

QUESTION ON NOTICE
No. 48
Asked on Wednesday, 7 February 2007

MR RICKUSS asked the Minister for Primary Industries and Fisheries (MR MULHERIN)-

QUESTION:

With reference to recommendations made by the Queensland Department of Primary Industries and Fisheries in "A report on the Queensland Shark Safety Program" published in March 2006—

- (1) What progress has been made by the department on research into the introduction of electromagnetic shark barriers or other shark catching and deterrent technologies?
- (2) What programs have been funded over the last five years in research and international scientific efforts in seeking new ways to shark-proof Queensland beaches?

ANSWER:

- (1) Electromagnetic Shark barriers have been widely discussed and researched since the technology was first developed in South Africa in the 1980s. This technology is the basis of commercially available personal devices that are used, predominantly by recreational and commercial divers in high risk areas, to reduce the risk of shark attack. The use of the technology on a broader scale to protect larger areas is still considered to be in the very early experimental stage. The technology currently has a range of engineering and logistical issues that need to be addressed before it can be used for anything other than personal protection.

If these issues can be overcome and the technology eventually proven to be effective on a large scale then it may have application in some sheltered bays in Queensland. However, the developers of the technology have advised the Department of Primary Industries and Fisheries (DPI&F) that it is unlikely to have any application in open ocean surf conditions in its present form. Despite concerns about the ability of the technology to deliver broad-scale protection, the Shark Control Program has an ongoing collaborative association with the developers of the technology and closely monitors developments in this area.

- (2) During the last five (5) years research into shark catching technologies has concentrated mainly on reducing non-target catch whilst maintaining the shark deterrent nature of the current mixed fishing strategy of using nets and baited drum-lines.

Specific research initiatives and their results have included:

- Advances in acoustic alarm/pinger technology for reducing entanglement of marine mammals;

- The introduction of plastic “hook guards”, which have been effective at reducing turtle interactions with drum-lines in southern Queensland while not affecting shark catches.
- The introduction of temperature data loggers on Gold Coast nets to correlate shark and by-catch activity. Sea temperature is providing insights into the seasonal activity of sharks and by-catch species.
- In 2004 a tag and release program for harmless shark species was established to help understand their behaviour upon release.
- A recently concluded trial comparing two hook drum line rigs and single hook rigs indicated no difference in the shark catching ability of either rig although the single hook rig resulted in reduced turtle interactions.
- Alternative baits, drum line rigs and net modifications continue to be assessed.

The March 2006 review of the Shark Control Program recommended that future research focus on improving shark gear effectiveness and reducing non-target take. Subsequent to that review, the following three programs that aim to improve the existing deterrent/catching technologies have commenced:

- (a) A trial comparing a top-set and a bottom-set shark net conducted on Mackay beaches showed that a top-set net was equally efficient as a bottom set net in terms of shark capture, but the top-set net caught less by-catch. As a result the use of a trial bottom set net was discontinued.
- (b) A large statistical comparison of bait type and drum line configuration was implemented subsequent to the review of the program in 2006. This involved changing some fishing gear on the Gold Coast, Sunshine Coast and Rainbow Beach. These trials are still underway and are designed to test effectiveness of chain and stainless steel traces as well as mullet and shark as bait on traditional drum lines.
- (c) Scavenging of drum line baits by marine animals reduces the effectiveness of baited drum lines. Mesh bait guards are currently being trialled at three areas and have already proven effective at reducing scavenging of baits by dolphins. Initial results suggest that they have also improved shark catching efficiency, although the trial still has some time to run before statistically conclusive results can be demonstrated.

DPI&F is also in regular contact with the Natal Sharks Board in South Africa and NSW Fisheries, which also have active shark control measures in place. In addition, officers of DPI&F regularly meet with members of the public, scientists and inventors both locally and internationally, to discuss ideas for minimising shark attacks on Queensland beaches and reducing the non-target capture of marine life. Despite these collaborations and discussions there has not been any significant development in new “shark proofing” technologies and traditional capture methods using nets and drum-lines remain the most effective protective measures.