Waste Management Work Plan for the StarKist Atlantic Ocean longline Tuna Fishery

Confidential Report
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Prepared by

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Introduction

An estimated 8 million tons of debris enter the ocean every year, the majority of which comprises oil, fishing gear, packaging, raw plastics and convenience items. Once in the ocean, a lot of the floating debris will become trapped in the ocean currents, continually circumnavigating the oceans in huge patches of pollution. The Great Pacific Garbage Patch, perhaps the most infamous, is constituted of at least 46% discarded fishing gear, including nets, lines, ropes and fish aggregating devices (FADs) (Link et al., 2018; Gilman et al., 2021). Research conducted on abandoned, lost or otherwise discarded fishing gear (ALDFG) has shown that an estimated 640,000 tonnes enter the oceans every year (Richardson et al., 2021). Also known as ghost fishing, these gears can continue to capture fish and other marine species, including endangered, threatened, or protected (ETP) species, indefinitely (Stelfox et al., 2016; Richardson et al., 2021).
Ghost gear can be a direct result of intentional or accidental action from on board fishing vessels. Benthic fishing gear can become snagged on rocks on the seafloor, storms and adverse weather can lead to accidental loss of large nets and lines, and disruptions to the GPS trackers on FADs can end in the loss of the FAD (Chen and Liu, 2013; Stelfox et al., 2016). Other causes of ALDFG include the high cost of returning to shore with a broken net – high enough to encourage crew to discard the net at sea rather than land it at port. Likewise, without a proper facility, broken fishing gear cannot be effectively disposed of. On board the vessel, available space is limited, and the commercially valuable fish catch always has the priority of that space (Stelfox et al., 2016). Drifting FADs that enter another country's EEZ will be irretrievable by the vessel it came from if that vessel doesn't have the right to enter the EEZ.
Fishing gear isn't the only marine debris that fishing vessels contribute to the ocean pollution problem. As mentioned, a lack of effective disposal facilities on board also means that food and drink packaging, oil cans and general waste is often also discarded overboard. Using data from observer logbooks regarding waste produced from fishing vessels, it's clear that general waste includes: plastic bottles, plastic bags, plastic packaging from bait, metal cans and batteries (Chen and Liu 2013). Plastic water bottles are a particular abundant source of waste on fishing vessels, especially where on board fresh drinking water is not provided. It was estimated that per fisher on a one-day fishing trip, there would be up to four water bottles used. On longer trips, typically, onboard water facilities are provided, which reduces the need for plastic bottles (Chen and Liu, 2013).
Due to plastic being the key material in the majority of the general waste, upon entry to the oceans these items will remain there indefinitely. Large marine animals can ingest these plastics, which can build up inside their gastrointestinal tract and imitate satiation, preventing the necessary uptake of nutrients for survival (Chen and Liu, 2013). Larger pieces of plastic can also breakdown into microplastics, which can be ingested by small marine organisms and leach toxins into the tissues of the animal (Link et al., 2018).
Ocean pollution is also causing severe detriment to a range of marine ecosystems including coral reefs, mangroves, and shellfish reefs. All are highly productive ecosystems, offering a range of services to marine fish including food, shelter, and nursery grounds for juveniles. Damages caused to coral reefs from marine debris has caused a decline in reef coverage over the years and has subsequently led to a decline in important commercial fish stocks like tuna. Declining global tuna stocks means that more low-value, juvenile tuna are caught by fisheries, which decreases the price of the catch (Islam and Tanaka, 2004).

Around the world, there are a small number of initiatives in place to reduce the amount of pollution derived from fishing vessels. In the Azores, a current project incentivises the retrieval of ghost nets by local pole-and-line fishers, to reduce the number of floating nets in surrounding waters. The same project is being implemented in the Maldives using a grant from the Joanna Toole Ghost Gear Solutions Award. In Nigeria, a project to engage local fishing communities on best practice for reducing ghost gear, through management, mitigation, and removal has also been implemented.

Onboard incinerators have been installed on some fishing vessels to permit at sea incineration of waste, thereby avoiding the need to retain the waste on board until the vessel can return to shore (Chen and Liu, 2013). Improving the fishers' environmental education and awareness is also a significant step in encouraging crew to dispose of their waste appropriately, rather than polluting the ocean. However, it is important to remember that, generally the captain of a vessel has the final word when making decisions on during fishing trips, and the crew must comply with him. Therefore, it is beneficial to organise environmental education training to captains as well as the crew (Chen and Liu, 2013).

Introduction to the fishery

The fishery being assessed is the StarKist Atlantic Ocean longline tuna fishery. The fishery targets albacore (*Thunnus alalunga*) tuna and catches bigeye (*T. obesus*) and yellowfin (*T. albacares*) tunas. The pelagic longline vessels are flagged to Taiwan, St Vincent, Senegal, Panama, Belize and now Namibia and fish on the high seas and in national EEZs in the Atlantic. The fishery is managed regionally by the International Commission for the Conservation of Atlantic Tunas (ICCAT) in the Atlantic Ocean. The FIP encompasses 84 fishing vessels flagged to fishing in the Atlantic Ocean International Commission for the Conservation of Atlantic Tunas (ICCAT). These fishing vessels are linked to five separate companies forming this FIP.

Aim

The aim of this workplan is to improve the waste management protocols within the StarKist Atlantic Ocean Longline tuna fisheries. In order to complete this, a number of actions will be executed to:

- Research important waste management practices and determine those that are currently in place.
- Engage with fisheries about the importance of efficient waste management practices.
- Implement waste management initiatives on board fishing vessels and within ports.
- Verify that fisheries are complying with the protocols and determine the efficiency of the waste management practices.

Each of the above aims have been fully explained in the Actions section of this workplan (see below). All are significant in ensuring that waste management on board fishing vessels is understood and therefore adhered to within the StarKist fishery.

Introduction to the Waste Management Workplan

Based on the assessment, scoping document, and participant input, the fishery improvement project has developed this workplan with activities that will help to learn more about current waste management protocols in place within the fishery and to improve on them, where required.

This workplan includes:

- Objectives - Objectives will address all the fishery's environmental challenges necessary to make changes to any existing waste management protocol, or to implement a waste management protocol where it is absent.
- A list of actions - Actions are major activities that must be completed to ensure that the waste management protocols on board vessels are adhered to. The workplan also includes tasks, which break actions down into steps to describe how the action will be accomplished.

- Responsible parties - Organisations/people responsible for completing each action.
- Timeframes - An estimate of the timeframe needed to complete each action and/or task.
- An associated budget which estimates the main expenses for the FIP.

Action plan

Action Number and Name	**Initial Fact finding**
Action Goal	To understand current vessel practices regarding waste management.
Action Description (Brief summary of the steps involved in the action and importance of the action in achieving the FIP objectives)	Send a mailout questionnaire to fisheries asking what current waste management practices they have in place. We need to know what waste management actions are already in place within the fishery to know where and how we can improve them. Asking fisheries to explain their current actions is the best way to find this information.
Expected Completion Date	Q4 2021
Estimated Cost (An estimate of the budget needed to complete the action)	NA
Responsible Parties (List of participants)	FIP participants and FIP Coordinator
Action Goals	I. Learn about the current waste management policies on board the vessels within the fishery. II. Analyse the data from the questionnaire to understand which areas of current waste management protocols need development.

Tasks/ Milestones	Responsible (lead)	Responsible (supporting role)	Starting date	Actual completion date	Evidence of completion / results
Find and talk to fishery stakeholders about their contribution to the waste on board vessels. Eg. I. Baitfish suppliers	FIP coordinator	FIP participant	Q3 2021		
Create a questionnaire requesting information about the type of waste management protocols already in place within the fishery. Asking specific questions like:	FIP coordinator		Q3 2021		

I. What waste do they typically accumulate (eg. bottles, food packaging, fishing gear, oil cans etc.) II. Current waste disposal practices III. If they return waste to shore, why do they do this IV. If they don't return waste to shore, why do they do this V. If there is transhipment, is this accounted for in waste disposal VI. Is there an onboard incinerator? VII. Is there an onboard freshwater supply? VIII. Are they aware about the problem of ocean plastic pollution?					
Share questionnaire with FIP partners for completion by fishers, other crew, and captains. Or In person, interview a selection of crew and the captain from each vessel.	FIP coordinator	FIP participant	Q3 2021		
Chase up results through in person or one-to-one engagement. Set a time limit on the questionnaires to encourage the efficient return of the information. Send reminder emails to the fishery.	FIP coordinator, FIP participants	Stakeholders, NGOs, Port State	Q3 2021		
Conduct data analysis on the results from the questionnaire to highlight important areas of the project that need work on.	FIP coordinator	Flag States, NGOs	Q3 2021		

Using the results from the data analysis, start planning the next step of the work plan (see below)	FIP coordinator		Q3 2021		

Action Number and Name	**1.1 Engagement**
Action Goal	Engage with fisheries, fishers, and crew to inform about the importance of appropriate waste management for themselves and the environment.
Action Description	Setting up meetings, virtual or in person with fisheries and crew and presenting to them the importance of proper waste management. By directly engaging with fisheries and crew, we can ensure that they understand why it is important and can answer questions they have about the plan.
Expected Completion Date	Q4 2021
Estimated Cost	N/A
Responsible Parties	FIP participants, FIP coordinator
Action Goals	I. Ensure that fishers and crew understand the importance of appropriate waste disposal, by educating the threats associated with ocean pollution.

Tasks/ Milestones	**Responsible (lead)**	**Responsible (supporting role)**	**Starting date**	**Actual completion date**	**Evidence of completion / results**
Communicate with fishery stakeholders, associated NGOs, Flag States and Port states. I. Hold regular meetings whilst the project is running to keep them up-to-date with the project and ask for assistance with implementation (below). II. Involve bait suppliers in the process to encourage the use of non-plastic packaging.	FIP coordinator	FIP participant Stakeholders, NGOs, Flag states, Port state	Q3 2021		

Make a presentation explaining the aim of the waste management project and informing about the importance of implementing these protocols within a fishery.	FIP coordinator	FIP participant Stakeholders, NGOs, Flag state, Port state	Q3 2021		
Connect with the fishery and participants, as well as stakeholders, NGOs, Flag states and Port states, to present the information about the waste management project to them.	FIP coordinator, FIP participant	Stakeholders, NGOs, Flag state, Port state.	Q3 2021		
Provide training for fishers, crew and captains to attend and learn about how to efficiently dispose of waste on board the vessel and why it is important.	FIP coordinator	FIP participant, Stakeholders, NGOs, Flag state, Port state.	Q3 2021		
Provide business cards and/or email addresses to the participants for questions about the project that cannot be addressed during the presentation	FIP coordinator	FIP participant	Q3 2021		

Action Number and Name	**1.2 Implementation**
Action Goal	Provide the resources required for fisheries and crew to implement these waste management procedures onto vessels. All vessels will have the appropriate facilities required to properly dispose of waste on board, OR have the incentive to return waste to shore for appropriate disposal.
Action Description	Implementing the appropriate procedures on board the vessels to be used by fishers and crew when out at sea and to inform them of where to dispose of large fishing gears on land. Both are important because without the proper facilities, effective waste disposal would not be achieved.
Expected Completion Date	Q4 2021
Estimated Cost	$30,000
Responsible Parties	FIP coordinator, FIP participant

Action Goals	I. Fisheries to include the policies of the Waste Management project into each fishing trip and across all vessels. II. Prevent the disposal of onboard waste into the ocean and promote appropriate waste disposal actions.

Tasks/ Milestones	**Responsible (lead)**	**Responsible (supporting role)**	**Starting date**	**Actual completion date**	**Evidence of completion / results**
Create and provide a waste management policy that the FIP participants must adhere to regarding the waste management protocols on board their fishing vessels, using the requirements from the MARPOL 73/78: I. All noxious liquids including oil and petrol are to be kept on board and disposed of in port. II. Untreated sewage must not be discharged at sea and pumped out in port. III. Plastics may not be discharged into the ocean anywhere at any time. This includes items that have any plastic component including synthetic fishing gear and must be collected on board to be disposed of when the vessels come into port or incinerated on the vessel. IV. Paper and cardboard are to be collected and incinerated on board. V. All incinerated matter is to be kept on board and disposed of at port. VI. Outside 12 nautical miles of land it is permitted to dump organic matter.	FIP coordinator	FIP participant, Stakeholders, NGOs, Port state, Flag state.	Q3 2021		

VII. All areas, especially the deck, is to be kept as clear of rubbish as possible to avoid it being washed overboard.					
All fishing vessels within the FIP will be encouraged to implement the policy onto their vessels.	FIP participant	FIP coordinator	Q3 2021		
Provide incentives for the return of waste from fishing trips to the ports to ensure that as much waste is being disposed of appropriately in proper facilities. This includes a monetary compensation for returned waste.	FIP coordinator	FIP participant, Stakeholders, NGOs, Port state, Flag state.	Q3 2021		
Add water facilities on board vessels to reduce the need for fishers to bring plastic water bottles during fishing trips.	FIP coordinator, FIP participant	Stakeholders, NGOs, Port state, Flag state.	Q3 2021		
Allocate a space for an onboard incinerator to reduce the amount of waste that is needed to return to shore. I. Encourage fishers and crew to incinerate paper products, including cardboard.	FIP coordinator, FIP participant	Stakeholders, NGOs, Port state, Flag state.	Q3 2021		
Ensure that the appropriate waste disposal facility is in a proximity to the port, to ensure that it is quick and easy for fishers to deposit waste after landing back on shore.	FIP coordinator, FIP participant,	Port authorities	Q3 2021		
Allocate a certain number of fishers/crew to dispose of the vessel waste in the port disposal facility, to maintain the efficiency of vessel cleaning after a trip.	FIP participant, Crew, Fishers	FIP coordinator, Port state, NGOs.	Q3 2021		

Action Number and Name	**1.3 Verification of waste management practices**
Action Goal	Ensure that fisheries and crew are adhering to the waste management procedures. All fisheries and crew have been observed following the waste management procedures.
Action Description	Using Electronic Monitoring (EM), onboard observers and/or incentives to ensure that the waste management procedures are being closely adhered to by the fisheries and crew. We need to have a certainty that they are adhering to the procedures to ensure the effectiveness of the project.
Expected Completion Date	Q4 2021
Estimated Cost	N/A
Responsible Parties	FIP participants, FIP coordinator
Action Goals	I. Gain a better understanding about the success of the Waste Management project. II. Learn about any issues faced during the implementation process. III. Determine a way to amend those issues and improve on any areas that were problematic.

Tasks/ Milestones	**Responsible (lead)**	**Responsible (supporting role)**	**Starting date**	**Actual completion date**	**Evidence of completion / results**
Arrange for onboard observers or Electronic Monitoring (EM) systems to be installed on the vessels.	FIP coordinator, FIP participant	Stakeholders, NGOs, Port state, Flag state	Q3 2021		
Use the information from the observations to determine if the fishers are adhering to policy and if the waste management procedures are effective	FIP coordinator		Q3 2021		
Talk to fishers, crew, and captains directly to understand:	FIP coordinator	FIP participant	Q3 2021		

I. How/if their opinions about waste disposal have changed. II. If they think these implemented protocols have been a helpful to reduce the amount of waste discarded into the ocean. III. Elements of the project that they feel are ineffective and suggestions on how to improve.					
Write up a report regarding the success of the project and discuss improvements to be made in the future.	FIP coordinator		Q3 2021		

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