

**Submission
No 49**

MANAGEMENT OF SHARKS IN NEW SOUTH WALES WATERS

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Introduction

My name is Mary Gardner, a resident of Byron Bay since 2007. I am currently completing my PhD in historical marine ecology. Like many residents in Northern River, I am deeply interested in coastal and marine places, its animals and different peoples. The alarm raised by the recent observed presence of large sharks close to shore can be transformed into an important opportunity for state government and research to support and encourage community-based actions, governance and knowledge building.

I present some ideas below, a quick sketch drawing on my experience here as a resident as well as some twenty-five years of experience as a marine biologist and researcher in local ecology. With Southern Cross University, I am investigating the historical marine ecology of the East Australian subtropics. Since 2007, I have written articles about the local coastal and marine ecology as well as 'science and society' issues for the independent newspaper the *Byron Shire Echo*. In 2006, I trained in a short summer school programme run by the Science Shops Network based in the EU. This helped me build an international perspective, integrating my many years of experiences with community-based coastal catchment projects throughout Aotearoa/New Zealand.

Fund a Ballina-Byron-Tweed community-based marine alarm and knowledge building programme

Coordinate real time observations about the presence of sharks and other marine life to support both an alarm system and a community-based research programme about marine ecosystem as a whole. Design and expand the observations to include the bait fish, dolphins, turtles, whales and sightings by the general public -- collect information towards a marine ecosystem understanding as well as a shark alarm. Test local ideas: are sharks at the beaches where dead whales are buried or where dredging is underway? Collate the information using internet technology. Keep results public. Spread the messages using a range of media. Involve the visual and performing arts communities.

Support people and integrate local initiatives

Make genuine jobs based on a suite of monitoring efforts: watches from a variety of lighthouses, towers and cliffs and ridges, incorporating gyrocopters, linking with police and surf guards, jet ski patrols as well as phone apps/social media and on location flag systems on selected swim and surf beach locations. Some workers may be volunteers. Some paid. But train and up-skill the teams so that they become able observers in air and land. Create long term studies conducted by community-based researchers to coordinate the knowledge and keep it public.

Create the long promised regional network of marine research centres and community based research

The government dismantled the Cronulla marine research station and promised that it would be replaced by a network of decentralized marine research centres. Programmes to tap and support local ecological knowledge about coastal and marine ecosystems must continue across election cycles. They can be integrated into and support coastal communities the way public schools and medical clinics support education and health.

Develop the Blue Economy

Marine, environmental and citizen science can all be an important part of not just regional tourism but a new blue economy, augmented by creative industry, which is considered a growth industry in the Far North Coast. There are restoration and rehabilitation projects, important to the Cape Byron Marine Park, Byron Bay and Ballina and Tweed which would also benefit from this kind of proactive regional investment in people and localization.

Ballina has a maritime museum and an education programme at the high school. Hastings Point has a marine education centre. Many people in the Byron Bay community, including the Mayor Simon Richardson and the director of the Byron Community College, Richard Vinycomb, are interested in a 'Byron Institute for Global Solutions' as well as a marine and coastal wetland centre. This type of interest can be used to provide logistic 'homes' for programmes and staff. This is especially important in Byron Bay, one of the state's most important tourism industries, which does not have any such discovery centre or museum. One location may be the recent West Byron land release, itself a degraded wetland prone to flooding and harbouring acid sulphate soils. Here, local koala populations and other wildlife still hold on, although threatened by mega-development.

The Commonwealth can be involved. In 2014, wetland revitalization was identified by a Commonwealth study as vital opportunity. To quote from their document:
"to improve fisheries productivity, water quality, catchment hydrology, coastal biodiversity, flood control, carbon sequestration and foreshore buffering"
From *Revitalising Australia's Estuaries* www.frdc.com.au/research/documents/2012-036-business-case.pdf

Another important element would be to make of this opportunity a start towards community led ecosystem based management of coastal and marine places. This is important in the EU and is showing important success in New England, USA as well as places throughout the Pacific. Communities conversant with their coastal and marine places, practiced in creating the local knowledge can reconcile across cultures and meet whatever comes with climate change. The UN is also supportive of Blue Economy movements.

Some of the despair lurking behind regional unemployment and suicides, drug/alcohol abuse, violence and poverty is bound up with inadequate, outmoded ideas of development and the economy. Many young people as well as their elders are very aware of the problems the pollution, and the unsustainable nature of 20th century industrial growth. A shark response programme that leads into a coastal and marine ecosystem programme could raise a new cluster of 21st century industries, employment and lifestyles.

Additional background notes and comments

A. Know the history

1. **Shark decline:** good to hear the panel bring up the results of the beach netting from the Stockton-Wollongong area and the other tagging studies: yes, let's emphasize that numbers of sharks have fallen, that nets have a terrible by-catch problem too, that sharks are always in the Sydney Harbour and not biting people. That the Harbour is very different from the surf beaches up north.
2. **Shark decline multifactorial story:** Let's also explain that the many different types and sizes of sharks, how these have declined in number, the role of the killing done in the name of commercial and recreational fishing over the past couple of hundred years.
3. **The big pictures:** How about we emphasise marine ecosystem-based knowledge: the entire Pacific is in the grip of a large El Niño event. The third global coral bleaching. The droughts, the typhoons and cyclones. The number of reported shark incidents have spiked in other places to such as Hawaii and California coast. There are also reports from the Atlantic, along the cost of the USA.

Another big picture is the changes in coastal communities and the degradation of the environments coastal and inshore. I note that in at least one of the submissions as well

as in discussions throughout the Byron and Ballina community, people recognize the loss of wild pipi, oysters and other marine animals of every sort, the worsening pollution of the waterways. Tourism is welcome enough but it is not addressing these problems. Local research and monitoring could help build more knowledge about these conditions.

4. **The social history:** I think it's important to highlight the social history and the many types of relationships between people and large sharks. Time to learn from other cultures. From the Aboriginal Australians, the wider Pacific: people have monitored different types of sharks, got to know some of them individually, fed sharks resident in lagoons and bays in one specific area, rode on their backs, caught them with nooses and guided them away, prized them in stories with roles other than 'killing machine', worked with them to collect fish, lived with them for centuries...

Here in Australia in the early 20th century, the settler interactions have become stereotypical around one kind of story: 'Jaws'. Beryl Francis explains some of this history in her paper *Before and after 'Jaws': changing representations of shark attacks*. www.jstor.org/stable/23622226

Scientists in the 1930s and 40s such as T Roughley and G Whitley emphasised the uncommonness of attacks. In particular, Roughley protested against the nets pointing out that over three years' time, there were no reported shark incidents and this was the time before any nets. In Ballina, the council debated setting up nets, but agreed that these would become hazards to navigation and compromised by sand movement.

B. Face the fears

1. **The socio-ecologic context:** the social and economic stories are set within their ecological context. For instance: predators change the way other animals behave in shared areas, there is something different happening now, and important seasonal migrations are underway.

In California, in Aug 2015, the Monterey Bay aquarium set a live camera to transmit and record the seasonal migration in all its glory: from otters, seals, sharks fish, baleen whales, and orcas -- this was actually broadcast live for three nights on prime time evening television in the United States. The Australian East Coast migrations are of equal value and interest. Why are we not promoting our own coastal migrations, rather than emphasizing individual species?

In Cape Cod, in the very places where 'Jaws' was set, the increase of sharks has been turned into an asset for tourism. When the flags change to alert swimmers to the appearance of sharks, people get out of the water and then turn their binoculars back to the water.

2. **The criticisms:** These are along several themes -- 'do something', 'protect us' and 'damn it, why don't we know more about what to do?', 'people matter most of all'. I believe it's important to relate a suite of actions back to these specific worries.

C. Synergize

1. **Support and integrate local initiatives:** it's great that the Ballina police and the Surf Lifesavers are starting to coordinate their responses. I also know that the gyrocopters are being used in the Byron region (I note there is a submission from a woman who has a

history of using these in a shark alarm program). Another man is using jet skis and is advocating a beach patrol from on the water (item in the Byron Shire News 22 Oct 2015)

A Ballina/Byron/Tweed programme should bring all these elements together and more. At the Shark Forum, I note the absence of the mayors of Byron and Tweed (The Byron mayor is public about the regrettable splintering of regional discussion). The programme should be a network, with an ability to adapt to different beaches but coordinated across places.

2. **Address other urgent issues in a holistic way:** there are a number of disparate issues in this area which are all interrelated. The indigenous people are deeply interested in marine animals and the state is finally considering indigenous fishing. Surf Lifesavers always need more funding. Coastal watch are always looking for more volunteers. Whale, dolphin and bird monitoring already include community in various counts and surveys. People who are out fishing are out on the water throughout the region. The marine parks are important. Ballina and Byron police can only devote so much time to shark monitoring.

Unemployment is a major issue, particularly for two groups: young adults and over 50 year olds. Australian suicide rates are high.

The 'big science' presented at the forum is not enough to answer the questions that are important in the local community. The limits of the tagging programs are well understood -- that's why people say it's not enough. I note a submission from a veterinarian who also points out that the procedure and the impact on the sharks themselves is not well understood and may be detrimental to the animals themselves.

I note that one of the reasons that the Cape Cod tourism embraces shark watching is because a Shark Research Centre brings together community concerns into local action and research and contributes to the development of local knowledge. The interest in the marine coastal migration on the California coast is partly due to the efforts of a network of marine centres including the Monterey Bay Aquarium.

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