forestry, fisheries & the environment
Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

BSASA
BIVALVE SHELLFISH FARMERS' ASSOCIATION OF SOUTH AFRICA

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South African Kelp Farming Project (Phase 2 Feasibility study)

Standard Operating Procedure (SOP): Kelp collection

SOP number: BSASA-2	**Date:** 1 March 2025
Compiled by: The Project Manager (Dr Lizeth Botes) on behalf of BSASA	**Version:** 1 **Review date:** to be adapted and revised by industry

Introduction

The overall goal of the South African Kelp Farming Project (SA KFP) was to gather, analyse and disseminate evidence and research results to a broad stakeholder base, including the existing aquaculture industry and new potential entrants, to lay the foundations toward building a sustainable Kelp Aquaculture Industry in SA and the region.

One of the project objectives was to investigate and tailor the hatchery and nursery methods for our local kelp species (based on the kelp farming manuals from elsewhere that are already publicly available and accessible on the SA KFP webpage), which can then be adapted and revised by industry to suit their own needs. Although the temporary set-ups that were used in Phase 2 of the SA KFP were aimed at achieving the short-term project objectives, it was the first successful attempt to cultivate *Macrocystis pyrifera*, *Ecklonia maxima* and *Laminaria pallida* in South Africa, and also the first successful attempt to cultivate *E. maxima* and *L. pallida* anywhere.

Purpose of SOP:

The purpose of this SOP is to provide a breakdown of steps to safely collect and transport kelp blades to be used in the Kelp Hatchery (see SOP 3).

Preparation for collection:

1. Permit:
   A permit can be obtained from the Department of Forestry, Fisheries and Environment (DFFE) which should accompany the collector in electronic and/or hard-copy format should the relevant DFFE official requests to see it.

2. Weather & tides:
   When choosing a day for collection, it is important to choose a day when the sea is not rough. Tides, swells and winds can be checked on web applications/sites such as: **WindGuru,** Magicseaweed, myweather etc.

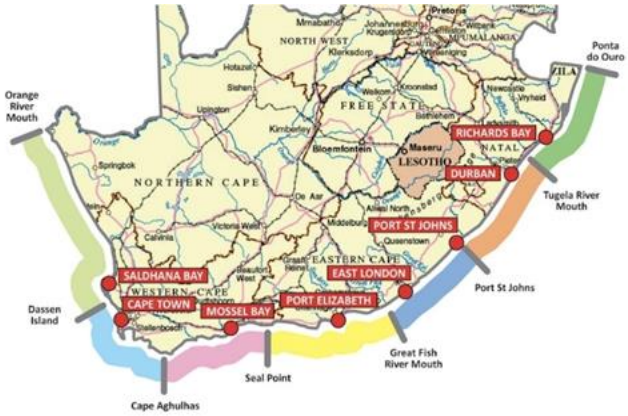
   It is recommended to collect kelps, as far as possible, on spring low tides in the rocky intertidal regions when it is easier to see and access the kelp blades. Since spring low tides in South Africa are always in the mornings (between ~8-11am), it leaves the entire day to collect and work with the kelp material afterwards. In South Africa, neap low tides are generally later in the day leaving less time to collect and, it may happen that you don't see the kelps even if the water is mid-calf deep. Be mindful of the slope of the site where you collect, as some shores drop very quickly (thus more dangerous) and others have a very gradual drop (thus much safer). Swells of less than 1.5m will make collections easier, generally the lower the tidal height the more effectively the swell effect is minimised. It is recommended that you choose days when the wind is less than 20km/hr.

3. Tools & Equipment:
   For collection of kelp blades; a mesh bag, small watertight cooler box and a pair of round-ended scissors to cut the blades will be required (although extreme care should be taken that one does not slip and fall on the scissors).
   It is recommended to rather tear pieces of the blades off by hand (make a small pinch cut with your nail and start tearing from that point).
   It is also recommended that a waterproof cell phone pouch be used in which to hang one's cell phone around one's neck underneath one's clothing.

4. Safety & protective clothing:
   Never go to sea alone, it is advised that at least one person with shore experience accompany the collector. To prevent slipping and falling on the rocks, it is recommended that the collector wear booties/gumboots. If available, a wetsuit is good to prevent cuts if/when one slips and falls.
   Always put sunscreen on your face on days of collections to prevent sunburning, and having a bottle of water ready once done with collection will help you rehydrate.

5. Emergency numbers:
   Always make sure that you have a list of the emergency numbers of the area where you will be collecting.

National Sea Rescue (www.nsri.org.za) : 087 094 9774



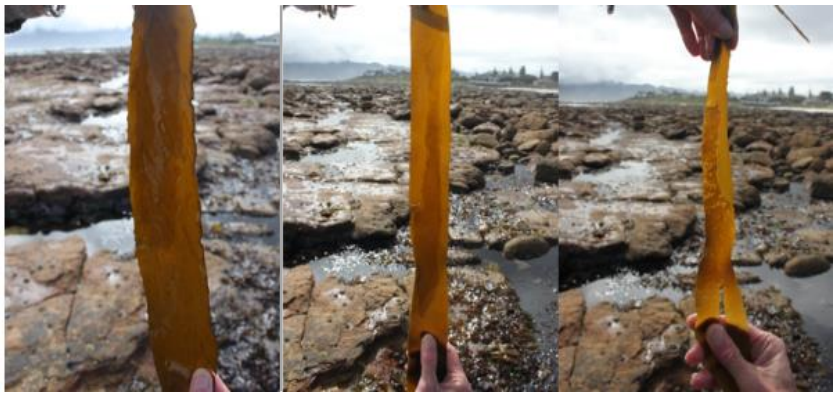
PORT CONTROL	TEL. NUMBER	AREAS OF COVERAGE
Saldhana Port Control	022 714-1726	Orange River Mouth - Dassen Island
Table Bay Port Control	021 449-3500	Dassen Island - Cape Aghulhas
Mossel Bay Port Control	044 604-6271	Cape Aghulhas - Seal Point
Port Elizabeth Port Control	041 507-1911	Seal Point - Great Fish River Mouth
East London Port Control	043 700-2100	Great Fish River Mouth - Port St Johns
Durban Port Control	031 361-8567	Port St Johns - Tugela River Mouth
Richard's Bay Port Control	035 753-1991 or 035 905-3401/3444	Tugela River Mouth - Ponta do Ouro

This graphic shows the regional Port Control telephone numbers. Please make sure that the telephone number that applies to your region is in your cell phone before you go to sea.The other telephone numbers that you should have in your phone are 10177 (Ambulance) and Police 10111. Emergency calls to these numbers will be routed to the relevant Sea Rescue authority if you do not have the local Port Control number.

Collection:

1. *Ecklonia* and *Laminaria* can be collected all along the South African west coast, whereas *Macrocystis* is confined to a few patches from the Cape Peninsula to Paternoster, several of them in Marine Protected Areas.
2. Fresh and fertile kelp can usually be identified by the raised and darker areas on the fronds, especially when held up to the light. These raised areas are called sori, which is the reproductive area on the kelp blade that contains the sporangia, or the cells that produce and house the spores. Mature sorus tissue can produce millions of spores which are not genetically identical per plant, so sufficient spore numbers for seeding can be acquired from just a few plants.
3. In *L. pallida*, the sorus appears as darker patches on the upper parts of the blades.
   In *E. maxima*, the sorus appears as darker patches in the secondary older blades (attached to the sides of the mid-part of the primary blade).

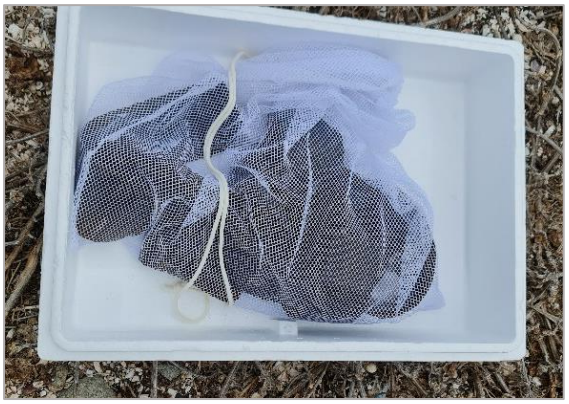
In *M. pyrifera*, the sorus is lighter (as opposed to that found on *L. pallida* and *E. maxima*) and only occurs on specific small blades (lacking the characteristic float at the base of the blade) close to or attached to the holdfast.



Ecklonia maxima *Laminaria pallida* *Macrocystis pyrifera*

PLEASE NOTE: We are aiming to establish a sustainable kelp farming industry, please DO NOT remove the entire plant including the holdfast if you only need a few sections of a few blades.

4. Select the fronds that are free of any obvious biofouling (and other sea critters) to minimise the risk of contamination.
5. For each species, collect a total of 6 blades from different plants (if there is not enough sorus material on the blades then collect a few more blades).
6. Place the fronds of each species into separate mesh bags (each species in its own bag) where they can remain moist, cool and out of direct sunlight.
7. Place the mesh bags inside the cooler box for immediate transport to the kelp hatchery.



8. During transit, it is recommended that the container is kept cool. If the vehicle has an air conditioner, put it on 13°C. Alternatively put it in the shady side of the vehicle or put an icepack into the container (**but should not be toughing the blades**).
9. After the trip, rinse all tools and equipment with fresh water and pack away.