

 <p>Agreement on the Conservation of Albatrosses and Petrels</p>	<p>Sixth Meeting of the Seabird Bycatch Working Group <i>Punta del Este, Uruguay, 10 - 12 September 2014</i></p> <p>Seabird Mitigation for Recreational Fishers Karen Baird ^{1,2} and Dave Kellian ³</p> <p>1. <i>Forest & Bird (New Zealand)</i> 2. <i>BirdLife International</i> 3. <i>Southern Seabird Solutions Mitigation Mentor Program (New Zealand)</i></p>
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SUMMARY

Recreational fishing bycatch of seabirds could potentially cause population level impacts to some species of seabirds in New Zealand. We tested a simple 'plastic milk bottle' mitigation method to keep seabirds including black (Parkinson's) petrel (*Procellaria parkinsoni*) and flesh-footed shearwater (*Puffinus carneipes*) away from baited hooks. This method was trialled from a recreational fishing charter vessel in the Hauraki Gulf, New Zealand. Petrels and shearwaters were deliberately attracted to our vessel to enable us to test this device. A milk bottle half filled with water was attached to the end of a line which in turn was attached to an outrigger pole with the addition of a streamer. The movement of the sea and boat allows the milk bottle to bounce around and create a 'safe zone' between it and the boat where baited hooks were deployed. Birds were reluctant to enter this zone even when baits were deliberately thrown there. We also found that a deck-wash hose as an alternative deterrent method was effective but only for short periods and birds returned after was switched off. We also noted that storing baits and caught fish in closed bins, and retaining used or old baits rather than throwing them over the side, gives birds little reason to be attracted to a boat. Maintaining a 'clean' boat remains a very effective way to prevent a problem occurring in the first place.

Mitigación de captura secundaria de aves marinas en la pesca recreativa

La captura secundaria de aves marinas en la pesca recreativa podría ocasionar efectos adversos en los niveles de población de algunas especies de aves marinas de Nueva Zelandia. En el marco de este informe, se probó un método de mitigación simple con una botella de leche de plástico para evitar que las aves marinas, como el petrel negro (pardela de Parkinson) (*Procellaria parkinsoni*) y la fardela negra de patas pálidas (*Puffinus carneipes*), se acerquen a los anzuelos cebados. Dicho método fue probado desde un barco de alquiler para la pesca recreativa en el golfo de Hauraki, Nueva Zelandia. Se atrajo deliberadamente a petreles y fardelas hacia el buque para posibilitar la prueba del dispositivo. Se colocó una botella de leche llena con agua hasta la mitad en el extremo de

una línea que, a su vez, se fijó a un tangón y se le incorporó una cinta espantapájaros. El movimiento del mar y del barco hace que la botella rebote y cree una "zona segura" entre ésta y el barco, donde se despliegan los anzuelos cebados. Las aves se mostraron reacias a ingresar en esta zona aun cuando se arrojó carnada deliberadamente dentro del área. Asimismo, también se halló que el empleo de una manguera para lavado de cubiertas como método de disuasión alternativo fue efectivo únicamente durante períodos cortos, ya que las aves regresaban en cuanto se apagaba la manguera. Además, cabe señalar que, si se almacenan las carnadas y la pesca en receptáculos cerrados y se conservan las carnadas usadas o viejas en lugar de arrojarlas al mar, las aves no tienen ningún motivo para acercarse al barco. Mantener el barco limpio sigue siendo un método muy efectivo para evitar problemas desde un principio.

Mesures d'atténuation envers les oiseaux marins lors de la pêche sportive

Les captures accidentelles d'oiseaux marins liée à la pêche sportive pourraient potentiellement impacter le niveau de la population de certaines espèces d'oiseaux marins en Nouvelle-Zélande. Nous avons testé une méthode d'atténuation simple, celle de la « bouteille de lait en plastique », pour éloigner des hameçons appâtés les oiseaux marins, notamment les Puffins de Parkinson (*Procellariaparkinsoni*) et les Puffins à pieds pâles (*Puffinuscarneipes*). Cette méthode a été testée sur un bateau affrété pour la pêche sportive dans le golfe d'Hauraki, en Nouvelle-Zélande. Nous avons attiré délibérément les Pétrels et les Puffins vers notre bateau pour pouvoir tester ce dispositif. Une bouteille de lait à moitié remplie d'eau était fixée à l'extrémité d'une ligne qui, à son tour, était fixée à un poteau stabilisateur muni d'une banderole. Le mouvement de la mer et du bateau permet à la bouteille de lait de rebondir, créant ainsi une « zone de sécurité » entre elle et le bateau dans laquelle les hameçons appâtés furent déployés. Les oiseaux n'osaient pas pénétrer dans cette zone, même lorsque les appâts étaient délibérément jetés à cet endroit. Nous avons également constaté que le tuyau de lavage du pont constituait une méthode de dissuasion alternative efficace, mais seulement pour de courtes périodes, et les oiseaux revenaient après que le tuyau ait été éteint. Nous avons également noté que le stockage des appâts et des poissons pêchés dans des bacs fermés, et la conservation des appâts vieux ou déjà utilisés, plutôt que de les rejeter à la mer, limite l'attrait des oiseaux pour le bateau. Maintenir un bateau « propre » reste un moyen très efficace pour empêcher tout problème d'apparaître à la base.

1. INTRODUCTION

1.1. Background

Recreational fishing is a highly popular activity in New Zealand, especially in the Auckland region New Zealand's most populous city (approx. 1/3 of New Zealand). This includes fishing from shore as well as from boats. Increasing population, affluence and access to boats has resulted in increasing numbers of people fishing away from shore in boats. Up to 1,000 recreational boats are used for fishing within the Gulf on a typical Saturday, Sunday or holiday during the summer months (Hauraki Gulf Forum, 2010). There is strong evidence

that many fishers accidentally catch seabirds when they are setting baited hooks from their boats. Two studies in particular are relevant. Abraham *et al* (2010) found that 81,000 people go saltwater fishing at least once per week in New Zealand. This suggests even a small rate of interaction with seabirds could have population level impacts.

Abraham *et al* (2010) undertook a boat ramp survey in 2007-8 and found that 47% of fishers recalled witnessing a seabird capture at some stage in the past. Observers on charter trips found seabirds were caught at an estimated a rate of 0.36/100 hours of fishing. In the north east region (which includes Auckland) there was an estimated 4.8 million fisher hours of fishing from trailer boats in 2004-5. By applying the capture rate from interviews of 0.22 birds per 100 hours of fishing, Abraham *et al* estimated 11,500 birds annually could be caught. Birds have been reported as unharmed 77% of the time. The most frequently caught was reported as petrels, but albatrosses, gannets, penguins and terns are also caught.

In a second study of non-oiled dead seabirds collected on beaches after the 'Rena' oil spill in 2011, necropsies revealed that most birds had died from starvation. However all of the flesh-footed shearwaters and some Buller's shearwaters (*Puffinus bulleri*) and sooty shearwaters (*P. griseus*) had been killed by amateur fishing activities. Amateur fishing hooks were found in some of the birds and deaths were apparently caused by trauma such as broken wings, crushed skulls and stab sounds. (Tennyson, *in press*).

Two species of birds in particular are of concern in the Hauraki Gulf adjacent to Auckland and beyond. Both black petrel and flesh-footed shearwater are known to be caught by recreational fishers and both have already been assessed at very high risk from commercial fisheries in New Zealand (Richard and Abraham 2013). Recreational risk is additional to this and has not been assessed. Their breeding seasons also coincide with the long Auckland summers and high numbers of recreational boaties.

1.2. Mitigation Options for boaties

One of the authors of this paper (DK) is a commercial fisher based at Matakana. He has had a long interest in reducing bycatch in the commercial fishing industry and was responsible for the design of the Kellian line-setter, which is currently being tested for commercial production for demersal fishing (Baker & Frost, 2013). DK has also been an additional method on his bottom long line fishing boats which he has found effective when hauling lines and thought could be applied on recreational fishing boats. Our objective was to test this for recreational use.

2. 'MILK BOTTLE' MITIGATION

2.1. Description and methods

2.1.1. 'Milk bottle' mitigation

Recreational boaties require a simple method which doesn't cost much and can be easily rigged up with equipment at hand. A bird scaring device may be needed to keep the birds away from baited hooks as they are being set next to the boat thus creating a 'safe area' for deploying baited hooks. On charter boats where there are a number of fishers with rods and lines this area could include both sides of the boat and the stern. A used plastic 2L or 4L milk bottle half filled with water is tied to a line attached to the game pole. The length needs to allow the bottle to bounce on the sea when the game pole is swung out adjacent to the boat (see fig 1). The principle is that its bouncing movement deters birds coming close to the boat

where fishing is occurring. An additional streamer is attached to the line about half way between the pole and the sea. If the sea is very calm, then an additional line attached to the bottle from the boat can be used to create movement.

An option for boaties, who don't have game fish outrigger poles, is to use a spare fishing rod with a line instead of fishing line attached, with the milk bottle at the end. Then simply swing the bottle out between the birds and the lines. (Fig 2). An alternative method – a deck wash hose was trialled. Birds are thought to avoid being deliberately sprayed with water.

2.1.2. 'Milk bottle' mitigation test method

We departed Sandspit (north of Auckland, near Warkworth) at around 8.45AM on the 7th April 2014, with light winds and calm seas. We headed out to an area west of Little Barrier Island. Our aim was to test the effectiveness of DK's mitigation method while baited fishing lines were being set. Our approach was to first attract sufficient birds to the boat that we could test the effectiveness of the method.

Birds were deliberately attracted to the boat by cutting up bait (pilchards) and throwing it over the side. We also deployed a 'chumming device' a perforated plastic container with fish bits attached to a line and attached to the boat. Although near the end of the breeding season, we still managed to attract up to c. 50 flesh-footed shearwaters and several black petrels as well as a number of young southern black-backed gulls (*Larus dominicanus*) over a 2-hour period. Australasian gannets (*Morus serrator*) were around but did not approach the boat. Black petrels in general prefer to feed further out in the Hauraki Gulf from where we were (Miller & Gaskin 2013), however flesh-footed shearwaters are common through most of the Gulf.

To test the effectiveness of the 'milk bottle' method and to compare mitigation with no mitigation - we deployed it on just one side of the vessel and on the other had no outrigger or mitigation. Charter boats usually carry two outrigger poles so would be able to deploy mitigation simultaneously on both sides if needed.

2.1.3. Results and discussion

Birds were attracted to both sides of the boat when bait was thrown in the water and fishing. It quickly became clear that birds did not like entering the area between the boat and the bouncing milk bottle. On the side of the boat without the milk bottle birds would come close to the boat, to retrieve baits. This contrasted with the other side of the boat with the outrigger and bottle. Birds avoided coming in between the bottle and the boat even when baits were thrown into that space (Fig 3). The rod and bottle system also worked effectively and could easily be swung outside of any fishing lines with baited hooks while being deployed.

Spraying water from the deck-wash hose was also used to deter birds coming in to the bait, but it was felt to be less effective. Birds would move away but would quickly return once the hose was turned off. On the other hand, the milk bottle method continued to be effective and required little effort. The hand-held rod system did require effort, but could easily be picked up and used when a line with hook and bait was about to be deployed. Even with just the one outrigger deployed a line could be set within the 'safe' area and then the person fishing could move around to the boat to the other side once the hook and bait was at a depth out of reach of the birds.

We also wanted to test the effectiveness of operating a 'clean' boat. While we had been deliberately attracting birds to the boat we wanted to test the reverse. Birds have a very

strong sense of smell as well as keen eyesight and will use both of these cues to help them find food at sea. We cleaned up all our bait, and put it inside the bait bin out of sight (and smell), washed down the decks and stopped throwing bait over the side. Although we continued to fish the birds relaxed and gradually moved further away from the stern of the boat. Whenever a line was re-baited, bait was retrieved from the bin, a piece cut and the remainder re-stashed in the bin.

Although the birds remained fairly close by they had lost much of their interest in the boat. It is very clear that not discarding bait at all and retaining everything on board is a strong deterrent to catching birds.

We did have one incident when one of our fishers cast a line c. 20m away from the boat. This movement caused the birds sitting some distance from the boat to react and one bird flew in to grab the bait. It became entangled in our line. We brought the bird in and untangled it. It hadn't grabbed the hook; however the hook had become embedded in its feathers and skin. It was quickly released unharmed.

3. CONCLUSIONS

1. Maintaining a clean boat with all bait out of sight and smell will reduce the chances of creating a seabird problem in the first place. Baits that are retrieved from the hook and no longer required should also be retained on board. If no bait at all gets into the water the birds will have little interest. When fish are caught they should be killed quickly and put on ice in a bin with a tight lid, out of sight and smell. Gutting and cleaning fish should be undertaken once all fishing is completed. It is especially important for skippers to advise clients on their boats the protocols they expect to be followed.
2. Using lines with heavy weights ensures that the line sinks quickly out of diving depth of birds.
3. If a chum bag is used, it should be deployed at depth and not on the surface where it can have the greatest effect on the fish and least on the birds.
4. After managing the situation as above birds are still coming in to the danger zone close to the boat then deploying the milk bottle on an outrigger creates a 'safe zone' for deploying lines. Using a rod and line with a bottle is an alternative while setting lines.
5. If the conditions are very calm and little movement is occurring then an extra line attached to the bottle from the boat can be jiggled to create movement.
6. We suggest not casting a line out when there is a flock of hungry birds near the boat. If birds are present lines should be deployed close to the boat, within a safe zone and with heavy gear.

The Hauraki Gulf on Auckland's doorstep is considered to be a globally significant seabird biodiversity hotspot, with 27 species breeding in the region, of which 16 are New Zealand endemics including the black petrel (Gaskin and Rayner, 2013). Fisheries impacts both commercial and recreational are receiving increased attention. The Auckland Council is currently working on a collaborative process to develop a Marine Spatial Plan for the Hauraki Gulf. Southern Seabird Solutions Trust along with Forest & Bird, Department of Conservation and Ministry of Primary Industries has recently set up a collaborative group to work on seabird bycatch issues in Fisheries Management Area 1 (Wider Hauraki Gulf Area) and is working with charter boat operators and recreational fishing groups to develop appropriate fishing behaviour codes of practice to protect seabirds.

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FIGURES

Fig1. Game pole with milk bottle attached Fig 2. Rod and bottle mitigation in action Fig 3. Milk bottle mitigation in actions

