NSW DPI Game Fish Tagging Program

Report 2014-2015

Recreational Fishing Trusts

NSW GOVERNMENT Primary Industries

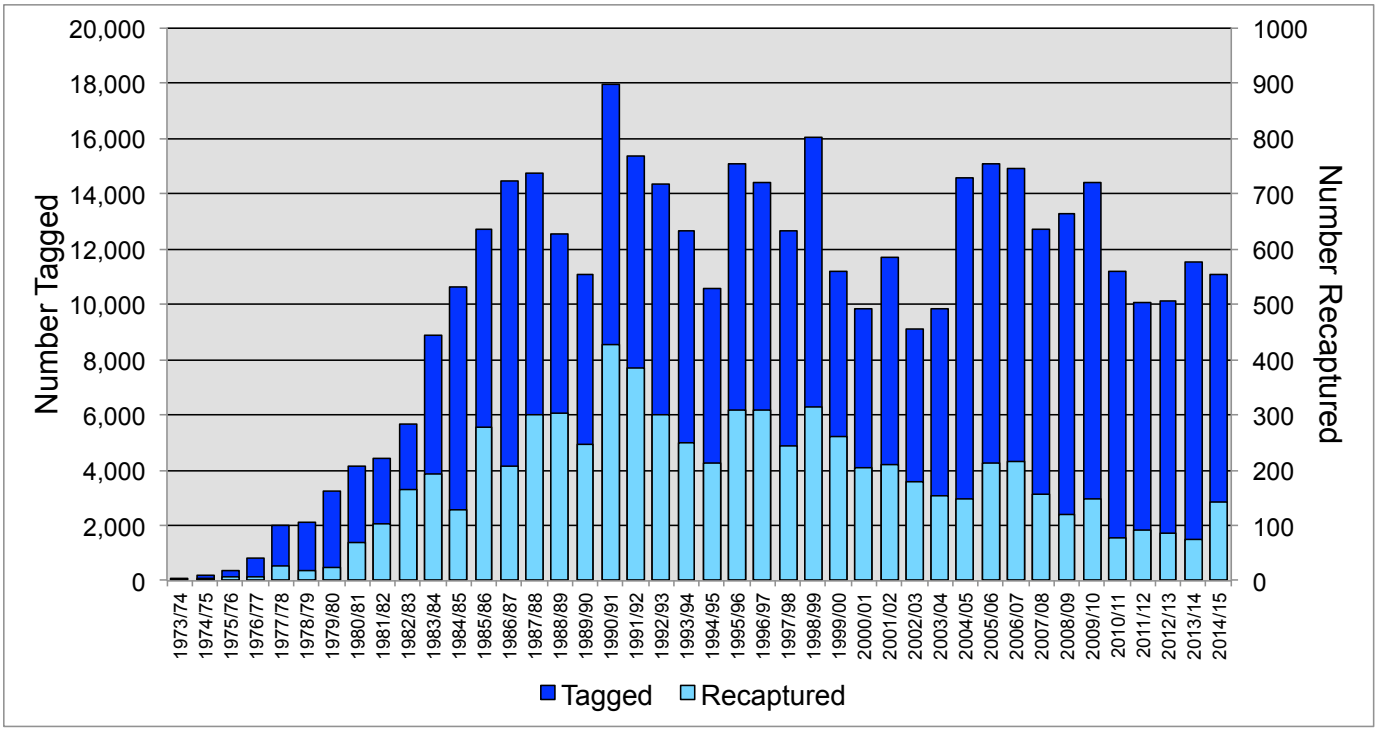
Pepperell Research
Marine Science & Recreational Fisheries

NSW DPI Game Fish Tagging Program

2014/2015

The number of fish tagged during 2014/15 exceeded 11,000 for the second year in a row while the number of reported recaptures was the highest in six years. Overall, 11,055 fish were tagged (slightly fewer than the previous year) and 144 recaptured (double the previous year). Figure 1 shows the number of fish tagged and recaptured on the program through time. Following a rapid increase in tagging during the 1970s and early 1980s, numbers of fish tagged each year have fluctuated around an average of 12,800, made up of varying proportions of species of fish tagged. The numbers of fish tagged each year vary for many reasons, not least, the availability of different species of highly mobile pelagic fish at different times and locations. For example, the Program's two peak tagging years of 1990/91 and 1997/98 coincided with strong La Nina conditions on the east coast of Australia, resulting in greater than usual numbers of some species becoming available to anglers. As outlined further in this report, the 2014/15 tagging year saw a continued strong availability of juvenile black marlin along the east coast together with increases in taggings of striped marlin, southern bluefin tuna and yellowtail kingfish. These increases were countered by decreases from the previous year in tagging of sailfish, albacore, mahi mahi and especially yellowfin tuna.

Figure 1. Numbers of fish tagged and recaptured by year, to 2014/2015



The Program overall

As of the end of June 2015, the grand totals of fish tagged and recaptured on the program stood at 432,318 and 7,382 respectively, continuing the program's status as the largest of its kind in the world (Table 1). This table summarises taggings and recaptures of the top 25 species or species groups tagged, with the remainder combined as 'all other species'.

The species tagged in the greatest numbers continues to be black marlin with over 62,000 tagged (14.0% of all releases) followed by yellowfin tuna, yellowtail kingfish, sailfish, mahi mahi (dolphinfish), striped marlin and albacore. Other prominent key species are southern bluefin tuna, whaler sharks (as a group), blue marlin and mako sharks.

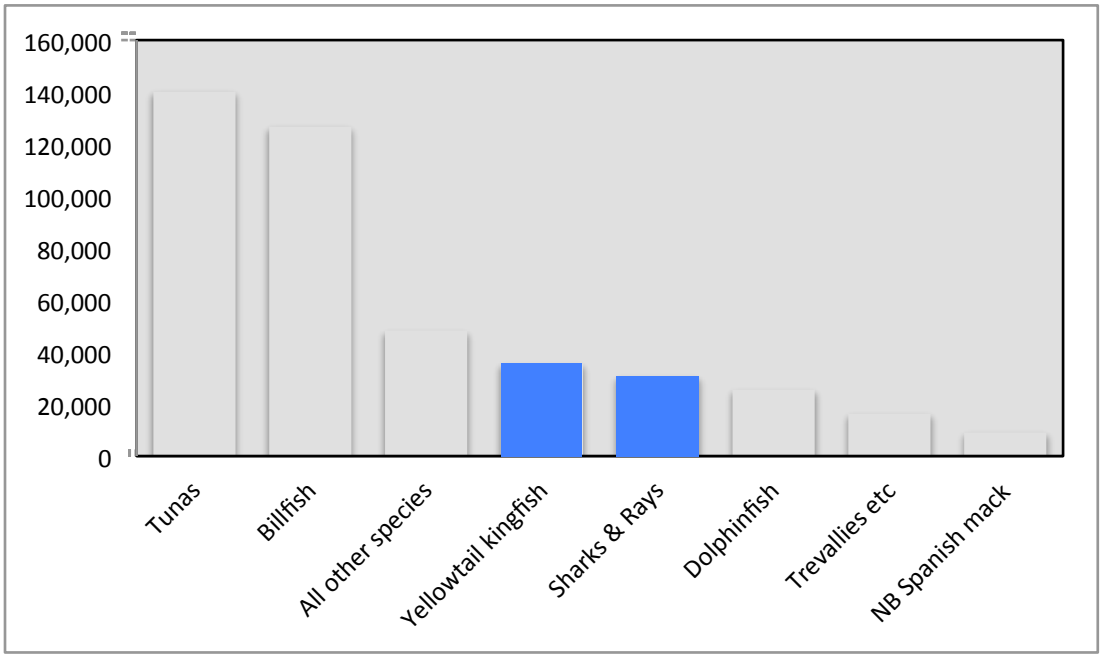
Table 1. Total numbers of fish tagged and recaptured: 1974-2015

Species	Total Tagged	Recaptures	% Recapt
BLACK MARLIN	62,405	487	0.78
YELLOWFIN TUNA	37,998	705	1.86
YELLOWTAIL KINGFISH	35,597	2287	6.42
SAILFISH	30,775	318	1.03
MAHI MAHI	25,512	232	0.91
STRIPED MARLIN	24,851	234	0.94
ALBACORE	21,783	168	0.77
SKIPJACK TUNA	21,167	68	0.32
MACKEREL TUNA	20,548	62	0.3
SOUTHERN BLUEFIN TUNA	20,506	137	0.67
WHALER SHARKS*	12,649	262	2.07
BONITO	13,242	219	1.65
AUSTRALIAN SALMON**	9,822	615	6.31
SPANISH MACKEREL	9,106	87	0.96
BLUE MARLIN	8,658	27	0.31
MAKO SHARK	7,809	178	2.28
SILVER TREVALLY **	6,973	199	2.85
HAMMERHEAD SHARKS	5,447	56	1.03
LONGTAIL TUNA	4,910	59	1.2
BLUE SHARK	4,850	78	1.61
TAILOR**	4,030	122	3.03
TREVALLY	3,387	31	0.92
BARRACUDA	3,326	6	0.18
QUEENFISH	3,265	10	0.31
GIANT TREVALLY	2,668	37	1.39
ALL OTHER SPECIES	31,034	698	2.25
Total	**432,318**	**7,382**	**1.71**

* Whaler sharks for the purpose of this table include the following tag card entries: whaler sharks, bronze whalers, black tip and white tip sharks.
**Some species, such as tailor, silver trevally and Australian salmon, were tagged in large numbers in the past, but have since been removed from the list of desirable species to tag.

Combining the main species or species groups together over the history of the Program, Figure 2 shows that tunas remain the group tagged in the largest numbers (140,154 tagged, or 32.4% of the total) followed by billfish (126,689 or 29.3% of all fish tagged). A single species, yellowtail kingfish, with 35,597 tagged, represents 8.2% of all taggings while the total number of sharks and rays (30,755) represent 7.1% of the total number of fish tagged on the program.

Figure 2. Total numbers of fish tagged as species groupings, 1974-2015



Summary for 2014/2015

Table 2. Numbers of all species or groups tagged and recaptured in 2014/2015

Species	Total	Recaptured
BLACK MARLIN	2,898	25
SOUTHERN BLUEFIN TUNA	2,059	5
STRIPED MARLIN	1,325	10
YELLOWTAIL KINGFISH	724	60
DOLPHINFISH	715	2
SAILFISH	641	6
BLUE MARLIN	580	
SAMSON FISH	246	7
MAKO SHARK	224	2
AUSTRALIAN SALMON	159	4
BLUE SHARK	157	1
SNAPPER	119	2
SPANISH MACKEREL	109	3
WHALER SHARK	108	
HAMMERHEAD SHARK	105	1
ALBACORE	99	1
BRONZE WHALER	94	5
MACKEREL TUNA	87	
STRIPED TUNA	77	
YELLOWFIN TUNA	49	2
GOLDEN TREVALLY	43	1
SILVER TREVALLY	42	
SPOTTED MACKEREL	40	
EAGLE RAY	38	1
LONGTAIL TUNA	37	
BIGEYE TUNA	27	
QUEENFISH	27	
SHORTBILL SPEARFISH	27	
MULLOWAY	25	2
BROADBILL	23	
TIGER SHARK	23	
AMBERJACK	20	2
SCHOOL SHARK	20	
GUMMY SHARK	15	2
COBIA	13	
SCHOOL MACKEREL	11	
BARRACUDA	10	
TREVALLY	7	
BARRAMUNDI	5	
BLACKTIP SHARK	4	
GIANT TREVALLY	4	
GOLD SPOTTED TREVALLY	3	
UNKNOWN	3	
WAHOO	3	
BROAD BARRED MACKEREL	2	
DOGTOOTH TUNA	2	
LARGE SCALE TUNA	2	
RAINBOW RUNNER	1	
THREADFIN SALMON	1	
THRESHER SHARK	1	
WHITETIP SHARK	1	
Total	**11,055**	**144**

During the 2014/2015 tagging year, for the third year in succession, black marlin were tagged in greater numbers than any other species. A total of 2,898 were tagged compared with 2,757 the previous year and just over 3,000 the year before (Table 2, Figure 3). There was a particularly strong showing of juvenile black marlin along the east coast, with about 300 tagged in northern Queensland, 1,200 tagged off the Fraser, Sunshine and Gold Coasts of southern Queensland and about 800 off central NSW. This is the third year in a row that a strong year class of juvenile black marlin has appeared – an unusual sequence since this event usually happens less frequently, sometimes being absent for sequences of four years or more.

Off Western Australia, the main locations where black marlin were tagged were again Dampier and Exmouth, with small numbers released off Broome. Totalling about 350, nearly all of the Western Australian fish were one or two year old juveniles (15-45 kg).

The number of blue marlin tagged (580) was just below the total for the previous year (Figure 3), continuing a trend for releases of this species as more boat time is being put into fishing for this species. The main area for this tagging activity is wide of the continental shelf of southern Queensland and New South Wales where about 450 were tagged. Other areas where numbers of blue marlin were tagged included Exmouth WA, Papua New Guinea, Fiji, Tonga and Vanuatu.

Tag-and-releases of southern bluefin tuna (SBT) during 2014/15 were slightly up on the previous year, which in turn was close to double the number of releases in the two years before that (Figure 3). The great majority of fish tagged were ‘school’ fish, ranging between 3 kg and 20 kg. Tagging activity on SBT was concentrated largely off Kangaroo Island and Port MacDonnell in South Australia, Portland and Warrnambool in Victoria and off eastern Tasmania. A few very small fish were tagged in Western Australia and a small number of larger fish (50-55 kg) were tagged off the NSW south coast.

One notable observation in 2014/15 was the record low number of yellowfin tuna tagged on the program. Only 49 were reported tagged for the year, 3 off Western Australia and 46 off New South Wales, the smallest number of yellowfin tagged on the program for 40 years. Given that the average numbers of yellowfin tuna tagged per year in the 1980s, 1990s and 2000s were 720, 1,630 and 1,021 respectively, the lower numbers in the 2010s (Figure 3), especially in the past tagging year, are of some concern. Interestingly, catches of yellowfin tuna by the domestic longline fleet fishing off the southeastern Australian coast have not shown a similar trend. The longline fleet fishes well wide of the continental shelf, so conducting research into the apparent differences in availability of yellowfin tuna on and off the shelf in the past and recently would be a very useful and perhaps important exercise.

Figure 3. Numbers of main species and species groups tagged in 2014/2015 and the previous five years.

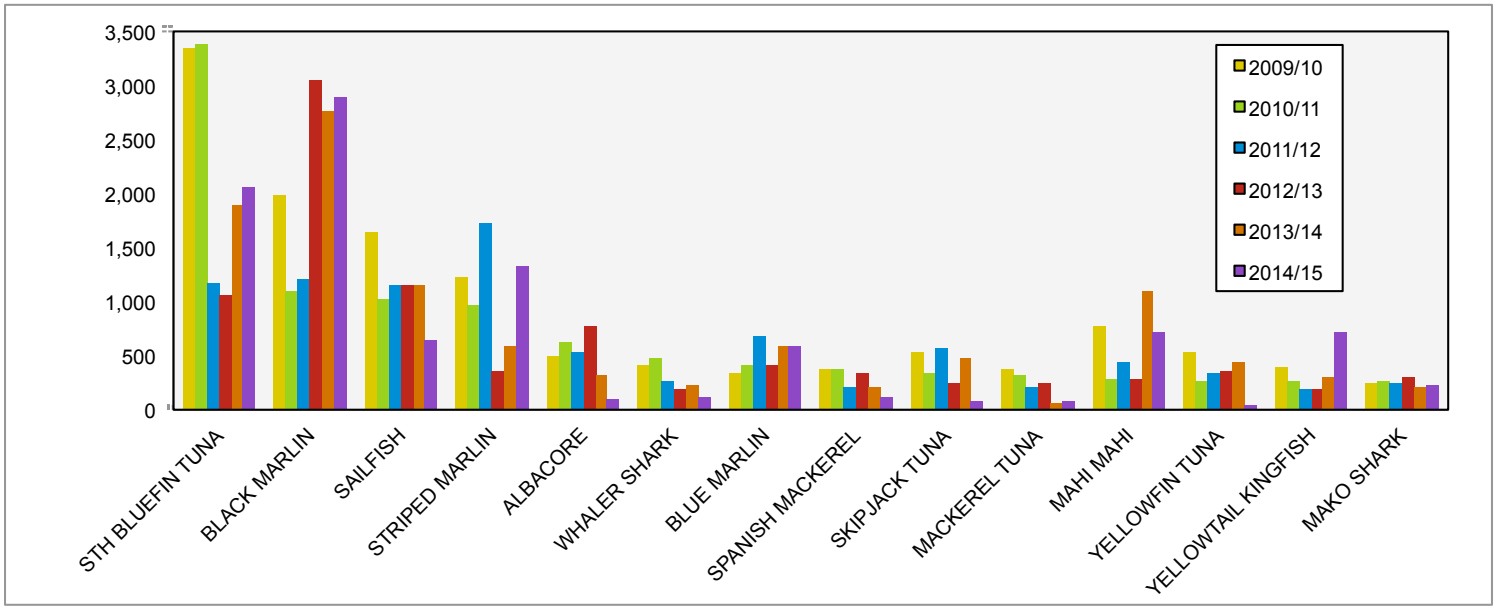


Figure 3 further illustrates the variability in availability of different species across a number of seasons. For example, it shows the marked fluctuations in black marlin and southern bluefin tuna taggings already mentioned, reflecting availability of those species in different years. Other points of interest are the very similar numbers of sailfish tagged in the previous three years, with a drop in 2014/15, relatively consistent, or increasing numbers of blue marlin tagged, steady annual increases in the number of yellowfin tuna tagged until a marked drop this year to a record low, high inter-annual variability in numbers of mahi mahi tagged, consistency in numbers of mako sharks tagged and the marked increase in taggings of yellowtail kingfish last season.

To reiterate points made in previous reports, the real-time detection and quantification of changes in either fishing activities of the recreational sector, or availability of fish, would be all but impossible in the absence of the tagging program. The tagging data base is now widely recognised as a vital source of information on long term trends of the relative abundance of pelagic fish, and is used wherever possible for studies on changes in abundance in relation to historic environmental variables.

Combining the species tagged into groups, Figure 4a shows that billfish dominated overall taggings in 2014/15, comprising just under 50% of all fish tagged – much higher than average years when billfish have averaged about 30 to 35% of all fish tagged in a given year. The proportion of tunas tagged represented 22% of the total while sharks and rays combined represented 7.1% of the total, right on the average of about 7% over the last decade or so.

Figure 4a. Species groups tagged in 2014/2015

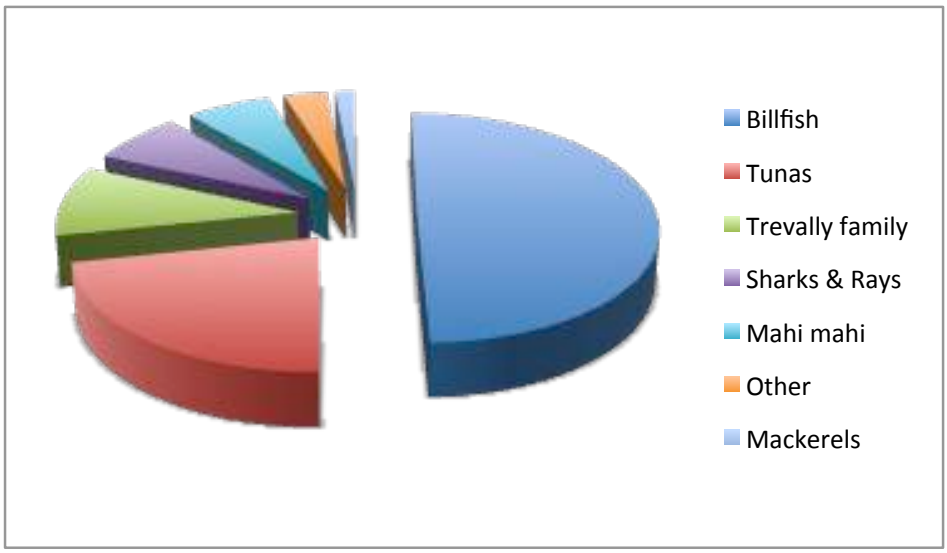
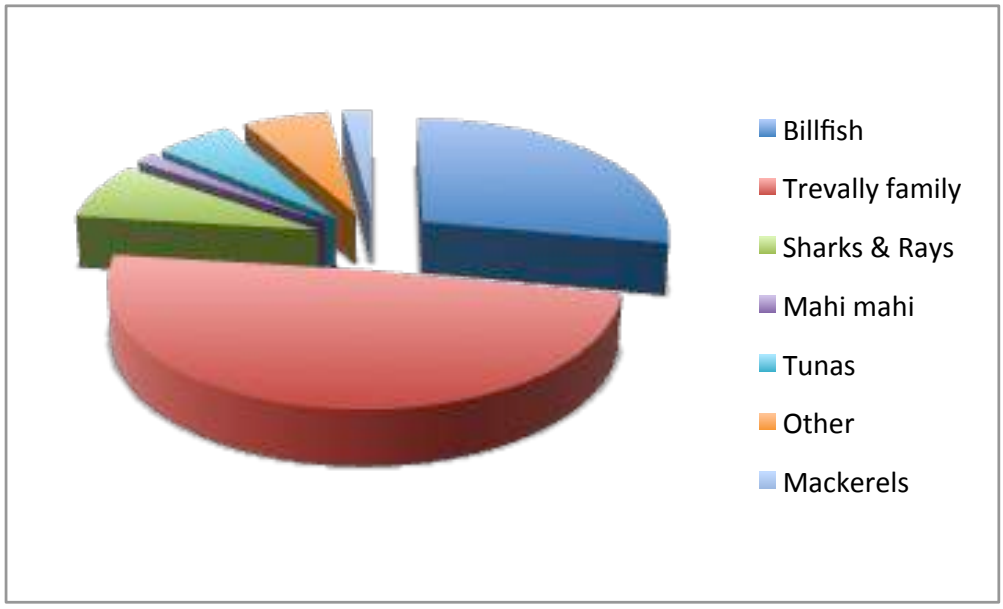


Figure 4b shows the proportions of the major species groups recaptured in 2014/15, and as is often the case, indicating quite different proportions to those tagged. This year, the trevally family, dominated by a big increase in recaptures of yellowtail kingfish, dominate recaptures (49%) while billfish represent the next highest proportion of recaptures (28%). Shark recaptures as a proportion of the total were down this year (7.7%) compared with last year (17%).

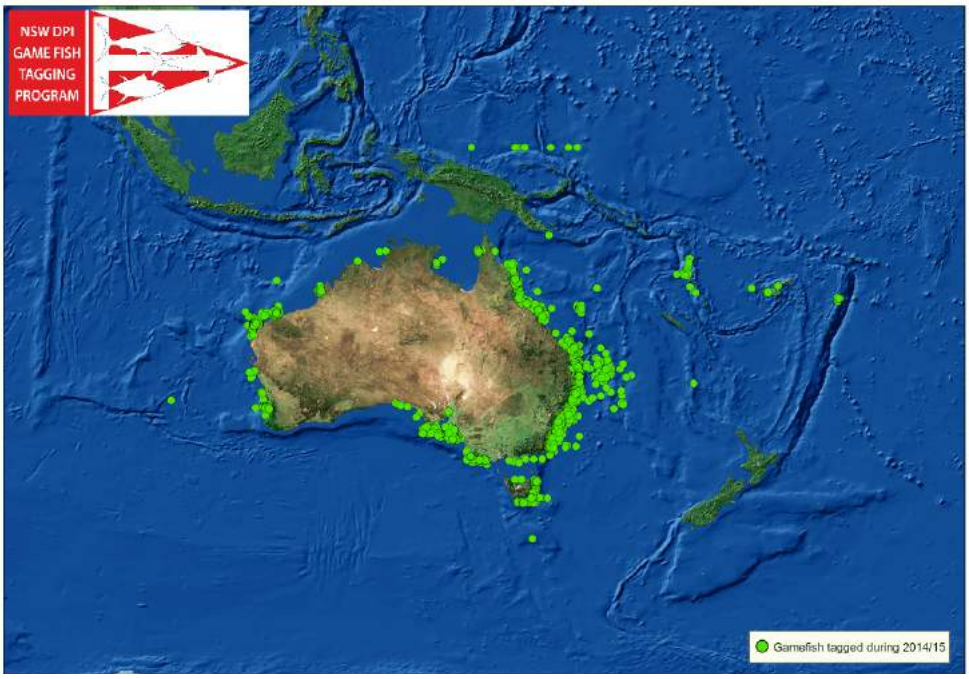
Figure 4b. Species groups recaptured in 2014/2015



Highlights

The map below shows locations of fish tagged in 2014/15. While the program is primarily a national one, it has traditionally also extended to neighbouring regions where anglers wish to tag their catch, and with obvious benefits to accruing knowledge of the pelagic fishes of our general region. This plot showing the distribution of tagging activity is very similar to the previous year, with slightly elevated taggings around Fiji and Vanuatu. Note that New Zealand operates its own similar tagging program.

Figure 5. Positions of releases of tagged gamefish during 2014/15.



Recaptures 2014/2015

All of the completed recaptures recorded in 2014/2015 are listed in Appendix I. Following are just some of the highlights of these recaptures. These tend to emphasise some of the longer times at liberty, or longer distances moved by tagged fish and as such, may quite often be exceptions to the rule. In contrast, many fish are recaptured relatively close to their points of release, often within relatively short times so it is important to realise that the information gained from these recaptures is just as important to our understanding of the movements and growth of game fish as are longer term, longer distance recaptures.

Black marlin

2014/15 was an excellent year for both releases (see above) and recaptures of black marlin. A total of 25 recaptures were recorded with times at liberty ranging from 1 to 1,732 days (4 years 9 months) and distances travelled from zero to nearly 2,000 nautical miles.

All but two of the recaptured black marlin were tagged off Queensland. The exceptions were a fish tagged off Port Stephens and recaptured in the same vicinity 3 days later, and a fish tagged off Dampier, WA and recaptured exactly two years later only two miles from its release point. The latter marlin was estimated at 35 kg at release and 55 kg at recapture.

This year, there were many recaptures of juvenile black marlin along the east coast that had been tagged further north earlier in the season, confirming episodic southward migrations of fish right along the coast in those years when there is a strong recruitment of fish in their first year of life. Some of the recaptures showing this southward directed movement are summarised below.

A 15 kg black marlin tagged on the famous Cape Bowling Green grounds off Townsville QLD was recaptured four months later, 594 nautical miles south off Caloundra while another of the same size and tagged at the same location was recaptured five months later 863 nautical miles to the south off Broken Bay. The latter was caught by a lady angler fishing for snapper and weighed 22 kg at recapture.

Recaptures of several small black marlin tagged off southeastern Queensland also emphasised the southward migratory route. One fish tagged off Caloundra was recaptured 276 nautical miles to the south, off Port Macquarie after just 15 days while another Caloundra tagged fish was recaptured at the Gibber Reef, Port Stephens 29 days later, a distance of 352 nautical miles. A third fish, also tagged off Caloundra, was recaptured 51 days later and 509 nautical miles south on the Banks off Nowra NSW. And beating all three of these fish in terms of rate of travel, another small black marlin tagged off Southport QLD was recaptured off Grassy Head NSW just five days after being released – a distance of 174 nautical miles south, or a rate of 35 miles per day.

The timing of one recapture did not quite fit usual southerly movement pattern. This black marlin estimated at 20 kg was tagged at Sudbury Reef off Cairns in August 2014 and recaptured off the Gold Coast in May of the following year (estimated at 25 kg). Juvenile black marlin are normally encountered off southern Queensland in December/January, so it is likely that this fish had already travelled further south into New South Wales and was making its way back to the tropics for the cooler months.

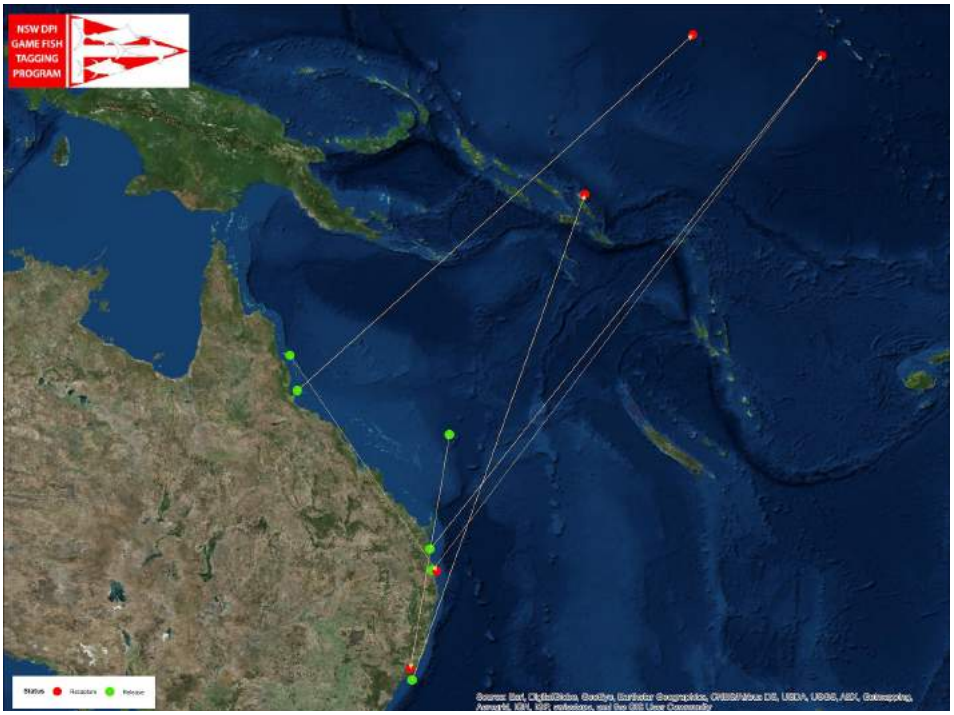
One especially interesting southerly movement was recorded by a 50kg black marlin that was tagged near remote Fredrick's Reef, 270 nautical miles northeast of Rockhampton, QLD. The fish, estimated at 50kg, was tagged by a crew member of a commercial longline vessel and recaptured 304 days later by a game fishing vessel off Port Stephens NSW. The great majority of fish tagged on the program are released by recreational anglers, but in recent years, it is encouraging to note that some commercial longline fishers are also taking part in the program by tagging fish such as this one. This year, 80 fish were released from Australian commercial vessels.

In addition to these coastal movements of juvenile fish, a number of long distance recaptures of black marlin away from eastern Australia were also reported in 2014/15 (see Figure 6 below). Of particular interest was one reported by a Fijian crew member working on board a Chinese longlining vessel in the waters of Nauru. This black marlin had been released 16 months earlier 1,600 nautical miles to southwest, off the Palm Island Shoals QLD after a lengthy fight on 6kg tackle. At release, it was estimated to weigh 20kg and on recapture, it measured 180cm lower jaw to fork length, which converts to about 45kg.

A pair of black marlin tagged off southeast Queensland were recaptured in the southwestern Pacific. Remarkably, both fish, estimated at about 30 kg, had been tagged in January/February 2010, one off Mooloolaba and one off the Gold Coast, and were recaptured by a Korean longliner somewhere in the vicinity of Tarawa, Kiribati. Recapture details are uncertain since the tags were handed to a fisheries observer when the vessel was unloading, but sizes were given as 150 and 250 kg, which seem to be feasible growth rates over their 4 years 10 months of liberty.

Lastly, a black marlin, estimated at 70 kg, was tagged off Port Stephens during the 2015 Interclub tournament and recaptured by a village fisherman in the Solomon Islands fishing from a dugout canoe. The fish had covered a straight line distance of 1,536 nautical miles in just 76 days, averaging around 20 nautical miles per day. This recapture is not an isolated incident since, over the course of the tagging program, many tagged juvenile black marlin have been recaptured and reported by canoe fishermen in the Solomons and in the Milne Bay area of Papua New Guinea. It is highly likely that others have also been recaptured throughout this region but not reported due to the remoteness of many of the villages.

Figure 6. Long distance black marlin recaptures during 2014/15.



Sailfish

Six recaptures of sailfish were reported in 2014/15, two off Broome, WA, two off Exmouth, WA and two off Weipa, QLD, the latter being the first and second recaptures ever in the Gulf of Carpentaria. One of the Exmouth fish had been tagged the day before it was recaptured, adding to quite a few previous similar short term recaptures and again indicating little if any disturbance to feeding caused by tagging on at least some released sailfish. The other five recaptured sailfish had been at liberty for either very close to one year, or in the case of both of the Gulf of Carpentaria fish, very close to two years. In all of these cases, the distance between the locations of tagging and recapture were small, ranging from just 1 to 31 nautical miles. These recaptures continue a strong pattern for sailfish, which demonstrates only a very small number of tagged fish have been recaptured more than 100 miles from their release points. In fact, less than 50 of over 300 recaptured sailfish have been caught more than 20 miles from their release points while the great majority have been recaptured very close to their release points, often after times-at-liberty of multiples of a year, even up to 7 years in one case.

These results are somewhat difficult to explain since it is widely believed that sailfish do in fact seasonally move away from areas of apparent abundance, and are not available in these key locations year-round. Satellite tagging of sailfish in some parts of the world do indeed show movements of at least some fish over hundreds of miles within months of release, so lack of recaptures from other areas may simply indicate lack of fishing effort directed at sailfish in those locations, wherever they may be.

Striped marlin

This year, 10 striped marlin recaptures were reported, five of which were caught by domestic longline vessels and five by game fishing vessels. Eight of the recaptured fish were at liberty for only short periods (15 to 37 days), and had moved straight line distances of between 8 and 319 nautical miles. All had been tagged and recaptured off the NSW coast. The furthest movement was by a fish tagged off Long Reef NSW and recaptured 41 days later off Lennox Head NSW. The two fish at liberty for the longest period were one that was recaptured off Port Stephens 313 days after its release only 175 nautical miles south off Jervis Bay while the other was recaptured off Eden NSW 311 days after being released off Ulladulla NSW. One striped marlin recapture was especially interesting in that the remnants of its tag were not noticed until an inland chef found it in a portion of flesh he was preparing. The commercially-caught fish was traced to the port of Ulladulla but the exact location of the recapture could not be determined.

There have now been 234 recaptures of tagged striped marlin reported on the program but as indicated in previous reports, only a very small proportion of these have been recaptured beyond one year at liberty. This is somewhat of an ongoing mystery since much longer times at liberty have been regularly recorded for the other billfish species – black marlin and sailfish, and more lately, blue marlin. Perhaps the most likely explanation for lack of long term recaptures of striped marlin is that the species has the ability to reject tags at a higher rate than other species, although it must be stressed that without proof, this must remain as speculation.

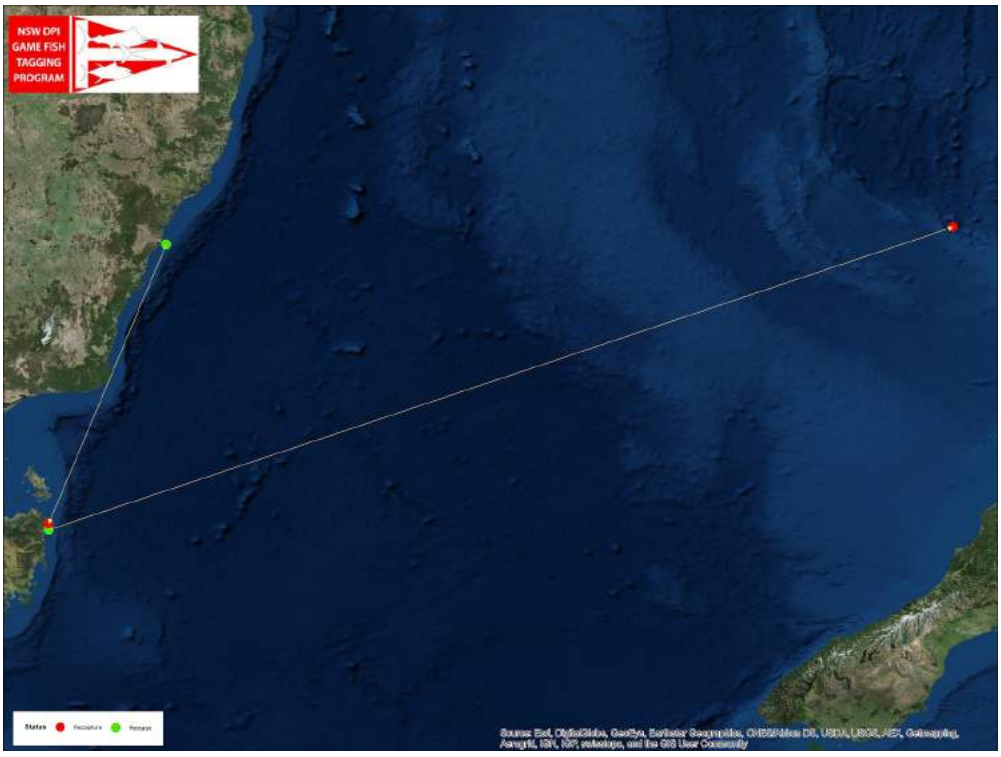
Southern bluefin tuna

This year, five southern bluefin tuna (SBT) were recaptured. Four of those were recovered by the South Australian SBT aquaculture industry, all caught in the same general area near Kangaroo Island, SA. Of considerable interest in this case was not only that all had been tagged at a relatively small size (11 to 15 kg) but also, that they had been tagged by recreational anglers in three States. Two had been released off the east coast of Tasmania, 8 and 10 months before recapture, while one tagged off Port Fairy Victoria had also at liberty for 8 months. The fourth SBT reported from the tuna farms had been tagged just 130 nautical miles to the west in the Great Australian Bight, but this one had been at liberty for 15 months and grown from an estimated 13 kg to 29 kg in the interim. The fifth SBT was recaptured 420 nautical miles southwest of Albany by a longline vessel 5 years and 3 months after its release off Port MacDonnell SA. This fish had been estimated at 15 kg at release, and weighed 57 kg at recapture, thereby providing very useful information on the growth rate of the species in the wild. Readers may note the slower growth rate of this fish compared with a yellowfin tuna recaptured this year that had grown from 4 kg to over 50 kg in a little over two years (see below).

Mako shark

Two mako sharks were recaptured during 2014/15. One, estimated at 160 kg when released off St Helens TAS crossed the Tasman Sea to be recaptured by a commercial vessel on the Three Kings Rise off northern New Zealand. The shark was at liberty for just over six months and was estimated at 150 kg on recapture. The second mako recapture demonstrated a certain symmetry in that this shark was recaptured at St Helens, the same location as the release of the first shark. This mako was released at Browns Mountain (off Sydney), and was at liberty for nearly four months. These recaptures add to our knowledge regarding the interconnectivity of mako sharks around southeastern Australia and New Zealand, and also highlight the importance of mako sharks to the gamefish fishery in Tasmania.

Figure 7. Long distance recaptures of mako sharks during 2014/15.



A study on electronic tagging of mako sharks in South Australia, mentioned in last year's report, continued to yield remarkable results during 2014/15. Dr Paul Rogers of the South Australian Research and Development Institute placed satellite tags on 14 makos between December 2012 and July 2013. Four of the sharks moved mainly into South Australian waters, tending to spend their time at the edge of the shelf for durations up to 320 days. However, the other three sharks, which retained their transmitting tags for between 505 and 963 days, made some spectacular movements. One travelled from eastern Victoria up the NSW coast before making a beeline for New Zealand and then made two separate trips to the east of New Caledonia. Another shark travelled from eastern Victoria to the Coral Sea and back again on three separate occasions while a third, this time tagged off western Victoria, after making a couple of sojourns way out into the southern ocean, headed up the Western Australian coast, and back again, three times, with its tag petering out when the shark was beyond the continental shelf off Broome.

Yellowfin tuna

Having noted above the record low numbers of releases of yellowfin tuna this year, one recapture of a yellowfin tagged previously was of particular interest. The 50-60 kg fish was caught by a longliner 80 nautical miles off central NSW in August 2014. A sharp-eyed deckhand noticed just 3 cm of the tag protruding from the tuna's shoulder, and after forgetting about the tag for some months, contacted NSWDPI. The tag number revealed that the fish had been tagged 2 years 109 days earlier off Bermagui NSW and surprisingly, had been estimated at just 4 kg at release. Cases such as this, in which reliable growth rates can be derived on individual fish, add very useful and important data for stock assessments that would not otherwise be available.

Yellowtail kingfish

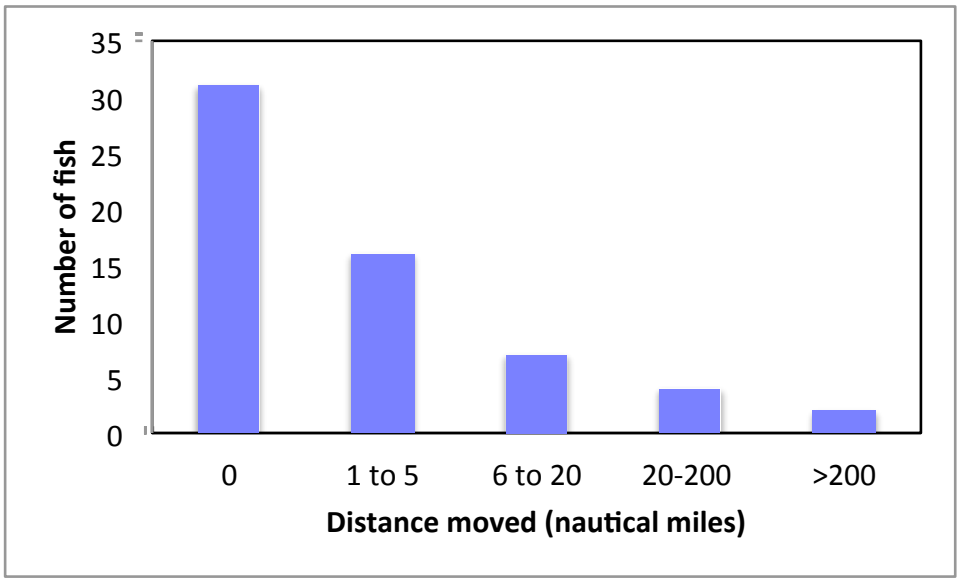
2014/15 was a big year for yellowtail kingfish tagging and recaptures. There were 724 tagged and an impressive 60 recaptures reported, 47 more than last year. Six of these had been at liberty for more than a year, one approaching two years and one for exactly three years. The last had been tagged at Rapid Bay, SA at an estimated weight of 24 kg and recaptured only 180 miles west at the mouth of Port Augusta and weighed at 25.1 kg (it was reported to be in poor condition).

Over the years, tagging of kingfish has shown that small fish show very little tendency to move very far at all. And with larger adult fish being tagged in numbers in recent years, similar results are being evidenced. However, there are always exceptions to the rule. This year, the kingfish swimming against the tide was one released off Port Augusta in October 2013 at an estimated weight of 14 kg. Just over one year later, the fish was recaptured off Solitary Island, Coffs Harbour NSW (a minimum distance around the south coast of 1,470 nautical miles). Its length had increase from 114 cm to approximately 120 cm during its epic swim and it was re-released to continue its journeys. This is the sixth South Australian kingfish to be recaptured in NSW waters and the furthest north that any of them has swum.

Figure 8. Long distance recaptures of yellowtail kingfish during 2014/15.

To illustrate that this kind of movement is quite unusual for a tagged kingfish, Figure 8 below shows that over half of the recaptured fish in 2014/15 did not move at all, while a further quarter were recaptured within 5 miles of their release points.

Figure 9. Distance moved by all yellowtail kingfish recaptured in 2014/15



Double kingfish recaptures

Double recaptures whilst uncommon, are nothing new for the NSW DPI Game Fish Tagging Program. A number of kingfish were recorded as recaptured twice during the 2014/15 season, reinforcing the high post-release survival rate and resilience to tagging of this species. Two of these double recaptures are highlighted below.

A Port Augusta kingfish tagged by Adelaide Game Fishing Club boat Hoodlum on the 31st August, 2014, was re-captured and re-released in the same original release location 22 days later by a land based angler. This particular fish did not learn its lesson and was recaptured 38 days later by Adelaide Game Fishing Club boat Dolly, which released the lucky fish again in excellent condition!

In another similar scenario, Ocean Hunter Sport Fishing Charters tagged and released a kingfish off the Peak, Sydney on the 19th June 2014, which was recaptured approximately 97 days later by Raptor Charters. The fish was re-caught by Raptor Charters whilst live baiting the 12 mile reef, Sydney and was re-released in excellent condition after taking a few photos. None the wiser, this fish was caught again 6 days later, once again on the 12 mile reef by another angler fishing aboard *Hooked Up.*

Recaptures with no tag cards

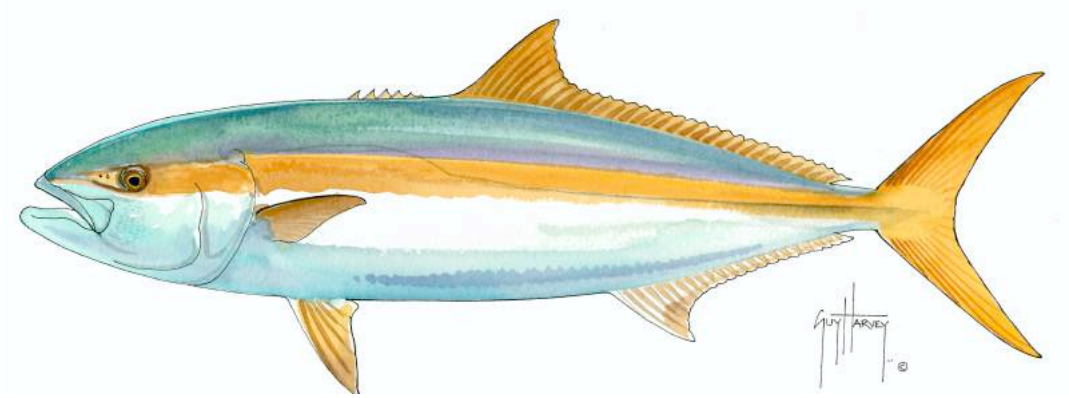
Each year, NSWDPI is notified of the recapture of some fish for which no tag card has been received. In many cases, the missing card is eventually sent, or is located by contacting club recorders or boat owners who have returned tag cards from the same batch of tags as the missing ones. In some cases though, cards are not received in which case, potentially valuable information is lost.

This year, information on nine recaptures was received with no matching tag card, as yet, in the database. These are shown in the table below in the hope that the cards might be located, and to encourage the return of any completed tag cards, regardless of when the fish were released.

Table 3. Recaptured fish in 2014/15 for which no tag card has been received

Tag No	Species	Where recaptured	Date recaptured	Estim Wt (kg)
B097545	Sailfish	Exmouth WA	13/08/14	25
B094277	Sailfish	Groote Eylandt QLD	23/11/14	30
A483557	Y'tail kingfish	Malabar NSW	21/01/15	1.5
S225264	Striped marlin	Three Kings Islands NZ	15/02/15	120
A467123	Y'tail kingfish	Seal Islands VIC	3/03/15	4
B108329	Black marlin	Exmouth WA	19/03/15	30
A371918	Y'tail kingfish	Rangoon Island NSW	11/04/15	2
A590513	Y'tail kingfish	Middle Harbour Sydney NSW	4/06/15	6
A570219	Y'tail kingfish	Bluefish Point, NSW	23/06/15	8

Focus on: Yellowtail kingfish (*Seriola lalandi*)



The following summary of the biology of the yellowtail kingfish has been adapted from the book, 'Fishes of the Open Ocean' by Julian Pepperell (UNSW Press). Kingfish illustration courtesy Guy Harvey.

The several members of the genus *Seriola* are similar in general features. The yellowtail kingfish has the most slender body of the genus, its head being longer than the maximum body depth, a feature which separates it from the amberjack, *Seriola dumerili*.

The yellowtail kingfish is also generally able to be identified since its tail is yellow, although juvenile samson fish, *Seriola hippos*, may also have yellowish tails. The second dorsal ray count easily separates yellowtail and samson fish however – kingfish have 31 to 34 while samson fish have 23 to 25. The other member of the genus, the almaco jack, *Seriola riviolana*, is identifiable by its relatively deep body, and more importantly, its distinctive high, pointed/hooked second dorsal fin. The maximum height of this fin is 1.3 to 1.6 times longer than the pectoral fin, whereas in the true amberjack, the species it most closely resembles, the height of the second dorsal is equal to, or only slightly longer than the length of the pectoral.

Geographic range

The yellowtail kingfish has a widespread distribution through the Indo-Pacific. It is common around New Zealand, the southern half of Australia, southern Africa and the southwestern United States and northwestern Mexico. Although largely a coastal species, it is also found around some offshore islands including Lord Howe and Norfolk Islands, New Caledonia and the Galapagos Islands. Yellowtail kingfish prefer water temperatures of 18°C to 24°C, but are also often found in cooler habitats. They tend to be confined to continental shelves, although large surface schools of juvenile yellowtail are sometimes encountered well out to sea.

Movements

Virtually all of our knowledge on movements of yellowtail kingfish comes from recreational tagging of the species. In Australia, over 35,500 kingfish have been tagged and more than 2,200 recaptured. This recapture rate (6.4%) is the highest of any species tagged, and indicates a relatively high exploitation rate. Similarly, in New Zealand, over 20,000 kingfish have been tagged and more than 1,400 recaptured, again indicating a high recapture rate (7.0%).

In Australia, the great majority of yellowtail kingfish tagged and recaptured have been juveniles (less than 60 cm long) and most have been recaptured within 50 km of their points of release, many near reefs or anchored buoys. On the other hand, most of the long distance movements have been undertaken by larger kingfish over 75 cm long.

The longest movements in Australia have been for three fish tagged off southeast Australia, two of which were recaptured off northern New Zealand, and one at Lord Howe Island. Demonstrating that movements across the Tasman Sea occur both ways, a New Zealand tagged yellowtail has also been recaptured off southeastern Australia. It should be stressed though that the long distance movements are the exceptions rather than the rule. Nevertheless, these results do indicate that the kingfish population of eastern Australia and New Zealand is all part of one common stock which mixes throughout its range. Genetic studies support this conclusion, but also show that trans Pacific, or trans Indian Ocean crossings probably do not occur.

Growth and size

The most intensive studies of yellowtail kingfish growth rates have been undertaken in Australia. These estimate that they grow to a length of about 50cm (fork length) after one year, 60cm after two, 70cm after three and 80cm after four years. At that size, they would weigh about 8kg.

This implies that kingfish may be quite a long-lived species, since they grow to considerably larger sizes. The maximum size of kingfish is a debatable point. While weights of up to 70kg are sometimes quoted (especially in New Zealand and South Africa), the IGFA world angling record is 52 kg, which is shared by two fish, both caught off New Zealand in the 1980s. One weighing 49.5kg was caught in Japan in 2009, while the largest recorded off California weighed 41.5 kg. The Australian record of 42 kg was caught off Port Augusta SA in 2006.

Reproduction

Little is known about reproduction of yellowtail kingfish. The work that has been done suggests that they have a relatively long spawning period which varies with latitude. Off central Baja California, spawning occurs in mid to late summer, while in warm years, spawning has also been recorded off southern California. Off eastern Australia, spawning most likely occurs from August off central New South Wales, right through to February off southern New South Wales. Reports from anglers and commercial fishermen suggest that mass spawning events occur in surface waters well offshore, but more concrete evidence is needed to confirm this. Australian studies have found that male fish mature earlier than females, possibly as small as 36 cm long, with 50% reaching maturity at a length of 47 cm. The size at first maturity for females is much larger, at 70 cm, or an age of about 3 years, with 50% of females maturing by a size of about 83cm. In New Zealand, females apparently mature at even larger, presumably older sizes, with 50% of fish mature by the time they are 93 cm long and 100% maturity reached by a length of 120 cm.

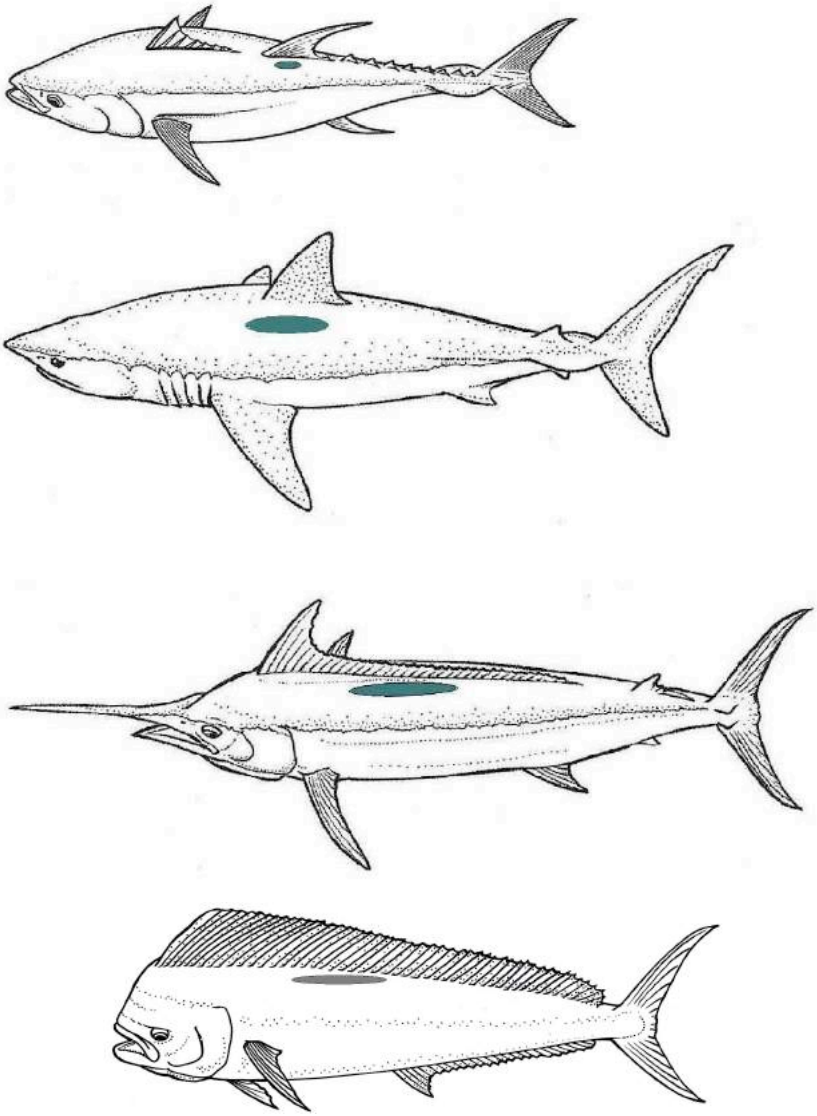
Fisheries

Because of its predictable, schooling habits, the yellowtail kingfish has always been relatively easy to target both by recreational and commercial fishers. They have a strong tendency to school over reefs or wrecks, and also like to associate with floating objects such as buoys. This latter predilection, however, nearly saw the

demise of the kingfish off southeastern Australia. In the late 1980s, a new commercial fishing technique was developed, called yellowtail kingfish trapping. The large chicken-wire traps were not set on the bottom, but were buoyed to float at or near the surface over known yellowtail reefs. Kingfish, being an incredibly inquisitive species, would enter the traps, even without the use of bait, and being gregarious, whole schools would follow, packing into the traps like sardines. Inevitably, numbers and sizes of yellowtail dwindled. After a long and drawn out debate, the traps were eventually banned by the State Government in the late 1990s, and since then, the yellowtail kingfish has made a welcome comeback to its old haunts. Increased size limits have also very likely helped, and even commercial fishermen are reaping the benefits, with the average fish being larger and more valuable than before.

Tagging Tips

Recommended tagging areas



How to tag large game fish

- Once the angler brings the fish within range, the fish should be traced and led alongside the boat so that it presents a broad tagging target. It is usually best to keep the boat moving slowly forwards to enable better control of the fish.
- Once the fish is in position for tagging, the person handling the tag pole should take position behind the person tracing the fish to allow for a clear tag shot.
- An attempt to apply the tag should only be made if the fish is calm or subdued. The tag should be placed towards the middle of the fish, well above the lateral line towards the dorsal fin.
- For billfish and most sportfish, the fish should be tagged with a firm, well-aimed stroke—simply place the tag against the fish's flank and push. Do not stab. Sharks will require a firm jab in order to penetrate their tough skin.
- Once the tag has been placed, remove the hook if possible (a de-hooker can facilitate this) or cut the trace close to the fish's mouth.
- Revive any fish that appear to be exhausted or are struggling to remain upright in the water. A commonly used approach for billfish is to hold the fish firmly by its submerged bill whilst the boat moves forwards at 2 to 3 knots. This ensures a good flow of water over the fish's gills. The fish should only be released when it shows strong signs of life and displays improved skin colour, which may take several minutes or more. Exercise caution, especially in rough weather. Alternatively, use a snooter. This is a safe and effective tool for reviving billfish.
- Fill out the tag card immediately and return to NSW DPI (or your fishing club recorder) as soon as possible, otherwise tagging is of no value.

How to tag small game/sport fish

Smaller pelagic species may be removed from the water before tagging. This enables improved accuracy of tagging and may simplify hook removal. Often holding the fish on its back will lessen its 'flapping'. Try to prevent the fish damaging itself on hard, hot, or dry surfaces. A wet foam mat or similar is ideal (or a wet towel will suffice) for on-boat tagging.

Pelagic tags should be inserted by hand tagger or short pole, as they are designed to lock behind the bony structures of the dorsal fin or second dorsal fin in order to stay in position. Carefully insert the tag into the fish's back, close to the base of the fin and angled in so that it passes through the bony structures at the base of the fin. Try to insert the tag at an angle of at least 45° to reduce water friction and then twist the tag pole before removing it. In effect, you should be trying to hook the barb of the tag around one of these spines, which then locks the tag in place.

Tagging and improved survival tips

- Elect one crew member as the person in charge of the tagging equipment, to ensure that:
    - the number of the tag in position on the tag pole matches that on the tag card
    - details of the tagging are promptly recorded on the card
    - the card is handed to the fishing club recorder or mailed to NSW DPI as soon as possible

- Use non-offset circle hooks whenever possible when using live or dead baits. These hooks minimise deep hooking, foul hooking and bleeding and promote the survival of tagged fish.
- Keep your tag cards in an orderly bundle. This will help to ensure that tags do not become loose and fall out of their corresponding tag card
- Load your tagging pole with a tag before you hook a fish to ensure that it is attached properly and is readily available whenever you wish to tag a fish.
- Check the length of your billfish tag applicator 75mm is the optimal length for most billfish —this ensures that the tag is placed at the correct depth and reduces the risk of the tag being shed by the fish.
- Do not attempt to tag very active fish, especially if the fish is jumping at the side of the boat. Poor tag placement can injure fish or result in the tag being shed. The recommended tagging areas are shown below. It is better to release the fish without tagging, if accurate tag placement is not possible.

Estimating the size of tagged fish

This may be done by estimating the weight of the fish or by measuring the fish when it is in, or alongside the boat. If the fish is less than a metre in length it may be carefully brought on board and measured using a standard measuring tape. However, larger fish should remain in the water.

If you estimate the size of the fish (especially fish weight), get a consensus from all the crew immediately after release, and record immediately (first impressions are always best!).

For measuring length of fish in the water, it is best to rig up a simple tape measure. It helps if it is flexible, and at least 4 metres long. Attach a tennis ball to the zero end and when a fish is alongside, or being held at the back of the boat, float the tennis ball to the tail fork and get a measurement to the fish's snout, or to the tip of the lower jaw for billfish. For billfish, it is important that the recorded measurement should state where the fish was measured from and to (ie lower jaw to tail fork length or total length - tip of bill to end of tail).

Reporting a previously tagged fish

If an earlier tag is noticed on a fish, should the tag be retrieved and the fish re-tagged, or should the fish be kept for scientific examination? Unfortunately, there is no clearcut answer, but generally speaking, if the tag looks very fresh (ie, bright yellow or orange with no growth) then it is probably a very recent tag and the fish can be returned after first either recording the tag number, or better, cutting off the tag and putting another into the fish.

If the fish is small enough to measure, then this should be done, ideally from the tip of the snout to the fork in the tail (or if a billfish, from the tip of the lower jaw to the tail fork). Alternatively, if the tag is fairly obviously an old one, usually identified by being faded and covered with at least some growth, then the best advice is to keep the fish, if possible, for later scientific examination. It should be wrapped in plastic and frozen, and a call made to NSW DPI Nowra, or your local Fisheries Department, for advice. Very useful information can be gathered from inspection of recaptured fish, including more accurate growth rates, condition of released fish and effectiveness of different types of tags and tagging sites.

One other point regarding reporting recaptures of tagged fish should be kept in mind. In these days of nearly 100% release of billfish, previously tagged fish are quite often caught and re-released without being able to retrieve the earlier tag. If you do hook and release a fish which has a previous tag in place, you should definitely record the details (even though the tag number is unknown) and report the incident to NSW DPI (Fisheries) at Nowra as a genuine recapture. In this way, better statistics on actual recapture rates of billfish will be able to be maintained.

Contact the program

If you would like to contact the game fish tagging program either to obtain further information on the program, tags, or to report a recapture directly, call +61 (02) 4424 7411 or email gamefish.tagging@dpi.nsw.gov.au.

Acknowledgements

The Game Fish Tagging Program operated by NSWDPI is generously supported by the NSW Recreational Fishing Trust through funds raised from the Recreational Fishing Licence in that State. We also acknowledge the thousands of anglers, club officials, captains and crew who participate in the Program. Without this continued effort, our knowledge of the biology of pelagic fish would be much the poorer. This report was prepared with the assistance of Phil Bolton and Mick Gamble of NSWDPI, and the maps were prepared by Sarah Boyd, also of NSWDPI.

Appendix I: All Recaptures of Tagged Fish Reported in 2014/2015 for which tag cards had been received

Species	Date Tagged	Release location	Days at liberty	Distance moved (nm)	Direction
Albacore	17/05/08	Bermagui (Wide)	2,550	0	
Amberjack	15/07/14	Long Reef (Sydney)	115	0	
Amberjack	15/07/14	Long Reef (Sydney)	320	253	NNE
Australian Salmon	25/07/14	Cape Jervis (SA)	8	0	N
Australian Salmon	26/07/14	Cape Jervis Sth (SA)	7	1	NNE
Australian Salmon	17/08/14	Cape Jervis (SA)	0	0	S
Australian Salmon	26/04/15	Cockburn Sound (WA)	43	23	SW
Black Marlin	25/08/12	Dampier (WA)	733	2	NNW
Black Marlin	4/02/10	Mooloolaba (8 NM NE)	1,714	1,885	NE
Black Marlin	17/01/10	Gold Coast	1,732	1,929	NNE
Black Marlin	10/01/14	Gold Coast (Spot X)	303	190	NW
Black Marlin	3/08/13	Palm Island (QLD)	494	1,604	NE
Black Marlin	8/11/14	Fraser Island	45	120	SE
Black Marlin	20/11/14	Mooloolaba (10 NM E)	36	17	SSE
Black Marlin	27/12/14	Caloundra (Wide)	3	0	S
Black Marlin	28/12/14	Caloundra (Wide)	2	16	WSW
Black Marlin	5/09/14	Townsville	117	594	SSE
Black Marlin	29/12/14	Southport (QLD)	5	174	SW
Black Marlin	26/12/14	Caloundra (Wide)	15	76	S
Black Marlin	9/01/15	Gold Coast Wide	1	2	SSE
Black Marlin	27/12/14	Caloundra (Wide)	15	276	SW
Black Marlin	26/08/14	Cape Bowling Green	152	863	SE
Black Marlin	10/04/14	Frederick Reefs (QLD)	304	715	SW
Black Marlin	9/01/15	Gold Coast	30	5	NW
Black Marlin	26/12/14	Caloundra (Wide)	51	509	SW
Black Marlin	22/01/15	Caloundra (Wide)	29	352	SW
Black Marlin	23/02/15	Port Stephens (Car Park)	5	3	NE
Black Marlin	16/12/14	Point Lookout (QLD)	75	337	SW
Black Marlin	26/12/14	Gold Coast (East)	88	283	SW
Black Marlin	23/08/14	Sudbury Reef	262	780	SSE
Black Marlin	28/02/15	Port Stephens (Car Park)	76	1,536	NNE
Blue Shark	11/08/13	Sydney (Browns Mountain)	364	1	SE
Bronze Whaler	1/11/99	Exmouth Gulf (WA)	5,404	24	WNW
Bronze Whaler	2/11/14	St Kilda (SA)	10	9	NNW
Bronze Whaler	21/03/14	Cape Torrens (Kangaroo Is)	329	26	NE
Bronze Whaler	29/11/14	Tapley Shoals (SA)	198	72	S
Dolphinfish	3/01/15	Terrigal (NSW)	35	13	NNW
Dolphinfish	8/02/15	Nelson Bay (NSW)	69	259	NNE
Eagle Ray	21/03/08	Kangaroo Island (American River)	2,473	1	S
Golden Trevally	1/08/14	Dampier Archipelago	1	0	S
Gummy Shark	21/02/10	Emu Bay (Kangaroo Is)	1,808	10	NW
Gummy Shark	11/02/15	Goolwa Beach (SA)	45	3	ESE
Hammerhead Shark	4/01/15	Lion Island (Sydney)	17	1	NW
Mako Shark	8/03/14	St Helens (TAS)	193	1,175	NE
Mako Shark	9/08/14	Sydney (Browns Mountain)	147	454	SSW
Mulloway	5/11/14	Yalata Beach (SA)	47	12	WNW
Mulloway	2/11/14	Yalata Beach (SA)	112	6	ESE

Species	Date Tagged	Release location	Days at liberty	Distance moved (nm)	Direction
Sailfish	20/07/13	Broome (WA)	366	2	S
Sailfish	22/09/12	Gulf Of Carpentaria	734	7	NNW
Sailfish	30/09/12	Gulf Of Carpentaria	728	3	W
Sailfish	26/10/13	Exmouth Gulf	371	1	W
Sailfish	31/10/14	Exmouth Gulf	1	2	NNW
Sailfish	24/07/14	Broome (The Caves)	332	31	SW
Samson Fish	28/03/14	Greenly Island (SA)	239	97	ESE
Samson Fish	13/12/14	Rocky Island (SA)	66	0	S
Samson Fish	1/04/09	Greenly Island (SA)	2,166	1	NNE
Samson Fish	19/02/10	Rocky Island (SA)	1,842	12	NNE
Samson Fish	13/12/14	Rocky Island (SA)	87	1	SSE
Samson Fish	14/03/15	Greenly Island (SA)	28	0	
Samson Fish	7/02/15	Greenly Island (SA)	63	0	S
Snapper	18/03/15	Ardrossan (SA)	44	7	NNE
Snapper	20/12/09	Outer Harbour (SA)	1,996	29	NW
Southern Bluefin Tun	6/04/13	Cabbage Patch (SA)	462	133	ESE
Southern Bluefin Tun	3/05/09	Port Macdonnell (SA)	1,918	1,537	SW
Southern Bluefin Tun	27/06/14	St Helens (TAS)	232	569	WNW
Southern Bluefin Tun	7/06/14	Port Fairy (VIC)	253	237	WNW
Southern Bluefin Tun	14/05/14	Maatsuyker Island (TAS)	293	584	NW
Spanish Mackerel	31/07/11	Dampier (WA)	1,270	388	SSW
Spanish Mackerel	7/11/14	Fraser Island (Breaksea Spit)	150	215	S
Spanish Mackerel	16/11/13	Platypus Bay (Fraser Island)	518	10	NNW
Striped Marlin	10/01/14	Jervis Bay (NSW)	313	175	NNE
Striped Marlin	23/03/14	Ulladulla (Shelf)	311	107	SW
Striped Marlin	27/01/15	Bermagui (Wide)	15	19	SW
Striped Marlin	24/01/15	Bermagui (Wide)	19	8	NE
Striped Marlin	17/01/15	Batemans Bay (Wide)	37	8	SW
Striped Marlin	25/01/15	Terrigal (Wide)	31	170	SSW
Striped Marlin	24/01/15	Bermagui (Wide)	33	70	NNE
Striped Marlin	15/02/15	Port Stephens (Car Park)	12	125	SSW
Striped Marlin	22/01/15	Sussex Inlet (NSW)	65	97	NNE
Striped Marlin	29/03/15	Long Reef (Wide)	41	319	NNE
Whaler Shark	18/11/12	Kangaroo Island (SA)	772	3	ENE
Yellowfin Tuna	28/04/12	Bermagui (Wide)	839	234	NNE
Yellowfin Tuna	15/02/11	Port Stephens (Wide)	1,574	284	S
Yellowtail Kingfish	11/09/13	Port Augusta (SA)	349	0	S
Yellowtail Kingfish	25/09/13	Port Augusta (SA)	353	3	S
Yellowtail Kingfish	27/10/13	Coffin Bay (SA)	326	1	NNW
Yellowtail Kingfish	31/08/14	Port Augusta (SA)	22	0	S
Yellowtail Kingfish	7/09/14	Sydney (12 Mile Reef)	21	2	W
Yellowtail Kingfish	26/08/14	Port Augusta (SA)	33	0	S
Yellowtail Kingfish	19/06/14	Sydney (The Peak)	103	6	ENE
Yellowtail Kingfish	11/10/13	Port Augusta (SA)	359	0	S
Yellowtail Kingfish	22/09/14	Port Augusta (SA)	16	0	S
Yellowtail Kingfish	6/09/14	Port Augusta (SA)	32	0	S
Yellowtail Kingfish	30/04/13	Sydney Harbour	526	14	ESE
Yellowtail Kingfish	22/09/14	Sydney (The Peak)	18	6	ENE

Species	Date Tagged	Release location	Days at liberty	Distance moved (nm)	Direction
Yellowtail Kingfish	7/10/13	Port Augusta (SA)	369	0	S
Yellowtail Kingfish	20/05/14	Rangoon Island (NSW)	144	0	S
Yellowtail Kingfish	8/10/14	Sydney (12 Mile Reef)	4	0	N
Yellowtail Kingfish	29/09/14	Port Augusta (SA)	19	0	S
Yellowtail Kingfish	14/12/12	Long Reef (Sydney)	674	171	NNE
Yellowtail Kingfish	24/09/14	Coffin Bay (SA)	32	1	S
Yellowtail Kingfish	6/11/13	Coffin Bay (SA)	357	170	NE
Yellowtail Kingfish	8/10/14	Port Augusta (SA)	28	0	S
Yellowtail Kingfish	15/08/14	Port Augusta (SA)	82		
Yellowtail Kingfish	24/09/14	Port Augusta (SA)	44	0	S
Yellowtail Kingfish	2/11/14	Long Reef (Sydney)	6	0	N
Yellowtail Kingfish	21/10/13	Port Augusta (SA)	387	806	NE
Yellowtail Kingfish	7/11/14	Sydney (12 Mile Reef)	6	0	N
Yellowtail Kingfish	10/11/14	Broughton Island (NSW)	4	0	S
Yellowtail Kingfish	8/11/14	Point Perpendicular (NSW)	7	0	S
Yellowtail Kingfish	2/11/14	Long Reef (Sydney)	22	5	SW
Yellowtail Kingfish	7/11/14	Sydney (12 Mile Reef)	22	0	N
Yellowtail Kingfish	21/11/14	Sydney (North Head)	14	0	S
Yellowtail Kingfish	29/11/14	Sydney (North Head)	7	0	S
Yellowtail Kingfish	14/05/14	Jervis Bay (NSW)	220	0	S
Yellowtail Kingfish	13/09/14	South Solitary Island (NSW)	102	1	E
Yellowtail Kingfish	30/11/14	Sydney (12 Mile Reef)	34	0	N
Yellowtail Kingfish	21/12/14	Long Reef (Sydney)	15	1	SW
Yellowtail Kingfish	2/12/14	Long Reef (Sydney)	40	8	SSW
Yellowtail Kingfish	8/11/14	Point Perpendicular (NSW)	68	3	NNE
Yellowtail Kingfish	2/01/15	Jervis Bay (NSW)	16	7	NNE
Yellowtail Kingfish	28/09/14	Port Hacking (Sydney)	133	2	ESE
Yellowtail Kingfish	26/11/14	Port Hacking (Sydney)	86	0	S
Yellowtail Kingfish	2/01/15	Jervis Bay (NSW)	52	8	NNE
Yellowtail Kingfish	7/11/14	Sydney (12 Mile Reef)	109	323	NNE
Yellowtail Kingfish	28/09/14	Port Hacking (Sydney)	152	2	ESE
Yellowtail Kingfish	10/02/15	Forster (NSW)	18	0	S
Yellowtail Kingfish	10/02/15	Forster (NSW)	18	0	S
Yellowtail Kingfish	16/11/14	Manly (Sydney)	105	1	W
Yellowtail Kingfish	22/10/13	Port Augusta (Outlet Channel)	500	191	SW
Yellowtail Kingfish	13/12/14	Rocky Island (SA)	84	17	NE
Yellowtail Kingfish	4/03/15	Long Reef (Sydney)	5	0	N
Yellowtail Kingfish	8/03/15	Sydney (The Peak)	9	0	S
Yellowtail Kingfish	29/09/14	Port Hacking (Sydney	179	0	S
Yellowtail Kingfish	11/03/15	Middle Ground (Jervis Bay)	25	0	N
Yellowtail Kingfish	26/10/14	Rangoon Island (NSW)	162	1	E
Yellowtail Kingfish	7/03/15	The Banks (Jervis Bay)	30	5	NNW
Yellowtail Kingfish	27/11/14	Manly (Sydney)	130	2	WSW
Yellowtail Kingfish	17/04/12	Cape Jervis (SA)	1,097	180	NW
Yellowtail Kingfish	6/04/15	Jervis Bay (NSW)	29	0	N
Yellowtail Kingfish	20/05/15	Port Augusta (SA)	13	0	S
Yellowtail Kingfish	1/12/14	Sydney (North Head)	188	5	N
Yellowtail Kingfish	30/11/14	Sydney (North Head)	197	3	NE

Appendix II: NSW DPI Game Fish Tagging Program
Top Tagging Boats and Anglers for 2014/2015

NSW DPI would like to recognise the boats and anglers that have provided exceptional contributions to the program over the past season. These boats and anglers are shown in the table below with the numbers of fish that they tagged over the 2014/2015 season. We will continue to develop these end of season summaries and acknowledge the strong supporters of the tagging program in future years.

Species	Top boat	Runner up boat
Billfish combined	100 – *Chaos* (QLD) Sunshine Coast GFC	88 – *Murphy's Law* (QLD) Gold Coast GFC
Black Marlin	78 – *Chaos* (QLD) Sunshine Coast GFC	54 – *Freedom* (NSW) Central Coast GFC and Haven Sport Fishing Charters
Blue Marlin (International)	23 – *Talio* (PNG) Madang GFC	20 – *Reel Addiction* (Tonga) Vava'u SFC / Reel Addiction Charter boat
Blue Marlin (Australia)	31 – *Murphy's Law* (QLD) Gold Coast GFC	24 – *Jugs* (QLD) Gold Coast GFC
Striped Marlin	37 – *Polaris* (NSW) Eden Sports & Game Fishing Club	29 – *Hardaddit* (NSW) Bermagui Big Game Anglers Club
Sailfish	44 – *Pelagic Hooker* (WA) Exmouth GFC	35 – *On Strike* (WA), *Wine Down* (QLD)
Shortbill Spearfish	2 – *Blue Bottle* (NSW) *Salsa* (FIJI), *Wai Tadra* (FIJI)	1 – *(21 Recreational Vessels)*
Swordfish	17 – *(Tagged by Commercial Vessel, QLD)*	6 – *(Tagged by Commercial Vessel, NSW)*
Shark combined	49 – *Tantrum* (NSW) Sydney GFC	39 – *El Bandito* (NSW) Wollongong GFC
Mako Shark	9 – *Mr Magoo* (NSW), *Sea Hog* (NSW), *Tantrum* (NSW)	8 – *Casey* (NSW), *Hold Up* (NSW)
Blue Shark	9 – *Tantrum* (NSW) Sydney GFC	8 – *Casey* (NSW) Sydney GFC
Tiger Shark	4 – *Mangrove Jack* (WA) King Bay GFC	3 – *Raddler* (WA) Nickol Bay GFC
Whaler Shark	31 – *Tantrum* (NSW) Sydney GFC	4 – *R&P* (QLD) Gold Coast GFC
Hammerhead Shark	27 – *El Bandito* (NSW) Wollongong	6 – *Casey* (NSW), *Xiphias* (NSW)
Thresher Shark	1 – *(Tagged by Commercial Vessel, NSW)*	
Tuna combined	385 – *Galaxy Star* (SA) GFC of South Australia	216 – *Spartacus* (SA) GFC of South Australia
Yellowfin Tuna	5 – *Mr Hooker* (NSW) Bermagui Big Game Anglers Club / Canberra GFC	4 – *Luna* (QLD) Mooloolaba GFC
Southern Bluefin Tuna	379 – *Galaxy Star* (SA) GFC of South Australia	211 – *Spartacus* (SA) GFC of South Australia
Bigeye Tuna	21 – *(Tagged by Commercial Vessel, QLD)*	6 – *(Tagged by Commercial Vessel, NSW)*
Albacore Tuna	11 – *Reel Hooker* (TAS) Game Fish Tasmania	10 – *Sir Tease* (TAS) GFC of Northern Tasmania
Longtail Tuna	8 – *Hardline* (QLD) Mackay GFC	6 – *Somewhere* (QLD) Mackay GFC
Dogtooth Tuna	2 – *Maitai* (SA) GFC of SA	
Spanish Mackerel	23 – *Somewhere* (QLD) Mackay GFC	15 – *Mates Rates* (QLD) Mackay GFC
Mahi Mahi	20 – *Just Eat It* (NSW) Shellharbour GFC	17 – *Water Girl* (QLD) Broken Bay GFC
Yellowtail Kingfish	43 – *Oceanhunter* (NSW) Ocean Hunter Sport Fishing Charters	38 – *Hooked Up* (NSW)
Species	**Top individual**	**Runner up individual**
Billfish	43 – John Stehman (QLD) Gold Coast GFC	39 – Michael Lassen (QLD) Sunshine Coast GFC
Shark	17 – Mitch Liddall (NSW) Sydney GFC	16 – Hayden Remnant (NSW) Sydney GFC
Tuna	126 – Rolf Czabayski (SA) GFC of SA	62 – Paul Morris (SA) GFC of SA