Walvis Bay waterfront development:

Potential impacts on birds

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ENVIRONMENTAL COMPLIANCE CONSULTANCY

Walvis Bay wetland is a designated Ramsar site
– that is a wetland of international importance

- It is also a globally **Important Bird Area (IBA)**
  – one of 21 designated in Namibia by Birdlife International
- 25 species exceed the 1% flyway population threshold criteria for inclusion in the Ramsar convention (grebes, pelicans, flamingos, plovers, oystercatchers, gulls, terns, sandpipers)

What makes Walvis Bay so important for birds?

- It ranks in the top 2 wetlands for maximum numbers of birds

Wetland site	Maximum numbers (species richness) of wetland birds	Reference
Walvis Bay, Namibia	242,920 (51)	Wearne and Underhill (2005)
Sandwich Harbour, Namibia	401,806 (50)	Simmons et al. (2015)
Langebaan Lagoon, South Africa	38,901	Taylor *et al.* 1999
Swartkops River Estuary, South Africa	14,730	Taylor *et al.* 1999
Voëlvlei, Mossel Bay, South Africa	12,021	Taylor *et al.* 1999
Berg River Estuary, South Africa	11,614	Taylor *et al.* 1999
Baia dos Tigres, Angola	11,000 (25)	Simmons et al. 2006
Lake St Lucia, KZN	9,594	Taylor et al. 1999
Rietvlei, Cape Town	6,130	Taylor *et al.* 1999
Cunene River mouth Angola/Namibia	5,197	Anderson et al. 2001

Wearne, K. & Underhill, L.G. 2005. Walvis Bay, Namibia: a key wetland for waders and other coastal birds in southern Africa. *Wader Study Group Bull.* 107: 24–30.

What makes Walvis Bay so important for birds?

- It is consistently the top wetland in terms of median numbers of wetland birds

Wetland site	Median numbers of wetland birds Summer : Winter	Number of counts and Reference
Walvis Bay Lagoon	**155, 862 : 81, 854**	N = 31, 31 (Wearne and Underhill 2005; Simmons et al. 2015)
Sandwich Harbour	**96,146 : 52,386**	N = 23, 24 (Simmons et al. 2015)

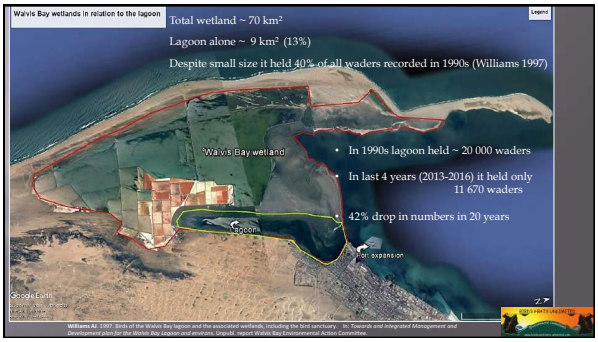
Wearne, K. & Underhill, L.G. 2005. Walvis Bay, Namibia: a key wetland for waders and other coastal birds in southern Africa. *Wader Study Group Bull.* 107: 24–30.

What are the long-term population trends for wetland birds at Walvis Bay?

- Significant **population declines** have occurred since the early 1990s in four of the 12 **long-distance migrants** investigated (Turnstone, Ringed Plover, Red Knot, Little Stint);
- The most serious declines were for migrant Little Stint and Ringed Plover, both with approximately 60–90% population declines;

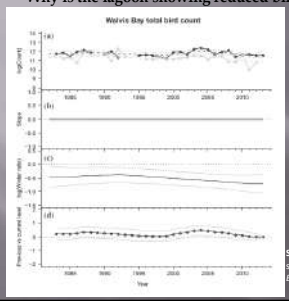
- In contrast, **resident or short-distance migrant** wader populations all exhibited **stable or increasing** population levels relative to the early 1990s;
- Population levels increased for White-fronted Plover, Chestnut-banded Plover, Black-winged Stilt, Pied Avocet, and Greater Flamingo relative to the early 1990s;

Simmons RE, Kolberg H, Braby R, Erni B. 2015. Declines in migrant shorebird populations from a winter-quarter perspective. *Conservation Biology* 29: 877-887.



Williams AJ. 1997. Birds of the Walvis Bay lagoon and the associated wetlands, including the bird sanctuary. ... In: *Towards and Integrated Management and Development plan for the Walvis Bay Lagoon and environs.* Unpubl. report Walvis Bay Environmental Action Committee.

Why is the lagoon showing reduced bird numbers?



➢ The overall numbers of birds at Walvis Bay has not declined in 30 years.

➢ Summer counts (black lines) show median values of 96 150 birds.

➢ Therefore the declines in the lagoon are not related to any long-term declines in the bay itself

Simmons RE, Kolberg H, Braby R, Erni B. 2015. Declines in migrant shorebird populations from a winter-quarter perspective. *Conservation Biology* 29: 877-887.

Potential reasons for reduced bird numbers in the lagoon therefore are through:

- sedimentation (reduced water flow into the lagoon and reduced tidal flushing),
- wind-borne sand from the eastern dune field
- pollution (fish oils, bilge water, oil spillage).

- Biological surveys in the lagoon….

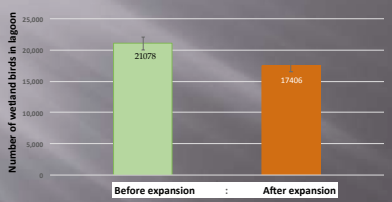
Engelhard and Sell (2013) found sedimentation and a layer of 20-50 cm of "oil-like black substance" at the southern end of the lagoon. They believed this to be sediments and organic matter brought in from the bay on the high tide, but not taken out by the ebb tide.

Unam (2013) also found biologically "dead zones" in the benthic surveys undertaken in 2013. They concurred with the conclusion of Currie (1997, p8) that "*the most critical factor regarding the biota is to maintain tidal flux: the lagoon must provide the physical basis to support its biota*"

Is lack of tidal flushing in the lagoon influencing the avifauna ?

I tested this by comparing wetland bird numbers and before and after the port expansion in January 2015

Wetland birds numbers in lagoon pre- and post-port expansion at Walvis Bay



17% reduction in 4-years (twice as high as the long-term decline)

* From data supplied by Peter Bridgeford (WB coordinator) 2013-2014 vs 2015-2016

The long-term decline in birds in the lagoon is exacerbated by reduced tidal flushing.

Thus:
Walvis Bay water front and marina must in no way impinge on the tidal flux as the naval expansion has.

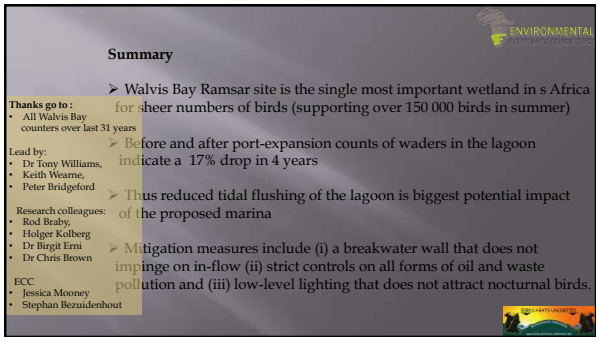
Mitigation measures:

➢ The breakwater wall must not disrupt the inflow of water close to the deepest channel into the lagoon. (it is best orientated parallel with the coast and project no further than the Raft Restaurant)

➢ Strict pollution measures to be enforced disallowing any cleaning of bilges, oil spills, plastics or other litter/pollution to leave the marina. Sewage and wastes to be disposed of into WB municipality. Any pollutants will likely stay in the lagoon due to low tidal flushing

➢ Light pollution: no bright lights to face into the lagoon, only intermittent (flashing, coloured lights) on tall buildings

➢ Strict control of traffic into lagoon from the marina. No motorised craft into lagoon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Summary
➢ Walvis Bay Ramsar site is the single most important wetland in s Africa for sheer numbers of birds (supporting over 150 000 birds in summer)
➢ Before and after port-expansion counts of waders in the lagoon indicate a 17% drop in 4 years
➢ Thus reduced tidal flushing of the lagoon is biggest potential impact of the proposed marina
➢ Mitigation measures include (i) a breakwater wall that does not impinge on in-flow (ii) strict controls on all forms of oil and waste pollution and (iii) low-level lighting that does not attract nocturnal birds.
Thanks go to :
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