

THE GOOD OLD DAYS? HISTORICAL INSIGHTS INTO NEW SOUTH WALES COASTAL FISH POPULATIONS AND THEIR FISHERIES



Report to

The NSW Recreational Fishing Trusts Expenditure Committee

by

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The Good Old Days?

Historical insights into coastal NSW fish populations and their fisheries

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Introduction

What were the fish populations and potential fishing like before Europeans arrived on Australian shores and began to cast their nets and baits into the pristine waters they found? What might fishing have been like before the advent of high tech fishing gear, both commercial and recreational? Is fishing today a shadow of its former self or have fish populations managed to sustain themselves over the past 200 plus years? Is it possible to gain some historic insights into the status of the coastal fish populations of New South Wales?

New South Wales has the longest history of European exploration and settlement of any Australian State. From the time of the arrival of Captain James Cook in April 1770, observations and accounts of fish in coastal waters form a small but continual part of the narrative of exploration and settlement. Fish were obviously an important source of fresh food to the colonists so it is not surprising that their supply was a subject of interest in early writings and records.

The genesis for the present study was a well publicised American study, published in July 2001, which utilized a variety of retrospective-looking methods in an attempt to gain an idea of what eastern US coastal habitats and marine populations were like when Europeans first reached the New World, and in the ensuing several centuries.

Entitled “Historical overfishing and the recent collapse of coastal ecosystems”, the paper, published in the prestigious journal ‘Science’, by Jeremy Jackson of Scripps Institution of Oceanography together with 18 other authors from many diverse disciplines, demonstrated with several examples how it might be possible to piece together enough information to gain an intriguing retrospective view of some aspects of marine resources and ecology in the pre colonial past.



The authors (all 19 of them) used many sources of information including:

- 1) Paleoecological records from marine sediments from about 125,000 years ago to the present, coinciding with the rise of modern Man.
- 2) Archaeological records from human coastal settlements occupied after about 10,000 years before the present when worldwide sea level approached present levels. These document human exploitation of coastal resources for food and materials by past populations that range from small-scale aboriginal societies to towns, cities, and empires
- 3) Historical records from documents, journals, and charts from the 15th century to the present that document the period from the first European trade-based colonial expansion and exploitation in the Americas and the South Pacific
- 4) Ecological records from the scientific literature over the past century to the present covering the period of globalized exploitation of marine resources.

A number of contrasting case studies were examined, and the results can be briefly summarized as follows:

Kelp forests: Constant hunting of northern Pacific sea otters, which feed on sea urchins, caused a massive decline in numbers of otters, with consequent great upsurges in sea urchin numbers. Sea urchins eat kelp, and their greatly increased populations caused the collapse of vast kelp forests.

Coral reefs: Overgrown by algae in some areas due to depletion of herbivorous fishes and sea urchins. Devastating crown of thorns starfish outbreaks on the Great Barrier Reef possibly caused indirectly by removal of larger predatory fishes (this is still debatable).

Tropical and sub-tropical seagrasses: While increased sedimentation has caused large die-offs of seagrasses worldwide, in some areas, the removal of marine turtles has probably had severe effects. Early accounts indicated vast numbers (50 to 100 million) of green turtles in the Caribbean which cropped seagrasses and may have protected them from disease. The paper also suggested that early hunting of dugongs in Moreton Bay may have had similar effects.

Benthic fish communities: It is no surprise that many previously abundant large fish species have become ecologically extinct over vast areas.

In other words, changes to marine ecosystems may have been much greater than previously thought. And such large changes in ecosystems obviously means large changes in the fish populations which depend on them. Further, such changes were ascribed mainly to 'anthropogenic' causes, that is, changes caused by Man, and even more to the point, overfishing and over harvesting as the major man-made influence on marine ecosystems.

A study such as this, in North America, has certain advantages over a similar study, were it to be attempted in Australia. The first main advantage is a much longer series of historical records of European observations in North America, dating back to the 15th century. The earliest similar observations from Australia would be those of William Dampier in the late 17th century, but for the east coast, the first would be those of James Cook in the late 18th century, a full three hundred years since European arrival in the New World.

The second advantage is a greater volume of scientific studies in North America covering the last hundred years or so compared with similar Australian studies. Nevertheless, preliminary perusal of some early literature suggested that a specific search of material relevant to early accounts of fish and fishing might be rewarding. It was not expected nor intended that the present Australian study would be as intensive or range as widely as the North American study, but rather, was intended to investigate the most likely sources of written information with a view to gaining at least some insights into the past status of fish populations.

Following early settlement in New South Wales in the late 1700s, fishing activities gradually expanded along the coast. Records of observations of fish populations, and success or otherwise of these expanding fisheries, may have been archived in a range of locations, many of which have never been properly searched for this specific purpose. This project attempts to research and compile as much as possible of this information relating to fish and fishing for the first time.

The study attempts to compile and assess historic accounts of observations and records of coastal fish populations and their fisheries in New South Wales. Three time periods were considered:

1. First arrival and early settlement: early observations, explorers, settlers. Late eighteenth, early nineteenth century
2. Early to late nineteenth century
3. Late nineteenth/early twentieth century.

The scope of the project was purposely confined to coastal fish and fisheries of New South Wales since these are the first areas observed and fished by the earliest European settlers and because the settlements grew up and expanded along the coastal fringe. The focus is therefore on marine and estuarine fishes and fisheries occupying coastal bays, inlets, rivers etc, extending to rocky headlands and near-shore reefs and habitat, generally within a few miles of the coast.

Methodology

Because no study with these specific aims had been attempted before, it was unknown how much pertinent information might be available, and perhaps more importantly, accessed. The modest budget reflects the fact that this study was not intended to be an exhaustive investigation of all possible sources of information pertaining to the subject, but rather an attempt to determine what was available, whether or not it was pertinent to the main questions put by this project, and whether or not it helped to answer the main question in any way.

For the three periods chosen, the sources of information which were searched were:

Accounts of early European writers recording their observations of many aspects of the animals, plants, environment and indigenous people they encountered. These include the official diaries of those vested with the duty of reporting back to England, such as Captain James Cook, others on his ship, and later, Captain Arthur Phillip and others on board the First Fleet who also wrote reports intended to be read, or kept personal diaries. Some of these were located as facsimile hard copy publications while fortunately, many others are now available online.

A key source of such documents was Project Gutenberg (www.gutenberg.org), a free online resource containing many thousands of electronic books and manuscripts. Other online services were particularly helpful, including those operated by the NSW State Library and the British Museum of Natural History. For the second period, sources searched were newspaper archives in libraries, including those in Sydney, (NSW State Library), Richmond (Hawkesbury), Port Macquarie, Manly, Sutherland and Nelson Bay. Historic Societies were contacted and where possible, their archives examined. For the third period covered, as well as the above, published reports and books were sourced from public and Government libraries, the internet and the author's private collection of historical material.

Results

This report is arranged chronologically, beginning with relevant information on aboriginal fishing implements and evidence of their fishing in the Sydney region before the arrival of Europeans. It then moves to the European written record with their accounts of aboriginal fishing upon the arrival of HMS Endeavour off the New South Wales Coast, followed by those from members of the First Fleet. Accounts of both groups regarding their own fishing activities and observations of fish are detailed, extending to some later writings to the mid 1800s. The later period is then considered by detailed consideration of information from the 1880 Royal Commission in the Fishing Industry of NSW followed by published books and accounts from fisheries experts from the late 1800s to the early 1900s.

Pre European Arrival

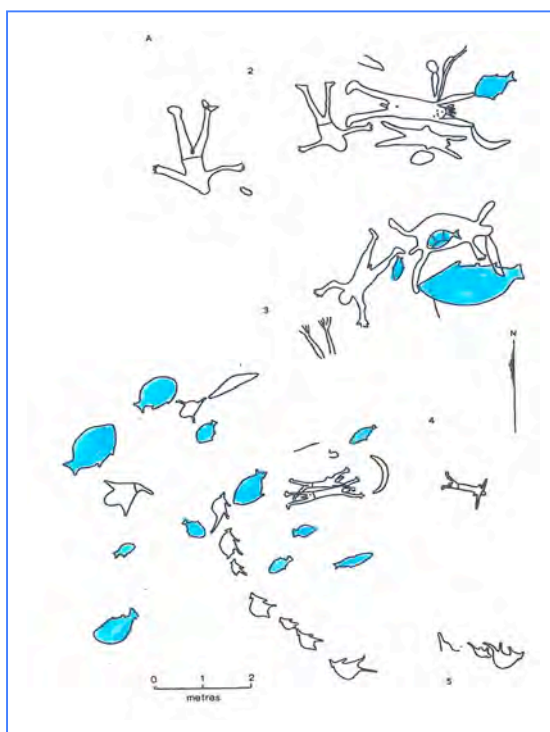
It was not an original aim of this study to explore the use of fish by coastal aboriginals prior to European arrival on the shores of what is now New South Wales. This would be a major undertaking in itself and as indicated later, would indeed be a worthwhile endeavour, especially as it might relate to historic changes in species or size composition of fish populations over long periods of time, even perhaps covering periods of falling and rising sea levels.

However, it is pertinent to refer here to two relatively recent Sydney exhibitions, parts of which provided some insights into the use of fish and other marine resources by aborigines living in the Sydney region prior to European arrival. The first was an exhibition of the Australian Museum, held in 2001, entitled 'Catching ... the Harbour'. This excellent resource showed from examining fish remains in middens that the aborigines living around Sydney Harbour in fact ate relatively few species of fish. The two most common species used were snapper (*Pagrus auratus*) and yellowfin bream (*Acanthopagrus australis*) while others which were important included various parrotfishes (family Labridae), the dusky flathead (*Platycephalus fuscus*), garfish (*Hyporhamphus australis*), eastern blue groper (*Achoerodus viridis*), yellowtail kingfish (*Seriola lalandi*), leatherjacket (*Nelusetta* sp.), luderick (*Girella tricuspidata*), morwong (*Cheilodactylus fuscus*), mulloway (*Argyrosomus japonicus*), rock cod (*Epinephelus* sp.), tarwhine (*Rhabdosargus sarba*), whiting (*Sillago ciliata*), wirrah (*Acanthistius ocellatus*) and crimson banded wrasse (*Notolabrus gymnogenis*). Less common species identified from fewer bones included: Australian salmon (*Arripis trutta*) and shark.

The second exhibition was held in the State Library of NSW in 2006 and curated principally by Keith Vincent Smith. Titled “Eora: Mapping aboriginal Sydney, 1770 – 1850”, this was an exhibition that relied on European observations and records. . . . Some references to fish and fishing were made, and some early illustrations of aboriginal fishing methods were presented. These are covered in the following section but some points from this exhibition are worth noting here.

“United by a common language, strong ties of kinship, and a rich saltwater economy, the Indigenous inhabitants survived as skilled hunter–fisher–gatherers in family groups or clans scattered along the coast. They identified themselves as Eora (pronounced ‘yura’), meaning simply ‘the people’, a word derived from Ee (yes) and ora (here, or this place), revealing their deep connection to the land. Their territory spread from the Georges River and Botany Bay in the south to Port Jackson (Sydney Harbour), north to Pittwater at the mouth of the Hawkesbury River and west along the river to Parramatta. It was an environment of bushland, sandstone cliffs and ridges, bays and coves, sandy ocean beaches, rocky headlands, mangrove swamps, creeks and tidal lagoons.”

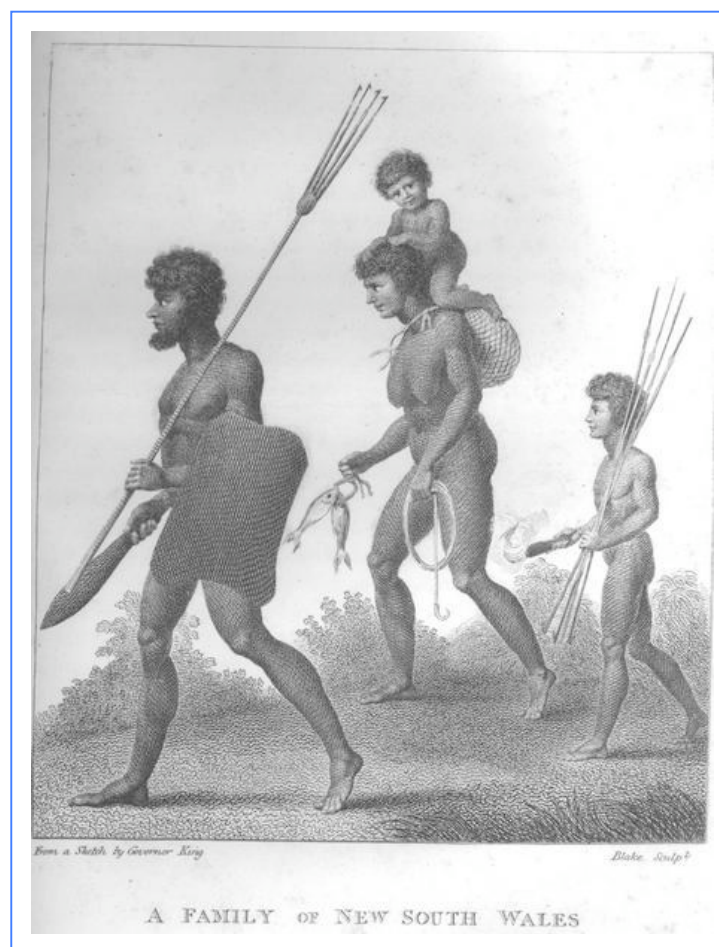
In her excellent book, ‘Sydney’s Aboriginal Past’, Val Attenbrow presents a detailed reconstruction of aboriginal life around the Sydney region before European arrival. She notes that fish and shellfish were very important, not just for food, but for spiritual reasons as well. Each aboriginal of the region had a totem name, mainly of birds or fishes. Rock carvings depicting fish and other marine animals are very common around the Sydney environs. A tracing of just one set of carvings, shown to the right, is from the Basin Track, West Head. Fish figures are filled in blue, and are very large (note the scale). The largest, on the far right, which may be a shark, is thought to be depicted with a spear in its head.



Left: A close up of an actual carving of a large fish (about 90cm long) is shown below. This can be seen at Grotto Point in Sydney Harbour National Park (near South Head).

As will be seen in the ensuing accounts, aborigines living around Botany Bay and Sydney Harbour at the time of European contact and first settlement spent a great deal of their time in pursuit of fish and shellfish. Regarding finfish, the main aboriginal fishing methods used in the region, again described in some first hand accounts below, were baited hand lines and multi-pronged hand spears, or as called by the English, 'fish-gigs'. Fishing took place either from the shore, or more commonly from bark canoes, which were simple, but in the hands of the skilled occupants, highly efficient. While nets and rock-wall traps were definitely used in other areas by aborigines, they do not appear to have been in use in the Sydney region.

Generally, the accounts of the first Europeans indicate that the aborigines were highly skilled at fishing, the women with hook and line and the men with spear. Nevertheless, there were quite a number of early accounts of the intensity of constant fishing and the perhaps surprising fact that the indigenous inhabitants often did not seem to have enough fish to eat, especially in winter.



A very early illustration correctly depicting aboriginal fishing implements and their users. The man is holding a four pronged fish spear while the woman has a fishing line with hook, and her catch in the other hand. From Hunter (1793)

Early direct observations by Europeans of aboriginal fishing techniques and success are provided in some detail in the following section.

First European accounts: 1788 to early 1800s

Because the object of this study is to gain insights into what fish populations and habitat may have been like at the time of the first arrival of Europeans to New South Wales, it necessarily concentrates on the earliest records of the first visitors and settlers.

The Endeavour, James Cook and Joseph Banks

The first European reports from the NSW coast which mention fish are, not surprisingly, those of the Captain of HMS Endeavour, Captain James Cook, his paying passenger, Sir Joseph Banks and other members of the ship's complement. After voyaging from New Zealand, The Endeavour first neared the Australian coast off Point Hicks, about 50 km southwest of the now NSW/Victoria border, on 19 April 1770. Her Captain and crew were the first Europeans to sight the eastern seaboard. The day before, Banks, being a naturalist and often noting various biological events, recorded:

“Stiff gales and a heavy sea from the Westward. In the morn a Port Egmont hen and a Pintado bird were seen, at noon two more of the former. At night the weather became rather more moderate and a shoal of Porpoises were about the Ship which leaped out of the water like Salmons, often throwing their whole bodies several feet high above the surface.”

From the first sighting of land, Cook then travelled northwards along the coast, keeping mostly well offshore in depths of around 50-75 fathoms. Along the way, he named various prominent features such as Point Howe, Mount Dromedary, Cape Dromedary (probably Montague Island) and the 'Pigeon House' behind Ulladulla. While he had previously seen smoke from fires near the coast and suspected their human origin, Cook first observed indigenous people 15 leagues (90 miles) north of what he called Cape Dromedary. Cook made one aborted attempt on 28 April to land on a beach at what is now Bulli. The same day, Banks wrote:

“The Countrey today again made in slopes to the sea covered with wood of a tolerable growth tho not so large as some we have seen. At noon we were very near it; one fire only was in sight. Some bodies of 3 feet long and half as broad floated very boyant past the ship; they were supposed to be cuttle bones which indeed they a good deal resembled but for their enormous size”.

This last observation is interesting in that it can only be referring to cuttlebones of the giant Australian cuttlefish, the largest of its type in the world, which grows to half a metre mantle length or one metre full length.

Landfall at Botany Bay

On 29 April 1770, Cook found the entrance to what is now Botany Bay and decided to enter. He recorded:

“At daylight in the morning we discover'd a Bay which appeared to be tollerably well shelter'd from all winds, into which I resolved to go with the Ship, and with this View sent the Master in the Pinnace to sound the Entrance, while we kept turning up with the Ship, having the wind right out. At noon the Entrance bore North-North-West, distance 1 Mile.”

Cook immediately noted the local inhabitants, but did not mention them in the act of fishing:

“Saw, as we came in, on both points of the bay, several of the Natives and a few hutts; Men, Women, and Children on the South Shore abreast of the Ship, to which place I went in the Boats in hopes of speaking with them, accompanied by Mr. Banks, Dr. Solander, and Tupia.”

Tupia (Tupaia) was a Polynesian who joined the Endeavour in Tahiti. He was a skilled artisan and in fact, drew the first illustration of fishing in Australia, an aboriginal spearing fish from a canoe, seen at the heads of Botany Bay, 29 April 1770 (see below).

First observations of aboriginal fishing

On the other hand, Sir Joseph Banks, the gentleman naturalist on the voyage, immediately noticed the locals fishing from canoes, and in so doing, was the first European to record fishing by aborigines off eastern Australia. In doing so, he recorded the remarkable fact that they were so intent on this activity that they did not appear to pay any attention to the appearance of the Endeavour itself. He writes:

“By noon we were within the mouth of the inlet which appeared to be very good. Under the South head of it were four small canoes; in each of these was one man who held in his hand a long pole with which he struck fish, venturing with his little imbarcation almost into the surf. These people seemd to be totally engag'd in what they were about: the ship passd within a quarter of a mile of them and yet they scarce lifted their eyes from their employment; I was almost inclind to think that attentive to their business and deafned by the noise of the surf they neither saw nor heard her go past them.”

As mentioned above, Cook did not comment on the fishing of the aborigines at this point, but he did mention that the Tahitian native Tupia (or Tupaia) accompanied he and Solander onto shore once they had anchored. Tupaia must have been very interested in the fishing of the local inhabitants since he produced the first ever illustration of them fishing at Kundal (Kurnell). (Smith 2005). This remarkable sketch, the significance of which was only recently realized, shows a fisherman with a fish spear, intently concentrating on the task at hand (just as described by Banks). It also accurately depicts the bark canoes, bound at each end, as described on many occasions, as well as the distinctive short paddles used in each hand, also described subsequently.



The Endeavour spent the next eight days anchored inside Botany Bay, during which time Cook and Banks recorded the first active fishing (by net) by Europeans in eastern Australia, as well as making observations on aboriginal fishing activities. On 29 April, Cook recorded evidence of aborigines eating mussels and oysters:

“After breakfast we sent some Empty Casks a shore and a party of Men to cut wood, and I went myself in the Pinnace to sound and explore the Bay, in the doing of which I saw some of the Natives; but they all fled at my Approach. I landed in 2 places, one of which the people had but just left, as there were small fires and fresh Muscles broiling upon them; here likewise lay Vast heaps of the largest Oyster Shells I ever saw”.

From this description, it is almost certain that the oysters were mud oysters, *Ostrea angasi*.

First European fishing on the eastern Australian coast

And on the day after arriving in Botany Bay, Cook went fishing and recorded the first catch by Europeans on the east coast:

“After I had return'd from sounding the Bay I went over to a Cove on the North side of the Bay, where, in 3 or 4 Hauls with the Sean, we caught about 300 pounds weight of Fish, which I caused to be equally divided among the Ship's Company”.

Banks also records this important event, although on this occasion, unfortunately neither he nor Cook describes the type of fish caught or their size:

“Myself with the Capt'n etc. were in a sandy cove on the Northern side of the harbour, where we hauld the seine and caught many very fine fish, more than all hands could Eat.”

While this very first haul of fish suggested a plentiful supply, Cook's diary entry for the next day (1 May) records that:

"In the evening I sent some hands to haul the Seine, but they caught but a very few fish".

A third haul of fish is noted by both Cook and Banks during their brief stay inside Botany Bay. On May 5, Cook writes:

"In the P.M. I went with a party of Men over to the North Shore, and while some hands were hauling the Sean, a party of us made an Excursion of 3 or 4 Miles into the Country, or rather along the Sea Coast. We met with nothing remarkable; great part of the Country for some distance inland from the Sea Coast is mostly a barren heath, diversified with Marshes and Morasses [what would today be called 'wetlands']. Upon our return to the Boat we found they had caught a great number of small fish, which the sailors call leather Jackets on account of their having a very thick skin; they are known in the West Indies. I had sent the Yawl in the morning to fish for Sting rays, who returned in the Evening with upwards of four hundred weight [448 pounds]; one single one weigh'd 240 pounds Exclusive of the entrails. In the A.M., as the wind Continued Northerly, I sent the Yawl again a fishing, and I went with a party of Men into the Country, but met with nothing extraordinary".

Banks' recording of his party's fishing success, including the taking of very large stingrays, adds some further interesting observations to Cook's accounts of the same fishing exploits (above), the first by Europeans on the east coast of Australia:

"While we were employd in this walk the people hawld the Seine upon a sandy beach and caught great plenty of small fish. On our return to the ship we found also that our 2nd lieutenant who had gone out striking had met with great success: he had observd that the large sting rays of which there are abundance in the bay followd the flowing tide into very shallow water; he therefore took the opportunity of flood and struck several in not more than 2 or 3 feet water; one that was larger than the rest weigh'd when his gutts were taken out 239 pounds."

The Endeavour's chief artist, Sydney Parkinson, also recorded this event

"On these shallows we found a great number of rays, some shell-fish, and a few sharks. The rays are of an enormous size: one of them which we caught weighed two hundred and thirty-nine pounds, and another three hundred and twenty-six. They tasted very much like the European rays, and the viscera had an agreeable flavour, not unlike stewed turtle. These rays, and shell-fish, are the natives chief food".

These records are very interesting for a number of reasons. Firstly, the small fish caught 'in great number' were identified by Cook as leather jackets (presumably, family Monacanthidae) which, while not normally associated with large catches by seine net in modern times, may well have abounded over sea grasses on the northern side of Botany Bay.

Later, during the early days of the colony in Port Jackson, swarms of leatherjacket were regarded as a pest for snapper fishermen. Also, as noted above, leatherjackets were a common food item of aborigines living around Sydney Harbour. In fact, the spikes on their fishing spears were sometimes made from the barbed dorsal spines of leatherjackets.

The second aspect of these accounts is the great size, and the apparent ease of catching, of the stingrays which were landed. Cook notes that he sent a yawl specifically to fish for stingrays which, as Banks mentions, had been observed to be in abundance. The size of these rays would indicate that they were either the black stingray, *Dasyatis thetidis* or the largest of all stingrays, the smooth stingray, *Dasyatis brevicaudata*. (Last and Stevens 1994).

The next day, May 5, the same yawl caught two more stingrays, weighing, according to Cook, "near 600 pounds". Banks gives another account of the day, including the taking of the largest single stingray:

"As tomorrow was fixed for our sailing Dr Solander and myself were employed the whole day in collecting specimens of as many things as we possibly could to be examined at sea. The day was calm and the Mosquitos of which we have always had some more than usually troublesome. No Indians were seen by any body during the whole day. The 2nd Lieutenant went out striking and took several large Stingrays the biggest of which weighed without his guts 336 pounds" (May 5).

These passages indicate that the stingrays were 'struck', which presumably means speared or harpooned. In an interesting postscript to the catching of stingrays in Botany Bay, Banks records on the day that they departed (May 6 1770) that the stingrays (or at least parts of them) were eaten by the crew of the Endeavour.

"Went to sea this morn with a fair breeze of wind. The land we sailed past during the whole forenoon appeared broken and likely for harbours; in the afternoon again woody and very pleasant. We dined to day upon the stingray and his tripe: the fish itself was not quite so good as a skate [skate] nor was it much inferior, the tripe every body thought excellent. We had with it a dish of the leaves of tetragonia cornuta boiled, which eat as well as spinage or very near it."

Banks' comparisons of fish fauna in New Zealand

The above passages include everything that Banks wrote about fish and their abundance off New South Wales. Of course, these observations were only confined to one week's stay inside Botany Bay, but it is nevertheless somewhat surprising that he did not write more about the marine fauna, given that he had written so much about the topic in New Zealand earlier that same year. The fact that Banks extolled the fisheries of New Zealand to such an extent, but wrote so little about the fishing in NSW suggest that the abundance of fish here was, to use the expression, 'nothing to write home about'. In New Zealand though, like Cook, Banks was obviously very impressed with the fish and their abundance, as indicated in the following passages:

“For this scarcity of animals on the land the Sea however makes abundant recompense. Every creek and corner produces abundance of fish not only wholesome but at least as well tasted as our fish in Europe: the ship seldom anchor in or indeed passd over (in light winds) any place whose bottom was such as fish resort to in general but as many were caught with hook and line as the people could eat, especialy to the Southward, where when we lay at an anchor the boats by fishing with hook and line very near the rocks could take any quantity of fish; besides that the Seine seldom faild of success, insomuch that both the times that we anchord to the Southward of Cooks streights every Mess in the ship that had prudence enough salted as much fish as lasted them many weeks after they went to sea.” ...

“For the Sorts, there are Macarel of several kinds, one precisely the same as our English ones and another much like our horse macarel, besides several more; these come in immense shoals and are taken by the natives in large Seines from whom we bought them at very easy rates. Besides these were many species which tho they did not at all resemble any fish that I at least have before seen, our seamen contrivd to give names to, so that hakes, breams, Cole fish etc. were appellations familiar with us, and I must say that those who bear these names in England need not be ashamd of their nam[e]sakes in this countrey. But above all the luxuries we met with the lobsters or sea crawfish must not be forgot, which are possibly the same that in Lord Ansons Voyage are mentiond to be found at the Island of Juan Fernandes; they are large tho not quite so large as those at Juan Fernandes and differ from ours in England in having many more prickles on their backs, and being red when taken out of the water. Of them we bought great quantities of the natives every where to the Northward, who catch them by diving near the shore, feeling first with their feet till they find out where they lie. We had also that fish describd by Frezier in his voyage to Spanish South America by the name of Elefant, Pejegallo, or Poisson Coq, which tho coarse we made shift to Eat, several species of Skates or sting rays which were abominably coarse, but to make amends for that we had among several sorts of dog fish one that was spotted with a few white spots, whose flavour was similar to but much more delicate than our skate. We had flat fish also like Soles and flounders, Eels and Congers of several sorts, and many others which any Europaeans who may come here after us will not fail to find the advantage of, besides excellent oysters and many sorts of shell fish and cockles, clams etc.”

These passages show that Banks was a conscientious recorder of the marine life he witnessed, and further suggest that the fish he observed at Botany Bay, since he wrote so little of them, were relatively trivial in comparison to his New Zealand experience (Of course, it should be borne in mind that he spent much longer in New Zealand than the 8 days in Botany Bay – the only landfall made along what is now the New South Wales coast).

There is one odd aspect of Sir Joseph Banks and his opinion about fish abundance in Australia. After his return to England, he appeared before a House of Commons Committee in 1779 which was set up to consider the advantages and disadvantages of transportation of convicts and places for this to occur. He strongly pushed for New Holland, and in particular, Botany Bay.

His reasons were several, including that the natives were not likely to be antagonistic (as he thought might be the case in New Zealand), and importantly, that there would be good soil, adequate water and timber and *promise for a fishing industry* (my italics), (although in those days, the term 'fishing' included whaling). This official line was in contrast to his writings at the time, in which he noted that prospects of water and timber were in fact, not good. When questioned at the Commission, he stated:

- *“Upon the whole New Holland, tho in every respect the most barren country I have seen, is not so bad but that between the productions of the sea and the Land a company of People who should have the misfortune of being shipwrecked upon might support themselves, even by the resources we have seen”* (Finney, 1984)

Sting Ray Harbour

It is often written that Cook originally called Botany Bay 'Sting Ray Bay'. In fact, he called it 'Sting-Ray Harbour', but changed the name not long after departing the bay for his northerly survey up the coast. The original name, and name change are noted in the following two passages, the first being Cook's original diary entry, and the second, the version after his hand-inserted changes:

1. *“Sunday 6th [May]. In the evening the yawl return'd from fishing having caught two Sting rays the one weigh'd [gap] pounds and the other exclusive of the entrails. The great quantity of this sort of fish found in this place occasioned my giving it the name of Sting-Ray Harbour ..”*

2. *“Sunday 6th [May]. In the evening the yawl return'd from fishing having caught two Sting rays weighing near 600 pounds. The great quantity of New Plants &ca Mr Banks and Dr Solander collected in this place occasioned my giving it the name of Botanist [altered to] Botany Bay ..”* (the date of this latter alteration is not known).

And so it was that the first eastern port named by a European narrowly missed being named after one of its fishy inhabitants.

Before leaving Botany Bay, Cook referred to the catching and eating both shellfish and fish by aborigines:

“On the sand and Mud banks are Oysters, Muscles, Cockles, etc., which I believe are the Chief support of the inhabitants, who go into Shoald Water with their little Canoes and peck them out of the sand and Mud with their hands, and sometimes roast and Eat them in the Canoe, having often a fire for that purpose, as I suppose, for I know no other it can be for” and writing on the same day ... *“Altho' I have said that shell fish is their Chief support, yet they catch other sorts of fish, some of which we found roasting on the fire the first time we landed; some of these they strike with Gigs, [A multi-pronged spear] and others they catch with hook and line; we have seen them strike fish with gigs, and hooks and lines are found in their Hutts. Sting rays, I believe, they do not eat, because I never saw the least remains of one near any of their Hutts or fire places”*

As it happens, the lack of stingray remains in aboriginal cooking areas was a very interesting observation. While it may have been possible that stingrays were simply not caught at that time, it is much more likely the result of the fact that the taking of stingrays (and sharks) in this area was considered taboo by the aborigines of that area (Keith Vincent Smith, personal communication).

Interestingly, John Hawkesworth, who was keeping an official record of the voyage, and whose accounts are therefore very similar to the diary entries of Cook, wrote a similar passage to the above one of Cook, with several differences. Notably, he describes the Australian pelican for the first time:

“About the head of the harbour, where there are large flats of sand and mud, there is great plenty of water-fowl, most of which were altogether unknown to us: one of the most remarkable was black and white, much larger than a swan, and in shape somewhat resembling a pelican. On these banks of sand and mud there are great quantities of oysters, muscles, cockles, and other shell-fish, which seem to be the principal subsistence of the inhabitants, who go into shoal water with their little canoes, and pick them out with their hands. We did not observe that they eat any of them raw, nor do they always go on shore to dress them, for they have frequently fires in their canoes for that purpose. They do not however subsist wholly upon this food, for they catch a variety of other fish, some of which they strike with gigs, and some they take with hook and line.”

Cook continued northward along the coast, but did not make landfall at any other place along the New South Wales coast and made no further reference to fish there (and neither did Banks). It is interesting that hook and line fishing seems not to have been carried out from the Endeavour itself along the NSW coast, or at least, it is not mentioned. Earlier in the voyage, however, in New Zealand, line fishing had been conducted on anchor in some places, with good success (for example, at ‘Bream Bay’ – now Whangerei Bay – where *“We had no sooner come to an Anchor than we caught between 90 and 100 Bream”*). In New Zealand, the natives often brought fish for barter, which kept the crew well supplied. Cook mentions fish many times in New Zealand, possibly because he anchored in many Bays, and caught quite a lot of fish, but also because fish were constantly supplied by the local inhabitants. The following indicates the variety of fish supplied by the locals, but also hints that the crew of the Endeavour were not especially skilled fishermen:

“Some few we Caught ourselves with hook and line and in the Sean, but by far the greatest part we purchased of the Natives, and these of Various sorts, such as Sharks, Stingrays, Breems, Mullet, Mackerel, and several other sorts. Their way of Catching them is the same as ours, viz., with Hook and line and Seans; of the last they have some prodigious large made all of a Strong Kind of Grass. The Mackerel are in every respect the same as those we have in England, only some are larger than any I ever saw in any other Part of the World; although this is the Season for this fish, we have never been able to Catch one with hook and line.”

Here, Cook would have been referring to blue or 'slimy' mackerel, *Scomber australasicus*. It is odd that his crew could not catch them though, since this species bites readily on baited handlines.

Cook made one more interesting, but general reference to fish and shellfish of the Australian east coast at the end of his journal, in summing up this part of his epic first voyage. He wrote:

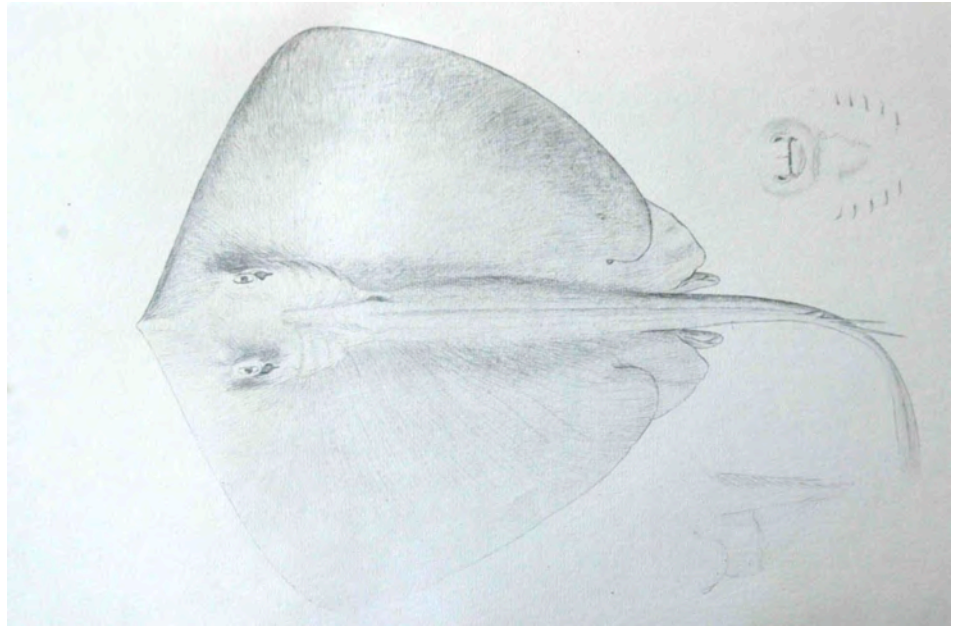
"The Sea is indifferently well stocked with fish of Various sorts, such as Sharks, Dog-fish, Rockfish, Mulletts, Breams, Cavallies [trevallies], Mack'rel, old wives, Leather Jackets, Five Fingers, Sting rays, Whip rays, etc., all excellent in their kind. The Shell fish are Oysters of 3 or 4 sorts, viz., Rock Oysters and Mangrove Oysters, which are small, Pearl Oysters and Mud Oysters; these last are the best and Largest I ever saw. Cockles and Clams of several sorts, many of those that are found upon the Reefs are of a prodigious size, Craw fish, Crabs, Muscles, and a variety of other sorts. Here are also upon the Shoals and Reefs great Numbers of the finest Green Turtle in the world, and in the River and Salt Creeks are some Aligators."

In this passage, Cook is obviously covering a lot of ground, including northern Queensland, as indicated by his references to pearl oysters, clams of prodigious size on reefs, green turtles and 'alligators'. His references to fish, however, mention the two species he wrote about in Botany Bay, leatherjackets and sting rays, and also, interestingly, old wives, which are likely to be the black and white striped fish, *Enoplosus armatus*, a species endemic to southern Australia, and therefore most likely encountered by him in New South Wales (old wives are frequently referred to by later settlers in Sydney Harbour). The fish called 'five fingers' he refers to is sometimes assumed to be a morwong (family Cheilodactylidae) but that particular name is more likely to refer to one of the threadfin salmons of the north (Polydactylidae). Because he does not refer elsewhere to the various other species of fish mentioned in his journal, it is impossible to say where they were encountered, and therefore, the likely species being referred to.

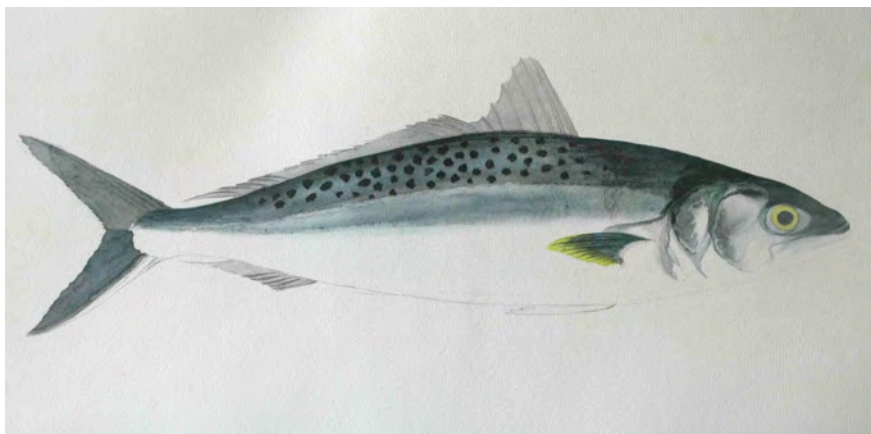
Illustrations of fish from Cook's voyage

A portfolio of 40 drawings of fish made by artists who accompanied Cook on his three Pacific voyages was published by the British Museum of Natural History in 1968 (Whitehead 1968). Only one of those drawings can be positively ascribed to a fish caught in New South Wales waters – a large ray which was one of three caught by Cook's party during their stay in Botany Bay. The illustration is by Sydney Parkinson and is an excellent pencil sketch of the purported ray which Banks stated was "larger than the rest [and] weigh'd when his gutts were taken out 239 pounds." However, the illustration is apparently of a stingaree, so there is still some mystery surrounding whether or not this is indeed an illustration of one of the first fish caught by Europeans in Botany Bay.

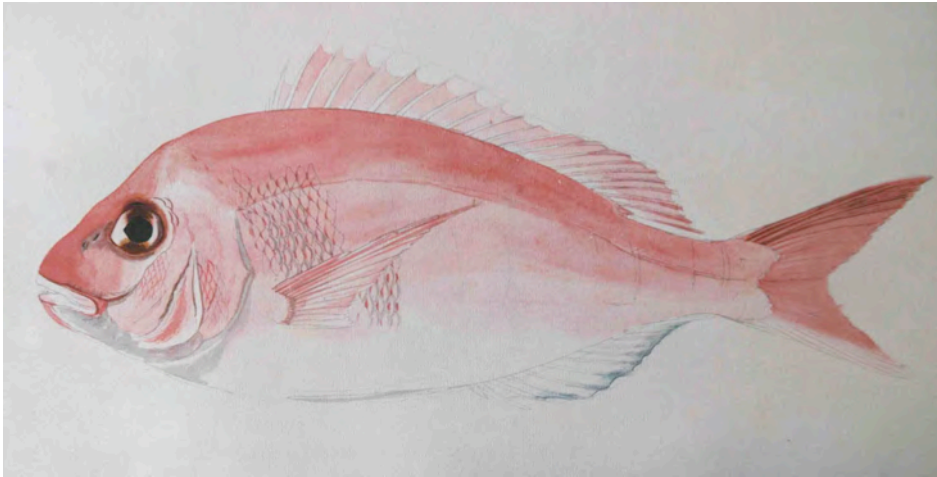
An illustration by Sydney Parkinson, artist on the Endeavour during Cook's first voyage. This is reputed to be one of the rays which Cook and his men speared in Botany Bay during their eight day stay in April/May 1770



Two of the other illustrations in this portfolio are of interest to fishes of New South Wales, those of a kahawai or Australian salmon (*Arripis trutta*) and a pink snapper (*Pagrus auratus*). These were both illustrated from specimens caught in New Zealand, but are no doubt the first European illustrations of these species. They are reproduced here to illustrate the skill of the early artists in recording flora and fauna at the time.



First illustration of an Australian salmon, or kahawai, by an artist aboard the Endeavour. Probably from a specimen caught in New Zealand



Superb illustration of a snapper, most likely from New Zealand.
Painted in the field by a ship's artist aboard the Endeavour.

The settlement of Arthur Phillip and early years of the colony 1788 – 1820

No other Europeans reached eastern Australia until, on January 20 1788, nearly eighteen years after the brief visit of Captain James Cook to the shores of Botany Bay, Captain Arthur Phillip led the First Fleet, consisting of 11 vessels, directly to the same anchorage which Cook had described.

The number of personnel arriving on the first fleet is relevant to this study since it gives an indication of how many needed to be fed during the early days of the colony, not only on rations, but on the expected fresh produce, including fish. A total of 1,418 people embarked at Portsmouth on the 11 vessels, but only 1,373 landed at Port Jackson. Records showed that 69 persons had either died, deserted or been discharged during the voyage, but that there had also been 22 births along the way. The breakdown of those who landed was as follows:

Officials and passengers: 14; Ships' crews: 306; Marines: 245; Marines' wives and children: 54; Convicts (men): 543; Convicts (women): 189; Convicts' children: 22. It is also of note that, since no complete crew musters have survived for the 6 transports and 3 storeships, it is thought that there may have been as many as 110 additional seamen. As will be seen below that supplying nearly 1,400 people with food, in particular, fresh fish, in the early months of the colony was not an easy task.

First Fleet Accounts

A valuable collection of early accounts of the establishment of the colony at Sydney Cove were published in 1789, only a year after the arrival of the First Fleet (Phillip, 1789). This impressive volume was compiled from contributions from Phillip himself and a number of officers and crew, and provide extremely useful observations relevant to the present study.

One of the authors, George Worgan, Surgeon on the first fleet, records the first fishing activities on the day they arrived in Botany Bay:

“... a Boat was sent to haul the Seine which had been very successful, having caught as much of Mullet, Bream, Sting-Rays, and other kinds of Fish as served the Sirius's Crew”.

Apart from stingrays (and leatherjackets), which were, mentioned by Cook and Banks, this appears to be the first reference to specific kinds of fish, namely mullet and bream, although it is not certain whether or not Worgan was referring to the species we now call yellowfin bream, *Acanthopagrus australis* or another ‘bream-shaped’ fish, such as tarwhine or silver biddy, for example. (It is often assumed that the bream familiar to the English would have been the freshwater bream of their homeland, *Abramis brama*, which does bear a superficial resemblance to *Acanthopagrus* species. However, a marine species, Couch’s seabream (*Pagrus pagrus*) would also have been known to the First Fleeters, and is in fact, a closely related member of the same family as the yellowfin bream, Sparidae).

Ralph Clark was a Second Lieutenant of Marines on the First Fleet ship ‘Friendship’. He kept a personal diary in which he wrote nearly daily to his wife. He makes some very early references to fishing while the fleet was still anchored in Botany Bay, viz:

20 January 1788: “Capt M went on board the Scarborough where he Staid all day - Lieut J Johnstone came on board to See me and Staid to Tea - caught a great many fish”.

It is not clear from this entry whether these fish were part of the seine net catch mentioned by Worgan, or if the men caught the fish that evening. If the latter, they may well have been using hooks and line, although this cannot be determined from this brief entry. Another of Clark’s entries, on the very next day, is perhaps the first example of the unpredictability of fishing at the time.

“Munday 21 a very fine day - Capt M and Mr. F went fishing at day light and Staid all day - Lieut J Johnstone came on board with order for me to goe on Shore with a Party of Men consisting of ten and Sergt. and brought with him four tents which I am to pitch by day light and to See the orders put in force for which See the orderly Book – caught but very little fish – it is remarkably hott what must it be on Shore if it is So here”.

On 22 January, after realising that there was insufficient fresh water for the planned colony within Botany Bay, Phillip set out with three boats to explore the harbour to the north, the entrance to which Cook had noted but not entered. Also in the party was Captain John Hunter. The three boats entered what is now Sydney Harbour, whereupon Hunter wrote:

“Here all regret arising from the former disappointments was at once obliterated; and Governor Phillip had the satisfaction to find one of the finest harbours in the world, in which a thousand sail of the line might ride in perfect security.”



Very early painting of the upper part of Port Jackson by the painter John Lycett

(On the same day, Worgan, who was still in Botany Bay, wrote:

“A very successful haul of Fish in the Seine, which the Natives seeing, they all, threw up their Arms, and set up a shout of Astonishment, looking (as we thought) at the Sun We gave them plenty of Fish, which gratified them exceedingly.”)

A member of Governor Phillip’s party which first entered Sydney Harbour, boatman Jacob Nagle, holds a special place in Australian fishing history, and I am indebted to Bob Dunn’s ‘Angling in Australia. Its history and origins’ for the following extract from Nagle’s journal, which was not published until 1830. On 23 January 1788, the day after Europeans first laid eyes on Sydney Harbour, Jacob Nagle landed the first fish by hook and line by a European on the east coast of Australia. Nagle was a volunteer on the First Fleet. He recorded the event in his diary as follows:

“The harbour was large and extensive, and the Governor [Phillip] anxious to get to the head of the harbour, but we could not, but we got as far as where the town is now, called Sidney Cove about 7 miles from the entrance of the harbour. We landed on the west side of the cove.

“A long shore was all bushes, but a small distance at the head of the cove was level, and large trees but scattering and no under wood worth mentioning, and a run of fresh water running down into the centre of the cove [the Tank Stream]. The Governor, officers, and seamen went up to see it.

... I being boat keeper, I had to remain in the boat. I hove my line over, being about 4 or 5 fathom of water along side of the rocks. I hal'd up a large black brim and hove it into the stern sheets of the boat. The Governor coming down, verry pleased with this cove and a situation for a town, he was determined to settle in this cove. Coming into the barge, he observed the fish I had ketch'd and asked who had caught that fish. I inform'd him that I had. 'Recollect', said he, 'that you are the first white man that ever caught a fish in Sidney Cove where the town is to be built.'"

The First Fleet then sailed to Sydney Harbour where Phillip raised the colours on the shores of Sydney Cove on 26 January 1788.

As well as being the first of the First Fleeters to record fishing in Botany Bay, George Worgan then appears to have written an account of fishing with a seine net inside Sydney Harbour. On 27 January, he records:

“The Boats that were sent to haul the Seine were very successful, they met with some of the Natives, who behaved very friendly, even helped them to haul the Seine on shore, for which kind Office they were liberally rewarded with a Portion of the Fish.”

Worgan continued to chalk up more firsts. On 9 February, he first recorded both male and female aborigines fishing in the harbour the traditional manner:

“8 or 10 Natives passed not far from the Ship this Morning, in 5 Canoes, when they got near the Rocks, many of the Men got out, and by the help of a Spy-Glass, I could see them very busy in striking the Fish with their Spears, and I saw them take two or three tolerably large ones in this manner; the Women, remained in the Canoes employed in fishing with a Hook & Line, the Fish, they caught, appeared but small, after having caught a good many, they went on shore a little way up in the Wood, lit a Fire, and sat down round about it.”

And again, Worgan makes an early observation regarding fish in Broken Bay. On March 9 1788 he writes:

“The Governor, and his Party returned this Afternoon from Broken Bay, it seems that it affords good Shelter for Ships, that the Entrance is bold, Plenty of Fish to be had, but for Spaciousness & Convenience it is not to be compared with Port Jackson.”

The settlement was founded and fish was intended to be an important source of fresh food for the emerging colony. Indeed, early on, George Worgan wrote in glowing praise of the fish stocks of the colony:

“The Harbours on this Coast are well stocked with a variety of Fish. And we have never set down to Dinner without a Dish of one kind or other upon ye Table since our Arrival here, very often, the Boat is so successful as to catch enough for the whole Ship's Crew, and two or three times we have been able

to supply the Officers Tables on Shore. but since the approach of the Winter, the Fish have become scarce, perhaps they go to the Northward as the cool Weather comes on, and return to the Southward with the Summer. The different kinds are, John Doreys, Turbots Soals, but these are as rare as Dolphins in the River Thames, One or two of each, however, have been taken. Mullet, Bream, Snappers, Jew Fish, Sting Rays, Mackerel are very common.-- Oysters, Cockles & Muscles are to be got for a little Trouble. One very small Lobster has been caught, and wonderful to tell, it was red.--Enormously large Sharks are very numerous in the Harbours, and are very destructive to the other Fish, as well as they are to our Lines & Hooks. We have taken a great many of them, and have found in the Female between 30 & 40 young ones."
[The number of young would strongly suggest that this was a tiger shark]

Even though Worgan waxes lyrical in this passage about the bounteous supply of fish, he also hints that, with the onset of the first winter, fish were becoming scarce.

The apparent first mention of a possibly poor supply of fish was noted in the following account in Phillip (1789), sometime before 7 February 1788:

"... but soon after landing, a dysentery prevailed, which in several instances proved fatal, and the scurvy began to rage with a virulence which kept the hospital tents generally supplied with patients. For those afflicted with this disorder, the advantage of fish or other fresh provisions could but rarely be procured;"

This may reflect the fact that the first colonists were not very proficient at fishing, but it was certainly a recurring theme in the early days of the colony. For example on 28 April, an entry in Phillip (1789) reads:

"Fish affords, in this place, only an uncertain resource: on some days great quantities are caught, though not sufficient to save any material part of the provisions; but at times it is very scarce."

It seems highly significant that fish were never caught in large enough quantities to preserve. Salting would have been well known, yet, catches of fish seem always to have been distributed and eaten immediately.

As already alluded to, during the first winter of the colony, fish were noted to be scarce, both for the colonists and the aborigines. A convict who had escaped on 5 June 1788 returned on 24 June and ...

"was of opinion that the natives were at this time in great distress for food, and said, that he had seen four of them dying in the woods, who made signs for something to eat, as if they were perishing through hunger. It is certain that very little fish could be caught at this time, ..."

It is possible that the natives referred to were the victims of smallpox, which decimated the local inhabitants within a relatively short time of European arrival (Attenbrow 2002). Nevertheless, the passage reinforces the apparently real problem of lack of fish during the colder months, mentioned by a number of writers at the time. The following passage, as usual, from Phillip (1789) illustrates this problem in more detail:

“On the ninth of July, an effort was made by a party of natives, which seems to indicate that they were still distressed for provisions, or that they very highly resent the incroachments made upon their fishing places. A general order had been issued to those sent out on fishing parties, to give a part of what was caught to the natives if they approached, however small the quantity taken might be; and by these means they had always been sent away apparently satisfied. But on this day, about twenty of them, armed with spears, came down to the spot where our men were fishing, and without any previous attempt to obtain their purpose by fair means, violently seized the greatest part of the fish which was in the seine. While this detachment performed this act of depredation, a much greater number stood at a small distance with their spears poised, ready to have thrown them if any resistance had been made. But the cockswain who commanded the fishing party, very prudently suffered them to take away what they chose, and they parted on good terms. This is the only instance in which these people have attempted any unprovoked act of violence, and to this they probably were driven by necessity. Since this transaction, an officer has always been sent down the harbour with the boat.”

And another entry from Phillip (1789):

“The winter months, in which fish is very scarce upon the coast, are June, July, August, and part of September.”

Phillip himself, in a letter to Under Secretary Nepean, July 9, 1788, wrote:

“The provisions sent to support this colony for two years being put on board three ships, was running a very great risk, for had they separated and afterwards been lost the consequence is obvious, for this country at present does not furnish the smallest resource except in fish, and which has lately been so scarce that the natives find great difficulty in supporting themselves.”

Thompson (1974) was a CSIRO fisheries scientist who considered that the colonists perception that fish became scarce in winter (for the first 20 years of the colony, in fact) was due to their northern hemisphere origins and experience, rather than to an actual shortage of fish. He writes:

“Later experience was to show that even in winter fish could be taken but in 1788 no local fish-lore existed. Although the settlers thought they detected resemblances to British fish and gave them British names their habits were different from the fish they had know at home.”

Even so, in this author’s opinion, it is difficult to completely explain winter shortages of fish in this way, especially in view of the same experience of the native inhabitants. It will be seen that other early writers reinforced the perception of winter shortages.

David Collins

One of the First Fleeters who wrote in detail about the early days and years of the colony was Lieutenant-Colonel David Collins, who was appointed Judge Advocate and first Secretary of the colony. His account is presented in two volumes, one published in 1789 and a second which spans the period from first settlement to August 1801.

Collins was one who noted the unpredictable supply of fish, which it had been assumed would be a mainstay of food for the emerging colony. In August 1788 he wrote:

“It had been imagined in England, that some, if not considerable savings of provisions might be made, by the quantities of fish that it was supposed would be taken; but nothing like an equivalent for the ration that was issued to the colony for a single day had ever been brought up.”

In the same month, he also noted that two French ships, which had arrived off Botany Bay the day after the First Fleet entered, had had one particularly good haul of large fish.

“We were informed, that the French ships, while in Botany Bay, had met with one very successful haul of large fish, that more than amply supplied both ships companies; but our people were not so fortunate. Fish enough was sometimes taken to supply about two hundred persons; but the quantity very rarely exceeded this. Three sting-rays were taken this month, two of which weighed each about three hundred weight, and were distributed amongst the people.”

Speculating on what these fish might have been from this one account, is of course, foolhardy, but when the author first read the passage, it was thought that they were most likely salmon, or possibly even yellowtail kingfish. However, another account of the same incident reveals that the fish were ‘light horsemen’, or in other words, snapper. If a large catch of snapper were caught in a seine net, which the word ‘haul’ does imply, then this is an interesting occurrence indicating that stocks of snapper must have been extensive.

In September 1788, an example of the ‘hit or miss’ nature of the fishing in and around Sydney was indicated by Collins:

“In England some dependence had been placed on fish as a resource for the settlement, but sufficient for a general distribution had not hitherto been caught at any one time. On the 4th of this month the people belonging to the ‘Supply’ had a very large haul; their seine was so full, that had they hauled it ashore it must have burst; the ropes of it were therefore made fast on shore, and the seine was suffered to lie until left dry by the tide. The fish were brought up to the settlement, and distributed among the military and convicts. A night or two after this, a fishing-boat caught about one hundred dozen of small fish; but this was precarious, and, happening after the provisions were served, no other advantage could be derived from the circumstance, than that of every man’s having a fish-meal.”

Again, it is odd that fish were not salted or smoked, although perhaps this passage simply means that even though good catches were made from time to time, there was never a surplus which could be preserved. (The population was large (of the order of 1,400 persons) and supplying each one with fresh fish was apparently a rare event (although it is not clear if the many convicts also received rations of fish).

In November 1788, Collins again writes about a good haul of fish which, in this case, actually burst the seine net. Even so, he suggests that this large haul would only have provided one day's food:

"The summer was observed to be the chief season of fish. A fishing-boat belonging to the colony had so many fish in the seine, that had it not burst at the moment of landing, it was imagined that a sufficiency would have been taken to have served the settlement for a day; as it was, a very considerable quantity was brought in; and not long after a boat belonging to the 'Sirius' caught forty-seven of the large fish which obtained among us the appellation of Light Horse Men, from the peculiar conformation of the bone of the head, which gave the fish the appearance of having on a light-horse man's helmet."

This appears to be another definite early reference to snapper being caught in numbers. The term 'light horse men' for snapper continued to be used for some time. With the exception of the bream caught with a handline by Nagle (above) all of the references to fish catches to this point, by Collins and by others, indicate that seine nets were used, that is, 'beach haul' nets paid out behind a rowboat and dragged to the shore by ropes at each end. If this is the case in this instance of catching 47 'large' snapper, it would indicate a healthy population of this species. Unfortunately, the location of this catch is not given, and nor can we be certain of the method used. The size of the fish is also unfortunately not stated, but the fact that they had the characteristic occipital bump of older snapper would indicate that they would have been at least several kilograms each in weight.

Collins next mentions a good catch of fish in January 1789, which appears to have resulted in a new plan for more intensive fishing to feed the colony. The plan appears to have been successful, at least for that month:

"A sufficient quantity of fish having been taken one night in this month, to admit the serving of two pounds to each man, woman, and child belonging to the detachment, the governor directed, that a boat should in future be employed three times in the week to fish for the public; and that the whole quantity caught should be issued at the above rate to every person in turn. This allowance was in addition to the ration of provisions; and was received with much satisfaction several times during the month."

Further indicating the importance of fresh fish to the needs of the colony, Governor Phillip had organized for additional net fishing to be conducted regularly in Botany Bay. However, this was not successful, as Collins records in April 1789:

"In pursuance of these resolutions, the few convicts who had been employed to shoot for individuals were given up for the public benefit; and a fishery was established at Botany Bay, under the inspection of one of the midshipmen of the 'Sirius'. But this plan, not being found to answer, was soon relinquished. The quantity of fish that was from time to time taken was very inconsiderable, and the labour of transporting it by land from thence was greater than the advantage which was expected to be derived from it. The boats were therefore recalled, and employed with rather more success at Sydney."

Collins then records the first instance of what would today be called 'fisheries observers' becoming necessary to ensure that the catches reached their intended destinations:

"It was well known, that the integrity of the people employed in fishing could not be depended upon; the officers of the settlement therefore voluntarily took upon themselves the unpleasant task of superintending them; and it became a general duty, which every one cheerfully performed. The fishing-boat never went out without an officer, either by night or by day."

Fishing appears to have been pursued with considerable diligence, but catches were often disappointing, only supplying enough fish to feed the fishers themselves. Private boats which had been commandeered by the Government for fishing were therefore returned to their owners. Collins writes:

"On the 7th [of April], about four hundred weight [about 200 kg] of fish being brought up, it was issued agreeable to the order; and could the like quantity have been brought in daily, some saving might have been made at the store, which would have repaid the labour that was employed to obtain it. But the quantity taken during this month, after the 7th, was not often much more than equal to supplying the people employed in the boats with one pound of fish per man, which was allowed them in addition to their ration. The small boats, the property of individuals, were therefore returned to their owners, and the people who had been employed in them, together with the seamen of the 'Sirius' now here, were placed in the large boats belonging to the settlement."

By May 1789, the supply of food in the colony was becoming a major problem. Shooting game had not proved to be very rewarding and as the weather became cooler, fishing success also appears to have declined. In Collins' words:

"The expedient of shooting for the public not being found to answer the expectations which had been formed of it, sixty pounds of pork only having been saved, the game-killers were called in, and the general exertion was directed to the business of fishing. The seine and the hooks and lines were employed, and with various success; the best of which afforded but a very trifling relief."

Apart from the indication of a poor fish supply, this passage is the first of any writer which mentions fishing with hook and line in order to supply food for the colony. We do know that there were plenty of hooks and lines brought out with supplies, but their use is only rarely mentioned.

Again, indicating some desperation for lack of fish, Collins writes later in May 1789:

"Our fishing tackle began now, with our other necessaries, to decrease. To remedy this inconvenience, we were driven by necessity to avail ourselves of some knowledge which we had gained from the natives; and one of the convicts (a rope-maker) was employed to spin lines from the bark of a tree which they used for the same purpose."

The next passage gives some indication of the quantities of fish which might have been required to feed the colony....

“The greatest quantity of fish caught at any one time in this month was two hundred pounds. Once the seine was full; but through either the wilfulness or the ignorance of the people employed to land it, the greatest part of its contents escaped. Upwards of two thousand pounds were taken in the course of the month, which produced a saving of five hundred pounds of pork at the store, the allowance of thirty-one men for four weeks.”

The last entry by Collins which is of interest here records a very good haul of fish and, importantly, clearly identifies the species, viz, Australian salmon (*Arripis trutta*). In September 1789 he writes:

“The day preceding the governor's visit, the fishing boats had the greatest success which had yet been met with; near four thousand of a fish, named by us, from its shape only, the salmon, being taken at two hauls of the seine. Each fish weighed on an average about five pounds; they were issued to this settlement, and to that at Rose Hill; and thirty or forty were sent as a conciliating present to Bennillong and his party on the north shore.”

This catch equates to about 8 tonnes, which is substantial. Hauling of Australian salmon schools continued for many years, and in fact, still occurs today.

John White

John White was Surgeon-General to the First Fleet and during the first years of the settlement at Port Jackson. His reports are valuable, and add to those outlined above, by Collins, and by the contributors to Phillip's volume. His work was published in 1790.

It is not surprising that, since White was a member of the First Fleet, he recounts some of the earliest observations of fishing success in Botany Bay. On 20 January, he briefly mentioned the first seine netting within the Bay, but also mentions some of the types of fish caught:

“The fish they caught were bream, mullet, large rays, besides many other smaller species.”

This account is virtually identical with that of Worgan, a more junior surgeon with the First Fleet, quoted earlier.

White describes a very early interaction with aborigines involving fishing which occurred on 27 January 1788.

“The boats sent this day to fish were successful. Some of the natives came into the little bay or cove where the seine was hauled, and behaved very friendly. Indeed they carried their civility so far, although a people that appeared to be averse to work, as to assist in dragging it ashore. For this kind office they were liberally rewarded with fish, which seemed to please them and give general satisfaction.”

Like the other writers above, White also refers to a scarcity of fish during winter, but makes the additional comment that more fishing effort would therefore be needed to supply adequate fish for the colony. On 24 June he writes:

"...The scarcity of boats will prevent our being so well supplied with fish as otherwise might be expected. Fish is far from abounding at the cold season of the year, but, in the summer, judging from the latter end of the last, we have every reason to conclude that the little bays and coves in the harbour are well stored with them."

In the same passage, White mentions the odd observation that many of the fish resemble sharks, viz:

"The fish caught here are, in general, excellent, but several of them, like the animals in some degree resembling the Kangaroo, partake of the properties of the shark."

Why White would make this comment is uncertain, although it is likely that he would be referring to shovel nosed rays since a later writer, Barrington, makes an almost identical entry in his diary. (It is likely that some plagiarism occurred here, but it is not clear in which direction). Barrington's version of this odd observation is as follows:

"This strange similarity does not attach solely to quadrupeds, for the finny inhabitants of the sea are in the same predicament, their variety is truly astonishing; most of them partake in some degree of the shark, and it is no uncommon thing to see the head and shoulders of a skait to the hind part of a shark, or a shark's head to the body of a large mullet, and what is more astonishing, sometimes to the flat body of a sting ray, or holibet."

From this more detailed passage, it seems to be referring to shovel nosed sharks (head and shoulders of a skait (skate) to the hind part of a shark), possibly cobia (a shark's head to the body of a large mullet) and an angel shark (a shark's head to the flat body of a sting ray, or holibet (halibut)).

The difficulties of obtaining sufficient fish in winter, and of the aborigines apparently being very hungry, are again referred to by White, on 8 July:

"A party of the natives came to the place where the Sirius's boat had been to haul the seine, and, having beaten the crew, took from them by force a part of the fish which they had caught. It is a great misfortune to us that we cannot find proper wood in this place wherewith to build a boat, particularly as fish is not only so very plentiful in the summer but the only change from salt provisions which we can procure, there being neither wild nor domestic animals fit for food."

White illustrated a number of fish from the colony. In his account of the voyage to Botany Bay, published in 1790, he chose some rather unusual fishes to depict. These are discussed later in this report.

John Hunter

John Hunter was one of the First Fleet Captains and wrote an interesting account of the first few years of the colony, published in 1793. He was one of many to also note the hunger of local inhabitants during the first winter. He also mentions the same problem of fish being scarce at the time, resulting in a problem in terms of feeding the sick.

“All the human race, which we have seen here, appear to live chiefly on what the sea affords ... They frequently attended our boats when hauling the seine, and were very thankful to the officer for any fish he might give them, as in cold weather the harbour is but thinly stocked; indeed, when we arrived here it was full of fish, and we caught as many as we could use, but in the winter they seem to quit our neighbourhood.

... In the month of July (1788), our scorbutic patients seemed to be rather worse; the want of a little fresh food for the sick was very much felt, and fish at this time were very scarce: such of the natives as we met seemed to be in a miserable and starving condition from that scarcity.

“This season, in which fish is so scarce, subjects these poor creatures [aborigines] to great distress, at least we were apt to believe so; they were frequently found gathering a kind of root in the woods, which they broiled on the fire, then beat it between two stones until it was quite soft; this they chew until they have extracted all the nutritive part, and afterwards throw it away.”

Hunter also gave one of the best early accounts of aboriginal fishing tools and techniques. It is so detailed that it is worth quoting at length here since it paints an excellent picture of how the local inhabitants fished right at the time of European arrival:

“The men fish with a spear, or fish-gig, in the use of which, it is apparent they are very dextrous. The fish-gig is in length something more than the war lance, but they can, according to the depth of water, increase its length, by a variety of joints; some have one, some two, three, or four prongs, pointed and barbed with a fish, or other animal's bone. We have sometimes, in fine weather, seen a man lying across a canoe, with his face in the water, and his fish-gig immersed, ready for darting: in this manner he lies motionless, and by his face being a little under the surface, he can see the fish distinctly; but were his eyes above, the tremulous motion of the surface, occasioned by every light air of wind, would prevent his sight: in this manner they strike at the fish with so much certainty, that they seldom miss their aim.” [This was the method which Banks had observed on the first day that the Endeavour entered Botany Bay].

“The women are chiefly employed in the canoes, with lines and hooks; the lines appear to be manufactured from the bark of various trees which we found here, of a tough stringy nature, and which, after being beaten between two stones for some time, becomes very much like, and of the same colour as a quantity of oakum, made from old rope: this they spin and twist into two strands: in fact, I never saw a line with more than two. Their hooks are commonly made from the inside, or mother of pearl, of different shells; the talons of birds, such as those of hawks, they sometimes make this use of; but the former are considered as best.”



“In this necessary employment of fishing, we frequently saw a woman with two or three children in a miserable boat, the highest part of which was not six inches above the surface of the water, washing almost in the edge of a surf, which would frighten an old seaman to come near, in a good and manageable vessel. The youngest child, if very small, lies across the mother's lap, from whence, although she is fully employed in fishing, it cannot fall; for the boat being very shallow, she sits in the bottom, with her knees up to her breast, and between her knees and body, the child lies perfectly secure. The men also dive for shell-fish, which they take off from the rocks under water; we frequently saw them leap from a rock into the surf or broken water, and remain a surprizing time under: when they rise to the surface, whatever they have gathered they throw on shore, where a person attends to receive it, and has a fire ready kindled for cooking.”

Watkin Tench

One of the most prolific early recorders of life in the colony of Sydney in its first years was Watkin Tench, Captain of the Marines. In early July 1788, less than six months after settlement, he published ‘A narrative of the expedition to Botany Bay’. This was well received, and after residing in the colony for four years, produced a second work in 1792.

His first entry which mentioned fish or fishing regarded the aborigines' dependence on seafood, and also the difficulty in procuring it (presumably for both the aborigines and the settlers). This passage refers to aborigines stealing fish from seiners, as did other writers, but as usual, each writer has his own slant and interesting nuances which convey some novel information:

“Fishing, indeed, seems to engross nearly the whole of their time, probably from its forming the chief part of a subsistence, which, observation has convinced us, nothing short of the most painful labour, and unwearied assiduity, can procure. When fish are scarce, which frequently happens, they often watch the moment of our hauling the seine, and have more than once been known to plunder its contents, in spite of the opposition of those on the spot to guard it: and this even after having received a part of what had been caught.”

Tench mentions that by May of the first year, 1788, the Supply headed to Norfolk Island to collect turtles and bring them back for food (presumably this was a way of having fresh food for a while at least, since turtles would stay alive). However, the vessel returned without having seen a single turtle, which was cause for some concern, especially since fish, as mentioned many times in other accounts, had become scarce. Tench notes:

“The unsuccessful return of the 'Supply' cast a general damp on our spirits, for by this time fresh provisions were become scarcer than in a blockaded town. The little live stock, which with so heavy an expense, and through so many difficulties, we had brought on shore, prudence forbade us to use; and fish, which on our arrival, and for a short time after had been tolerable plenty, were become so scarce, as to be rarely seen at the tables of the first among us. Had it not been for a stray kangaroo, which fortune now and then threw in our way, we should have been utter strangers to the taste of fresh food.”

He emphasises this apparent lack of fish in winter in the next passage:

“Fish, which our sanguine hopes led us to expect in great quantities, do not abound. In summer they are tolerably plentiful, but for some months past very few have been taken. Botany Bay in this respect exceeds Port Jackson.”

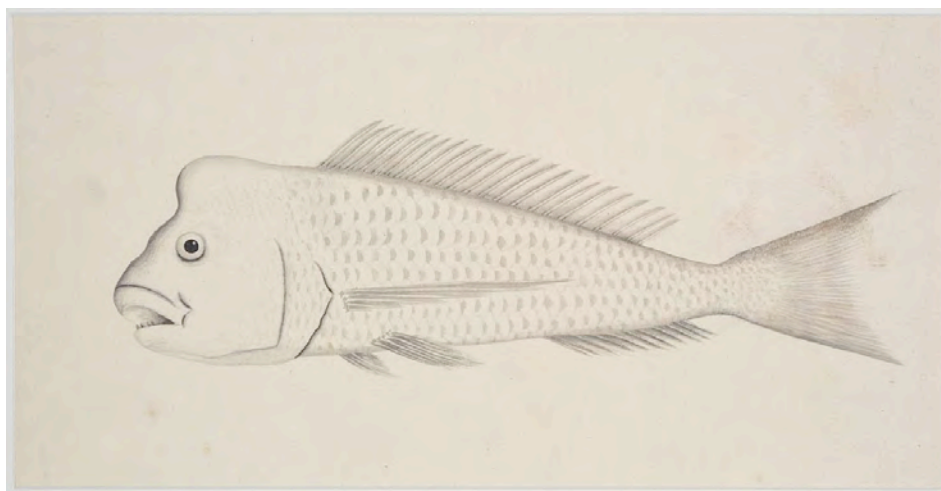
Meaning that fish were even more scarce in Botany Bay than in Port Jackson.

The next passage of Tench is very useful since it mentions various types of fish; one of the few early accounts to do so. The following recounts other reporting's of the French vessels catching a large haul of snapper:

“The French once caught near two thousand fish in one day, of a species of grouper, to which, from the form of a bone in the head resembling a helmet, we have given the name of light horseman. To this may be added bass, mullets, skait, soles, leather-jackets, and many other species, all so good in their kind, as to double our regret at their not being more numerous. Sharks of an enormous size are found here. One of these was caught by the people on board the Sirius, which measured at the shoulders six feet and a half in circumference. His liver yielded twenty-four gallons of oil; and in his stomach was found the head of a shark, which had been thrown overboard from the same ship. The Indians, probably from having felt the effects of their voracious fury, testify the utmost horror on seeing these terrible fish.”

Tench also discusses various types of fish in his later account of Port Jackson. In this passage, he waxes lyrical about the qualities of the snapper:

“I shall not pretend to enumerate the variety of fish which are found. They are seen from a whale to a gudgeon. In the intermediate classes may be reckoned sharks of a monstrous size, skait, rock-cod, grey-mullet, bream, horse-mackarel, now and then a sole and john dory, and innumerable others unknown in Europe, many of which are extremely delicious, and many highly beautiful. At the top of the list, as an article of food, stands a fish, which we named light-horseman. The relish of this excellent fish was increased by our natives, who pointed out to us its delicacies. No epicure in England could pick a head with more glee and dexterity than they do that of a light-horseman.”



Perhaps the first illustration of a snapper from NSW. Drawn by First Fleet artist, George Raper.

Tench's account of his time in Port Jackson yields some further observations on abundance of fish (or lack thereof). He discusses the period in April 1790, referred to by White, when all boats were commandeered for fishing, with officers volunteering to oversee their activities.

"The governor being resolved to employ all the boats, public and private, in procuring fish--which was intended to be served in lieu of salt meat--all the officers, civil and military, including the clergyman, and the surgeons of the hospital, made the voluntary offer, in addition to their other duties, to go alternately every night in these boats, in order to see that every exertion was made, and that all the fish which might be caught was deposited with the commissary. And as it was judged that the inevitable fatigues of shooting and fishing could not be supported on the common ration, a small additional quantity of flour and pork was appropriated to the use of the game-keepers; and each fisherman, who had been out during the preceding night had, on his return in the morning, a pound of uncleaned fish allowed for his breakfast."

It is unclear from this account whether the fishing was entirely by seine net, or included line fishing. In a later passage, however, Tench clearly states that he himself worked hard at hauling seine nets from 4pm until 8am the next morning. It is unlikely that all boats had nets though, so it also seems likely that line fishing had become an important method by this third Autumn.

Although not pertinent to fishing as such, one interesting account of Tench indicates an incident of a whale inside Sydney Harbour – something which has happened in quite recent times. However, this first encounter resulted in a tragic outcome. (It would be a reasonable surmise that the species of whale was a southern right whale since this is the species which stays very close to the coast and which has been known to enter both Botany Bay and Sydney Harbour on many occasions, the most recent events occurring in August 1999, July 2002, July 2003 and August 2004,). July was also the month when Tench wrote:

"July, 1790. This month was marked by nothing worth communication, except a melancholy accident which befell a young gentleman of amiable character (one of the midshipmen lately belonging to the 'Sirius') and two marines. He was in a small boat, with three marines, in the harbour, when a whale was seen near them. Sensible of their danger, they used every effort to avoid the cause of it, by rowing in a contrary direction from that which the fish seemed to take, but the monster suddenly arose close to them, and nearly filled the boat with water. By exerting themselves, they baled her out, and again steered from it. For some time it was not seen, and they conceived themselves safe, when, rising immediately under the boat, it lifted her to the height of many yards on its back, whence slipping off, she dropped as from a precipice, and immediately filled and sunk. The midshipman and one of the marines were sucked into the vortex which the whale had made, and disappeared at once. The two other marines swam for the nearest shore, but one only reached it, to recount the fate of his companions."

This was the first, and quite probably the last record of a whale causing fatalities in Sydney Harbour.

Tench's last entry of particular relevance to this study is the following oft-quoted passage about fish abundance in Sydney Harbour in these earliest days of European settlement. The passage, written as part of a summary of his account of Port Jackson, reads:

“So much has been said of the abundance in which fish are found in the harbours of New South Wales that it looks like detraction to oppose a contradiction. Some share of knowledge may, however, be supposed to belong to experience. Many a night have I toiled (in the times of distress) on the public service, from four o'clock in the afternoon until eight o'clock next morning, hauling the seine in every part of the harbour of Port Jackson: and after a circuit of many miles and between twenty and thirty hauls, seldom more than a hundred pounds of fish were taken. However, it sometimes happens that a glut enters the harbour, and for a few days they sufficiently abound. But the universal voice of all professed fishermen is that they never fished in a country where success was so precarious and uncertain.”

Again, the unpredictability of catches of fish in the very first years of the colony is clear.

Joseph Fowles

Joseph Fowles published an account of Sydney in 1848, and in doing so, recounted the near ruination of the colony after only two years. Some of these details have been noted in other accounts (especially Tench's) but the following passages contain some further relevant detail regarding fishing gear:

“The year 1790 was one of the most disastrous in the annals of the Colony. Early in the year the flour that had been brought from England was exhausted, and there only remained that which had been taken in at the Cape: the harvest, too, had not produced more than would be required for seed, the whole production of the cultivated land at Rose Hill being two hundred bushels of wheat, thirty-five of barley, and a small quantity of oats and maize. The Governor's farm at Sydney, which had only been sown with barley, yielded only twenty-five bushels.”

Interestingly, he makes no mention of fish. The Sirius and Supply were sent to Norfolk Island but the Sirius was wrecked there. The Supply returned with this distressing news. By this time, Fowles wrote:

“As the provisions in store were now reduced to so low a pitch, it was again determined to reduce the already scanty pittance, and from the first of April the weekly ration of each adult was only two and a half pounds of flour, two pounds of pork, and one each of rice and peas; and after having been kept for two years, it can easily be imagined of how inferior a description these were.”

The Supply then sailed for Batavia (on April 17) to obtain much needed supplies. In many minds, the last hope for the colony. The Supply was meant to be gone for 6 months. In the meantime, Fowles wrote:

“Two years had now elapsed without any communication from home; the clothing was as much reduced as their provisions, and many died from starvation; some little relief was obtained by fishing, but their lines and nets were also worn out, and the Colony did not even possess the materials requisite to mend them. A convict, however, managed to spin some lines from the bark of a tree, which temporarily supplied their boats.”

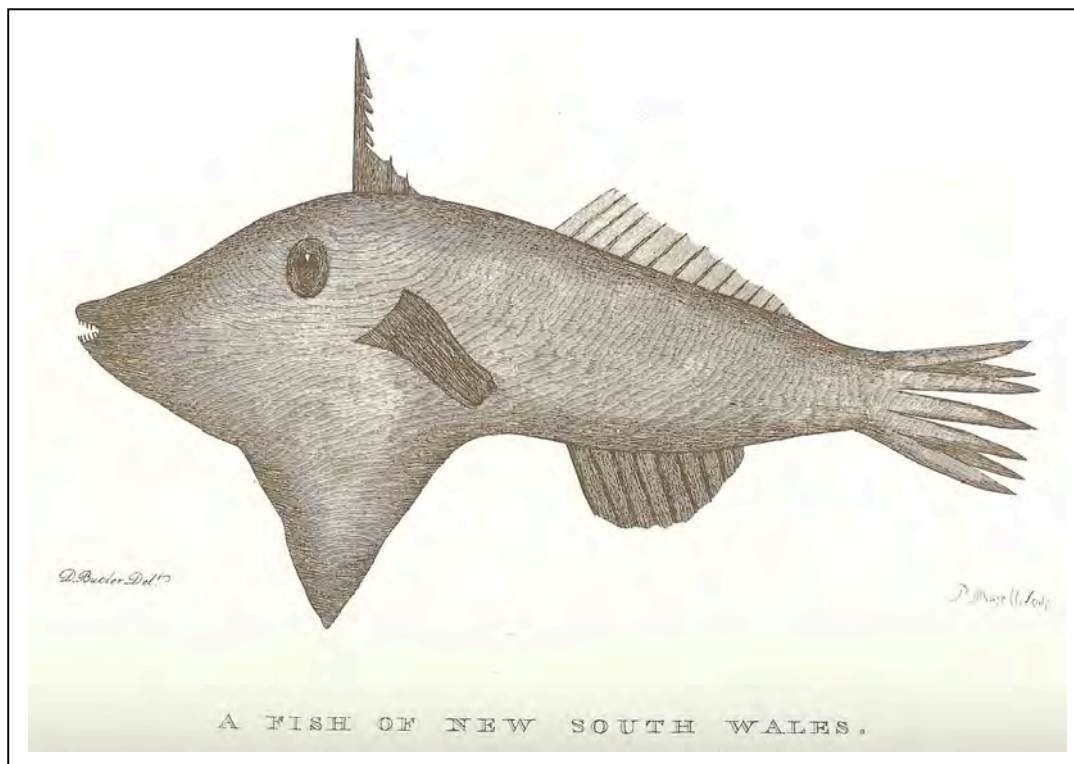
Earliest Illustrations of Various Fish Species

The following section reproduces what are thought to be some of the earliest illustrations of fish from New South Wales, as depicted at the time by a range of artists. Species chosen for illustration were very often not particularly important food-fishes (although some were) but seem to have been chosen either at random, or because of their attractiveness or strangeness to the European eye. These images are important since they depict fish that we know today, through the eyes of ‘strangers in a strange land’ more than 200 years ago.

Fish from Phillip’s Voyage to Botany Bay, 1789):

There are only four fish depicted in the 1789 publication of Phillip’s Voyage. Together with descriptions, they form part of Chapter XXII of that volume: “Supplemental Account of Animals. This chapter simply outlines various birds, mammals and the four fishes, without any preliminaries, so it is not known exactly where or when the depicted specimens were found. However, because these are the first eastern Australian fish to be illustrated in a European publication, it is thought appropriate to include them, together with full descriptions from the publication, for completeness of this report.

“Bag-throated Ballistes”

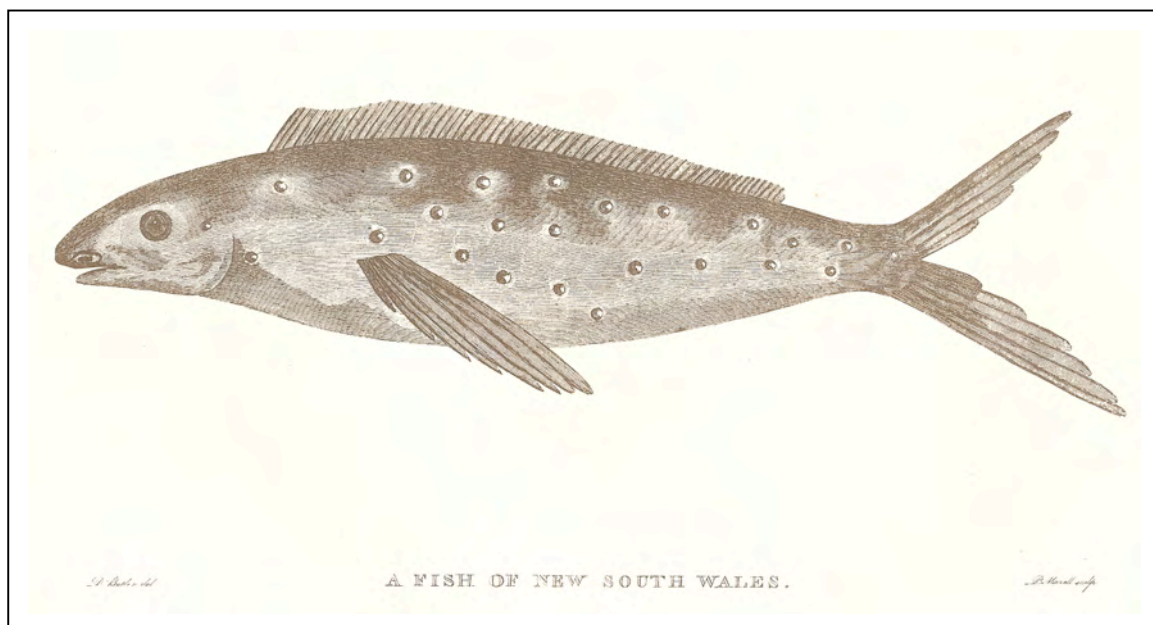


This rather poor illustration is undoubtedly a leatherjacket, most probably the common fan-bellied leatherjacket, *Monocanthus chinensis*. Even though the drawing is naive, the description and the characteristic skin flap under its belly are enough to identify it. It grows to about 40cm in length and is still relatively common in the Sydney region.

“The size of the fish figured in the plate is uncertain, as we have only obtained a drawing of it without any description.--It agrees in many things with others of the genus, and does not greatly differ from one figured in Willughby's Ichthyologia, Tab. 1. 22. but has the body longer in proportion. The erect horn or spine is placed over, and a little behind the eyes, as in Willughby's figure, attended with two shorter ones directly behind the first: the long spine is quite straight, sharp at the point, and deeply sawed on the back part. Another singularity presents itself in this species, which is, a deep pouch-like appendage beneath the throat, in shape not unlike what is called Hippocrates's sleeve, or rather a jelly bag. This fish is found pretty commonly on the coast of New South Wales, and was called by the sailors the Old Wife, having much resemblance in many things to the species so named. When skinned, it was thought pretty good eating.”

It is interesting that, according to this account, this fish was being referred to as the ‘Old Wife’ very early in the development of the colony. The ‘true’ Old Wife, *Enoplosus armatus*, was depicted quite accurately by early artists and also appears to be the ‘Old Wife’ being referred to in many accounts after Phillip’s publication. This is worth pursuing since the ‘old wife’ was soon to be regarded as a food fish of some importance.

“A Fish of New South Wales”

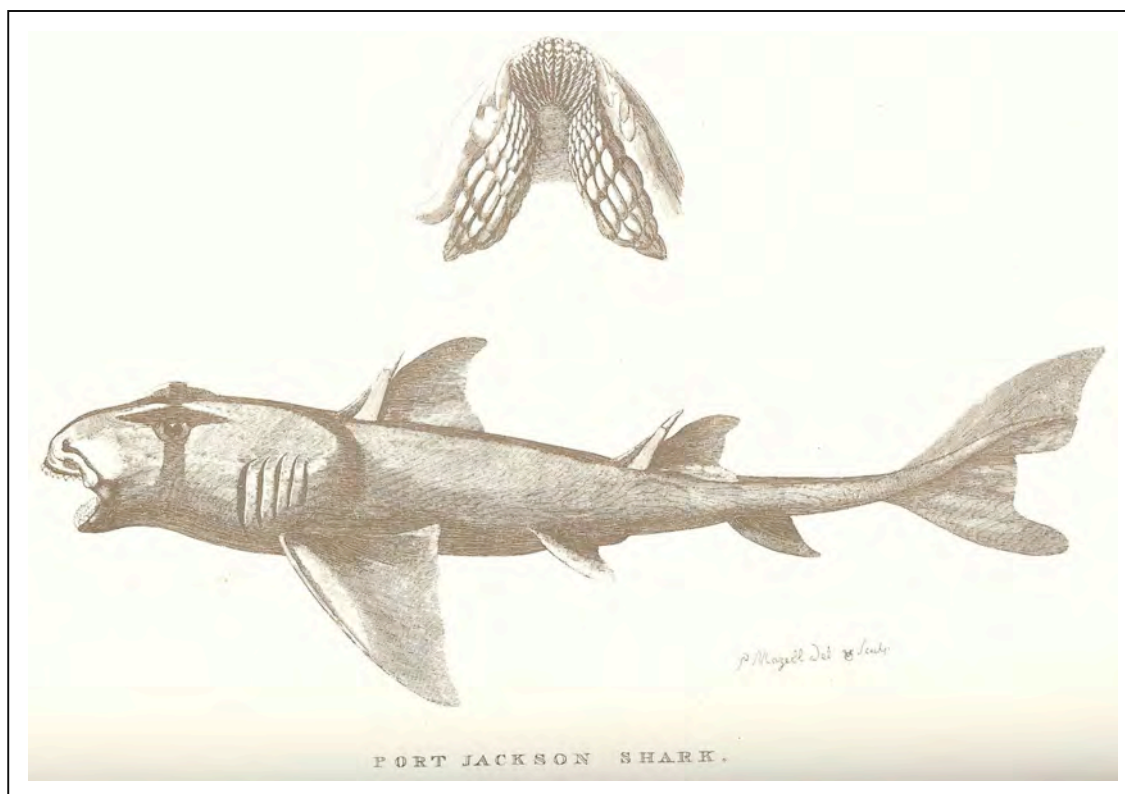


This fish is somewhat of a mystery and has been referred to by some contemporary biologists as possibly being a blue warehou (also known as the snot-galled or snot-nosed trevalla) *Seriola brama*, presumably because of the shape of its head and snout and its forked tail.

However, as the description below mentions, the fish tasted 'much like a dolphin' that is, a dolphin fish, and more importantly, it was marked with several round, blue and white spots. The extent of the forked tail, the numbers of spots and the continuous single dorsal fin shown in the illustration would strongly suggest that it is indeed a dolphin fish, *Coryphaena hippurus*. The description reads as follows:

"Of this fish it can only be said, that the ground colour is much the same as that of our mackarel, marked with several round, blue and white spots; and that, in the plate, it is represented faithfully from a drawing by Daniel Butler sent from New South Wales, where it is in great plenty, and is thought to taste much like a dolphin. As to the genus, it is difficult to say with certainty to which it belongs, as it is deficient in the characteristics of those generally known; it is therefore left to the reader to settle this matter according to his own opinion."

"Port Jackson Shark"



The illustrations of the two sharks depicted in the Phillip volume were far more accurate than the other two fish species, having been drawn by a different artist. This is undoubtedly a true Port Jackson shark, *Heterodontus portjacksoni*, and it is interesting to note that its common name had been bestowed in the first year of the colony. The description, which notes that it was taken in Port Jackson, reads:

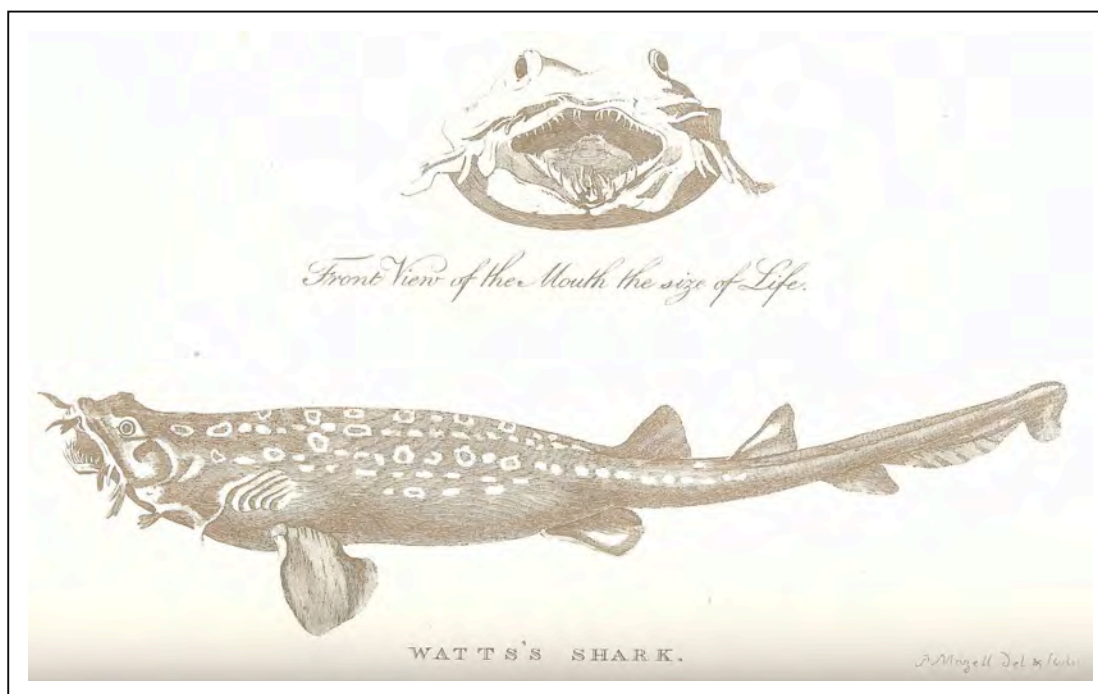
"The length of the specimen from which the drawing was taken, is two feet; and it is about five inches and an half over at the broadest part, from thence tapering to the tail: the skin is rough, and the colour, in general, brown, palest on the under parts: over the eyes on each side is a prominence, or long ridge, of about three inches;

under the middle of which the eyes are placed: the teeth are very numerous, there being at least ten or eleven rows; the forward teeth are small and sharp, but as they are placed more backward, they become more blunt and larger, and several rows are quite flat at top, forming a kind of bony palate, somewhat like that of the Wolf-fish; differing, however, in shape, being more inclined to square than round, which they are in that fish: the under jaw is furnished much in the same manner as the upper: the breathing holes are five in number, as is usual in the genus: on the back are two fins, and before each stands a strong spine, much as in the Prickly Hound, or Dog, fish: it has also two pectoral, and two ventral fins; but besides these, there is likewise an anal fin, placed at a middle distance between the last and the tail: the tail itself, is as it were divided, the upper part much longer than the under.

At first sight, the above might be taken for the Prickly Hound-fish, or *Squalus Spinax* of Linnoeus, of which a good figure may be seen in Willughby's *Ichthyol. Tab. B. 5. f. 1*, but it differs, first, in having the prominent ridge over the eyes, of a great length; secondly, in the formation of the teeth; thirdly, in having an anal fin, of which the Prickly Hound is destitute; all these circumstances concur to prove it a new species.

This was taken at Port Jackson, but to what size it may usually arrive cannot be determined; perhaps not to a great one, as the teeth appear very complete. Some sharks, however, of an enormous size have been seen and caught thereabouts, though of what sort cannot here be determined."

"Watt's Shark"



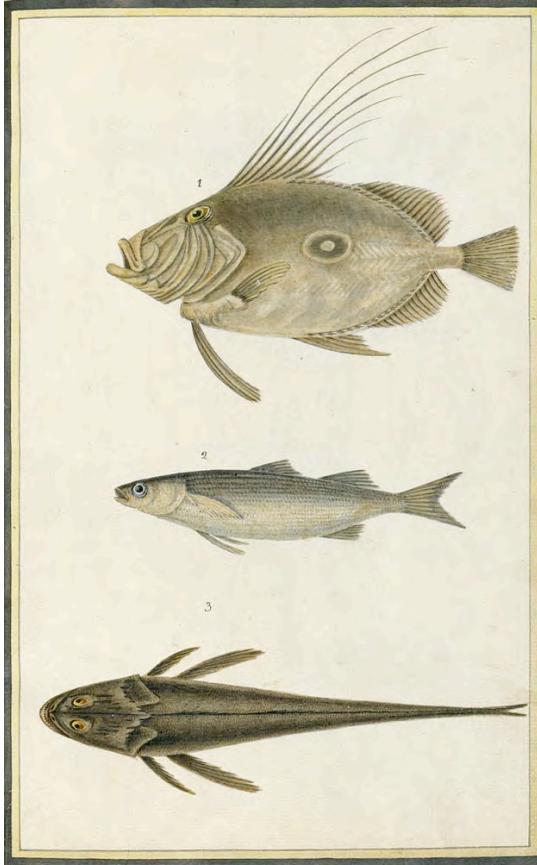
The excellent illustration shows this to be the first depiction of a banded wobbegong, *Orectolobus ornatus*. The amusing anecdote at the end of the description is perhaps the first record of a shark attack on a European in Australia; albeit, a European dog!

“This, we believe, is a species which has hitherto escaped the researches of our Ichthyologists. The length of the specimen is nineteen inches: the head is broad, and angular in shape; but the body rounded, and nearly equal in its dimensions for above half the length, when it suddenly grows very small, and so continues to the end of the tail: the colour of the body is brown in different shades, and there are three rows of large pale spots, of an irregular shape, most of them dark within; one row passes down the middle, the others are on each side; besides which there are others below them less conspicuous. The mouth is placed nearer the end of the head than in most of the genus, and furnished in the front with nine sharp crooked teeth, in three rows, and a great number of small ones on each side. The eyes project considerably above the rest of the head, and are placed on the upper part of it; the space between is hollowed or sunk in: at the most forward part of the head are two cartilaginous appendages, jagged at the end, with four others, nearly similar, on each side between the first and the breathing holes: the pectoral fins are placed beneath these last; the abdominal about the middle of the body; and the anal, more than half way between the last and the tail; besides which, the under part is finned from that place to the end: on the upper part of the body are two fins, both placed uncommonly far back, as in the figure.

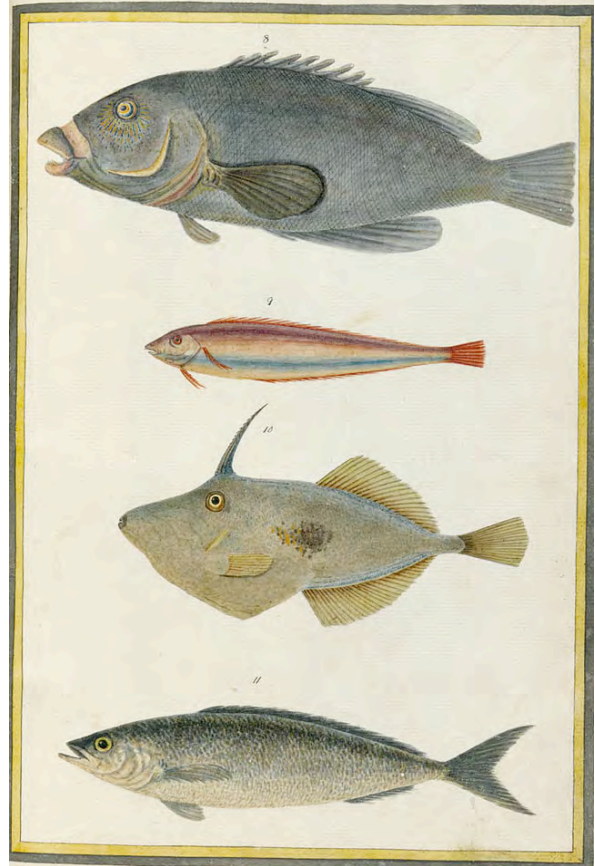
This fish was met with in Sydney Cove, Port Jackson, by Lieutenant Watts, and is supposed to be full as voracious as any of the genus, in proportion to its size; for after having lain on the deck for two hours, seemingly quiet, on Mr. Watts's dog passing by, the shark sprung upon it with all the ferocity imaginable, and seized it by the leg; nor could the dog have disengaged himself had not the people near at hand come to his assistance.”

Artist: T. R. Browne

The following illustrations are by T R Browne, was a slightly later artist of the colony who painted in the early 1800s. In contrast to the above, these illustrate some of the food-fishes of the day



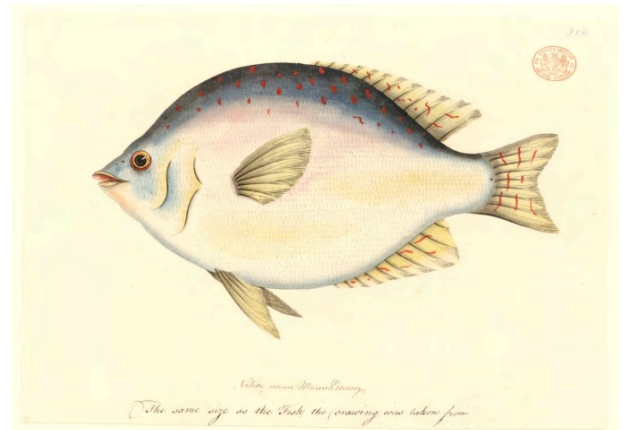
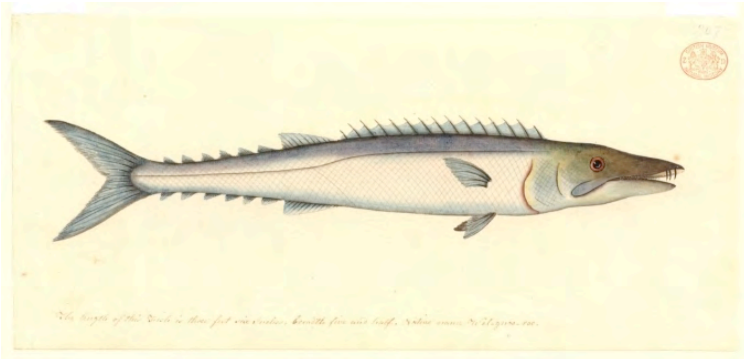
Fish illustrated by T R Browne. Top to bottom: John dory, mullet, flathead. The flathead is probably the first ever illustration of a dusky flathead



Three more of Browne's fish: Top to bottom: Blue groper, weever, fan bellied leatherjacket, Australian salmon. Again, probably the first illustrations of any of these fishes from NSW.

Thomas Watling

Watling was a forger convict who came out on the First Fleet. He was a prolific artist of landscapes and wildlife and produced many beautiful records of the day.



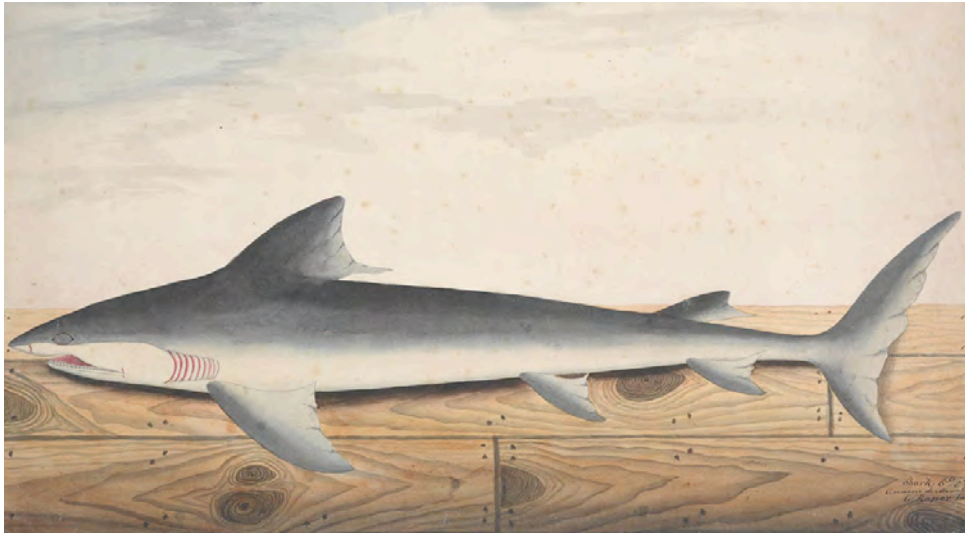
Two of Watling's many fish images. Top: an easily recognisable barracouta, Right: a less recognisable species, thought to be a yellowfin bream by the late Gilbert Whitley of the Australian Museum.

George Raper

George Raper was a midshipman aboard the First Fleet ship, HMS *Sirius*. Raper's illustrations are perhaps the best of all of the early depictions of fish.



A sergeant baker illustrated by George Raper



Whaler shark of indeterminate species, from
George Raper

Joseph Lycett

John Lycett was another convicted forger who was transported to Australia in 1814 and quickly established himself as a fine artist of the day. Lycett is thought to have produced the beautiful illustration shown on the cover of this report. It is the top two panels of a 'naturalist's collector's chest' thought to have been given to Governor Macquarie. It depicts many of the fishes which would have been caught in the harbour at that time, with colourful specimens obviously having been selected for decorative appeal. Most of the fishes can be recognised from the painting, and a key is provided below with the 'best guess' of the author as to which each species the images might represent. The panel with key is shown in Appendix II.

The Middle Period: 1820s to 1880

This period proved to be somewhat of a 'black hole' as far as finding information on fish populations and possible changes since English settlement. Thompson (1978) makes the point that *"So unimportant did the fishing industry remain during the first hundred years of settlement that An Australian Dictionary of Dates and Men of the Time published by John Heaton in Sydney in 1879 makes no mention of fishing industries, other than whaling."*

Searches of old newspapers of the day, central, municipal and regional libraries and the archives of likely historical societies in locations such as Port Macquarie and Port Stephens failed to reveal much information at all of relevance to this study. Some stories of fishing towns and shanties around Botany Bay, Nelson Bay and other areas were found, but these did not provide any useful information regarding fish catches or abundance.

Perhaps of relevance to the lack of information on fish and fisheries in this period is the fact that the population of the 'colony' remained quite small until the gold rushes of the 1850s.

Until about 1860, fish supplies to the Sydney Fish Market came almost entirely from Sydney Harbour and rivers, Botany Bay, Georges River and Broken Bay. The use of ice for keeping fish was only introduced in England in 1850, but even there, the ice was shipped in from Norway (Thompson 1978). In 1863, the first shipments of fish from Lake Macquarie to Sydney were sent to Sydney via Newcastle, however, this was by means of horse drawn cart from Lake Macquarie to Newcastle, and then via coastal vessel to Sydney. Needless to say, without ice, spoilage was common, even though transport was normally undertaken at night, and in the cooler months.

Not until 1865 was any legislation on fisheries enacted in NSW, before which “seine-hauling had been carried on at will with nets of all lengths, and composed of meshes so small that the resultant destruction began to tell seriously on the supply and to attract public attention” (Thompson 1893). Because of this concern among not just the public but commercial fishermen themselves, a Select Committee of the NSW Parliament, with the aid of Mr Richard Driver, MLA, resulted in the enactment of the first Fisheries Act in 1865. Because of its originator, this Act became popularly known as “Dick Driver’s Act”. The Act specified descriptions of nets, during winter and summer months in various regions (‘divisions’) and made it an offence to stake nets (called ‘stalling’) within one mile of the shore or at the mouth of any river. However, the Act appears to have had little effect, since “in a short time fisherman began to resume the practice of stalling, only contenting themselves with taking necessary precautions to avoid detection” (Thompson 1893).

Royal Commission of 1880

As a result of perceived overfishing of inshore resources in the absence of any real legislative control, A Royal Commission into the Fisheries of New South Wales was appointed in January 1880. This was instituted by the Premier, Sir Henry Parkes, under the Presidency of the Honorable William Macleay, MLC and “composed of gentlemen scientifically and practically qualified for the task” (Thompson 1893). The apparently broad aims of the Commission were “to inquire into the marine and freshwater fisheries and the oyster fisheries of the colony, and to advise of the best means for developing and preserving them” (Thompson 1893). The actual wording of the Report of the Commission regarding its aims were *“to make a diligent and full investigation into the actual state and prospect of the Fisheries of the Colony, the best means of developing and preserving them, the expediency of encouraging Pisciculture, or of supplementing the natural supply by the introduction and acclimatization of useful foreign species and upon all matters bearing upon this subject.”*

The commission sought submissions and called many persons to come before it for questioning. The majority of those who gave evidence were inshore commercial fishermen, many of whom had been fishing in coastal estuaries for many years, thereby providing some information on the state of fish stocks for several decades prior to the holding of the Royal Commission (ie, dating back to the 1870s, 1860s and 1850s). While this source of information is potentially very valuable regarding changes to fish stocks over time, evidence given was almost entirely anecdotal and opinionated (there being no records kept of actual catches) and based on personal opinion. Nevertheless, the Commissioners treated much of the evidence very seriously, produced a lengthy report and made a series of recommendations regarding future management of inshore fisheries, at least some of which were adopted.

The questioning of those giving evidence usually covered the same format, with specific questions about a set list of fishes, their catches, possibly spawning activity and movements/migrations. Opinions were sought from fishermen regarding such issues as whether or not fish numbers had declined in various locations, whether sharks and cormorants destroyed young fish, whether certain fishing methods destroyed fish eggs and so on.

Most of the fishing at the time of the Royal Commission was conducted in Sydney Harbour and Botany Bay. Broken Bay also appears to have been fished regularly and Narrabeen Lagoon was also fished, mainly for whiting. Port Hacking is mentioned, but little fishing was conducted there. Further afield, the main fishing areas were Lake Macquarie and Port Stephens. Transport of fish to Sydney was the main obstacle to larger scale fishing in other parts of the coast.

The commissioners questioned all fishermen in a structured way about a number of species of fish, not all of which we can identify with certainty today. The species about which witnesses were questioned was a rather odd list. It is not clear why these were selected, but presumably it was because of their actual importance at the time, or because of a perception of their potential for increased catches in the future.

The list of these, as used in the report, consisted of the following, with the suggested actual species in brackets:

Nanneygey (nannygai or redfish), bull's-eye, old wife, black rock cod, salmon (Australian salmon), black fish (luderick or blackfish), red mullet, schnappers and red bream (snapper), black bream (yellowfin bream), tarwhine, carp (almost certainly red morwong), morwong, trumpeter (?), flathead, gurnet (gurnard), flying gurnet (flying gurnard), whiting, (sand whiting, trumpeter whiting), jew-fish, teraglin, pike, John Dorey, tailor, mullet (sea, flat-tail, sand), mackerel (slimy or blue mackerel), white trevally (silver trevally), rock and parrot fishes (wrasses), blue groper, beardy, flounder, black sole, gar-fish, long-tom, maray (pilchard), herring, stingaree and shark. Various other fishes were mentioned during the extensive hearings, but the above list represents the standard list about which witnesses were questioned.

Fish on this list which are somewhat surprising, since they would not seem to be particularly important today, include: gurnet, flying gurnet, red mullet, red morwong, old wife, pike, rock and parrot fishes, beardy, black sole, longtom, and herring. On the other hand, several fish which received little attention, but which would definitely be discussed today would include yellowtail kingfish, yellowtail and sweep.

The published proceedings of the Commission are too voluminous to quote from at great length, so excerpts have been selected which summarize the evidence of some selected key witnesses, in particular focusing on perceived abundance (or otherwise) of fish, types of fish, areas caught. The transcription of the evidence of these key persons is provided as Appendix I. Rather than attempt to summarise these transcripts, I would encourage those interested to read these excerpts to gain a feel for the perceptions of the day regarding stocks of fish and their abundance, both from the point of view of those in the industry and of the Commissioners themselves.

Very briefly, commercial fishers' perceptions of the day were not very different to those of today. Some thought that fish were abundant, some thought dire declines had occurred in the recent past; some thought that sharks, cormorants and leatherjackets (in fact, anything that ate fish) were vermin, many had strongly held opinions about fish biology, spawning, movements etc, some of which were correct and some of which were quite simply, wrong. Not surprisingly, opinions varied among the fishers, often being completely apposed to one another. Many thought that the fishing activities of other fishers should be curtailed, while most did not agree that curtailment of their own activities would be advisable.

One would not have envied the Commissioners to wade through the voluminous evidence, but to their credit, they did so, and produced a very good summary report. The relevant parts of that report are discussed in the next section.

Summary Report of the Royal Commission

The published summary report of the Royal Commission is lengthy and detailed. Some selected parts are shown here, indicating the key findings and opinions relevant to the present study. Where deemed appropriate, the author's comments are included:

Extracts from Summary Report of Royal Commission

“The Sharks and Rays

Sharks are rather the reverse of useful fishes, but still are not quite valueless. The fins always find ready purchasers for the Chinese market; the liver yields a large quantity of excellent oil, equal in quality for medicinal purposes to the best cod liver oil; the skin of some of the species is much in request for shagreen; and the flesh though seldom eaten has been found by analysis to contain much more nutriment than that of any other fish, indeed to come near to beef and mutton in that respect. They are of course very destructive to other fishes, and therefore ought to be destroyed, and the uses just mentioned to which they may be put should strengthen the other inducements to get rid of them.”

Comment: It is clear from the questioning of the Commissioners that they perceived sharks to be a continuing threat to stocks of 'useful' fishes. It does seem from evidence of commercial and amateur fishers that sharks presented a constant problem by taking hooked fish (usually snapper). (The idea of 'destroying' sharks prevailed right through to the 1960s).

The following excerpts, reproduced in some detail, are very useful descriptions of the extent of the fishing areas of the day (1880). They demonstrate that most of the fishing was taking place relatively close to Sydney, in estuaries, and on reefs close to the coast. They also give a clear insight into the thinking of the Commissioners regarding perceived declines in fish stocks, and reasons for such declines.

“Our Fishing-Grounds

The number, variety, and extent of the fishing-grounds with which the entire seaboard of the Colony has been endowed by nature, lying as they all do within a very moderate distance of Port Jackson, afford the strongest encouragement to those who live in the hope of seeing at no distant time the inhabitants of the metropolis, and through it a large proportion of the inhabitants of the whole Colony, supplied with fish in a manner and upon a system consonant with the requirements of the community. In this Colony the fish most adapted for food purposes do not yet require to be searched for in large smacks or fishing vessels, victualled and equipped for a cruise of several months; neither is it necessary for our fishermen to make able to ascertain, are very rarely met with more than 10 miles off the coast, or in deeper water than 35 fathoms. The schnappers, which for economic purposes may be ranked with the cod of the northern hemisphere, appears to be distributed with remarkable regularity along the whole extent of our seaboard – that is to say, over about 600 miles; and whatever the formation or character of the coast may be, this fish, the most valuable of all our forms, and perhaps the most abundant, is never absent; and being essentially a rock fish in its habits, is not migratory. And the same may be said of its congener – the bream; and in a lesser degree of the flathead, whiting, black-fish, tailors, tarwhine, gar-fish, and other varieties which frequent the bays and estuaries of harbours and lakes, rather than the ocean depths. Some of these fish are, no doubt, not to be found throughout the year in their usual haunts, but they may be treated for all practical purposes as regular inhabitants of our fishing-grounds.”

Comment: In other words, the Commission accepted that the key fish species were quite abundant along the coast, and not overfished, but this opinion did not extend to Sydney Harbour and some other nearby areas (see below).

“There can be no doubt that the seaboard of this Colony is in a marked degree favourable to the existence of a very large supply of the best food fishes. It is indented by innumerable inlets and arms of the sea; it possesses many rivers whose embouchures are of large expanse; some of its bays, harbours, and lakes are of vast extent, and its submarine conditions generally are of a character eminently adapted both as nursery and feeding grounds for fish.”...

“Port Jackson, although at one time, and not very many years ago, holding a very high rank among our fishing-grounds for all kinds of the best net fish, is now scarcely deserving of being regarded as a source of supply at all. And this is owing not so much to the pollution of its waters by the sewage of a large city or their constant disturbance by the traffic of innumerable vessels, as to the ceaseless and often wanton process of netting to which every bay and flat has been subjected for the past fifteen or twenty years. The wholesale destruction within the harbour caused by stake nets and seines with meshes almost small enough for a naturalist’s hand net has of course produced its natural effect on the outside grounds, where the schnappers can now only be taken in very small quantities, and without any degree of certainty. The evidence given by fishermen who can remember the large hauls of fish once taken from the beaches of North and Middle Harbour, Rose and Double Bay, not to speak of the flats up the Parramatta River, affirms what doubtless most of the citizens of Sydney already know; but its value as a prediction of the fate which, unless some effective remedy be at once applied, must soon overtake all our near-lying grounds is unfortunately only too significant.”

Comment: Here, the Commissioners accept that fishing is very poor inside the Harbour, compared with previous days, as recalled by fishermen (not proven by catch records however). Some of this blame is placed on pollution (and boat traffic) but much of it is directed towards 'wanton' netting, especially its effects on small fish. Stake nets were obviously seen by the Commission as a destructive form of fishing, and in fact, their use was banned as a result of its report. Another interesting point in this passage is that they also accept that the snapper fishing on 'the outside grounds' has declined markedly. This is somewhat at odds with some of the evidence given, although most fishermen, then, as today, usually think fishing was better in the past than the present.

The main sections of the Report of the Commission go into some detail about the different fishing ground, near and further away from Sydney:

"The Home Grounds

Within this section the embouchure and lower waters of the river Hawkesbury, better known as Broken Bay, situated about 16 miles from Port Jackson Heads, has always ranked, and perhaps ranks still, as the most extensive and most productive of all our fishing stations. The beaches of Pittwater, the Hawkesbury proper, and Brisbane Water, present the most favourable conditions for the net fisherman, and the upper reaches of the river and the mud flats of its various tributaries, especially at the places locally known as Mullet Island Creek, Mooney, Mother Marr, Berowra, and Mangrove, have supplied to the Sydney market for many years past, and may under proper restrictions and protection long continue to supply, enormous freights of the choicest of our river fishes, such as black and sea bream, tarwhine, black-fish, whiting, flathead, tailors, gar-fish, and the large sea and flat-tailed mullet."

Comment: The Hawkesbury is initially lauded for its large supply of fresh fish. to Sydney, while further on, Botany Bay is thought to rival, if not exceed the Hawkesbury.

"Equally prolific have the outer or schnappers grounds at and near the mouth of this river been to the line fisherman. These are to be found in great variety from Cape Three Points to the South Head of Broken Bay. Off the North Head of the bay, and again off Little Head, situated a few miles to the southward, there occur several schnappers grounds of high renown, which a few years ago kept as many as a dozen or more boats in full work for the Chinese fish-curers, who then were engaged in a large business on Schnapperman's Flat, Pittwater, but who have now entirely abandoned Broken Bay as a fishing station. Twenty and thirty dozen "count" fish (i.e., fish weighing each 6 lbs. or over), were often taken by two fishermen on these grounds. Now, however, both the schnappers and the net grounds about Broken Bay have fallen off in their productiveness to an alarming degree, and through the operation of the same destructive agencies which have brought about the impoverishment of the Port Jackson and Adjacent fishing-grounds."

Comment: Having stated above that the grounds of Broken Bay are 'the most extensive and productive of all out fishing stations' the Commission now states that 'productiveness' of both the inshore and offshore grounds has fallen "to an alarming degree".

The next passage refers to a plague of leatherjackets which was a recent phenomenon and which was causing great damage to fishery pursuits. This was mentioned by a number of the fishermen who gave evidence, and is very interesting since a similar outbreak of large numbers of the leatherjacket, xxxx, has been causing the same sorts of problems over the past three years or so off central NSW. Perhaps this is a natural phenomenon which occurs periodically for unknown reasons.

“At present the fishermen complain bitterly of the leather-jackets which infest these and other grounds near Sydney, and it is no doubt true that these execrable pests have been gradually increasing in numbers. Their habit is to lie between the surface and bottom where the schnappers feed, and to gnaw off every bait, often with the snood too, as it descends. Their numbers do not seem to diminish however many are caught, and the damage done in a single day to a fisherman’s gear has not seldom reached a far higher sum than the value of his freight of marketable fish. As food this fish is not appreciated, though it is by no means to be despised. The leather-jacket, however, has not the appearance of a food fish, and in this respect, like the cat-fish, owes much of his immunity to a rather repulsive exterior.”

“Occasionally a few boats may be seen (chiefly of the amateur fishing class) off these grounds, and on the Pine-tree, the Cobbler’s ground, and others in the vicinity, but the fish no longer frequent these places in payable quantities. There was once a good fishing-ground lying about due east, and at a distance of about 3 miles from the Heads, but it is said that the mud-punts which here discharge the silt and harbour filth have quite disgusted the schnappers, whatever attractions they may have created for the “leather-jackets”.”

Comment: Leatherjackets were seen to be somewhat akin to vermin, thought to be attracted to ‘filth’ in the above case, or to human corpses, as was alluded to by H.R Francis, writing in ‘The Country Gentleman’s Newspaper’ in December 1876, three years before the Royal Commission, viz: *“But the worst of all angler’s plagues about Sydney Heads – and especially in the fine reach off the quarantine ground – are the fish know as “leather jackets.” A single specimen might be interesting enough from its oddityThe boatmen say that these detestable fish were never known within the Heads till the unfortunate wreck of the Catherine Adamson near the quarantine station [which occurred in 1857 – 21 lives were lost], when they flocked into the harbour to prey on the drowned passengers and crew. This idea of their propensities is not exactly calculated to reconcile one to the leather jacket family.”*

The leather jacket problem apparently persisted for some time after the Royal Commission. Another inquiry in 1895-96 had a brief to investigate the state of fishing and the depletion of fish in Sydney Harbour. They were told that “leatherjackets when skinned is an excellent food, however, it is a tremendous annoyance to fishermen infesting their fishing ground and cutting their lines, a plague of these fish is on the increase and unless some means is found to get rid of this pest, snapper fishing will have to be conducted with wire lines.” (Stringer, 1984).

Referring to snapper fishing grounds:

“These are situated at varying distances of 1 to 3 miles from a small rocky islet known as the “Island of Rocks” [now known as the ‘Wedding Cake’], and lying a short distance from the shore of Coogee Bay. Enormous freights of schnappers have been taken along this line of grounds, and fair quantities are still taken. This is a favourite fishing-ground for the various fishing clubs which pursue their recreation in steam launches and steam tugs, and by sheer force of numbers and the ease with which they are able to shift from one spot to another without any picking up of heavy kellicks or beating to windward, are able to count out more fish on a fair day’s “outing” than any of our professional fishing crews. A thousand fish, we are informed, is not an extraordinary catch for some of these clubs.

This is supported by a passage published in November 1883 in ‘The Australian Newspaper’, by an angler writing under the name ‘Old Chum’. He wrote: “The sport varies, but I have been out with schnapper parties on board the small steamers always chartered for the purpose, and we have returned at night with from six hundred to a thousand fish, averaging perhaps 4lb. or 5lb. weight on board. At other times a sack bag would contain the total weight.” Similarly, the following passage by prolific fishing writer F.G. Aflalo appeared 12 years later, in August 1895 in the paper “The Field”: *“Schnapper parties, like theatre parties, are all the go here, and are got up by ministers, Government officers, and municipal dignitaries, besides which there are others open to the public at a capitation fee of a few shillings ... Given smooth water under the breath of a gentle off-shore westerly, I know of few experiences of sea-fishing more enjoyable. Other fish in great variety are generally taken on the same grounds, among which may be mentioned the morewong, pig-fish, sweep pike, few-fish, and nannygai, more rarely the teraglin and sergeant-baker; but the colonials turn up their noses at all such. It is truly a cry of “Aut schnapper, aut nihil!” [schnapper or nothing] And the takes of schnapper are often great. I have known parties come ashore with five or six hundred fine fish.”* Perhaps the Royal Commissioners were too quick to accept the dearth of snapper fishing off Sydney at face value?

The next passage from the summary report refers to Botany Bay:

“But Botany, though never equal to the Long Reef and Broken Bay grounds for school-fish, has always held its own for net-fish; indeed it is doubtful whether even Broken Bay, with its far greater extent of net grounds, has ever been or is now more productive than are the beaches and flats of Botany.”

Comment: It is not entirely certain what is meant by ‘school-fish’ and ‘net-fish’. Snapper were often called a school-fish, and presumably garfish would be a net fish, but we can only speculate on how other species, such as bream, flathead, whiting, tailor and trevally, may have been classified in this way.

Continuing with the status of the fishery in Botany Bay:

“Of course the processes of exhaustion common to all the grounds near Sydney have been in active operation at Botany, and especially that most destructive of all forms of fishery the stake-net; yet notwithstanding all this, Botany is perhaps less impoverished considering the amount of fishing continually going on than any inlet or harbour within fisherman’s distance of

Sydney. But the evidence of witnesses well acquainted with the resources of Botany leads immediately to the conclusion that, unless arrested by legislative restraints, these prolific grounds will in a very short time succumb to the stake-nets and the small mesh as surely as our other fishing-grounds have succumbed.”

Comment: Again, the Commissioners point to the perceived destructiveness of netting with small meshes, especially the stake net. It is not hard to predict from reading these passages that a recommendation for a ban on such practices would be an outcome of the Commission.

Some brief comments on Port Hacking:

“A cable-length or so distant from ‘Jibben Head’, the southern point of the entrance to Port Hacking, lies Jibben ‘bumbora,’ a fishing-mark of great repute, but not now much resorted to for school-fish, i.e., the schnappers of about 4 to 6 or 7 years old, and found on the off-shore grounds in large schools, as distinguished from the native, which is the same fish at a later stage of growth, but frequenting different haunts (the shoals off headlands, sunken rocks, and river-points).”

Comment: the demise of the so-called ‘native’ snapper – large specimens which occurred around headlands, was referred to often in questioning and evidence at the Royal Commission. This does appear to be a genuine case of disappearance of large fish, which were readily accessible because of the close proximity of their habitat to the Harbour, in particular.

The next sections deal with fishing grounds further away from the population centre of Sydney:

“The Middle Grounds (North)

The average depth of Lake Macquarie is about the same as that of Tuggerah. These lakes are the great nurseries of almost all our winter supplies of net and line fish. Here unquestionably the sea mullet, bream, tarwhine, whiting, flat-head, tailor, and gar-fish find their most congenial spawning-grounds, and here also are their natural sanctuaries from sharks and other predaceous fishes which devour them in the offing. Here also, it is believed, is the chief spawning-ground of the schnappers, which afterwards haunt the numerous reefs, Bumboras, and rocky patches which lie between Broken Bay and Newcastle.”

Comment: The Commissioners were very interested in the spawning grounds of important fish species, but seem to have had a pre-determined notion that most fish spawned inside estuaries and coastal lakes. We know now that this is not the case, but at the time, the presence of small juveniles inside estuaries no doubt led to this belief (although they often leadingly asked fishermen if, in their opinion nets destroyed fish eggs). In the case above, they assumed that snapper spawned inside the Tuggerah Lakes, presumably because very small snapper were common there. They were correct, however, in the belief that the small snapper move to offshore reefs when they mature.

“From Terrigal to Bird Island the offing and inshore grounds still abound in all the best kinds of line fish. It is almost impossible to find a square furlong untenanted by the schnappers or other equally good fish.”

Comment: This is an indication of the perception, probably correct, that snapper grounds more distant from the population centre of Sydney, were still prolific at this time.

Regarding the perennial problem of transporting fresh fish from these more distant grounds to Sydney:

“With proper freight steamers of course this obstacle will speedily disappear, and we shall then get fresh schnappers and black rock cod (which are here caught of great size and excellence) from the Tuggerah and Norah Bumboras, and the Bird Island grounds, with as much regularity, but in far greater quantities, than we are now able to furnish ourselves with from Long Reef or Coogee.”

Comment: This mention of black rock cod as a prize fish is common throughout the transcripts of the hearing.

“Fresh fish are not often taken to Sydney from Lake Macquarie, the few fishermen stationed there preferring to fish for the Chinese Curers rather than to take the chance of catching a Newcastle steamer four or five miles in the offing. Large quantities of mullet were at one time cured here for the Newcastle Market, and it is said that a considerable quantity of fresh fish finds its way to the Wallsend Mining population at the north end of the lake. We cannot leave this “Lake” section of our northern fishing-grounds, as it might very aptly be termed, without expressing an emphatic opinion as to the urgent necessity of protecting by some effective legislation these magnificent “nurseries” from any further destruction by nets of unlimited length and diminutive mesh, such as an eye-witness has told us have at one haul frequently brought to shore a ton or more of small fish, for not better purpose than to be left to rot there. In the economy of our Fisheries these warm and sheltered waters, abounding as they do in minute crustacea and other food, play a most important part; and if those in the neighbourhood of our large centres of population be not soon relieved from the wantonly destructive agencies which are now ruining the young fry, of which these lakes are the natural homes, it will be futile to expect any considerable results from the protection, at spawning-time, of adult fish – at all events within the range of waters for which these inlets are the appointed nurseries.”

Comment: Again, the Commissioners emphatically point to the destructive potential of small mesh nets.

“Port Stephens, about 24 miles to the northward of Newcastle, with its innumerable out grounds, including the Broughton Island, and extending as far as the Seal Rocks, is probably the grandest fishing station on the entire seaboard of the Colony. Connected with a vast series of lakes (the Myall Lakes) on the north, and with the Karuah River, Telligerry Creek, and half a score of important affluents inland, with miles upon miles of beaches fit for seine fishing, with an apparently unlimited endowment of the best fish, and with a telegraph-station within very easy distance, this noble harbour is

unquestionable destined to become one of the largest factors in the metropolitan fish supply of the future. A considerable gang of Chinamen is always located at Nelson Bay, and as soon as one lot returns to its native country another takes its place. They catch their own fish here, and preserve it after their own detestable fashion."

Comment: Note the phrase "apparently unlimited endowment of the best fish", which is surprising, given the Commission's belief that fish stocks had been depleted in other major embayments close to Sydney.

The reference to the Chinese curing of fish at Nelson Bay is of interest. The evidence of Chinese fish merchant Mr Chin Ateak to the Commission made detailed reference to this trade. It appears to have been a very active, substantial industry which employed local fishermen to supply suitable fish for curing and subsequent export. The Chinese apparently became active in this trade in the 1860s, after the NSW gold rush. (It appears the Commissioners were not partial to the preserved fish which the Chinese produced).

Seal Rocks, and a possible reference to grey nurse sharks being plentiful there:

"Some 15 miles to the north-east of Long Island are the Seal Rocks, and a variety of reefs and rocky patches, all lying within a range of a few miles from Sugar-loaf Point, including the "Bumbora" known on the charts by the name of the "Edith Breaker." This is a great country for schnappers and black rock cod. Sharks, unfortunately, are rather too plentiful;

"... a few miles beyond Cape Hawke is the outlet of the Wallis Lakes, - another series of rather shallow but extensive lagoons, similar in general character to those which we have already noticed. These lakes teem with the best of net fish, but owing to their distance from market enjoy a complete immunity from all sources of disturbance except the occasional net of some settler or sawyer."

Comment: Here is a good indication of the almost complete lack of fishing at the time in 'distant' areas such as Wallis Lake.

"The Middle Grounds (South)

The same remark applies to Jervis Bay in respect to net fish. Its beaches in extent and productiveness are probably unsurpassed by any harbour or inlet on the whole of our coast. Whiting are caught in the bay and on the outer beaches of Wreck Bight in enormous quantities, and were a short time ago, if they are not still, preserved in a dried or salted state by the Chinese fishermen."

Comment: The southern so-called 'Middle Grounds' obviously received little attention from the Commission, as did the 'Outer Grounds', which were very remote at that time. Here, again an apparent major source of fish, this time in Jervis Bay, is noted. It is apparent that at this time, late in the nineteenth century, the fish populations of much of the coastal bays and inlets of the NSW coast remained in a near virgin state.

“The Outer Grounds

This section of our sources of supply embraces the remainder of our fishing territory from Cape Hawke to the Tweed on the north – from Wreck Bight to Twofold Bay on the south. As might be anticipated from the remoteness of the fishing grounds comprised within these limits, they are almost untouched, and indeed almost unknown, at all events so far as professional fishermen are concerned.”...

“The time is not far distant when these outer grounds must be laid under contribution, but for the next few years we are of opinion that the supplies of fish procurable on the less remote and more easily accessible grounds will suffice for all our requirements, not only in the way of fresh fish, but also of dried or preserved fish. Still, if suitable vessels were constructed and equipped, and if the necessary capital and enterprise were forthcoming, there can be no doubt that a profitable industry lies ready for immediate development, not only on the middle, but also on the outer fisheries.”

Comment: The areas referred to as the ‘outer grounds’ represent about two thirds of the coast of New South Wales, and indicate that these areas were virtually entirely unfished at the time of the hearing in 1880. With so much ‘virgin’ territory, there was obviously cause for much optimism regarding the future of the coastal fishing industry for many years to come.

The primary outcome of the report of the Royal Commission was the Fisheries Act of 1881 which, among other things, banned the use of stake nets, a ban which still stands.

The Commission also resulted in the formation of a new, separate Fisheries Department, which moved into a new building named Garden Palace in 1881. Unfortunately, the entire building was burnt to the ground along with all fisheries records, books and documents in 1882. This event explains the dearth of any real data on the state of fish populations prior to the mid 1880s.

The Royal Commission received considerable support and praise at the time. In 1882, highly respected fisheries expert of the day, the Reverend Julian Tenison-Woods, wrote in the forward of his book, in 1882:

“The fisheries of this Colony have recently attracted much attention; they have become an industry increasing each year in extent and value, but it is only within a year or so that anything definite has been known about them. One or two private individuals have interested themselves, but, until the Royal Commission on the Fisheries of New South Wales in 1880, any reliable systematic information was not within the reach of the public.”...

“Regarding the Report of the Royal Commission: It is not too much to say that nothing at all equal to them has been published in the Colonies. They comprise information from the most competent and most experienced persons on the subject of Fisheries with the Colony possesses. It is to be hoped that they will be studied, and made use of by those engaged in the fishing industry”.

The Third Period: 1880s to early 1900s

While very little reliable information on fish and fisheries of NSW was found for the period 1820s to 1880s, prompted by the Royal Commission of 1880 and a little later by the 'World's Columbian Exposition on Fisheries', held in Chicago in 1893, a number of books on fish and fisheries of the colony were produced by fisheries scientists of the day. Other accounts followed into the early 1900s which together form a useful narrative by trained writers on the state of taxonomic and biological information on fishes, either of New South Wales, or more ambitiously, of Australia during that period. They provide useful references to abundance of the more important (or common) species, particularly since they are presented as factual information by objective experts

The publications are as follows:

“Fish and Fisheries of New South Wales” (1882) by the Reverend Julian Edmund Tenison-Woods. Tenison-Woods was an ordained Catholic priest, and also Vice President of the Linnean Society of New South Wales and a naturalist of some note. In this book, Tenison-Woods drew heavily for practical information on three earlier works – “Industrial Progress of the Colony”, published in 1870 by Mr. Alex. Oliver, a series of 14 articles by Mr. Edward Smith Hill, entitled “Fishes of and Fishing in New South Wales” which appeared in the *Sydney Mail* in 1874 and the reports of Count F. de Castelnau published in either the Proceedings of the Zoological Society of Victoria or the Journal of the Linnean Society in 1872 and 1873.

“The Edible Fishes and Crustaceans of New South Wales” (1893) by J. Douglas Ogilby. Ogilby was curator of fishes at the Australian Museum from 1884 to 1890. This book was specifically prepared for the 'World's Columbian Exposition' held in Chicago in 1893. In his introduction, Ogilby apologizes for not having time to prepare a more detailed account, and at the same time, berates commercial fishers for not knowing more about their fish, in particular, the date of spawning or where ova are deposited. Ogilby stated that this work was only a foretaste of a 'much larger and important volume' which it was hoped might be completed 'within a few years'. Unfortunately, this promise did not eventuate.

The book works its way through quite detailed descriptions and notes on 93 species of fish and crustacea, with the author stating that a full list of edible fish and crustaceans, at the time of writing, would actually be double that number.

“History of the Fisheries of New South Wales” (1893) by Lindsay G Thompson. Thompson was Chief Inspector of Fisheries in NSW at the time. This book was also prepared for the Chicago World's Exposition, and overlaps with Ogilby's book to quite a large extent. It takes the form largely of a reprint of the summary report by the 1880 Royal Commission into fisheries, but updates this with information on the current (1893) state of the fish markets in Sydney as well as considerable information on the oyster industry and fisheries laws of the day. It contains some historic and useful fold-out maps of the coast of New South Wales, and more detailed maps of Lake Macquarie, Tuggerah Lakes, Port Stephens, Myall Lakes, Lake Macquarie, Broken Bay and Illawarra Lake (but not of Port Jackson, Botany Bay or Port Hacking).

“Fishes of Australia: A popular and systematic guide to the study of the wealth within our waters” (1906) by David G Stead. Stead was Naturalist to the Board of Fisheries for New South Wales and this book primarily covers NSW species.

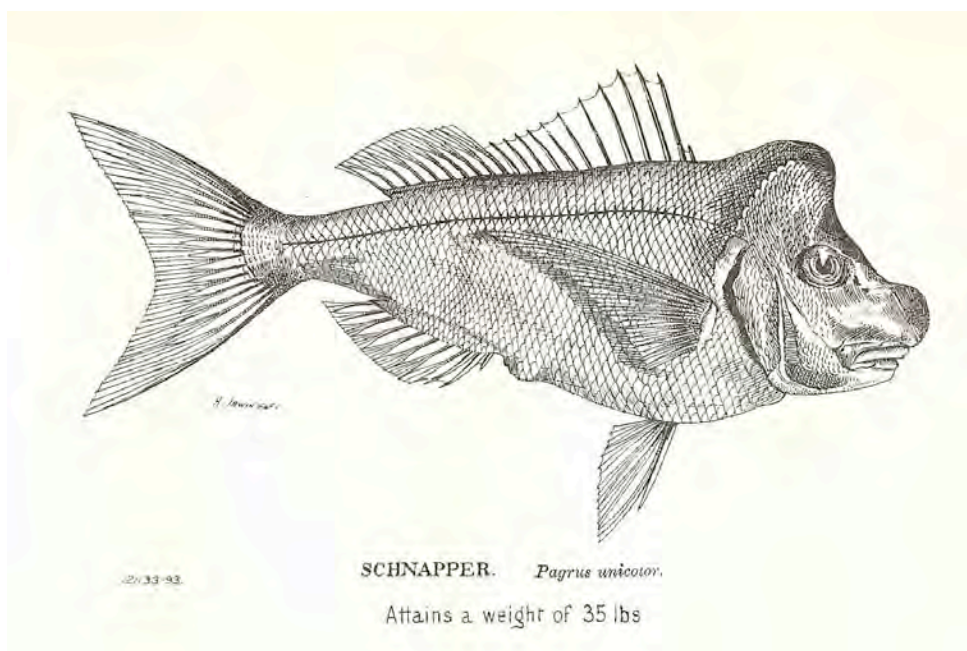
“Edible Fishes of New South Wales: Their present importance and their potentialities” (1908) by David G Stead. Following so soon after his previous work, *Fishes of Australia*, it is perhaps surprising that Stead reworked all of his accounts of fish species, with more detail in many cases. He presents much more detail on each species, and also gives voice to his strongly held views on the great potential for trawling off the coast. This opinion was reinforced in a later publication of his (Stead 1911).

“Fishes of Australia and their Technology” (1916) by Theo C. Roughley. Roughley went on to become one of the most famous writers on Australian fisheries. At the time of the production of this first book, he was 28 years old and his title was Economic Zoologist with the Technological Museum of Sydney. This book contains fairly limited information on various fishes, but is of interest since it was written nearly a decade after Stead's work.

Historic information on key species with particular reference to abundance: from all sources

In this section, information especially relevant to the historic abundance of some key species of fish has been summarised from the above publications, and if possible, from earlier sources as well. The species selected for this treatment are the snapper, bream, Australian salmon, flathead, tailor and luderick (blackfish).

Snapper (*Pagrus auratus*)



One of the earliest illustrations of a snapper to be published in a scientific document. From Thompson 1893

Before outlining the various authors' comments on this species, it is worth commenting on the spelling of the common name of this fish. 'Schnapper' was the spelling which was often used by various writers, both laymen and scientists but this has never been consistent. Tenison-Woods (1882) uses 'schnapper' while Ogilby (1893) uses 'snapper'. In fact, the fish was reputedly given the name 'snapper' by Captain Cook due to its resemblance to the snappers of the USA (although proof of this is elusive), so it is somewhat of a mystery as to why it became to be written as 'schnapper' at all. Theo Roughley, in his first edition of 'Fish and Fisheries of Australia' (1951), should perhaps have the last word. He wrote: "The name of this fish is frequently (all too frequently) spelt "schnapper", particularly on menu cards in hotels and restaurants. There is no justification whatever for this spelling, and how it originated is not known".

As indicated in the accounts of early observers, the snapper was perhaps the primary fish which sustained the colony at Sydney in its early years. There seems little doubt that it was very abundant, even inside the harbour, where one haul apparently yielded several tonnes. The first name given to this fish was the 'light horseman' (due to the helmet-like shape of the bony protuberance on its head). This name stuck in the early years, but had certainly disappeared by the time of Tenison-Woods and later authors.

Tenison-Woods (1882): (quoting Castelnau 1873): "The schnapper ... is the most valuable of Australian fishes, – not for its superior excellence, for we have many more delicious, but for the abundant and regular supply which it affords"... "The young fish in the shape of "red bream" are abundant in the harbours and inlets, but never in shallow water, and are seldom captured in large quantities in the seine; they take the hook, however, freely, and the capture of them is a very favourite pastime of the Sydney people."

And quoting the amateur fishing writer E.S. Hill: "No party of amateurs who go out for a day's general fishing think their basket complete without schnapper being among their number, – that name floats uppermost in calling over the day's sport, and covers many defects in other fishes which may happen to be in the list of the day's catch, and indicates, as a rule, that the sport was fair and good".

Stead (1906, 1908): Abundance of snapper is not discussed by Stead in his 1906 publication, but in his 1908 book on edible fishes of New South Wales, he states: "The Snapper is the principal fish taken by "outside" fishing parties. It is hardly possible to estimate the quantity taken in this way by amateur anglers; but it is undoubtedly very great. The quantity which passes through our markets is from 300,000 to 400,000 pounds per annum".

Roughley (1916): "In the early days of settlement in New South Wales, before the waters of our bays were disturbed by traffic, the Snapper was very plentiful in such inlets as Port Stephens, Broken Bay, Port Jackson, Jervis Bay, and Twofold Bay. Where traffic has since been heavy, however, the fish has become scarce, particularly so in Port Jackson, where at the present time the adult is very rarely caught." As indicated in earlier reports quoted above, adult snapper were apparently commonly taken inside estuaries, including Sydney Harbour and even Tuggerah Lakes. The quote from Roughley would indicate that this was a relatively early change in terms of habitat of adult snapper.

Roughley was the first author to comment on the possibility of localised overfishing of snapper. In a very interesting passage, he states: "At one reef when the catch of Snapper showed signs of a considerable decrease in number, the locality was abandoned for a fortnight, and when visited again it was found that it had been restocked, but with smaller fish. The conclusion arrived at that the fish may be at times so stationary as to allow of a ground being fished out. If this is the case it will be necessary, in the interests of Snapper-fishing in Australia, to frequently change ground, in order that restocking take place".

One interesting point often made about snapper during evidence given at the Royal Commission, and in some of the above books, is that very large snapper were widely thought to be solitary residents of reefs near Sydney Harbour, and were called 'rock native snapper' or simply 'natives'. This view was very prevalent and appears to have had considerable substance. The summary of the Royal Commission states: ., "*the schnappers of about 4 to 6 or 7 years old, and found on the off-shore grounds in large schools, as distinguished from the native, which is the same fish at a later stage of growth, but frequenting different haunts (the shoals off headlands, sunken rocks, and river-points).*" Perhaps these large fishes were resident on certain reefs and were fished down over time. It is certainly unusual to catch large fish in the same close reefs today.

Australian Salmon (*Arripis trutta*)

The Australian salmon was first positively mentioned by Lieutenant-Colonel David Collins (see above). He described the catching, by haul net, of "*near four thousand of a fish, named by us, from its shape only, the salmon, being taken at two hauls of the seine. Each fish weighed on an average about five pounds;*" This catch equates to about 8 tonnes, which is substantial. Interestingly, John Hunter gave an account of almost certainly the same incident, although the year is different. He included an observation of the extent of the school, one of the few occasions when a very large school of fish was described by any of the early writers. He wrote: "*On the 16th of September [1790], a shoal of fish appeared on the coast, which extended as far as the eye could reach, and part of them entering the harbour, as many were caught at two hauls with the seine, as served the whole settlement: there were not less than three thousand, which, on an average, weighed about five pounds each.*"

Tenison-Woods (1882): "This is the most common of all Victorian fishes"... "It seems to 'school' about the latter end of summer, when shoals of astonishing magnitude annually visit our shores" (the first sentence was quoting Frederick McCoy, while the second sentence refers to the situation in New South Wales).

Ogilby (1893): "Common as the salmon is along the greater part of the coast line of New South Wales, but little is known as to where or when it breeds;"... "at Port Macquarie and the Clarence Heads the spawning season is respectively given as November and October." (this is the earliest reference to the occurrence of salmon as far north as the Clarence River – although it is most likely in error regarding spawning).

"During the warmer months of the year Salmon make their appearance along our shores in shoals of marvellous magnitude, and are taken in large numbers by the seine, not infrequently causing a glut in the market.

At such times the writer has seen fine fresh fishes from twenty to thirty inches long, and weighing from six to eight pounds each, sold at the rate of two shillings per dozen, while many are given away to the poorer classes, no other possible means of getting rid of them being available." ... "The Salmon has a wide range throughout the southern portion of the Australian Region, occurring along the entire southern seaboard of Australia, and along the New South Wales coast at far north at least as the Clarence River District, beyond which I failed to trace it, nor has it even mentioned by Saville Kent in his Preliminary Report on the Food Fishes of Queensland."

Stead (1906, 1908): "The Salmon occurs in abundance along the whole of the New South Wales coastline". "If this species is not one of the most important, it is certainly one of the most abundant. Attaining a length of 2 to 2 1/2 feet, it often reaches a weight of 8 or 9 pounds. ... Like the true Salmon, this species has the habit of congregating at times in shoals of vast extent. ... But whatever value is at present placed upon this species, there can be little doubt that it is destined to be of considerable importance in the future fisheries of New South Wales." (Stead also mentions the importance of salmon to recreational anglers "off the many fine sea beaches along the New South Wales coastline." although it is unclear the extent of the coastline to which he is referring.

Roughley, T.C. (1916): "As a food fish, the adult Salmon is of rather inferior quality, being somewhat dry, coarse and tasteless. Young examples, however, of a length up to about 18 inches are not to be despised. It does not take the smoke successfully". ... "Salmon have not a ready sale in the Sydney markets, for which reason fishermen will not trouble to net them; frequently when a haul is obtained the fish are thrown back into the water ... They are sold by the dozen, and bring from 1s. 6d. to 3s. The size ranges from 12 to 20 inches. Minimum lawful size 9 inches."

As a matter of particular interest regarding historic abundance of Australian salmon, Roughley's much later work, *Fish and Fisheries of Australia*, first published in 1951, is well worth referring to. He discusses the trapping of salmon in Wagonga Inlet, Narooma, on the southern NSW coast, which would annually enter the inlet and 'lay up' in large shoals. A cannery for salmon was established at Forster's Bay, on the shores of the Wagonga River in 1937. Roughley writes: "*For a couple of years [after installing traps, or pens to hold salmon for canning] large catches of salmon were obtained in the Wagonga River, but since then, few fish have been seen there. Until that time the salmon would periodically lie in the river in such shoals that the fish must have been almost touching. The local Inspector of Fisheries informed me that for half an hour he saw salmon entering the river so thick that he felt he could walk across their backs to the opposite shore. And did not Mr Fowler [a biologist who conducted aerial surveys for pelagic fish between 1936 and 1948] spot from a plane a shoal inside the river that he estimated to comprise a thousand tons?*" In the 1966 edition of his book, this comment was expanded upon significantly, viz: "*On 31st October 1936 large shoals of Australian salmon were seen in and about the entrance of Wagonga Inlet, on the south coast of New South Wales; one of these was estimated to contain 1,000 tons. In July 1937 in the same area a shoal of salmon was seen that was computed (from aerial photograph) to comprise about 12,000 tons.*"

This remarkable account indicates that Australian salmon were obviously still very abundant in the 1930s.

Bream (*Acanthopagrus australis*)

Bream were divided by the early naturalists into the black bream, which, in the vicinity of Sydney, would have been what is now called the yellowfin bream, *Acanthopagrus australis*, and the 'white' bream, or tarwhine, *Rhabdosargus sarba*. The species known today as the black bream, *Acanthopagrus butcheri*, is mainly confined to the south coast of NSW and Victoria. Even though the name 'black bream' is used in these accounts, they certainly refer almost entirely to the yellowfin bream.

Tenison-Woods (1882): (quoting Castelnau 1873): *"The "black bream" and the "tarwhine" are both excellent fish and are frequently abundant. ... They have been occasionally caught outside on the schnappers grounds, but their chief resort is evidently the harbours and lakes along the coast, where they are taken in great numbers. In Port Jackson line-fishing for 'black bream' is a very favourite sport"*.

Ogilby (1893): *"Though occasionally taken on the outside Snapper-grounds, the favourite haunts of the Black Bream are the sheltered bays, lakes, and estuaries which are so frequent on the coast of the colony; here they are taken by the seine in enormous numbers, the finest offered for sale on the Sydney market coming from Lake Macquarie. They are also great favourites with the amateur line fisher, as when plentiful and in a taking humor they afford fine sport"*

Stead (1908): *"Of all the commercial fishes of New South Wales, this fine food-fish is undoubtedly the most important, while it is also the recognised premier of our coastal sporting-fishes... Handsome in appearance, and of fine flavor and consistency when cooked, as well as growing to a good marketable size, there is little wonder that this fish has climbed so high in the public estimation; while, because of the characters previously mentioned, more devotees amongst our anglers are to be found worshipping at its shrine than falls the lot of any other Australian fish".* Strong praise indeed. Regarding abundance: *"Some idea of its great importance as a food-fish may be gathered when I mention that a weight of about 1,350,000 pounds [613 tonnes] is at present sold annually through the fish markets of New South Wales."*

Roughley (1916): *"The Black Bream is one of the most valuable of Australian edible fishes; ... On account of its great abundance, and therefore its relative cheapness, it, together with the Sea Mullet, finds its way into more homes than any other fish inhabiting the waters of New South Wales. A great proportion of the fried fish sold in Sydney fish shops consists of Black Bream." ... "Large quantities of Black Bream into the Sydney fish markets all the year round ... The amount sold varies one to one and a half million pounds (similar to the figure of Stead, above).*

Flathead (*Platycephalus* spp.)

The main species of flathead which are caught in estuaries is the dusky flathead, *Platycephalus fuscus*, while 'sand flathead' may be one of several species. Flathead appear to have been quite abundant during this period, but as was the case in the early days of the colony, do not seem to have been a particularly favoured species to catch.

Tenison-Woods (1882): *“Some of the species of flathead will venture up the rivers into fresh water. Thus P. fuscus [the dusky flathead] comes up the river Hunter as far as West Maitland, where it is caught abundantly by the anglers in summer.”* Again quoting Mr Hill: *“On a calm day it is usual to let the boat drift over the ground, which is generally sandy, when occasionally they bite freely. I have known fifteen or twenty dozen hauled up, and as fast as the line could be put over”. “I have seen the deck of a vessel strewn with flathead after a couple of hours’ fishing. Three or four vessels had taken shelter in Botany Bay, on the south side, from a southerly gale which prevailed. The fishes also appeared to have moved over, from the same cause perhaps, as the place was literally alive with them, and many were captured with the hook and line on that occasion, “*

Ogilby (1893): *“The flesh of the flathead is of excellent quality, firm, flaky and well flavoured; in fact all the species must be ranked among our best food fishes; its appearance is unfortunately somewhat against it, but once the prejudice excited by this is overcome, it will not intentionally be cast aside in future.”*

Stead (1908): The first author to praise the flathead. Regarding the dusky flathead, he states that it can *“claim a highly important place among the food-fishes of the States and the Commonwealth .. A quantity of about 525,000 pounds ... is brought to market annually, and in addition a very considerable quantity is captured by anglers using handlines.”*

Roughley (1916): *“It is rarely found off shore, but is extremely common in the coastal bays and estuaries.”* Roughley gives the same figure as Stead for the annual catch.

Tailor (*Pomatomus saltatrix*)

The tailor was hardly mentioned at all in the early European writings about the fishes of the colony. It is likely to have been a pest rather than an obvious resource though, because of its voracious habits and propensity to bite through lines and nets.

Tenison-Woods (1882): Mentions tailor and their destructive habit of tearing nets to pieces, but does not discuss abundance at all. Amazingly, he gives the maximum size as 5 feet!

Ogilby (1893): *“During the spring months the Tailor arrives off our coasts in countless numbers for the purpose of shedding their spawn” and further, “The Tailor is very abundant along the whole of our coastline from north to south, and ... there are ... not many days throughout the year on which they are absent from the market”.* It is interesting that Ogilby makes such a point of tailor spawning on the NSW coast, something which certainly does not happen today. He is adamant that their eggs float on the surface in masses, and that, *“thousands of fry under two inches in length are frequently washed ashore on the outer beaches”.* He was a quite a meticulous taxonomist, so this observation must be given at least some weight.

Stead (1908): *“This is the important food-fish which is so familiar to our American brothers as ‘Bluefish’, and here I might be permitted to illustrate its abundance in the waters of New South Wales by suggesting that, should the American supplies ever give out, the plant for its capture may be safely transferred here, as the supply, both present and prospective, is apparently without limit”*. Stead was a great proponent of the expansion of the fishing industry of New South Wales. However, his prediction regarding the potential for tailor fishing appears to have been rather too optimistic, to say the least.

Luderick (*Girella tricuspidata*)

Given that the luderick has been one of the most prolific coastal and estuarine fishes of New South Wales over the past 50 years or so, it is surprising that early historic references to this fish are virtually non-existent. This is largely true too of the later writers, with only Stead considering it to be an important food fish, and then, via only a brief sentence. The following brief represent the extent of the writings regarding the abundance of the species in the late 1800s.

Tenison-Woods (1882): *“In certain seasons they may be caught in abundance in shallow water with the line, the only bait being a green confervoid weed obtained on wood under sea-water”*.

Ogilby (1893): *“The Blackfish is very abundant along the entire coastline of the Colony, frequenting estuaries, creeks and tidal rivers, as well as the open sea.*

Stead (1908): *“Though the flesh is not of the delicate flavor possessed of many of our fishes, it is one of the most important food-fishes; as it is one of the “stock” fishes of the markets.”*

Bluefish

I include the bluefish, *Girella cyanea*, here since it is one species which appears to have vanished from the NSW coast in living memory. Ogilby states it to be *“much less common in the Sydney market than either of the two species of Girella previously mentioned [black drummer and luderick]; ... they are in all probability much more abundant than is generally supposed, but being purely ocean fishes ... they do not come into the scope of ordinary net fishermen and as such as find their way to the market are taken by the professional line fisherman”*.

This species, after which ‘Bluefish Point’, a popular rock fishing location, just north of Sydney Harbour is named, was apparently reasonably abundant. Today, it is not found off eastern Australia, but is quite common at Lord Howe Island. So the question remains as to whether it was a vagrant population which existed off Sydney for a period, or whether it was a natural part of the aquatic fauna, but has since disappeared for unknown reasons.

Other species

In most of these publications, other species which we would not think important today are given considerable treatment as being sought after or valuable food fish, although not necessarily abundant. These include the Old Wife, *Enoplosus armatus*, bullseye, boar fish, sergeant baker, black rock cod, blue-striped red mullet, butter fish, etc. As an example, Ogilby praises the Old Wife as being

'excellent for the table'. As noted earlier, this fish appears to have been very common around the harbour at the time of first settlement, and is stated by Ogilby, in 1893, as being '*abundant in the bays and estuaries of South-eastern Australia*'. (As noted previously, there is an issue here regarding whether or not leatherjackets were also called Old Wife. See earlier that Phillip's account suggested this. However, there is no doubt that Ogilby was referring to the true Old Wife (*Enoplosus armatus*) since he gives a lengthy taxonomic description of this distinctively striped fish, as well as accurate descriptions of several species of true leatherjackets (Monacanthidae).

Conclusions

This study can only offer a first glimpse at what the coastal fish populations and the coastal ecology which supported them might have been like prior to European settlement in New South Wales. The US study referred to in the Introduction identified ecological changes most likely wrought by humans which had distinct effects on coastal ecosystems, including mass hunting of turtles and harvesting of vast oyster reefs.

The present study has considered the earliest information available from the first Europeans, which by its nature, is confined to Sydney and surrounds. 100 years later, the evidence given in the Royal Commission perhaps allows some assessment of changes to that time.

One conclusion from this review that seems reasonably clear is that fish populations at the time of first European settlement, at least in the Sydney area, were not as abundant as we might have imagined. There are numerous accounts of the unpredictability of catches, with long periods of relative scarcity, especially in winter months. Certainly, catches of fish were not bounteous enough to ever have a glut, or to permit preserving by salting or smoking on any scale. It could be that this apparent poor supply of fish was due to the ineptitude of the first fishers, but this seems somewhat unlikely, given that so much effort was put into fishing for food in the very early days of the colony.

Overviewing all of the material presented, it is difficult to be certain about any major shifts in fish abundance through time. In fact, no major disasters appear to have occurred. However, some specific changes in some species, and in species diversity may possibly be discerned. These would include:

The apparent disappearance of very large snapper from reefs and headlands close to Sydney. These obviously old fish, referred to as 'native snapper' in the 1880s, seem certain to have disappeared, presumably due to simple growth overfishing. Black rock cod appear to have been very common, up to quite large sizes. This species is now fully protected due to its population being badly depleted, especially along central NSW. Grey nurse sharks also appear to have been caught quite commonly inside both Sydney Harbour and Botany Bay where they no longer occur. And the bluefish, *Girella cyanea*, also seems to have completely disappeared from the NSW coast, at one stage being reasonably common. Finally, it mud oysters were very abundant in Botany Bay, and were a staple food source for local aborigines when Cook paid his fleeting visit. This is almost certainly not the case today.

Recommendations

Considering its scope, this study had a modest budget and necessarily concentrated on the main sources of information which were likely to yield relevant information. In conducting the searches for information, new paths and branches inevitably opened which could not be fully pursued with the resources available. The study did reveal much information regarding the central topic, but a fuller study would be able to extend this work considerably further. Recommendations flowing from this study are:

- Undertake a comprehensive review of information available on archaeological studies of fish and shellfish remains from aboriginal activity through time. This would likely be a very productive type of review which does not appear to have been conducted before.
- Intensify the examination of unpublished accounts from diaries and letters. This is very time consuming work for possibly small reward, but to be comprehensive, this needs to be fully explored.
- Search all sources for specific information on early references to coastal and marine habitat (wetlands, mangroves, seagrasses etc) and to aquatic fauna other than food-fish or shellfish (ie, especially waterbirds). This study necessarily concentrated on fish and fishing so this avenue is definitely worth pursuing.
- Conduct more extensive searches through newspaper archives. This was the most time consuming part of the study but a complete search for relevant material may well reveal a fuller picture of historic changes, especially to habitat.
- Extend the study to coastal regions other than the Sydney region in more detail. Key areas might include Port Stephens, Lake Macquarie, Port Macquarie, the Clarence and Richmond Rivers, far south coast etc.
- Conduct similar studies in other Australian states.

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Appendix I

Selected Sections of Evidence from the Transcript of the Royal Commission into the Fisheries of NSW, 1880

The evidence given at the Commission was voluminous. The following passages have been selected from the total, concentrating on any opinions or information regarding current stocks of fish and historic declines (or even increases). For ease of reading, answers which are pertinent to the question of abundance of fish stocks are highlighted. I have also highlighted, where relevant, the location of the fishing operations, and the number of years experience of the witness. The latter gives some backward looking perspective on changes in fish stocks over the previous years and decades, albeit, subjective and anecdotal in most cases.

Wednesday 14 January 1880

Mr Samuel Congdon, fisherman [As seen below, Mr Congdon was a fish agent at the Fish market]

Your name is Samuel Congdon, and you have been for many years a fisherman?

Yes

Of late years you have been engaged in fish agencies in connection with the Fish Market, have you not?

Yes

For how long?

About seven years; ever since the Fish Market has been built.

And have you been a large purchaser of fish during that time?

Yes

You were a fisherman?

Yes

Where used you to fish?

In Sydney Harbour.

And did you go outside to any part of the coast?

Not outside.

Simply a net fisher?

Yes, a net fisher.

For how long?

About eight years, I should say.

You say it is net-fishing you have been chiefly engaged in?

Yes.

And only in this harbour?

Yes, only in this harbour.

Not Botany?

No.

Nor Broken Bay?

Nor Broken Bay.

You do not catch now such very large quantities of whiting as were caught six or eight years ago?

Not by any means – not a quarter as much.

And you have noticed that the same sized fish are not caught now?

Yes, but there are the same sized fish when the season comes round for them.

But there has been a great falling off in the number of fish?

Yes.

Can you give any reason for the falling off in the number?

In the harbour I think the water is poisoned.

There is a less number of fish now because of the poisonous state of the water?

I think so. The fish would come round the Middle Head and go up the North Harbour, but they will not go up the main harbour the same as they did because of the sewage.

Have you not noticed that the fish fatten best about the mouth of a sewer?

No; and independent of that, I think persons have an objection to eating fish taken near the mouth of a sewer.

Do the fishermen not always go to the sewers when they want to get whiting?

Not usually.

I want to ask you what you have observed about the mullets – Have you observed whiting coming into the harbour at irregular intervals?

That depends on circumstances, as, for instance, if we get a heavy rain; they come in occasionally after a heavy rain, but then they are not in the same condition as they are at other times – they are more sickly.

Do you not think that the increased traffic by steamers in Sydney harbour has something to do with the decreased quantity of fish?

Very probably it has with the school fish; it divides them at the Heads, and prevents them from coming in; it occasionally frightens them off.

Has that not more to do with the decreased quantity of fishy than the pollution of the harbour has.

I think not.

Have you invariably noticed that the fish captured on their return out to sea are spent fish – the mullet I mean:

That is not always the case, because if the weather is boisterous the mullet will come in at the Heads and go all round the harbour in a few hours.

But I mean after they have been in some time?

Yes, very sickly.

How far up the harbour do they go?

Not usually above the Circular Quay now.

And the largest portions of them are taken upon the beaches below Double Bay?

Yes.

Middle Harbour and Manly Beach, and the beaches on the other side?

Yes; very few schools come up the harbour.

They are taken in enormous quantities in Botany and down to the south?

Yes.

Are the shoals of hard-gut mullet anything like as numerous as the sea mullet:

Not near.

We have been told there was a large quantity of mullet in the Market this morning?

Not mullet, but salmon and trevallies – they are in abundance now.

Have you every heard of any great waste of fish in transmitting them to Sydney?
A great waste.

It often happens?
Yes.

From want of proper facilities for getting them to Sydney?
Yes. There is another consideration; if you had those facilities to get the quantity of fish here, you want to get rid of them when they are here.

Do you not think that as a rule there is a demand for a very much larger supply than now comes to Sydney?
I do not think so.

You do not think so?
I do not. If we get a liberal supply of fish in the Market now we cannot dispose of them.

Do you think this is due to the absence of any demand, or to ignorance or uncertainty that exists as to the fish being there?
Well, that depends on the season of the year. We have had fish in now three mornings running, a large quantity of fish, and have not been able to sell them/ yet it has been all over the town that fish are there in abundance.

Are you well acquainted with the mullet of this country that comes here in large schools, say about Lent time?
Yes

Have you noticed that the quantities have largely diminished from what they were when you entered into the business of a fisherman?
No; some seasons they are as plentiful as I every knew them to be.

Can you assign any reason for finding them more plentiful at one season than another?
No, I cannot.

Wednesday 14 January 1880
Mr Charles Coldrey, Fisherman

During the portion of the thirty-five years you have been here have you been a net or a line fisherman?
Both.

In the harbour and out of it?
Yes; almost every place up and down.

You have been fishing in different places – off the coast and other places?
Yes.

I will just mention the fishes and you can tell us what you know about them, beginning with the nannygey – what have you observed about that fish; that it is always taken by the hook, is it not?
Yes.

Where have you generally found them most abundant?
I have found them pretty thick about Jervis Bay.

In the Bay?
No, they seldom go inside the bay; I have found them about the heads of Jervis Bay.

Do you find them more abundant at some seasons than at others?

Oh yes.

But they are always a sea-fish?

Always a sea-fish. Years ago – eighteen or twenty years ago – we used to catch large quantities of nannygey off Coogee and the North Head.

There is no place where as a certainty you can get a supply of nannygey?

No.

But you found them most abundant off Jervis Bay?

I have seen them thickest there.

At what distance from the coast?

About 15 miles.

What depth of water?

About 30 fathoms.

The black rock cod are not so abundant as they used to be about Sydney?

No.

Do you every find the carp or the morwong – do you ever get them when fishing with the line?

Yes, you catch them always inshore close to the rocks, the same as the black rock cod.

Do you find them abundant?

Not very thick.

Then the question is, that if the movement of the shoals is always in a northerly direction, and they do not go back without spawning, how is the supply kept up from the south, and how far north do they go?

I have seen them as far as Queensland. It is a strange thing, but all fish, it does not matter what they are, come from the southward, and they all go to the northward; you can never find a school of fish going back to the southward.

Do you think they go to the south again?

After spawning I think they go off the land, and back to these places again.

It is only when going to spawn that fish come to the surface, and then they are seen; if they are returning in deep water they might pass without being noticed?

Yes.

You said you know the coast very well, that you knew Jervis Bay and Port Stephens; - do you think the supply of fish there is very large?

I know places where I could get two or three tons of fish at a haul.

Of course we all know Jervis Bay and Port Stephens are immense areas. I should like now to ask you an important question, and I want you to consider well in answering it. Suppose Sydney had to look for its supply of fish to Jervis Bay and Port Stephens alone, do you think those two places could supply Sydney with fish – I mean not with regard to transit, but to the supply?

There are better places than those.

I mean supposing there were no other places; if we had to depend upon those two alone, do you think they could supply Sydney as well as it is supplied now?

Yes, and ten times as much.

Either one or the other or them?

Yes; I know one place where you could get five times as much fish as Sydney requires, and Cape Hawke is a great place for fish.

You think that a supply could be obtained; do you think it could be maintained – that these

tow places would last out; in fact, do you think there are ten years supply?
Jervis Bay would last forever. Jervis Bay is a very large place, and you can go there and see ten or twelve schools of fish at a time – whiting, bream, mullet – all sorts; it is a regular place for fish to school in. When they come out of those places – the lakes on the other side – Jervis Bay is the first big bay they go into to school, and they hang about in there perhaps for days and days. But I do not think Jervis Bay would give a great abundance of fish in the winter season; it is only in the schooling time when they are abundant; in the winter-time it would not give so much fish – not one-eighth part.

What about Port Stephens?

That would give a great lot of fish.

In summer and winter?

Yes, and Cape Hawke would too.

Do you not think the beaches are warmer at Port Stephens than at Jervis Bay; and if so, would there not be a larger supply of fish at Port Stephens in the winter-time than there would be at Jervis Bay?

You could not depend upon Jervis Bay in the winter-time.

You have had great experience of the Tuggerah Lakes?

Yes.

You have been there for twenty years?

Yes, I was first there.

What about the supply of fish there?

There is a great supply, and at Lake Macquarie too.

Do you know Lake Macquarie also?

Yes.

What is the schnappers season – what time do they spawn – what time have you seen them full-roed?

In the summer season; now is about the time.

And they come nearer the coast at that time for the purpose of depositing their spawn?

Yes

They do not come inside?

Oh yes; I have seen Jervis Bay, inside the heads for miles, with schnappers swimming on the water.

The young until they are a certain age are always to be found near the land – that is, the red bream?

Yes, until they are a certain size, and then they go to sea.

What age are they when they go to sea – the red bream for instance?

I think a bream born this year goes to sea next year.

Then the squire would be a two-year-old fish?

Yes.

And you do not know where they deposit the spawn, whether on rocks or beaches?

No; I think they deposit their spawn something like the salmon does, close to the land.

You know Lake Macquarie very well?

Yes.

Do you not know that you can get schnappers there of all sizes?

Yes

How do you account for them being there?

They go in there.

Do you not see that that is inconsistent with your theory of spawning – did you not say the schnappers spawn at sea?

I think they spawn at sea, or close to the land, but I have seen the whole of Lake Macquarie, from the entrance up to past Pelican, one school of schnappers going in.

What do they go in for?

I do not know. I don't think they go in for spawning – I think they go in for winter quarters.

But that is the time you do not catch them in the Lake?

I have caught them. I know that twenty years ago there was an immense lot of schnappers there.

What age do you think a school schnappers is; The President asked you a question which elicited the answer that the bream goes out to sea at a year old, and at two years as a squire?

A school-fish would not be more than three years old.

What does he then turn out to be; do you recognize him in any later stages?

I think he becomes a rock fish then – pointers.

Is that the same as a "native"?

Yes.

Do you know much about Broken Bay?

Yes.

What is your impression as to the past and present state of Broken Bay, with regard to its supply of fish?

You used to go round there once, and on the station beach you could get a lot of fish. Now there is a steamer that goes to Broken Bay, and does not bring up twelve or twenty baskets. The most the steamer fetches is from twenty to twenty-five baskets.

You think the supply of fish is nearly ruined there?

Yes.

What is the reason?

I cannot tell you.

Broken Bay is not polluted like Port Jackson, and is not so much fished. To what reason then do you ascribe the destruction of the fish?

I cannot tell you. It is only four or five years since that the fish have taken off from Broken Bay so much.

Has it never occurred to you that the destruction of the small fish – the bream, for instance – might account for the deficiency of schnappers, and a similar destruction of the small fry for the deficiency of net fish?

I do not think so. All fish come into the harbour, and go to sea for spawning.

But large quantities of small fry are caught by the nets?

Yes.

Do you not think that such a process year after year would destroy the ground?

I do not. I think if it were shut up for fifty years and then opened you would not have any more fish there than you have now.

Then how do you account for the tremendous decrease in quantity?

In England it was just the same as it is here now. Fishermen could not make a living and could not get any fish, but now fish have all come back into the rivers – whitebait, flounders, soles, and shrimps are now in the London river as much as when I was a boy.

Can you not account for that?

Yes; it is because they took the sewage through the land, and the water from the sea becoming good the fish came back again.

You could not apply that to Broken Bay, because there is no sewage there?

No but this year the bay might be bad, or for two or three years, and then the fish come back again; perhaps the next year Broken Bay will be as good as ever.

But that is not consistent with the facts. The supply from Broken Bay has been gradually decreasing for the last ten years, so it is not likely that next year, or the year after, there will be any sudden increase in the number of the fish there?

You cannot tell – fish go away for years like that, and come back on the coast again.

Is it not a fact that immense quantities of fish are destroyed by fishermen – fish too small to be brought to market – and are allowed to remain on the beach?

There is a good deal destroyed, but most of it is rubbish.

Do you know that the fishermen down in Broken Bay say that the fish are still there, but gone into deep water?

I have heard that they say all the summer that there are plenty of fish, but they cannot get at them.

That there are still great quantities of fish there, but that they are gone into deep waters?

Yes.

Do you think that arises from the disturbance which they have been subjected to – I mean the constant fishing?

There are very few boats there – eight or ten, and it is a very large place; there are Broken Bay, Pittwater, Brisbane Water, and Cowan.

Did I understand you to say that when mullet are obliged to spawn at sea the greater part of the spawn is wasted?

Yes, there are often hundreds of fish, even sharks, with the mullet, and they drive the mullet up and eat the spawn.

With regard to the actual generation of life in the spawn, you mean to say that if the mullet spawn in the harbour there is much more likelihood of small fry than if they spawn at sea?

Yes.

Do the schnappers come up from the south like other fish?

Yes

Can you tell us anything of the natural enemies of the fish?

Every fish has got an enemy, one against the other.

Is there a great quantity destroyed by birds?

Yes.

Do you think there is any means of preventing that sort of destruction?

No.

Do you not think that the increase in the number of sharks has something to do with the decrease in the quantity of fish at Broken Bay and Sydney Harbour?

I do not know. There are a great quantity of sharks there in the season; like all other fish they come to the land in their season.

Have you any idea of the quantity of fish that one shark will destroy in the season?

Some sharks will eat three or four bushels of fish.

If the sharks are increasing, will not that account to a considerable extent for the great decrease that we speak of in Broken Bay and elsewhere?

No doubt it does make them less in number, and on the coast altogether; the sharks eat a great quantity of fish.

Do you not think one of the best means for increasing the quantity of fish would be to offer a reward for the destruction sharks?

Well, I do not know; you see they are so numerous.

But the more they are caught the less numerous they would?

It would take a long time to thin them.

Is it a fact that sharks are more numerous now than when you commenced fishing?

A great deal; looking down outside the Heads when I have been fishing there has been nothing but a mass of sharks.

Wednesday 14 January 1880

Mr Charles Hasty, fisherman

Do you think that if Broken Bay were closed against fishermen for a year or two it would act beneficially, so far as the numbers of fish are concerned?

No, I do not think it would.

Still you believe it has been over-fished?

Yes. I believe if it were closed it would increase the fish a trifle; but the scarcity of fish in Broken Bay during the last season was owing, I believe, to there being too much rain in it. In the early part of the winter season the fish were very plentiful.

Do you catch many mackerel?

Yes, I have caught a great number.

Are they are plentiful as they used to be?

They are at certain times.

They were in a few weeks ago?

Yes.

Enormous shoals?

Yes. There is no set time for mackerel.

They were outside the heads on this coast?

Yes.

Is it a fact that mackerel have been as plentiful the last few years as they were previously?

I have seen them as plentiful in former days as they are now.

Has Mr Hasty been fishing elsewhere than on this coast?

No, only on this coast.

Friday 16 January. 1880

Mr Charles Smith, fisherman

What is your name?

Charles Smith.

You are a fisherman?

Yes.

Have you been a fisherman for a very long time?
For twenty-one years.

In this country the whole time?
At Botany.

You have been confined to Botany?
Yes.

Principally net-fishing, I suppose?
Yes. I have been fishing in Lake Macquarie and Tuggerah Lake.

There must be a great destruction of fish, of the young of the ova, at that time. What fish have you seen eating these masses spawn?
All kinds of fish; bream I think are about the worst, and such as rays.

The flats are very full of those rays, are they not?
Yes.

Are sharks very numerous in Botany?
There are not very many in the river, only in the mullet seasons – they follow the mullet.

You find the rays very abundant on the flats?
Yes.

Are black-fish as plentiful now as formerly?
Not as plentiful as they were a few years ago; they are fish that come in from outside; there are not a great many breeds about the river.

It is a very saleable fish?
Not as good as the others.

They sell at very much lower prices than are obtained for bream, schnappers, or whiting?
Yes.

Friday 16 January, 1880
Mr John Nichols, fisherman

Do you find that the fish have decreased very much in quantity in this harbour of late years?
Well, they are not as plentiful as they were years ago. I think there is a good deal beholden to the sewage in the water.

Do you find the rays increasing in number upon the flats in the harbour?
No.

Not increasing?
Not increasing.

But they are very numerous in some places?
Yes.

You hardly ever haul the net without getting one or two, and sometimes a large number?
Yes, as high as twenty.

What do you do with them?
We destroy them; we destroy anything that is an enemy to ourselves.

Monday 19 January, 1880
Mr Thomas Curtis, fisherman

What is your name?
Thomas Curtis.

You are a fisherman?
Yes.

And have you been so for a long time?
Yes, about forty years.

Were you a fisherman before you came here?
Yes, I was fishing in England – trawling in the English Channel.

Is the school schnappers the large one?
No.

But it breeds?
Yes, they come in in various quantities, varying from 4 to 5 to 6 pounds.

That is a school fish?
Yes.

What do you call the very large old fish?
The native fish. We get these in shallow water inshore – they do not go in shoals.

Is it not one and the same fish?
That is part my comprehension.

Do you think they are different fish?
I think so, but I cannot say for a fact. The school fish has a roe at certain seasons of the year which you do not find with the other fish.

When they are large old fish with a lump on the top of the head – do you ever see those with roe?
No that is what we call the he or male fish

You think it is only the male that has the lump on the top of the head?
We invariably say so, but I do not know; I think they are the male fish.

What ground do you find best for the schnappers, and what depth of water as a rule?
Well I think somewhere about 18 fathoms of water is a very good depth for schnappers, or say 18 to 20 fathoms.

You have fished in places up to between 30 or 40 fathoms?
Yes.

Did you find schnappers at that depth?
Yes.

They do not take the hook so readily then, do they?
We had a very good season out at Coogee until those leather-jackets came, and we could do nothing with them.

What leather-jackets?
The large sea leather-jackets – the yellow ones.

They are used for food?
Yes.

Do they drive away the schnappers?

Yes, they get out bait off; they come up in myriads.

You had to five up the ground on that account?

Yes; sometimes we have had to try twenty ground in a day, and then we have found the leather-jackets equally as thick.

The mackerel, I suppose, you have sometimes seen in enormous numbers?

Yes.

Did you see them this year.

Yes, they are numerous in Botany.

Did they not pass the coast, outside, in enormous shoals?

Yes. They all come up from the south mostly, in very large shoals.

When they come in in that way, do the fishermen care about catching them in any quantity?

No, they are keeping fish for market. We only require a few dozen for bait or something like that.

There are some large fish seen occasionally, such as the bonito and others of that tribe – you see them outside occasionally?

Very numerous.

In large shoals?

Yes, the run in very large shoals.

They are not caught with any certainty at other times?

They are a fish we could not depend on for market – they are not a good eating fish.

Any of those large Scombridae – there are several kinds of them – you say you have seen them in enormous shoals?

What fish do you mean?

I mean the fish like bonito?

Yes, and the salmon.

You always fish on rocks?

Principally on rocks.

I suppose during the many years you have been engaged in fishing you have often observed large shoals of herings and fishes of that kind passing?

Yes, they are very numerous.

And you know the maray too?

Oh yes; I have seen them both in enormous shoals.

The sea for miles appears as if it were solid?

Exactly so.

I think you mentioned you were for some years fishing at the mouth of the Macleay River?

In the Macleay River.

Did you find fish there plentiful?

Any amount.

What kinds?

Mostly mullet, whiting, bream, and perch.

Are fish very abundant in Port Stephens?

There were a great many when I was there, but there were no means of getting them to the Sydney Market? We only fished for the Chinamen there.

What places to the south have you fished in?

Botany, Port Hacking, Wattamolla, Marly, and all those places down there, and Bulli.

Not Jervis Bay?

Not for a living.

Have you fished there?

Yes, with hook and line; outside and inside.

Was it a good place?

Always plenty of schnappers.

Any other fish?

It abounds with flathead inside – I believe it is a grand place for flathead.

In speaking of the schnappers, you say the school fish is a distinct fish altogether from the inside fish?

Yes.

Of course you are acquainted with the bream?

Yes.

You catch them all sizes up to the schnappers?

Yes.

Do you do that with the school-fish?

Yes, we get them from the bream sometimes up to six or seven pound schnappers.

The schnappers is a rock fish?

I believe so.

That accounts for your saying that the morwong is occasionally caught among them?

Yes.

That is a rock fish?

Yes.

It is a white fish?

Yes.

Do you find the fish in our harbours now as plentiful as when you first began fishing?

By no means.

What is that attributable to?

I think, in a great measure there are too many stake or meshing nets used.

How long has that kind of thing been going on in this country?

As long as I can recollect, and now more than ever it was.

What is the length of these take nets?

I have seen a couple of miles down.

Do you think they act most injuriously?

Most undoubtedly.

In what way?

They kill so many small fish.

It is ascertained by the fact that those small fish are found where the tide leaves the net?
Just so.

You have noticed that yourself?
Oh yes.

What is the mesh of those long nets?
Generally a small mesh. In Botany they use about 2 ½ I think, and in Sydney 2 ½ principally. That is for the stalling - we call it stalling.

You think it would act beneficially if our harbours were closed at intervals?
It would preserve many of the fish and allow them to breed.

Is Botany about the best fishing ground we have here?
I think Botany about the best for supplying Sydney.

It is a fact that more fish come from there than from any other place?
Yes.

You think the decreased quantity of fish arises from the destruction and the waste of fish by the fishermen?
In very great measure.

And is it on that account you recommend the rivers or places to be closed?
Decidedly.

On account of the destruction?
Yes.

Then if the wilful waste of fish could be put a stop to, without closing Broken Bay or Botany Bay, would that not have the same effect?
Yes, I dare say it would.

Are you not aware that there is a law for prohibiting the use of the small meshes that you refer to?
Just so.

Is that in force?
I cannot tell you; I do not use them myself, but they stall a good deal in Botany.

But there would be no necessity for closing these bays if the small fish were protected; - could you devise any means for preventing the destruction of the small fish other than closing the harbours?
Well, I could hardly tell you. You would have to watch them pretty close to stop it; you would require some one to look after the fishermen and to be very vigilant.

You do not think the increased consumption has much to do with the decreased quantity of fish - the increased population, has that much to do with it?
I do not think the fish are coming into the Market as they used to come in.

What I wish to ascertain are the causes of the decreased quantity; I wish to ask you if the increased population is also another cause of the decreased quantity of fish?
I do not know what the increased population would have to do with it.

There would be an increased consumption?
Yes. I think of course the more fish that came into the Market the better it would be for the inhabitants; but what is the use of destroying the young fish and have no fish in the Market? I think the destruction of small fish should be put a stop to.

Do not the sharks destroy a great deal of fish?
Yes.

Have the sharks increased since you became a fisherman?

No, I cannot say they have.

In speaking of Broken Bay you spoke of a large deficiency up there – you think that place has been over-fished, and to a large extent destroyed as a fishing ground?

Yes; at one time it abounded with fish.

You were fishing a long time at Port Stephens, and there were Chinamen there that took your catch?

Just so.

Can you give us an idea of what line fish you could have got in early times, or even now for the Chinamen?

I did very well with the Chinamen there. Some days eighteen or twenty-five dozen of schnappers, and other days from three to four or five dozen. It always paid.

How many boats?

There were only two of us fishing.

The Chinamen only took a limited quantity?

As many as we could catch.

If ten boats could have fished there the Chinamen would have taken all the fish that were caught?

Yes.

If the line men alone fished on outside ground would the grounds be destroyed to the extent they have been – because it is known now that the outer ground are quite destroyed – would that have occurred if there had been no net-fishing in the immediate vicinity?

I could hardly answer that. It is merely through the leather-jackets that the schnappers have been so scarce during the last three or four years. They have been a perfect pest – we could not get fish. I was out last week, and did not get fish enough to send into the fish-shops.

Do you not know that when the fish are in quantities, in good-sized relays, they drive away the leather-jackets?

It does not appear as if they do; we can never get a lot fish now – it is a grand thing to get two or three dozen of schnappers.

19 January, 1880

Mr Michael Solomon, Government boatman

You were over twenty years line-fishing?

Net and line together.

And have you been much over the coast – have you been fishing in many parts?

As far as Port Hacking, and up to Tuggerah Beach. Only on one occasion we went for lobsters to Port Stephens.

Then there is another fish known as the old wife?

Yes.

Used you frequently to come across them?

Yes.

The black rock-cod – is that found abundantly?

No; but I have seen three or four dozen caught in a day.

The salmon is a fish that sometimes comes in large numbers?

Yes.

In what season does it come?

At all times we have seen them.

The flathead, - do you know anything of the habit of that fish?

At one time they were very plentiful, but they are not so now, and the roe is in them now.

And do you think they deposit the roe upon the sandy flats and other such places?

Yes; you catch them on the sand.

This pike is a fish not much looked for?

No.

And the John Dorey, I understand, is only occasionally got?

That is all.

It makes its appearance one season in the year, but not in any great quantities?

No.

The tailor?

Those are fish that cruise in very large quantities.

Can you tell me the season when the tailor makes its appearance?

There are all times of the year for them.

They come in shoals, do they not?

I have seen them thicker in winter than in summer.

Perhaps they spawn in the winter. Have you seen the large-sized tailors with the roe in them?

I have not taken notice of them; they are a sort of fish the fishermen do not care anything at all about.

It is one of the finest fish, is it not?

Yes, but it cuts the nets to pieces.

They are only caught in nets in the sea?

Yes; you get odd ones with the line.

Where are they generally found outside?

On the sea-beaches.

Generally in shallow water?

Yes, and in rivers too I have seen them very thick.

Have you seen them in shoals near the surface – like mackerel for instance?

Oh yes, and caught them, a couple of boat-leads at a shoot.

That was in the past?

Yes.

The blue groper – is that prized so much as it ought to be?

No; you do not get many of them.

The Long Tom – do you ever get that fish?

No.

That is considered a goof fish?

Yes; I have caught them very large in Long Bay.

You know the fish called the maray?

Yes.

You have seen that in great numbers at times?

Yes.

Have you ever seen people use it much?

No.

What do fishermen do when they get a boat-load of them?

I saw one boat-load of eight or nine bushels taken care of; but they are not prized – they were not prized when I was fishing.

The other fish known by the name of the herring?

I have seen plenty of them.

They pass in great numbers sometimes?

At Brisbane Water and on the Hawkesbury River I have got boat-loads.

Is that a fish that finds a ready sale?

No.

People do not know it I suppose?

No, and it will not keep. We got about a boat-load of those herrings in Speir's Bay.

What did you do with them?

Left them on the beach. That was I dare say twenty years ago.

19 January, 1880

Mr John Andrews, fisherman

How long have you been fishing here?

About sixteen years.

Was it not you who sent me notice two or three weeks ago that the mackerel were passing in enormous numbers?

No.

Did you observe the mackerel passing in that way?

Yes.

Outside the Heads the sea was full of them?

Yes; some months ago I told you there were great quantities of maray passing.

Yes; but the mackerel were passing only two or three weeks ago?

Yes; there are great quantities now in the harbour, and trevallies.

The white trevally is a fish that is sometimes very plentiful here, is it not?

Yes, they are very plentiful now.

Is it of any value?

It has not been of much value lately – people will not take them from the Market now.

Wednesday 21 January 1880

Mr James Nowland, fisherman

Residing in Sydney?

On the Parramatta River.

How far up?

Hen-and-Chickens Bay – about 7 miles.

And it is entirely net-fishing there – nothing but net-fishing in that part?

Yes.

Have you confined yourself to fishing in that part of the river, or have you been anywhere else?

I have been to Broken Bay.

What other places have you been in besides Broken Bay and the Parramatta River?

None but those.

How long have you been employed at fishing?

I have been continuously net-fishing for over twenty-four years.

I will ask you merely about the net fish. Do you get black bream up the Parramatta River?

Yes.

And tarwhine?

Yes.

In large quantities?

No, in small quantities, the tarwhine.

But the black bream in large quantities?

Sometimes.

Does it appear to be more plentiful at one season than another?

Yes.

In what season does it appear to be more plentiful?

They do not appear to have any season, but when there is a fresh in the river they come down the river with the fresh.

Do you find the black-fish also?

I have found this last three or four years the black-fish almost entirely gone.

Was that a fish you used to get in great abundance?

Yes.

And they have disappeared lately?

Almost

Used they to run far up the river?

Yes to the heads.

How long have you been fishing at Broken Bay?

I have been there three or four months fishing for the "Kate" – she runs there. I fish there every winter.

When did you commence fishing at Broken Bay?

About eighteen years ago.

And have you fished between that time and the last three or four months?

Occasionally.

Have you noticed a falling off in the fish supply?

Yes, very great.

More particularly within what period?

Within the last twelve years. Eighteen years ago any boat going there was expected to get 30 or 40 bushels; now a dozen bushels are a big freight.

How long since has the quantity been diminishing?

For twelve or fourteen years.

Do you think it is getting worse?

Yes.

Worse now than it was three or four years ago?

Yes.

What in your opinion is the cause of the diminution of the fish?

They are very easily scared. There are plenty of fish in the Hawkesbury, but they keep away along the rocks or bold shores, where they cannot be hauled ashore.

You say that the fish are in the river, but you think they have been worried too much?

Yes.

Do you not think they should have felt as much worried ten or twelve years ago, when there was quite as much fishing as now?

There are more boats fishing now than there were ten or twelve years ago.

It is hardly reasonable that there should be more boats if there are very much less fish?

It is so.

Is the quantity of fish equal now to what it was twelve years ago?

No.

You thin the quantity of fish has decreased?

Oh yes.

It does not solely arise from their taking refuge where they cannot be got at?

Not solely.

Are sharks numerous?

Not particularly.

Not in Port Jackson?

No.

Not more numerous than they were twelve years ago?

Not so much.

As an experienced man – a practical fisherman – is it not a fact the short supply of fish is more attributable to the small fish being destroyed by the small mesh nets than to any other cause?

Yes, decidedly so.

Decidedly so, I think you said?

Yes.

And fishermen as a rule – I do not, of course, want you to implicate yourself – fishermen, as a rule, do use small meshing nets?

Yes.

Now with regard to the disappearance of the black-fish in the Parramatta River – how do you account for that?

I think it is on account of this blubber, for when hauled ashore in it they die sooner than any other fish. There were a good many black-fish in the river before this blubber appeared, and since that there are not.

What do you mean by the blubber?

The medusae.

Do you not have that also in the Hawkesbury?

I never saw it.

The black-fish feeds on a peculiar sea-weed – a thin green weed, the only wee it will feed on?

Yes.

Do you not think the disappearance of the food of the fish would have something to do with the disappearance of the black-fish?

Yes.

Do you not think that a likely cause of the destruction of the weed is the throwing of steamers' ashes into the water and the covering over of the weed, and that this practice having some effect in the disappearance of the weed leads to the disappearance of the fish in search of its natural food?

Yes.

21 January 1880

Mr Eugene Golding, Government boatman

What is your name?

Eugene Golding.

And you are a Government boatman?

Yes.

But you have been a fisherman?

Yes.

For many years?

For sixteen or eighteen years.

The white trevally – that sometimes makes its appearance here in great numbers?

Yes.

Of different sizes?

Yes.

Some large ones are always with the others?

No.

Have you ever seen the large ones one in?

As big as a small schnappers, in schools.

When you catch them that way you catch them all the same size?

Yes, I have caught a hundred bushels at a time.

The maray – you have seen that at times?

Yes.

At what season have you observed it?

Late in the season.

In winter?

Yes.

In enormous shoals?

Very large.

I believe there has been a larger falling off in Broken Bay than anywhere else, and I am anxious to inquire as to what you ascribe that falling off to – what is the reason of the

falling off in schnappers?

There have been so many red bream destroyed that it must weaken the fish. You catch all the old fish, and the young ones afterwards.

Has that mischief been accomplished by the net men or by the line men?

Principally by the net, because you take all those young fish ashore and leave them on the beach to lie there. If the fishermen would take the trouble to chuck them into the water again there would be some saved.

About stake nets and stalling; you think they are - ?

I am certain they are bad, and destructive to fish. If the fishermen would stall with a certain sized mesh I would not be against it; but they put down a ballahoo net, and the fish will not attempt to go through the net if the water is very low. I have had from three to four hundred fathoms of net, and fifty or sixty of ballahoo stuff in the centre, which we have put in the deepest water. The young fish will not go through it, but go back.

You admit there is a great fling off in the quantity of fish?

Yes.

What is the cause of it?

The harassing and destroying the fish. You kill all the old fish first, and there are none to breed; and in the next place you kill so many young fish that you must run them out. Many years ago in the Hawkesbury River you would get with a net 60 or 70 fathoms long about 50 or 60 bushels of fish at a shoot, and you could not put them in the boat, there were so many; latterly you would be glad to get five bushels.

Does the trevally – the white trevally – feed on small fry?

I never saw any in them. My opinion is that all fish which take bait will live n the other fish. I believe that the schnappers is just as destructive of spawn as any fish going.

You have opened them at times?

Yes.

What I wanted to ascertain was what are the most destructive fishes that come up into the shallow bays where the spawn of probably the whiting and the gar-fish is deposited?
The tailors and the orse mackerel.

What do you call the horse mackerel?

He is a large sort of mackerel. You see the bonito, but they are smaller than those.

With some stripes on them?

Yes.

It is either the *Auxis Ramsayi* or the *Cybium commersoni*

Do you think the birds are very destructive here to young fish?
Very destructive.

What birds are the worst?

Sea-gulls, gannets. I do not see any way to preserve fish unless some of the rivers are shut up; because wherever the net has been you find the fish thinned pretty well. You find Tuggerah the same.

Wednesday 28 January 1880
Mr George Newton, fisherman

What is your name?

George Newton.

You are a fisherman?

Yes.

Have you been so for a length of time?

About thirty years.

In what season have you seen mackerel most abundant here?

Well, about now.

About this time?

There were any quantity of them in the Watson's Bay last week schooling.

Is it not a fact that larger numbers are seen in October and November?

Well, yes, I think so; I think there are, though they were very thick last week.

Is there any irregularity in their movements: I have heard of them passing the Heads in a northerly direction in enormous shoals – have they any seasons for those migration?

I have seen them in enormous shoals passing outside.

Have they any fixed periods for that – do you know within a month or so the time that they pass?

Yes.

That is to say, if they were worth catching you would know when to catch them?

Yes.

Do you know, as a fisherman, that there have been some years in which they have not been seen in the harbours in any quantity or at all?

I have noticed that.

Sometimes they pass outside and do not enter the harbour at all?

I have noticed that.

The salmon are very numerous now?

Yes, all along the coast.

Have you had a very large experience of fishing in Broken Bay?

Oh yes.

Have you fished there recently?

It is about three or four months ago since I came up.

Were you there for a long or short time?

Only a short time.

Is the supply of fish in Broken Bay equal to what it was fifteen or twenty years ago?

No.

There has been a great falling of in the supply?

Yes.

Have you fished in the same place recently as in former times?

Yes, nearly the same.

Does the diminution in the supply relate to all net fish?

Very nearly all of any good.

Can you give us any reason for the falling off in the supply?

The only thing by which I can account for it is so much hauling about and destruction of the small fish and spawn.

You attribute the falling off in the supply altogether to that?

Yes, to so many fish being killed, and there are too many persons fishing. Of course I myself am as bad as the rest of them – I do not take the trouble to let the fish go.

Those are the little fishers?

Yes.

Have you never been engaged in the service of Chinamen?

Yes.

Where?

Broken Bay.

How long were you so engaged?

Every season while they were there.

For how long at a time?

In the summer months, while the fish were in.

What fish did you catch for the Chinamen?

Schnapper principally.

Where were you fishing then – round the heads of Broken Bay, Barranjeuy, and all round there?

All round there.

How many fishermen were engaged in that occupation?

I have known as many as about twenty boats to be engaged by the Chinese.

Would they take all the fish that you brought them?

Yes.

Can you give us any idea of their mode of curing – what they did with the fish?

They split them and salt them and shove them into a cask – that was all.

They did not bone them?

Oh no; they would split them down the back. At other times they would cut a little of the belly, take the inside out – just what they could reach – put a lot of salt in and stuff the fish into a cask. That is what they call dry curing.

But the general mode is to cut them down the back and salt them?

Yes.

Where were those fish sent to – Sydney or Melbourne?

I think they were sent all about. There were great quantities; I have seen six or seven boat-loads a day going into them.

Do you find schnapper more plentiful about Broken Bay than about the Heads here?

I think they are.

But even there do you catch as many schnappers as you did in former years?

No.

Then what you have told us about net-fishing in Broken Bay is equally true with respect to line-fishing – that the supply is very much less now than what it used to be?

Yes.

And you attribute that fact to the places being over-fished?

Yes.

Does Port Stephens about with various kinds of fish, to a much greater extent than Broken

Bay.
Yes.

What kinds of fish does it produce?
Bream, whiting, mullet, perch, and black-bream.

Black-fish?
I cannot say I have seen great quantities of them.

Perch – fresh-water perch?
Great quantities; they come down out of the Myall after freshes.

And schnapper?
Not in the river.

I mean about Port Stephens?
Yes, very abundant.

And cray-fish?
Yes, great quantities; they used to give us 6s. a dozen for them; they used to cure them.

You think the supply of fish is very good, and the work is very good?
Yes.

Can you tell us, or give us a rough idea, how many men could work Port Stephens and gain a living there?
Pretty near all we have got about here; it is a very large place. There are great quantities of whiting there – very large whiting.

All the fishermen engaged in the supply of Sydney Market would find employment at Ports Stephens?
Yes, I thin so.

You mean for a time?
I have made up my mind that if the other men go to the Lake I will go to Port Stephens. We cannot manage about here; the fish are so scarce that we should starve.

What is your opinion as a practical man – which fish do you consider the best for eating; I do not mean for the general public, but generally among yourselves?
The black bream.

I quite agree with you. There are some fish extremely good but extremely rare, for instance, the black rock-cod; I suppose there is no fish in the Colony to compare with that for quality?
I do not think so.

But it is very rare?
Very rare.

With regard to the lakes and other places to the north, does the practice of stalling those places destroy the fish much?
There is great destruction in the lakes.

Stalling the nets in those places to the north is the cause of a great destruction of fish?
Yes, and in Botany too. They make a stall there of sometimes over a mile, on those big flats; they don't bother about the little fish, and they perish.

Whereabouts in Botany Bay?
On the big flats; nearly every big tide they stall there.

Is there not a very much greater proportion of small fish destroyed than are gathered by these means?

A great deal more.

Ten times or twenty times as much?

Far more.

Is there not a system practised by some people of destroying fish with dynamite?

There is not much of it used.

It is practised by some people?

Yes; I never practised it myself.

Do you not think it a most improper practice – a most abominable one?

Yes; because they cannot get the fish.

They destroy the fish and cannot gather them?

Yes.

While it destroys a great number of fish, the fishermen cannot gather them?

No; they sink.

You spoke of there being large shoals of fish bailed up by sharks?

Yes.

Do the sharks destroy a great number of fish?

Yes; Oh! Bless you, yes.

28 January 1880

Mr George Kohler, fishmonger

Have you been long engaged in that trade?

Ten years in this Colony.

Were you accustomed to it before you came to this country?

Yes. In London.

You look upon the schnapper as the best fish?

Yes.

Is there always a full demand for fish of that kind brought to the Market?

Yes.

You never have a surplus?

Not of schnapper – very seldom.

Now what other fishes brought to this market do you look up as most valuable?

Whiting and gar-fish.

There is a great demand for them at all times?

Yes.

Have you ever an excess of supply over the demand of those fish?

Hardly ever of whiting; we have of gar-fish.

What other fish do you get?

We get bream, mullet –

Black bream?

Yes.

That is a favourite fish, is it not?
Yes.

Do you find that they every use any of the rays for skate?
No, there is no use of them at all, although the French cooks tell me they are very good.

But you find no demand for them – they are never brought to market?
They are brought to market, but there is no demand for them – they are not worth the carriage; they are very good if properly cooked.

28 January 1880
Mr George Warrington, fisherman

You have been engaged in that occupation for how many years?
Since ' 32.

Had you any experience of fish before that – I mean have you been a fisherman elsewhere than here?
Yes, I was fishing in Great Britain on the Dogger Bank.

So that you are experienced in the use of the trawl?
Yes I have used the trawl in this country.

Where have you used the trawl in this country?
In Botany; likewise in this harbour.

And did you find that the trawl answered?
No, owing to being bothered by the sharks, which were a great hindrance.

Used they to get into the trawl?
Yes, and when they saw a fish in the trawl they would go down and take it out.

And I suppose you found your trawl cut and injured?
Yes, and there were great means of fouling because of the blubber; but the sharks were the greatest nuisance.

Did you ever try a trawl outside the Heads, in deep water?
No; I would like to sound my ground before putting a trawl down there.

It was Botany you were trawling?
Yes.

Did you find many fish there?
I found those beautiful English soles.

Black soles?
It depends on the bottom principally.

Were they the same as this one (*Synaptura nigra*)?
That is the harbour sole.

The small one, the Solea?
Yes, that is a small specimen. I have a specimen of the English sole, the true English sole, at Manly Beach.

Caught here or in England?
Caught here.

Caught in Botany Bay or at Manly?
I caught it on the beach.

It is none of the specimens I am now showing you?
It is of this family, but not so thick as these.

What other fish did you get with the trawl?
This species of brill (*Pseudorhombus Russellii*) and flatheads.

The species of brill is what we call the flounder?
It is no flounder.

We want to know what fish you actually caught by the trawl net in Botany while trying the trawl there, and whether you found the fishing paid you?
It was the conveyance of the fish that did not pay.

You got fish in considerable numbers?
Yes.

And all good-sized fish?
Yes, bigger than these (*referring to specimens*) considerably

What other fish?
Whiting, flying gurnet, and such like.

Did you find flying gurnet abundant?
No.

Any flatheads?
An abundance of those.

And altogether you found it would answer?
Yes, with a steam launch, but not trusting to sail, because the wind would drop away at night.

Did you ever see trawling done by steam?
No, I came away from England rather early.

Did you ever hear of trawling by steam?
Oh yes, the same as dredging. They have got steam-trawls on the coast of England at the present time.

I never heard of it. Do you not think the noise of a steam-engine would necessarily frighten the fish?
You can work it with just sufficient power to drag your trawl away, and have just a little draught.

Do you think the noise would not frighten the fish from the net?
Not at all, not those fish on the bottom.

What other fish besides those you have mentioned did you get when trawling – were those all?
Pretty well. There were leather-jackets – we found them in abundance; they are a nuisance anywhere.

Did you find that you caught many of the ground rays?
I do not call them fish; they were a nuisance always, and they were numerous, and the stingaree and the skate.

Friday 30 January, 1880

Mr John Massey, fisherman

You are a fisherman?

Yes.

Residing on Lake Illawarra?

Yes.

And have been for some years?

Yes about twenty years I have been on the lake.

Are fish very abundant in Lake Illawarra?

Sometimes they are, and sometimes they are not.

What fish do you chiefly get there?

What we term gar-fish, bream, black bream, whiting, and mullet principally; perch and flathead.

Perch?

Yes, but they are scarce – not so plentiful now.

And flathead?

Yes, and eels, and Long Toms I think they call them, and soles and flounders; the those are very scarce; the principal fish are the bream, the black-fish, and the mullet.

The black bream and mullet?

Yes.

You know what is called here the large sea-mullet?

Yes, what they call the large sea-mullet. We do not find them very plentiful. The are a pretty large mullet, but it is not like the sea-mullet.

You find the black bream pretty numerous in that lake?

Yes.

And black-fish?

Yes. Sometimes.

30 January, 1880

Mr Benjamin Skinner, sen., fisherman

You are a fisherman at Manly Beach?

Yes.

Have you been long a fisherman?

About thirty-three years I think.

You have not confined yourself to net-fishing?

Hook and line fishing; generally one fishing with the other.

Have you fished at any distance from the shore in deep water?

Oh yes.

How far have you gone?

About seven or eight miles off the Heads.

What depth of water?

30 to 35 fathoms.

Have you found the fish as abundant there as they are close to the coast?
At times.

What sort of fish do you catch at the distance?
Large bream, squire, and schnapper; those are the principal

You mean the black bream?
No, the red bream.

All the same fish?
Yes, all one class of fish.

Then what other fish do you find at those depths?
We have caught nannygey at that depth, and king-fish.

Can you tell us anything about the trumpeter tribe – the carp and morwong and those fishes?
Yes; I got them generally off the point, but they are not so numerous as they were.

You never got them in numbers?
I caught the morwong off North Head at one time as numerous as bream.

Now they have jew-fish, and the teraglin, those are line fish of course; - are they abundant?
No; the teraglin comes in at times abundant.

Have you known anything of the use of dynamite since you have been fishing?
I have seen it used.

What has been the result?
Damage to the fish.

In what way?
Killing the fish.

Do they that use it destroy more than they get – large numbers of the fish going to the bottom?
Yes.

Is it in use just now?
I do not know; I believe some parties have been using it.

Have you often seen it used?
Yes

What is the greatest depth of water in which you have seen it used?
Eight or ten fathoms of water.

Is it your opinion that the use of it should be stopped?
Yes.

You think it acts injuriously?
Yes.

Does it drive the fish off the coast?
I believe it does frighten the fish off the grounds.

Have you ever seen schnapper killed by dynamite?
I have seen a Government boat kill them off the Spit in Middle Harbour.

Was that exclusively by the use of dynamite or by the use of a torpedo?
Well, I should think them much the same.

They are differently used?
Those I saw killed were killed by dynamite.

Did you say you have used it?
No, I have seen others make use of it.

You think it ought to be prevented if possible?
Yes.

Is dynamite used by fishermen at all to procure fish for the Market?
I do not think it is; it is mostly done by gentlemen of pleasure.

Is that black flat fish in the bottle what you call the sole?
No, it is not the true English sole; I have caught the true sole here.

From your experience have the leather-jackets increased in great numbers here?
I believe they have.

How far out?
I think as far as you like to go. I never found them so numerous as they were last season when they came into the harbour.

Worse than you ever knew them before?
Yes.

They are very troublesome to line fishing, are they not – more so than sharks are?
Yes.

Is there any reason for their increasing so very much here?
The only reason I could account for it is the offal going outside the Heads.

Did you every try with English trawl?
No.

You have had experience of them?
At home – on the Devonshire coast.

Do you think there is any field for regular trawling here?
I do not think there is. I have been out nine or ten miles and found rocks and foul bottom – patches. You must have a clear sandy bottom to trawl; and not only that, I do not believe our fish are as quiet as those in the old country. There is nothing to prey upon them in the old country as there is here.

Monday 2 February, 1880
Mr Thomas Mulhall, sen., waterman

You know the black rock-cod?
Yes I do.

Is that as abundant as it used to be about here?
No, they are scarce.

It used to be caught in Port Jackson?
Yes, generally about the rocks.

Do you know any other places at a distance where that fish is caught in quantity?
Broken Bay way and Port Hacking, Tuggerah Beach, and Terrigal.

It is found all along the coast?
All along the coast.

It is always near the coast?

Always near the coast; the further you go north the larger they are.

The further you go north the larger they are?

Yes.

How far north have you heard of them being caught?

As far as Brisbane.

The black rock-cod?

Yes, the black rock-cod.

Have you every seen many of the morwongs and carp caught?

I have caught morwong, but not many carp. The carp are generally caught by those grab-hauls; they do not bite very well; I never caught one with a hook and line.

But you have caught the morwong with the hook?

Yes; they used to be very thick here one time, when you could load a boat here, but now there are none.

Was it a good fish?

They are good fish.

Used they to be always here?

Not always; they would come and go.

Does the sardine (*Clupea sagax*) – the maray – come in now?

Yes.

Every year?

Yes, but not in such clusters as they used.

I suppose you are aware they pass the Heads in myriads?

Yes, I dare say they do. You often see them out there, and they do not come inside.

You finished in Port Jackson harbour many years ago – thir or forty years ago?

Yes.

Were not schnapper plentiful then about different places?

You could get them anywhere almost.

Abundantly?

Yes.

It is not the case now, and has not been the case for many years past?

No.

They are difficult to be had?

The are difficult to be had now, and you must go a long distance to get them.

To what circumstances do you attribute the falling off of the supply in the harbour or about the Heads of Port Jackson?

I cannot tell that. I think myself so many persons go out with small lines and hooks; they carry away so many lines and hooks amongst these fish that it destroys the fish; using bream hooks amongst schnappers, they keep breaking and breaking, and it must destroy the fish. And the continual race of steamers, I think, injures the fish a good deal about the coast.

Do you think that the catching of the red bream in enormous quantities in the harbour continually is one cause of the schnapper being deficient in quantity?

No doubt that reduces the quantity of schnapper.

Very considerable?

It must do so.

Many years ago – some twenty and thirty, and further back than that – had we not an abundant supply of large kind of mackerel?

Very large.

They were in great quantities?

Yes.

All over the harbour?

Yes, very large.

Have you seen any of those of late years?

None.

2 February 1880

Captain Pettit, Assistant Harbour Master of Port Jackson

What is your name?

Henry Pettit.

You are a pilot, are you not?

Assistant Harbour-master

We wanted to get your evidence, because we understand you have been in the habit of occasionally fishing at a great distance out, beyond where the fishermen go – is that the case?

Yes, I have been many years about the Heads fishing. I used to be in the tub-boats a good deal, and we sometimes drifted a little distance off the land – 5 or 6 miles.

In 35 or 40 fathoms of water did the fish bit readily?

They bit very well indeed.

Could you bring them up with safety – were there any sharks or anything of that kind about?

No, we could always land the fish and bring them on the deck. It was longer to haul them up, but when the fish were plentiful you could haul them up all right. Sometimes they are more plentiful than at others.

That is the case everywhere – fish move about?

Yes.

Did you find the morwongs more abundant in that deep water than in shallow places?

No; morwongs do not appear to be a school fish. We get a few of them – an odd one occasionally – among the schnapper.

4 February, 1880

Mr Chin Ateak, Chinese Merchant

What is your name?

Chin Ateak.

You are a merchant?

Yes.

We want to ascertain something of the fish trade; you have had something to do with it, have you not?

Yes.

For a long time?

Yes.

Are you carrying on the business now?

Just now, no; I have given it up.

Will you mention when it was you carried on the trade, and where?

Port Stephens, Lake Macquarie, Jervis Bay, and Merimbula – Twofold Bay, before we put a station there to catch fish.

At all those places you had stations to procure fish?

Yes.

That is some years ago?

Yes, nearly twenty years ago.

And when did you give them up?

I gave them up, ho, long ago – nearly eight years ago.

Well, had you Chinese curers?

All Chinese curers, and at some places European fishermen and Chinese cureres.

But you had some Chinese fishers?

I had at some places Chinese fishermen, and at some places the Europeans.

Were they European or Chinese fishermen at Merimbula?

Some Chinese; the other – schnapper – all Europeans.

The Chinese did the net-work inside?

Yes, inside.

Well you found at that time there was a good trade to be done?

Yes, a very good trade; there was a lot of people there, and we sold two or three hundred tons in a year.

Where?

In New South Wales some hundred tons, and two hundred tons at Melbourne.

They were for the consumption of the Chinese in those Colonies?

Yes in those Colonies.

Was it any particular kind of fish?

Yes, some schnapper and net fish.

They were different kinds?

Different kinds of fish.

All mixed together?

Not all mixed.

You separated them?

Yes.

And those were salted and dried I suppose?

Salted and dried; some dried, and some they call pickled fish, put in a cask or barrel.

You found you had a good market for them?

At one time a good market.

But has it fallen off very much?

Not so good now; few people now here – all gone away.

What are considered the best fish for salting?

Schnapper

Are they good salted?

They are good salted. You can salt schnapper at any time; you can use them – they keep longer – not spoil much.

And the same price for that pickled?

No, another kind of fish make pickle. Only make tailor, and like the mullet.

Those fish you spoke of that are worth 28 pound a ton in Melbourne are for the use of your countrymen, I suppose?

My countrymen – yes, those salted fish my countrymen use; only smoked fish Europeans use – mullet and some smoked fish.

Is there not a considerable consumption of shark's flesh in China?

No, shark's fins.

They are a great delicacy?

Oh yes.

But I mean the flesh generally, dried and salted?

No, not used. The shark will not sell in the Chinese market – only the fins and the skins.

And this fish the sting ray?

No good. Another sting-ray, with not so long a tail as the fiddler, is not much good. That we call the best fish – the squid. One is the mutton fish, with a bi shell (Heliocus)

And that is the most valuable?

Plenty valuable.

How much a ton?

All this kind (squid and mutton-fish) would be 50 pound a ton; many times mutton-fish 9d. a pound here.

Friday 6 February, 1880

Mr James M'Carthy, amateur fisherman

You are not a fisherman?

No simply an amateur fisherman.

Could you give us your views with regard to remedying the evil existing with respect to the fish – improving the quantity of fish?

Yes; I think the remedy is to prevent hauling-nets in the harbour – seine-fishing.

Close the harbour for a certain time?

That would certainly do, if they are allowed to stall. What we call stalling is to set a net across so that no fish are allowed to pass, and then in hauling another net inside the fish keep back from that net, and when it comes close into shallow water with weed and slime they are driven ashore. The sand acts like a colander for them, and they perish in the sun. I believe there is more destruction of fish in one haul of the net than there is with line-fishing all the year round.

Monday 9 February, 1880
Mr George Eastway, tackle retail

What is your Christian name, Mr. Eastway?
George – *George Eastway*.

We year that you are an experienced man amongst fish, and we ant to get the benefit of your observations on that subject, and on the subject of the modes of catching the fish, nets, &c. You have been in the habit of going out on fishing excursions?
Oh yes.

So that you know all the fish and grounds?
Well, I do not know all of them, because fish shift from one ground to another; there is no doubt about that.

When you speak of a whole day's fishing, there are times when you are shifting from one place to the other?
Certainly.

And during that day only half the day may be employed in fishing – you are always shifting from ground to ground?
Yes; but when you get the quantity of fish I have mentioned the fish are very thick. When we caught that quantity we caught 1,012 altogether.

How many lines?
Between forty and fifty; but the fish were small.

Small fish?
About 3 to 4 pounds.

I suppose you have only been on the ground where the Nimrod Club are in the habit of going – you have never gone to any great distance from the harbour?
Ten miles is the furthest.

I mean north and south.
I have haven as far as Tuggerah; - I think it is called Bungaree Norah or Cabbage-tree Bay.

You have fished off there?
Yes; there is any amount of fish there now.

Close to the coast?
Yes.

What fish do you get?
Schnapper.

Any black rock-cod?
Yes, I have caught the largest I have seen down there; but they are very seldom caught.

Have you seen any large shoals of fish that appear on the surface of the water at certain seasons?
Yes, regular sheets of fish, but I could not tell what they were. Sea-birds in thousands and thousands have been at them.

Did you ever get any sea-fish such as the bonito, the albicore, or large mackerel?
No, I have never seen any caught off the coast; I have seen them caught at sea, going home to England, but not on this coast.

Have you seen salmon caught in that way?
Yes.

You have seen them in shoals?

Yes; I know where they are now – any amount of them

They are more of a surface fish?

Yes.

You do not take the trouble to fish for them, do you?

Oh yes, I have seen fifty or sixty people down at Bondi catching them on a Saturday.

Large-sized salmon?

About 18 inches.

What do they do with them – they are not very bad?

Certainly not; I do not think there is any fish bad to eat; I think even leather-jackets are good.

Did you ever see the salmon salted?

No.

Did you ever know any person suffer from illness or fish-poisoning through eating salmon?

No; when being caught in a boat, and the moon allowed to shine on them, I believe that will spoil fish.

When you are fishing in that way – fishing for schnapper – I suppose you often hook sharks?

Oh, plenty of the sometimes.

And if the shark is large the schnapper line goes?

Then we generally have a harpoon.

You simply kill the sharks and throw them into the water again?

We generally bring them on deck, and perhaps use them for bait. We have caught a shark with eighteen young ones in it.

You know the different kind of sharks?

There are so many different kinds. Last time we caught several hammer-headed sharks.

11 February, 1880

Mr Philip Cohen

In what other part of the Colony have you been acquainted with the fish?

Newcastle, Port Stephens, the Manning River, the Hasting, and the Macleay.

I suppose you have often observed the movements of fish when they school in shoals?

Oh yes.

What have you observed – can you mention any instances of large shoals that you have seen?

They school in different times of the year. For instance, in about six weeks or two months now the shoals of mullet will come, but they are not of so extensive a character as they were many years ago.

That is to say they do not come into the harbours – that they do not appear to come into Sydney Harbour in such numbers?

Yes; no doubt they are in greater quantities down the coast.

You have observed they always pass up in a northerly direction?

They come from the south, and go north.

Have you encountered the shoals out at sea?

Yes, about a mile off the coast.

Are they very thick?

Oh, very thick.

What other fish have you seen pass that way in shoals – have you seen the mackerel?

Yes, but there is nothing that comes in such immense quantities as the mullet, except the salmon.

The salmon come in equally large shoals?

Larger if anything, or quite as large.

Have you ever seen the salmon put to any use?

No; they are very coarse.

Would they do for salting?

No, I have tried them; they are a very coarse, unsavoury fish.

You say the mackerel do not pass in such large shoals?

Oh dear no.

What other fish have you seen large shoals of; any of the Schombride, the bonito, and albicore?

Very large shoals. I have seen the bonito, but they do not come in shoals. The barracouta go in large shoals.

And what other fish have you seen; of course the fish congregate at certain seasons, and I am speaking now of the fishes that make their appearance in great numbers on the surface of the water so that you see them distinctly; what other kinds have you seen schooling in that way?

I do not know any other fish – yes, the tailor.

In very large numbers?

Yes; you do not see them about here now, but they are about the coast.

I suppose you have speculated in your own way as to what is the reason of the decline in the fish supply, and very likely it has occurred to you what remedy might be applied?

I have made a study.

Would you mind giving us the benefit of your ideas on the subject?

I believe that the working of the fishermen in Port Jackson and the surrounding localities has been and is of the most scandalous character, particularly in the destruction of young fish. It is something frightful. There is a lake here called Narrabeen – or a lagoon – about 6 or 8 miles to the north of Manly. That place, in my time, was a perfect nursery of fish, and in fact it is now; but all that continues to be done there now would be enough to annihilate the fisheries altogether. The fish have such a liking for the place that they will go in there, but they never go out. I have seen baskets and baskets of fish from that place – whiting about the size of your little finger – taken down to Sydney; baskets full of them; black bream 1oz., 2oz., and 3oz. Weight. I have often challenged a man there – Wheeler – telling him that the fish are caught so young that they have no chance at all. Schools after schools come in annually, monthly, and weekly, and are captured. If the young fish are destroyed like that how can we have an abundance of fish in the harbour? It is the same in the Hawkesbury, Cook's River, and George's River; the netting is going on there. The bunts of the nets would almost capture a sail needle. Small gar-fish are destroyed in the same way. There is not outlet for the young fish. The fish are thrown up onto the beach, and shoals of small ones, very little above the size of needles and pins, are left there: they are brought in with the wash of the net, and thrown up on the beach. No doubt that wholesale destruction of the young fish about Sydney and in the locality makes the fish very scarce. Go south or north, where fishermen are not at work, and you will find an abundance of fish; but round about Port Jackson, Broken Bay, or Botany, you can fish sometimes now until your arms are tired with holding the line and you cannot get a nibble, and it is caused by the wilful destruction of young fish. Look at the Parramatta River – that I know in my time used to be such that you could not go a few yards one way or the other without disturbing a school of scaly gar-fish, but they are not to be seen now.

Your remarks have been directed to net fish; now do you think the supply of line fish has been diminished of late years?

Yes.

What do you ascribe that to?

The same cause – the nets.

Monday 16 February, 1880

Mr William Joell, fisherman

What is your Christian name?

William – William Joell.

You are a resident of Balmain?

Yes.

And a fisherman – a professional fisherman?

Yes- at least I make my living by it.

How long have you been living at Balmain?

About one and twenty years.

I want you to answer the question, yes or no; - do you find that the supply of fish is diminished or not?

I do not believe there are as many schnapper to be got now as twenty years ago.

Can you now go out and get as many fish as you like?

I can at particular places. From my long experience I know all the fishing grounds.

I suppose a smaller quantity is sufficient for you than would be sufficient for the ordinary crew of a fishing boat – three men?

I catch as many fish as I wish myself if I can get to these places; but when going out to the wide-out grounds at Coogee and so on lately I have found the leather-jackets very thick. The last time I went to Coogee it cost me 11s. in lines only through the leather-jackets. You may go and get a lot of lines out and you would love every one of them.

Then your opinion is that the supply of fish has not diminished?

Yes; I believe that but for those leather-jackets we should get as many schnappers now as we did.

Do you think that is the common opinion among fishermen?

It must be; they will very soon prove it to you by the loss of their lines.

Do you think your opinion is shared by many fishermen?

I believe so.

We have not had one professional fisherman make the admission you have made – that there is no diminution in the supply of schnappers?

It is very extraordinary to me. I am sometimes asked to go out with people in launches, and I can always take them where there is plenty of schnapper.

Your opinion is that the reason why the fishermen do not get the catch of fish they used to get is the immense quantity of leather-jackets on the wide grounds?

Yes, that is the only thing that deters me; I know the fish are there; I could go down to Coogee now and get as many fish as ever I did, if I could get the lines to the bottom. Ten or twelve years ago the leather-jackets would only take your hook, - they then commenced biting above your sinker; but on the day I lost 11s. they came right up alongside the boat and bit the lines. They look you right in the face. Fishermen cannot afford a loss of this kind.

Do you think there is any means of destroying the leather-jackets?

There are many means.

Are they practical means?

The way I should do would be to burly them up to the top and then torpedo them; but then, unfortunately, you would destroy other fish as well.

Wednesday 18 February, 1880

Mr William Boyd, fisherman

Your name is William Boyd?

Yes.

You are a fisherman?

Yes, and a sea-faring man. I have been a fisherman for a good number of years.

Have you been a fisherman in any country but this?

No; I am a native of the country.

And you have latterly been up at Lake Macquarie?

For this twenty years last Christmas.

I suppose you have been fishing all that time?

No; I left the coasting trade to go down fishing at Tuggerah Beach Lake, and I was fishing five years straight off; and I was at Brisbane Water from my boyhood until I was a young man.

I suppose it is chiefly net-fishing in Lake Macquarie?

Yes, principally. Schnapper was plentiful there in the lake twenty years ago, and as many as 10, 15, and 20 dozen a day would be caught, large schnappers – what we call count fish, from 9 to 10 lbs. Weight; some of them were larger, but that was about the average; but now, of late years, we only catch what we call squire. The way those Chinamen slaughter them with the nets, when they get fishing, is something frightful.

Do you think that lessened the numbers of the fish very much?

Oh, bless you, yes. You can only catch small schnappers now; but our fishermen cause more destructio to the lake than the Chinamen did, with those small meshes; they have ruined the lake.

Wednesday 18 February, 1880

Mr John Puckeridge, fisherman

Your name is John Puckeridge?

Yes.

You are a resident of Botany?

Yes.

And you are a fisherman, are you not?

I have been a fisherman up to these last eight years, and for forty years before that.

[Regarding sea garfish]: Are there many up the George's River?

Not now.

What is the cause of them being destroyed?

The nets of the fishermen; but I was the first man that caused them to be destroyed. I bought an English trawl net forty years ago from a man-of-war, and this trawl net was 40 or 50 feet wide at the wings, and the mesh was very large, But from what I was obliged to do to the net by cutting it down the mesh got smaller and smaller, and though it was a considerable time before I found out how to work the net I managed to insert a top piece of ten fathoms in the centre, and on going up the George's River the net was full of gar-fish as ever it could stick up. I did a fine business with them for a while until I was found out. That is how that kind of thing came up I assure you.