

Report: Strandloper Project Coastal Expedition.

Coastal Expedition:

A team of six hiked the shoreline from the south western boundary of the Blombos Nature Reserve to the Touw River mouth in Wilderness. The expedition was 210km and took 11 days to hike.

Expedition Objectives:

The expedition had three primary objectives, namely:

1. Survey the incidence of fishing debris along the shoreline and determine the threat of ghost fishing and entanglement.
2. Survey the incidence of plastic pollution washed up on the shore and determine possible sources of material recorded.
3. Conduct survey dives to document the incidence of snagged recreational tackle, damage to reef colonies caused by fishing tackle in high cast zones and the threat of ghost fishing.

Survey Methods:

Initially two survey methods were designed for the hike.

For **plastic pollution** a modification of the Dirty Dozen beach survey was used. There were 19 items that were recorded at each transect. Transects were 10m long with 1m either side of the transect line, yielding a 20m² survey area. Transects were conducted along the high water mark at 5km intervals where the shoreline permitted. Where the access to the high water mark was inaccessible it would be conducted at the next accessible location.

The second survey method was an **incidental sighting** to record items of interest beyond the scope of the Dirty Dozen survey. It included fields for plastic pollution, fishing debris and fauna deaths and entanglements.

A third survey, a plastic bottle survey, was designed at the end of the hike on the 15th and used from the 16th onwards. This was necessary due the high number of plastic bottle encountered on the first day, which we felt were not being accurately accounted for. At 2.5km intervals the total number of bottles over a 100m transect were counted and recorded.

The dive surveys were 40 minutes dives to recover snagged fishing tackle from the reef over a 100m transect. Number of sinkers, number and size of hooks and volume of fishing line were recorded. While we had planned for a daily dive, the long hours of hiking prevented us achieving this target and we only managed three dive transects, one in Gourikwa Nature Reserve, one at the Fransmanshoek Peninsula and one at Mossel bay.

Data Collection:

Data was collected both physically and digitally. Digital capture was done using an app developed using Cybertracker.

Overall we collected the following data sets:

- 904 incidental sightings

- Conducted 117 Dirty Dozen transects.
- Conducted 45 Plastic Bottle transects.

Duineveld Kusbewaring.

This area was surveyed between the 16th to midday on the 19th May. During his time we recorded the following:

- 26 Plastic Bottle Surveys (57.7% of the entire expedition)
- 42 Dirty Dozen transects.
- 424 incidental sightings (47% of the entire expedition)

Plastic Bottle Survey:

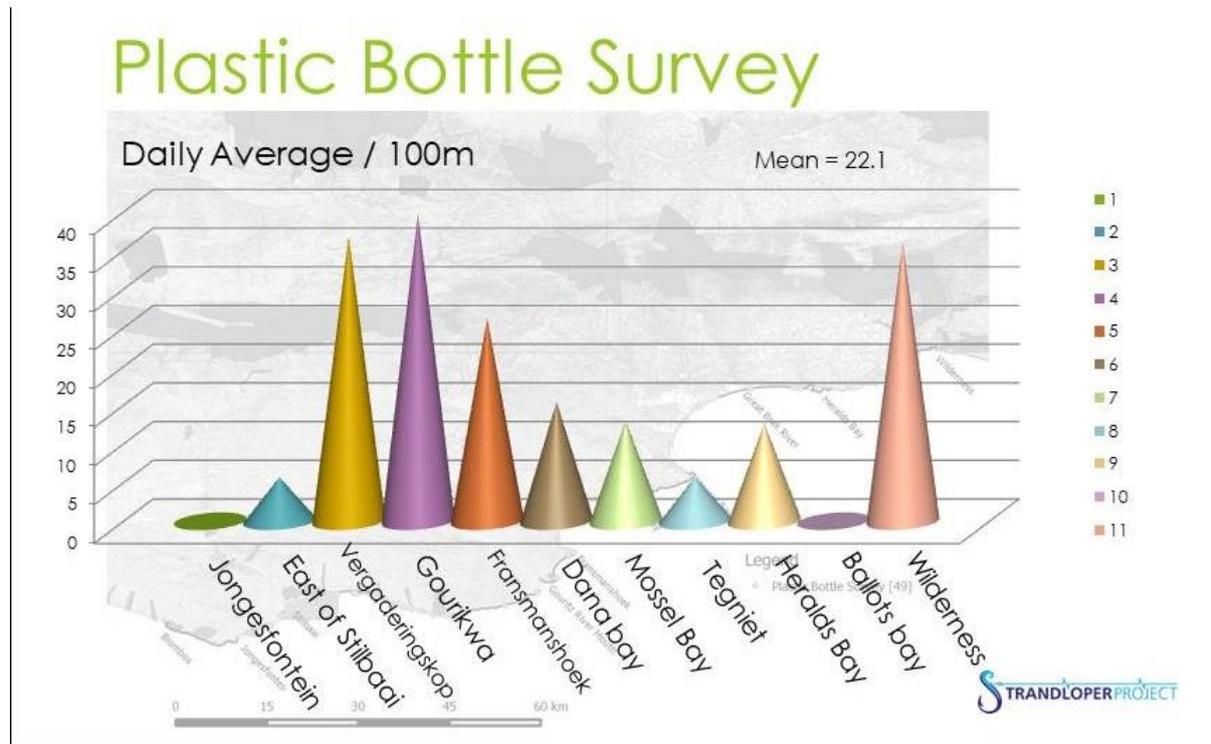


Figure 1: Daily means of bottle counts per 100m

From Fig. 1, it is evident that for the entire expedition, the highest counts of plastic bottles per 100m occurred within the Duineveld Kusbewaring area. A breakdown is as follows:

- Between Jongesfontein and the Rust property range between 0 and 13, mean = 5.7
- Rust to Vergaderingskop : range between 11 and 18, mean = 36.8
- Vergaderingskop to Gourikwa : range between 6 and 85, mean = 39.7
- Gourikwa to Gouritz: range between 2 and 32, mean = 17.

The mean bottle count per 100m in the Duineveld Kusbewaring section was 24.8./100m compared to the expedition average of 21/100m. The average for the

The bulk of the bottles were bottled water bottles, either 1.5l or 2l sizes. We suspect that their origin is from fishing vessels that operate in the area. From experience as a scientific observer on long liners, the smaller vessels lack desalination plants on board and provision crew with bottled water which are then discarded over board when consumed.

In general we did not find that on beaches with limited access to public there was a larger bottle count than on regularly access beaches. From this we assumed that public, visiting beaches, pick up and remove larger plastic items and water bottles in particular.

Incidental Sightings:

Fishing Debris:

We recorded 324 items of fishing debris in the Duineveld Kusbewaring area, of which 83 items (34%) were recreational fishing debris (mono filament, floats, elastic thread bobbins). The highest density of recreational fishing debris was along the section between Jongesfontein and Stilbaai. A second hotspot was east of Vergaderingskop leading up to Gourikwa where there are houses and cottages on the beach.

There was a distinct lack of pipe bins between Jongesfontein and Gouritz and it is recommended that these are installed to assist in preventing of discarded fishing debris, particularly discarded monofilament.

The commercial fishing debris (53% of fishing debris) was mainly ropes associated with long lining (32%) and crab pots, with 11% of the fishing debris being crab pots. The rope comprised discarded section of rope as well as long sections of lost rope. The only way to address this is to ensure that the vessels operating in the area are firstly licenced to do so and secondly monitored not to discard sections of rope. Pressure to mark their gear with the vessels identity would help raise ethics on the vessels.

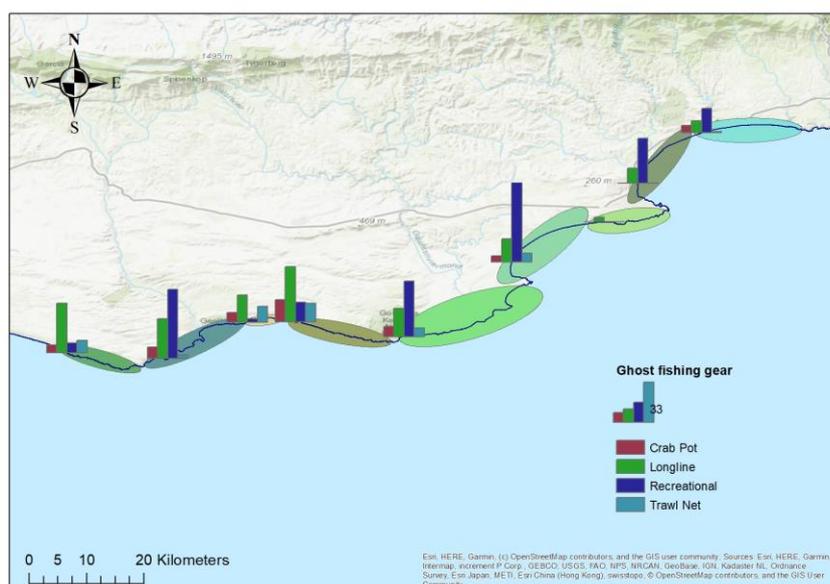


Figure 2 : Fishing Debris distribution.

Fauna:

Fish: on the western bank of the Goukou River, at the mouth, we recorded 5 shark heads and approximately 10 gill rakers washed up. The shark heads were Smooth Hound Sharks and they were consistent with shark longlining discards. Chris Fallows was particularly interested in this find and is using the data in a legal case against illegal shark fishing in the area.

Sadly we also recorded two shark discards, a Spotted Gully Shark and a Leopard Catshark, the by-product of recreational fishermen. This is an awareness and education issue on the merits of returning unwanted species which would dovetail with education on not discarding mono filament.

Plastic Pollution:

One of the two worst plastic pollution areas on the expedition was between Vergaderingskop and Die Duine Private Nature Reserve. A mix of plastic particles (between 0.5mm and 2.5mm), nurdles and water bottles littered a section of 700m. This is an area that requires a clean-up and subsequent survey to determine accumulation rates. This is most likely debris that has entered the ocean from a river, drifted and then washed ashore. While we didn't have the scope and time to determine the exact origin of the plastic, it would be helpful to investigate if the material is entering the ocean from the Goukou or Gouritz rivers. Or even both. Once the origins are determined, installing capture nets over storm river drain outlets could assist in reducing this mass.

Recruiting fisherman to map rafts of floating plastic will also assist in strategizing preventing this level of wash up.



Figure 3 : Distribution of plastic debris.

Recommendations:

1. Marine patrols to inspect commercial fishing vessels.
2. Education of all recreational and commercial fishing boats to dispose of plastic and fishing debris responsibly in harbour.
3. Install plastic and fishing debris awareness and instructional notices at launch sites.
4. Install bins or skips at launch sites for plastic and fishing debris.
5. Install pipes for recreational fishing debris and popular sites.
6. Recruit owners of fishing cottages to make pamphlets of ethical fishing practices (no debris, no discards, no littering etc.) available to clients renting. This information can also be transmitted via email when reservations are confirmed.

7. Engage Stilbay and Gouritz municipalities to access the loss of plastic debris from the urban sites into the rivers and way to prevent it.
8. Collaborate with Chris Fallows in monitoring potential illegal commercial shark fishing vessels in the area.