg (4 to 5 years) (Kalish, Campbell et al. 2000; Speare 1998). In comparison, the overall average size of black marlin caught by the North Queensland charter fishery was 150 kg for tagged black marlin from 1987 to 1998 (Kalish, Campbell et al. 2000). Moreover the North Queensland spring charter fishery targets the spawning aggregations of very large females over 300 kg, greater than even the maximum size reported in NSW (Pepperell 1990).

The average size of black marlin tagged in NSW increased with latitude, the mean sizes for the Northern, Central and Southern Zones were 41.3 kg, 50.3 kg and 87.0 kg. While a fishery exists for juvenile black marlin in inshore waterers of Queensland and northern to central NSW, juvenile black marlin are less evident in southern NSW ports (Pepperell 1990). Tagged recaptures of black marlin indicate that they disperse but return to North Queensland annually (Kalish, Campbell et al. 2000; Pepperell 1990). Thus this increasing average size with increasing latitude is potentially either due to greater thermal tolerance or a greater rate of dispersal with size of black marlin.

Since the tagging rate of black marlin is particularly high in tournaments, the estimated mortality from numbers tagged combined with the estimated mortality rates, resulted in 91 and 54 black marlin mortalities in the 2003/04 and 2004/05 seasons from recreational angling. Though protected from commercial sale, there were 104 and 183 recorded captures of black marlin bycatch for the NSW commercial component of the ETBF fishery in 2004 and 2005 respectively, and 785 and 487 for the whole ETBF in these years respectively. Observer reports from the domestic longline fishery indicated at the time of capture 47% of black marlin were ‘alive and vigorous’ at the time of capture and presumed would survive (Kalish, Campbell et al. 2000). Black marlin are not a large component of the regional longline fishery and the western and central Pacific Ocean (WCPO) catch estimate was only 920 mt and only 1,086 mt in 1997 (Williams, Bigelow et al. 1999).

Targeting using live baits is particularly successful for black marlin, accounting for around 64% of black marlin caught in 2004/05. As the fish tend to swallow live baits there is some concern of mortality rates using live bait on ‘J’ hooks. Ongoing research is underway to determine post-
tagging mortalities as well as life history information in the juvenile black marlin (J. Pepperell pers. com.).

5.1.3. Blue Marlin

Blue marlin form a small component of the recreational tournament gamefish fishery comprising only 4% of the number of fish caught during tournament monitoring. However historically it has been an important component. The highest number landed or tagged at monitored tournaments was 217 in 1997/98, when only seven tournaments were monitored. However in the last two seasons monitored (2003/04 and 2004/05) there was only 21 and 33 blue marlin reported captured for the 22 and 19 tournaments monitored. The catch rate of blue marlin declined since 1997/98, the year of the highest blue marlin CPUE (0.1 fish per vessel-day) such that in both the 2003/04 and the 2004/05 seasons the CPUE was 0.1 fish per vessel-day. The decline in CPUE would be influenced by a shift in targeting to the other marlins. Blue marlin tend to be the most oceanic of the marlins, inhabiting waters beyond the continental shelf, this plus their relatively low numbers in temperate waters and the success of live baiting for striped and black marlin has lead to a reduction in target fishing for blue marlin (Kalish, Campbell et al. 2000).

There was no consistency or trend in catch rates among the three NSW Zones. While most blue marlin were caught in the Central Zone, the catch rates were similar for the main tournament ports in all zones.

Blue marlin had the largest mean size of the marlins at monitored tournaments, 137.5 kg, while the mean of tagged blue marlin was 118.6 kg. Size at age is highly variable in blue marlin and there is a strong sexual dimorphism in size with females growing larger than males. The sex ratio of blue marlin caught off NSW is dominated by females, 122 of 130 dissected at NSW tournaments were females (Kalish, Campbell et al. 2001). The mean size on NSW tournaments would equate to a female of about 8 years (in Hawaiian waters) (Kalish, Campbell et al. 2000). In Hawaiian waters, males reach maturity at 31 kg and females at 80 kg (Hopper 1990). If this pattern is consistent on the Australian east coast, then most blue marlin caught are mature fish. There was no discernable difference in the mean sizes among zones. Blue marlin are predominantly a tropical species though do make seasonal dispersions to temperate waters with an annual homing back to tropical waters (Kalish, Campbell et al. 2000). Despite their being the most tropical of the marlins they had the least trend of increasing size with increasing latitude evident in the other marlins. Their relatively large mean size compared to the other marlins in NSW waters may have reduced the effects of latitude on dispersal.

Tagging and genetic studies suggest that Pacific blue marlin are one population (Kalish, Campbell et al. 2000). They are the most tropical of the three species of marlin (Nakamura 1985). In considering these factors and the numbers of blue marlin caught in tropical longline fisheries, the impact of recreational fishing on the Australian east coast is thought to be very low (Kalish, Campbell et al. 2000). In this report extrapolated estimates of 94 and 23 mortalities of blue marlin by gamefishers for the 2003/04 and 2004/05 seasons. The bycatch of the domestic longline fishery was 262 and 233 for 2004 and 2005 off NSW or 798 and 915 for the Australian East coast. Only one blue marlin was recorded captured on domestic longliners by Australian observers, however 47% of observed black marlin caught on longlines were ‘alive and vigorous’, and there appeared an increasing mortality with size for black marlin. Thus the larger blue marlin may have also had a higher mortality rate. The Western Pacific Ocean’s longline catch of blue marlin was estimated as 9,494 mt in 1997 (Williams, Bigelow et al. 1999).
5.1.4. Tiger Shark

The number of tiger sharks caught at monitored tournaments was relatively low; there were 591 recorded, 2.1% of the total number of fish recorded. However, it was the second-most commonly caught shark species, comprising 19.0% of sharks caught. This proportion is consistent with club records, which indicate the proportion of tiger sharks had grown from 4% to 5% of the shark catch in the 1970s and 1980s, this was thought to be attributable to changing targeting practices and the general trend of gamefishers fishing further offshore over these decades (Pepperell 1992).

There was a decline in the catches and the catch rate of tiger sharks through the monitoring period. The highest annual number of reported tiger sharks at monitored tournaments was 77 in 1998/99 (21 tournaments). This declined to 32 and 34 caught in 2003/04 and 2004/05 respectively. This was reflected in a decline in annual catch rates for tiger sharks. The CPUE declined from 0.24 sharks per day in 1996/97 to 0.05 in 2004/05. The CPUE has remained below the mean of the monitoring period (0.11 tiger sharks/day) since the 1999/00 season. This should be some cause for concern since, even though there was a decline in the number of anglers targeting sharks over the monitoring period, there remains a dedicated corps of anglers that target large tiger sharks and their methods remain relatively unchanged compared to others in the gamefish sector. Longer-term gamefish club records indicate increasing annual catches of tiger sharks from the 1930s to the 1996/97 season, then a decline. Unfortunately the data only went to the 1998/99 season (Chan 2001). The annual number of tiger sharks caught in the protective beach-meshing program (1950/51 – 1999/00) suggests a more cyclic pattern of catches with pulses of higher catches occurring approximately every 15 years. The maximum number caught in NSW nets was in 1986/87 and subsequently declined to the end of the series in 1999/00 (Chan 2001).

Catches of tiger sharks were highest off Broken Bay and CPUE for NSW was highest in the Sydney metropolitan region along the continental shelf margin from Broken Bay to Port Hacking. This is similar to the Protective Beach Meshing Programme that had its highest catches just outside the metropolitan area, at Newcastle, north of Sydney and Royal National Park beaches south of Port Hacking (Krogh 1994).

Anecdotally, gamefishers have attributed lower tiger shark catches in some seasons to strong currents or in 2004/05 to ‘swarms’ of oceanic leatherjackets attacking bait (J. Pepperell pers. com.). Future CPUE analysis should also standardise by area and tournament, as there appears to be a difference in CPUE by area.

A broad size range of tiger sharks from 20 kg to 528 kg was reported at tournaments; the low numbers caught preclude any clear structure in the size distributions. Chan (2001) interpreted the flat size frequency as an indication of low natural mortality. There was no obvious trend in annual mean sizes at tournaments, though suggestions of a decline in mean size in the Central Zone. The tagging data was limited to tiger sharks mostly under 80 kg, this would be largely due to the minimum size requirement, self-imposed by the GFAA (2005). Tiger sharks, of all target fish, had the largest difference between the mean tournament size (207 kg) and the size of those tagged (61 kg). The tournament data gives a mean size of 207 kg and a modal size of 250 kg. This mean size would correspond to an age of approximately 12 years old (Randall 1992). The size distribution from club records was different to our data. Club data had a more definite skew to smaller individuals and a modal length of only 70 kg, and no mean size was given (Pepperell 1992). Tiger sharks are relatively long lived, those off NSW have been aged to 21 years (Chan 2001), though this individual was 440 kg, less than the maximum sizes reported. Females are thought to mature at 11 years of age (290 cm ~280 kg) and males at about 8 years of age (250 cm ~170 kg) (Chan 2001; Simpfendorfer 1992; Wintner and Dudley 2000). There was no clear size trend with latitude. However Pepperell (1992) found tiger sharks were largest in his northern zone (Coffs Harbour –
Lake Macquarie) compared to his metropolitan zone (Broken Bay – Jervis Bay) and tiger sharks were smallest in his southern zone (Pepperell 1992).

5.1.5. **Other Sharks**

Mako sharks, with 1,158 reported caught, were the most numerous shark species (37.3%) caught during the monitoring period and the sixth-most numerous fish species (5.2%).

The stock dynamics of mako sharks suggests a mostly stable population off NSW with periodic seasons of recruitment. Annual mean tournament catch rates during monitoring were in two distinctive periods, pre 1998/99 and after. The mean catch rate in the first five seasons was relatively low (0.09 sharks/vessel-day) and stable, and then in 1998/99 the CPUE rose significantly to 0.53 sharks/vessel-day. This coincided with a significant decrease in the mean size of mako sharks recorded at tournaments and a large number of small mako sharks reported tagged in 1998/99. Increased catches of juveniles indicated a recruitment pulse into the tournament fishery. Subsequent seasons’ catch rates then progressively declined and stabilised at around 0.15 mako sharks per vessel-day, while the average size of tournament reported mako sharks increased. The juveniles that were apparent in the tournament catch in 1998/99 dominated the smallest size class in the tagging data in earlier seasons. The smallest size category (<20 kg) of tagged makos was the dominant mode in 1995/96; a mode that progressed, consistent with growth estimates, through to (40 – 60 kg) 1998/99 when it appeared in tournament catches. The mean size of tagged mako sharks increased steadily through this period, supporting the model that there was a single period of recruitment during the four seasons.

Mako sharks are characterised by being relatively long lived, having a late maturity (particularly in females) and with a low fecundity; indicating a naturally stable population with a low natural mortality (Bishop, Francis et al. 2006). The mean weight of tournament-recorded makos at monitored tournaments was 95.5 kg, or about eight years of age. The mean weight of makos tagged was 49.3 kg, which equates to 5 years of age and most (88%) were less than 80 kg, i.e., less than seven years old. Their growth rates and longevity differ among authors depending on whether one or two pairs of growth rings are interpreted as annual (Bishop, Francis et al. 2006). Chan (2001) gave a longevity of 21 years for NSW, whereas Bishop et al. (2006) estimated the longevity of New Zealand mako sharks to 29 years for males and 28 years for females. They also estimated that males matured at 7 to 9 years (80 kg) but that females did not mature until 19 to 21 years of age (about 240 kg) (Bishop, Francis et al. 2006). Therefore in tournament-reported data, about 50% of males and 99.8% of females would have been juveniles. The population of breeding females is very small, the reproductive cycle has been estimated as three years and gestation 15 to 18 months long (Mollet, Cliff et al. 2000). These factors have serious implication for the ability of the stock to recover if it were to become overfished.

Many of the mako sharks were caught in waters on the continental shelf, though the data do not give indication of size structure with depth. Japanese longline catch data in the Australian Fishing Zone during the mid-1980s also predominantly caught juvenile makos (<100cm) (Stevens 1992); these vessels would have been operating beyond the continental shelf.

Hammerhead sharks have also had a large influx of juveniles into the population in 1996/97 when catch rates peaked and mean sizes fell. Since this period there has been an overall decline in hammerhead catch rates. Though the number of juveniles tagged each year has remained high for the monitoring period.

Overall, the catch rates of blue sharks declined at monitored tournaments. This trend may be due to very high catch rates in 1995/96. Gamefish club records since the 1930s indicate 1995/96 as the
season with the second highest annual catch of blue sharks and 1996/97 was the season with the highest catch. Catches then declined to the end of the series in 1998/99 (Chan 2001). The tournament CPUE peak in 1995/96 did not appear to coincide with a recruitment pulses, which would be shown by a large decrease in mean size or a higher proportion of juveniles. Juveniles of the smallest size categories did not appear to comprise a large portion of the blue sharks tagged with the average size around 60 kg. This indicates juveniles are a minor part of the fishery. This may be cause for concern if it indicates low recruitment. Alternatively it may be a due to their poor point value in tournaments and hence low targeting or reporting. Catch rates and size composition in the longline industry could be compared. Most blue sharks were caught in the Central Zone, particularly in the Wollongong area with catch rates highest beyond the continental shelf.

### 5.1.6. Sportfish

Yellowfin tuna were the most numerous fish reported at monitored tournaments with 4,862 reported caught, which is 22% of the total number of sharks and fish. Overall 85.7% were tagged at tournaments, though a relatively high proportion was also retained and ‘not-weighed’ (presumably for consumption). The CPUE of yellowfin tuna in monitored tournaments was low (0.19 fish per vessel-day) and fluctuated without a clear trend (maximum was 0.53 fish per vessel-day in 1995/96). Dedicated tournaments had higher catch rates than the other tournaments (0.41 overall and 1.28 in 1995/96). Amongst zones, and particularly in seasons of relatively high catch rates (1995/96 and 2001/02), the tournament CPUE was highest in the Northern Zone (mean of 0.62 yellowfin per vessel-day) followed by the Southern Zone (mean 0.19 yellowfin per vessel-day), with CPUE lowest in the Central Zone (0.07 yellowfin per vessel-day). Yellowfin tuna are pan-Pacific in tropical and subtropical waters to around 40°S (Collette and Nauen 1983), though with restricted mixing between the eastern and western Pacific (Ward, Elliott et al. 1994). NSW is at the southern extreme of their range; therefore the fluctuating catch rate for NSW tournaments may be more related to oceanographic conditions than regional stock abundance, though this would suggest there would be a latitudinal cline in catch rates, which was not found.

Tournament catch rates were highest in 1995/96 reaching 0.53 yellowfin per vessel-day overall, this season also corresponds to high commercial longline catch rates in the ETBF fishery in 1995 and 1996 (Campbell 2002). There are two dedicated yellowfin tuna tournaments held in May in the Southern Zone at Bermagui and Batemans Bay. The trends in CPUE at these tournaments followed the overall CPUE trend by season though with more exaggerated increased CPUE in years of relatively high overall CPUE, e.g., 1.28 yellowfin per vessel for 1995/96. However the highest catch rates among zones were in the Northern Zone where they were 3.7 and 1.6 yellowfin per vessel-day for these same seasons 1995/96 and 2001/02. These high CPUE values resulted from the very high catch rates in the Coffs Harbour Hot Current Tournament, held early in the season.

Yellowfin tuna is one of the principal target species of industrial fisheries of the WCPO. Purse seine, longline and pole and line operations in the WCPO are estimated to have taken between 320,000 t and almost 500,000 t annually since 1990 (Hampton et al. 2005). The mean annual longline catch of yellowfin from 1985 to 2001 in the Eastern Tuna and Billfish Fishery (ETBF) was 56,995 fish. Regionally they are approaching their reference points of overfishing though this is less of an issue in the subtropics where there is low purse seine fishing pressure. The NSW recreational catch of yellowfin is difficult to ascertain, as there would be a significant non-tournament component. However the NSW recreational catch is likely to be insignificant in comparison to the ETBF and more so compared to the WCPO regional catch.

Tournament-reported yellowfin tuna had a mean size of 23 kg compared to 13.0 kg for tagged yellowfin. Yellowfin tuna have been aged to 6 years at 140 cm fork length (FL) (Lehodey and Leroy 1999). The mean tournament weight of 23 kg approximates to a 2-year old yellowfin.
(Lehodey and Leroy 1999), which has been shown in Hawaii as the size at which 50% of the population reaches maturity (104 cm FL) (Itano 2000). Therefore the mean size of tournament-caught tuna approximates the mean size of maturity. In tropical and subtropical waters yellowfin tuna reproduce every 1 – 2 days for protracted periods (Itano 2000; McPherson 1991). In the Coral Sea off the Australian east coast, yellowfin spawn every 1.5 days between October and March (McPherson 1991). However spawning appears restricted to waters north of 30°S, i.e., north of Coffs Harbour. Therefore mature yellowfin caught off Central and Southern NSW would not be spawning. Immature yellowfin and mature yellowfin that are actively spawning are more prone to surface fisheries including the troll fishery than mature but reproductively inactive yellowfin (Itano 2000). These factors suggest that the recreational gamefish fishery off NSW may under-represent mature yellowfin. Hence gamefish CPUE is not a good proxy for an index of abundance for yellowfin tuna off NSW.

Mahi mahi CPUE fluctuated through the time series averaging 0.1 fish per vessel-day and reaching a peak of 0.36 fish per vessel-day in the 2000/01 season. This was also the season with most mahi mahi reported tagged, and corresponds to the lowest mean size reported at tournaments. The increasing mean size and shifts in the length frequencies as well as the shift in the size structure over the next few seasons suggests 2000/01 was a season of very high recruitment followed by seasons of lower recruitment. While small juveniles were caught and tagged each year, the cyclic nature of the mean size, CPUE and numbers tagged suggest that recruitment levels are cyclic and perhaps related to larger oceanographic processes. Mahi mahi growth, reproduction and feeding have been directly related to water temperatures; 20°C is their minimum temperature and waters above 22°C preferred (Bennett 2001). Mahi mahi occurrence off NSW in association with the EAC is thought to be simply an extension of their range rather than a directed migration (Bennett 2001; Kingsford and Defries 1999). Thus in ENSO events in which the water temperatures off mid-NSW are in excess of 23°C for extended periods are seasons likely to have large numbers caught. That 91.7% of mahi mahi tagged were tagged in NSW rather than in Queensland where water temperatures are more consistently above the threshold level may be related to other geographical characteristics such as the distance of the oceanic water from shore, though many of the juveniles are caught over the continental shelf and associated with trap floats or FADs. Alternatively the cause may be anthropogenic such as not being targeted or not tagged, fewer fishers or fewer FADs deployed.

Mahi mahi are short lived and longevity is thought to be about 4 years at around 150 cm (20 kg). They are very fast growing reaching 1 kg in six months and 10 kg in one year. Therefore 50% of the tournament reported mahi mahi were between 6 months and one year old. Fecundity is high and spawning thought to be continuous (up to every 2 days) over protracted period if environmental ambient conditions suit (Kingsford and Defries 1999). Mahi mahi reach maturity at six months of age and 1 kg (~50cm). Also mahi mahi exhibit a sexual dimorphism in growth: females are smaller than males of the same age.

There was a negative relationship between size and latitude, mahi mahi from tournaments in the Northern Zone were on average larger than those in the Central Zone, which were, on average, larger than those in the Southern Zone. Temperature is thought to influence feeding and growth, and may explain an inverse relationship of latitude with mean size. However smaller mahi mahi have been shown to be more associated with floating objects and larger mahi mahi more likely not to be associated with floating objects in open water (Dempster 2004). Therefore there is a potential for a size bias if most mahi mahi were caught around floating objects and FADs. Females have been shown to outnumber males around FADs with a ratio of 2:1 (Dempster 2004).

NSW DPI regards them as moderately fished and being particularly easy to catch around floating objects. A FAD program was even set up to cater principally for these fish (Folpp and Lowry 2006). They do, however, have a high natural recruitment, are very fecund and are estimated to
have a population-doubling period of 4 years, hence are relatively resilient to overfishing. Aggregations of juveniles to FADs will increase their catchability.

Albacore are thought to be composed of separate north and south Pacific stocks, with equatorial waters a barrier for larval and juvenile dispersal. While albacore of the South Pacific are thought to comprise a single stock there appears to be size segregation in the latitudinal range. Juveniles appear in the austral summer in latitudes of 5°S to 25°S, juveniles 50 – 85 cm are abundant in more southerly latitudes of 30°S to 45°S, while adults are abundant in waters 15°S to 25°S in the austral summer and 30°S to 40°S in the austral winter. The adults occur from equatorial waters to 49°S (Murray 1994). Therefore NSW waters are consistent with the ranges of the juvenile and winter adult albacore populations.

Albacore CPUE in tournaments has declined significantly over the monitoring period. While the CPUE appears saw-toothed in shape with years of high CPUE interspersed with years of low CPUE, the overall trend has been a sharp decline. The maximum number of albacore reported in monitored tournaments was 785 in 1993/94. This subsequently declined sharply and there have not been more than 100 reported caught in a year since 2001. In the 2004/05 season there were 31 reported caught. The overall numbers tagged on the Australian east coast have declined from 2,662 in 1995/96 to 167 in 2004/05 (there were only approximately 20 reported for each of the two previous seasons). While the total recreational catch is not known for NSW it is likely to be insignificant with respect to the total annual commercial catches of South Pacific albacore, which have been between 20,000 t and 52,000 t per year since the 1960s (Hampton 2002). Regionally the biomass has declined since the late 1970s and is now estimated at 85% of the estimated equilibrium unexploited biomass. While the impact of fisheries on biomass levels has increased through time it is estimated to be low, resulting in a reduction of less than 20% of unexploited biomass levels (Hampton 2002). Thus the decline of the catch rates for the NSW recreational fishery is unlikely to be attributable to a regional decline in biomass. The Australian domestic longline catch has been between 381 and 658 t from 1993 to 2004 (Lawson 2005; Ward and Bromhead 2004; Ward and Bromhead 2005) increasing over that period. The New Zealand commercial longline and troll fisheries caught between 3,628 t and 6,744 t per year from 1994 to 2004, while the recreational annual catch of albacore for New Zealand was estimated in 1996 to be 260+t or 51,000+ fish (Anonymous 2005).

Albacore have been aged to 13 years at an average size of 107 cm (~24 kg), which corresponds with the record size caught in tournaments of 23.5 kg. The average size of albacore caught at tournaments was 8.5 kg (~74.5 cm), which equates to an approximate age of 5 years, while the mean size of tagged albacore was 8.0 kg and about 4+ years (Labelle, Hampton et al. 1993).

Albacore are thought to mature at 6 to 8 years of age, making most of the recreationally caught albacore immature fish. The New Zealand commercial troll fishery catches slightly smaller albacore, averaging 64.3 cm (~5.5 kg) with 99% between 52 to 76cm (~3 to 9 kg) (Griggs 2004).
6. REFERENCES


West L (1990) ' A review of existing and potential data systems for recreational fishing for tunas and billfishes: East Coast of Australia / for Department of Primary Industries & Energy and East Coast Tuna Management Advisory Committee.' Kewagama Research, Tewantin, Queensland, Australia, 69pp.

Billfish’. (Oceanic Fisheries Programme, Secretariat of the Pacific Community, Noumea, New Caledonia: Papeete, Tahiti).

7. **APPENDICES**

**Appendix 1:** Saltwater gamefish recognised by GFAA for records and whether they are in the GTMP data.

<table>
<thead>
<tr>
<th>Group</th>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Reported in data</th>
</tr>
</thead>
<tbody>
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<td>Billfish</td>
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<tr>
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<td>Marlin – Pacific Blue</td>
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<td>*</td>
</tr>
<tr>
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<td>Marlin – Striped</td>
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</tr>
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<td>*</td>
</tr>
<tr>
<td>Sharks and rays</td>
<td>Shark – Blue</td>
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<td></td>
<td>Shark – Gummy</td>
<td><em>Mustelus antarcticus</em></td>
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<tr>
<td></td>
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<tr>
<td></td>
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<td>Shark – Porbeagle</td>
<td><em>Lamna nasus</em></td>
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<tr>
<td></td>
<td>Shark – Thresher</td>
<td><em>Alopias spp.</em></td>
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<tr>
<td></td>
<td>Shark – Tiger</td>
<td><em>Galeocerdo cuvier</em></td>
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<tr>
<td></td>
<td>Shark – Whaler</td>
<td><em>Carcharinus spp.</em></td>
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<tr>
<td></td>
<td>Tuna – Bluefin</td>
<td><em>Thunnus thynnus orientalis</em></td>
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<td></td>
<td>Tuna – Dogtooth</td>
<td><em>Gymnosarda unicolor</em></td>
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<tr>
<td></td>
<td>Tuna – Kawa Kawa</td>
<td><em>Euthynnus affinis</em></td>
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<td></td>
<td>Tuna – Large Scale</td>
<td><em>Grammatorcynus bicarinatus</em></td>
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<td></td>
<td>Tuna – Longtail</td>
<td><em>Thunnus tonggol</em></td>
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<td></td>
<td>Tuna – Skipjack</td>
<td><em>Katsuwonus pelamis</em></td>
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<td>Tuna – Southern Bluefin</td>
<td><em>Thunnus maccoyii</em></td>
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<td>Tuna – Yellowfin</td>
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<td>Amberjack</td>
<td><em>Seriola dumerilli</em></td>
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<tr>
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<td>Barracuda</td>
<td><em>Sphyraena spp.</em></td>
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<tr>
<td></td>
<td>Bonito</td>
<td><em>Sarda spp.</em></td>
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<tr>
<td></td>
<td>Cobia</td>
<td><em>Rachycentron canadum</em></td>
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<tr>
<td></td>
<td>Kingfish – Yellowtail</td>
<td><em>Seriola lalandi</em></td>
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<td>Mackerel – Broad Barred</td>
<td><em>Scomberomorus semifasciatus</em></td>
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<td>Mackerel – Narrow Barred</td>
<td><em>Scomberomorus commerson</em></td>
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<td>Mackerel – Spotted</td>
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<td>Queenfish</td>
<td><em>Scomberoides spp.</em></td>
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<td>Trevally – Big Eye</td>
<td><em>Caranx sexfasciatus</em></td>
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<td></td>
<td>Trevally – Giant</td>
<td><em>Caranx ignobilis</em></td>
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<td>Trevally – Gold Spot</td>
<td><em>Carangoides fulvoguttatus</em></td>
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<td>Trevally – Golden</td>
<td><em>Gnathanodon speciosus</em></td>
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<td></td>
<td>Trevally – Silver</td>
<td><em>Pseudocaranx dentex</em></td>
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</table>
Appendix 1 (continued)

<table>
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<tr>
<th>Group</th>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Reported in data</th>
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<td>Salmon – Australian</td>
<td><em>Arripis trutta</em></td>
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<td>Barramundi (Giant Perch)</td>
<td><em>Lates calcarifer</em></td>
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<td>Bonefish</td>
<td><em>Albula vulpes</em></td>
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<tr>
<td>Mangrove Jack</td>
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<tr>
<td>Mulloway (Jewfish)</td>
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<tr>
<td>Samson Fish</td>
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<td>Snapper</td>
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<td>Tailor</td>
<td><em>Pomatomus saltatrix</em></td>
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Appendix 2: Reported catch at monitored tournaments tagged or landed of most common twelve species.

<table>
<thead>
<tr>
<th>Fishing Season</th>
<th>Yellowfin</th>
<th>Striped Marlin</th>
<th>Black Marlin</th>
<th>Mahi</th>
<th>Albacore</th>
<th>Mako</th>
<th>Blue Marlin</th>
<th>Kingfish</th>
<th>Tiger Shark</th>
<th>Blue Shark</th>
<th>Hammerhead Whaler</th>
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<tbody>
<tr>
<td>1993/94</td>
<td>255</td>
<td>201</td>
<td>117</td>
<td>105</td>
<td>785</td>
<td>53</td>
<td>66</td>
<td>11</td>
<td>67</td>
<td>19</td>
<td>59</td>
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<tr>
<td>1994/95</td>
<td>452</td>
<td>149</td>
<td>68</td>
<td>94</td>
<td>72</td>
<td>43</td>
<td>26</td>
<td>9</td>
<td>55</td>
<td>32</td>
<td>18</td>
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<tr>
<td>1995/96</td>
<td>11,86</td>
<td>379</td>
<td>157</td>
<td>47</td>
<td>491</td>
<td>99</td>
<td>43</td>
<td>7</td>
<td>68</td>
<td>153</td>
<td>29</td>
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<tr>
<td>1996/97</td>
<td>124</td>
<td>175</td>
<td>890</td>
<td>66</td>
<td>2</td>
<td>11</td>
<td>24</td>
<td>4</td>
<td>54</td>
<td>12</td>
<td>39</td>
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<tr>
<td>1997/98</td>
<td>69</td>
<td>107</td>
<td>168</td>
<td>89</td>
<td>165</td>
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<td>131</td>
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<td>627</td>
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<td>86</td>
<td>307</td>
<td>217</td>
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<td>194</td>
<td>609</td>
<td>268</td>
<td>73</td>
<td>4</td>
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<td>99</td>
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<td>56</td>
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<tr>
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<td>10</td>
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<td>131</td>
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<td>50</td>
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<td>76</td>
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<tr>
<td>2003/04</td>
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<td>372</td>
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<td>175</td>
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<td>21</td>
<td>89</td>
<td>32</td>
<td>4</td>
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<tr>
<td>2004/05</td>
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<td>382</td>
<td>624</td>
<td>258</td>
<td>31</td>
<td>116</td>
<td>33</td>
<td>101</td>
<td>34</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>4,862</strong></td>
<td><strong>3,668</strong></td>
<td><strong>3,265</strong></td>
<td><strong>2,952</strong></td>
<td><strong>1,874</strong></td>
<td><strong>1,158</strong></td>
<td><strong>886</strong></td>
<td><strong>712</strong></td>
<td><strong>591</strong></td>
<td><strong>453</strong></td>
<td><strong>443</strong></td>
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</table>
## Appendix 3:

Tournaments monitored by the GTMP by port by year. Fishing Effort is given as vessel-days.

<table>
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APPENDIX 4: GFAA Angling Rules and Equipment Regulations


The following Angling Rules and Regulations have been formulated to promote ethical and sportsman-like angling practices, to establish uniform regulations for the compilation of Australian Game Fish Records and to provide basic angling guidelines for use in fishing tournaments and any other group angling activities.

The word "angling" is defined as catching or attempting to catch fish with a rod, reel, line and hook as outlined in the G.F.A.A Angling Rules and Equipment Regulations. However, there are some aspects of angling that cannot be controlled through rule-making. Angling Rules cannot ensure an outstanding performance from each fish and Australian records cannot indicate the amount of difficulty in catching the fish. Captures in which the fish has not fought or has not had a chance to fight do not reflect credit on the fisherman, and only the angler can properly evaluate the degree of achievement in establishing the record.

Only fish caught in accordance with G.F.A.A. Australian Angling Rules, and within the intent of these rules will be considered for Australian Records.

Following are rules for Saltwater, Freshwater and Fly Fishing.

EQUIPMENT REGULATIONS

A. LINE

1. Monofilament, multifilament, and lead core multifilament lines may be used. For line classes, see Australian Record Requirements.

2. Wire lines are prohibited.

B. LINE BACKING

1. Backing not attached to the fishing line is permissible with no restrictions as to size or material.

2. If the fishing line is attached to the backing, the catch shall be classified under the heavier of the two lines. The backing may not exceed the 60 kg line class and must be of a type of line approved for use in these angling rules.

C. DOUBLE LINE

The use of a double line is not required. If one is used, it must meet the following specifications.

1. A double line must consist of the actual line used to catch the fish.

2. Double lines are measured from the start of the knot, braid, roll or splice making the double to the furthermost end of the knot, splice, snap, swivel or other device used for securing the tract, leader, lure or hook to the double line.

Saltwater Species: In all line classes up to and including 10kg, the double line shall be limited to 4.57 metres. The combined length of the double line and leader shall not exceed 6.1 metres.

The double line on all classes of tackle over 10 kg shall be limited to 9.14 metres. The combined length of the double line and leader shall not exceed 12.19 metres.
Freshwater Species: The double line on all classes of tackle shall not exceed 1.82 metres. The combined length of the double line and the leader shall not exceed 3.04 metres.

D. LEADER
The use of a leader is not required. If one is used, it must meet the following specifications:

1. The length of the leader is the overall length including any lure, hook arrangement or other device. The leader must be connected to the line with a snap, knot, splice, swivel or other device. Holding devices are prohibited. There are no regulations regarding the material or strength of the leader.

Saltwater Species: In all line classes up to and including 10 kg, the leader shall be limited to 4.57 metres. The combined length of the double line and leader shall not exceed 6.1 metres.

The leader on all classes of tackle over 10 kg shall be limited to 9.14 metres. The combined length of the double line and leader shall be limited to 12.19 metres.

Freshwater Species: The leader on all classes of tackle shall be limited to 1.82 metres. The combined length of the double line and leader shall not exceed 3.04 metres.

E. ROD

1. Rods must comply with sporting ethics and customs. Considerable latitude is allowed in the choice of rod, but rods giving the angler an unfair advantage will be disqualified. This rule is intended to eliminate the use of unconventional rods.

2. The rod tip must be a minimum of 101.6 centimetres in length. The rod butt cannot exceed 68.58 centimetres in length. These measurements must be made from a point directly beneath the centre of the reel. A curved butt is measured in a straight line. (The above measurements do not apply to surf casting rods.)

F. REEL

1. Reels must comply with sporting ethics and customs.

2. Power driven reels of any kind are prohibited. This includes motor, hydraulic or electrically driven reels and any device which gives the angler an unfair advantage.

3. Ratchet handle reels are prohibited.

4. Reels designed to be cranked with both hands at the same time are prohibited.

G. HOOKS FOR FISHING WITH NATURAL BAIT

1. For live or dead bait fishing no more than two single hooks may be used. Both must be firmly imbedded in or securely attached to the bait. The eyes of the hooks must be no less than a hook's length (the length of the largest hook used) apart and no more than 45.72 centimetres apart. The only exception is that the point of one hook may be passed through the eye of the other hook.

2. The use of a dangling or swing hook is prohibited. Double and treble hooks are prohibited.

3. A two-hook rig for bottom fishing is acceptable if it consists of two single hooks on separate leaders or drops. Both hooks must be imbedded in the respective baits and...
separated sufficiently so that a fish caught on one hook cannot be foul-hooked by the other.

4. All record applications made for two hook tackle must be accompanied by a photograph or sketch of the hook arrangement.

H. HOOKS AND LURES

1. When using an artificial lure with a skirt or trailing material, no more than two single hooks may be attached to the line, leader or trace. The hooks need not be attached separately. The eyes of the hook must be no less than an overall hook's length (overall length of the largest hook used) apart and no more than 30.48cm apart. The only exception is that the point of one hook may be passed through the eye of the other hook. The trailing hook may not extend more than a hook's length beyond the skirt of the lure. A photograph or sketch showing the hook arrangement must accompany the record application.

2. Gang hooks are permitted when attached to plugs and other artificial lures that are specifically designed for this use. Gang hooks must be free swinging and shall be limited to a maximum of three hooks (either single, double or treble, or a combination of any three). Bait may not be used with gang hooks. A photograph or sketch of the plug or lure must be submitted with record applications. A gang hook in the intent of this rule is a hook with two or more prongs. i.e., multi-pointed hook, not to be confused with ganged hooks as per diagram in Rule G.1.

I. OTHER EQUIPMENT

1. Fighting chairs may not have any mechanical propelled devices which aid the angler in fighting a fish.

2. Gimbals must be free swinging, which includes gimbals that swing in a vertical plane only. Any gimbal that allows the angler to reduce strain or to rest while fighting the fish is prohibited.

3. Gaffs and nets used to vessel or land a fish must not exceed 2.49 metres in overall length. (When fishing from a bridge, pier, or other high platform or structure, this length limitation does not apply.) In using a flying or detachable gaff the rope may not exceed 9.14m (30ft). The gaff rope must be measured from the point where it is secured to the detachable head to the other end. Only the effective length will be considered. If a fixed head gaff is used, the same limitation shall apply and the gaff rope shall be measure from the same location on the gaff hook. Only a single hook is permitted on any gaff. Harpoon or lance attachments are prohibited. Tail ropes are limited to 9.14 metres.

4. Floats are prohibited with the exception of any small floatation device attached to the line or leader for the sole purpose of regulated the depth of the bait. The floatation device must not in any way hamper the fighting ability of the fish.

5. Entangling devices, either with or without a hook, are prohibited and may not be used for any purpose including baiting, hooking, fighting, or landing the fish.

6. Outriggers, downriggers and kites are permitted to be used provided that the actual fishing line is attached to the snap or other release device, either directly or with some other material. The leader or double line may not be connected to the release mechanism either directly or with the use of connecting device.
7. A safety line may be attached to the rod provided that it does not in any way assist the angler in fighting the fish.

**ANGLING REGULATIONS**

1. From the time a fish strikes or takes a bait or lure, the angler must hook, fight and land or vessel the fish without the aid of any other person, except as provided for in these Regulations.

Clarification of this regulation is as follows: If the mate is letting out a bait or lure and the reel is in free spool, the rod can be put back in the cover board or handed to the angler. Under no circumstances can any drag be put on the reel. This situation is legal. The rationale is that the hook has not been set with the reel out of gear. When retrieving a bait or lure the fish would be disqualified if the rod is put back in the cover board or transferred to another person as the reel is in gear and the hook has been set.

2. If a rod holder is used and a fish takes the bait or lure the angler must remove the rod from the holder as quickly as possible.

3. In the event of a multiple strike on separate lines being fished by a single angler, only the first fish fought will be considered for an Australian record.

4. If a double line is used, the intent of the Regulations is that the fish is to be fought on the single line most of the time that it takes to land the fish.

5. A harness may be attached to the reel or rod, but not to the fighting chair. The harness may be replaced or adjusted by a person other than the angler.

6. Use of a rod belt or waist gimbal is permitted.

7. When angling from a vessel, once the leader is brought within the grasp of the mate, or the end of the leader is wound to the rod tip, more than one person is permitted to hold the leader.

8. One or more gaffers may be used in addition to persons holding the leader. The gaff handle must be in hand when the fish is gaffed.

9. The Angling Rules and Equipment Regulations shall apply until a fish is weighed.

**THE FOLLOWING ACTS WILL DISQUALIFY A CATCH:**

1. Failure to comply with equipment or angling regulations.

2. The act of persons other than the angler in touching any part of the rod, reel, or line (including the double line) either bodily or with any device during the playing of the fish, or in giving any aid other than that allowed in the rules and regulations. If any obstacle to the passage of the line through the rod guides has to be removed from the line, then the obstacle (whether chum, floatline, rubber band, or other material) shall be held and cut free. Under no circumstances should the line be held or touched by anyone other than the angler during this process.

3. Resting the rod in a rod holder, on the gunwale of the vessel, or any other object while playing the fish.
4. Hand lining or using a handline or rope attached in any manner to the angler's line or leader for the purpose of holding or lifting the fish. 5. Shooting, harpooning, or lancing any fish (including sharks) at any stage of the catch. 6. Chumming with or using as bait the flesh, blood, skin or any other part of mammals other than hair or pork rind used in lure designed for trolling or casting.

5. Using a vessel or device to beach or drive a fish into shallow water in order to deprive the fish of its normal ability to swim.

6. Changing the rod or reel while the fish is being played.

7. Splicing, removing or adding to the line while the fish is being played.

8. Intentionally foul-hooking a fish.

9. Catching a fish in a manner that the double line never leaves the rod tip.

10. Using a size or kind of bait that is illegal to possess.

11. Attaching the angler's line or leader to part of the vessel or other object for the purpose of holding or lifting the fish.

12. If a fish escapes before gaffing or netting and is recaptured by any method other than as outlined in the angling rules.

13. The act of any person touching any part of the leader when striking or hooking a fish.

THE FOLLOWING SITUATIONS WILL DISQUALIFY A CATCH:

1. When a rod breaks (while the fish is being played) in a manner that reduces the length of the tip below minimum dimensions or severely impairs its angling characteristics.

2. Mutilation to the fish, prior to landing or vesseling the catch, caused by sharks, other fish, mammals, or propellers that remove or penetrate the flesh. (Injuries caused by leader or line, scratches, old healed scars or regeneration deformities are not considered to be disqualifying injuries.) Any mutilation of the fish must be shown in a photograph and fully explained in a separate report accompanying the record application.

3. When a fish is hooked or entangled on more than one line.
RULES FOR FLY FISHING

Equipment Regulations

A. LINE

Any type of fly line and backing may be used. The breaking strength of the fly line and backing are not restricted.

B. LEADER

Leaders must conform to generally accepted fishing customs.

A leader includes a class tippet and, optionally, a shock tippet. A butt or taper section between the fly line and the class tippet shall also be considered part of the leader and there are no limits on its length, material, or strength.

A class tippet must be made of non-metallic material and either attached directly to the fly or to the shock tippet if one is used. The class tippet must be at least 38.10cm long (measured inside connecting knots). With respect to knotless, tapered leaders, the terminal 38.10cm will also determine tippet class. There are no maximum length limitation. The breaking strength determines the class of the tippet.

A shock tippet, not to exceed 30.84cm in length, may be added to the class tippet and tied to the lure. It can be made of any type of material, and there is no limit on its breaking strength. The shock tippet is measured from the eye of the hook to the single strand of class tippet and includes any knots used to connect the shock tippet to the class tippet.

In the case of the tandem hook fly, the shock tippet shall be measured from the eye of the leading hook.

C. ROD

Regardless of material or number of sections, rods must conform to generally accepted fly fishing customs and practices. A rod shall not measure less than 1.82m (6ft) in overall length. Any rod that gives the angler an unsporting advantage will be disqualified. Extension butts are limited to 15.24cm.

D. REEL

The reel must be designed expressly for fly fishing. There are no restrictions on gear ratio or type of drag employed except where the angler would gain an unfair advantage. Electric or electronically operated reels are prohibited.

E. HOOKS

A conventional fly may be dressed on a single hook or double hook or two single hooks in tandem. The second hook in any tandem fly must not exceed beyond the wing material. The eyes of the hooks shall be no farther than 15.24cm apart. Treble hooks are prohibited.
F. LURES

The lure must be a recognised type of artificial fly, which includes streamer, bucktail, tube fly, wet fly, dry fly, nymph, popper and bug. The use of any other type of lure or natural or preserved bait, either singularly or attached to the fly, is expressly prohibited. The fact that a lure can be cast with a fly rod is not evidence in itself that it fits the definition of a fly. The use of any lure designed to entangle or foulhook a fish is prohibited.

G. GAFFS & NETS

Gaffs and nets used to vessel or land a fish must not exceed 2.48 metres in overall length. (When fishing from a bridge, pier or other high stationary structure, this length limitation does not apply.) The use of a flying gaff is not permitted. Only a single hook is permitted on any gaff. Harpoon or lance attachments are prohibited.

H. 15 kg Category Rules

1. 15 kg tippet is for billfish & sharks only.
2. Shock tippet length not to exceed 100cm (1m).
3. A minimum 500cm of fly line must be used.
4. Flying gaffs are permitted for this line class only.
5. All other GFAA rules and regulations for fly fishing apply.

Angling Regulations

1. The angler must cast, hook, fight, and bring the fish to gaff or net unaided by any other person. No other person may touch any part of the tackle during the playing of the fish or give aid other than taking the leader for gaffing or netting purposes.
2. Casting and retrieving must be carried out in accordance with normal customs and generally accepted practices. The major criterion in casting is that the weight of the line must carry the lure rather than the weight of the lure carrying the line. Trolling a lure behind a moving watercraft is not permitted. The craft must be completely out of gear both at the time the fly is presented to the fish and during the retrieve.
3. Once a fish is hooked, the tackle may not be altered in any way, with exception of adding an extension butt.
4. Fish must be hooked on the lure in use. If a small fish takes the lure and a larger fish swallows the smaller fish, the catch will be disallowed.
5. One or more people may assist in gaffing or netting the fish.
6. The angling and equipment regulations shall apply until the fish is weighed.
THE FOLLOWING ACTS WILL DISQUALIFY A CATCH:

1. Failure to comply with equipment or angling regulations.

2. The act of persons other than the angler in touching any part of the rod, reel, or line either bodily or with any device during the playing of the fish, or in giving any aid other than that allowed in the rules and regulations. If an obstacle to the passage of the line through the rod guides has to be removed from the line, then the obstacle shall be held and cut free. Under no circumstances should the line be held or touched by anyone other than the angler during this process.

3. Resting the rod on any part of the vessel, or on any other object while playing the fish.

4. Hand lining or using handline or rope attached in any manner to the angler's line or leader for the purposes of holding or lifting the fish.

5. Intentionally foul-hooking or snagging a fish.

6. Shooting, harpooning, or lancing any fish (including sharks) at any stage of the catch.

7. Chumming with flesh, blood, skin or any part of mammals.

8. Using a vessel or device to beach or drive a fish into shallow water in order to deprive the fish of its normal ability to swim.

9. Attaching the angler's line or leader to part of a vessel or other object for the purpose of holding or lifting the fish.

10. If a fish escapes before gaffing or netting and is recaptured by any method other than as outlined in the angling rules.

THE FOLLOWING SITUATIONS WILL DISQUALIFY A CATCH:

1. When a rod breaks (while the fish is being played) in a manner that reduces its length below minimum dimensions or severely impairs its angling characteristics.

2. When a fish is hooked or entangled on more than one line.

3. Mutilation to the fish, prior to landing or vesseling the catch, caused by sharks, other fish, mammals, or propellers that remove or penetrate the flesh. (Injuries caused by leader or line, scratches, old healed scars or regeneration deformities are not considered to be disqualifying injuries.) Any mutilation of the fish must be shown in a photograph and fully explained in a separate report accompanying the record application.

GUIDELINES FOR TAG & RELEASE

1. All G.F.A.A. angling rules and equipment regulations apply until the fish is tagged.

2. Tag poles must not exceed 4.57m overall length.

3. The tag pole or holding device must be in the hand when the fish is tagged.

4. One or more persons, in addition to the person holding the leader, may tag or assist in tagging the fish.
5. The tag needle must not protrude more than 50mm from the end of the tag pole or tag holding device, nor shall it exceed 5mm in diameter.

5a. Marlin only tag: the tag needle must not protrude more than 76mm from the end of the tag pole or tag holding device, nor shall it exceed 8mm in diameter.

6. A fish is considered tagged and released when the tag is secured to the fish.

THE FOLLOWING ACTS WILL DISQUALIFY A TAG & RELEASE:

1. Failure to comply with G.F.A.A. angling rules and equipment regulations or tournament tag & release rules.

2. Failure to comply with all other regulations that disqualify a capture.

3. Use of a gaff (other than release/jaw gaff for the purpose of tagging).

No tournament shall be approved, by a State Association that awards points for free release for G.F.A.A. tag species.

No tag & release points shall be awarded in State Association approved tournaments unless G.F.A.A. approved tags are used.
Other titles in this series:

ISSN 1440-3544 (NSW Fisheries Final Report Series)


Tournament Monitoring – Tim Park


ISSN 1449-9967 (NSW Department of Primary Industries – Fisheries Final Report Series)


Other Titles in the Series


No. 76 Ferrell, D.J., 2005. Biological information for appropriate management of endemic fish species at Lord Howe Island. NSW Department of Primary Industries – Fisheries Final Report Series No. 76. 18pp.


No. 84 Baumgartner, L.J., Reynoldson, N., Cameron, L. and Stanger, J., 2006. Assessment of a Dual-frequency Identification Sonar (DIDSON) for application in fish migration studies. NSW Department of Primary Industries – Fisheries Final Report Series No. 84. 33pp.


No. 91 Williams, R.J. and Thiebaud, I., 2007. An analysis of changes to aquatic habitats and adjacent land-use in the downstream portion of the Hawkesbury Nepean River over the past sixty years. Final report to the Hawkesbury-Nepean Catchment Management Authority. NSW DPI – Fisheries Final Report Series No. 91. 97pp.

