

# Shark Alert Pty Ltd Briefing Note

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- Shark Alert Pty Ltd, and Australian company based in Western Australia has partnered with a U.S. company, to investigate and trial a new photographic technology suitable for detecting large sharks that pose a risk to humans along coastlines.
- The approach uses multi-spectral cameras and real time image processing to detect sharks present, and the technology has its basis in military applications.
- Importantly, the approach can address the significant and well documented deficiency of poor detection rates of aerial surveys where human observers are used to detect the presence of sharks.
- The approach is not at the 'concept' stage, but rather at the stage where field testing is refining and optimising the technology for widespread use. The approach has 'proof of concept'.
- Shark Alert Pty Ltd believes that a key for long-term success in shark mitigation is in independent field assessment of the technology.
- To this end, Cardno (NSW/ACT) Pty Ltd has field tested the Shark Alert Pty Ltd approach in the field off the San Diego (U.S.) coast. Further work is planned under Australian conditions. Cardno (NSW/ACT) Pty Ltd in conjunction with Bond University undertook a review of technologies for shark mitigation, although aerial survey approaches were specifically excluded from that review.
- Similar to methods to determine the reliability of human observers to detect sharks, the Cardno (NSW/ACT) Pty Ltd trials utilised a "shark analogue".
- The trialling showed a substantial and significant improvement on the use of human observers. The shark analogue was detected 100% of the time when it was placed at various depths below the water surface to a testing limit of 4.57 m and it is expected that the system could detect sharks consistently at even greater depths.
- Detection rates were very good with distance from the aircraft, with 88% detectability achieved as far as 350 m from the flight path (the limit of the test undertaken). This distance is much further than had been achieved previously using human observers. In that study, detection rates diminished with distance, with observers in fixed-wing aircraft seeing only 14% and 9% of analogues at distance of 200-300 m and >300 m, respectively.
- Importantly, the Shark Alert Pty Ltd approach retains the advantage of an aerial-based system in terms of being able to cover a large area, while addressing the substantial deficiencies in using human observers.
- The approach has the ability to be able to provide information in real time to water users.
- The approach also has the ability when deployed over time to provide information on the habitat use of large sharks over a wide spatial scale and this can potentially contribute substantially to the knowledge base and towards conservation efforts, while still providing enhanced public safety.
- Overall, Shark Alert Pty Ltd plans testing and refinement of the approach under Australian conditions, and considers that the approach will be highly likely to be more reliable at detecting sharks than other detection methods, and also be more cost-effective.