

**Submission  
No 2**

# **MANAGEMENT OF SHARKS IN NEW SOUTH WALES WATERS**

**Organisation:** Portside Marine Pacific  
**Name:** Captain (Dr) Peter Kerkenezov  
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**Captain (Dr) Peter Kerkenezov**

Master Mariner (unlimited), Commercial Diver, Compass Adjuster, Marine Pilot and  
Veterinary Surgeon

**Portside Marine Pacific**

**&**

**'Balliwood Stables' Equine Veterinary Hospital**

34 Racecourse Road

Ballina NSW 2478

**Re: Submission to Parliamentary Committee Inquiring Into  
Management of Sharks in NSW Waters**

Dear Parliamentary Committee,

I submit the following to the committee inquiring into the impact of shark attacks in NSW waters. My submission takes the form of a 'trilogy' of articles (1, 2, & 3) that were written for another forum in defence of our oceans and the marine creatures within.

A global Sixth Mass Extinction is purported to be already half in progress due to habitat destruction, climate change, pollution, human overpopulation, over-harvesting, and intrusive species overriding native species as a result of competition, predation and infectious disease.

References are available to support claims below.

**1. Shark Control Program is a Misnomer**

Killing sharks to prevent the possibility of further human attacks may achieve just that however this strategy should never be sanctioned and would never be expected to obtain scientific consent. The recent increase in shark awareness and the general spatial dynamics affecting sharks along the northern NSW coastline is likely food related. Marine animals in our local waters are going about their daily business of subsistence and to do this



they must eat and reproduce. Human recreational water activities on the other hand are not essential for our continued existence and should not trump wild marine animal survival. We need to respect their presence and learn to co-exist.

70% of the world's fish species are either fully exploited or depleted. It has been estimated the world's oceans have already been depleted of 95% of diadromous fish, sea turtles, and pinnipeds, and the tuna fisheries fast approaching collapse if the intensity of fishing continues unabated. Even if this was half true there is little surprise sharks are now more dependent on bait fish, dead whales, trawlers, livestock ships and remaining pinnipeds as food sources.

Cape Byron is the most easterly point of Australia and distinctively refracts seasonal currents, particularly the East Australian Coast Current. Add cold water ocean upwelling and other factors and you have a favourable environment for bait fish inter alia. This year has seen a plentiful supply of bait fish; enough to attract sharks.

My earliest recollection of the Richmond River is 1954 when it was seasonally alive with pelagic fish, flathead, bream, luderick, jewfish, sharks, octopus, pilchards, whitebait, and much more. Today it is just a drain by comparison. It is my contention shark numbers overall have in fact dwindled and the latest apparent increase in our local waters is due to bait fish. The whale population is also increasing back towards that seen in the 60's and White Pointers are known to feed on dead whales.

Notwithstanding this link, I have encountered a White Pointer whilst diving locally off shore one early January when whales were not a factor.

White Pointers are colour blind, warm blooded, apex predators that are travelling or temporary residents. They can detect



minute electrical pulses from large distances and food availability and reproduction influence their direction of migration. They need to eat 1-10% of their body weight weekly and marine mammals, fish; squid and other sharks are their usual diet.

Sharks have evolved over 450 million years however it is only in the last 20 years surfing has gained enormous popularity. The huge number of humans now entering the sea for entertainment, floating about in wetsuits and with added buoyancy has increased the exposure time to possible risk of shark-human contact. The Western Australian government recently demonstrated the sharks are at greater risk. Any complexity in this issue has been set in motion by human beings and the term 'shark control program' is a misnomer!

## **2. Nature's Giants under Threat**

One of nature's giants is coming under attack from various quarters here on the north coast and the NSW Premier's recent suggestion that shark nets could be extended to our northern beaches needs immediate challenge.

White Sharks are motivated by feed and reproduction and have always been travelling by or become temporary residents however what has changed is the feeding activity of the larger sharks as the usual larger prey is no longer obtainable. Humans have utilised the energy of fossil fuels to power super trawlers, purse seiners, and long liners depleting fish stocks and generally upset the natural order of the marine animal kingdom to the point where the food chain has been disrupted, biomass depleted and behavioural adaptation become necessary.

Human consumption which grows year on year affects even the oceans' natural ecosystems. This perceived shark 'problem' could be an indicator of a much bigger problem. The orderly system of the sea that has withstood the millennia is now being affected on a



global scale. The food chain is under immense pressure from unsustainable fishing, continuing ocean pollution, mangrove destruction, acidification of seawater and global warming. Oyster beds, the natural filters of sea water, have largely succumbed to pollution here in Ballina.

It appears the historic cluster of human – shark encounters locally is multifactorial and a reflection of what is happening in the ocean beyond. To simply go out and kill sharks to protect the massive increase in people engaging recreational activities would be enormously irresponsible. This simplistic mindset has to be changed. Rather than contemplating killing members of an already depleted population of White Sharks, energy should be diverted to cleaning up our rivers, creeks and bays. Oyster beds need re-establishing and pressure needs to be applied to stop raping the oceans of fish as if there were no tomorrow. Ocean outfalls need ongoing review and human sewerage, particularly that containing antibiotic residues, prevented from working its way in to the sea. Human excreta containing antibiotic residues may explain why many marine animals including sharks, dolphins, whales, seabirds and fish are now harbouring antibiotic resistant microorganisms such as *Vibrio spp*, *Staphylococcus spp*, *Escherichia coli*, *Brucella spp*, and *Giardia and Cryptosporidium*.

Furthermore, with reference to the recent NSW Government funded tagging of White Sharks along the northern NSW coast, I question the ethics that sanctioned elective implantation of sizeable, acoustic, telemetric ‘tags’ (foreign bodies) into the abdominal cavity of this species of marine animal. What's more, it appears this act of veterinary science is not being performed by licenced veterinary surgeons but by non-vets as accredited persons or persons holding an authority under the Animal Research Act to perform this work and there is no real idea of



how many of these sharks will die as a consequence of infection or other complications after release.

A CSIRO video demonstrates no aseptic preparation of the skin and the surgical site is underwater much of the time. Sea water must enter the abdominal cavity and there seems a heavy reliance on sea water acting as a lavage. If the water density was 1.025 then the lavage solution (seawater) could be expected to be suitably polyionic and isotonic however the type and number of microorganisms and exogenous pyrogens per millilitre of seawater unknown. Many types of pathogenic microorganisms including *Vibrio spp*, *Staphylococcus spp*, *Escherichia coli*, and *Brucella spp*. are known to colonise sharks so postoperative infection could be one possible complication.

One hopes that a suitably comprehensive risk analysis of the short-term and long-term outcomes has been undertaken. It is unlikely, however that all identifiable risks have been taken into account bearing in mind these animals have had no pre-operative medical exam (apart from measurements) or post-operative surgical management or indeed any follow up. These sharks should have a life span of some 30 years or more when left alone!

Blood chemistry has indicated these sharks become highly stressed when hooked, and when turned on their backs for invasive surgery to insert the implant. When rolled on to their backs, the sharks enter a catatonic state of immobility described somewhat misleadingly as a state of 'mild anaesthesia'. However, the predominant feature is profound motor inhibition and there is little firm evidence that this equates to a meaningful reduction in pain sensation.

This procedure appears to rely heavily on the patient being a healthy specimen, with the ability to resist infection, however there may be many compromising factors if, for example, the



surgery was performed in water close to a river entrance or ocean outfall.

Some obvious questions need answering: What short and long term postoperative complications are to be expected? Do researchers know the mortality or morbidity rate of White Sharks and how large is this dataset of knowledge on White Sharks following abdominal surgery and after release? These devices are reported to have a battery life of 10 years so after this time no data on the shark's health would be available. What contingency plan does the tagging team have if a vital anatomical structure is inadvertently cut, for example, intestine? From whom did the CSIRO obtain their 'independent' veterinary advice? It appears at first glance some of the basic principles of surgery and animal welfare are being violated.

Applying external tags to White Sharks may not be so enduring due to 'shedding' however complications are much less likely than inserting internal acoustic tags. Tagging will assist researchers to address the fundamental reasons for what may be changes in large White Shark feeding habits, and migration patterns generally. Notwithstanding this, tension between human and sharks will continue as always along our coastlines. The White Sharks have become yet another species under threat and must be protected at all cost.

### **3. Empty Seas - But The Waves Are Good!**

An unfolding tragedy encircling White Sharks is imminent. When the most proficient cleaners of the sea are gone then what next? Will some other marine organism take advantage of the decline and the natural harmony of the sea disrupted even further for all time? Mankind cannot afford to take this risk. In 2006 an estimated 97% of the vultures, another of the world's most efficient cleaners, died in India from ingesting an anti-



inflammatory drug used for cattle. The result was an explosion in the feral dog population reaching an estimated 25 million and a drastic rise in rabies contributing to roughly 36% of the world's rabies deaths. The oceans are already in crisis and further human interference killing White Sharks is a no-brainer.

Nets and drum lines were first introduced circa 1930 and over time these devices have killed tens of thousands of marine animals and driven many to near extinction. Since 1962 the Queensland Shark Control Program has been responsible for the mass capture of 84,800 marine animals including whales, dolphins, sharks, turtles, manta rays, and dugongs. Hawaii tried culling sharks for 18 years and eventually concluded nets and drums did not prevent shark related incidences. During the last ten years, twelve shark encounters have reportedly occurred off NSW's most popular and netted beaches including three attributable to White Sharks, four due to Bronze Whalers.

All is not well in our marine ecosystems and the spatial distribution of food for all species, including White Sharks, has decline globally. This 'shark problem' is far more complex than just a shark problem. It is a good indicator of the knock-on-effect of climate change, plastic and oil pollution, habitat loss and over-fishing. When recently published research indicates 70% of the world's seabird population has declined since the 1950's and this reflects long-term and large-scale change in marine ecosystems then our alarm bells should be ringing loudly. The implications and complexities are profound. Decline in seabird waste causes decline in valuable nutrients that fertilise the sea and feeds marine life. The knock-on-effect through the food chain from unicellular organisms to the top apex predators translates into less food for all.

Strong evidence exists not to interfere further with Mother Nature and leave the sharks alone. It would be catastrophic if the recent



shark attacks on humans were to be the final catalyst that sends our marine ecosystems into a spiral spin to the bottom.

Respectfully,

Peter Kerkenezov

Ballina NSW 2478

Mobile: [REDACTED]

Email: [REDACTED]