



RESPONSIBLE FISHERIES  
ALLIANCE – WORKING  
TOGETHER TOWARDS  
RESPONSIBLE FISHING



REVIEW

ZA

2012



# Responsible Fisheries Alliance 1st Phase Review (2009-2011)

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# 1. Introduction

It is often perceived that fishing companies and environmental Non-Government Organisations (NGOs) have few commonalities. However, responsible fishing companies with the foresight to adopt a long-term business view have a shared rationale with environmental NGOs that are committed to sustainable development goals. The Responsible Fisheries Alliance (RFA), a partnership between WWF-South Africa and four major fishing companies, namely, Irvin and Johnson (I&J), Oceana Group, Sea Harvest and Viking Fisheries, is the brainchild of this shared vision. It was formed in 2009 in a bid to enhance the implementation of an Ecosystems Approach to Fisheries management (EAF) in South Africa's fisheries.

The RFA was developed around the concept that healthy marine systems will continue to provide society with ecological, social and economic benefits. Therefore, safeguarding the integrity of marine ecosystems is in the interest of WWF and responsible fishing companies. The RFA also affords responsible fishing companies the opportunity to capitalise on the growing demand for sustainable products and enhance the credibility of the fishing industry. It is a forum that promotes self-governance through dynamic dialogue and capacity building initiatives as well as advocating for collaborative effort between government, industry and NGOs to address issues that undermine an EAF. The Alliance has the following objectives:

1. Promote and facilitate the sharing of information, expertise and competencies to effect responsible fishing practices.
2. Influence policy and fishery governance.
3. Develop the skills of fishers and fisheries managers to implement an EAF.
4. Promote and implement independent high-quality research on the implementation of an EAF.
5. Effective engagement with market mechanisms (e.g. Southern African Sustainable Seafood Initiative, Marine Stewardship Council and retailers).
6. Positioning responsible fisheries in the public space.

The Alliance operates through a small group of like-minded organisations that are willing to contribute resources and time towards the fruition of the strategic objectives. A steering committee comprised of members with decision-making authority meets 4-6 times per annum and is supported by technical working groups made up of technical experts from member companies, academic institutions and individuals from other organisations such as BirdLife SA.

The RFA has now been operational for over two years, with the members recently committing to a further two-year phase for 2011-2013. It is thus ideal at this juncture to reflect on the achievements of the Alliance and assess how it could more effectively achieve its objectives during the second phase of operation. It is also imperative to appraise the progress that the RFA has made in attaining its objectives and evaluating the impact it has had on the fishing sector. In line with this intention, this review serves to gauge the progress made by the RFA, celebrate its successes, highlight the lessons learnt and provide recommendations for the next phase.

## 2. Key Findings

### Key findings at a glance:

Funding invested	R750 000.00
Projects undertaken	6 <sup>1</sup>
No of fishers trained	200 since 2011 (over 1000 prior to this in collaboration with RFA companies)
Policies influenced	1 (Hake Deep-Sea Trawl Permit Conditions)
Events hosted	3 (Responsible Fisheries Symposium, DAFF inshore trawl bycatch management workshop, the hosting of the Prince of Wales)
Media hits/Advertising Value Equivalent	17/R304 097.48 (this figure excludes AVE derived from media hits on websites)

A summary of progress towards achieving RFA objectives is provided below:

#### Objective 1: Information sharing

The RFA hosted the Responsible Fisheries Symposium on the 3<sup>rd</sup> of September 2009 to showcase and promote the sharing of information and expertise amongst a wider fisheries and seafood industry audience. The symposium was well attended and included presentations by Martin Purves (Marine Stewardship Council), Anthony Brown (Pick 'n Pay), Janice Molloy (Southern Seabirds Solutions), Craig Smith (Department of Environmental Affairs), Rebecca Bird (WWF-New Zealand), Nicola Okes (WWF-SA) and Sam Petersen (WWF-SA). The event sparked critical discussion about issues pertinent to implementing an EAF across the seafood supply chain. It is intended that this successful event will be repeated periodically and continue to fuel the debate about sustainability issues.

#### Objective 2: Influence policy and fisheries governance

By using the findings derived from the Bird Mitigation Plans (BMPs), the RFA was able to influence the South African Deep Sea Trawling Association (SADSTIA) to lobby government, and subsequently recommendations have been adopted into permit conditions and implemented across the fleet. BMPs have been implemented across all 15 vessel types belonging to RFA members. As a result of work done during the Inshore Trawl Bycatch Project, the RFA also hosted a workshop culminating in the formation of a cross-sectoral Department of Agriculture Forestry and Fisheries (DAFF) task team which will seek to develop bycatch management plans for the fishery. All of these initiatives have advanced the cause of fisheries governance.

#### Objective 3: Skills development

The value of the Responsible Fisheries Training Programme was extolled by most stakeholders and described as an overwhelming success, reaching out to 200 people since being taken on by the RFA in December 2010 and 1000 since its inception in May 2007. By developing the skills of the skippers and crew, the programme has catalysed a paradigm shift towards environmental awareness and responsible fishing for sea-faring staff.

#### Objective 4: Research

The RFA projects undertaken during the 1<sup>st</sup> phase of operation were the Inshore Trawl Bycatch Management Project; Review of the Offshore Resource Observer Programme; the Development of Bird Mitigation Plans for the Hake Trawl Fishery; Seabird Energetics Project and the Responsible Fisheries Training Programme. The Rory Line Implementation Project was undertaken in the 2<sup>nd</sup> phase of operation. The Inshore Trawl Bycatch Management Project produced a publication in the *ICES Journal of Marine Science*, titled 'Bycatch in South Africa's inshore trawl fishery as determined from observer records' (2011) by Attwood et al. The Review of the Offshore Resource Observer Programme and the Seabird Energetics Project both produced unpublished reports that have been used to inform further research and RFA position statements.

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<sup>1</sup> The Rory Line project was undertaken in the 2<sup>nd</sup> phase of operation.

#### **Objective 5: Effective engagement with market mechanisms**

Through projects such as the Inshore Trawl Bycatch Management Project, the RFA has contributed to the first steps towards understanding and ultimately improving bycatch management in the inshore trawl, which is one of the MSC conditions for the current certification period. Work done to improve seabird bycatch through the BMPs will also help to address some of the ecosystem challenges related to a number of WWF-SASSI orange-listed species such as kingklip and monk.

#### **Objective 6: Positioning responsible fisheries in the public space**

In an exciting development, the RFA's efforts to promote responsible fisheries were recognised by His Royal Highness, the Prince of Wales, on his visit to South Africa in November 2011. The event attracted considerable public attention around the issues of responsible fishing and thus significantly aided positioning responsible fishing in the public space. The RFA has also featured in the media and has attracted R304 097.48 advertising value equivalent (AVE).



### 3. RFA Project Reviews

#### 3.1. Inshore Trawl Bycatch Management Project

Project executant/s	Associate Professor Colin Attwood (UCT) and Dr Mandy Lombard
Duration of project	1 October 2009 to 30 September 2010
Project Objectives	<ul style="list-style-type: none"><li>a) To improve understanding of the spatial and temporal distribution of bycatch species.</li><li>b) To evaluate the susceptibility of each population to trawling.</li><li>c) To identify potentially effective closed areas for the conservation of bycatch species.</li><li>d) To evaluate other potential restrictions to protect all species caught by inshore trawlers.</li></ul>
Key Outcomes	<ul style="list-style-type: none"><li>a) An improved understanding of the impact of the inshore trawl fishery on bycatch species (Attwood, C., Petersen, S., &amp; Kerwath, S. (2011). Bycatch in South Africa's inshore trawl fishery as determined from observer records. <i>ICES Journal of Marine Science</i>, 68(10), 2163-2174. The identification of potential closed areas to reduce bycatch in the South African Inshore Trawl Fishery using Marxan.</li></ul> <p>The RFA hosted a workshop on 14 March 2011 and along with the two above mentioned pieces of information, catalysed and informed the debate on how the inshore trawl sector can move towards addressing bycatch in a holistic manner. A key outcome of the workshop was the formation of a cross-sectoral task team lead by DAFF to progress the issue.</p>
Costs	R97 800

#### Project Overview

The inshore trawl fishery is the oldest trawling fishery in South Africa and is concentrated in the shallow waters encompassing Cape Infanta Mossel Bay, Port Elizabeth and an area off the Agulhas Bank called the 'Blues'. The fishery primarily targets shallow-water hake (*Merluccius capensis*) with east coast sole (*Austroglossus pectoralis*) as a subsidiary target for a number of "sole specialist" vessels.

A plethora of historical studies and an analysis of observer data have revealed that the fishery is responsible for a significant amount of bycatch. Bycatch captured comprises of approximately 38% of the total catch by mass, and includes over 140 species of which only the shallow-water hake and east coast sole are adequately managed in a species-specific manner within the inshore trawl fishery. Of the total bycatch hauled on board, 98% consists of 20 species, of which 19 species are marketable and make a considerable contribution to the profitability of the fishery. This unusually acute financial dependence on non-target species has prompted many stakeholders in the fishery to refer to the capture of non-target species as 'joint product', as opposed to bycatch. Consequently, the fishery should be viewed as a 'multi-species' fishery and should be managed accordingly. Presently, all species are subjected to the rate of harvest set according to the productivity of the shallow-water hake (or east coast sole) population, although it is clear that many, particularly the cartilaginous species, are less fecund species and are therefore vulnerable to over-exploitation. There is strong concern about the sustainability, ecosystem impact and wastage associated with these catches.

The Inshore Trawl Bycatch Management Project was commissioned by the RFA to assess all viable options for the management of bycatch in the inshore trawl fishery. Prof Colin Attwood was designated the project executant and was tasked with the responsibility of evaluating potential bycatch management mechanisms. Dr Mandy Lombard investigated the spatial distribution patterns of the bycatch species and the effectivity of 'closed areas' as a management tool to reduce bycatch.

Prof Attwood reviewed various management tools that could be implemented to address the problem of bycatch. The solutions reviewed were: the re-classification of bycatch species as target species; closed areas; seasonal closures; night restrictions; gear modifications, and the move-on-rule.

Dr Lombard evaluated the spatial distribution of the 27 dominant bycatch species in order to determine if there are areas that can be closed off to alleviate the pressure placed on bycatch species without financially compromising the inshore trawl fishery. Her findings indicate that the closure of certain trawling areas would reduce all 27 bycatch species by 20% without a considerable impact to fishery. The final results of the most efficient solution will see most species experience at least a 30% bycatch reduction, and three species would achieve reductions of over 80 %. However, it is acknowledged that the areas prescribed for closure may not be practical for a number of reasons (e.g. trawl gear deployment and compliance monitoring) and the redistribution of effort from these areas across the inshore fishery may have other unforeseen consequences.

The project delivered a discussion paper, *Potential bycatch mitigation measures in the south coast inshore trawl industry*, prepared by Prof Attwood, and a technical report on the spatial distribution of bycatch species, *Use of Marxan to identify potential closed areas to reduce bycatch in the South African Inshore Trawl Fishery*, prepared by Dr Lombard. Both papers were presented at an inshore trawl management workshop hosted by the RFA on the 14<sup>th</sup> of March 2011 where a decision was taken to form a task team that would identify key species that are important to the economic viability of the sector and develop species-specific management measures that will ensure the sustainability of these species. The team is also responsible for developing management measures for the remainder species, in particular investigating the spatial management options to minimise bycatch. It is envisioned that the task team will then present a draft management plan to the Department of Agriculture, Forestry and Fisheries (DAFF) Demersal Scientific Working Group.

This project has been effective in evaluating an array of management options to mitigate bycatch in the inshore trawling fishery. It has explored a number of alternatives and produced data depicting the spatial distribution of the dominant species associated with inshore trawl. The RFA has played a critical role in drawing attention to this important issue, catalysing and stimulating debate, and has laid the first steps upon which further research and management should be built. It is hoped that this work will be utilised by the DAFF task team to inform the development of a management plan which will seek to bring tangible change on the water for the inshore trawling industry.

### 3.2. A Review of the Offshore Resource Observer Programme

Project executant/s	Monique Boucher and Dave Japp (Capricorn Fishing Consulting)
Duration of project	1 November 2009 to 28 February 2010
Project Objectives	To assess the strengths and weaknesses of the Offshore Resource Observer Programme (OROP), specifically: a) To review the history of the OROP. b) To determine how the observer data can be used more effectively in fisheries management. c) To highlight valuable information obtained from the programme through case studies. d) To identify shortcomings and provide recommendations for the future of the OROP.
Key Outcomes	a) This project demonstrates the value of the observer programme, motivates for its continuation, and provides recommendations for improvement.
Costs	R 40 000

#### Project Overview

An observer programme is internationally considered to be an important component of responsible fisheries management. Observers perform a pivotal service in fisheries management by gathering important data and bridging the gap between independent surveys and data provided by fishing operations (e.g. logbooks and catch returns), in particular capturing data on fishing practices such as discarding and high grading which is not captured by any other means.

In 2002 the Offshore Resources Observer Programme (OROP) was initiated by the Marine and Coastal Management (MCM) branch of the then Department of Environmental Affairs and Tourism (DEAT) with the mandate to collect additional information that can inform fisheries management. While providing useful scientific information, the programme has operated erratically since its inception as tenders were largely awarded on a short-term basis. This has resulted in data gaps between the different tender periods and a lack of continuity in the service providers, leading to concerns regarding the quality of the data collected during periods where new service providers trained new observers. This haphazard approach detracts from the programme's objective of producing continuous reliable data. There have also been concerns by stakeholders that the data gathered by the observers have been under-utilised by fisheries managers despite the potential value of the data collected by the observer programme.

As a result of the challenges identified within OROP, the RFA initiated this project to review OROP and analyse how the data produced by the programme could be used to further support fisheries management. A budget of R40 000 was allocated to the project and Monique Boucher of Capricorn Fishing Consulting (CapFish) was contracted as the project executant. In conducting the review, the project executant was tasked with interpreting data collected by MCM and industry observers between 2002-2009 in the hake (inshore/offshore trawl and longline) and midwater trawl fisheries to produce the following outputs:

- A review of the history, rationale and objectives of the programme;
- A literature review of international observer programmes;
- Stakeholder interviews to record their view of observers and observer data;
- A review of observer training and data;
- Assessment of species separation and composition, compliance, safety and value for stock, with a view of determining whether data can be used to meet certain criteria such as MSC;
- A review of the costs and benefits.

Specifically, the aim of the report was to provide an overview of the observer programme's value for scientific, management and compliance use, as well as showcase the successes and shortcomings of the programme and make suggestions for improvement.

The review identified the need for an amendment to the Marine Living Resources Act to clearly show that the observer programme is scientifically based and that it should be championed by one or two people in DAFF thereby ensuring consistent and continued data collection, resulting in better quality and reliable data. The review also suggested that before deployment, skippers and crew should be briefed so that they are more accommodating toward observers. Observers should also be trained prior to boarding vessels and should be required to report back to a management authority once a trip has concluded. Furthermore, the review also recommended that a structure be established that will ensure that the OROP data is continuously analysed even if it necessitates that someone be specifically employed to interpret observer data for each fishery and feed this in to stock assessments and management advice. It was strongly felt that data from OROP should formally complement research survey data as well as logbook data in enriching all management decisions.

The OROP review provided the RFA with a number of insightful recommendations that would serve to enhance the efficacy of the observer programme. Based on the review, the RFA has developed a draft position paper on the observer programme which aims to highlight the challenges identified for the observer programme to date as well as providing recommendations as to how the programme could be strengthened in the future. The recent cessation of the observer programme is a significant concern for the RFA and the intention is to lobby government to reinstitute the observer programme based on the findings and recommendations provided by this project.

### 3.3. Rory Line Implementation Project

Project executant/s	Edward Rice (Masters Student supervised by Prof Peter Ryan, UCT)
Duration of project	01 September 2011 to 29 February 2012
Project Objectives	a) To examine the success of the Rory Line as a tool that prohibits birds from drifting into the danger zone from alongside the vessel. b) To determine what variables influence the movement of birds away from the vessel. c) To evaluate the effectiveness of the Rory Line at reducing the number of



	birds struck by the trawl warps. d) To make recommendations for the improvement of the Rory Line design and for future research into seabird bycatch mitigation measures.
Key Outcomes	a) This project demonstrates that Rory Lines have good potential to further reduce seabird bycatch in the offshore hake trawl fishery, particularly when used in combination with Tori Lines.
Costs	R 16 204

## Project Overview

There has been much concern about the drastic decline in global seabird populations recently, largely attributed to the incidental mortalities caused by commercial fishing operations. Scavenging birds, including many endangered albatrosses are fatally attracted to fishing vessels which provide a free meal through access to bait or offal discards.

In the South African milieu, it was reported in 2004 and 2005 that over 30 birds were killed by trawl warps in 190 hours of observation aboard hake trawlers. When extrapolated, this figure crudely approximates that 18 000 birds are killed every year in this fishery alone (Watkins et al 2008). The introduction of bird scaring lines (Tori Lines) has significantly reduced seabird mortalities, with some fisheries experiencing a decrease of up to 90%. However, despite being largely effective in reducing albatross mortality, Tori Lines (TLs) are not the panacea of seabird mortalities in the trawl fisheries for all seabirds. There are still a considerable number of birds that drift toward the trawl warp while foraging for discards adjacent to the vessel.

A new device has been proposed by a local skipper, Roy Diedricks, of Viking Fisheries, an RFA member company. This device consists of a boom deployed on the side of the vessel, with a number of streamers attached to it, effectively creating a 'curtain' of streamers above the scuppers that prevents birds from forming aggregations alongside the vessel. The device has been named a Rory Line (RL) after its founder. The RL has been proposed as an additional measure to be used in tandem with the TL. A project was commissioned by the RFA to investigate the efficacy of the newly developed RL. Edward Rice, a conservation biology masters student at the University of Cape Town, was designated the project executant and was tasked with investigating the impact of RLs on seabird mortality. This task required him to gauge the behavioural response of the birds to the RL and investigate the effect that RLs have on the number of birds that strike the warp.

Mr Rice is yet to produce a final report but the key findings emanating from the progress report illustrated that the presence of a RL in conjunction with a TL has comprehensively reduced the number of albatrosses, white-chinned petrels and Cape gannets drifting toward the danger zone by 67, 62 and 47% respectively, when compared to vessels with only a TL present. The warp collision rates were also dramatically diminished for the white-chinned petrels and great shearwaters by 68% and 84%.

Mr Rice was able to ascertain that the efficacy of the RL hinged on the foraging behaviour of the seabirds. For instance, birds such as the Cape gannet are plunge divers and tend to enter the water behind the RL. The effect of the RL is then rendered minimal as it does not inhibit the rate at which the gannets interact with the warp. It was also discovered that the efficiency of the RL is susceptible to seasonal variation and that the presence of seals influence the behaviour of the birds and need to be considered when interpreting the data. The birds tend to keep their distance in the presence of seals resulting in significantly less interaction with the warp cables (i.e. the danger zone). It was recommended that the RL be shifted warp-wards to reduce the frequency of birds landing behind the RL and also that the use of buoys be explored as a means to attenuate interactions with the danger zone.

Hitherto, the project has only yielded two progress reports and Mr Rice has recently completed a comprehensive report carefully articulating all of his findings, to be made available shortly. The project has the potential to develop a mechanism that will significantly reduce the mortality of seabirds, especially those that warrant conservation concern. The results of this project may contribute to responsible fishing practices in South Africa's demersal trawl fisheries. However, the project should only be considered successful once it has devised a mechanism that can significantly reduce the seabird mortalities of most dominant species and, through the successful lobbying of government, ensure that the implementation of this device becomes mandatory practice.

### 3.4. The Development of Bird Mitigation Plans (BMPs) for the Hake Trawl Fishery

Project executant/s	Barrie Rose
Duration of project	15 December 2010 to 30 April 2011
Project Objectives	<ul style="list-style-type: none"><li>a) Provide an overview of vessel groups by establishing the layout, operations and suitability for offal management.</li><li>b) Develop draft Bird Mitigation Plans (BMPs), and ensure that input is received from skipper, company representative, WWF and BirdLife SA.</li><li>c) Presenting final BMPs to companies (WWF and BirdLife representatives to be included in meetings).</li><li>d) Final adoption of BMPs by all vessels belonging to RFA members.</li></ul>
Key Outcomes	<ul style="list-style-type: none"><li>a) The development and adoption of vessel specific BMPs for all RFA vessel types.</li><li>b) The amendment of permit conditions to include improvements to the design and deployment of Tori Lines across the offshore trawl fleet.</li><li>c) The project is believed to have brought about tangible changes on the water contributing great value to the conservation of endangered seabirds.</li></ul>
Costs	R100 000

#### Project Overview

There is an exigent need to address the precipitous decline in seabird populations globally, widely attributed to the impacts of commercial fishing. The introduction of bird scaring lines has been a resounding success and has been responsible for reducing seabird fatalities within the finfish trawl fishery by up to 90% (Reid and Edwards 2005) in the Falkland Islands. In South Africa there have been many initiatives undertaken to reduce seabird bycatch, such as the introduction of TL, with many of those contributing immensely to diminishing seabird fatalities.

However, the use of bird scaring lines is only a temporary solution to addressing seabird mortalities, the ultimate solution lies with the development of effective management practices for all offal discards. A management tool has been developed in New Zealand to tackle the issue of offal management and was presented to the RFA by Richard Wells of the Southern Seabird Solutions. The management plan adopts a vessel specific approach, where Vessel Management Plans (VMPs) are tailored for each vessel. VMPs seek to engage pertinent members of each vessel in a dialogue geared to providing practical solutions to environmentally harmful practices.

The RFA initiated a project that will assay the effectiveness of VMPs as a means to mitigate practices that adversely affect seabirds. A budget of R 100 000 was approved for the project and the services of project executant Barrie Rose were acquired. The project executant was tasked with the responsibility of scrutinising production and fishing practices aboard 15 vessel types that belong to the RFA constituent companies. He specifically identified all possible instances where interactions between the fishing gear and seabirds may result in injury or mortality. Once identified, the goal was to ensure that such situations are remedied by mitigation devices or offal management processes. The comprehensive analysis of mitigation devices and offal management plans for each vessel culminated in the development of a Bird Mitigation Plan (BMP) for each vessel, changed from the New Zealand VMPs as it has a more specific focus on seabird bycatch. Through consultation with managers (operators), officers and crews of vessels, it was anticipated that BMPs will yield a standard set of procedures to reduce seabird interactions without compromising the vessels' productivity.

Initially, when the project was conceptualised, there was consensus that one of the foci would be on offal management as a means of reducing seabird bycatch. This was to be engineered through the construction of holding tanks, which were to be positioned aboard the vessels. However, a number of hindrances such as limited space, safety concerns, the age of the fleets and the cost of implementation combined to obstruct the placement of holding tanks on the vessels. It was decided that these obstacles cannot be overcome and the concept of holding tanks could only be entertained with the construction of new vessels.

Observations made by the project executant suggest that compliance to seabird related regulations is high among vessels of the RFA members. It was however disconcerting that a number of vessels were incorrectly deploying bird scaring lines. Based on these observations, it was further suggested that observers aboard demersal trawlers

should be trained in the correct implementation of bird scaring lines to ensure that they have the wherewithal to record compliance and the correct setting positions.

One of the core successes of the project is that eleven shore-based managers were afforded the opportunity to go out to sea and the results of this endeavour were evident at the RFA Seabird Working Group. During the project, representatives from all four of the RFA companies accompanied crews on vessels and were directly exposed to the problems encountered at sea. It is hoped that this improved the interaction between management and those on the vessels, resulting in better practices. Another success was the influence that the WWF Responsible Fisheries Training Programme has had on the seagoing contingent. The officers and crew that had been exposed to the Responsible Fisheries Training course had a good grasp of the seabird bycatch problem and were much easier to work with as they were genuinely interested in the safeguarding of seabirds.

The project is expected to have had an immediate reduction in seabird mortality in the demersal trawl fishery due to the reduction in warp strikes. The implementation of the BMPs will ensure that warps are protected during the shooting phase of the fishing operation. Prior to this project, warps were unprotected during shooting and the interactions still experienced after the introduction of the TL seem to occur predominantly during this period. The project has resulted in a more effective bird scaring line design being implemented and enforced across the fleet. The presence of a BMP will raise the profile of bird mitigation and advance compliance with regulations.

The project delivered 15 BMPs including summaries of general operations for each of the vessels. Emanating from the report were useful recommendations that improved general mitigation measures on all the vessels. The project is believed to have brought about tangible changes on the water contributing great value to the conservation of vulnerable seabirds. It is anticipated that SADSTIA and subsequently DAFF will embrace the BMP concept, thereby bringing about enhanced awareness around the bird problem resulting in better practice across the entire fleet of vessels in the trawl industry. It is hoped that all the vessels in the fishing industry will eventually subscribe to the BMP concept.

### 3.5. Seabird Energetics Project

Project executant/s	Dr Antje Steinfurth (UCT) and Prof Les Underhill (UCT)
Duration of project	1 November 2009 to 30 September 2010
Project Objectives	A pilot project to estimate the energetic requirements of African Penguins, <i>Spheniscus demersus</i> , during a successful breeding attempt, and thereby provide an estimate of the amount of fish required to do this to inform future management responses and the implementation of an Ecosystem Approach to Fisheries management.
Key Outcomes	This pilot project has contributed a key piece of information to further our understanding of the importance of healthy small pelagic fish populations for the Endangered African Penguin.
Costs	R56 500

#### Project Overview

The African penguin (*Spheniscus demersus*) is endemic to southern Africa, breeding in several localities between Hollamsbird, situated off the Namibian coast, and Bird Island, Algoa Bay, South Africa. The population of the African penguin is considered Endangered by the World Conservation Union (IUCN) having suffered an acute decline over the last century. There has been a dramatic decline in African penguin populations of up to 90% since the 1900s and population numbers continued to decrease at a rate of 2% per year in the 1990s. The worrying state of the African penguin's population was initially believed to be related to changes in oceanographic conditions, however, there is a growing body of evidence to suggest that the waning population may be attributed to food shortages due to the exploitation of pelagic fish, such as anchovies and sardines, by the fisheries sector.

Presently there is a dearth of information regarding the bird's foraging strategies and its use of the upwelling area. This scarcity of information coupled with the escalating rise of human activities within the waters of the Western Cape demonstrates a critical need for research to garner basic ecological information about this species. Furthermore, there is a need to investigate the nexus between the exploitation of pelagic fish by commercial fisheries and the dwindling African penguin population. It was out of this need that the RFA commissioned the

Seabird Energetics Project, with the specific aim of investigating the energetic requirements of adult African penguin to better understand their role in the marine environment. It is believed that this project will aid in the understanding of the importance of healthy small pelagic fish populations for the endangered African penguin, and therefore inform long-term conservation strategies for the African penguin and the responsible fisheries management of the small pelagic sector. This will substantially progress the cause of ensuring the future protection of this remarkable species.

Prof Les Underhill (UCT) and Dr Antje Steinfurth (UCT) were tasked with assessing the amount of energy African penguins expend upon completion of a successful breeding attempt, and thereby provide an estimation of the amount of small pelagic fish the birds would have to consume to complete this endeavour. The aim of the study was to shed light on the ratio between food availability and food requirements and in so doing provide recommendations for the management of this species and small pelagic fish populations that the penguins are dependent upon.

The methodology entailed the use of Globally Positioning System (temperature-depth) loggers and doubly labelled water experiments (DLW). The loggers were used to track the position of the birds and therefore determine their activity budgets. The DLW experiments, conducted at the Centre for Isotope Research at the University of Groningen, monitored the rates of water flux and CO<sub>2</sub> production in the blood. From this the metabolic rates can be calculated and therefore an estimate of the energy expenditure of the birds can be determined.

The study estimates that, in an average year, the total energy requirements of a pair of adult penguins raising two chicks are approximately 2874 MJ year<sup>-1</sup> or equivalently 426 kg of anchovy. In a year when the anchovy are less accessible to the birds, the fledgling period of the chicks is substantially extended and the adults have to exert more energy to feed the chicks. It is anticipated that the foraging trips will also be extended as penguins travel further to access food and therefore, in a year of reduced food availability, the energy requirements for a pair of adults raising two chicks is 3334 MJ year<sup>-1</sup>, considerably higher than that of an average year.

Dassen Island hosts one of the African penguin breeding colonies, comprising of 250 000 pairs as measured in 2004. To sustain the Dassen Island population and assuming that each pair will raise two chicks, the local population would require a total of 3 793 tonnes of anchovy over the 115-day breeding season - an amount greater than a third of the total catch of the industry per annum. The area surrounding the island is said to have an average of 172 000 tonnes of anchovy available per annum over the period 1998-2009. Assuming that the anchovy were uniformly spread, the penguins would then consume 13.8% of the anchovy stock during a typical year. At face value it therefore seems as though there is a surplus of food for the penguins, however there have been drastic variations in annual anchovy populations. In 2005, when only 2 200 tonnes were available for consumption, the energy requirements of the penguins switched to those of a year when food was limited. It is estimated that in such an event the penguins would consume 9.4% of the total fish available each day, as there is less fish available and the penguins require more fish than usual. This is not sustainable, and in this instance the breeding patterns of African penguins would not have been sustained for the entire breeding season.

It is the opinion of the authors that the most valuable component of this study is not only that it has provided us with the opportunity to calculate the breeding requirements of African penguins but rather that there is potential to estimate the ratio between food availability and food requirements. At present the results suggest that, on a daily basis, the total biomass of food around the island needs to be 500-1000 times larger than the biomass actually consumed by the population, to ensure that annual fluctuations in food availability do not hinder the growth of the birds in the breeding season.

Another tentative conclusion of the analysis is that in most years the lack of food during the breeding season is not intrinsically the primary cause for the collapse of the African penguin population but rather the location of the fish stocks relative to the penguin populations. This could be attributed to the way in which the anchovy migrate southward. It is possible that the distances between clusters of anchovy are so great that chicks starve during these periods. As explained earlier, this situation was encountered in 2005 when the area adjacent to Dassen Island had a meagre population of 2 200 tonnes but the area immediately north of it experienced a tonnage of 297 000, most of which only became accessible to the penguins at Dassen Island a month or two later. This study is indicative of the need to develop a better understanding of the movement patterns of Anchovy recruits as this plays a pivotal role in explaining the penguin collapse. The impact of fishing on the distribution and movement of fish pulses is another factor that needs to be reviewed when examining the influences on the African penguin population.

The project delivered a report that was able to estimate the breeding requirements of African penguins through an in-depth study of 8 penguins. There is a need to consolidate the findings of this study by conducting a similar study

on a much larger scale. The project has contributed significantly to the discourse regarding food availability and food requirements and has highlighted the scope for future projects.

### 3.6. The Responsible Fisheries Training Programme

Project executant/s	RFA Training Working Group
Duration of the project	The project is operated on an on-going basis and was brought under the management of the RFA in December 2010.
Project Objectives	To equip fishers, compliance staff, fisheries observers and managers with the skills and knowledge to implement an Ecosystem Approach to Fisheries management.
Key outcomes	A SAQA accredited training course has been rolled out to roughly 200 people in the fishing industry since 2010 when the RFA formally adopted the programme, and has benefitted over 1200 individuals since its inception. A number of behavioural and attitude changes have been facilitated by this training, resulting in increased buy-in to regulations and improved compliance.
Costs	R150 000 p.a.

#### Project Overview

A needs assessment undertaken in 2008 emphasized the need for training and this was again reiterated at an Ecological Risk Assessment workshop held in 2009 where information sharing sessions and training workshops between stakeholders were identified as the fulcrum underpinning responsible and sustainable fishing. There was a perception that fishermen were not privy to salient information with regard to Ecosystem Approach to Fisheries management (EAF), management decisions and even permit conditions, and a training programme would do much to remedy this.

The South African fishing industry is monitored via a number of management tools which are regulated by the government and enacted by those at sea. It is pivotal that the government regulations receive buy-in from the sea-going contingent as they are the ones that will give it teeth. They interact directly and frequently with marine life and therefore possess the most power to affect changes in practice at sea.

The Responsible Fisheries Training course was borne out of this need, with the intention of capacitating everybody in the fishing industry, specifically those plying their trade at sea, with the skills to implement an EAF. It is believed that by reaching out to those at sea and empowering them with knowledge about their environment, it will foster an appreciation for the environment and hopefully translate into environmentally friendly practice. The training programme adopts a participatory approach where a safe space is provided for the honest exchange of information and, in so doing, engages members of the crew with conservation challenges and affords them the opportunity to add to the resolutions. This provides the RFA with a set of pragmatic robust solutions to challenges experienced at sea and also creates a sense of ownership among crew members as they become a part of the solutions.

The Responsible Fisheries Training course was established by WWF in May 2007 and was subsequently adopted by the RFA in December 2010. The course is currently accredited by the South African Qualifications Authority through the Transport Education & Training Authority, indicating that the course is nationally recognised and a training certificate is issued upon completion of the course. The course material comprises of four modules: an introduction to responsible fisheries; ecological health; introduction to fisheries management, and market influence and enforcement. It is the goal of the RFA to make training accessible to all in the fishing industry, including DAFF compliance staff, fisheries observers, managers and individual rights holders other than those belonging to the RFA. A target of 200 learners per annum has been set, which is obligated to include at least 25% from the fishing sectors other than those the RFA are involved in, and 25% must comprise of Fisheries Control Officers.

To date the training programme has trained over 1000 people and approximately 200 people since being taken over by the RFA. The transformation observed has been remarkable, exceeding all expectations. It is evident that a paradigm shift has been catalysed resulting in tangible changes at sea. The course has created awareness and stimulated interest, discussion and thought with regard to the environmental challenges experienced on the vessels. Crew members have acquired an appreciation for nature and an environmental discourse has infiltrated the everyday mundane discussions aboard vessels, with some crew members seeking more information about seabirds



and other marine species. It has empowered the skippers and crew by making them the agents of change and the face of conservation at sea.

The training course has improved the relationship between the observers, compliance staff and the crew, as crew members genuinely understand the objectives of the observers and compliance staff, and are therefore more hospitable towards them. Further transformations include improved compliance with fisheries regulations, adherence to voluntary measures and enhanced skills of the fishers. Such benefits will contribute greatly to implementing an EAF and in turn secure long term livelihoods for fishers and a healthy marine environment. It is hoped that this programme can be rolled out to all involved in the fishing sector so that its benefits may be distributed far and wide.

## 4. Synthesis

This chapter serves to provide a summary of the stakeholders' views with regards to the impact made by the RFA to the fishing sector. The opinions expressed in this chapter stem from interviews that were held with 22 individuals representing various stakeholders to canvass their views on the successes and shortcomings of the alliance. These individuals were nominated from an array of stakeholders and interests within the fishing sector and were comprised of RFA members, fishing industry representatives, DAFF representatives, NGO sector representatives and independent academics who have had interactions with the RFA during its first phase of operation. The interviews sought to garner the stakeholders' views on the value added by the RFA, the challenges it has faced, its role in implementing an Ecosystem Approach to Fisheries management (EAF), and recommendations for the future.

### 4.1. Successes

There is consensus that the RFA has been successful in adding value to the South African fishing sector and conservation but, in the opinion of stakeholders, less so when assessing the value it has added to government's operations. The RFA has been beneficial to the industrial fishing sector in a variety of ways, particularly in its role of providing a platform for discussion between various industry players, previously not done, and environmental NGOs, also not considered common practise. It has afforded a space where honest discussion about pertinent issues can flourish and technical solutions can be sought through research and collaborative efforts. This has elevated environmental awareness within the fishing sector and has spurred those in industry to consider environmental concerns. It has also served to expand and formalise efforts by industry to maintain an environmental agenda.

Mirroring their views towards the value added by the RFA to the fishing sector, stakeholders felt that the RFA's efforts have resulted in a number of gains for responsible fisheries management in South Africa. The alliance has promoted the sustainability agenda through various projects, most notably through projects such as the Rory Line Implementation Project, the Responsible Fisheries Training Programme, the Inshore Trawl Bycatch Management Project and the development of Bird Mitigation Plans (BMPs), all of which have yielded tangible results.

The RFA's contribution toward the work of the Department of Agriculture, Forestry and Fisheries has been met with mixed feelings. A number of stakeholders felt that the RFA is aiding government by grappling with issues necessary to execute an EAF, thus alleviating pressure on government that is typically tasked with the responsibility of tending to issues related to an EAF. The spin-offs of this work include, among other things, increased understanding of ecosystem impacts, the development of broadly accepted technical solutions, improved voluntary compliance among RFA member vessels, jointly contributing to fisheries management and complementing government's efforts in this regard. Conversely, a contingent of stakeholders opined that the RFA is not a mechanism designed to play a direct role in fisheries management as this responsibility lies squarely with government. However, these views overlook the fact that the RFA provides a mechanism to support co-management of South African fisheries in collaboration with the government by shifting the burden of responsibility from the governments' shoulders to a joint responsibility between industry and government, and in the process, facilitating the efficient use of resources and improved buy-in to regulations. Despite these differing views, there was a general consensus that more work needs to be done to improve government relations.

The overwhelming success of the Responsible Fisheries Training Programme resonates throughout the interviews. It has sparked a major shift in the attitudes of those going out to sea and has prompted them to be more inclined to consider the ecosystem concerns in their everyday practices. It has also nurtured a growing affection for marine life and a thirst for more knowledge from the crew and officers on the fishing vessels. The programme has facilitated the improved communication between the fishing industry, DAFF staff, compliance officers and fisheries observers who have also benefitted from the training. It was felt that the programme has contributed massively to delegates who have attended the course, and therefore the benefits of this programme need to be extended to small-scale fishers. The training programme is designed to include other fisheries such as tuna pole caught, tuna longline, trawl (midwater and demersal) and the small pelagics fishery, and it has been suggested that it is necessary to expose these fisheries to the benefits of the training. The training is currently being adapted for small-scale fisheries.

## 4.2. Lessons Learnt

The RFA brings together groups with intrinsically different backgrounds, so it was inevitable that the Alliance would encounter minor problems in this developmental stage. Stakeholders attributed these initial tensions to “natural conflicts” and “teething problems” and feel that these have largely been overcome through honest discussions and a realisation of the common objectives shared by all the members. It is felt that with continuous communication these obstacles can be overcome.

Nonetheless, a number of challenges remain for the RFA to effectively achieve its objectives, and it is important to take heed of these issues in order to ensure the long-term success of the Alliance. The biggest challenge, as expressed by the interviewees, is that the RFA is dominated by those with an interest in the hake industry and is therefore criticised as being too focused on issues that are particularly related to that sector. There is therefore a call for the RFA to diversify its interests and ensure that its work addresses a wider range of environmental problems in fisheries other than their own. A number of delegates felt that, while there is often a lot of discussion within the RFA structures, not enough useful outcomes have been delivered from its projects. It is largely believed that while projects have resulted in useful recommendations, a lot more can be achieved to effect changes ‘on the water’.

There is strong concern by many industry stakeholders that the fishing industry is unfairly viewed in a negative light by the public and that the RFA is a tool that can mitigate this perception. Littered throughout the interviews, the need to better position the RFA in the public space was regularly expressed. A number of stakeholders have indicated that by showcasing the good work undertaken by the RFA, we can alter public perception of the fish industry, lobby government for positive change and stimulate debate on responsible fisheries governance. To date this opportunity has not been sufficiently exploited.

## 4.3. Recommendations

The findings emanating from the interviews contained a number of salient recommendations that should be taken into consideration in future deliberations about how the RFA operates. As expressed earlier, there is a need to improve the public identity of the RFA, and stakeholders have suggested a number of means through which this can be accomplished. Firstly, by showcasing the RFA successes the alliance will go a long way to altering the public perception of the fishing industry and provide good examples of responsible fishing practices. It has been suggested that the RFA needs to develop a stronger identity and in doing so position itself prominently in the general public’s view. This could be achieved through a number of avenues such as media releases, open days such as the Responsible Fisheries Forum, among other awareness tools. This would not only improve the Alliance’s public image but would also provide it with the needed exposure which is in the best interest of all involved with the RFA.

Secondly, many of the stakeholders not directly involved with the RFA operations expressed a desire to be more informed about RFA activities and outputs. It was reported that the RFA is perceived by others in the industry to be an “exclusive club” simply because they are unaware of what the RFA is doing and what its intentions are. In order to increase transparency of the RFA, more information about the alliance and its work should be disseminated to all interested parties, particularly industry stakeholders, through frequent emailing and the regular circulation of publications.

Thirdly, the RFA should take a greater role in stimulating the public debate on topics pertinent to responsible fishing.

As mentioned before, there was concern expressed that the RFA includes only four industry players and therefore its current scope has been limited to the interests of those role players. In order to rectify this, it was suggested that the current RFA structure undertake projects that relate to other fisheries or include other small scale operators in the RFA setup so that their interests are also recognised. The original intention of the RFA was to undertake projects that would benefit the greater fishing sector underpinned by the premise that all would benefit from healthier marine ecosystems. It was similarly recommended that the steering committee and/or RFA working groups should include additional scientists in order to ensure that topics of research are appropriately chosen and results thoroughly interrogated. Furthermore, it was requested that a person be employed to co-ordinate RFA efforts and ensure project recommendations are presented to DAFF working groups and reasonable recommendations are implemented that propagate changes at sea. Subsequent to these discussions, WWF has secured funds from Rand Merchant Bank (RMB) to employ a coordinator to meet this need. RMB has kindly provided funding to cover the RFA coordinator’s salary for a period of three years, of which 50% of their time will be dedicated to the RFA and the

other 50% will be dedicated to developments in the seafood industry.

Looking forward, it was noted by the RFA stakeholders that it is important to diversify the Alliance's sphere of influence to include other fisheries. In order to live up to its title, the RFA has to engage with responsible fishing in all fisheries and not merely those that the constituent members have a vested interest in. There is also a need to bring closure to current projects and ensure that future projects produce deliverables that effect changes on the water. It is critical that these deliverables are made freely available to all who are seeking to address similar issues or are interested in following the progress made by the RFA. Underpinning an EAF is the need to take heed of the social aspects critical to executing responsible fishing. To date very little work has been dedicated by the RFA to interrogating the social implications of large-scale commercial fishing in South Africa. It is suggested that the RFA initiates projects that grapple with the social considerations that are central to implementing an EAF.

#### 4.4. Concluding thoughts

It was principally believed among stakeholders that the RFA should play a leading role in the implementation of an EAF in South African fisheries. The RFA should look to adopting a proactive approach by tackling issues in a collaborative effort that will seek to enhance the implementation of an EAF. Science-based technical solutions should be developed by the RFA, and the broader industry and government lobbied to embrace recommendations. This mechanism is best illustrated through the BMP project recently undertaken by the RFA. During the implementation of this project, a number of technical improvements to the TL design and operations were developed. These improvements were communicated to SADSTIA who, with the RFA, successfully lobbied for these changes to be added to the existing permit conditions. This project highlights the potential of the RFA to facilitate the implementation of an EAF with the support of multiple stakeholders. It is anticipated that through this approach greater buy-in will be garnered from the broader fishing industry to further implement an EAF, hopefully resulting in an increase in general compliance within the fishing sector. Within the broader context of South African fisheries, the RFA should also look to play more of an encouraging, facilitating role and provide support to those in other fisheries who seek to implement an EAF.

Generally the RFA was described as a resounding success and has already created tangible change on the water in its relatively short existence. The shining light of the initiative which was raised throughout the interviews is the Responsible Fisheries Training Programme. The success of these training workshops was expressed by all in the fishing sector and has initiated a profound paradigm shift for the skippers and sea going crew. The most prominent challenges as expressed by most delegates are the need to alter the public perception of the fishing industry and the need to diversify the interests of the RFA. It is largely felt that the fishing industry in South Africa is environmentally conscious and the RFA has a role to play in communicating this message to the broader public.

## 5. Financial Report

Each RFA member company (including WWF-SA) invested R100 000 in the first phase of operation, providing the RFA with a budget of R500 000. Of the allotted funds, a total of R401 021.72 was spent, of which 74% was spent on RFA projects with the remaining expenditure allocated to sundry expenses such as operating costs, printing, project co-ordination, meetings and the hosting of the symposium. During the 1<sup>st</sup> phase of operations, WWF-SA also contributed an additional R45 000 in-kind donation towards the coordination of the RFA in the form of legal services, contracting services, financial services, project development, oversight and the coordination of working and steering group meetings.

In a separate budget, members were also required to assign R50 000 per annum towards the Responsible Fisheries Training Programme to cover the operational cost of the programme. Since being managed by the RFA, the Responsible Fisheries Training Programme has accounted for R134 955.85. These funds were used to cover the costs of the venues, catering, training materials and facilitators.

In the second phase of operation, the RFA has hitherto spent R42 9903.67, of which R16 204 was spent on RFA projects and the remainder allocated to sundry expenses. At present, the remaining budget is R55 987.61.

<u>Income</u>	
Initial deposits: WWF-SA	R100 000.00
I&J	R100 000.00
Viking	R100 000.00
Oceana	R100 000.00
Sea Harvest	R100 000.00
Total	R500 000.00
<u>Expenses</u>	
Operating Costs (at a fixed cost of R1250 per month for the first year and R1375 per month for the second year.)	R31 500.00
Printing	R6 300.00
Meetings and annual symposium	R29 602.00
RFA Projects: Inshore Trawl Bycatch Management	R83 224.63
Review of the Offshore Resource Observer Programme	R 58 035.09
Seabird Energetics Project	R56 000.00
Development of Bird Mitigation Plans	R100 000.00
WWF project co-ordination (9.09% of R400 000)	R36 360.00
Total	R 401 021.72
<b>Remaining balance from 1<sup>st</sup> Phase of RFA operations</b>	<b>R98 978.28<sup>2</sup></b>

<sup>2</sup> Note that this total is only for the period from Aug 2009- July 2011 and does not include the costs incurred during the 2<sup>nd</sup> phase of the RFA.



## 6. Acknowledgements

The RFA would like to express its sincere gratitude to Rand Merchant Bank (RMB) for the generous contributions made to the alliance. RMB is responsible for funding the position of the Responsible Fisheries Alliance Coordinator for a duration of three years.

## 7. References

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## 8. Appendices

### Appendix A

List of stakeholders interviewed:

1. RFA members
  - a. WWF
    - i. Sam Petersen
    - ii. Alice Johnson
    - iii. John Duncan
  - b. Sea Harvest
    - i. George Bezuidenhout
    - ii. Russell Hall
  - c. I & J
    - i. Ron Fasool
    - ii. Chris Schoeman
    - iii. Graham Brill
  - d. Oceana
    - i. Francios Kuttel
    - ii. Mike Copeland
    - iii. Mike Sands
  - e. Viking
    - i. Tim Reddell
    - ii. Trevor Wilson

2. Key stakeholders
  - a. DAFF
    - i. Deon Durholtz
    - ii. Johan Augustyn
  - b. SADSTIA
    - i. Roy Bross
  - c. MSC
    - i. Martin Purves
  - d. Birdlife
    - i. Ross Wanless
    - ii. Bronwyn Maree
  - e. Dave Japp
  - f. Barrie Rose
  - g. Colin Attwood

## Appendix B

The questionnaire developed for stakeholder interviews:

1. What is your designation?
2. What is your involvement with the RFA? What interaction have you had with the RFA?
3. What value has the RFA added:
  - a. To your own work;
  - b. To the fishing sector;
  - c. To conservation;
  - d. To government?
4. What are the challenges within the RFA?
5. Where, in your opinion, has the RFA not delivered on its strategic objectives?
6. What role should the RFA play in implementing an EAF in South Africa's fisheries?
7. What are the priority areas that the RFA should address going forward?
8. Do you have any suggestions for improvements to the RFAs structure, objectives etc...?

# The Alliance at a Glance

THE SUSTAINABLE FISHERIES  
PROGRAMME FORMS PART OF  
THE WWF MARINE PROGRAMME  
FUNDED BY SANLAM



100%  
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WWF RESPONSIBLE FISHERIES ALLIANCE | 1ST PHASE REVIEW (2009-2011)

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5

Number of members of Responsible  
Fisheries Alliance (RFA)

6

Number of RFA  
projects finished

25

Number of RFA-vessels  
that have adopted bird  
mitigation plans

2009

WWF-SA, I&J, Oceana  
Group, Sea Harvest and  
Viking Fisheries create  
the RFA

200

Number of people  
reached by RFA training  
programme since 2010



#### Why we are here

To stop the degradation of the planet's natural environment and  
to build a future in which humans live in harmony with nature.

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