



Blue Swimmer

Newsletter of the Friends of Gulf St Vincent

Issue 29, April 2019

Issue 29 of the Blue Swimmer is very, very late – my sincere apologies!

The following is an excerpt from the outgoing President's (Angela Gackle) report from the AGM on October 5th 2017.

The success and effectiveness of community organisations is a tricky business. We all know how busy people are and the many demands on their time and energy. Maybe it's just perception as you get older but there seem to be lots more causes, activities and interests to get involved in than there used to be!

So to those of you who come to meetings, Forums, read our newsletter, like us on Facebook and provide comment and input – thank you for your time.

Our challenge is to engage – particularly with the young – and that is becoming more complicated too. How do we get young people enthused about what we do? If you have ideas, let us hear them.

That said, we believe we can still be useful, so this is what the FoGSV was involved in during 2017.

As you all know, too well, pollution of the Gulf – directly via human activities such as industry, and waste production, and indirectly through the pollutants carried by storm water over the landscape has had a massive impact. Particularly close to shore, where it is most noticeable. It is our "big ticket" concern.

The Secchi water quality monitoring project has been steadily collecting data from several locations around the gulf for a few years now. We are grateful that the Adelaide and Mount Lofty Ranges NRM Board has been willing to fund this project. Data is valuable because it provides snapshots of what is happening over time and across locations. It embodies the time and effort of people using tools or instruments in a consistent way to measure something.

Over the past couple of years we have been able to use some of the Secchi funding to pay Mel Rees to develop the Secchi project, and we now have some great resources including more collectors, videos, and most recently a website that displays water quality data. It's a great start, and we heard last week that the funding for this project will continue.

Having Mel manage existing volunteers (data collectors) and recruitment of new ones, promoting the project and organising the website has made a huge difference.

This year another long-running project also came to fruition. On World Oceans Day "The Goggles" Sculpture was launched at Port Noarlunga. Again – a huge effort by Rob Bosley, people from Onkaparinga Council and the Port Noarlunga Traders.

We get several requests each year to write submissions on a range of issues. This year the FoGSV Committee re-examined the organisation's aims and objectives to determine if they are still relevant, and to guide us in deciding which issues to support.

Late last year we received a request from the Aldinga Washpool and Silver Sands Heritage group to provide a submission to the Onkaparinga Council regarding concerns about potential environmental and wildlife impacts from beach racing of classic motorcycles and the crowds associated with such an event. The FoGSV consulted with Birdlife Australia and framed a letter to the council basically recommending that the key to holding a safe event for all would be to ensure involvement of and consultation with all residents and interest groups. I believe it is likely the event will be run again in 2019, subject to Council approval.

There has only been one issue of Blue Swimmer in the past year. We are happy to do more as long as there is sufficient content, and also welcome contributions from readers. Our work is far from done!

Our November 2017 Forum - **The Wonderful World of Sharks and Rays and why they need our help** – was our big event for the year, and the talks form the bulk of this issue.



Janine Baker (FoGSV): Diversity of shark and ray species in SA, their habitats and the threats they face.

South Australia has a great diversity of shark and ray species. Some have global distribution, others are found in southern Australia, and some are locally endemic, meaning that they have a very restricted geographical range.



Southern Eagle Ray

Slide by J.L. Baker, Marine Ecologist

Sharks and rays are found in all habitats in SA. Some occupy specific habitats such as reefs), and others range across several. Some species are restricted to shallow waters, and others extend into deeper continental shelf & slope waters.

Some are demersal, and stay down near the sea floor; others are pelagic in the water column, and some – such as the hammerheads – can live both in both environments.

All are in the class Chondrichthyes, the group of fishes with a skeleton made of cartilage (a group of proteins such as collagen and elastin) and connective tissue, strengthened with minerals). They don't have bones, but the cartilage skeleton is still quite strong. They also have small scales on the surface of the skin, called denticles. They are made of calcium phosphate – same as human teeth and they're actually very similar in structure to teeth. Some of the fast swimming sharks have grooved denticles, believed to cut through the water to reduce friction and prevent little eddies

forming on the surface of the sharks' skin. As a result they can move faster through the water with less drag.

Teeth form in shark gums and can rapidly grow and replace themselves.

Sharks have no ribs in their body, but have what you could call an encasing corset to protect the organs. The shark skeleton contains vertebrae, which are also made of cartilage, strengthened with a number of ligules that contain calcium, phosphorus, strontium and other minerals. As sharks grow, they lay down growth rings, similar to those in fish ear bones. So the banding in these, either in a cross section or whole vertebra, can be used to age the animal. Fertilisation is internal in sharks. Males have modified pelvic fins called claspers, which they use to transfer sperm into the female, and they often hold on to the female in the process.

Unlike bony fishes, sharks don't have a swim bladder, which means they can move hundreds of metres up and down in the water column without any physiological damage. That's what restricts the depths at which bony fishes can move around. Sharks do have an oily liver however, which provides buoyancy – as oil is lighter than water. **Sharks in South Australia**

South Australia has about 32 different shark species in shallow waters and continental shelf waters, particularly in the upper part. About another 18 species occur in deeper waters.

Angel Sharks live on the sea floor and are eaten commercially, sold as flaps.

The **Heterodontiformes** include the species in South Australia that people are most familiar with, (the Port Jackson shark) but there is another species in eastern Australia, and some other related sharks in other parts of the world.

We have two species of **Saw Shark** here. They're both caught and used in the fish and chip market. Saw sharks have little sensory barbells on the snout and also live down on the sea floor.

We also have some very fast-swimming, larger sharks here. Some of the world's most famous predators are the **Lamniformes**, the Mackerel Sharks, which include the Mako, Great White, Thresher and a few others.

Sevengill sharks occur here as does the **Sixgill**. The Sixgill is quite rare in South Australian waters, the Sevengill less so. The Broad-nosed Sevengill occurs out in the Gulf and some good video and photos were taken a few years ago off Port Stanvac. They

have rather a small mouth, but are quite a fierce animal and can eat other sharks and larger fishes.

The so-called **Ground Sharks (Carcharhiniformes)** are a very big group which includes Whaler Sharks (the Dusky and Bronze Whaler), Cat Sharks, Gummies, School Sharks, and a few others, including the Hammerhead. All of these have a nictitating membrane, or third eyelid. This feature characterises animals in the Ground Shark group and is believed to be a protective mechanism to prevent eye damage, possibly if they're fighting with other sharks and, down on the sea floor, it can help protect their eyes from sand etc, as eyes are quite delicate.

Then there are the **Wobbegongs**, and we're very lucky to hear from Charlie Huvneers today. He did a PhD on Wobbegongs and probably knows more about them than just about anyone.

We also have **Dogfishes**, with around three species that come up into shallow and shelf waters water and a number of deep-sea species as well.

Worth mentioning more about the Port Jackson shark. This is a very common and broad ranging species across southern Australia with very unusual behaviour in terms of its movements. Some animals apparently make large-scale movements. In eastern Australia they've shown only a portion of the population does that. They can move out into deeper waters and they can also migrate a long way from where they aggregate to breed, for example from New South Wales down to Tasmania, and back again.



During breeding season they display very high fidelity, staying close to a reef for most of the time and then returning to that reef year after year. They show very complex social behaviour, aggregating for breeding. Breeding maturity happens at about age ten – a bit less for males and a bit more for females. Females also aggregate to lay their eggs over a few months of the year.

It's important to mention the ecological role of Port Jackson Sharks. The small ones eat worms and other small animals on the sea floor, so they help to oxygenate the sediments through bioturbation. They will eat animals such as sea urchins in south eastern Australia, helping to control the numbers of grazers, which is important because if grazers are too abundant you lose stands of algae and change the whole ecological structure. Females generally produce quite a lot of eggs over the season, and some of these are eaten, providing very nourishing food for other sea animals (stingrays, groper, large fishes and sea snails etc. Even male Port Jackson sharks eats the eggs sometimes).

As mentioned, they do aggregate in some areas, often close to jetties, and they just keep taking the bait and taking the bait. Sadly this makes them an easy target for thoughtless and cruel behaviour by some fishers in SA, and divers have recorded deliberate mutilations of animals by fishers in a number of locations, even within the fishing provision area of a marine park, right next to a sanctuary zone.

The wobbegongs are another group of sharks that live on the sea floor. There are two large species in SA (Large Ornate and Spotted), plus a smaller Cobbler Wobbegong. Across the southern Australian range, the two large species are taken on lines, in trawls, beach seine nets, gill nets, lobster pots and traps, other gear, and by spear fishing. Most commercially-caught wobbegongs are sold as boneless fillets or flake, which includes use in the "fish and chip" market. The two larger wobbegong species are highly vulnerable to over-exploitation due to their size; sedentary nature; strong site association / territoriality; relatively slow growth rate; late age (and large size) at sexual maturity; relatively low frequency of reproduction (every 3 years); long life span; low natural mortality, and ease of capture. There are no commercial or recreational fishing limits in South Australia, but a commercial fishery for wobbegongs in eastern Australia is now more tightly regulated.



There is not much time left in this presentation to discuss other shark species, but the whaler sharks, Bronze Whaler and Dusky Shark (Black Whaler), are worth mentioning. Bronze Whalers enter shallow water, and individuals and groups are often sighted in bays, harbours and surf zones during summer. Female whaler sharks mature late in life, at about 20 years of age. They produce young every 2 – 3 years, with an average of 15 pups per cycle for Bronze Whaler and 3 to 14 pups for Dusky Shark. In SA and WA, whaler sharks (mostly juveniles) are taken commercially, largely for the “fish and chip” market. The WA and SA fisheries take about 200 tonnes and 100-150 tonnes per annum respectively. Lesser numbers are taken as bycatch, and several thousand whaler sharks per year are also taken by sports fishers, mostly in WA and SA. Whaler sharks have a long life span (40 – 50+ years), late age at maturity, and they reproduce once every two years, producing a relatively low number of pups that are highly targeted. These sharks have been described as “recruitment over-fished” in Australia, and few recovery efforts have been (or are being) made.

In addition to fishing pressures, one of the ongoing threats to shark populations is global warming. Experimental research in recent years has shown that higher temperature & carbon dioxide levels can increase the energy demands, cause them to have less efficient metabolism, and also reduces their ability to locate food through their sense of smell. In basic terms, global warming can reduce sharks’ ability to effectively hunt, and grow.

Summary of Vulnerability and Threats

Shark and ray species of narrow geographic range and/or narrow depth range are considered more vulnerable to decline than are more broadly distributed species. Species which are long-lived, slow to mature, and have few young per cycle are more vulnerable to population impacts than faster growing, more fecund species.

One of the major threats to populations is commercial fishing, which takes largest tonnages per annum. For some species that are heavily targeted by anglers, recreational fishing may also

have some impact. NB: Persecution of common benthic sharks and rays at jetties is an ethical issue, related to unjustifiable fishing practices. It is not likely a threat to population sizes.



Habitat impacts (e.g. from polluted stormwater, dredging, coastal developments), can also be significant for some species, but there is little research in this area.

Climate change is a more recent and ongoing threat, and one that will increase in effects in future. Warmer and more acidic oceans may impact distribution, feeding, and breeding / reproductive success.



Dr Charlie Huveneers (Flinders University)
Extinction risk of sharks and rays.

In the last 10 years, there has been an increasing interest in shark conservation. For example, an internet search on shark conservation brings up a plethora of websites. It's good to see that awareness of some of the issues related to sharks and rays is gaining momentum, but there are still many conservation and sustainability challenges, and we'll touch on a couple of those today.

Why are people fearful of sharks?

One of the issues with shark conservation is public perception, and while most people here today are hopefully "the converted" there are still many people with negative perceptions of sharks. They might be fearful of sharks, preferring to see a dead shark rather than a live shark. Previous speakers have shown that, and how people feel about sharks may be related to one event, one thing that somehow has changed how they perceive sharks.

The movie *Jaws* is one event that changed a whole generation's view of sharks. That said, *Jaws* is now nearly 40 years old, and most teenagers probably haven't actually seen it. We therefore need to think about why younger generations still have a visceral fear of sharks.

Aside from *Jaws*, there are still "shark" movies being made including some really bad ones, e.g. *Shark in Venice* or *Sharknado*. Audience reaction at the mention of those films is generally reassuring – most people obviously realise that what you see in these movies isn't real. However, if we look at how the media portray sharks, it's actually worse than these movies. Sensational and irresponsible photos are used repeatedly over and over in the media and likely affecting peoples' perception of sharks. Unfortunately, sharks simply swimming in the water is often not dramatic enough for standard mass media.



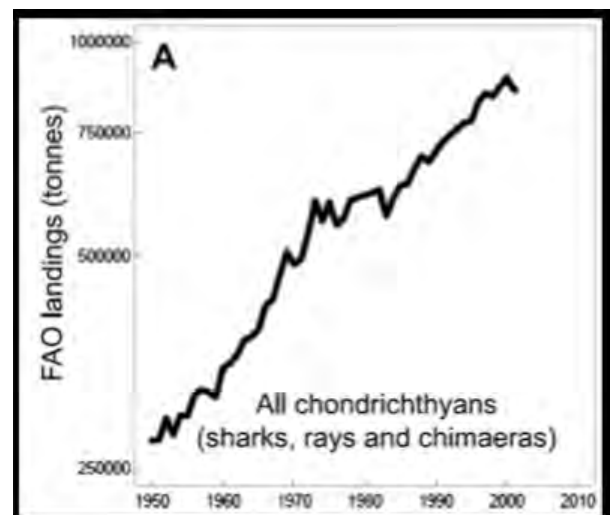
One of the main scientific questions about sharks (that is increasingly been raised in the last ten years or so) relates to the main threat for sharks: overfishing.

Can sharks be fished sustainably?

While some things have changed in the last ten years, this question isn't a new one. A paper from 1998, by an amazing Victorian scientist Terry Walker, questioned if shark resources can be harvested sustainably.

As with many concerns about resource sustainability and species conservation we're learning more and more about it, so one question is how are we doing now compared to twenty years ago?

When attempting to assess whether a fishery is sustainable, catch returns and catch rate can provide some information about the status of the fish population caught.



Annual shark catch over the last sixty years, from about 1950 to 2010, has globally increased from

~250,000 to nearly a million tonnes. This has put a huge amount of pressure on sharks.

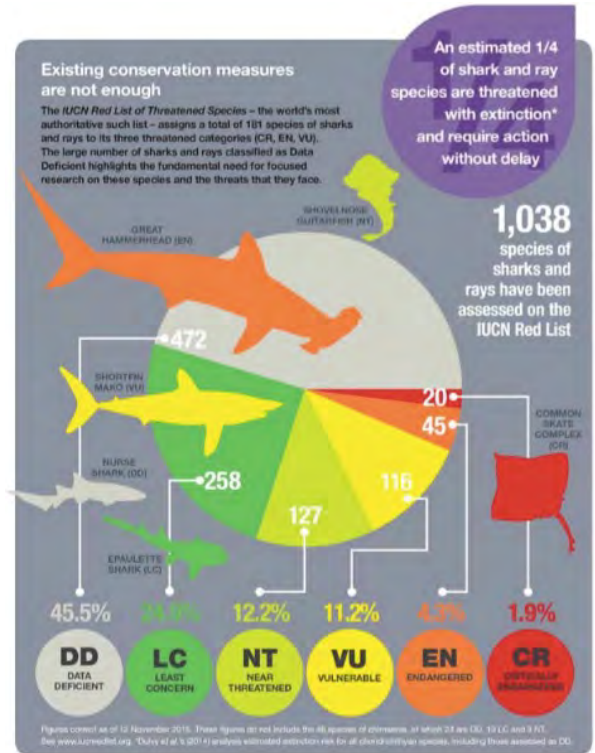
Sharks were caught mostly for their livers, which are very rich in squalene, used in cosmetics, and as a source of vitamin A. More recently, sharks are caught for their flesh or fins, with shark fin soup still popular in some Asian cultures.



There are many photos on the internet of huge Asian fish markets with row upon row of carcasses or just fins piled up. This is happening around the world every day.

How do we know whether that is actually having a negative effect on shark populations or not? Going back to the figure shown earlier, you can see the total catch has started to decline since ~2010. Several explanations could explain the decline observed: 1) demand/effort declined, 2) management improved, or 3) decreasing shark populations.

A recent paper showed that the most likely explanation for the reduction in global shark catches is the decline in shark populations worldwide. This is supported by the IUCN Red List that assessed the extinction risk of all species. The IUCN Shark Specialist Group has assessed all shark and ray species – more than a thousand different species, and found that a quarter of all species are considered to be at elevated risk of extinction.



Another 45% of sharks and rays are considered to be “data deficient”, without enough data to accurately assess their risk of extinction.

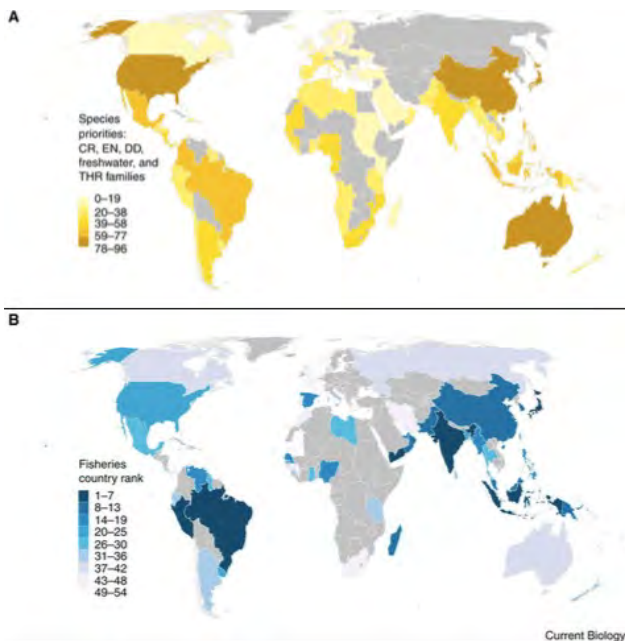
A major reason sharks and rays have such high risk of extinction is because of their very slow reproductive cycle. The life history characteristics of sharks and rays are more similar to marine mammals than other fishes. Sharks and rays typically have small litters and long breeding cycles, of up to three years.

One species that doesn't produce many pups is the Grey Nurse Shark. This species has only two pups every two years due to intra-uterine cannibalism, where the oldest embryo feeds on its siblings (also referred to as adelphophagy).

Considering the extinction risk of sharks and rays and their tendency for being overfished, adequate management and regulation are often necessary to ensure sustainable fishery. This can be difficult to achieve at a global level due to limited resources, leading to a need for prioritisation. Such prioritisation can be achieved by focusing research and management effort on countries with the most species at risk of extinction, e.g., where most species are, threatened, endangered, or critically endangered such as Australia, China, the USA. However, some of these countries don't have high shark and ray catches and one could

argue that focus should instead be on countries with the highest catches. For example, Australia has a large number of threatened species, but small shark catches compared to Indonesia or India. At a global level, there's little value in focusing on places like Australia, and it might be more efficient to focus on countries like India, Indonesia, Brazil, which are all catching a large proportion of the world's sharks and rays.

Another way to prioritise resources is to account for both the number of threatened species as well as catches, and focus conservation or management effort to those places.



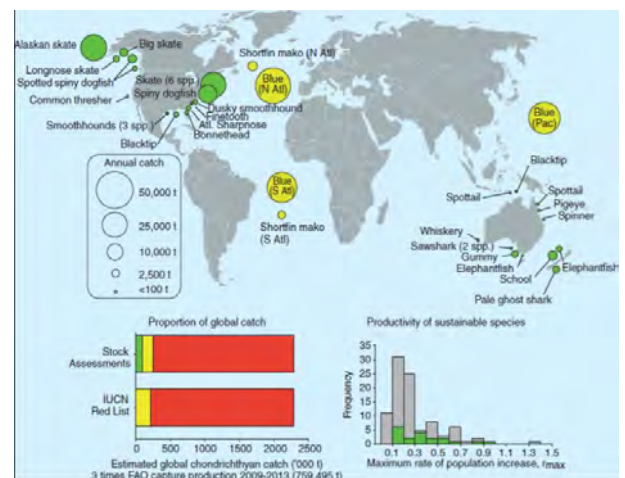
An important factor to consider to ensure sustainable fisheries is the type of management or regulation used, which will vary depending on the country. For example, the most suitable management regulations in Australia would be very different to that in India or Indonesia. Overall, the best regulations to ensure a sustainable fishery, will vary between countries and will need to account for the ability to implement and comply with such regulations.

Marine Protected Areas (MPAs) and No-take zones are an alternative method to fisheries management that many countries are now also using to reduce fishing pressure on sharks. MPAs, No-take zones, or Shark Sanctuaries are areas where shark fishing and/or trade is banned. While it might seem like a good way to minimise targeted shark catches, a couple of concerns have been linked with the reliance on MPAs.

Some of these areas are so large that it is almost impossible to avoid illegal fishing and ensure compliance. A false sense of security is another concern, where MPAs have resulted in the belief that shark populations are protected and that other fisheries management regulations are no longer required. However, if compliance cannot be guaranteed, shark population might still decline, even in an MPA. In some countries with shark sanctuaries sharks were never commercially targeted (e.g. French Polynesia). Shark sanctuaries have been used nonetheless to promote the country's conservation action and attract tourists, but the shark sanctuary might have not actually contributed to a decrease in shark catches.

To close off and go back to the original question of whether sharks can be fished sustainably, there are many different aspects to consider. It's not an easy answer, but even though a lot of different shark species have a very slow reproductive cycle, take a long time to mature, and do not produce many pups, with the right management regulations and framework to ensure compliance, it is possible to catch and fish for sharks sustainably.

A recent paper assessed all shark fisheries to determine whether they were sustainable.



You can see here some of the results in the diagram. The large majority of shark fisheries are unsustainable. However, there are shark fisheries that can be sustainable, as indicated by the green and yellow circles. They only represent between 4 and 5 percent of all shark catches, but it is possible to have sustainable shark fisheries, and Australia is a good example of a country with quite a few sustainable shark fisheries.



**PT Hirschfield (Pink Tank Scuba)
Project Banjo (the very successful project run for
Port Phillip Bay).**

PT is not a marine biologist or a statistician, she is a scuba diver and an underwater photographer specialising in marine life. She also does underwater videography and that has led to the sharing of images and video on her platform called Pink Tank Scuba. Today PT is sharing the work she has been involved with in Project Banjo and a Rays Awareness campaign, which has worked closely alongside fisheries towards better outcomes, for rays in particular, in Victoria in 2017.

The Rays Awareness campaign also started to interact with other Rays advocacy groups around the globe.

Project Banjo group was the result of coming out of yet another dive underneath local piers where PT had seen a line of Fiddler Rays (also known as Banjo Sharks) that had been caught under the pier and been either killed or mutilated and thrown back in alive. After many years of witnessing this she realised that she was culpable if she didn't try and do something about it.

- a) this couldn't be right and
- b) there must be other people who felt the same way, that this was a travesty that needed to be addressed.

PT got onto Facebook and set up a page called Project Banjo Action Group, which has over 800 members. They started to collaborate just as a community, not only of divers but also of people in the broader community who had a concern about the way that rays had been treated – about cruelty issues in particular.

They didn't know very much about what the fishing regulations were at that time, but research quickly revealed that the treatment of these rays was actually against the fisheries 2009 regulation 101, which mandated that that any unwanted catch be returned to the water unharmed as quickly as possible. And that clearly wasn't happening and that was problem number one.

A series of graphic and sickening images very quickly shows what some of the core focuses have

been for the Project Banjo Rays Awareness campaign.

It's one thing to show a lot of images of dead and mutilated rays, but it's another to actually put people in the picture. Because in terms of wanting to engage the community and to help them to care and recognise that this was an issue, images with humans in the picture actually help to create that human connection. It helps to show scale and it helps to show magnitude. The fact they've been able to put so many people in the pictures that have been telling the story of our unfolding campaign has actually been very powerful in terms of community engagement. People were very keen to become involved as they started to respond to these images.

One image of PT with a Smooth Ray became something of a lynch pin in the progress of this campaign.



Members of their community found that they had images, many videos collated over many years of very disturbing footage. Rays are mutilated just to retrieve a cheap fishing hook, and a lot of these rays had to be euthanized by divers who are there to celebrate the animals rather than to put them out of their misery. It was quite a series of distressing series of events and encounters.

As we started to prepare notes within our community, more and more videos started to come through, more and more photographs, that became a growing body of evidence of very clear animal cruelty issues.

Part of the campaign premise has been that these rays have greater ecological and community value alive than they do dead. And that extended when we talk about the Smooth Rays and regulatory change.

Why are they throwing them back?

The fishermen say that sometimes it's because they're unwanted catch and they don't want to catch it again, so they'll kill it or try to teach them a

lesson so it won't get back on the line. Fishermen have said "well it's my hobby, I sit on the pier for six hours and I catch nothing, I'm frustrated, but I get one of these and I have to kill something".

You can see very often they just want their hook back and they'll rip it out without any regard for best practice on what to do. As Janine touched on before, they have a very important role in keeping marine ecosystems healthy because they're filter feeders. They're like a vacuum cleaner. So arguably, the people fishing on the pier would have a much better time, as would divers, if we could all interact with a healthier ecosystem and allow these rays to do their jobs.

So this was part of the premise.

It was a real wake up call to them as a community. They had no idea that they could ring the [13fish](#) number for fisheries in Victoria and report anything that was a clear offense against regulations. And they are very good at following that up. Even when they would send someone out immediately to try and catch a perpetrator, they were able to start putting together a database of where the offenses were occurring most regularly and frequently so they could redirect resources.

The second problem, (if the first problem was the return of the unwanted catch that's already against regulation), was the treatment of these beautiful Smooth Rays. They're not considered a target species by most Aussie fishermen. They grow up to 350 kilos, and they have been protected in Western Australia quite recently. So there was an excellent precedent there based on community concerns, community attachment to these animals, their value to tourism, communities, the love of locals, divers, people who are fishing. All love to see these rays in our environment in their natural state—happy and healthy.

But if these rays are caught, then arguably it's for a quarter of their body weight and the rest is discarded, which we would consider a waste of life.

Again putting a face, a human face, to the animal perhaps helping people to understand that we do have a responsibility and an obligation to be custodians and to be responsible when we see things like this, which perhaps do not demonstrate best practice.

Around this time, they established the Project Banjo committee and their community continued to grow quite rapidly.

And this is an example, and there are many, of the kind of community involvement and commitment

that they were able to foster. They organised an event and the Herald Sun, one of the major newspapers in Melbourne, came along to photograph it.



As a result of that article in the Herald Sun, the day that was printed PT was invited to speak on Raph Epstein's Drive Program on ABC radio.

Unbeknownst to her, on the line waiting to respond to her comments on this issue was the Executive Director of Fisheries Victoria (now known as the Victorian Fisheries Authority, VFA) Travis Dowling. He acknowledged the problem, not so much for sustainability and stocks, but the need to see marine animals as more than targets, more than stocks, and actually understand their intrinsic value and their right to occupy their own natural habitat and perform their roles. He acknowledged that it was an issue of social concern. And he spoke about social licence as opposed to being anything related to fisheries stock management.

On the day PT did the interview with Raph Epstein, they also established a [change.org](#) petition. What they were asking for was essentially:

- a ban on the killing of rays in Port Phillip Bay,
- signage to be posted on the piers reminding people about current regulation and best practice and any new regulation that might come forward as a result of the campaign,
- to further educate the Victorian fishing community about the regulations, and
- for better education and enforcement initiatives to be developed and implemented.

At that point, they started a barrage of meetings (face-to-face meetings, phone calls, email discussions) with everyone identified as a key stakeholder. And that was really important to them. PT is married to a fisherman, so there is no part of this campaign that would be considered an anti-fishing lobby, but it was certainly important to be speaking to VFA. After the radio program Travis Dowling invited them to go down to and

meet with the committee and the directors at Victorian fisheries. They had lots of meetings as well with the CEO of VR Fish (the peak recreational body representing anglers in Melbourne), the VFA Senior Policy Analyst who played a primary role in 2017 of investigating and developing some solutions that were then circulated for a broad eight week public consultation process. We spoke to people in the media including David Kramer from the Talking Fishing program speaking with Travis Dowling and some other panellists about this issue.

So it was really important to engage with representatives of the fishing community to see what their perspectives were. They were equally appalled by what was being seen, and they were equally keen for solutions to be developed and implemented.

They talked to tackle shop owners, Melbourne Aquarium, marine biologists, Mornington Peninsula Tourism, the RSPCA (about cruelty aspects of the issue), the Boating Industry Association of Victoria, Fishcare Victoria (who have since got funding for the development and implementation of pro-ray focused programs), and did lots of radio interviews and so on.

A petition was launched, and in 2017 it had 33,000 signatures worldwide supporting the request for improved outcomes for those rays.

On the 16th of June, Fisheries had already put in a lot of effort behind the scenes to develop some solutions. And they issued a fisheries notice draft for an eight week consultation process. They suggested the following, rather than the request for a total ban on the killing of rays.

They would:

- prohibit taking of rays (which aligns really well with what Charlie was saying to us) greater than 1.5 metres in width,
- reduce the bag limit for all rays, skates and guitar fish from 5 per person per day to 1 per person per day (previously you could take 5 per person per day of those big 350 kilo Smooth Rays),
- prohibit the take (and this is the really big one) of rays, skates and guitar fish within 400 metres of a man-made structure including a pier, a jetty, a break wall and so on.

That actually provides the level of protection where their role is most necessary and arguably it's needed most, which makes them most vulnerable,

and which is also where the bulk of our evidence is being collected and people have the most interaction and exposure to that.

That was the package in addition to educational and enforcement packages, so it wasn't stand alone, that they put out for consultation.

They received almost 1200 responses, which they were told at Fisheries is unheard of in terms of previous consultations. Less than 1% of those opposed the increase in protection of rays. So that was huge public support for better ray protection. With regard to the 1200 responses, Fisheries then did a 4-page document that summarised what they saw as the 9 key themes that came through the written responses. There was a sample letter that a lot of people sent in, additionally a lot of people wrote their own letters, seven organisations submitted letters, and other than Project Banjo and Rays Awareness, they were all fishing body regulations and they were all very supportive of improved outcomes. The 9 things that came out, and I won't go through them in any detail, but the document is available on the VFA website if you would like to read it further, as are the responses from the seven organisations who wrote in including VR Fish, including the commercial fisheries so there's some really good reading there.

The issues related to cruelty, the notion of a total ban, stock sustainability (to what extent this played any kind of role in this campaign), alternative size and bag limits that some people were suggesting, acknowledging the ecosystem and the social value of the rays in their natural environments, the impact on recreational fishing, the importance of education, enforcement and penalties, and the effective address of mistreatment plus the use of Fisheries notice.

The Fisheries notice was used because it could be used very quickly to address the issue, rather than have to wait for cycles of the regulations to be reviewed and so on. And you can look up further details on those.

The VFA provided a response in relation to each of these themes. One particular response clarified that the changes are not about stock sustainability, but the intent of these changes to fishing rules is to ensure a balanced, respectful and socially responsible approach to recreational take of rays, skates and guitarfish across Victorian waters – aka social licence.

And at this point, it is important to acknowledge the role that the VFA played, which was enormous, at arriving at the resolutions, which

were ratified signed off and came into place on the 7th of November 2017.

This campaign was launched on the 2nd of April in the same year. So they were very responsive, they acknowledged the issue and they worked very hard behind the scenes and with the broader community to arrive at really powerful positive proactive outcomes. They've shown real genuine concern. And the campaign has come at a really important time in Victorian animal welfare history.

On the 19th October the establishment of the Victorian Animal Welfare Public Body was announced, including a review of the Prevention of Cruelty Act, which obviously applies as much to marine animals as it does to terrestrial animals.

The Minister for Agriculture Jaala Pulford, acknowledged that the community justifiably expects that we do the right things by animals – whether in our industries, communities, homes or in the wild. And Victorian Fisheries have been really proactive on social media and in developing other initiatives to really get that message across in a very positive way about the value of the animals and the wins.

They have worked together for win, win, win scenarios. It's really easy, when you are advocating for change, for that process to become oppositional or for there to be levels of resistance or the groups don't want to hear and to listen to each other. Whereas Project Banjo came to the table, and listened from day one, and worked in partnership with Fisheries and the broader community for these outcomes. Not only a win for fishers, who can still retain one ray if that is what they choose to do, but the exclusion zones, the bag and size limits. Also a win for those who want to see the rays getting better protection and better outcomes, a win for rays, and win for the ecosystems that we all rely on for our recreation. It's been an excellent outcome.

In terms of what's already unfolded, even before the 7th November, interim signage was installed on the piers to reinforce the current regulations about the treatment of unwanted catch and that signage is now obviously going to be updated for the new fisheries notice that's come in.

Yesterday was the launch of operation liberty, which had fisheries officers visiting piers talking to people who are fishing, raising awareness on the piers and so on. And they're doing many other things that are going to support this. For example, the information in the recreational fishing guide is being revised and lots of really positive messages about the value of rays has been included.

Obviously there has been more interest from the media who are very excited to support the changes that have occurred.

The vibe is one of celebration. At the Great Victorian Fish Count, an annual event, they've introduced 9 species of sharks and rays to the fish count targets that they're looking to start tracking. This is really moving us away from what Charlie was saying about fear mongering. We all know that Sharknado and Jaws have given a bad name to sharks and we know there've been tragic isolated incidents in Australian history that have given very bad names to rays. It's really important for us to adopt a more realistic, and sustainable and holistic approach to how we treat these animals, how we see them. And what has been achieved in Victoria has been really powerful and productive, and sets a really great precedent, and example for other states. I know that other Australian states have been looking at what's going on in Victoria, and we look back with equal keen interest to see how similar issues are being resolved in South Australia, other Australian states and beyond, and we'll do whatever we can to support that sort of work towards better outcomes for these beautiful animals.



James Brook (Conservation Council SA) providing an update on the progress in relation to improving protection in SA.

James gave us a background to the issue here, including the discussions CCSA has had with various stakeholders and what they took away from those meetings. CCSA has reviewed the literature on fish pain, which is relevant for a couple of reasons. There are some legislation differences around Australia as well, as context to where the South Australian Government might take that.

So the current concern, in a nutshell, is that rays and sharks are sometimes caught by recreational fishers mainly on jetties, and while most fishers act responsibly there is evidence of a minority of people engaging in wasteful or very cruel practices.

There has been some level of this in South Australia for quite a number of years, but the issue really gained profile in 2017. Among the worst incidents were a pile of Eagle Rays near the Murray Mouth, and the stack (22 could be distinguished clearly) of Port Jackson sharks on the jetty.

What's happened in Victoria really created some ripples here as well, and together with Project Banjo, letters from concerned citizens in Victoria to Ministers here have attracted attention as have letters from our own people, particularly regionally, including on Yorke Peninsula. Janine Baker put together a really good letter about her concerns about this, and has really been one of the prime drivers. And then social media of course as well, we heard about the petition in Victoria, but there's been one here with a couple thousands of signatures as well.

The photos from these incidents and stories from Facebook are quite shocking, for example someone who has been fishing for 30 years, has caught heaps of rays and always just used them as fertiliser.

Conservation South Australia became involved in this issue when member groups voiced concerns about it. The people who are writing letters as individuals are sort of affiliated with various

member groups, and many other people were motivated to do something.

CCSA also has an existing relationship with the government on fisheries issues, and that's been the case for several years. The Government provided some funding to make it possible to get engaged with the various processes that go on, consultative processes with the nature or conservation sector as the concern grows.

It's not a huge amount of time to do everything, but it definitely provides some capacity to engage with this project and use a media spokesperson if there was anything further to be said. And they've also been compiling information on the extent of the problem with live forms filled out and through networks.

There have been a number of meetings with different stakeholders, as well their own working group comprising member groups such as Friends of Gulf St Vincent, Marine Life Society, Sea Shepherd, Australian Conservation Marine Life Society, Coastal Ambassadors, and Scuba Divers Federation as well. Scuba divers are certainly the ones who this hits in the face, as PT Hirschfeld explained so well and showed with such graphic footage.

One of the most important stakeholders from the CCSA point of view was RecFish SA because of recognition of the need to work with recreational fishers on this issue and this is confirmed by what we heard today from PT as well in Victoria. The RSPCA and South Australian Greens were involved as they've have been looking at fish/animal welfare and fish from a different perspective, which originated with those Hammerhead Sharks that were going to be in tanks in nightclubs, and they have a Bill to have fish included in the Animal Welfare Act. More about that later.

And of course the government through the main agency PIRSA Fisheries.

The working group considered that animal welfare was really the priority for this issue, This is not to say that there aren't some species with sustainability issues, but here as Janine and PT have both said, it's animal cruelty that we're most concerned about.

Education is needed so that people would understand why rays are important, why some may be vulnerable, why is it good to handle them carefully and how to do it.

What we really wanted to see most of all was the general public stepping up and calling this out as being unacceptable behaviour. As one of James'

colleagues at Conservation Council said today, if you saw someone dismembering a puppy in the street you would ask them “what are you doing!?” That is a comparable analogy. We recognise that new legislation might be necessary to make it clear that what was happening was illegal. And we recognise the need to collaborate with key stakeholders. So a number of actions came out of that consultation.

CCSA met with RecFish, who acknowledged the stress that'd been caused and that it was unacceptable behaviour. They certainly promote humane dispatch through their own materials that they have on their own website. But they weren't convinced that the entire recreational fishing community were well informed, particularly with respect to that animal welfare question over whether fish feel pain. Their preference was really for education as the main approach to correct this. They provided some useful insight into shark and ray fishing demographics, particularly shark fishing, as we heard from PIRSA as well. Their view is that it was a fairly small group of people, who may not have a whole lot else going terribly well, maybe struggling socially and economically, and this was an outlet. But the other group was young fishers using shark fishing from jetties to 'cut their teeth' on game fishing.

There's been some perception that the RSPCA might not be as interested in fish and fish pain, but that is far from the truth. They are very interested. They identified South Australia as being a lag state, behind the others in terms of recognising fish welfare. They're willing to contribute in kind, in support or financially to an educational program and they've been very interested so far. They also recognise the need for an integrated approach.

So do sharks feel pain? We did investigate where the literature was at with that. The debate has been going on for decades now. And there's been quite a lot more in recent reviews. It seems to be coming to a consensus, but it's not all there yet.

There's no dispute that fish have a mechanism for recognising when they've been damaged or responding to that in some way. The question is whether they then feel that in a cognitive or emotional sense – where they actually experience pain or pleasure as well in other situations. So are they sentient?

The 'no camp' consider that fish responses to damage or stimuli are not conscious, just as if we're tapped below the kneecap or reactions such as that, where they don't necessarily know what's going on or feel it. And they suggest fish

don't feel pain in the same way we do, therefore you can't call it pain as they don't have the same brain structures to enable them to do so in the way that we do.

But the interesting thing about that argument is that would also include birds and other animals as not feeling pain.

So the 'yes camp' consider fish to be highly cognitive beings, on par with other vertebrates (such as birds) with long-term memories, complicated social traditions, behaviours, ability to recognise each other, use of tools, cooperation with each other, things like that. They can experience fear and other behaviour responses, similar to ours.

They also have a lot of analogous structures. They may not have a neo-cortex but they do have structures that fulfil similar roles.

The story is less clear for Elasmobranchs – sharks and rays, but there's plenty of literature showing they are highly cognitive beings.

So that was just a bit of a tangent, something we looked into on the way.

Going back to the legislation. Each state and territory has its own animal welfare legislation. South Australia and WA actually don't include fish – they're excluded from being animals.

Whether that makes much difference or not from a fisheries perspective is unclear because the other states have specific exclusions for any activities that are covered by the local fisheries management act or local fishery legislation. So it really applies more to fish in tanks. Greens have a bill before parliament to include fish in the South Australian Animal Welfare Act, but again it would have those exceptions. So any practices happening under the Fisheries Management Act or Aquaculture Act wouldn't be included.

The Victorian example, which we hope to see included in the SA Fisheries Act, that they must immediately return a fish to the water with the least possible damage, is a powerful piece of legislation. That would stop the mutilations, but it wouldn't necessarily stop the waste, for example of all the Port Jacksons being piled up on the jetty because people could actually argue they are planning to take them home or cut them up to put on their gardens. So we are advocating a bag limit for shark and ray species.

So the only stakeholder not mentioned yet is PIRSA fisheries and aquaculture. They were responsive to the public concerns in 2017 when they were

seeking measures. They instigated research into the matter and did a review across the board of policy, research and management issues and compliance issues. And they're proposing multi-faceted solutions to this, which are quite promising.

The only other thing to say is that CCSA were concerned about the amount of time some of this will take to get in place, another summer would pass. Our understanding is they're fast tracking the education program.

Conclusion: General consensus (among RecFish, PIRSA, RSPCA and everyone CCSA has spoken to) is that there's a need for education and regulation in regards to interaction with sharks and rays by recreational fishermen. We haven't spoken to as many people as PT in Victoria. And we're encouraged by the government's proposals for addressing the issue. We haven't heard detail but we've heard the outline.

Stop press: the education package was released by PIRSA during summer 2017/18. With the exception of some comments that seemed to unnecessarily promote shark fishing, the package was well received.

FoGSV Committee elected October 2018

President: Mike Bossley

Secretary: Steve Papp

Treasurer: Nicolle Spencer

General Committee Members:

Angela Gackle

Laurel Walker

Belinda Higham