St Helena Government	Agriculture and Natural Resources Division **BIOSECURITY St HELENA**

Biosecurity Protocol for the Marine Environment

For cargo ships, cruise ships, visiting yachts and fishing vessels

St Helena has some of the most pristine seas in the world. Our unique marine environment is highly respected and enjoyed by all islanders, and by many visitors from overseas. However, our territorial waters are under constant threat from unwanted foreign marine organisms, carried on the hulls of vessels and in ballast water tanks and in bilge water. Introduction of these organisms threatens our fishing and tourism industry, our environment and the well-being and livelihood of our people. Keeping our seas clean is very important, both culturally and economically.

Data in the ships register found the top five most common ports or origin for foreign vessels are Cape Town, Ascension Island, Walvis Bay, Simons Town and Luderitz, with Cape Town being the most common. From January 2010 to the January 2015 there were a total of 1184 calls of vessels to St Helena. Of these 1184 calls, 55.3% were from Cape Town SA, 16% from Walvis Bay SA, 8% from Ascension, 6% from Luderitz SA and 4% from Simon's town SA. The remaining 10.7% were from other various ports. The RMS St Helena made up 11% of these 1184 calls.

Through online research a list of common invasive hull fouling species, and their effects on native ecosystems was compiled; see Annex 1. ***Should any of these species be found on any vessel, they must be collected, double bagged, and disposed of in the landfill site. At no time should hull fouling debris be put or washed back into the ocean.***

Two invasive species are known in St Helena waters, the Single horn bryozoan *Schizoporella cf. unicornis*, and the Shipworm *Teredo* sp. The aim of this protocol is to prevent the arrival of any further new species.

Cargo ships and cruise ships

Cargo ships and cruise ships must comply with international agreements,such as the International Maritime Organisation (IMO) Ballast Water Management Convention (Globallast) and World Health Organization, and the regulations contained therein.

Sanitation:

- Ship Sanitation Certificate – will be checked by Port Health on arrival.

Ballast:

- Ballast Water Record Book– periodically checkedby Port Health on arrival.

- Ballast Water Management Plan– periodically checkedby Port Health on arrival.

Under Regulation B-4 of Globallast, *Ballast Water Exchange*, all ships using ballast water exchange should:

- Whenever possible, **conduct ballast water exchange at least 200 nautical miles** from the nearest land and in water at least 200 metres in depth, taking into account Guidelines developed by the IMO;
- In cases where the ship is unable to conduct ballast water exchange as above, this should be as far from the nearest land as possible, and **in all cases at least 50 nautical miles** from the nearest land and in water at least 200 metres in depth. Before discharging ballast water in St Helena's waters the location, volume and dates of loaded ballast water should be logged and this information should be given to relevant authorities. This way if there are any biosecurity risks, the necessary measures can be taken to minimise damage to St Helena marine environment. Permission to discharge ballast in these circumstances will only be granted if it can be proven that a discharge or exchange at sea could not be undertaken.

Mid-ocean exchanges can be successfully carried out by using either the "empty-refill" method, or the "flow-through" method. If the "flow-through" method is used, three times the tanks' volume should be pumped through the tanks to ensure sufficient dilution of the coastal water. If using the empty-refill method you must replace at least 95% of the volume of water in the tank.

In addition, ships should at all times **avoid** ballast water exchanges **at night**, due to diurnal plankton movements, and also avoid any **obvious algal blooms** during ballast water exchange operations.

Waste:

As St Helena lacks facilities to comply withthe International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 (MARPOL) ships' waste is accepted only by arrangement:

- All waste to be brought ashore must be clean and sorted.
- Food wastemust not be brought ashore, but dumped at sea in accordance with MARPOL Convention Annex V - Regulations for the Prevention of Pollution by Garbage from Ships.

Fishing vessels

Visiting fishing vessels must also comply with international agreements, and follow the same procedures for sanitation, ballast and waste as outlined above, for cargo and cruise ships.

Live bait:

Importation of live bait into St Helena waters is not encouraged due to the risk of introducing new potentially invasive species. Where it is permitted it must comply with the following procedure:

- Live bait must be taken from the area between 200 nautical miles and 30 nautical miles from the coastline.
- The sea water in which live bait is held must be continually exchanged, so that the plankton community in the water remains consistent with that outside the vessel.

- Species which may be used as live bait are: Kingston (*Decapterus macarellus),* Stonebrass *(D. muroadsi),* Summer Stonebrass *(D. punctatus)* or Mackerel *(Scombridae).*

Visiting yachts

Visiting yachts must comply with the following:

Before arrival:

- Clean the hull at the port of departure
- Maintain below decks pest free.
- Pump out bilge water before entering territorial waters (200 nm).

On arrival:

- No food waste is permitted ashore.
- No honey is permitted ashore.
- Other waste (packaging, tins, jars, etc) must be rinsed clean and double bagged before landing, and placed in a lidded bin.
- Empty honey jars must be well cleaned with bleach before disposal ashore.
- SHG reserve the right to inspect the yacht for biosecurity compliance on arrival.

Animals may only be landed if sick and by arrangement with the Port Authorities, and the Senior Veterinary Officer at the Agriculture and Natural Resources Division.

Hauling-out and hull cleaning of visiting vessels may only be undertaken in an emergency and by arrangement with Port Authorities; see "**Haul-out procedures for visiting yachts**"

At no time should sediment from tanks or scrapings from hulls be discharged into the waters surrounding St Helena. These scrapings should be collected and following an inspection from the relevant authorities it should be disposed of at the landfill site. The area should be swept so as much debris as possible is collected as there have been incidences where toxic paint scrapings have been washed into the sea and this could do serious damage to aquatic life.

Arrival of new vessels

New vessels arriving to the island (e.g. local tour or fishing operators expanding their businesses and acquiring new vessels) must present a valid **antifouling certificate**. Failing that, the vessel will be inspected by a Biosecurity Officer and a member of the marine conservation section to check for hull fouling.

No vessels should be launched until this inspection is complete and at no time should they be launched if fouled.

Further information

Further information on biosecurity can be found at http://www.sainthelena.gov.sh/st-helena-biosecurity-service/or call ANRD on (00 290) 24724; on marine issues please call the Marine Section on (00 290) 22270.

Annex 1. Common invasive hull fouling species

Species	Native to	Impact
Round goby *Neogobius melanostomus*	Black, Asov and Caspian Seas	Highly adaptable and invasive. Increases in numbers and spreads quickly. Competes for food and habitat with native fishes including commercially important species, and preys on their eggs and young. Spawns multiple times per season and survives in poor water quality.
Asian paddle crab *Charybdis japonica*	Ranges from the North-west Pacific (China, Japan, Korea) to the east Asian Seas (Thailand, Malaysia)	May carry the White Spot Syndrome virus which can affect crustacean mariculture. Can affect biodiversity through either predation or by indirectly altering trophic levels.
European shore crab *Carcinus maenas*	North-east Atlantic, The Baltic Sea	The adult specimens of this species are able to withstand wide ranging temperature and salinity fluctuations. It is able to reside in damp air exposed environments for up to 10 days and tolerate up to 3 months of starvation. However, when able to feed, this species is a voracious predator, preying on molluscs and other crustaceans, including commercially important species. Apart from impacting on native species through predation, this species disrupts existing community structures through competition (habitat and food) and behavioural activities (burrowing).
Colonial tunicate *Didemnum vexillum*	North-west Pacific	This species is an aggressive invader and is able to reproduce sexually or asexually. Fragments of the species are able to disperse, reproduce, reattach and thrive. This species fouls hydrotechnical constructions, ships, aquaculture infrastructure and cultured molluscs. It affects the biodiversity of existing communities as it outcompetes for habitat or simply grows over or smothers existing species.
Vase tunicate *Ciona intestinalis*	Northern Europe	This species can be found in tidal waters to depths of over 1000 feet, but can also be found under cover in protected waters on hanging aquaculture rafts, in marinas under docks, pilings, boat hulls and other structures and is very tolerant to water pollution. *C. intestinalis* can form dense aggregations groups or clusters that aggressively compete with many other organisms including mussels and oysters for food and space.
North Pacific seastar *Asteria samurensis*	North-west Pacific	This species is a voracious carnivorous feeder. They are prolific breeders and are able to quickly establish large populations in new areas. The species is a serious pest to native species, such as the endangered spotted handfish (*Brachionichthys hirsutus*), as the seastar preys on the fish's egg

		masses. The species preference for mussels, scallops and clams ensures that it impacts mollusc aquaculture and wild fisheries.
Asian green mussel *Perna viridis*	Occurs from the Persian Gulf through to the Philippines, throughout the East Asian Seas and up to eastern China	Tolerates wide fluctuations of salinity and temperature and reaches high densities. This species fouls hydrotechnical constructions, ships and aquaculture infrastructure. It affects the biodiversity of existing communities and can alter trophic levels.
Zebra mussel *Dreissena polymorpha*	Eastern Europe (Black Sea)	Fouls all available hard surfaces in mass numbers. Displaces native aquatic life. Alters habitat, ecosystem and food web. Causes severe fouling problems on infrastructure and vessels. Blocks water intake pipes, sluices and irrigation ditches. Economic costs to USA alone of around US$750 million to $1 billion between 1989 and 2000.
Bay barnacle *Amphibalanu simprovisus*	Thought to be the east coast of North-east and North-west Atlantic	This species is fast growing and gregarious. It has high reproductive potential; being able to re-produce sexually and asexually. Tolerates wide fluctuations of salinity and temperature. The fouling of hydrotechnical constructions, ships and aquaculture infrastructure with this species causes corrosion, technical problems and loss of efficiency. Able to affect biodiversity, change community structures and alter trophic levels.
European fan worm *Sabella spallanzanii*	North-east Atlantic, Mediterranean	This species is highly fecund and is able to form mat-like, dense populations on the seafloor. The species can tolerate wide ranges in salinity and successfully fouls artificial structures such as hydrotechnical constructions, vessels and aquaculture infrastructure. The species competes with native filter-feeding organisms for habitat and food. It is possible that dense formations alter water flow, sediment stability and bacterial communities due to their efficiency filtering particulate matter from the water column.
North American comb jelly *Mnemiopsis leidyi*	Eastern seaboard of the Americas	Reproduces rapidly (self-fertilising hermaphrodite) under favourable conditions. Feeds excessively on zooplankton. Depletes zooplankton stocks; altering food web and ecosystem function. Contributed significantly to collapse of Black and Asov Sea fisheries in 1990s, with massive economic and social impact. Now threatens similar impact in Caspian Sea.
Cladoceran Water Flea *Cercopagis pengoi*	Northern Asia	Undergoes mass migrations for reproductive purposes. Burrows into river banks and dykes causing erosion and siltation. Preys on native fish and invertebrate species, causing local extinctions during population outbreaks. Interferes with fishing activities.

Asian kelp *Undaria pinnatifida*	Northern Asia	Grows and spreads rapidly, both vegetatively and through dispersal of spores. Displaces native algae and marine life. Alters habitat, ecosystem and food web. May affect commercial shellfish stocks through space competition and alteration of habitat.
Wakame seaweed *Undaria pinnatifida*	North-west Pacific	This species is able to rapidly colonise temperate regions; it can colonise any hard surface and is therefore able to foul hydrotechnical constructions, ships and aquaculture infrastructure. Able to affect biodiversity, change community structures and alter trophic levels.
Cholera *Vibrio cholerae (various strains)*	Various strains with broad ranges	Some cholera epidemics are reported to be have been associated with ballast water
Toxic algae(red/brown/ green tides) various species	Various species with broad ranges	May form harmful algae blooms. Depending on the species, can cause massive kills of marine life through oxygen depletion, release of toxins and/or mucus. Can foul beaches and impact on tourism and recreation. Some species may contaminate filter-feeding shellfish and cause fisheries to be closed. Consumption of contaminated shellfish by humans may cause severe illness and death.