

**CONCEPT DOCUMENT:  
RE-ALIGNMENT AND RESONATION OF THE GOUKAMMA MPA  
BOUNDARIES TO BENEFIT SOCIO-ECONOMIC IMPERATIVES AND  
BIODIVERSITY PROTECTION**

**BACKGROUND:**

The Goukamma Marine Protected Area extends for 14 km along the shoreline between Buffalo Bay and Platbank just east of Sedgefield and 1nm offshore. The MPA contains rocky platforms, sandy beaches, sub-tidal rocky reefs and sub-tidal sandy benthos. Goukamma supports a rich mixture of warm temperate species, including many species that are endemic to the south coast of South Africa. It is an important linefish breeding area.

The MPA was initially proclaimed in July 1990. No removal of marine organisms or fishing of any kind was allowed; however, the Government Notice was amended in October 1990 to allow fishing with rod and line from the shore only. The offshore area remained a no-take area. Recommendations at the time also suggested that the central 8 km of the reserve be closed to shore angling. The MPA was re-declared under the MLRA in 2000, but shore angling (with restrictions) was still allowed.

Gotz (2005) found that Hake (*Merluccius capensis*), various resident reef fish and kob (*Argyrosomus japonicus*) were most frequently targeted by the local linefishery. A significant amount of illegal boat-based fishing was found to occur within the protected area boundaries. Fishing effort was found to be highest around the border of the MPA (2.7 boats/km<sup>2</sup>) and lowest in the core of the MPA (0.2 boats/km<sup>2</sup>). According to van Zyl (2011), the Goukamma MPA is a popular shore-based fishing destination and angler effort is high. It can be considered a node of exploitation for surf zone fish, for which it provides no protection. Van Zyl's research showed that anglers were clumped in easily accessible areas and that they favoured rocky areas and mixed shores over sandy shores. Of noteworthy concern was the occurrence of illegal night fishing in the MPA (note that the public are only permitted to enter the reserve between sunrise and sunset).

**RATIONALE FOR RE-ALIGNMENT:**

According to Lombard *et al.* (2004), the existing (National) MPA network does not provide sufficient protection for marine biodiversity in South Africa. When considering both species and habitats that require additional protection, several new MPAs are proposed. Furthermore, Lombard *et al.* identified the area immediately to the west of the Goukamma MPA, as a priority for protection.

Clark & Lombard (2007) stress that these proposed priority areas should only be used as a guideline as they are based only on the best information available at present and only indirectly consider certain aspects such as the potential economic and socio-economic costs

of selecting a particular area for enhanced conservation status. Such issues can only really be taken into account in much more detailed site-specific analyses where a range of conservation planning options can be work-shopped with those directly affected by any proposed changes in conservation status. Most significantly, they also state that perhaps more important than expanding the existing MPA network, would be concentrating on improving management within existing MPAs and upgrading the levels of protection in those MPAs that allow for the exploitation of living resources. In other words, thought should be given to rezoning sections of both the Robberg and Goukamma MPAs to include no-take areas from the shore.

Clark & Lombard (2007) performed an additional detailed fine-scale analysis within the Agulhas Bioregion, extending from Cape Point to the Mbashe River, and used key (sensitive) habitat types to determine additional areas that would need to be protected in order to meet conservation targets. The guiding principles used to determine these areas included requirements to minimize total reserve area, to minimize known threats and to promote adjacency (areas next to existing MPAs). Two identified priority areas from this study fall within the management area, namely:

- Priority Area 11 – located immediately to the west of the Goukamma MPA. This area was highlighted as it could contribute significantly to some sub-tidal geology types and to the Groenvlei-Swartzvlei coastal dune system. There would be no additional contribution to intertidal habitat targets and only a minor contribution to linefish habitat targets (habitat rated as only moderate).
- Priority Area 12 – located immediately to the west of the TNP and extending to the Sout River, it does not contribute greatly to any specific feature targets, but contains good linefish habitat (rated as high) and contains Quartzite (Table Mountain Group), which is one of the sub-tidal geology types.

Similar recommendations have been made by Chalmers *et al.* (2009), with the following scenarios being proposed for enhancing conservation through the existing MPA network:

- Extend the offshore boundary of the Goukamma MPA, as motivated by Götz *et al.* (2009), to include deeper reef areas and enhance protection of these habitats and linefish species
- Restriction of shore fishing in some areas of the Goukamma MPA and the southern portion of the Robberg MPA to enhance protection of coastal linefish species.

The National Protected Area Expansion Strategy (2008) sets protected area targets for the inshore marine bioregions and recommends an increase of 15 additional kilometres of No-Take MPA within the Agulhas Bioregion (Table 1). Closure of sections of the Goukamma MPA to shore-based angling will go a long way to meeting these minimum targets.

**Table 1: National Protected Area Expansion Strategy for Inshore Marine Targets.**

Bioregion	Length km*	Required in next 5 years			
		No-take		Total	
		km	%	km	%
Namaqua	684	26	3.8	43	6.3
SW Cape	420	3	0.7	--	--
Agulhas	1706	15	0.9	38	2.2
Natal	693	15	2.2	8	1.1
Delagoa	153	--	--	--	--
Total	3656	56	1.5	88	2.4

The results from Kerwath *et al.* (2008) on the effects of MPA's on exploited stock species showed that even small MPAs can be effective in rebuilding and protecting spawning populations inside their boundaries. Currently, the MPA boundary encompasses areas of ideal reef habitat, but re-aligning the boundary of the MPA will significantly increase the reef area for the protection of threatened reef species.

There are two main biological and ecological priority areas that provide the basis for the re-alignment and rezonation of Goukamma MPA. The most comprehensively researched aspect is the necessity of a larger reef area for reef associated species such as the roman (*Chrysolephus laticeps*) and galjoen (*Dichistius capensis*) which are two heavily impacted reef fishes. The second aspect is the potential closure of some of the coastline to shore fishing. This will reduce the pressure on the already vulnerable fish stocks that utilise the Goukamma MPA. Each of these aspects is discussed below.

#### **Re-alignment of the Goukamma MPA**

Goukamma MPA is host to a diverse fish fauna and boasts numerous resident reef fishes. There has been considerable study of the residency of reef associated species, one of the most important of which is the red roman. The national stock of roman has been in decline for many years and is now considered to be collapsed (Kerwath *et al.* 2008). Kerwath *et al.* (2007) showed that roman in the Goukamma MPA display a high degree of residency. Most

recaptured fish from this study were recaptured close to the release point with 61% recaptured within 50 m of the release site and 85% within 100 m.

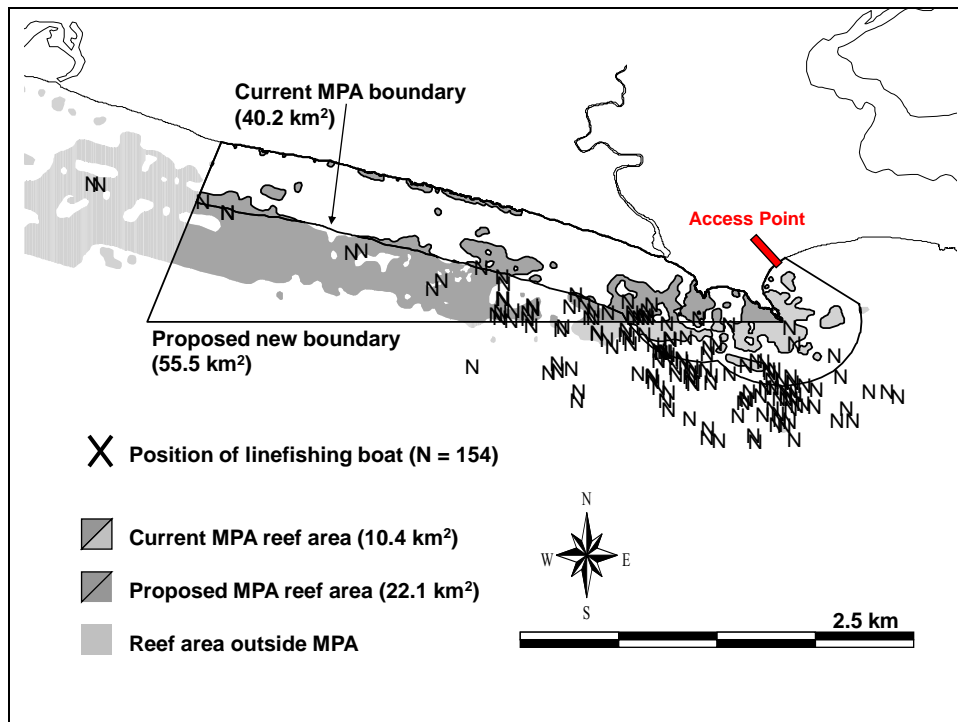
Gotz *et al.* (2009), state that the Goukamma MPA has been shown to be effective in maintaining a spawning stock of roman. The larval ecology and the oceanographic conditions in the area suggest a good potential for the enhancement of roman stocks outside the reserve through larval dispersal. They suggest that a change of the seaward boundary of the reserve to coincide with a latitudinal line could increase its value as a harvest refuge for resident reef fishes such as roman, facilitate voluntary compliance and monitoring and prosecution of illegal fishing without a significant negative impact on the commercial linefishing fleet in the area. Simple adjustments such as the one proposed here would be beneficial to achieve fishery and conservation goals alike.

### **Rezonation of the Goukamma MPA**

A preliminary assessment by Pradervand & Hiseman (2006) on the shore fishery along the Goukamma MPA found that a wide range of fishes were targeted by anglers (35 species sampled over a nine year survey period). Two species, blacktail (*Diplodus sargus capensis*) and galjoen, collectively made up more than 60% of the total recorded catch by number and more than 50% of the catch by weight. None of the other 33 recorded species had an individual contribution greater than 11%. Of large concern was the finding that up to 30% of the recorded catches of the top species was smaller than the minimum legal size limits. Although catches of most of the top species contained <7% immature specimens, 98% of recorded dusky kob (*Argyrosomus japonicas*) and 87% of white steenbras (*Lithognathus lithognathus*) were immature (Pradervand & Hiseman 2006). In a more recent assessment of shore fishing in the MPA by Anchor Environmental, 351 anglers and 117 fish from 19 species were sampled over the period 02/01/2011 – 28/08/2011. Again, the dominant fish in the catches was blacktail, making up 40% of the total catch. Of the 117 fishes, only 34 (29%) were released after being caught. However, only 7% of the fish kept were undersized. The majority of the fishers interviewed were fishing for recreational purposes (89%) rather than subsistence (11%).

### **OPTIONS FOR DESIRED STATE:**

The Goukamma Nature Reserve and MPA is currently a no-take area for ski-boat angling and spearfishing but shore-based angling is allowed. The proposed new offshore boundary of the MPA, as motivated by Götz *et al.* (2009), which includes additional sub-tidal reef habitat, is shown (Fig 1). A proposed priority conservation zone (Clark and Lombard 2007) to the west of the Goukamma MPA is also identified as a priority for conservation and includes two major oyster harvesting sites that will need to be considered with the commercial permit holders.



**Figure 1: Proposed re-alignment of Goukamma MPA as proposed by Götz *et al.* (2009).**

The proposed rezoning of the existing MPA can be seen in Fig 2. The proposed zonation scheme entails two zones namely:

- **Controlled zone** – shore angling at any time of day or night is allowed but bait collection, all net fishing and spearfishing is not allowed.
- **Restricted zone** – no take zone (no shore angling, spearfishing, netting or bait collection)

However, specific areas would require specific control measures. These are proposed in Table 2.

**Table 2: The specific control measures per area proposed for the rezoning of the Goukamma MPA**

Area	Specific control measures	
	NOT ALLOWED	ALLOWED
1	All consumptive utilization	All non-consumptive utilization
2	a) Bait collection b) Spearfishing c) Net fishing	a) Shore fishing with a rod and line within National set bag and size limits b) collection of washed out red bait by locally resident small scale fishers

The rationale for this zonation is multi-faceted and described in Table 3 below.

**Table 3: Proposed rezonation of Goukamma MPA highlighting controlled and restricted regions and the rationale for these restrictions.**

Area 1	<ol style="list-style-type: none"> <li>1) access is limited</li> <li>2) contains good linefish habitat according to Clark and Lombard 2007</li> <li>3) is currently a difficult area to control through patrolling specifically at night</li> <li>4) similar habitat is available to fishermen to the west</li> </ol>
Area 2	<ol style="list-style-type: none"> <li>1) a high use zone around the coastal holiday town of Buffalo Bay (from local unpublished use data)</li> <li>2) There is an existing “informal right” for fishermen holding the National bait collection permit to collect “uitspoel” or washed out red bait to the daily bag limit. This zonation aims to convert this “informal right” to a formal right allowing a limited number of identified locals the rights to collect and sell red bait.</li> </ol>
<b>NOTE:</b>	It is obvious that the eastern boundary of Area 1 and the western boundary of Area 2 should be the river mouth. However, being a temporary open/closed estuary there are times when there is no mouth and this may be used by fishermen to gain access to Area 1 from Area 2.

This proposed zonation will need to be determined as a matter of priority in cooperation with all stakeholders.



**Figure 2: Proposed zonation of Goukamma MPA**

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