APPENDIX 5

NAMIBIAN MARINE PHOSPHATE (PTY) LTD

COMMENTS AND RESPONSES TRAIL

Sandpiper Project

Proposed recovery of phosphate enriched sediments from the Marine Mining Licence Area No.170 off Walvis Bay Namibia.

Environmental Impact Assessment Report for the Marine Component

Prepared by:
Mr. Jeremy Midgley (Pr.Sci.Nat)
J Midgley & Associates
In association with:
Enviro Dynamics
The CSIR

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ENVIRO DYNAMICS

March 2012

COMMENTS AND RESPONSES TRAIL, APPENDIX 5:

Project:
The Dredging of marine phosphate enriched sediments from Mining Licence Area No. 170

Date:
March 2012

Prepared for:
Namibian Marine Phosphate (Pty) Ltd.

Prepared by:
Jeremy Midgley

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All the comments made on the Marine Draft EIA Report, are presented in the table below, along with responses indicating where and how the comments were addressed. These comments were provided during the review period 17 January to 08 February 2012. The full, original versions of the comments are provided herein.

Table 1. Comments and Responses Trail

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
Rainer Eimbeck (Private)	20-01-2012 (via e-mail)	See article as reported by *Mining Weekly*. I am outraged by the contradiction of your email with the information as reported by *Mining Weekly*. It very much appears that officially (as reported by *Mining Weekly*) everything is over and done with (the draft EIA was sufficient) according to Minemakers's chairperson, while you have told us specifically at the public meetings that a FULL EIA would certainly have to be done to address the VERY IMPORTANT issues of concern which we as the public have raised.	**Noted.** Mining weekly is a commercial publication not a government mouthpiece. We confirm that at this stage of the marine EIA a draft report has been submitted for review by the authorities and other stakeholders. A final EIA, addressing the comments received from stakeholders, is still to be completed and submitted	Entire report
Rainer Eimbeck (Private)	20-01-2012 (via e-mail)	The irregularities in how this particular whole process is conducted seem to become more and more. [First the mining licence granted without EIA, now the draft being submitted and accepted as sufficient without our public reviews - which you claim will be added later, but I have serious doubts that these will be taken into serious consideration at a later stage since an official publication (see the *Mining Weekly* report) already states that all is accepted].	**Noted.** See comment above. A preliminary EIA /EMPR based on initial studies and impact EIA was submitted with the Mining Licence application as per MME requirements.	Entire report
Rainer Eimbeck (Private)	20-01-2012 (via e-mail)	You as the conductors of this EIA have an obligation and responsibility to FULLY assess ALL the potential impacts and NOT to take any shortcuts or allow any such	**Noted.** At this stage of the process the draft EIA has been made	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		shortcuts to be taken. Please comment on the above officially so that we can understand what exactly is happening with this particular EIA process	available to all stakeholders for comment.	
Anja van der Plas (MFMR)	26-01-2012 (via e-mail)	Could you please send me copies (preferably electronic) of the following references you list in the water column specialist study for the Sandpiper Marine Phosphate Mining draft EIA. This would help in understanding and assessing the draft EIA docs. (*see original version).	**Noted.** Documents electronically provided 01-02-12	N/A
Jessica Kemper (African Penguin Conservation Project)	03-02-2012 (via e-mail)	The government of Namibia embraces a resource management policy based on the concepts of **SUSTAINABILITY** and the **PRECAUTIONARY PRINCIPLE** approach. This draft EIA report clearly demonstrates (through a series of mostly desktop-only specialist studies, of which one in particular is substandard – see specific comments below) that little is currently known about the functional ecology of the area in which large-scale phosphate mining is planned and its surrounds. Therefore, the main conclusion of this EIA draft report that *"[t]here are presently no identified issues of environmental significance to preclude the dredging of phosphate-enriched sediments from the Mining Licence Area No. 170*" (summary, page xi) is plainly wrong and therefore unacceptable. Similarly, the assertion that "*provisional investigations by NMP through appointed environmental consultants and*	**Noted.** Certainly the concepts of sustainability and Precautionary Approaches (not Principle) underpin much of the current fisheries and environmental legislation globally. These are broad concepts and certainly have not been ignored in the fisheries impact assessment. The impact assessment undertaken for the fisheries sector addresses the specific impact on the fishing industry, fish, biodiversity etc. of the mining. Specialists should, and generally do, follow a conservative approach when faced with incomplete knowledge or evidence, thereby inherently applying the precautionary approach. The relevant government authority is the mandated institution responsible for evaluating the EIA and applying other considerations (such as political and social aspects and the precautionary approach).	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		specialists has [sic] *determined that the recovery (dredging) and terrestrial processing/beneficiation (washing and separation) of the phosphate, with appropriate mitigation and responsible management practices in place, will not have a significant detrimental impact on the environment at each of the affected locations. However, this remains to be confirmed through this formal EIA-EMPR process*" (section: project description, page 3-4) is highly premature and deceptive.	**Noted.** Dr Kemper refers to a specialist study which is "in particular substandard". This is a sweeping statement which actually refers to a small component of the overall fish and fisheries study, which primarily focused on the commercial fisheries in the study area. We acknowledge that the sections on seabirds and seals require a major revision to incorporate the latest available information into the final EIA-EMPR.	Appendix 1a
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	I reiterate the primary concerns I first voiced during the scoping process: this project should only be considered if a **series of extensive, comprehensive, relevant research and monitoring programmes, done well in advance and reviewed by competent specialists**, can convincingly show that any negative impacts are negligible to the environment. So far, the specialists" reports (apart from, perhaps, the report on jellyfish impacts) have not been convincing, mostly because of a lack of (local) baseline data. It is imperative that these programmes to collect baseline data are done to confirm a range of potential impacts BEFORE an EIA clearance is issued. Doing so after obtaining an EIA clearance, or even after mining activities have commenced, as is suggested in some instances (e.g. water column specialist report, page 48), defeats the purpose of an environmental impact assessment. Given the number of industrial mineral EPLs that have been granted along the Namibian coast, the potential	**Noted.** The responsibility for conducting fundamental scientific research and data gathering lies with the relevant government agencies and research institutions. From a fisheries perspective we acknowledge that there are data deficiencies and that monitoring of the mining operation is required. The responsibility for developing an appropriate monitoring strategy however should not be the entire responsibility of the client (mining lease operator). The Ministry already has many years of monitoring data in the proximity of the MLA although the sampling stations may not coincide with the exact location of the area to be mined. Adaptation of current monitoring as well as extrapolation of current knowledge to the MLA is a prerequisite to use the best available information to understand the potential impacts prior to mining.	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		cumulative impacts of mining phosphate deposits and diamonds need to be considered in more detail in the final EIA report.	More specifically, the collection of baseline data cannot 'confirm' impacts. It does improve precision in defining sensitivities though. To achieve this requires that the putative impact area is understood within the context of regional distributions. For sediment texture and properties Bremner's work provides this, for biogeochemical flux studies van der Plas *et al* and Joubert's work show changes across the range of sediment types on the Namibian continental shelf, Monteiro *et al* provide insight into benthic boundary layers and Inthorn *et al* provides some detail on how these behave. Bremner and Joubert's work are examined theses and the balance, and other supporting evidence, are in peer reviewed journals. If the commentator is challenging the validity of the data and information used, grounds for this should be provided: the basis for her concerns are not clear. Note that we would all like more data, more directed measurements etc but this is not the objective of EIA assessments. These are typically based on existing and available information and, as such, are mostly circumstantial evidence based; after all you cannot measure the impact until the proposed project is implemented.	

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			As part of the FINAL EMPR, incorporated a specified work programme to be completed prior to start of dredging to verify their professional assessments of the potential environmental impacts of NMPs proposed operations. The effects of dredging in this environment can only be confirmed by testing dredging. The verification issue relates to confirming that the sediments are in fact muddy sand with either low or relatively high organic C/N **Noted.** A benthic macrofauna survey was conducted prior to the initiation of the EIA. Nevertheless, recognising that their studies have been largely literature based, the Benthic and Water Column specialists have recommended the undertaking a survey to verify their assessments of the potential impacts of NMPs proposed operations. The Fisheries specialist was supplied with the appropriate data by MFMR. The Benguela Current Commission has recognised the need for a Strategic Environmental Assessment of mining activities (oil & gas, diamonds, phosphates, etc) in the Benguela current region.	
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	Although assurance has been given by the consultants that only the revised final EIA report will be evaluated by MET, the ethics of submitting a draft EIA report that has not been scrutinized by the public, are debatable. Moreover, the approval of the draft EIA report by the	**Noted.** The Company and experts are adhering to the processes stipulated by the relevant regulations, Acts and conditions attached to the Mining Licence.	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		independent external reviewer, despite the poor quality of at least one specialist report, presumably to meet the obligations and deadline set by the Ministry of Energy and Mines in terms of the exploratory mining license granted, greatly questions the credibility of the team of consultants and the external reviewer.	The draft EIA was submitted to MET, MME and MFMR order to meet the deadline required by the conditions of the mining licence. However, the draft EIA was both posted on Enviro Dynamics web site, advised to registered I&APs and hard copies placed in public libraries (Windhoek and Walvis Bay) to enable access to the report by the public. The consultant team has complied with the due process and as such any allegations relating to the credibility of any of the Consultants are inappropriate in this case.	
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	On a perhaps more subjective, personal note, the project's main "sales pitch" appealing to Namibia's altruistic social conscience by highlighting the project's noble role of "contributing significantly to the sustained supply of world food production", is one of dubious merit. This planned project is a purely commercial venture, with few tangible benefits to the Namibian people, other than the creation of a few jobs (estimated to be fewer than 160 overall, after initial construction), and, if anything, poses an environmental and human health risk, as well as jeopardizes the Namibian fishing industry, one of Namibia's most important food-producing sectors. Instead of focusing the world's reliance on finite resources (especially those extracted from and processed in environmentally sensitive areas) to ensure world food security, there needs to be a concerted global shift towards more sustainable and low-	**Noted.** It is a scientifically fact that there is no artificial substitute for phosphorus in agricultural fertilizer and animal feed. Similarly, there are numerous scientific publications dealing with global food security issues and the importance phosphate in supporting food supply. Furthermore, it is a fact that the number of countries exporting phosphate rock has reduced significantly over the past 10 years underpinning the importance placed internally by countries to preserve their supplies of phosphate. The role of the project within the global perspective is therefore not overstated. Namibia will become a significant supplier of phosphate rock in the worlds market for traded phosphate rock. In order to assess the benefit of the project a broader perspective is needed. Apart from the direct employment created, there are related benefits in indirect employment	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		impact food-producing practices and more environmentally friendly generation of phosphate fertilizers, e.g. through composting.	(contractors and support industries) as well as taxes, royalties, levies and social development programmes that will form part of the project development. A comprehensive socio-economic study will be done as part of the terrestrial component so that the real benefits can be considered. However, the socio-economic matters relevant to the marine environment particularly fisheries are being addressed in the marine component of the EIA.	
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Chapter 3 – Project description** Table 3.3 (pg 3-19): coordinate A is wrong (14º57‟05” is inland).	**Noted.** Corrected	Ch 3 – Tbl 3.3
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Chapter 4 – Description of the Affected Environment** The part on seabirds (page 4-26) is outdated and wrong in part. This needs to be revised (see also comments on the specialist report dealing with birds). The part on seals (page4-27) is also outdated and needs to be revised (see comments on seals in the specialist report).	**Noted.** The comments on chapter 4 will be addressed in the final EIA. The text will be updated and corrected using the latest available published information.	Ch 4
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Chapter 7 – Environmental Impact Assessment** My concern raised in the scoping phase about the use of lights at night by the dredger, which could increase collision risk to birds (with the vessel and suspended cables) has not been addressed. My concern that the proposed mining area could be an	**Noted.** The concerns will be addressed in the final report. It is relevant to note that the dredge is unlikely to be the only vessel operational in the area at night at any time given that the area is also utilized by fishing vessels (trawlers and others) as well as general shipping. In	Ch 7. Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		important foraging area for seabirds, particularly non-breeding African Penguins, has not been addressed by the relevant specialist report (see my detailed comments below).	addition the operational area of the dredge will be restricted to a very specific part within the ML170 area , the vessel is not anchored at any time during operations on site hence no cables are suspended over the sea surface , the operational speed of the vessel is very slow 0.5 – 1.5 knots.	
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Chapter 8 – Environmental Management Plan** There are no facilities (or capacity) for the rehabilitation of oiled seabirds at MFMR Walvis Bay or Swakopmund. Arrangements should therefore be made for the transfer of oiled birds to the seabird rehabilitation facility managed by MFMR in Lüderitz.	**Noted.** The lack of facilities for handling oiled seabirds at MFMR Walvis Bay / Swakopmund is noted. However, this matter falls under the jurisdiction of the competent authority as the issue is relevant to the entire marine community and all marine activities in which oil spills may occur. However, with respect to this project, the Environmental Operating Procedures for the operations will incorporate provision for appropriate handling in event of the recovery of oiled seabirds.	Ch 8
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	"National Oil Spill Response Plan": does this refer to the current National Oil Spill Contingency Plan (NOSCP)? Considering that this plan is, in its current state, not implementable and completely outdated, the project should draw up its own oil spill contingency plan (in close collaboration with relevant stakeholders), unless the revision of the NOSCP (a) has been completed by the time mining operations could commence and (b) has improved to the point where it is of actual use. What is MFMR‟s policy on the refuelling of vessels at	**Noted.** NMP cannot be held responsible for the status of the National Oil Spill Contingency Plan (NOSCP), this is a matter for the relevant authority. However, the dredging vessel operates to international maritime standards and conventions with respect to oil spill contingency and will have a Shipboard Emergency Preparedness and Oil Spill Plan (SOPEP) which will be linked, where appropriate, with the NOSCP. Refuelling at sea: the Department of Maritime Affairs	Ch 8

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		sea?	within the Ministry of Works Transport and Communication is responsible for issuing approval for Refuelling.	
Jessica Kemper (African Penguin Conservation Project)	03-02-2012 (via e-mail)	**Specialist Report: Fish and Fisheries (Mr. D. Japp)** *(Note that this title differs from that given in the EIA report itself, i.e. "Marine Fauna and the Fishing Industry")*	**Noted.**	Appendix 1a
Jessica Kemper (African Penguin Conservation Project)	03-02-2012 (via e-mail)	As a seabird biologist working primarily on seabirds breeding along Namibia's coast, I have focused on the parts of the report dealing with seabirds, but am also commenting on some other aspects of the report. General and specific comments are outlined below: 3 **Section 2.3.3, page 18, paragraph 2:** Bearded goby as a food source for seabirds: incorporate findings of Ludynia *et al*. 2010a	**Noted.** The text of the specialist study will be revised in the light of these comments and using the latest available published information.	Appendix 1a
Jessica Kemper (African Penguin Conservation Project)	03-02-2012 (via e-mail)	**Section 4.1 Seabirds:** On the whole, this section is poorly researched and presented, is meaningless, irrelevant or misleading in places and lacks recent information throughout. Gaps and errors are listed below: **Pg 31, paragraphs 1 and 2 (see also Appendix 1a-1):** The IUCN threat listing in the report is outdated and the table needs to be completely revised (see my corrections under heading Appendix 1a-1). Threat categories, together with reasons for the listing and a history of	**Noted.** The text of the specialist study will be revised in the light of these comments and using the latest available published information and presented in the final EIA-EMPR.	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		listings can be found for each species at http://www.iucnredlist.org/. The latest listings, as well as correct and up to date common and scientific names can also be found in Sinclair *et al*. (2011). Therefore, none of the bird species listed as occurring in the area under considered in the specialist report is considered "critically endangered". However, five seabird species are listed as "endangered" (and not zero, as mentioned in the report), including two species breeding along the Namibian coast (African Penguin and Bank Cormorant). At least one other species is listed "locally endangered", i.e. the Cape Gannet (Kemper in press).		
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Page 31, paragraph 4:** Presenting the decline of African Penguins in Namibia in terms of changes in the proportion of the Namibian breeding population relative to the global population is meaningless on its own, as it does not necessarily imply an overall decline in population numbers, but could also merely be reflecting distributional shifts. Moreover, the presented trends are very much outdated, based on information from more than 20 years ago (Crawford *et al*. 1991), when there have been several more recent published updates of population sizes and trends, most recently in Kemper *et al*. 2007 (see also IUCN website information on African Penguins). The information given for Cape Gannet and Cape Cormorant population trends is equally meaningless and outdated, and should be	**Noted.** The text of the specialist study will be revised in the light of these comments and using the latest available published information and presented in the final report.	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		replaced with more recent information (e.g. Kemper *et al*. 2007, Crawford *et al*. 2007a,b, IUCN website species accounts).		
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Page 31, paragraph 5:** Not only the Cape Gannet has suffered as a result of the decline of the pilchard (=sardine), but also the African Penguin and the Cape Cormorant, as well as other bird species feeding along Namibia's coast (e.g. du Toit *et al.* 2003, Kemper *et al*. 2007, Crawford *et al*. 2007a,b, Ludynia *et al*. 2010a). A shift in seal distribution (not least because of the disturbance of seals, caused by seal harvesting operations at mainland seal colonies) caused the displacement of seabirds from a few islands, notably of penguins and gannets from Mercury Island during the 1980s; through management intervention (Crawford *et al*. 1989) this island has been re-established as a seabird breeding locality and now hosts the largest number of African Penguins and the vast majority of the entire global breeding population of Bank Cormorants (Kemper *et al*. 2007). While seal competition for food and breeding space is a factor contributing towards the poor breeding success and subsequent decline of several African Penguins and Cape Gannets breeding in Namibia, the combination of a lack of quality food, lack of suitable nesting habitat (mostly due to guano harvesting) and human disturbance is far more critical.	**Noted.** The text of the specialist study will be revised in the light of these comments and using the latest available published information and presented in the final report. The primary impact on sea bird feeding has been the historical decline (collapse) in the small pelagic resource – the proposed MLA is a small area of the Namibia fishing zone. Namibia still issues catching rights for sardine – the resource is still in an overexploited state and has not been rebuilt since the 1960s. Although the phosphate mining offshore will undoubtedly impact the ecosystem in the MLA, in a holistic context the current state of the sardine resource and rebuilding strategy outweighs the likely impact of the impact of the mining (assuming it remains contained to a small area). This does not of course negate the contributing impact of any additional environmental impacts such as the proposed offshore dredging for phosphates.	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Page 31, paragraph 5:** "Crawford, 1991" should read Crawford *et al*., 1991?	**Noted.** The text of the specialist study will be revised in the light of these comments and using the latest available published information and presented in the final report.	Appendix 1a
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Page 31, paragraph 6:** Giving the listings of African Penguins, Caspian Terns and Damara Terns in the South African Red Data Book (Barnes 2000) is irrelevant to the status of Namibian populations (and outdated). And no, the listings do not apply equally to the Namibian populations of these three species, as there are distinct regional differences in 4 population sizes and trends. The Namibian Red Data Book, to be published later this year, will provide more relevant information on local conservation status (Simmons and Brown in press).	**Noted.** The text of the specialist study will be revised in the light of these comments and using the latest available published information and presented in the final report.	Appendix 1a
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Page 31 final paragraph/page 32 first paragraph:** This information is completely irrelevant in the context of this EIA specialist report. Why single out the Damara Tern? African Penguin, Cape Gannet, Cape Cormorant, Bank Cormorant, Crowned Cormorant and Hartlaub's Gull are also breeding endemics to the region (Angola, Namibia and South Africa). Considering that the foraging ecology and foraging habitat requirements of African Penguins and Cape Gannets are more relevant to the proposed mining area than those of Damara Terns, which are inshore (surf-zone) feeders, I do not understand the	**Noted.** The text of the specialist study will be revised in the light of these comments and using the latest available published information and presented in the final report.	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		inclusion of this paragraph.		
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Section 4.2.3., page 36, seals:** Why use a population estimate from more than 20 years ago, when more recent estimates are available (Kirkman *et al*. 2007)? Incidentally, overall numbers of seals have stabilized since the 1990s (Kirkman *et al*. 2007). Satellite transmitter study on Cape Furs Seals in Namibia: off central Namibia generally remained within 150km of the coast, at a water depth of <200m, and<500m to the north and the south (Skern-Mauritzen *et al*. 2009). The official common name of the species is "Cape Fur Seal".	**Noted.** The text of the specialist study will be revised in the light of these comments and using the latest available published information and presented in the final report.	Appendix 1a
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Section 5.1. Marine Resources Act 27 of 2000:** How about mention of Section 18(b): …"a person may not kill, disturb or maim any [*a list of birds, including penguin, albatross, petrel, shearwater, prion, gannet, cormorant, skua, gull and tern*]…"	**Noted.**	Ch 2
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Page 37, paragraph 3:** Why not point out here that Namibia has got one (inshore) MPA, the Namibian Island' Marine Protected Area, declared in 2009, but that this is only a first step in declaring a network of MPAs to represent all marine habitats under Namibian jurisdiction in 2012 (as per WSSD agreement and EAF management commitment).	**Noted.** A section on Marine Protected Areas will be included in the final report. Certainly Namibia has declared an MPA in southern Namibia – aimed primarily at the small offshore islands that are bird breeding colonies. The roll-out to a network of MPAs is however not clear especially considering the	Ch 4

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			current state of the Namibian coastline that is closed in large sections and subjected to extensive activities related to diamond mining.	
Jessica Kemper (African Penguin Conservation Project)	03-02-2012 (via e-mail)	**6.1. Data and methodology of impact assessment:** Why is the potential loss of feeding habitat (through habitat destruction and removal of prey fauna) to top predators not included in the list of direct impacts? – See also J. Kemper comment in scoping report.	**Noted.** This query relates to trophic interactions of which there are few studies and limited modelling done for Namibia. A considered response will be provided in the text of the risk assessment in the FINAL EIA/EMPR.	Appendix 1a
Jessica Kemper (African Penguin Conservation Project)	03-02-2012 (via e-mail)	**Page 45:** "*as long as the effects of dredging are not transported inshore where most small pelagic spawning activity occurs, the effects of phosphate mining on small pelagic commercial fish are considered low*" – this potential key factor needs to be investigated, before this impact may be considered low.	**Noted.** The effect of phosphate mining on pelagic spawning activity is unknown and therefore difficult to quantify without on-site research experiments. Comments made by MFMR scientists however, concluded that "the effects of phosphate mining on small pelagic commercial fish are probably acceptable".	Appendix 1a
Jessica Kemper (African Penguin Conservation Project)	03-02-2012 (via e-mail)	**Page 53:** Pelagic Goby should be Bearded Goby	**Noted.**	Appendix 1a
Jessica Kemper (African Penguin Conservation Project)	03-02-2012 (via e-mail)	**Page 55, Table 5:** What time of year were these surveys done? How many surveys were done in total for each species?	**Noted.** Hake surveys – January, February, March, June July, September, October Pelagic surveys - March, April, June, Sept and October Monk surveys in November	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			Pelagic eggs and larvae from Nansen data – January, February, March, April and October Pelagic eggs from SWAPELS data – January, February, March, April, September, October, November and December The total number of surveys per species was not calculated however the total number of samples per species was: Hake juveniles (n = 6649) Hake stage 4 (n = 8769) Horse mackerel juveniles (n = 1368) Monk juveniles (n = 263) Pelagic juveniles (<8cm) n = 10714 Eggs and larvae from Spanish surveys (n = 333 counts) Horse mackerel eggs and larvae from Nansen data (n= 2811) Sardine and anchovy eggs from SWAPELS data (n = 265) Sardine eggs and larvae from Nansen data (n = 2811)	
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Page 56:** Given the poor data quality (e.g. "the lack of sardine and anchovy ichthyoplankton in the area could purely be a result of the lack of survey stations in the southern areas	**Noted.** Typically ichthyoplankton surveys are designed for random stratified sampling. Results of the distributions of eggs and larvae are in most instances extrapolated and	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		of Namibia"), how can it therefore be concluded that mining is unlikely to impact recruitment of any commercially and ecologically important fish species?	areas of high and low density identified. It is on this basis that we conclude that the low ichthyoplankton densities in the area are likely to extend into the MLA and for this reason the impact of the mining is *unlikley* to impact recruitment of fish significantly in the MLA.	
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Page 61:** "*The extent of [the impact of mining operations on fish biodiversity] is difficult to judge.*" The precautionary approach would be to permit mining under strict monitoring conditions once a biodiversity baseline for the MLA has been established". 5 An EIA clearance should not even be considered until such a baseline inventory of biodiversity (not only restricted to fish species!) has been established and the impact of mining on species diversity assessed properly. Rating the significance as "*low*" in the context of what is currently known is therefore highly premature and misleading. What is precautionary in allowing mining under "strict monitoring conditions"? The precautionary approach would be to assess this impact based on proper data, before mining should be considered.	**Noted.** There are data on fish distribution although the data available are limited to the material found on the fishery surveys. These are certainly not adequate as a full inventory and baseline of biodiversity. This was clearly stated in the text and limitations of the information provided made in the assessment. Due to survey limitations (random stratified surveys, fixed transects etc.) realistically we based our assessment on the available information. There is however still a need for a biodiversity baseline in the MLA prior to the commencement of mining. However all available information on the species diversity in the proximity of the MLA should be reconciled and extrapolated to the MLA. Biodiversity surveys are time-consuming – a practical approach is needed that allows for best use of the available information that is integrated into the mining strategy so that impacts can be measured on a real-time basis – this can inform management on the feasibility of persisting or expanding activity from SP-1 into the other areas within the MLA.	Appendix 1a
Jessica Kemper	03-02-2012	**Page 61, Impact 5: Impact on seabirds and marine**	**Noted.**	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
(African Penguin Conservation Project)	(via e-mail)	**mammals:** Equating the lack of data to a "zero" measurement is wrong, dangerous, leads to highly misleading and incorrect conclusions, and in this case casts serious doubt on the specialist's competence. Thus, the notion that no important seabird foraging areas fall within the vicinity of Conception Bay, based on checking papers/books that describe several general aspects of the biology, behaviour, breeding distribution, population trends, conservation status etc. of a number of bird species, is false. None of the listed references deal with the identification of seabird key foraging areas, except for Pichegru *et al.* (2007), who discuss gannet foraging ecology in South Africa - hardly surprising therefore that the area around Conception Bay is not mentioned! It is therefore completely ludicrous that this specialist report, in one sentence, immediately and entirely dismisses the potential importance of the MLA and surrounds as foraging habitat for seabirds.	The text of the specialist study in the FINAL EIA/EMPR will be revised using the latest available published information.	
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	Has anybody actually looked at the importance of Conception Bay and surrounding areas as foraging habitat? As I had already mentioned in my comments during the scoping phase of this project, the use of seabird data logger technology has in the past been constrained in a number of ways, and we have only fairly recently started to equip seabirds breeding on Namibian islands with loggers (namely African Penguins, Cape Gannets and Bank Cormorants to identify key foraging	**Noted.** ML 170 lies at least 60 km offshore from Conception Bay and an even greater distance from the bird breeding islands.	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		areas and to ascertain foraging ranges of breeding birds (see for example Lewis *et al*. 2006, Ludynia *et al*. 2010b, 2011). The foraging ranges (and therefore potentially the use of high quality foraging areas) of breeding birds are constrained by the obligation to return to their breeding islands to feed their chicks at regular intervals. Very recent advances in logger technology are now enabling us to track non-breeding birds, which are likely to feed further away from natal/breeding localities. As I had already pointed out in my comments during the scoping phase, one example of this can be found on the "Penguin Watch" web site of the Animal Demography Unit at UCT, which tracked the routes of a few newly fledged African Penguins from South Africa using this novel logger technology. Some of these penguins travelled up the coast to central Namibia (and possibly beyond), using both offshore and inshore routes. Until the importance of the area to be mined and its surrounding areas as a foraging area to seabirds has been assessed properly, this risk factor cannot be dismissed.		
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Page 62, final paragraph:** **I**ncreased particulate matter may attract some birds such as Storm-Petrels, but is unlikely to "naturally attract" birds relying on vision to feed (e.g. penguins, gannets, albatrosses and others). Feeding in waste discharge (of dubious energy content) can also hardly be considered beneficial to foraging birds, and should therefore not be	**Noted.** Typically sea birds are attracted to disturbances in the water - in particular material that may have been disturbed and rises to the surface as a result of the dredging operations. Certainly the energy content would be uncertain, but the impact is unlikely to be definitively beneficial or detrimental – hence rating it "neutral".	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		rated as a neutral impact.		
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Page 63, Table 8:** If the ecology of the dredged area is altered (through removal of benthos and displacement of fish communities), thus leading to a loss of foraging habitat and food to seabirds and mammals, then the duration surely is likely to be greater than "very short term", and more likely to be rated medium to long term. Should this area be an important foraging area, particularly to threatened seabirds such as African Penguins and Cape Gannets, the intensity would be greater than "minor" and the significance greater than "low". Confidence level, given the poor knowledge of the utilization of the area by seabirds and mammals should be rated as "low". 6 No mention has been made of the effect of ship lighting at night on seabirds (collision risk), as raised during the scoping phase, nor have any mitigating factors on this issue been outlined in either the specialist report or the Environmental Management Plan.	**Noted.** With respect to lighting it will, however, need to put in context relating to the general marine traffic expected in the area and the impact of lights on sea birds. The text of the specialist study in the FINAL EIA/EMPR will be revised using the latest available published information.	Appendix 1a
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Page 69 and others:** Currie and Grobler 2007 should be replaced by Currie *et al.* 2009.	**Noted.**	Appendix 1a
Jessica Kemper *(African Penguin Conservation*	03-02-2012 (via e-mail)	**8.2 Monitoring:** There is no emphasis or even mention about conducting baseline studies (e.g. on the importance of the area as a	**Noted.** It was stated that monitoring is a requirement – the nature of this monitoring needs to be formulated in a	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
Project)		fish spawning/nursery area or seabird/mammal foraging area) to confirm the validity of this assessment prior to granting an EIA clearance and prior to the commencement of mining.	structured scientific way – baselines are possible based on current knowledge and data although the available data do not necessarily transect the MLA. This is not an uncommon problem and assumptions and extrapolations may be the only option to establish a "current" baseline for the MLA. Typically the environment (biodiversity, species abundance etc) is already altered through current and historical fishing in the area – so any baseline cannot represent a pristine status but will need to be scientifically determined on best available knowledge.	
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	Why are chelonians (particularly the critically endangered Leatherback Turtle which does occur in small numbers in these waters) not mentioned?	**Noted.** The text of the specialist study in the FINAL EIA/EMPR will be revised using the latest available published information.	Appendix 1a
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Appendix 1a-1 - corrections:** • African Penguin: may also occur offshore (>100km from the coast; see Penguin Watch satellite logger tracks of juvenile penguins); IUCN conservation status "**Endangered**" (revised 2010) • Shy Albatross: IUCN conservation status "Near Threatened" (revised 2010) • Black-browed Albatross: IUCN conservation status "**Endangered**" (revised 2010?) • Yellow-nosed Albatross: IUCN conservation status "**Endangered**" (revised 2010)	**Noted.** The text of the specialist study in the FINAL EIA/EMPR will be revised using the latest available published information.	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		• Northern Giant Petrel: IUCN conservation status "Least Concern" (revised 2009) • Southern Giant Petrel: IUCN conservation status "Least Concern" (revised 2009) • Atlantic Petrel: IUCN conservation status "**Endangered**" (revised 2010) • Spectacled Petrel: IUCN conservation status "Vulnerable" (revised 2008) • Sooty Shearwater: IUCN conservation status "Near Threatened" (revised 2004 and 2008) • White-bellied Storm Petrel: should read ***F**. grallaria* • Bank Cormorant: IUCN conservation status "**Endangered**" (revised 2010) • Grey Phalarope should be Red Phalarope • Arctic Skua should be Parasitic Jaeger; also occurs inshore • Pomarine Skua should be Pomarine Jaeger; also occurs inshore • Long-tailed Skua should be Long-tailed Jaeger • Subantarctic Skua should be Southern Skua • Larus sabini should be Xema sabini • Band-rumped Storm-Petrel *Oceanodroma castro* needs to be added to the list		
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	**Concluding remarks on the Fish and Fisheries Specialist Report:** My impression is that this specialist report was done in a	**Noted.** Given that only a 6-month time scale (dictated by the terms of the mining licence) was provided to complete an	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		rushed manner. The resulting report is therefore of poor quality, using outdated and/or irrelevant information and is riddled with errors, omissions and misleading statements.	assessment of this magnitude, we would have to agree with this statement. We will however review and address errors and omissions in the final report. Note, however that the fisheries data were supplied only in the last month prior to submission and some data as late as one week before completion of the fisheries report. The fisheries data were provided by NatMIRC scientists and are not outdated – same is not true for birds and mammals.	
Jessica Kemper *(African Penguin Conservation Project)*	03-02-2012 (via e-mail)	To reiterate the results and conclusions of this specialist report: 1) Fishing grounds for various species, most notably monk, will be impacted, and mining operations are likely to cause fish displacement and mortality. 2) Significant alterations of the ecosystem in the immediate mining area are expected. 3) No major impacts regarding fish recruitment are expected, but this conclusion is based on poor data; 4) The impact on fish biodiversity in the immediate mining area is thought to be severe but unlikely to be detrimental, although little is known about the area's biodiversity. 5) The impact of mining on seabirds and mammals is only considered in terms of altered behaviour and neglects the potential loss of prey and foraging habitat altogether. The nature and scale of some of the impacts identified	**Noted.** On-site research particularly focusing on the impacts of phosphate mining on fish distribution, fish diversity and ecosystem interactions has never been done before so quantifying significance of direct impacts for these aspects is challenging. Our assessment, to be objective, was based on the best fisheries data available. The commercial and survey data were used to show spatial distributions of commercially and economically important fish. Based on these distribution maps we concluded that: 1) Since monk had the greatest overlap with the MLA and has low mobility that it is highly probable that both mortality and displacement will occur due to dredging. 2) The ecosystem as a whole will be negatively impacted to some degree by the dredging process and that of the main commercial fish species caught	Appendix 1a

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		(relating most notably the impact on the monk fishery), the large numbers of "unknowns" due to poor data availability, and the poor quality of this report per se, show that this project should not be given an EIA clearance at this stage. It is disturbing that a report of such poor quality was approved by the external reviewer. The fact that this was done one day before the deadline imposed by the Ministry of Mines and Energy supports the notion that this report was put together in a rush to beat the deadline, sacrificing thoroughness and quality in the process.	in the area, monk abundance will be most heavily altered and the fishery for monk directly affected. 3) The data given to the assessment team showed that the distributions of recruits to the commercial fisheries do not overlap significantly with the MLA. Our conclusion is this regard is that the dredging process will have a low likelihood of having a negative impact on recruitment to the different fisheries. Only recruitment of monk to the monk fishery is highly likely to be impacted 4) What is known about species diversity in the MLA area is derived from the historical fisheries surveys and is dependent on the level of identification of species in these surveys (surveys conducted in the 1980s and 90's place less emphasis on biodiversity and focused on the target resource being surveyed). In this regard our assessment can only make assumptions on biodiversity based on the information provided. We recognise however that biodiversity is a complex issue and that drawing conclusions on biodiversity based on the available data can only be a crude approach. BCC is undertaking biodiversity assessments of the Namibian offshore environment but that study has as yet to yield any published information. 5) The potential loss of prey and foraging habitat will be considered in the final EIA report.	
Jessica Kemper	03-02-2012	**Specialist report: Water Column (R. Carter):**	**Noted.**	Appendix 1b

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
(African Penguin Conservation Project)	(via e-mail)	I am not commenting in detail on this specialist report, as I am not an expert on most of the issues addressed here. Below are some general comments: The duration and intensity of suspended sediment generated by dredging (and its potential effects on organisms in the water column) is rated as "very short term" and "no lasting effect". While a plume may indeed disperse within 1-2 days, the relative continuous nature of planned dredging activities (excluding down time and offloading/refuelling time) implies that by the time operations run routinely there will be a relatively permanent plume in the dredging area. Since the report mentions that chronic effects may ensue after 3 days of exposure at a suspended sediment concentration of >20mg/l, how can the intensity be rated as having no lasting effect?	Two dynamics are at play here: (1) is the persistence of plumes and (2) is exposure of organisms to the elevated TSS loads. Plume persistence is predicted to be short (<2 days) but plumes will be persistently created. Effects would be exerted on plankton and ichthyoplankton which drift through the area. The drift rate applied to plankton in this study is similar to the plume drift rate, therefore exposure decreases over time. For a three day threshold to be exceeded requires that organisms actively seek out the plumes being generated and then risk chronic effects. According to Probyn's (2004) thresholds for acute effects would be limited to the specific site of discharge, but in this instance organisms (plankton mainly) would be displaced by the discharge itself. Hence exposure to acute TSS concentrations is considered to be unlikely at any measurable scales.	
Jessica Kemper *(African Penguin Conservation Project)*		Six of the eleven identified impacts are assessed on untested assumptions, predictions and lack of relevant local data. The significance of these impacts should therefore not be rated until assumptions and predictions have been verified and the relevant data have been collected. It is recommended that these issues should be addressed through investigations prior to commencement of mining (yes) "or in its early/initial stages" (not acceptable).	**Noted.** Dredging and its consequences is one of the better researched human activities in port, estuary and marine environments. Pivotal issues are the properties of the sediment body being dredged. The data invoked are adequate in regional terms but need verification for the sites, Back-up flux measurements are those of Namibian scientists or these scientists in conjunction with international groups and are biogeochemically consistent. As biogeochemistry is linked to sediment properties a verification survey on sediment texture and	Appendix 1b

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			associated properties in the mine area to check/confirm the Bremner 1978 and Rogers 2008 data will be conducted.	
Jessica Kemper (African Penguin Conservation Project)	03-02-2012 (via e-mail)	**Specialist report: Benthos (N. Steffani)** This report seems to be well written. The conclusions highlight the need for better baseline data and the necessity of re-evaluating and verifying the current assessment, and emphasize the risk of potential cumulative impacts.	**Noted.**	N/A
Jessica Kemper (African Penguin Conservation Project)	03-02-2012 (via e-mail)	**Specialist report: Jellyfish (M. Gibbons)** This report seems to be well researched.	**Noted.**	N/A
Jessica Kemper (African Penguin Conservation Project)	03-02-2012 (via e-mail)	See list of references listed by J. Kemper used in her commentary report on the Draft EIA Report.	**Noted.**	N/A
Mi Feng	06-02-2012 (via e-mail)	The scoping report and impact assessment report are in fact the same and you are aiming to submit the Scoping report as a Full EIA- which is simply not acceptable in terms of Namibia's legislation. The impact on the environment, health and other jobs (fishing/tourism) has not been adequately discussed in these reports and this is an unacceptable way of doing business in Namibia. I thank you for your serious consideration of this aspect and revision of what you are doing.	**Noted.** This statement is incorrect. In accordance with the defined process the scoping document provides a record of the proceedings of the six stakeholder engagement sessions. The draft EIA report is an entirely different document besides containing a summary of the scoping report contains, a detailed project description, overview of the potentially affected environment, four specialist consultants' reports, the assessment of the potential	Entire report

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			impacts including mitigation measures and the environmental management plan. Since the mining – dredging operation is planned to involve a single vessel it was decided to undertake the socio-economic assessment of this aspect as part of as a single comprehensive socio – economic study of the entire project, which will be included in the terrestrial EIA. However, it was decided subsequently to include a socio-economic study focusing on the marine environment, primarily on the fishing industry.	
NatMIRC (MFMR)	07-02-2012 (via e-mail)	The tight timeline of six months to submit an EIA clearly influenced the quality of the report submitted as draft EIA, as it is impossible to conduct a complete EIA for an activity of that nature, which is the first in the world, within six months. This development is the first of its kind in the world and the potential impacts on the marine ecosystem and fisheries need to be clearly identified before the project can go ahead. This is not possible within a six month period as very little data exists from the MLA. There is at present no previous experience worldwide with such a project at this scale and very little biological and ecological information is available in the MLA (with the exception of commercial fishing).	**Noted.** The company is compelled to comply with the conditions of the Mining Licence. In the course of following the prescribed processes, the specialists are able to address more fully some aspects of their studies which will be updated in the FINAL EIA/EMPR that will also include the recommended field programme to verify their assessments of the potential impacts prior to commencement of dredging.	Entire report
NatMIRC (MFMR)	07-02-2012 (via e-mail)	During the stakeholder meetings the external reviewer has downplayed some of the concerns raised by public and authorities (his responses are noted in the minutes of the meetings). This clearly shows that he does not act	**Noted.** The CSIR is a highly reputable, qualified and experienced agency and in terms of the independent appointment and brief, the External Advisor is free and entitled to	Scoping report

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		independent of the EIA team or the proponent and therefore should be replaced by an independent external reviewer.	question or comment on opinion offered by both the client and the stakeholders where considered appropriate. At the stakeholder meetings there were occasions when the external reviewer questioned some of the assertions made in order to ensure the issue(s) were seen in perspective. The assertions questioning the independence and credibility of the Independent Reviewer are therefore rejected. NMP is confident that the external reviewer is functioning in compliance with the terms of reference of his appointment. (These are detailed in the scoping report).	
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Only the draft EIA of the marine component is submitted; no social equity and economic issues are addressed at this stage. The report states, that this is to be addressed together with the terrestrial component of the EIA. In order to make an informed decision, the entire EIA for the project should be completed and submitted to MET-DEA, before any decision is taken. Part of the marine part (e.g. the mooring and pipeline to transport the sediment to the coast) is not addressed in the marine component of the report, even though the possible impacts will be below the high water mark.	**Noted.** Since the dredging operation involves a single vessel, the primarily economic benefit lies within the onshore processing Plant Operations and the socio-economic assessment is therefore incorporated as part of the EIA/EMPR for that operation with the inclusion of the marine works. However, appropriate elements of socio-economic study will be included in the marine EIA. The mining area is remote from the terrestrial component of the project it was deemed appropriate to include the mooring and pipeline in the terrestrial EIA. A specialist study has been commissioned to address issues arising from this project component, this will be	Terrestrial & Marine EIA Ch 5

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			presented in the terrestrial component of the EIA.	
NatMIRC (MFMR)	07-02-2012 (via e-mail)	The specialist studies were commissioned before the completion of the scoping phase, while issues raised during the scoping phase should have been included in the terms of reference for the specialist studies and were not done as a result. Many of the concerns raised by the public and authorities (and posted on the Enviro Dynamics website) have not been addressed at all in the report.	**Noted.** As a consequence of the timelines dictated by the requirements of the Mining Licence, it was decided to commission the specialist studies with the proviso that the terms of reference could be amended as a result of issues raised during the scoping process. Any outstanding concerns/issues will be addressed and provided in the FINAL EIA/EMPR report, which includes this document / Appendix.	Final EIA-EMPR (entire)
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Although many issues were identified during the stakeholder participation those need to be addressed through *in situ* studies as very limited data exists for the mining area, apart from the benthic study, no additional field studies have been conducted for the EIA process. Both the marine benthic specialist study and the water column study recommend that more studies need to be done before impacts can be assessed with certainty as a result these studies need to be done for the EIA.	**Noted.** The FINAL EMPR/Environmental Management Plan has been amended to include a field investigation programme to be completed prior to commencement of dredging to verify the Specialist's opinions and assessments of the potential impacts and to establish appropriate baselines for monitoring where possible or relevant.	Entire report Ch 8
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Non commercial fish species (except gobies and jellies) are totally neglected, despite the fact that Namibia is implementing the ecosystem approach to fisheries and that these species play a key role in our marine food chain and ecosystem.	**Noted.** Jellyfish were considered more from the perspective of a potential problem for the operation of the dredger, e.g. blocking engine intakes. The focus of the fish study was on the potential impact of	Appendix 1a

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			the dredging operation on the commercial fishery both directly in terms of excluding fishing from the MLA and on resource itself. As correctly suggested the species assemblage impacted is greater than just the target commercial species. In this context the "biodiversity" impact component considered all species reported in the fisheries surveys. This is the information made available to the fisheries assessment team – however no alternative data were provided on bycatch and minor species (such as consolidated Observer reports on minor species). The assessment team relied on the species lists in the trawl surveys that were provided (see annexure 5). Apart from the species lists there are no biomass estimates of the many minor species know to the authors – the assessment team will request information on the trophic modelling being done by the NatMIRC scientists assuming that these estimates form the basis for the ecosystem approach to fisheries being applied by Namibia. The assessment team will also request details of the EAF implementation in Namibia so that the impact of the mining on this strategy can be objectively assessed.	
NatMIRC (MFMR)	07-02-2012 (via e-mail)	**Fisheries, mammals and seabirds specialist study:** The literature cited is outdated and recent literature with new insights is often neglected. Examples: Conservation status of birds is outdated, Crawford's (1987) hypothesis on sardine not spawning in the central area is outdated and proven wrong (e.g. le Clus 1990, 1991; Kreiner 2011).	**Noted**. This point is valid and the section will be rewritten for inclusion in the final EIA. The text of the specialist study in the FINAL EIA/EMPR will be revised in using the latest available published information	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Not all the ichthyoplankton data submitted by MFMR was used. The data of the mesopelagic survey (2003), one of the few surveys that covered the area south of Walvis Bay was not included in the desk top study.	**Noted.** The mesopelagic data will be included in the final EIA- this survey was reviewed but at the time was not considered to add value to the assessment.	Appendix 1a
NatMIRC (MFMR)	07-02-2012 (via e-mail)	The absence of data is often presented as no fish/no fish eggs being present in the area.	**Noted.** Certainly absence of data does not imply zero fish or eggs etc. The revised report will include appropriate text to reflect the uncertainty with respect to the nature of the sampling methods and associated variance.	Appendix 1a
NatMIRC (MFMR)	07-02-2012 (via e-mail)	It is shown that sardine spawn more in the areas off Walvis Bay in the 2000s than in the 1980s, i.e. a southern shift in preferred spawning area, possibly due an increase in water temperature (Kreiner *et al*. 2011). This might be the case for other species as well so research needs to be done to confirm what spawning takes place in the mining area, as other species might also have shifted their spawning activities to more southern areas.	**Noted.** This may be the case for other species – however it poses a fundamental question relating to fish stocks, recruitment, adaptation and changes in the environment. This is a broad issue that should be addressed on a fisheries scientific level, not specifically in the MLA.	N/A
NatMIRC (MFMR)	07-02-2012 (via e-mail)	The impacts of the mooring point, pipeline and possible plume development at that position on the biota are not assessed.	**Noted.** The mining area is remote from the terrestrial component of the project it is deemed appropriate to include the mooring and pipeline in the terrestrial EIA. A specialist study has been commissioned to address issues arising from this project component.	Terrestrial EIA
NatMIRC	07-02-2012	Statements like "*significant impact*" need to be supported by data, e.g. significant impact on monk	**Noted.**	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
(MFMR)	(via e-mail)	trawling. What is significant?		
NatMIRC *(MFMR)*	07-02-2012 (via e-mail)	Impacts on all fisheries should also be evaluated socio economically (e.g. if 13% of the monk catches are in the initial mining areas, and thus cannot be caught in future, what are the economic and social implications?).	**Noted**. We estimated the % of catch lost in the "Mine Site" this included the whole of the mining lease area and extending out to the <25 km zone. The Tables will be adjusted to clarify see also Table 1 and equations 1 and 2. We will produce additional tables that clearly outline the proportional estimates for catch, effort and vessels in the different zones. Note also that we will also provide a clear rationale why we used the 25 km area as our key area. This relates to the vessels that operate in the area, their trawl times and likely extent of operations in the area – this we must do in lieu of having actual start and end positions of trawls. This aspect will be included as part of as a single comprehensive socio – economic study of the entire project, which will be included in the DRAFT EIA/EMPR for the land based beneficiation Plant operations.	Appendix 1a Ch 5 Terrestrial EIA
NatMIRC *(MFMR)*	07-02-2012 (via e-mail)	The report mentions that the MLA is a relatively small area, but in fact the MLA covers 2233 km^2.	**Noted.** Relative to the Namibian fishing zone (EEZ) the MLA area is small – we shall correct the context where appropriate. The MLA covers 2233 km^2, within which three target mine areas are identified – SP-1 & SP-2 each of 176 km^2, and SP-3, 66 km^2. From this 418 km^2, 3 km^2 will be dredged, this translates to 60 km^2 for the life of the mine.	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
NatMIRC (MFMR)	07-02-2012 (via e-mail)	All calculations should be made on the areas of the total MLA not on individual initial mining areas.	**Noted.** Calculations relating to fisheries were made for the "mine site" as defined in the text of the fisheries report. The primary area considered to impact each fishery was inclusive of the MLA outwards to the 25km buffer border.	Appendix 1a
NatMIRC (MFMR)	07-02-2012 (via e-mail)	It should be clearly stated that hake surveys are not conducted during peak spawning time, thus gonad data cannot be used to make conclusive statements on spawning activities.	**Noted.** There is considerable uncertainty relating to spawning periods for hake in Namibia – more specifically in this case, that of *M. capensis*. As survey data provide the most reliable scientific estimates of gonad stage, these are naturally the best available data for Namibia. Caveats shall be included in the text that the data provided are best estimates and may not reflect the peak spawning periods. Hake spawning activity will be based on publications as well (Sundby *et al* 2001, Sundby *et al* 1998, Gordoa *et al*; 2006, Kainge *et al* 2007, Burmeister 2001), and historical ICSEAF data (Assorov and Berenbeim 1983, Punt *et al* 1992) only.	Appendix 1a
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Stations on the hake and monk surveys are fixed and may not fall into MLA – i.e. no data on hake might be available which does not mean that there is no hake. Actual stations of the hake and monk surveys need to be plotted in relation to the mining area in order to get a clear picture on what data is available.	**Noted.** This is in fact done – the plots produced reflect the data provided to the fisheries assessment team – it is clear that the survey transects may not coincide with the MLA.	Appendix 1a
NatMIRC	07-02-2012	The external reviewer (P. Morant from CSIR) was also a consultant for this specialist study and thus his	**Noted.**	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
(MFMR)	(via e-mail)	independence is questionable.	The external reviewer is not listed as an author of any of the specialist studies. However, he did provide some data on vertebrates other than fish to the fish & fisheries study. The CSIR is a highly reputable, qualified and experienced agency as is the External Advisor who is free and entitled to question or comment on opinion offered by both the client and the stakeholders where considered appropriate. The assertions questioning the independence and credibility of the Independent Reviewer are therefore rejected. NMP is confident that the external reviewer is functioning in compliance with the terms of reference of his appointment full details of which are provided in the scoping report.	
NatMIRC *(MFMR)*	07-02-2012 (via e-mail)	The EIA only includes commercial fish and jellyfish in the biodiversity index, no other species, and not even non commercial fish species.	**Noted.** This is not correct – Fig 47 and appendix 1a-5 shows that up to 150 species were included in the counts. These data were taken from species records in the pelagic, monk and hake surveys. These data were included to demonstrate the potential to use the current survey data to establish a baseline for the MLA.	Appendix 1a
NatMIRC *(MFMR)*	07-02-2012 (via e-mail)	It is stated that trawling for hake is highly unlikely to be affected (pg 45). This area is regularly fished by hake	**Noted.** 5.03% of the total hake trawl catches for the years 2004 –	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		trawlers. What is the "unlikely" based on?	2009 were taken from Mine Site Area (which includes SP-1, SP-2 and SP-3, the whole of the MLA and extending outwards to the 25 km buffer zone around the MLA). Also we noted that for hake trawling it is only SP-2 in which fishing is likely to be impacted. Note also that hake trawling can still occur beyond the determined safety zone when mining is active – our % calculations were in fact very conservative and assume that fishing is impacted from the MLA outwards to the 25 km reference point. The actual historical fishing in SP-2 is very small. For clarity we will revise the estimates to reflect actual catch impacted in each of SP 1-3 as well as outward to the 25 km buffer.	
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Extent of the plume is stated to be 500 to 1500 meters. On what is this statement based?	**Noted.** Detail provided in revision	Appendix 1b
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Impact of plumes will be low provided it is contained in the mining area. How do you contain the plume in the mining area?	**Noted.** We do not make this statement, plumes will dissipate but, depending on where the dredge track is in relation to the set mining area it is possible that they may extend outside of this. The main focus in the assessment has been on areal extents, not specific areas.	Appendix 1b
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Due to the northward current it is possible, but unlikely that the impact is transported northwards! The speed of the current is 29 cm/s. What does possible but unlikely mean and what is this statement based on?	**Noted.** We do not make this statement. Surface flows in the mining area appear to be north-west while subsurface they are poleward. Flows are likely to be variable however.	Appendix 1b

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Assessment does not consider the impact of dredging on the bottom but rather compares it to bottom trawling, which is totally different.	Dredging removes material and is not replaced – so it has a total impact on all communities. Certainly trawling does have an impact, it is generally conducted in areas suitable for trawling – flat soft, muddy, sandy type substrates (similar to that to be dredged). It does damage epi-fauna and in some instances may impact below the surface (superficially) but does not "plough" (except for eg. Scallop fisheries) and in some instance alters species composition. The critical thing is that fishing has had an impact and has created an altered environment over time which makes it difficult to accurately determine a baseline. Dredging will have a much more long-term effect as it physically removes substrate and associated flora and fauna. However, dredging is generally a 'once off' impact, whereas trawling is a repetitive impact. Further, trawling can have a greater direct spatial scale of impact on the benthos	Appendix 1
NatMIRC (MFMR)	07-02-2012 (via e-mail)	The report does not consider the impact of removal or disturbance of naturally occurring bacteria on the ocean bottom.	**Noted.** The water quality report does rate the impact in terms of predictions on effecting diffusive flux of H_2S to the water column. According to sediment texture data for the mine area and van der Plas *et al* (2007) measurements for a range of sediment textures H_2S flux is predicted to be low and therefore, if bacterial mates are present and are removed, re-establishment of mats may take some time. But, H_2S flux is predicted to remain low. Removal or modification of bacterial mats may have implications for	Appendix 1 b & 1 c

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			associated meio/micro / macro benthos but it is not evident that these are known or understood. TSS concentrations are below chronic limits, DO perturbations are low to non-measurable on any realistic spatial or volume scale (2.5x2.5 km^2, 2.5x2.5x0.05km^3), area is variable, low DO and H_2S occur naturally and bottom waters are turbid naturally. Surface discharges will occur in lower portion of UML anyway due to shunt pipe to 10-15m depth.	
NatMIRC (MFMR)	07-02-2012 (via e-mail)	The report states that the mortality of hake is unlikely and that the impact on the ecosystem is expected to be low. No quantitative evidence is provided.	**Noted.** We used the relative abundance of juvenile hake from the surveys to quantify / extrapolate into the MLA area. We do not however quantify mortality of the dredging operation on hake (this would require underwater screening / video which I would think is not possible). What we do know is that hake are a mobile and fast swimming species that migrate to feed and spawn. It is reasonable then to assume that hake would move away from danger and or intrusions into their habitat. Unlike monk that are more sedentary and are more likely than hake to be sucked up by the dredging operation. As hake mortality is unlikely it is reasonable to assume that for this species at least, no impact on the trophic ecology is likely i.e. a low impact on the ecosystem as a whole. It would be useful if NatMIRC could outline their trophic models for the Benguela to put the potential impact on the trophic ecology of the planned dredging in perspective – i.e. relative proportions expected of fishing,	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			natural, seals mortality and other top predators	
NatMIRC (MFMR)	07-02-2012 (via e-mail)	The report states that the removal of the substrate for monk will have a long term effect of 15 years! Is the industry supposed to stay out of the mining area for 15 years?	**Noted.** The tables provided considers a long-term effect as 15 years – in that regard we are of the opinion that the removal of a 3m substrate layer will have a long-term effect on the monk fishery as recovery of substrate which has been created over millions of years is unlikely to be achieved in relatively short space of time i.e. 15 years at least. This obviously would not preclude fishers from fishing the ground under recovery, but in our opinion again, re-colonisation will take a long time before the environment is suitable for monk. However, monitoring will be undertaken to assess the actual rate of functional recovery of the benthos. NMP will give consideration to accommodating the monk fishery in the mining area provided the safety of the dredging operation is not compromised (see the EMP). An exclusion zone would initially apply to a mining target area of 22 x 8 km and not to the mining licence area.	Appendix 1a Ch 8
NatMIRC (MFMR)	07-02-2012 (via e-mail)	The report states that an unlikely impact on pelagic fish? No studies are done, so what is this statement based on?	**Noted.** The current fishery does not overlap with the MLA and is therefore unlikely to impact on the pelagic fishery. The biomass estimates for pelagic species are extremely low and the distribution of fishing effort suggests the stocks are predominantly north of the MLA. This is the basis for assuming impact on pelagic stocks is unlikely. To further	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			substantiate this we can request the biomass (acoustic) estimates of the small pelagic surveys with spatial biomass estimates.	
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Removal of gobies will have a moderate impact on the whole ecosystem. No ecosystem studies were conducted to support this conclusion.	**Noted.** Again there is a need to have modelling research that demonstrates the relative importance of bearded gobies. In the absence of any quantifiable information our response was guided by the NatMIRC comments that suggested gobies are a major food source for Namibian commercial fish species. This sentence will be rephrased	Appendix 1a
NatMIRC (MFMR)	07-02-2012 (via e-mail)	No mitigation measures for any of the impacts are proposed.	**Noted.** With the exception of the potentially accommodating the monk fishery no practicable mitigation measure could be determined.	Appendix 1a
NatMIRC (MFMR)	07-02-2012 (via e-mail)	It is stated that spawning hake are not commonly found in the area, hake recruitment is therefore not expected to be significantly impacted. Gonads are only inspected during surveys, which are done once a year outside the spawning time. No gonad inspections are done on catches – so there is no data to support this statement. What about eggs and larvae? Are they found here? There is very limited data, so we simply don't know.	**Noted.** We use only the available information and certainly the survey data have variance. We stress that our information is based on the best available data provided by NatMIRC – the survey strategy is a pre-determined strategy followed year after year to permit relative comparisons of biomass and other biological information collected by MFMR scientists. Elevated concentrations of hake eggs were identified between Cape Frio and Rocky Point, off Palgrave Point, between Cape Cross and Sandwich Harbour, and to a lesser extent near the mining licence area off Hollamsbird Island (Sundby *et al* 2001).	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			The horizontal distribution of all hake larvae shows their occurrence is more southerly than the eggs and the largest (oldest) larvae were more abundant inshore along the central parts of the Namibian coast from Conception Bay to Palgrave Point. (Sundby *et al* 2001).	
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Impact on monk will be high but no mitigation measures are put forward.	**Noted.** The impact on the monk fish in the mining path will be high. The significance of the dredging operation on the monk resource requires at least that the mortality in the MLA be modelled i.e. the removal of a portion of the stock. The consultants experience however with similar research is that it is unlikely to be conclusive, particularly as the area impacted relative to the total distribution and abundance of monk is low. Nevertheless, NMP will give consideration to accommodating the monk fishery in the mining area provided the safety of the dredging operation is not compromised (see the EMP)	Appendix 1a Ch 8
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Potential spawning site for small pelagic fish - impact only moderate. With our low small pelagic biomass any possible impact on spawning activities will be high.	**Noted.** Current abundance levels of small pelagics are low (compared to historical levels) – certainly any marine activity that potentially stresses an already stressed resource is an important consideration. However we assess the situation assuming current stock status and in that regard pelagic fish distribution is likely to only be moderately impacted.	Appendix 1a
NatMIRC	07-02-2012	Unlikely to have significant impact on recruitment of all	**Noted.**	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
(MFMR)	(via e-mail)	species but could impact on hake spawning. Contradicting statements.	There is a clear difference between recruitment and spawning. We use recruitment in the context of recruiting to the fishery. Spawning relates to reproductive state and behaviour	
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Increased turbidity - there is concern that mining operations might have an effect of recruitment of monk and hake. Needs to be studied.	**Noted.** Increased turbidity and the impact it has on the survival of ichthyoplankton is a complex biological issue than can only be addressed through controlled scientific experiments. In the Namibian context there are seasonal changes in water quality, upwelling events, turbidity associated with river run off, increased levels of anthropogenic inputs etc. all of which may impact ichthyoplankton (effects may even be beneficial). Our reference to this issue was made to reflect that it is a concern and is difficult to quantify.	Appendix 1a and 1b
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Conservation status of most seabirds is wrong.	**Noted.** The relevant sections on seabirds will be revised using the latest available published information.	Appendix 1a
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Appropriate monitoring needs to be done by proponent, not MFMR as recommended by the study.	**Noted.** Since the area in question falls between established MFMR monitoring lines it is reasonable to expect that this gap will be filled by MFMR rather than the project proponent. There are two aspects to monitoring – making best use of established monitoring programmes and surveys to	Appendix 1a Ch 8

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			monitor any dredging and a dedicated programme targeting key concerns associated with the dredging. In the former case the responsibility will be MFMR. In the latter case the client and the responsible ministry and research organization will need to attend to this	
NatMIRC (MFMR)	07-02-2012 (via e-mail)	**Water column specialist study:** Much of the physical & chemical background information refers to old & outdated references. Some newer or missing references, specifically on current measurements and water column properties are Gründlingh (1991, surface currents drifter study), Lass & Mohrholz (2005), Mohrholz *et al* (2007), Monteiro *et al* (2006, GRL).	**Noted.** The comment is largely correct but the intent was to provide a broad understanding of the system rather than an in-depth analysis of, e.g. the possible interactions of the water masses supplied to the continental shelf area from upwelling centres, their seasonal interactions and contributions, along with sedimenting POM, to hypoxia/anoxia in shelf waters (Monteiro *et al* 2006, 2008). Likewise we attempted a more generic level description of H_2S / methane dynamics and roles of thio-bacteria rather than trying to distil the highly variable patterns of fluxes and associated development or not of bacterial maps presented in the very good publication by Bruchert *et al* 2009.	Appendix 1b
NatMIRC (MFMR)	07-02-2012 (via e-mail)	No modelling with actual current speed and directions in the mining license area and taking the different seasons into account has been done – the CSIR modelling was done for an area farther south and closer inshore (p.39) and thus an area of quite different environmental conditions in comparison to the MLA. Thus all the impacts are based on assumptions or studies done in other areas with other baseline conditions. In situ data	**Noted.** We do not think that modelling is justified. The primary drivers of dredge plumes are sediment properties, water column density distributions and advection. The existing information allows generalization of plume behaviour in terms of water quality thresholds but not drift directions. The latter are not necessary if water quality thresholds are not compromised in the far field as is considered to	Appendix 1b

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		on current velocity ranges, sediment types, biogeochemical properties etc. needs to be collected and site specific modelling studies to be done over the whole mining license area prior to commencement of the mining operation.	be the case here. The set-up of a reliable model would probably require some years of current metering and at least thermistor deployments. Even then it is doubtful that a full and totally robust plume distribution will be achieved because of coefficient selections and model cell averaging.	
NatMIRC (MFMR)	07-02-2012 (via e-mail)	The sediment type identification refers to some of the benthic grab sampling. However, proper cores should be collected covering the whole MLA so that the varying/changing sediment types over the whole MLA are noted and the plume dynamics correctly modelled & applied to each area. Question: Where do the 40%Mud / 50% Sand samples originate from that are shown but not annotated in Fig 3-10, p.29?	**Noted.** The whole MLA is not going to be dredged (see project description) so sampling at the suggested scale is not appropriate to the assessment. We believe that the congruency between the Bremner (1978) and Rogers (2008) sediment texture data and the turbulence maxima derived by Monteiro *et al* (2005) is a strong indication of relatively low mud content. However, as this is central to the evaluation of biogeochemical risks in the assessments we have recommended an verification survey to check the distributions in the proposed mining areas in the horizontal (grabs) and vertical (gravity corers). This should be conducted prior to commencement of dredging.	Appendix 1b
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Most impacts are rated as low/medium, although the impacts are based on assumptions and not on data. Almost all mitigation actions proposed are none.	**Noted.** Verification surveys are to be undertaken With respect to this project, besides potentially accommodating the monk fishery no practicable mitigation measure could be determined.	Appendix 1 a & 1 b

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Thus the hydrogen sulphide levels are assumed to be low (e.g. p.42 & 46) and thus effects are predicted to be low. However, the actual hydrogen sulphide concentrations in the surface sediments over the MLA need to be determined before any predictions of the impacts are made. For instance, sulphide bacteria were found in the MLA during the RV Merian survey in October 2011 thus indicating the presence of sulphide in the sediments.	**Noted.** Although we had asked MFMR for information relating to the mining licence area, we were not supplied any data. It would be valuable to see these data. We do not make any claims that bacterial mats are not present but, from sediment properties, flux measurements off Walvis Bay and probable POM supply it is considered that if they are present the sustaining H_2S flux will be low. This is a pivotal argument in the water quality (and benthos) assessments and will be the subject of verification surveys prior to commencement of mining.	Appendix 1 b & 1c
NatMIRC (MFMR)	07-02-2012 (via e-mail)	The cumulative effects of phosphate mining should be assessed (section 4.6, p. 47) based on increasing the area to cover whole MLA and possibly expansion to other areas. This does not have to wait on a prior analysis effects of demersal trawling.	**Noted.** The proponent has no plans to mine the 'whole' MLA. The MLA boundaries are set by MME and thus the area may be unrealistically large, therefore the utility of assessing mining the full area is questioned. The potential cumulative impacts of a number of separate mining operations and other marine activities (e.g. trawling) on the marine environment should be addressed by the appropriate authorities. In our fisheries assessment we have used a buffer zone – so the impacts on the fishing industry effectively include each of SP 1-3 as well as the MLA and then outwards to the 25 km area. The fishery impacts are not easy to do on a very refined scale due to data limitations, so our	Appendix 1a, 1b, 1c.

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			impacts therefore have to be on a relatively broad scale. In other expert reports it is easier to focus on the exact area to be mined – this is not the case with fisheries, in particular mobile species. With respect to demersal trawling, we completely disagree. A major concern is disturbance to the surficial sediment layers, and both fishing and mining does this. But somehow the effects of fishing remain largely unassessed. The only agency capable of doing this, and should be doing this under the adopted EAF, is MFMR but they either have no data here or are not reporting it.	
NatMIRC (MFMR)	07-02-2012 (via e-mail)	None of the impacts are fully described, how they or could they impact the water column, benthos, fisheries and how much. The impact discussion seems very brief, summarized sentences or rather statements, thus also the lack of mitigation measures.	**Noted.** The Water Quality report (appendix 1b) makes it clear that there are no predicted significant impacts to describe. Regarding fisheries we do state the impact – this would be mortality/ displacement etc. We also state that due to the nature of the dredging operation, mitigation is not in our view possible for most impacts identified.	Appendix 1b
NatMIRC (MFMR)	07-02-2012 (via e-mail)	A possible mitigation would be to limit operations to times when currents are weakest to limit impacts (of course current studies incl. seasonal variability need to be done).	**Noted.** The concern appears to be about transporting effects from the mine area to some distant 'sensitive' area. Although variable the main surface flow appears to be NW while subsurface the flow is polewards and, given the identified depocentres slightly offshore. No data /information has been made available indicating unique	Appendix 1b

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			sensitivities. Further all flows have associated turbulent mixing usually scaled to velocity. So the advection dilutes the risk factor that may generate adverse effects anyway.	
NatMIRC (MFMR)	07-02-2012 (via e-mail)	The mining plans to remove 5.5 million tonnes annually, this will lead to a lot of suspended material in the water column including phosphates, nitrates, etc. These increased nutrient concentrations need to be quantified (p.41).	**Noted.** The concern seems to be about the potential nutrient content of pore water. The phosphate ore is insoluble in seawater.	Appendix 1b
NatMIRC (MFMR)	07-02-2012 (via e-mail)	The marine EIA does not cover the pumping of the sediment to land via the offshore moored pipeline although any spillage there would affect the marine environment. The marine component of the EIA should therefore look at impacts on the nearshore marine environment between Walvis Bay and Sandwich Harbour.	**Noted.** The mooring and pipeline are included in the EIA/EMPR for the land based benefaction plant operations of the terrestrial EIA. A specialist study has been commissioned to address issues arising from this project component.	Terrestrail EIA
NatMIRC (MFMR)	07-02-2012 (via e-mail)	According to the Environmental Act the precautionary approach should be followed if there is insufficient or no data such as on biogeochemical properties and the plume characteristics of the MLA. These should be collected before approval of the EIA and commencement of mining rather than only at the onset of mining as part of the EMP.	**Noted.** The precautionary approach is generally invoked when the scale and intensity of the potential impacts are of major significance. In this proposed project the scale of the potential impact over the life of mine is considered by the specialist to be low when viewed in the context of the environment in which the ore body occurs. Therefore it is reasonable to include a programme of field work to verify the assessed impacts to be completed prior to commencement of dredging as part of the environmental management programme in the final EIA. The environmental regulations require a new environmental contract to be issued after a 3-year period. This provision	Appendix 1a, 1b, 1c, & 1d. Ch 8

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			allows the managing authorities the opportunity to review the effectiveness of the monitoring measures as proposed in the EIA / EMP. Specialists should, and generally do, follow a conservative approach when faced with incomplete knowledge or evidence. The relevant government authority is the mandated institution responsible for evaluating the EIA and applying other considerations (such as political and social aspects and the precautionary principle).	
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Are there other ways of dredging or sediment return that could be investigated that might reduce the plume effect? Please explore and present.	**Noted.** Short of preventing dredger overspill there is no practical measure that would limit plumes aside from discharge well below the surface which is already to be implemented by the dredging company. Zero overspill would require the dredger to contain its 40% slurry for transport to shore (load would be 60% water). This would then have to be discharged to shore creating a handling problem there anyway apart from being grossly inefficient. Comprehensive review of a full range of recovery options has been completed with the current system being recommended by specialists ad the most appropriate. In the past, discharge of spill from diamond mining vessels was made below the water line to increase dilution. In the proposed system, the dredge overspill outlet is at a depth of approx 13 m and is further	Appendix 1b. Ch 3

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			dispersed by the wash from the vessel propellers.	
NatMIRC (MFMR)	07-02-2012 (via e-mail)	**Marine benthic specialist study:** Additional studies are recommended in this report and have to be included in the final EIA, before the impacts can be evaluated.	**Noted.** It is reasonable to undertake the field work to verify the assessed impacts after submission of the final EIA but before mining actually commences. The Environmental Management Act requires a new environmental contract to be issued after a 3-year period. This provision allows the managing authorities the opportunity to review the effectiveness of the monitoring measures as proposed in the EIA / EMP	Ch 8
NatMIRC (MFMR)	07-02-2012 (via e-mail)	**Jellyfish study:** It is unclear, why there is an extensive report on jellies and other non commercial species are totally neglected.	**Noted.** Jellyfish were considered more from the perspective of a potential problem for the operation of the dredger, e.g. blocking engine intakes	Appendix 1d
Estelle van Dyk (Etosha Fishing)	07-02-2012 (via e-mail)	**Par2.7.1 International Guideline for Marine Mining:** a) The code is in fact not under development, but was first adopted in 2001, and was reviewed recently. b) Review started in 2008 c) Revised version was adopted Sep 2011. d) Originally adopted and developed by mining industry itself to guide industry to act in an environmentally responsible due to the lack of environmental legislation covering marine mining. UNLCOS obliges signatory countries to preserve and protect the marine environment. UNCLOS have been promulgated through the MARPOL agreement of	**Noted.**	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		which Namibia is a signatory. e) Serves to help the industry along operational guidelines and principles to level the playing field so that some companies may not be placed in an unfair competitive advantageous position due to lack of environmental legislation covering marine mining in exclusive economic zones - as is the case in Namibia. f) Refers specifically to the identification of environmental risks and uses as an example the risk assessments as proposed by the International Seabed Authority (Recommendations for the guidance of the contractors for the assessment of the possible environmental impacts arising from exploration for polymetallic nodules in the NoArea.)		
Estelle van Dyk (Etosha Fishing)	07-02-2012 (via e-mail)	Environmental baseline studies: 1. To be conducted by mining company 2. Data must be collected (not a desktop study) **(a) For physical oceanography;** i. Collect information on the oceanographic condition, including the current, temperature and turbidity regimes, along the entire water column and particularly near the seafloor; ii. Adapt the current measurement programme to the topography and regional hydrodynamic activity in the upper water column and on the sea surface; iii. Measure the currents and particulate matters at the depth of the forecasted discharge during the testing	**Noted.** The Proponent is happy to provide and share with both MFMR and the fishing industry any environmental data gathered during the monitoring of the operations in ML170.	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		of collecting systems and equipment; iv. Measure the particle concentration to record distribution along the water column;		
Estelle van Dyk (Etosha Fishing)	07-02-2012 (via e-mail)	**(b) For chemical oceanography:** Collect information on the water-column chemistry, including the water overlaying the nodules;	**Noted.**	Entire report
Estelle van Dyk (Etosha Fishing)	07-02-2012 (via e-mail)	**(c) For sediment properties:** Determine the basic properties of the sediment, including measurement of soil mechanics, to adequately characterize the surficial sediment deposits which are the potential source of deep-water plume; sample the sediment taking into account the variability of the sediment;	**Noted.**	Entire report
Estelle van Dyk (Etosha Fishing)	07-02-2012 (via e-mail)	**(d) For biological communities:** i. Gather data on biological communities, taking samples representative of the variability of bottom topography, sediment characteristics, abundance and types of nodules; ii. Collect data on the seafloor communities specifically relating to megafauna, macrofauna, meiofauna, microfauna, and demersal scavengers; iii. Assess pelagic communities; iv. Record levels of trace metals found in dominant species; v. Record sightings of marine mammals, identifying the relevant species and behaviour;	**Noted.**	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		vi. Establish at least one station to evaluate temporal variations;		
Estelle van Dyk (Etosha Fishing)	07-02-2012 (via e-mail)	**(e) For bioturbation:** Gather data of the mixing of sediments by organism;	**Noted.**	Entire report
Estelle van Dyk (Etosha Fishing)	07-02-2012 (via e-mail)	**(f) For sedimentation:** Gather data of the flux of materials from the upper water column into the deep sea.	**Noted.**	Entire report
Estelle van Dyk (Etosha Fishing)	07-02-2012 (via e-mail)	**Monitoring during and after testing of collecting systems and equipment.** Also note that while the baseline study is conducted, there are specific requirements to preserve the environment as well as the kind of information to be supplied to authorities during the baseline study. Dredging is specifically mentioned as an activity for which a baseline study is required.	**Noted.**	Entire report
Estelle van Dyk (Etosha Fishing)	07-02-2012 (via e-mail)	During public meeting it was specifically requested that a baseline study be conducted by the proponent – this was not done.	**Noted.** A baseline benthic macrofaunal survey was undertaken and the findings reported in Appendix 1 c off the Draft EIA.	Appendix 1c Ch 8
Estelle van Dyk (Etosha Fishing)	07-02-2012 (via e-mail)	The definition of the impact criteria are construed in such a way as to downgrade even the most serious permanent damage to an impact of medium significance	**Noted.** The impact assessment criteria are based on those employed widely in southern Africa for the assessment of impacts.	Ch 7

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
Estelle van Dyk (Etosha Fishing)	07-02-2012 (via e-mail)	The report is conspicuously lacking in data to support the assumptions made. Much of it is based on desktop studies, or on data gathered in diamond mining areas where the conditions are not the same.	**Noted.** The EIA with the exception of the macro benthic fauna survey is based on publically available information or information provided from MFMR or Fishing Industry. In addition, the work programme and detailed criteria for a verification survey and subsequent long term monitoring surveys are included in the environmental management plan within the FINAL EIA/EMPR.	Appendix 1 Ch 8
Estelle van Dyk (Etosha Fishing)	07-02-2012 (via e-mail)	Many of the risks identified that have been classified as having low significance have confidence levels of low to medium or medium due to lack of data supporting the assumptions made. a. Fisheries: 60 % b. Water column: 54 % c. Benthos 77 %	**Noted.** Yes this is true – the nature of the data (frequency, quality, spatial distribution etc) lowers the *confidence* levels due to uncertainty when extrapolating to the MLA. However, This is not unusual given that, in most EIAs, circumstantial evidence is used to predict impacts. That is why a verification survey has been recommended. The work programme and detailed criteria for verification surveys to be completed prior to dredging and subsequent long term monitoring surveys are included in the environmental management plan within the FINAL EIA/EMPR.	Appendix 1 Ch 8
Estelle van Dyk (Etosha Fishing)	07-02-2012 (via e-mail)	The abovementioned Code for Marine Mining is a voluntary code and is mining industry initiated. If NMP prescribed to this code, a different report would have emerged. One cannot help but wonder how seriously committed NMP really is to preservation of the marine environment and if they take into consideration the	**Noted.** The company is a registered member of the International Fertilizer Association and is governed therefore by its codes. In addition the Company is committed to compliance with all of the requirements of the Namibian	Ch 8

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		potentially damaging effects it may have it may have on a flourishing fishing industry which is a world example of sustainable exploitation thanks to measures taken by government to preserve it.	law, adopting international practices and the equator principles. Namibia already has a well established marine diamond mining industry that has been active for over 10 years and has established well defined regulations for the managed for the environmental aspects of this industry. Codes and requirements for EIA/EMPR are adequately covered in the Namibian legislation.	
Estelle van Dyk *(Etosha Fishing)*	07-02-2012 (via e-mail)	Due to the above factors, the EIA must be considered as being inadequate, and can only predict with low to medium confidence what the significance of environmental impact will be. Consequently, mitigation measures suggested as well as the environmental management plan are meaningless. What has been presented in this EIA cannot be relied upon to provide interested and affected parties with peace of mind.	**Noted.** The purpose of the EIA is to rate the impacts and provide sufficient information for managers and decision-makers to make the decisions ultimately. In this regard the EIA is not "inadequate" it needs to rate as best possible the impacts – such as "low" or "medium" etc. This informs the decision makers The Independent External Advisor, CSIR, has been specifically appointed to ensure compliance, quality and due process is followed in every aspect of the EIA/EMPR. The Independent External Advisor has approved the DRAFT EIA/EMPR as well as the FINAL EIA/EMPR document that will now be submitted to MET for assessment.	Entire report
Bronwen Currie (MFMR) NatMIRC (MFMR)	08-02-2012 (via e-mail) 07-02-2012	The criteria used to evaluate "significance" are flawed for the statement made on page 13: "There are presently no identified issues of environmental significance to preclude the dredging of phosphate-enriched sediments	**Noted.** The Independent External Advisor, CSIR, has been specifically appointed to ensure compliance, quality and due process is followed in every aspect of the EIA/EMPR.	Ch 7

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	(via e-mail)	from the Mining Licence Area No. 170." The criteria and significance levels are not credible because in most of the so-called "specialist studies", in situ data were either i) not used, or ii) insufficient statistically to make such a statement. Only after thorough in situ data have been collected and analysed in a scientifically acceptable manner, can credible assessments be made. The reviewer's leniency to the submitted studies is unacceptable.	The Independent External Advisor has approved the DRAFT EIA/EMPR as well as the FINAL EIA/EMPR document which will now be submitted to MET for assessment. The impact assessment criteria used are based without modification on those employed widely by a range of environmental specialists, consultancies and agencies in southern Africa for the assessment of environmental impacts. The specialist studies have been completed by accredited, reputable marine scientists. Specialist appointed include: • Dr Robin Carter • Mr Dave Japp • Dr Nina Steffani • Prof Mark Gibbons The Company is happy to accept their credentials and opinions. The statement is valid because no 'show stoppers' were identified during the entire EIA process based on the expert opinion of the Specialists appointed to complete the range of specific studies. However, in common with many EIAs undertaken in southern Africa there is a paucity of available information on which to base the	

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			assessments. While in the ideal world detailed studies would be undertaken, the time required to undertake these studies would have a severe impact on projects in a developing country. Consequently it is reasonable to proceed based on an assessment of the risks to the environment weighed against the potential benefits of the project, with appropriate environmental management. The Proponent is happy to provide and share with both MFMR and the fishing industry any environmental data gathered during the monitoring of the operations in ML170. The FINAL EMPR/Environmental Management Plan has been amended to include a field investigation programme to be completed prior to commencement of dredging to verify the Specialist's opinions and assessments of the potential impacts and to establish appropriate baselines for monitoring where possible or relevant.	
Bronwen Currie (MFMR) *NatMIRC (MFMR)*	08-02-2012 (via e-mail) 07-02-2012 (via e-mail)	The "**Impact Criteria**" described on p.131 and further in all the specialist studies for "**intensity/magnitude**" are ridiculous. Using the descriptor "environmental functions" for example, intensity registers as "serious" only when "Environmental functions and processes are altered to such extent that they permanently cease"! The descriptors are not appropriate. What exactly – in the marine environment – is meant by the grand term	**Noted.** The impact assessment criteria are based on those employed widely in southern Africa for the assessment of impacts.	Ch 7

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		"environmental functions", when in most studies you are judging only one very small part?		
Bronwen Currie (MFMR) NatMIRC (MFMR)	08-02-2012 (via e-mail) 07-02-2012 (via e-mail)	Many assumptions made from extrapolating data from other areas are wrong*. (*list can be compiled if wished – more details are also given in the comments on the specialist studies).	**Noted.** Since no specific details have been provided we are unable to respond to this comment.	N/A
Bronwen Currie (MFMR) NatMIRC (MFMR)	08-02-2012 (via e-mail) 07-02-2012 (via e-mail)	Recognizing that the mining activity directly disturbs the surface (upper 3 metres) of seabed: there is no detailed biogeochemistry report of this sediment layer or of the directly overlying water column. This is a severe omission: such measurements are expected, and are commonly standard, for both water column studies related to dredging activities, and for benthic studies. The reviewer's leniency to such a gross omission is totally unacceptable.	**Noted.** The specialists' reports called for field verification assessments to be undertaken. The FINAL EMPR/Environmental Management Plan has been amended to include a field investigation programme to be completed prior to commencement of dredging to verify the Specialist's opinions and assessments of the potential impacts and to establish appropriate baselines for monitoring where possible or relevant.	Ch 8
Bronwen Currie (MFMR) NatMIRC (MFMR)	08-02-2012 (via e-mail) 07-02-2012 (via e-mail)	With regard to Chapter 2 "Policy and Legislation" another omission: In the SADC Fisheries Protocol (Namibia signatory) which is accepted as customary international law	**Noted**	Ch 2
Bronwen Currie (MFMR)	08-02-2012 (via e-mail)	THE PRECAUTIONARY APPROACH requires: "in the case of NEWLY PROPOSED PROJECTS, in the absence of scientific certainty that no unjustifiable environmental harm will	**Noted.** The precautionary principle should be brought into	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
NatMIRC (MFMR)	07-02-2012 (via e-mail)	be caused, the proponent is to err on the side of caution", i.e. in favour of the environment. New projects include any projects in the marine environment. This means that the developer must prove the absence of environmental harm. In this case the proposed phosphate mining could not possibly pass this burden of proof.	consideration when decisions are made. Specialists do not make these, politicians / regulators do. Specialists should, and generally do, follow a conservative approach when faced with incomplete knowledge or evidence. This is the pragmatic way to deal with the uncertainties that inevitably arise in EIAs. The precautionary approach is generally invoked when the scale and intensity of the potential impacts are of major significance. In this proposed project the scale of the potential impact over the life of mine is considered by the specialists to be medium to low when viewed in the context of the environment in which the ore body occurs. "The developer must prove the absence of environmental harm" is an admirable but unrealistic requirement. No project can be completely free from creating impacts on the environment.	
Bronwen Currie (MFMR) *NatMIRC (MFMR)*	08-02-2012 (via e-mail) 07-02-2012 (via e-mail)	Chapter 4 "Description of the Environment" is padded with a lot of irrelevant information.	**Noted.** This chapter is designed to provide a general overview of the potentially affected environment and to place the proposed project in its broad environmental context.	Ch 4
Bronwen Currie (MFMR) *NatMIRC*	08-02-2012 (via e-mail) 07-02-2012	Why are jellyfish included in the assessment when many more important ecosystem indicators of relevance could/should have been used?	**Noted.** Jellyfish were considered more from the perspective of a potential problem for the operation of the dredger, e.g.	Appendix 1d

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
(MFMR)	(via e-mail)		blocking engine intakes. Jellyfish, however, were identified as an important component of the ecosystem in the MLA area. It is not necessarily an indicator species	
Bronwen Currie (MFMR) *NatMIRC (MFMR)*	08-02-2012 (via e-mail) 07-02-2012 (via e-mail)	RE fisheries p. 134: where is bullet point "**Disturbance of normal trophic interactions and the general ecosystem functioning**;" adequately addressed? This is very important because of the ecosystem-wide impacts and knock-on impacts (e.g. quality of products) that will be felt by the fishing industries.	**Noted.**	Appendix 1a
Bronwen Currie (MFMR) *NatMIRC (MFMR)*	08-02-2012 (via e-mail) 07-02-2012 (via e-mail)	Re water column: no in situ measurements; all based on extrapolation or assumptions therefore whole report is flawed and unacceptable	**Noted.** *In situ*' measurements would be great to have but, short of running a programme to provide statistically robust water quality distributions in the specific region such data, are not available. Therefore we are compelled to extrapolate from whatever data and information is available. Note that unpublished/non-reported information does not help here as it has not been subjected to scientific review or scrutiny The FINAL EMPR/Environmental Management Plan has been amended to include a field investigation programme to be completed prior to and during dredging to verify the Specialist's opinions and assessments of the potential impacts and to establish appropriate baselines for monitoring where possible or relevant.	Appendix 1 b Ch 8

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			The Proponent is happy to provide and share with both MFMR and the fishing industry any environmental data gathered during the monitoring of the operations in ML170.	
Bronwen Currie (MFMR) *NatMIRC (MFMR)*	08-02-2012 (via e-mail) 07-02-2012 (via e-mail)	Benthos study: several typo mistakes e.g. >0.1mm should read <0.1mm. Assumptions made regarding smaller fauna: as fauna in low-oxygen environments are typically tiny: sampling should be to 300µm and not >1mm. Several animals have been missed in the study. Thioplaca and Beggiatoa are found in the area and were missed: only examination of fresh core samples will provide accurate estimations of benthos, therefore sampling strategy was flawed. Note that recent findings show that sulphide-oxidizing bacteria are far more widely distributed along the Namibian shelf than reported in publications. These bacteria indicate sufficient H2S in the sediment to support them.	**Noted.** 1. The benthic baseline study was not designed to sample the benthos in its entirety, and it is understood that any animals smaller than the sieve size used will be missed. This, however, will also be the case when using a 300 micron sieve. It is correct that in OMZ cores fauna is often found to be on average smaller than in oxygenated environments. On the other hand, at OMZ edges, fauna has also been found to be dominated by megafauna. The baseline study was an initial survey to establish a distribution pattern of macrofauna, while a more detailed verification survey, as recommended in the report, will sample other parts of the benthic community (e.g. meio- and microfauna). In the report, it is also suggested to reduce the sieve size for macrofauna sampling but keeping the >1mm fraction and <1mm fraction (300 or 500 micron - <1mm) separate for comparison with the existing baseline survey. 2. Microfauna (bacteria) were not targeted during the benthic baseline study and therefore there was no sampling strategy to collect bacteria which could	Appendix 1c Ch 8

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			have been flawed. 3. MFMR was asked to provide any information with regard to bacteria distribution in the mining area or vicinity but did not supply any data. Supply of these data would be appreciated. The FINAL EMPR/Environmental Management Plan has been amended to include a field investigation programme to be completed prior to commencement of dredging to verify the Specialist's opinions and assessments of the potential impacts and to establish appropriate baselines for monitoring where possible or relevant.	
Bronwen Currie (MFMR) *NatMIRC (MFMR)*	08-02-2012 (via e-mail) 07-02-2012 (via e-mail)	Ch 8: EMP: several requirements for "pre-dredging studies" pp. 8-14-8-16. These studies are prerequisites for the EIA, not only as a requirement once the project is underway. The listed "pre-dredging" studies for an EMP on these pages are misplaced: such studies must be carried out prior to the project, and be made available for EIA scrutiny.	**Noted.** It is reasonable to incorporate a programme of field work to verify the assessed impacts prior to commencement of dredging as part of the committed work programme to be included in the FINAL EIA/EMPR for submission and evaluation by the MET. The Environmental Management Act requires a new environmental contract to be issued after a 3-year period. This provision allows the managing authorities the opportunity to review the effectiveness of the monitoring measures as proposed in the EIA / EMP.	Ch 8
NatMIRC (MFMR)	07-02-2012 (via e-mail)	Statements in this section chapter EMP, such as "Revise EIA assumptions in context accordingly" are unacceptable.	**Noted.** The fact that the environmental contract (as detailed in	Ch 8

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			the regulations) is subject to a 3-yearly review demonstrates that the authorities recognize that an EIA and, in particular, the EMP are living documents which may be modified as the project progresses.	
Jock Currie (Marine Biologist)	08-02-2012 (via e-mail)	The EIA report is inadequate and flawed in multiple aspects and does NOT provide confidence that the surrounding environment and fisheries resources would NOT be compromised by the proposed dredging activities. The majority of environmental risks identified in the EIA, are assessed with low/low-medium/medium certainty, due to a lack of data or lack of studies on the relevant processes within the immediate vicinity, yet the external reviewer concludes that: "The report provides a clear picture of the proposed project and the potential impacts arising from it. The potential impacts have been assessed based on the best available information and thus the findings can be accepted with confidence." Such conclusions can only indicate to me that the external reviewer ascribes to the reasoning that 'a lack of data proves that there is no reason for concern', which is scientifically flawed and suggests to me a biased and non-objective opinion.	**Noted.** NMP has full confidence in the EIA team. The Independent External Advisor, CSIR, has been specifically appointed to ensure compliance, quality and due process is followed in every aspect of the EIA/EMPR. The Independent External Advisor has approved the DRAFT EIA/EMPR as well as the FINAL EIA/EMPR document which will now be submitted to MET for assessment. The impact assessment criteria used are based without modification on those employed widely by a range of environmental specialists, consultancies and agencies in southern Africa for the assessment of environmental impacts. The impact assessment criteria used are based without modification on those employed widely by a range of environmental specialists, consultancies and agencies in southern Africa for the assessment of environmental impacts. The "specialist studies" have been completed by accredited, reputable marine scientists.	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			Specialist appointed include: • Dr Robin Carter • Mr Dave Japp • Dr Nina Steffani • Prof Mark Gibbons The Company is happy to accept their credentials and opinions.	
Jock Currie *(Marine Biologist)*	08-02-2012 (via e-mail)	I will pick on just one of several examples of inadequately assessed risks, namely "Trace metals (cadmium and nickel) bound in the dredged sediment are discharged with the over spill water thereby affecting organisms in the water column." The consultant claims that this risk will only affect the dredge area. How does he expect the fines plume (affected by currents and turbulence) to stay within the immediate dredge area? He then suggests that the toxicity effects on plankton would be minor, stating that regeneration rates for plankton are days to weeks. However cadmium is a toxic heavy metal that bio-accumulates. Hence it is very likely to enter the ecosystem and affect other organisms on a longer time-scale and broader area, potentially reaching the fishery resources and us humans that consume them. I would argue therefore, that it is incorrectly assessed as being of 'low' significance (as in the report). Cadmium	**Noted.** It should be noted that dredge spoil from the port of Walvis Bay is permitted by MFMR to be discharged at sea despite cadmium levels exceeding the London Convention guidelines. The key point about heavy metals is whether they are in a form which is biologically available. It is noted that mineralogical studies at Mintek (RSA) show that cadmium is tied up in the crystal lattice of the francolite (phosphate mineral) which is insoluble in seawater. The point of trophic enrichment requires that the element of concern, in this case cadmium, firstly accumulates in organisms low down in the food chain. Sediment and water quality guideline concentration thresholds take account of this being set below levels where take-up exceeds excretion or depuration rates.	Appendix 1b

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		concentrations in the shelf sediments off Namibia have been measured to be 1000x higher than those in normal shale deposits.	Hence if concentrations are initially below probable effect levels then accumulation and enrichment is unlikely. Given apparently low cadmium levels in demersal top predators (monkfish, hake) it appears that cadmium in the sediments is generally not bioavailable where it is in the form of CdS (insoluble). Also $CdCl_2$ toxicity is reduced at high salinities making the element (Cd) more dangerous in estuarine as opposed to fully marine settings.	
Jock Currie *(Marine Biologist)*	08-02-2012 (via e-mail)	One other major and striking point is that the entire EIA seems to be conducted with only the selected (relatively small) mining areas in mind (SP1/SP2/SP3) and potentially serious effects are continuously down-played by emphasizing that the area to be mined will be a small fraction of the entire shelf. However there are two problems with such justifications: 1. The entire mining licence area covers 2233 km^2 – once an EIA is approved and mining starts, there is no guarantee that the mining company could not change the selected mining area and/or strategy and could mine anywhere (and as much as they want) within their mining licence area. Over the lifetime of the licence (20 years), technological advances could conceivably be made which would increase their capacity substantially and perhaps they will end up mining a much larger area than is being predicted now.	**Noted.** 1. Within the planned 20 year life of the mine some 60 km^2 of the total MLA is proposed. So it would be unrealistic to base calculations on total MLA. The EIA is subject to a 3 yearly review (Environmental Management Act), which provides an opportunity to review the accuracy of the predictions made in this document. Should the project proponent plan to expand the operation or introduce significant new technology the authorities may require the EIA to be amended or an entirely new EIA conducted. This assertion is not correct for fisheries – we used expanded areas around the MLA to assist the interpretation of risk.	Appendix 1a, 1b, 1c.

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Jock Currie *(Marine Biologist)*	08-02-2012 (via e-mail)	2. There are a host of other prospecting licence areas (owned by other and the same company) in the surrounding area. What will the cumulative effect be once all these areas are being prospected and/or mined? I understand that NMP will argue that it is not their duty to investigate these cumulative effects, however it invalidates their arguments of the (supposedly very small) scale of their effects on the ecosystem.	**Noted.** An assessment of cumulative effects should not simply be a matter of assessing a number of exploration / mining operations, it should also include the impacts of all other activities in the marine environment, e.g. bottom trawling, mid water trawling, purse-seining, long lining, mariculture, shipping (both vessels in transit through Namibian waters and those entering Namibian Ports), Oil and gas exploration and production, marine diamond mining, dumping of port dredge spoil and industrial and domestic waste disposal. It is likely that outside of ML170 area, few other prospects for phosphate are likely to be economically viable. Further more the phosphate market has a finite capacity to absorb new product hence a number of economic and geological factors will restrict the overall quantum of exploration licences that will eventually be able to be developed to production. The scenario proposed is therefore highly unlikely. The Benguela Current Commission has recognised the need for a Strategic Environmental Assessment of mining activities (oil & gas, diamonds, phosphates, etc) in the Benguela current region.	Ch 7
Jock Currie *(Marine Biologist)*	08-02-2012 (via e-mail)	Lastly, I would like to point out that the timing and rushed nature of this draft EIA desktop study, indicates that the proponents had no intention of undertaking	**Noted.** The proponent is complying with the procedures and time lines as defined by the relevant regulations in	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		serious investigations into potential environmental concerns or threats. The deadline for public participation comments (on the scoping report) was on the 2 December 2011 and the draft EIA was handed in on the 13 January 2012. How would any additional raised concern or threat be investigated during those six weeks (especially during the festive season)? I would like NMP to make public their mining licence contract, which supposedly had the non-negotiable condition of handing in an EIA within six months of the licence being issued. Such a condition is completely unethical and unacceptable in my opinion, especially considering the complexity and scale of the proposed project and its potential effects on the environment and other industries.	Namibia and in accordance with the conditions of the ML170. The Independent External Advisor, CSIR, has been specifically appointed to ensure compliance, quality and due process is followed in every aspect of the EIA/EMPR. The Independent External Advisor has approved the DRAFT EIA/EMPR as well as the FINAL EIA/EMPR document that will now be submitted to MET for assessment. The draft EIA was made available for review by all stakeholders on 18 January 2012. A 15 working day review period was allowed to enable stakeholders to submit comments. The EIA with the exception of the macro benthic fauna survey is based mainly on available information. However, the detailed criteria for a verification survey and subsequent long terms monitoring surveys will be included in the environmental management plan. The draft EIA was made available for review by all stakeholders on 18 January 2012 i.e. after the end of the festive season, this provides opportunity for additional comments to be included. A copy of the ML170 mining licence can be viewed at the Company's office in Namibia or at the Ministry of Mines and Energy, Windhoek, Namibia. The specific clauses (Part 3, items 7 and 8 state:" 7. The	

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			holder of the mining licence shall undertake an environmental impact assessment over the area covered by the exclusive prospecting licence, formulate and forward to the Ministry of Mines and Energy for approval an environmental management plan report (EMPR) within six (6) months from issue of the licence. Item 8: The holder of the mining licence shall enter into an Environmental Contract with the Ministry of Environment and Tourism and that of Mines and Energy once the EMPR is approved."	
Mark and Marcia Stanton (Eco Aqua)	08-02-2012 (via e-mail)	The "Environmental Impact Assessment" (EIA) submitted to the Department of Environmental Affairs (DEA) at the Ministry of Environment and Tourism (MET) by Namibia Marine Phosphate (NMP) is merely the Scoping Report with a revised cover. This in unacceptable practice, and the "EIA" report should be rejected.	**Noted.** This statement is incorrect. The scoping document provided a record of the proceedings of the six stakeholder engagement sessions. The draft EIA report is an entirely different document besides containing a summary of the scoping report it contains, a detailed project description, overview of the potentially affected environment, four specialist consultants' reports, the assessment of the potential impacts including mitigation measures and the environmental management plan.	Entire report
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	With respect to public participation, stakeholders and the public were invited to attend and partake in an initial Scoping Phase meeting in September. No follow-up meetings to discuss the findings of the Scoping Study were conducted. Only written comments were accepted before completion of the Scoping Phase and many of the comments discussed during public meetings were not	**Noted.** The purpose of the Scoping Phase was to share the project information and identify the issues and concerns of the Authorities and the Public, i.e. the Interested and Affected Parties (I&APs). A number of high level, authorities, public and focal group meetings were held in	Entire report

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		addressed. The Public Participation process on the Scoping Report should be considered largely incomplete.	both Windhoek and Walvis Bay, giving I&APs a platform to identify issues which assisted in defining the terms of reference for the specialist studies. The issues trail will be revisited in order to ensure that all the issues were addressed. The comments received on the draft EIA report will also aid in this process. Since the Scoping report largely consisted of the information shared and the issues identified at the meetings, no separate meeting on its findings were deemed necessary. The minutes of the meetings were also reviewed by the I&APs ensuring that all their comments were accurately reflected. During the commentary period on the Scoping report, no new issues were raised nor were there any requests for such a meeting.	
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	During the only public meeting (for the Scoping Phase), it was stated that the Scoping Phase would define the specialist studies required in the EIA (as per correct due-process). The stakeholders and public were never informed of the commencement of the EIA process. No Public Participation has been completed for the EIA. The EIA process is therefore incomplete and the report should be rejected.	**Noted.** The intention of the scoping process is to raise the issues and concerns of stakeholders to guide the subsequent EIA process. It is not normal practice therefore to hold further public participation sessions.	Entire report
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	NMP have submitted the Scoping Report as an EIA in order to meet a deadline for submission as required by the Ministry of Mines and Energy (MME). NMP should rather have requested an extension from MME in order	**Noted.** The draft EIA, not the scoping report, (refer to previous comment) was submitted to MME to meet the	Entire report

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		to complete Scoping Phase correctly and actually conduct an EIA as required by law. The reasoning provided by NMP is unacceptable, and indicates their unwillingness to comply with the due-process and legal requirements in Namibia, and internationally accepted best practice. The document submitted as an EIA should be rejected and NMP forced to undertake a complete EIA, including all marine and terrestrial activity and a complete Public Participation component.	requirements of the Mining Licence. Simultaneously the draft EIA was circulated to all stakeholders for comment, copies of the report were placed in the public libraries in Windhoek and Walvis Bay. The principle of public participation that is required is that sufficient access must be provided to the information as the process progresses. As the I&APs all have access to the internet and are all literate, it was decided to also use the internet media to distribute information. Meetings are arranged as and when required. In accordance with the Regulations of the Environmental Management Act (2007), I&APs were informed about the project through various means. They were awarded the opportunity to understand the project information while raising issues and concerns at a number of meetings during the Scoping phase. Furthermore, the Scoping and EIA reports were circulated for the perusal of I&APs, recording the comments on these documents. Circulating the reports and allowing for comments, incorporating these into the final reports form part of public participation.	
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	No Public Participation (incl. stakeholders such as the Ministry of Fisheries and the Fishing Industry) was conducted on the "EIA" document submitted to the DEA. As such the document should be considered incomplete and rejected.	**Noted.** It is normal practice to request stakeholders to review the draft EIA document and submit written comments, to provide a complete record of outstanding matters of concern.	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			Namibian Marine Phosphate (NMP) needed security of tenure over the Mining Licence before financing could be committed for the land-based Definitive Feasibility Study. The Ministry of Mines and Energy awarded them the Mining Licence upon a non-negotiable condition that an EIA for the marine component (i.e. the mining licence area in the Atlantic Ocean, excluding the terrestrial component) be submitted six months from the date of issue of this licence, i.e. 13 January 2012. This Draft EIA Report was submitted to the Ministry of Mines and Energy on the due date provided, as well as to the Directorate of Environmental Affairs and the Ministry of Fisheries and Marine Resources. The documents were not circulated to the I&APs before 13 January 2012 because we realised that many stakeholders would be on vacation. The draft report was made public on 18 January 2012. A 15 working day comments period was provided in which I&Aps could review and respond to the report. All comments arising from this review period will be incorporated into the Final EIA Report .	
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	Environmental Impact Assessments (EIA's) are conducted at project level. NMP's decision to split the EIA into two, namely the marine and terrestrial components is aims to circumvent the laws of Namibia and is unethical. The project should be considered in its entirety. The marine component cannot operate without the terrestrial component and the terrestrial component is considered part of mining operations under the Minerals Act. As	**Noted.** The Licence for ML 170 was issued on 13 July 2011 with the requirement that an EIA/EMP be submitted within six months. This requirement resulted in the need to split the project and the EIAs into separate but associated marine and terrestrial components. Applications to undertake separate marine and terrestrial	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		such it is one project and one EIA should be undertaken incorporating all components of the project showing each impact on its own as well as the cumulative impacts of the terrestrial and marine components. Only when the public and the decision makers are able to see the cumulative impacts will they be able to make the necessary informed decision about environmental impacts of the project as a whole.	EIAs for the overall Sandpiper project were submitted to MET, no objections were raised to this approach.	
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	No social equity and economic issues are addressed at this stage, even though mining in the marine environment will clearly affect social equity, economic issues, and potential job losses in the fishing industry. The report states, that this is to be addressed together with the terrestrial component of the EIA, however it is very clear that even from just the marine component, these factors will be seriously affected. In order to make an informed decision, the entire EIA for the project should be completed and submitted to government, before any decision is taken.	**Noted.** Since the mining – dredging operation is planned to involve a single vessel it was decided to undertake the socio-economic assessment of this aspect as part of as a single comprehensive socio – economic study of the entire project, which will be included in the terrestrial EIA. Possible inclusion of the marine Socio-economic assessment. Appropriate elements of socio-economic study will be included in the marine EIA.	
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	Not all of the marine components of the project have been addressed (the mooring and pipeline to transport the sediment to the coast), even though the impacts will be below the high water mark. This component should have been addressed in the marine component of the report or at the very least submitted simultaneously for constructive review.	**Noted.** The mooring and pipeline will be included in the draft EIA/EMPR for the terrestrial based beneficiation plant works. A specialist study has been commissioned to address issues arising from this project component.	Terrestrial report
Mark and Marcia	08-02-2012	The Vision 2030 Document is only partially quoted.	**Noted.**	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
Stanton (Eco Aqua)	(via e-mail)	Should the Environmental Consultant wish to incorporate the Vision 2030 Document, all relevant quotations should be provided, including: • Sustainable development is defined as the type of development that meets the needs of the present without limiting the ability of future generations to meet their own needs. Development activities should address the actual needs of the people. Summary Vision 2030 pg 13. • Things to avoid: Anything that threatens Namibia's unique sense of place, regional problems that might threaten the tourism industry. The worst case scenario is to use ecologically sensitive areas for other activities than tourism. -Chapter 5 Vision 2030 pg 153 (18). • The Natural resources are the nation's ecological wealth and must remain healthy and productive and only minimal pollution from industrial areas will be permitted. Deserts, wetlands, coastal and marine ecosystems will be open, diverse, stable, and productive. -Preface Vision 2030 pg 14 (2). • Our environment is clean and we will continue to keep it clean. -Summary Vision 2030 pg 14. • No atmospheric pollution or minimal pollution from industrial or urban areas. Natural ecosystems should be stable and sustainable socially, economically, and ecologically. Deserts, wetlands, coastal and marine systems are open, diverse,		

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		stable, and productive. -Summary Vision 2030 pg 40. • Things to avoid: any activities that threaten marine biodiversity or cause pollution, increase in litter sewerage, water demand, traffic, noise or developments that do not have an acceptable Environmental Management plan and could be harmful to human health or the environment and threaten sustainable development. Worst case scenario: increasing pollution, coastal degradation and biodiversity loss. Industry becomes too powerful and exerts pressure on government. -Chapter 5 Vision 2030 pg 159 (24). • Namibia's marine species and habitats contribute significantly to the economy and the functioning of the natural ecosystems and biodiversity must be maintained. -Summary Vision 2030 pg 43. • There should be a focus on environmentally friendly economic opportunities and livelihood options. -Summary Vision 2030 pg 28. • The integrity of ecological processes, natural habitats and wildlife populations throughout Namibia must be maintained. Significant support for national socio-economic development comes from low-impact, high quality consumptive and non-consumptive uses. -Summary Vision 2030 pg 44. • Tourism has more potential as a sustainable		

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		industry than virtually any other form of economic development in Namibia. It amounts to the same product- be it scenery, wildlife or open spaces (provided it remains unspoiled) - being sold repeatedly, without being depleted. -Summary Vision 2030 pg 29. • Sustainable use of marine ecosystems in fishing and tourism industries provides ideal opportunities for economic growth. -Summary Vision 2030 pg 44. • VISION 2030: failure to protect Namibia's threatened and endangered species, inadequate or inconsistent implementation of environmental laws. Worst case scenario: rapid rates of biodiversity loss, increased vulnerability to environmental change and loss of productivity, decline in Namibia's tourism potential. -Chapter 5 Vision 2030 pg 168 (33). • Things to avoid: o urbanisation spilling over into sensitive coastal areas causing the destruction of valuable ecosystems and their resources o discouraging public participation and decentralization o limited waste management and hazardous waste control o negligent governance which ignores vital issues pertaining to sustainability o NO accountability, public participation and		

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		security o a loss of green space, noise pollution, and aesthetically unpleasant sights and smells which can erode civic pride, lower morale and result in a loss of well-being amongst urban residents. Worst case scenario: aesthetically unpleasing uncontrolled urban sprawl and informal areas, health hazards, citizens with low morale, limited civic pride and minimal involvement in decision making. -Chapter 5 Vision 2030 pg 172 (37).		
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	**Environmental Management Act of 2007** • section 3(2) (d) functional integrity of ecological systems must be taken into account to ensure the sustainability of the systems and to prevent harmful effects. • section 3(2) (g) Namibia's cultural and natural heritage including, its biological diversity, must be protected and respected for the benefit of present and future generations. • section 3(2) (k) where there is sufficient evidence which establishes that there are threats of serious or irreversible damage to the environment, lack of full scientific certainty may not be used as a reason for postponing cost-effective measures to prevent environmental degradation. • section 3(2) (l) damage to the environment must be	**Noted.**	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		prevented.		
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	**Nature Conservation Ordinance of 1975:** • Section 14: "for the propagation, protection, study and preservation therein of the wild animal life, fisheries, wild plant life and objects of geological, ethnological, archaeological, historical and other scientific interest and for the benefit and enjoyment of the inhabitants of the Territory and other persons" • Section 18 makes it illegal to convey any explosive or poison, negligently injure or disturb any animal or nest, cause any damage to anything of scientific interest, damage or destroy an indigenous plant in a Park. • Section 83(6)(a) states that "any permit, licence, registration, approval, permission or exemption issued or granted contrary to the provisions of this Ordinance shall be invalid."	**Noted**	Entire report
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	**Marine Resources Act of 2000:** • Section 52(3)(e) "Any person who discharges in or allows to enter or permits to be discharged in Namibian waters anything which is or may be injurious to marine resources or which may disturb or change the ecological balance in any area of the sea, or which may detrimentally affect the marketability of marine resources, or which may hinder their harvesting, shall be guilty of an offence	**Noted.**	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		and liable on conviction to a fine not exceeding N$ 500 000." • Section 52(3)(f) "Any person who kills or disables any marine animal by means of any explosive, poison or noxious substance, or by means of a firearm except as may be prescribed, shall be guilty of an offence and liable on conviction to a fine not exceeding N$ 500 000."		
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	The entire Chapter 6 is invalid. No Public Participation was completed on the EIA Report. A single series of Public Participation was completed on the Scoping Phase only. During the Public Participation, stakeholders and the public were deliberately misled to believe that follow-up meetings on the Scoping Phase would be completed prior to the completion of the Scoping Phase Report – this is available on video records. During the Public Participation for the Scoping Phase, stakeholders and public were deliberately misled to believe that the EIA process was yet to commence, and that full Public Participation would be conducted for the EIA process. This is also available on video MKKrecords.	**Noted.** Without prejudice, we consider that this statement is incorrect, contradictory and misleading. The proponent is complying with the procedures and time lines as defined by the relevant regulations in Namibia and in accordance with the conditions of the ML170. Public meeting are held as needed. The circulation of reports is also a form of public feedback. The feedback meetings referred to in the scoping meetings were the meetings to be held at the *end* of the EIA process. Newspaper notices were placed informing the public about the report which could be viewed at the Windhoek and Walvis Bay libraries. E-mails were also sent to all registered I&APs, sending them a link to the report and allowing for a commentary period. Circulating the report for comment, duly noting the comments, responding to them where appropriate and incorporating these	Entire report

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			responses into the final report, is part of the public participation process.	
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	In the Public Participation meeting for the Scoping Phase, NMP went to great lengths to inform the public that all Namibian legislation would be reviewed, and that in addition all international best practices would be applied. NMP and the Environmental Consultants have failed to deliver on this commitment.	**Noted.** Without prejudice, we consider that this statement is incorrect, contradictory and misleading. The proponent is complying with the procedures and time lines as defined by the relevant regulations in Namibia and in accordance with the conditions of the ML170. The Independent External Advisor, CSIR, has been specifically appointed to ensure compliance, quality and due process is followed in every aspect of the EIA/EMPR. The Independent External Advisor has approved the DRAFT EIA/EMPR as well as the FINAL EIA/EMPR document which will now be submitted to MET for assessment.	Entire report
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	Numerous concerns and comments brought forward by stakeholders and the public have not been addressed in the Scoping Phase Report and therefore the "EIA" Report. This includes: • the use of incorrect diameter sieves in sediment studies • the lack of sufficient relevant specialist studies • the questioning of the competence of the unsuitably qualified consultants (for example Mr. Midgley is a geologist – he does not have a suitable	**Noted.** • Sediment studies: The 1 mm mesh sieve is the most widely used sieve size for macrobenthic studies (a list of references and international benthic sampling protocols as examples can be provided by request). The benthos comprises a wide variety of organisms, separated into major groups largely by size. Surveys using a specific mesh size will always miss smaller animals, regardless of how small the mesh is. The benthic macrofauna baseline study	Entire report

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		qualification to be completing marine specialist studies) • the fact that the project was divided into 2 EIA's, namely Marine and Terrestrial • the involvement of Mr. Pat Morant as the 'external reviewer' raised numerous concerns among the public and MFMR. He was also listed as a specialist consulted in the fisheries, mammals and seabirds specialist studies, thereby making his 'independence' questionable. He also answered questions for the NMP at the public meetings as if he were in fact a consultant for NMP. A full EIA needs to be conducted and reviewed by an independent reviewer appointed by MET as stipulated in the Environmental Management Act (2007).	was designed to look at one part of the benthic community and is not pretending to have sampled the benthos in specifying its entirety. For the verification survey, the use of a smaller sieve size is discussed in the benthic report as is the use of other techniques to assess the distribution of other benthic groups (e.g. meiofauna, microfauna). • Without indicating which specialists studies were not undertaken it is not possible to respond to this comment. It should be noted however, that other than a socio-economic study for the marine component no additional studies were identified by the I&APs. • NMP has full confidence in its EIA team. Without specifying what is meant by 'unsuitably qualified consultants' it is not possible to respond to this point. Mr Midgley's role in this EIA is that of project manager and not specialist consultant. • No objections as to why the EIA was split in to marine and terrestrial components were received. • At the stakeholder meetings there were occasions when the external reviewer questioned some of the assertions made in order to ensure the issue(s) were seen in perspective. • The external reviewer is not listed as an author of any of the specialist studies. However, he did provide some data on vertebrates other than fish to the fish & fisheries study.	

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			• In terms of this Act MET has the discretionary authority to appoint one or more reviewers to assist with the evaluation of an EIA. The assertions questioning the independence and credibility of the Independent Reviewer or Mr Midgely are rejected. NMP is confident that the external reviewer is functioning in compliance with the terms of reference of his appointment full details of which are provided in the scoping report. As such the role, quality and independence of the inputs' from the associated team of consultants and advisors is deemed by the external consultant to be compliant with the required standards.	
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	During the scoping phase, issues were raised by marine experts about the need for additional specialist studies. These should have then been included in the ToR for the full EIA. However, since a full EIA was never conducted, these specialist studies were never considered or conducted. The modelling of plumes was not done and therefore the possible effects on the biota are impossible to tell. International experts have raised another major issue in the use of incorrect diameter sieves in sediment studies. Due to the flawed sediment studies conducted by consultants not qualified in this field, it is impossible to determine how many and what species will be affected by the project and the ultimate disastrous affect	**Noted.** NMP has full confidence in the EIA team The Independent External Advisor, CSIR, has been specifically appointed to ensure compliance, quality and due process is followed in every aspect of the EIA/EMPR. The Independent External Advisor has approved the DRAFT EIA/EMPR as well as the FINAL EIA/EMPR document that will now be submitted to MET for assessment. The impact assessment criteria used are based without modification on those employed widely by a range of environmental specialists, consultancies and agencies in	Entire report

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		this will likely have on the entire marine ecosystem and potentially the fishing industry. The various desk top studies are simply not acceptable as there is at present no previous experience worldwide with marine phosphate mining since it has never occurred before or anywhere else in the world. All the more reason to be sure that all potential environmental concerns are adequately addressed. The potential for marine ecosystem collapse is a very real concern based on the scientific understanding of the sensitivity of deep sea marine ecosystems. The lack of experience, expertise, and adequate studies by the consultants is being seriously downplayed and the uncertainty of the consultants is being used to justify a so-called low or non-existent environmental impact for the various components. According to the Environmental Management Act, lack of full scientific certainty may not be used as a reason for postponing cost-effective measures to prevent environmental degradation. One such cost-effective measure is to conduct a full EIA by qualified experts in order to determine the true environmental impact.	southern Africa for the assessment of environmental impacts. The impact assessment criteria used are based without modification on those employed widely by a range of environmental specialists, consultancies and agencies in southern Africa for the assessment of environmental impacts. The "specialist studies" have been completed by accredited, reputable marine scientists. Specialist appointed include: • Dr Robin Carter • Mr Dave Japp • Dr Nina Steffani • Prof Mark Gibbons The Company is happy to accept their credentials and opinions.	
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	Scientific documents used to justify the lack of need to undertake an EIA were outdated. More modern, relevant documentation is available and was provided to the Environmental Consultants for inclusion. The Environmental Consultants have stated that the Ministry of Fisheries and Marine Resources failed to provide	**Noted.** This unsupported statement is, without prejudice, considered respectfully to be incorrect and misleading. 1. We are not sure what documents are being referred to here. NatMIRC after some delay provided most of	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		relevant studies. This is inaccurate. All studies were provided. More recent studies were ignored by the Environmental Consultants. The fact that these documents were clearly excluded is highly concerning!	the fishery data requested. There are few specific references that could be used in the fisheries assessments to help *quantify* impacts. It would have been useful for example if there had been a spatial analysis paper that outlines some of the key biological concerns – such as fish recruitment, biomass, minor species and bycatch in fisheries, trophic models undertaken by Namibian scientists. In reality many of the questions responding to the EIA are also issues that relate to the management of the Namibian ecosystem as a whole. Many of the issues raised in fact highlight the need for studies to be undertaken in a broad context, such as biodiversity baselines, trophic modelling. Although these studies may be in progress the information is not freely available. 2. Eco Aqua should provide a list of studies that were provided but ignored by the EIA team. Otherwise this statement is highly questionable and unfounded. 3. This is not strictly true. The information we were provided with was, in one instance, embargoed due to apparent fear of infringing publication. Seeing as how the data were >10 years old this appeared to be unjustified but this requirement was respected.	
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	Even if the studies were insufficient or even unavailable to the consultants, it is the onus of NMP to ensure that all studies are completed in order to remove all doubt of the environmental impact, no matter the cost of time	**Noted.** This unsupported statement is, without prejudice, considered respectfully to be incorrect and misleading.	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		frame. This, after all is the purpose of conducting an EIA in the first place. The desktop studies are simply insufficient and actual research must be conducted by the EIA consultants. Where the hired consultants do not have the necessary qualifications and experience to conduct this research on their own, additional experts need to be hired to complete these studies sufficiently. This is international best practice. It is simply not acceptable that a scoping report be substituted for a full EIA due to the lack of expertise to adequately demonstrate the numerous environmental impacts.	Please refer to the various relevant comments above which refer in regard to the allegations put forward.	
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	All calculations regarding the percentages of the different fisheries which will be negatively affected should be made on the total MLA area and not on the individual initial target mining areas (referred to as SP1, 2 and 3) alone. The total MLA covers an area of 2233km^2 while SP 1, 2 and 3 cover areas of only 176 km^2, 176 km^2 and 66 km^2, respectively, or 418 km^2 collectively.	**Noted.** Within the planned 20 year life of the mine some 60 km^2 of the total MLA is proposed. So it would be unrealistic to base calculations on total MLA. The fisheries impacts were carefully calculated assuming that the area of fishing affected extended the MLA (including SP sites) out to the margin of the 25 km zone	Appendix 1a
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	Scientific documents used to justify the lack of need to undertake an EIA were outdated. More modern, relevant documentation is available and was provided to the Environmental Consultants for inclusion. The exclusion of these documents is highly concerning!	**Noted.** Please refer to responses provided above which refer to this. Repetition of previously made points.	Appendix 1
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	The Environmental Consultants have stated that the Ministry of Fisheries and Marine Resources failed to provide relevant studies. This is inaccurate. All studies	**Noted.** Please refer to responses provided above which refer to this. Repetition of previously made points.	Appendix 1a, 1b, 1c

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		were provided. More recent studies were ignored by the Environmental Consultants. If the studies were insufficient, it is the onus of NMP to ensure that all studies are completed in order to remove all doubt of the environmental impact, no matter the cost of time frame.		
Mark and Marcia Stanton *(Eco Aqua)*	08-02-2012 (via e-mail)	There is concern regarding the selection of the Public Participation Specialists. The Public Participation has been incomplete. Re-appointment of suitably qualified and competent Public Participation Specialists should be considered.	**Noted.** Without prejudice, we consider that this statement is both incorrect, and misleading. The proponent is complying with the procedures and time lines as defined by the relevant regulations in Namibia and in accordance with the conditions of the ML170. NMP has full confidence in the public participation consultants who have undertaken a fully documented process The public participation was and is undertaken in accordance with the Environmental Assessment Regulations of the Environmental Management Act (2007), as well as the IFC. Neither the Regulations nor the IFC specify the number of meetings or the method of Public Participation to be conducted. Rather a set of principles are put forward. These principles have been rigorously followed to make sure the registered interested and affected parties have access to the information and are able to comment in a meaningful way.	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	Our main concern is that having worked so hard to establish a vibrant and growing fishing industry in Namibia, we do not want the Benguela Current Ecosystem disrupted by mining of phosphate, an internationally untested marine non-renewable resource, risking a significant downturn in Namibian fish stocks, with equally significant socio-economic impacts.	**Noted.** These concerns are respectfully noted.	N/A
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	The Sandpiper Phosphate Environmental Impact Assessment must be undertaken properly because if the mining license issued to Namibian Marine Phosphate (Pty) Ltd., is allowed to become operational, this will potentially set a precedent for other marine phosphate mining companies to quickly follow. We have already heard that LL Namibia Phosphates (Pty) Ltd was issued a marine phosphate mining license in October 2010, and know there are also other companies with exclusive prospecting licenses.	**Noted.**	Entire report
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	We consider that Namibian Marine Phosphate (Pty) Ltd's mining license a serious threat to the Namibian fishing industry without a rigorous EIA based on well researched data where on site sampling is undertaken to verify conclusions. This is a first time marine mining project, not only for Namibia, but for the world, and what we currently see with the draft EIA is a lot of mainly desktop research data from studies by other organisations, most of which is not based specifically on the mining site. We believe it is in fact dangerous to draw conclusions from	**Noted.** Recognising that their studies have been based largely on Namibian research published in the international scientific literature, the Benthic and Water Column specialists have recommended the undertaking of a survey to verify their assessments of the potential impacts of NMPs proposed operations. The Fisheries specialist was supplied with the appropriate data by MFMR.	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		results out of completely different areas and from different activities such as marine diamond mining. And what we see from the EIA's general conclusions is that mining impact is generally moderate to low. How can the report define what is moderate or low without good on site data to substantiate conclusions?	Note that as far as possible we used data provided by NatMIRC on the different fisheries sectors – these data which were quantifiable allowed us to make an objective estimate of the relative proportions of fishing effort in the mined areas.	
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	Our view is that your six month deadline to submit the marine component environmental impact assessment is too rushed and has compromised the quality of the draft EIA study. Your scoping report appeared to be good in terms of public participation meetings, noting everybody's concerns, but these concerns do not seem to be covered in detail in the draft EIA report. Given the documented scoping report, we would like to know what changes were made to the terms of reference for your consultants undertaking the EIA specialist reports to incorporate the public's concerns.	**Noted.** The Licence for ML 170 was issued on 13 July 2011 with the requirement that an EIA/EMP be submitted within six months.	Entier report
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	Our understanding in New Zealand's marine mining legislation is that they have two years in which to undertake baseline research to gain a much more thorough assessment of the genuine marine mining environmental implications. Six months for an EIA study is certainly not the standard time needed. Particularly for a new project of this kind, one has to talk about years not months.	**Noted.** Each project needs to be evaluated on its particular merits The Licence for ML 170 was issued on 13 July 2011 with the requirement that an EIA/EMP be submitted within six months.	Entire report
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	Appended to this letter are International Seabed Authority guidelines for the assessment of possible	**Noted.** A benthic macrofauna survey was conducted prior to the	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		environmental impacts arising from exploration of polymetallic nodules, the principles of which are very relevant to assessing the environmental impact of marine phosphate mining. Dredging is specifically mentioned as an activity for which a baseline study is required. (*see original text for these guidelines)	initiation of the EIA. Nevertheless, recognising that their studies have been based largely on published scientific literature . The Benthic and Water Column specialists have recommended the undertaking of a survey to verify their assessments of the potential impacts of NMPs proposed operations. The Fisheries specialist was supplied with the appropriate data by MFMR.	
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	Marine phosphate mining of the magnitude you propose (5.5 million tonnes a year) must first require detailed on site environmental studies before any decision can be made as to whether the project can go ahead. This magnitude of phosphate marine mining is a world first, and in our case is in a delicately balanced ecosystem which supports an internationally recognised commercial fishing industry. Namibia has signed off to: the United Nations Convention on the Law of the Sea (UNCLOS) which obliges signatory countries to preserve and protect the marine environment; the Reykjavik Declaration for an ecosystem based fisheries management programme; has ratified the Southern African Development Community SADC Fisheries Protocol; and applies the FAO Code of Conduct for Responsible Fisheries, which means when in doubt, following the "precautionary approach." In the SADC Fisheries Protocol, which is accepted as customary international law, the precautionary approach requires that "in the case of newly proposed projects, in the absence of scientific certainty that no unjustifiable environmental harm will be caused, the proponent is to	**Noted.** The precautionary principle should be brought into consideration when decisions are made. Specialists do not make these, politicians/regulators do. Specialists should, and generally do, follow a conservative approach when faced with incomplete knowledge or evidence. We understand the precautionary approach is not a legal requirement but is a recommended strategy by the FAO (for fisheries at least). Most countries with industrial fisheries claim to have adopted the PA and are applying EAF.	Entire report

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		err on the side of caution", in favour of the environment. This means that the developer must prove the absence of environmental harm, and in the case of this current draft phosphate mining EIA, the data is far too generalised to substantiate this.		
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	With marine phosphate mining, as the Namibian case is a world first, we are moving into uncharted waters. The Ministry of Fisheries and Marine Resources is the Namibian custodian of the oceans, yet it is our understanding that issues of concern and recommendations made in Ministry's scoping report to yourselves, dated November 2011, have been largely ignored.	**Noted.** The comments dated November 2011, were circulated to the specialists for their attention when preparing their respective reports. Those comments were assessed by the specialists and addressed by them as they deemed appropriate. On fisheries we were provided with a short overview of the view points from the researchers in each fisheries sector. The text provided gives opinions mostly and no quantifiable supporting information. To be able to assess the risk the fisheries team did mostly spatial analysis of the fisheries catch and distribution for the years of data provided by NatMIRC – we did this to try and quantify impacts where possible as the available information would only have led to much greater uncertainty in our risk assessments. The actual impact on most fisheries remains low to medium as the data given to us suggests that the actual fishing effort impacted is low (except for the monk fishery) – we have revised our estimates and hope this makes the assessment clearer.	Entire report Apendix 1
Confederation of Namibian Fishing	08-02-2012	We note that the External Reviewer, Mr. P. Morant of the CSIR signs off that this EIA complies with his	**Noted.**	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
Associations	(via e-mail)	requirements. We question his "neutrality" however. During the scoping phase stakeholder meetings, the external reviewer on a number of occasions downplayed concerns raised, and his statements are in the minutes of the scoping report meetings. He was also consulted for the "Fisheries, Mammals and Seabirds Specialist Study", which showed that he did not act independently of the EIA specialist team. The EIA report states "There are presently no identified issues of environmental significance to preclude the dredging of phosphate – enriched sediments from the Marine License Area No. 170." In most of the specialist studies very little on site data was gathered, so how does the external reviewer measure "environmentally significant"?	Mr. P Morant provided the non-fish vertebrate data to Mr D Japp. Comments made by Mr. Morant at the Walvis Bay scoping meeting (which at times became quite animated) were intended to elicit a sense of perspective with respect to the matters raised. NMP is confident that the external reviewer is functioning in compliance with the terms of reference of his appointment full details of which are provided in the scoping report. In terms of the statement that "There are presently no identified issues of environmental significance to preclude the dredging of phosphates – enriched sediments for the Marine Licence Area 170" it should be noted that in the EIA the statement was followed by "There are however, management and mitigation measures that are to be implemented by NMP and their sub contractors. These requirements are evaluated and detailed herein", i.e. the requirements were detailed in the specialist reports and summarised both in the chapter addressing the assessment of impacts and in the Environmental Management Programme.	Scoping report
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	The mining activity radically disturbs the surface of the seabed but there are no detailed biogeochemistry reports of this sediment layer or of the water column above it. As shown in the International Seabed Authority guidelines appended, such measurements are expected, and are standard for both water column studies related	**Noted.** A benthic macrofauna survey was conducted prior to the initiation of the EIA. Nevertheless, the Benthic and Water Column specialists have provided a work programme to verify their assessments of the potential impacts of NMPs	Appendix 1a, Ic, and Ch 8

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		to dredging and benthic studies. Yet this is not highlighted by the external reviewer.	proposed operations which is now incorporated in the FINAL EMPR. The Fisheries specialist was supplied with the appropriate data by MFMR.	
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	Due to the crucial importance of this EIA being a world first, and if accepted, potentially opening the doors for more marine phosphate mining by other companies, we believe that an independent external review should be undertaken of this EIA. We also recommend that the reviewer have international credibility that can cope with the magnitude of this project and its cumulative implications, given that there are more companies interested in doing the same. Also the reviewer should have the capacity to put in safeguards given that this project is a world first.	**Noted.** The proponent is complying with the procedures and time lines as defined by the relevant regulations in Namibia and in accordance with the conditions of the ML170. The environmental regulations allow for MET to commission independent external review of submitted EIAs. The Benguela Current Commission has recognised the need for a Strategic Environmental Assessment of mining activities (oil & gas, diamonds, phosphates, etc) in the Benguela current region.	Appendix 1 Ch 8 Ch 7
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	During the public meetings it was specifically requested that a baseline study be conducted by the proponent. This was not done. The Ministry of Fisheries and Marine Resources recommended that the EIA should include hydro-dynamic modelling of the total footprint of the particle plumes that will result from the phosphate mining operations, and should also model the effects on water quality, but this did not occur.	**Noted.** A benthic macrofauna survey was conducted prior to the initiation of the EIA. We do not think that modelling is justified. The primary drivers of dredge plumes are sediment properties, water column density distributions and advection. The existing information allows generalization of plume behaviour in terms of water quality thresholds but not drift directions. The latter are not necessary if water quality thresholds are not compromised in the far field as is considered to	Appendix 1a Ch 8 Ch 7

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			be the case here. The set-up of a reliable model would probably require some years of current metering and at least thermistor deployments. Even then it is doubtful that a full and totally robust plume distribution will be achieved because of coefficient selections and model cell averaging.	
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	At the public meetings you stated that around 10% of the mined resource would be re-deposited in the sea as fine sediment. This mining operation will be dumping around 500,000 tonnes of sediment and fines back into the sea annually. We again ask have the implications of this been measured properly?	**Noted.** The effects can only be measured when the mining project commences. The scientific and technical literature on sediment behaviour and dredging generally indicate thin (millimetres in thickness) deposition layers. By definition all of this will be fine sediment and, as such, is expected to behave as natural material. Regional POM distributions backed up by bed shear stress measurements in the mining depths indicate that the discharged sediment will not accumulate where discharged but will probably be incorporated into offshore deposition zones.	Appendix 1b Ch 8
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	It appears that no core sediment samples have been analysed. There appears to be dark green mud in the mining area, which sets of alarm bells for sulphides in the sediment. If we do not know what will be mobilised by the sediment plume, we are operating blind. Heavy metals, sulphides, bacteria, nitrates etc. once into the water column become soluble. If some of these get into the food chain, they could negatively affect the quality of	**Noted.** The available data on sediment properties in the mine area was used. This indicates muddy sand predominantly. The planned verification study will use gravity, or similar, cores to check variations in sediment properties with depth. Included here will be H_2S and trace metal measurements.	Appendix 1b

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		the fish, and stop Namibian fish exports.		
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	Data that has been gathered is either from desktop studies or from diamond mining areas where the conditions are different and not as anoxic as at the phosphate mining sites. There has been no modelling of plume impacts, and no account has been taken of the current and how far it could disperse plume contents. Also, we are very worried that the plume will cause anoxic conditions, which will not have time to disappear due to the short three day turnaround time of the dredger. This potentially will mean the mining area will become a dead zone for much sea life. While the impact on a few species is mentioned, an ecosystem approach is not applied in the EIA.	**Noted.** This aspect (reduced DO in plume) is addressed in the water quality study.	Appendix 1b
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	The definition of the impact criteria in the EIA are construed in such a way as to downgrade even the most serious permanent damage to an impact of medium significance. Many of the risks identified that have been classified having low significance have confidence levels of low to medium or medium due to lack of data supporting the assumptions made. a) Fisheries: 60 % low to medium confidence level due b) Water column: 54 % c) (Benthos 77 %	**Noted.** For fisheries it should be noted that our impact assessment was done to assess impact on the fishing industry – so this in reality is not an environmental impact on the natural environment, but rather on the socio-economic environment. The other main criteria such as biodiversity, recruitment area environmental issues – we apply a standard set of criteria to assess the significance. The criteria to assess impacts are based on those widely used in Namibia and South Africa. We believe that, given the area to be mined annually (approximately 3 km^2) in relation to the area of ML 170 (2233 km^2), the	Appendix 1a, 1b, lc & Ch 7 & 8

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			assessment of the scale of the potential impacts by the specialists is valid. The experience gained from marine diamond mining has shown that there are few, if any, practicable mitigation measures that can be implemented in this type of operation. The work programme and detailed criteria for verification surveys to be completed prior to dredging and subsequent long term monitoring surveys are included in the environmental management plan within the FINAL EIA/EMPR.	
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	Due to the above factors, the EIA must be considered as being inadequate, and can only predict with low to medium confidence what the significance of environmental impact will be. Consequently, mitigation measures suggested as well as the environmental management plan are meaningless. What has been presented in this EIA cannot be relied upon to provide interested and affected parties with peace of mind.	**Noted.** NMP has full confidence in the EIA team The Independent External Advisor, CSIR, has been specifically appointed to ensure compliance, quality and due process is followed in every aspect of the EIA/EMPR. The Independent External Advisor has approved the DRAFT EIA/EMPR as well as the FINAL EIA/EMPR document which will now be submitted to MET for assessment. The impact assessment criteria used are based without modification on those employed widely by a range of environmental specialists, consultancies and agencies in southern Africa for the assessment of environmental impacts. The impact assessment criteria used are based without modification on those employed widely by a range of	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			environmental specialists, consultancies and agencies in southern Africa for the assessment of environmental impacts. The "specialist studies" have been completed by accredited, reputable marine scientists. Specialist appointed include: • Dr Robin Carter • Mr Dave Japp • Dr Nina Steffani • Prof Mark Gibbons The Company is happy to accept their credentials and opinions.	
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	The abovementioned Guidelines for Marine Mining (also detailed in the Appendix) is a voluntary code and is mining industry initiated. If Namibian Marine Phosphate (Pty) Ltd prescribed to this code, a different EIA report would have emerged. One cannot help but wonder how seriously committed Namibian Marine Phosphates really is to preservation of the marine environment and if they take into consideration the potentially damaging effects it may have on a flourishing Namibian fishing industry which is a world example of sustainable exploitation thanks to measures taken by Government to preserve it.	**Noted:** Comments above relating to a duplicate query from Etosha Fishing refer also. The company is a registered member of the International Fertilizer Association and is governed therefore by its codes. In addition the Company is committed to compliance with all of the requirements of the Namibian law, adopting international practices and the equator principles. Namibia already has a well established marine diamond mining industry that has been active for over 10 years	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
			and has established well defined regulations for the managed fo the environmental aspects of this industry. Codes and requirements for EIA/EMPR are adequately covered in the Namibian legislation. When commenting on potential impact the context of the scale of operations on an annual basis(ie a small area inside SP1) compared to the total SP1 area (which proves material for 20 yrs) and the total ML area (of which SP1 is a very small part) needs to be preserved.	
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	Socio-economic studies have not been incorporated in the marine component of the EIA. It is assumed this will occur in the onshore EIA component. If that is the case, a complete picture of the marine EIA cannot be obtained until the onshore EIA is also completed, as an in-depth socio-economic assessment is critical. The price for rock phosphate has only recently risen significantly, and then dropped back, but at a higher level than it previously was. At what point would the project no longer be economically feasible? What are the employment expectations and secondary businesses? What if this project fails, then Namibia sits with an ecologically unbalanced area and the entire mining infrastructure. The risk of the phosphate business has to be closely evaluated, and we ask whether financial calculations and forecasts are available to question the stability of the variables?	**Noted:** It was decided following comments received on the draft EIA to include a socio-economic section in the marine EIA. This will be further supported by the socio-economic section in the Terrestrial EIA Namibia will become a significant supplier of phosphate rock in the worlds market for traded phosphate rock. In order to assess the benefit of the project a broader perspective is needed. Apart from the direct employment created, there are related benefits in indirect employment (contractors and support industries) as well as taxes, royalties, levies and social development programmes that will form part of the project development.	Entire report Ch 5
Confederation of Namibian Fishing	08-02-2012	In addition there is the socio-economic issue of impacts	**Noted.**	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
Associations	(via e-mail)	on the Namibian fisheries resource. From the EIA it is acknowledged that 13.8% of the monk fish resource lies in the initial mining area, and due to their sedentary nature, are unlikely to be able to be caught in the future. You mention that a management plan would need to be sorted out for the sector. How would this help and from your perspective, what are the economic and social implications, and would you provide compensation?	It should be noted that within the boundaries of ML 170 (2233 km^2), however, up to 3 km^2 will be mined annually, which will have limited impact on the fishery. We estimated the % of catch lost in the "Mine Site" this included the whole of the mining lease area and extending out to the <25 km zone. The Tables will be adjusted to clarify see also Table 1 and equations 1 and 2. We will produce additional tables that clearly outline the proportional estimates for catch, effort and vessels in the different zones. Note also that we will also provide a clear rationale why we used the 25 km area as our key area. This relates to the vessels that operate in the AREA, their trawl times and likely extent of operations in the area – this we must do in lieu of having actual start and end positions of trawls. This aspect will be included as part of as a single comprehensive socio – economic study of the entire project, which will be included in the DRAFT EIA/EMPR for the land based beneficiation Plant operations.. The query also relates to the need for a bio-economic assessment resulting from the loss of income generation due to reduced catch volumes. NMP has stated that it is willing to constructively engage with representatives of the monk fishery to discuss and resolve material key concerns and operational issues to mutual benefit.	Ch 8
Confederation of Namibian Fishing	08-02-2012	The Namibian Hake Associations is considering obtaining Marine Stewardship Council eco-labelling certification	**Noted.**	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
Associations	(via e-mail)	which opens the doors for new markets. This certification requires rigorous fisheries management compliance. If conditions within the fishery changed due to environmental changes or environmental impacts due to activities of other resource users (such as mining activities) the fisheries management system would be expected to be reactive to the scientific advice provided. So, if stock assessments showed a decreasing in biomass one would expect management to react by either reducing the fishing effort or the total catches taken. This could mean a reduction in TAC or shortening of season, closure of some areas or a combination of these or other management measures. The Ministry of Fisheries and Marine Resources would also prescribe measures such as this, whether MSC certification is obtained or not. The important point is that there would be a direct negative socio-economic impact on the fishing industry.	This is correct – the Namibian hake industry is considering MSC certification which has stringent ecosystem considerations – although the fact that mining for phosphates is occurring may not affect the assessment. If the biomass is impacted then indirectly the certification may be affected. Equally other environmental issues can effect certification, such a seal and seabird mortality associated with fishing operations.	
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	The mining area is in the heart of fisheries breeding grounds. While Ministry of Fisheries and Marine Resources data was fed into the fisheries specialist study, the Ministry hake surveys are not conducted during peak spawning time, so gonad data cannot be used to make conclusive statements on spawning activity. Also, stations on the hake and monk surveys are fixed and may not fall within the Mining License Area. This means that no data may be available, but it does not mean that there is no fish.	**Noted.** There is no strong evidence that the MLA is in the heart of the breeding grounds. Data are sparse and evidence points to juvenile distributions in shallower water, including the MLA – this suggests that the MLA is in a recruiting area for the fisheries – in particular monk. Hake juveniles are expected to move from the area if it is disturbed by dredging, but not monk and numerous other sedentary species.	Appendix 1a
Confederation of	08-02-2012	Your report says that trawling for hake is highly unlikely	**Noted.**	Appendix 1a

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
Namibian Fishing Associations	(via e-mail)	to be affected, but this area is regularly fished by hake trawlers. Also with regard to fisheries positions you appear to cover only the three small identified mining areas within the overall Mining License Area (MLA). The MLA covers 2233 square kilometres, and there is nothing to stop the mining company from shifting mining sites. Consequently all calculations should be made on the total Marine License Area, and not on individual initial mining areas.	We have revised these data for clarity	
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	Also your report mentions the damage of trawling and says that until the effects of this are quantified, neither the cumulative or additive effects of mining can be assessed. We consider that a simple case of passing the buck. While we admit that trawling does damage the bottom substrate, the industry utilises special trawl bobbins that mitigate that damage. Our understanding is that your dredge suction mining method will suck up everything on the bottom to a depth of between 1.5 to 3 metres. That we consider totally devastating on the affected environment, and not to be compared with damage by trawling. We require co-ordinated video evidence of the claimed "trawling-damaged" seabed that is planned for mining-dredging in this area; and we would likewise require video coverage of the seabed mined areas to be part of the Management Plan.	**Noted.** There is certainly pressure on trawling globally with regard to impacts on the substrate – many fisheries are applying more environmental friendly trawling methods. I agree that comparing trawling to dredging is incorrect. We do recognize, however, that fishing has created an altered environment but that modern management aims to achieve sustainable stock management through appropriate management regimes.	Appendix 1a Ch 8
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	Environmental monitoring should be conducted by the mining company at its cost, but we believe that to maintain accountability, the Ministry of Environment and	**Noted.**	Ch 8

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		Tourism should play a leading observational role similar to the Fisheries Observance Agency in the fishing industry, to monitor mining activities, even during exploration stages of a project. We as an industry are obliged to have observers on board to ensure fishing activities remain within the sustainable levels set by the Ministry. The Environmental Act makes provision for inspectors.		
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	The marine mining EIA also does not cover the environmental risks of the dredging vessel mooring point, pipeline and possible plume development for offloading the mined substrate, which is below mean high water mark, and consequently part of the marine environment. This must be covered as it impacts the Namibian aquaculture industry, inshore pelagic spawning as well as the kabeljou breeding grounds, and small pelagic fishing operations that take place in the shallows.	**Noted.** The mooring and pipeline are included in the EIA/EMPR for the land based benefaction plant operations A specialist study has been commissioned to address issues arising from this project component.	Terrestrial EIA
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	In the same way the possible dumping of post-processing effluent when/if it becomes too saline to dispose of in the onshore reed beds at Walvis Bay, must be addressed at this early stage as part of the marine EIA, as it poses a possible serious threat to mariculture activities if dumping into the sea is resorted to after several years of land-operation.	**Noted.** The mooring and pipeline are included in the EIA/EMPR for the land based benefaction plant operations A specialist study has been commissioned to address issues arising from this project component.	Terrestrial EIA
Confederation of Namibian Fishing Associations	08-02-2012 (via e-mail)	Only after thorough on site data has been collected and analysed in a scientifically acceptable manner, can credible assessments be made. Without these data, at	**Noted.** We have covered this in most of the responses already, there is data paucity – this is also true in many respects in	Entire report

NAME	DATE & METHOD	COMMENT	RESPONSE	SECTION WHERE ADDRESSED
		this stage we as a fishing industry say the risks are too high, that there is no compatibility between marine phosphate mining and commercial fishing and consequently both cannot operate together.	the fisheries assessments currently undertaken for Namibian stocks. These assessments consider many different factors – I would suggest that the current modelling consider mortality of the main commercial species potentially associated with the phosphate mining to create a risk profile under different scenarios. To help respond to the ecosystem issues the current trophic modelling may also help if the mining risk was input – that should also help put the scale of the impacts relative to the Namibian fishing zone (EEZ) in context.	

Comments by A van der Plas (26-01-2012)

From: Anja Van Der Plas [mailto:avanderplas@mfmr.gov.na]
Sent: 26 January 2012 10:41 AM
To: 'Robin Carter'
Cc: 'Sigi Horsthemke '; 'Jeremy Midgley'
Subject: References listed

Dear Robin,
Could you please send me copies (preferably electronic) of the following references you list in the Water column specialist study for the Sandpiper Marine Phosphate Mining draft EIA. This would help in understanding and assessing the draft EIA docs:

CSIR 2006b. Physical effects of sediment discharged from marine dredging and plant operations in the Atlantic 1 and Uubvley regions. CSIR CONFIDENTIAL Report No. CSIR/NRE/ECO/ER/2006/0203/C. 101pp.

EMBECOM. 2004. Dredging-related re-suspension of sediments: Impacts and guidelines for the marine dredging. Specialist study for the environmental impact report for the pre-feasibility phase of the marine dredging project in Nambdeb's Atlantic 1 Mining Licence Area and in near shore areas off Chameis. 72pp

Rogers J. 2008. Report on unconsolidated seafloor sediments from the shelf off NAMIBIA for Bonaparte Diamond Mining. Department of Geological Sciences, University of Cape Town. 19pp.

Thank you,
Anja
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Anja van der Plas
Subdivision Environment
Ministry of Fisheries & Marine Resources
PO Box 912
Swakopmund

Comments by B. Currie (08-02-2012)

1. The criteria used to evaluate "significance" are flawed for the statement made on page 13: "*There are presently no identified issues of environmental significance to preclude the dredging of phosphate-enriched sediments from the Mining Licence Area No. 170.*" The criteria and significance levels are not credible because in most of the so-called "specialist studies", in situ data were either i) not used, or ii) insufficient statistically to make such a statement. Only after thorough in situ data have been collected and analysed in a scientifically acceptable manner, can credible assessments be made. The reviewer's leniency to the submitted studies, is unacceptable.
2. The **"Impact Criteria"** described on p.131 and further in all the specialist studies for **"intensity/magnitude"** are ridiculous. Using the descriptor "*environmental functions*" for example, intensity registers as "serious" only when "*Environmental functions and processes are altered to such extent that they permanently cease*"!!! The descriptors are not appropriate. What exactly – in the marine environment – is meant by the grand term "environmental functions", when in most studies you are judging only one very small part?
3. Many assumptions made from extrapolating data from other areas are wrong*. (* list can be compiled if wished)
4. Recognizing that the mining activity directly disturbs the surface (upper 3 metres) of seabed: there is no detailed biogeochemistry report of this sediment layer or of the directly overlying water column. This is a shocking omission: such measurements are expected, and are commonly standard, for both water column studies related to dredging activities, and for benthic studies. The reviewer's leniency to such a gross omission is totally unacceptable.
5. With regard to Chapter 2 "Policy and Legislation" another omission: In the SADC Fisheries Protocol (Namibia signatory) which is accepted as customary international law
6. THE PRECAUTIONARY APPROACh requires : "in the case of NEWLY PROPOSED PROJECTS, in the absence of scientific certainty that no unjustifiable environmental harm will be caused, the proponent is to err on the side of caution", i.e. in favour of the environment. New projects include any projects in the marine environment. This means that the developer must prove the absence of environmental harm. In this case the proposed phosphate mining could not possibly pass this burden of proof.
7. Chapter 4 "Description of the Environment" is padded with a lot of irrelevant information
8. Why are jellyfish included in the assessment when many more important ecosystem indicators of relevance could/should have been used?
9. RE fisheries p. 134: where is bullet point "***Disturbance of normal trophic interactions and the general ecosystem functioning;"*** adequately addressed? This is very important because of the ecosystem-wide impacts and knock-on impacts (e.g. quality of products) that will be felt by the fishing industries
10. Re water column: no in situ measurements; all based on extrapolation or assumptions therefore whole report is flawed and unacceptable
11. Benthos study: several typo mistakes e.g. >0.1mm should read <0.1mm. Assumptions made regarding smaller fauna: as fauna in low-oxygen environments are typically tiny: sampling should be to 300µm and not >1mm. Several animals have been missed in the study. *Thioplaca* and *Beggiatoa* are found in the area and were missed: only examination of fresh core samples will provide accurate estimations of benthos, therefore sampling strategy was flawed. Note that recent findings show that sulphide-

oxidizing bacteria are far more widely distributed along the Namibian shelf than reported in publications. These bacteria indicate sufficient H_2S in the sediment to support them.

12. Ch 8: EMP: several requirements for "pre-dredging studies" pp. 8-14-8-16. These studies are prerequisites for the EIA, not only as a requirement once the project is underway. The listed "pre-dredging" studies for an EMP on these pages are misplaced: such studies must be carried out prior to the project, and be made available for EIA scrutiny.
13. Statements in this section chapter EMP , such as *"Revise EIA assumptions in context accordingly"* are ridiculous and unacceptable.

Comments by CNFA (08-02-2012)

CONFEDERATION OF NAMIBIAN FISHING ASSOCIATIONS

P.O. Box 2513
Walvis Bay
Namibia
E-Mail: bobboh@etalefishing.com

Tel: 064 - 218732
Fax: 064 - 205472

8 February 2012

Sigi Horsthemke
Office Manager
Enviro Dynamics
PO Box 4039
Windhoek

Email: sigi@envirod.com

Fax: 061-307437

Dear Sigi

Re: Fishing industry response to Sandpiper Phosphate Draft Marine Environmental Impact Assessment.

The Namibian fishing industry is based on a renewable resource, which has to be carefully managed so that fish stocks are not impacted negatively. Prior to Namibian Independence, our fish stocks were heavily overfished, and since then the Ministry of Fisheries and Marine Resources, with the support of the fishing industry have been working to rebuild these stocks.

During the last few years, catches by Namibian fishing vessels, particularly in the two main fisheries sectors, hake and horse mackerel, have significantly improved, the Ministry of Fisheries and Marine Resources increasing the total allowable catches.

This has not come without sacrifice, however. The hake sector has endured reduced total allowable catches for quite a number of years, and during the month of October, the whole fishery is closed to allow the resource to rest and encourage reproductive recruitment. This impacts on employment and company cash flow, but the industry is willing to endure it, to promote resource abundance improvement. In the horse mackerel sector there used to be a lot more vessels in the fishery, but these have been reduced, resulting in much better catch per unit effort.

The Namibian fishing industry in 2010 earned Namibia $4.8 billion in foreign currency earnings through fisheries export receipts, according to the Central Bureau of Statistics, National Planning Commission. 13380 people were directly employed in the Namibian fishing industry during 2010, of which 4202 were offshore and 9178 onshore, based on an employment verification report undertaken by the Ministry of Fisheries and Marine Resources. This does not include those who indirectly benefit, such as the families of fishing industry workers, or secondary industry support services.

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It must be recognised that the fishing industry is a renewable resource, which if carefully managed will bring benefits for many generations to come. Marine phosphates are a non-renewable resource, and once mined they are gone. If the mining activities from an environmental impact perspective are not carefully assessed now, they may cause irreparable damage to the fishing industry.

Due to disciplined management and development of the Namibian fisheries resource the Ministry of Fisheries and Marine Resources received international recognition through the following awards:

- The FAO Margarita Lizarraga Medal, awarded every two years to a person or organisation that has served with distinction in the application of the Code of Conduct for Responsible Fisheries.
- The Kungsfenan Swedish Seafood Award in 2009 for establishing an effective research-based administration within a short time frame in Namibia.
- The Aquaculture Association of Southern Africa (AASA) Award in 2009 for distinguished service in promoting aquaculture in Southern Africa.

This has also come with the support of the Ministry of Environment and Tourism, through the establishment by the Ministry of Fisheries and Marine Resources of marine protected areas which help protect the environment.

Our main concern is that having worked so hard to establish a vibrant and growing fishing industry in Namibia, we do not want the Benguela Current Ecosystem disrupted by mining of phosphate, an internationally untested marine non-renewable resource, risking a significant downturn in Namibian fish stocks, with equally significant socio-economic impacts.

The Sandpiper Phosphate Environmental Impact Assessment must be undertaken properly because if the mining license issued to Namibian Marine Phosphate (Pty) Ltd., is allowed to become operational, this will potentially set a precedent for other marine phosphate mining companies to quickly follow. We have already heard that LL Namibia Phosphates (Pty) Ltd was issued a marine phosphate mining license in October 2010, and know there are also other companies with exclusive prospecting licenses.

We consider that Namibian Marine Phosphate (Pty) Ltd's mining license a serious threat to the Namibian fishing industry without a rigorous EIA based on well researched data where on site sampling is undertaken to verify conclusions. This is a first time marine mining project, not only for Namibia, but for the world, and what we currently see with the draft EIA is a lot of mainly desktop research data from studies by other organisations, most of which is not based specifically on the mining site. We believe it is in fact dangerous to draw conclusions from results out of completely different areas and from different activities such as marine diamond mining. And what we see from the EIA's general conclusions is that mining impact is generally moderate to low. How can the report define what is moderate or low without good on site data to substantiate conclusions?

Our view is that your six month deadline to submit the marine component environmental impact assessment is too rushed and has compromised the quality of the draft EIA study. Your scoping report appeared to be good in terms of public participation meetings, noting everybody's concerns, but these concerns do not seem to be covered in detail in the draft EIA report. Given the documented scoping report, we would like to know what changes were made to the terms of reference for your consultants undertaking the EIA specialist reports to incorporate the public's concerns.

Our understanding in New Zealand's marine mining legislation is that they have two years in which to undertake baseline research to gain a much more thorough assessment of the genuine marine mining environmental implications. Six months for an EIA study is certainly not the standard time needed. Particularly for a new project of this kind, one has to talk about years not months.

The Code for Environmental Management for Marine Mining was originally adopted and developed by the international mining industry to guide industry to act in an environmentally responsible way. It is in harmony with the environmental management guidelines layed down by the International Seabed Authority for marine mining. They provide operational guidelines and principles to level the playing field so that some companies may not be placed in an unfair competitive advantage due to a lack of environmental legislation covering marine mining in exclusive economic zones - as is the case in Namibia. First adopted in 2001, these guidelines were reviewed in 2008, and the revised version adopted in September 2011. So we are fortunate to have such recently revised international guidelines to guide us. They put the onus on the mining company to conduct the environmental baseline study, and carefully gathered on site data must be collected, not just a desktop study which is primarily the case for this EIA.

Appended to this letter are International Seabed Authority guidelines for the assessment of possible environmental impacts arising from exploration of polymetallic nodules, the principles of which are very relevant to assessing the environmental impact of marine phosphate mining. Dredging is specifically mentioned as an activity for which a baseline study is required.

Marine phosphate mining of the magnitude you propose (5.5 million tonnes a year) must first require detailed on site environmental studies before any decision can be made as to whether the project can go ahead. This magnitude of phosphate marine mining is a world first, and in our case is in a delicately balanced ecosystem which supports an internationally recognised commercial fishing industry. Namibia has signed off to: the United Nations Convention on the Law of the Sea (UNCLOS) which obliges signatory countries to preserve and protect the marine environment; the Reykjavik Declaration for an ecosystem based fisheries management programme; has ratified the Southern African Development Community SADC Fisheries Protocol; and applies the FAO Code of Conduct for Responsible Fisheries, which means when in doubt, following the "precautionary approach."

In the SADC Fisheries Protocol, which is accepted as customary international law, the precautionary approach requires that "in the case of newly proposed projects, in the absence of scientific certainty that no unjustifiable environmental harm will be caused, the proponent is to err on the side of caution", in favour of the environment. This means that the developer must prove the absence of environmental harm, and in the case of this current draft phosphate mining EIA, the data is far too generalised to substantiate this.

With marine phosphate mining, as the Namibian case is a world first, we are moving into uncharted waters. The Ministry of Fisheries and Marine Resources is the Namibian custodian of the oceans, yet it is our understanding that issues of concern and recommendations made in Ministry's scoping report to yourselves, dated November 2011, have been largely ignored.

We note that the External Reviewer, Mr. P. Morant of the CSIR signs off that this EIA complies with his requirements. We question his "neutrality" however. During the scoping phase stakeholder meetings, the external reviewer on a number of occasions downplayed concerns raised, and his statements are in the minutes of the scoping report meetings. He was also consulted for the "Fisheries, Mammals and Seabirds Specialist Study", which showed that he did not act independently of the EIA specialist team. The EIA report states "There are presently no identified issues of environmental significance to preclude the dredging of phosphate – enriched sediments from the Marine License Area No. 170." In most of the specialist studies very little on site data was gathered, so how does the external reviewer measure "environmentally significant"?

The mining activity radically disturbs the surface of the seabed but there are no detailed biogeochemistry reports of this sediment layer or of the water column above it. As shown in the International Seabed Authority guidelines appended, such measurements are expected, and are standard for both water column studies related to dredging and benthic studies. Yet this is not highlighted by the external reviewer.

Due to the crucial importance of this EIA being a world first, and if accepted, potentially opening the doors for more marine phosphate mining by other companies, we believe that an independent external review should be undertaken of this EIA. We also recommend that the reviewer have international credibility that can cope with the magnitude of this project and its cumulative implications, given that there are more companies interested in doing the same. Also the reviewer should have the capacity to put in safeguards given that this project is a world first.

During the public meetings it was specifically requested that a baseline study be conducted by the proponent. This was not done.
The Ministry of Fisheries and Marine Resources recommended that the EIA should include hydro-dynamic modelling of the total footprint of the particle plumes that will result from the phosphate mining operations, and should also model the effects on water quality, but this did not occur.

At the public meetings you stated that around 10% of the mined resource would be re-deposited in the sea as fine sediment. This mining operation will be dumping around 500,000 tonnes of sediment and fines back into the sea annually. We again ask have the implications of this been measured properly?

It appears that no core sediment samples have been analysed. There appears to be dark green mud in the mining area, which sets of alarm bells for sulphides in the sediment. If we do not know what will be mobilised by the sediment plume, we are operating blind. Heavy metals, sulphides, bacteria, nitrates etc. once into the water column become soluble. If some of these get into the food chain, they could negatively affect the quality of the fish, and stop Namibian fish exports.

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Years ago in New Zealand heavy metals were detected in hoki, a similar fish to Namibian hake, stopping exports for a period to Japan. It was later discovered that only hoki caught in a certain geographic area was over the heavy metals food safety limit, but the same could apply to fish caught in the geographic vicinity of the mining.

Data that has been gathered is either from desktop studies or from diamond mining areas where the conditions are different, and not as anoxic as at the phosphate mining sites.
There has been no modelling of plume impacts, and no account has been taken of the current and how far it could disperse plume contents. Also, we are very worried that the plume will cause anoxic conditions, which will not have time to disappear due to the short three day turnaround time of the dredger. This potentially will mean the mining area will become a dead zone for much sea life. While the impact on a few species is mentioned, an ecosystem approach is not applied in the EIA.

The definition of the impact criteria in the EIA are construed in such a way as to downgrade even the most serious permanent damage to an impact of medium significance.
Many of the risks identified that have been classified having low significance have confidence levels of low to medium or medium due to lack of data supporting the assumptions made.

a. Fisheries: 60 % low to medium confidence level due

b. Water column: 54 %

c. Benthos 77 %

Due to the above factors, the EIA must be considered as being inadequate, and can only predict with low to medium confidence what the significance of environmental impact will be. Consequently, mitigation measures suggested as well as the environmental management plan are meaningless. What has been presented in this EIA cannot be relied upon to provide interested and affected parties with peace of mind.

The abovementioned Guidelines for Marine Mining (also detailed in the Appendix) is a voluntary code and is mining industry initiated. If Namibian Marine Phosphate (Pty) Ltd prescribed to this code, a different EIA report would have emerged. One cannot help but wonder how seriously committed Namibian Marine Phosphates really is to preservation of the marine environment and if they take into consideration the potentially damaging effects it may have on a flourishing Namibian fishing industry which is a world example of sustainable exploitation thanks to measures taken by Government to preserve it.

Socio-economic studies have not been incorporated in the marine component of the EIA. It is assumed this will occur in the onshore EIA component. If that is the case, a complete picture of the marine EIA cannot be obtained until the onshore EIA is also completed, as an indepth socio-economic assessment is critical. The price for rock phosphate has only recently risen significantly, and then dropped back, but at a higher level than it previously was. At what point would the project no longer be economically feasible? What are the employment expectations and secondary businesses? What if this project fails, then Namibia sits with an ecologically unbalanced area and the entire mining infrastructure. The risk of the phosphate business has to be closely evaluated, and we ask whether financial calculations and forecasts are available to question the stability of the variables?

6

In addition there is the socio-economic issue of impacts on the Namibian fisheries resource. From the EIA it is acknowledged that 13.8% of the monk fish resource lies in the initial mining area, and due to their sedentary nature, are unlikely to be able to be caught in the future. You mention that a management plan would need to be sorted out for the sector. How would this help and from your perspective, what are the economic and social implications, and would you provide compensation?

The Namibian Hake Associations is considering obtaining Marine Stewardship Council eco-labelling certification which opens the doors for new markets. This certification requires rigorous fisheries management compliance. If conditions within the fishery changed due to environmental changes or environmental impacts due to activities of other resource users (such as mining activities) the fisheries management system would be expected to be reactive to the scientific advice provided. So, if stock assessments showed a decreasing in biomass one would expect management to react by either reducing the fishing effort or the total catches taken. This could mean a reduction in TAC or shortening of season, closure of some areas or a combination of these or other management measures. The Ministry of Fisheries and Marine Resources would also prescribe measures such as this, whether MSC certification is obtained or not. The important point is that there would be a direct negative socio-economic impact on the fishing industry.

The mining area is in the heart of fisheries breeding grounds. While Ministry of Fisheries and Marine Resources data was fed into the fisheries specialist study, the Ministry hake surveys are not conducted during peak spawning time, so gonad data cannot be used to make conclusive statements on spawning activity. Also, stations on the hake and monk surveys are fixed and may not fall within the Mining License Area. This means that no data may be available, but it does not mean that there is no fish.

Your report says that trawling for hake is highly unlikely to be affected, but this area is regularly fished by hake trawlers. Also with regard to fisheries positions you appear to cover only the three small identified mining areas within the overall Mining License Area (MLA). The MLA covers 2233 square kilometres, and there is nothing to stop the mining company from shifting mining sites. Consequently all calculations should be made on the total Marine License Area, and not on individual initial mining areas.

Also your report mentions the damage of trawling and says that until the effects of this are quantified, neither the cumulative or additive effects of mining can be assessed. We consider that a simple case of passing the buck. While we admit that trawling does damage the bottom substrate, the industry utilises special trawl bobbins that mitigate that damage. Our understanding is that your dredge suction mining method will suck up everything on the bottom to a depth of between 1.5 to 3 metres. That we consider totally devastating on the affected environment, and not to be compared with damage by trawling. We require co-ordinated video evidence of the claimed "trawling-damaged" seabed that is planned for mining-dredging in this area; and we would likewise require video coverage of the seabed mined areas to be part of the Management Plan.

Environmental monitoring should be conducted by the mining company at its cost, but we believe that to maintain accountability, the Ministry of Environment and Tourism should play a leading observational role similar to the Fisheries Observance Agency in the fishing industry, to monitor mining activities, even during exploration stages of a project. We as an industry are

obliged to have observers on board to ensure fishing activities remain within the sustainable levels set by the Ministry. The Environmental Act makes provision for inspectors.

The marine mining EIA also does not cover the environmental risks of the dredging vessel mooring point, pipeline and possible plume development for offloading the mined substrate, which is below mean high water mark, and consequently part of the marine environment. This must be covered as it impacts the Namibian aquaculture industry, inshore pelagic spawning as well as the kabeljou breeding grounds, and small pelagic fishing operations that take place in the shallows.

In the same way the possible dumping of post-processing effluent when/if it becomes too saline to dispose of in the onshore reed beds at Walvis Bay, must be addressed at this early stage as part of the marine EIA, as it poses a possible serious threat to mariculture activities if dumping into the sea is resorted to after several years of land-operation.

Namibia cannot afford to risk its international reputation by putting at risk the integrity of the Benguela Current Ecosystem and the future of the Namibian fishing industry, by make hasty decisions to go ahead with marine phosphate mining. It is well known that if a commercial fisheries resource is destroyed, it is usually replaced by useless species. Only after thorough on site data has been collected and analysed in a scientifically acceptable manner, can credible assessments be made. Without these data, at this stage we as a fishing industry say the risks are too high, that there is no compatibility between marine phosphate mining and commercial fishing and consequently both cannot operate together.

Yours sincerely

Silvanus T. Kathindi
Chairman
Confederation of Namibian Fishing Associations

CC:

Honourable Bernard Esau
Minister of Fisheries and Marine Resources
ruises@mfmr.gov.na
Fax: 061-233286

Mrs. Ulitala Hiveluah
Permanent Secretary
Ministry of Fisheries and Marine Resources
uhiveluah@mfmr.gov.na
Fax: 061-224566

Honourable Netumbo Ndaitwah
Minister of Environment and Tourism
pepaulus@met.na
Fax: 061-232057

Dr Kalumbi Shangula
Permanent Secretary
Ministry of Environment and Tourism
lhimumuine@met.na
Fax: 061-229936

Dr. Freddy Sikabongo
Directorate of Environment Affairs
Ministry of Environment and Tourism
freddy_sikabongo@yahoo.co.uk
Fax: 061-240339

Saima Angula
Directorate of Environment Affairs
Ministry of Environment and Tourism
saima@webmail.co.za
Fax: 061-240339

Honourable Isak Katali
Minister of Mines and Energy
lshivute@mme.gov.na
Fax: 061-2848363

Mr Joseph Iita
Permanent Secretary
Ministry of Mines and Energy
mhamupembe@mme.gov.na
Fax: 061-220 386

Dr Hashali Hamukuaya
Executive Secretary
Benguela Current Commission
hashali@benguelacc.org
Fax: 061-246948

Appendix

International Seabed Authority guidelines for the assessment of possible environmental impacts arising from exploration of polymetallic nodules

(a) For physical oceanography:

(i) Collect information on the oceanographic condition, including the current, temperature and turbidity regimes, along the entire water column and particularly near the seafloor;

(ii) Adapt the current measurement programme to the topography and regional hydrodynamic activity in the upper water column and on the sea surface;

(iii) Measure the currents and particulate matters at the depth of the forecasted discharge during the testing of collecting systems and equipment;

(iv) Measure the particle concentration to record distribution along the water column.

(b) For chemical oceanography:

Collect information on the water-column chemistry, including the water overlaying the nodules;

(c) For sediment properties:

Determine the basic properties of the sediment, including measurement of soil mechanics, to adequately characterize the surface sediment deposits which are the potential source of deep-water plume; sample the sediment taking into account the variability of the sediment;

(d) For biological communities:

(i) Gather data on biological communities, taking samples representative of the variability of bottom topography, sediment characteristics, abundance and types of nodules;

(ii) Collect data on the seafloor communities specifically relating to megafauna, macrofauna, meiofauna, microfauna, nodule fauna and demersal scavengers;

(iii) Assess pelagic communities;

(iv) Record levels of trace metals found in dominant species;

(v) Record sightings of marine mammals, identifying the relevant species and behaviour;

(vi) Establish at least one station to evaluate temporal variations.

(e) For bioturbation:

Gather data of the mixing of sediments by organism.

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(f) For sedimentation:

Gather data of the flux of materials from the upper water column into the deep sea.

(g) Monitoring during and after testing of collecting systems and equipment.

While the baseline study is conducted, there are specific requirements to preserve the environment as well as the kind of information to be supplied to authorities during the baseline study.

Comments by E van Dyk (07-02-2012)

Comments on the draft EIA report of Sandpiper Project

1. Par2.7.1 International Guideline for Marine Mining:
   a. The code is in fact not under development, but was first adopted in 2001, and was reviewed recently.
   b. Review started in 2008
   c. Revised version was adopted Sep 2011.
   d. Originally adopted and developed by mining industry itself to guide industry to act in an environmentally responsible due to the lack of environmental legislation covering marine mining. UNLCOS obliges signatory countries to preserve and protect the marine environment. UNCLOS have been promulgated through the MARPOL agreement of which Namibia is a signatory.
   e. Serves to help the industry along operational guidelines and principles to level the playing field so that some companies may not be placed in an unfair competitive advantageous position due to lack of environmental legislation covering marine mining in exclusive economic zones - as is the case in Namibia.
   f. Refers specifically to the identification of environmental risks and uses as an example the risk assessments as proposed by the International Seabed Authority (Recommendations for the guidance of the contractors for the assessment of the possible environmental impacts arising from exploration for polymetallic nodules in the Area.)
   g. These are:
      i. **Environmental baseline studies:**
         1. To be conducted by mining company
         2. **Data** must be collected (**not** a desktop study)

         (a) **For physical oceanography;**
         (i) **Collect information** on the oceanographic condition, including the current, temperature and turbidity regimes, along the entire water column and particularly near the seafloor;
         (ii) **Adapt** the current **measurement programme** to the topography and regional hydrodynamicactivity in the upper water column and on the sea surface;
         (iii) **Measure** the currents and particulate matters at the depth of the forecasted discharge during the testing of collecting systems and equipment;
         (iv) **Measure** the particle concentration to record distribution along the water column;

         (b) **For chemical oceanography:**
         Collect information on the water-column chemistry, including the water overlaying the nodules;

         (c) For sediment properties:
         Determine the basic properties of the sediment, including **measurement** of soil mechanics, to adequately characterize the surficial sediment deposits which are the potential source of deep-water plume; **sample** the sediment taking into account the variability of the sediment;

         (d) **For biological communities:**
         (i) **Gather data** on biological communities, taking **samples representative** of the variability of bottom topography, sediment characteristics, abundance and types of nodules;

(ii) **Collect data** on the seafloor communities specifically relating to megafauna, macrofauna, meiofauna, microfauna, and demersal scavengers;
(iii) **Assess** pelagic communities;
(iv) **Record** levels of trace metals found in dominant species;
(v) **Record** sightings of marine mammals, identifying the relevant species and behaviour;
(vi) Establish at least one station to **evaluate temporal variations;**

(e) **For bioturbation:**
Gather data of the mixing of sediments by organism;

(f) **For sedimentation:**
Gather data of the flux of materials from the upper water column into the deep sea.

ii. **Monitoring during and after testing of collecting systems and equipment.**
Also note that while the baseline study is conducted, there are specific requirements to preserve the environment as well as the kind of information to be supplied to authorities during the baseline study. Dredging is specifically mentioned as an activity for which a baseline study is required.

DURING PUBLIC MEETING IT WAS SPECIFICALLY REQUESTED THAT A BASELINE STUDY BE CONDUCTED BY THE PROPONENT – THIS WAS NOT DONE.

2. The definition of the impact criteria are construed in such a way as to downgrade even the most serious permanent damage to an impact of medium significance.
3. The report is conspicuously lacking in data to support the assumptions made. Much of it is based on desktop studies, or on data gathered in diamond mining areas where the conditions are not the same.
4. Many of the risks identified that have been classified as having low significance have confidence levels of low to medium or medium due to lack of data supporting the assumptions made.
    a. Fisheries: 60 %
    b. Water column: 54 %
    c. Benthos 77 %

The abovementioned Code for Marine Mining is a voluntary code and is mining industry initiated. If NMP prescribed to this code, a different report would have emerged. One cannot help but wonder how seriously committed NMP really is to preservation of the marine environment and if they take into consideration the potentially damaging effects it may have it may have on a flourishing fishing industry which is a world example of sustainable exploitation thanks to measures taken by government to preserve it.

Due to the above factors, the EIA must be considered as being inadequate, and can only predict with low to medium confidence what the significance of environmental impact will be. Consequently, mitigation measures suggested as well as the environmental management plan are meaningless. What has been presented in this EIA cannot be relied upon to provide interested and affected parties with peace of mind.

Comments by J. Kemper (03-02-2012)

Draft Environmental Impact Assessment Report:
Namibian Marine Phosphate Sandpiper Project

Comments by: J. Kemper, Seabird Biologist, African Penguin Conservation Project, PO Box 583, Lüderitz

3 February 2012

1. General comments

The government of Namibia embraces a resource management policy based on the concepts of **SUSTAINABILITY** and the **PRECAUTIONARY PRINCIPLE** approach. This draft EIA report clearly demonstrates (through a series of mostly desktop-only specialist studies, of which one in particular is substandard – see specific comments below) that little is currently known about the functional ecology of the area in which large-scale phosphate mining is planned and its surrounds.

Therefore, the main conclusion of this EIA draft report that *"[t]here are presently no identified issues of environmental significance to preclude the dredging of phosphate-enriched sediments from the Mining Licence Area No. 170*" (summary, page xi) is plainly wrong and therefore unacceptable.

Similarly, the assertion that "*provisional investigations by NMP through appointed environmental consultants and specialists has* [sic] *determined that the recovery (dredging) and terrestrial processing/beneficiation (washing and separation) of the phosphate, with appropriate mitigation and responsible management practices in place, will not have a significant detrimental impact on the environment at each of the affected locations. However, this remains to be confirmed through this formal EIA-EMPR process*" (section: project description, page 3-4) is highly premature and deceptive.

I reiterate the primary concerns I first voiced during the scoping process: this project should only be considered if a **series of extensive, comprehensive, relevant research and monitoring programmes, done well in advance and reviewed by competent specialists**, can convincingly show that any negative impacts are negligible to the environment. So far, the specialists' reports (apart from, perhaps, the report on jellyfish impacts) have not been convincing, mostly because of a lack of (local) baseline data. It is imperative that these programmes to collect baseline data are done to confirm a range of potential impacts BEFORE an EIA clearance is issued. Doing so after obtaining an EIA clearance, or even after mining activities have commenced, as is suggested in some instances (e.g. water column specialist report, page 48), defeats the purpose of an environmental impact assessment. Given the number of industrial mineral EPLs that have been granted along the Namibian coast, the potential cumulative impacts of mining phosphate deposits and diamonds need to be considered in more detail in the final EIA report.

Although assurance has been given by the consultants that only the revised final EIA report will be evaluated by MET, the ethics of submitting a draft EIA report that has not been scrutinized by the public, are debatable. Moreover, the approval of the draft EIA report by the independent external reviewer, despite the poor quality of at least one specialist report, presumably to meet the obligations and deadline set by the Ministry of Energy and Mines in terms of the exploratory mining license granted, greatly questions the credibility of the team of consultants and the external reviewer.

On a perhaps more subjective, personal note, the project's main 'sales pitch' appealing to Namibia's altruistic social conscience by highlighting the project's noble role of "contributing significantly to the sustained supply of world food production", is one of dubious merit. This planned project is a purely commercial venture, with few tangible benefits to the Namibian people, other than the creation of a few jobs (estimated to be fewer than 160 overall, after initial construction), and, if anything, poses an environmental and human health risk, as well as jeopardizes the Namibian fishing industry, one of Namibia's most important food-producing sectors. Instead of focusing the world's reliance on finite resources (especially those extracted from and processed in environmentally sensitive areas) to ensure world food security, there needs to be a concerted global shift towards more sustainable and low-impact food-producing practices and more environmentally friendly generation of phosphate fertilizers, e.g. through composting.

2. Chapter 3 – Project description
Table 3.3 (pg 3-19): coordinate A is wrong (14º57'05" is inland).

3. Chapter 4 – Description of the Affected Environment
The part on seabirds (page 4-26) is outdated and wrong in part. This needs to be revised (see also comments on the specialist report dealing with birds).

The part on seals (page4-27) is also outdated and needs to be revised (see comments on seals in the specialist report).

4. Chapter 7 – Environmental Impact Assessment
My concern raised in the scoping phase about the use of lights at night by the dredger, which could increase collision risk to birds (with the vessel and suspended cables) has not been addressed.

My concern that the proposed mining area could be an important foraging area for seabirds, particularly non-breeding African Penguins, has not been addressed by the relevant specialist report (see my detailed comments below).

5. Chapter 8 – Environmental Management Plan
There are no facilities (or capacity) for the rehabilitation of oiled seabirds at MFMR Walvis Bay or Swakopmund. Arrangements should therefore be made for the transfer of oiled birds to the seabird rehabilitation facility managed by MFMR in Lüderitz.

"National Oil Spill Response Plan": does this refer to the current National Oil Spill Contingency Plan (NOSCP)? Considering that this plan is, in its current state, not implementable and completely outdated, the project should draw up its own oil spill contingency plan (in close collaboration with relevant stakeholders), unless the revision of the NOSCP (a) has been completed by the time mining operations could commence and (b) has improved to the point where it is of actual use.

What is MFMR's policy on the refueling of vessels at sea?

6. Specialist Report: Fish and Fisheries (Mr. D. Japp)
(Note that this title differs from that given in the EIA report itself, i.e. "Marine Fauna and the Fishing Industry")

As a seabird biologist working primarily on seabirds breeding along Namibia's coast, I have focused on the parts of the report dealing with seabirds, but am also commenting on some other aspects of the report. General and specific comments are outlined below:

Section 2.3.3, page 18, paragraph 2: Bearded goby as a food source for seabirds: incorporate findings of Ludynia et al. 2010a.

Section 4.1 Seabirds:
On the whole, this section is poorly researched and presented, is meaningless, irrelevant or misleading in places and lacks recent information throughout. Gaps and errors are listed below:

Pg 31, paragraphs 1 and 2 (see also Appendix 1a-1): The IUCN threat listing in the report is outdated and the table needs to be completely revised (see my corrections under heading Appendix 1a-1). Threat categories, together with reasons for the listing and a history of listings can be found for each species at http://www.iucnredlist.org/. The latest listings, as well as correct and up to date common and scientific names can also be found in Sinclair et al. (2011).

Therefore, none of the bird species listed as occurring in the area under considered in the specialist report is considered "critically endangered". However, five seabird species are listed as "endangered" (and not zero, as mentioned in the report), including two species breeding along the Namibian coast (African Penguin and Bank Cormorant). At least one other species is listed "locally endangered", i.e. the Cape Gannet (Kemper in press).

Page 31, paragraph 4: Presenting the decline of African Penguins in Namibia in terms of changes in the proportion of the Namibian breeding population relative to the global population is meaningless on its own, as it does not necessarily imply an overall decline in population numbers, but could also merely be reflecting distributional shifts. Moreover, the presented trends are very much outdated, based on information from more than 20 years ago (Crawford et al. 1991), when there have been several more recent published updates of population sizes and trends, most recently in Kemper et al. 2007 (see also IUCN website information on African Penguins). The information given for Cape Gannet and Cape Cormorant population trends is equally meaningless and outdated, and should be replaced with more recent information (e.g. Kemper et al. 2007, Crawford et al. 2007a,b, IUCN website species accounts).

Page 31, paragraph 5: Not only the Cape Gannet has suffered as a result of the decline of the pilchard (=sardine), but also the African Penguin and the Cape Cormorant, as well as other bird species feeding along Namibia's coast (e.g. du Toit et al. 2003, Kemper et al. 2007, Crawford et al. 2007a,b, Ludynia et al. 2010a).

A shift in seal distribution (not least because of the disturbance of seals, caused by seal harvesting operations at mainland seal colonies) caused the displacement of seabirds from a few islands, notably of penguins and gannets from Mercury Island during the 1980s; through management intervention (Crawford et al. 1989) this island has been re-established as a seabird breeding locality and now hosts the largest number of African Penguins and the vast majority of the entire global breeding population of Bank Cormorants (Kemper et al. 2007). While seal competition for food and breeding space is a factor contributing towards the poor breeding success and subsequent decline of several African Penguins and Cape Gannets breeding in Namibia, the combination of a lack of quality food, lack of suitable nesting habitat (mostly due to guano harvesting) and human disturbance is far more critical.

Page 31, paragraph 5: "Crawford, 1991" should read Crawford et al., 1991?

Page 31, paragraph 6: Giving the listings of African Penguins, Caspian Terns and Damara Terns in the South African Red Data Book (Barnes 2000) is irrelevant to the status of Namibian populations (and outdated). And no, the listings do not apply equally to the Namibian populations of these three species, as there are distinct regional differences in

population sizes and trends. The Namibian Red Data Book, to be published later this year, will provide more relevant information on local conservation status (Simmons and Brown in press).

Page 31 final paragraph/page 32 first paragraph: This information is completely irrelevant in the context of this EIA specialist report. Why single out the Damara Tern? African Penguin, Cape Gannet, Cape Cormorant, Bank Cormorant, Crowned Cormorant and Hartlaub's Gull are also breeding endemics to the region (Angola, Namibia and South Africa). Considering that the foraging ecology and foraging habitat requirements of African Penguins and Cape Gannets are more relevant to the proposed mining area than those of Damara Terns, which are inshore (surf-zone) feeders, I do not understand the inclusion of this paragraph.

Section 4.2.3., page 36, seals:
Why use a population estimate from more than 20 years ago, when more recent estimates are available (Kirkman et al. 2007)? Incidentally, overall numbers of seals have stabilized since the 1990s (Kirkman et al. 2007).

Satellite transmitter study on Cape Furs Seals in Namibia: off central Namibia generally remained within 150km of the coast, at a water depth of <200m, and<500m to the north and the south (Skern-Mauritzen et al. 2009).

The official common name of the species is "Cape Fur Seal".

Section 5.1. Marine Resources Act 27 of 2000:
How about mention of Section 18(b): …"a person may not kill, disturb or maim any [*a list of birds, including penguin, albatross, petrel, shearwater, prion, gannet, cormorant, skua, gull and tern*]…"

Page 37, paragraph 3: why not point out here that Namibia has got one (inshore) MPA, the Namibian Islands' Marine Protected Area, declared in 2009, but that this is only a first step in declaring a network of MPAs to represent all marine habitats under Namibian jurisdiction in 2012 (as per WSSD agreement and EAF management commitment).

6.1. Data and methodology of impact assessment:
Why is the potential loss of feeding habitat (through habitat destruction and removal of prey fauna) to top predators not included in the list of direct impacts? – See also J. Kemper comment in scoping report.

Page 45: "as long as the effects of dredging are not transported inshore where most small pelagic spawning activity occurs, the effects of phosphate mining on small pelagic commercial fish are considered low" – this potential key factor needs to be investigated, before this impact may be considered low.

Page 53: Pelagic Goby should be Bearded Goby

Page 55, Table 5: what time of year were these surveys done? How many surveys were done in total for each species?

Page 56: Given the poor data quality (e.g. "the lack of sardine and anchovy ichthyoplankton in the area could purely be a result of the lack of survey stations in the southern areas of Namibia"), how can it therefore be concluded that mining is unlikely to impact recruitment of any commercially and ecologically important fish species?

Page 61: "The extent of [the impact of mining operations on fish biodiversity] is difficult to judge." The precautionary approach would be to permit mining under strict monitoring conditions once a biodiversity baseline for the MLA has been established".

An EIA clearance should not even be considered until such a baseline inventory of biodiversity (not only restricted to fish species!) has been established and the impact of mining on species diversity assessed properly. Rating the significance as "low" in the context of what is currently known is therefore highly premature and misleading. What is precautionary in allowing mining under "strict monitoring conditions"? The precautionary approach would be to assess this impact based on proper data, before mining should be considered.

Page 61, Impact 5: Impact on seabirds and marine mammals:
Equating the lack of data to a "zero" measurement is wrong, dangerous, leads to highly misleading and incorrect conclusions, and in this case casts serious doubt on the specialist's competence. Thus, the notion that no important seabird foraging areas fall within the vicinity of Conception Bay, based on checking papers/books that describe several general aspects of the biology, behaviour, breeding distribution, population trends, conservation status etc of a number of bird species, is false. None of the listed references deal with the identification of seabird key foraging areas, except for Pichegru et al. (2007), who discuss gannet foraging ecology in South Africa - hardly surprising therefore that the area around Conception Bay is not mentioned! It is therefore completely ludicrous that this specialist report, in one sentence, immediately and entirely dismisses the potential importance of the MLA and surrounds as foraging habitat for seabirds.

Has anybody actually looked at the importance of Conception Bay and surrounding areas as foraging habitat? As I had already mentioned in my comments during the scoping phase of this project, the use of seabird data logger technology has in the past been constrained in a number of ways, and we have only fairly recently started to equip seabirds breeding on Namibian islands with loggers (namely African Penguins, Cape Gannets and Bank Cormorants to identify key foraging areas and to ascertain foraging ranges of breeding birds (see for example Lewis et al. 2006, Ludynia et al. 2010b, 2011). The foraging ranges (and therefore potentially the use of high quality foraging areas) of breeding birds are constrained by the obligation to return to their breeding islands to feed their chicks at regular intervals.

Very recent advances in logger technology are now enabling us to track non-breeding birds, which are likely to feed further away from natal/breeding localities. As I had already pointed out in my comments during the scoping phase, one example of this can be found on the "Penguin Watch" web site of the Animal Demography Unit at UCT, which tracked the routes of a few newly fledged African Penguins from South Africa using this novel logger technology. Some of these penguins travelled up the coast to central Namibia (and possibly beyond), using both offshore and inshore routes. Until the importance of the area to be mined and its surrounding areas as a foraging area to seabirds has been assessed properly, this risk factor cannot be dismissed.

Page 62, final paragraph: increased particulate matter may attract some birds such as Storm-Petrels, but is unlikely to "naturally attract" birds relying on vision to feed (e.g. penguins, gannets, albatrosses and others). Feeding in waste discharge (of dubious energy content) can also hardly be considered beneficial to foraging birds, and should therefore not be rated as a neutral impact.

Page 63, Table 8: if the ecology of the dredged area is altered (through removal of benthos and displacement of fish communities), thus leading to a loss of foraging habitat and food to seabirds and mammals, then the duration surely is likely to be greater than "very short term", and more likely to be rated medium to long term. Should this area be an important foraging area, particularly to threatened seabirds such as African Penguins and Cape Gannets, the intensity would be greater than "minor" and the significance greater than "low". Confidence level, given the poor knowledge of the utilization of the area by seabirds and mammals should be rated as "low".

No mention has been made of the effect of ship lighting at night on seabirds (collision risk), as raised during the scoping phase, nor have any mitigating factors on this issue been outlined in either the specialist report or the Environmental Management Plan.

Page 69 and others: Currie and Grobler 2007 should be replaced by Currie et al. 2009.

8.2 Monitoring: There is no emphasis or even mention about conducting baseline studies (e.g. on the importance of the area as a fish spawning/nursery area or seabird/mammal foraging area) to confirm the validity of this assessment prior to granting an EIA clearance and prior to the commencement of mining.

Other queries: why are chelonians (particularly the critically endangered Leatherback Turtle which does occur in small numbers in these waters) not mentioned?

Appendix 1a-1 - corrections:

- African Penguin: may also occur offshore (>100km from the coast; see Penguin Watch satellite logger tracks of juvenile penguins); IUCN conservation status "**Endangered**" (revised 2010)
- Shy Albatross: IUCN conservation status "Near Threatened" (revised 2010)
- Black-browed Albatross: IUCN conservation status "**Endangered**" (revised 2010?)
- Yellow-nosed Albatross: IUCN conservation status "**Endangered**" (revised 2010)
- Northern Giant Petrel: IUCN conservation status "Least Concern" (revised 2009)
- Southern Giant Petrel: IUCN conservation status "Least Concern" (revised 2009)
- Atlantic Petrel: IUCN conservation status "**Endangered**" (revised 2010)
- Spectacled Petrel: IUCN conservation status "Vulnerable" (revised 2008)
- Sooty Shearwater: IUCN conservation status "Near Threatened" (revised 2004 and 2008)
- White-bellied Storm Petrel: should read ***F.*** *grallaria*
- Bank Cormorant: IUCN conservation status "**Endangered**" (revised 2010)
- Grey Phalarope should be Red Phalarope
- Arctic Skua should be Parasitic Jaeger; also occurs inshore
- Pomarine Skua should be Pomarine Jaeger; also occurs inshore
- Long-tailed Skua should be Long-tailed Jaeger
- Subantarctic Skua should be Southern Skua
- *Larus sabini* should be *Xema sabini*
- Band-rumped Storm-Petrel *Oceanodroma castro* needs to be added to the list

Concluding remarks on the Fish and Fisheries Specialist Report:
My impression is that this specialist report was done in a rushed manner. The resulting report is therefore of poor quality, using outdated and/or irrelevant information and is riddled with errors, omissions and misleading statements.

To reiterate the results and conclusions of this specialist report:

(1) Fishing grounds for various species, most notably monk, will be impacted, and mining operations are likely to cause fish displacement and mortality.
(2) Significant alterations of the ecosystem in the immediate mining area are expected.
(3) No major impacts regarding fish recruitment are expected, but this conclusion is based on poor data;
(4) The impact on fish biodiversity in the immediate mining area is thought to be severe but unlikely to be detrimental, although little is known about the area's biodiversity.
(5) The impact of mining on seabirds and mammals is only considered in terms of altered behaviour and neglects the potential loss of prey and foraging habitat altogether.

The nature and scale of some of the impacts identified (relating most notably the impact on the monk fishery), the large numbers of "unknowns" due to poor data availability, and the poor quality of this report *per se*, show that this project should not be given an EIA clearance at this stage. It is disturbing that a report of such poor quality was approved by the external reviewer. The fact that this was done one day before the deadline imposed by the Ministry of Mines and Energy supports the notion that this report was put together in a rush to beat the deadline, sacrificing thoroughness and quality in the process.

5. Specialist report: Water Column (R. Carter)
I am not commenting in detail on this specialist report, as I am not an expert on most of the issues addressed here. Below are some general comments:

The duration and intensity of suspended sediment generated by dredging (and its potential effects on organisms in the water column) is rated as "very short term" and "no lasting effect". While a plume may indeed disperse within 1-2 days, the relative continuous nature of planned dredging activities (excluding down time and offloading/refueling time) implies that by the time operations run routinely there will be a relatively permanent plume in the dredging area. Since the report mentions that chronic effects may ensue after 3 days of exposure at a suspended sediment concentration of >20mg/l, how can the intensity be rated as having no lasting effect?

Six of the eleven identified impacts are assessed on untested assumptions, predictions and lack of relevant local data. The significance of these impacts should therefore not be rated until assumptions and predictions have been verified and the relevant data have been collected. It is recommended that these issues should be addressed through investigations prior to commencement of mining (yes) "or in its early/initial stages" (not acceptable).

6. Specialist report: Benthos (N. Steffani)
This report seems to be well written. The conclusions highlight the need for better baseline data and the necessity of reevaluating and verifying the current assessment, and emphasize the risk of potential cumulative impacts.

7. Specialist report: Jellyfish (M. Gibbons)
This report seems to be well researched.

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Comment by J. Currie (08-02-2012)

8 February 2012

Sigi Horsthemke
Enviro Dynamics
PO Box 4039
Windhoek
Email: sigi@envirod.com

Re: Comments on the Draft Marine Environmental Impact Assessment Report: Dredging of marine phosphates from ML 170

Dear Sigi

The EIA report is inadequate and flawed in multiple aspects and does NOT provide confidence that the surrounding environment and fisheries resources would NOT be compromised by the proposed dredging activities. The majority of environmental risks identified in the EIA, are assessed with low/low-medium/medium certainty, due to a lack of data or lack of studies on the relevant processes within the immediate vicinity, yet the external reviewer concludes that: "The report provides a clear picture of the proposed project and the potential impacts arising from it. The potential impacts have been assessed based on the best available information and thus the findings can be accepted with confidence." Such conclusions can only indicate to me that the external reviewer ascribes to the reasoning that 'a lack of data proves that there is no reason for concern', which is scientifically flawed and suggests to me a biased and non-objective opinion.

I will pick on just one of several examples of inadequately assessed risks, namely "Trace metals (cadmium and nickel) bound in the dredged sediment are discharged with the over spill water thereby affecting organisms in the water column.":

The consultant claims that this risk will only affect the dredge area. How does he expect the fines plume (affected by currents and turbulence) to stay within the immediate dredge area? He then suggests that the toxicity effects on plankton would be minor, stating that regeneration rates for plankton are days to weeks. However cadmium is a toxic heavy metal that bio-accumulates. Hence it is very likely to enter the ecosystem and affect other organisms on a longer time-scale and broader area, potentially reaching the fishery resources and us humans that consume them. I would argue therefore, that it is incorrectly assessed as being of 'low' significance (as in the

report). Cadmium concentrations in the shelf sediments off Namibia have been measured to be 1000x higher than those in normal shale deposits.

One other major and striking point is that the entire EIA seems to be conducted with only the selected (relatively small) mining areas in mind (SP1/SP2/SP3) and potentially serious effects are continuously down-played by emphasizing that the area to be mined will be a small fraction of the entire shelf. However there are two problems with such justifications:

1) The entire mining licence area covers 2233 km^2 – once an EIA is approved and mining starts, there is no guarantee that the mining company could not change the selected mining area and/or strategy and could mine anywhere (and as much as they want) within their mining licence area. Over the lifetime of the licence (20 years), technological advances could conceivably be made which would increase their capacity substantially and perhaps they will end up mining a much larger area than is being predicted now.

2) There are a host of other prospecting licence areas (owned by other and the same company) in the surrounding area. What will the cumulative effect be once all these areas are being prospected and/or mined? I understand that NMP will argue that it is not their duty to investigate these cumulative effects, however it invalidates their arguments of the (supposedly very small) scale of their effects on the ecosystem.

Lastly, I would like to point out that the timing and rushed nature of this draft EIA desktop study, indicates that the proponents had no intention of undertaking serious investigations into potential environmental concerns or threats. The deadline for public participation comments (on the scoping report) was on the 2 December 2011 and the draft EIA was handed in on the 13 January 2012. How would any additional raised concern or threat be investigated during those six weeks (especially during the festive season)? I would like NMP to make public their mining licence contract, which supposedly had the non-negotiable condition of handing in an EIA within six months of the licence being issued. Such a condition is completely unethical and unacceptable in my opinion, especially considering the complexity and scale of the proposed project and its potential effects on the environment and other industries.

Comment by M & M Stanton (08-02-2012)

NMP Marine EIA Component Comments

General Comments:

1. The "Environmental Impact Assessment" (EIA) submitted to the Department of Environmental Affairs (DEA) at the Ministry of Environment and Tourism (MET) by Namibia Marine Phosphate (NMP) is merely the Scoping Report with a revised cover. This in unacceptable practice, and the "EIA" report should be rejected.

2. With respect to public participation, stakeholders and the public were invited to attend and partake in an initial Scoping Phase meeting in September. No follow-up meetings to discuss the findings of the Scoping Study were conducted. Only written comments were accepted before completion of the Scoping Phase and many of the comments discussed during public meetings were not addressed. The Public Participation process on the Scoping Report should be considered largely incomplete.

3. During the only public meeting (for the Scoping Phase), it was stated that the Scoping Phase would define the specialist studies required in the EIA (as per correct due-process). The stakeholders and public were never informed of the commencement of the EIA process. No Public Participation has been completed for the EIA. The EIA process is therefore incomplete and the report should be rejected.

4. NMP have submitted the Scoping Report as an EIA in order to meet a deadline for submission as required by the Ministry of Mines and Energy (MME). NMP should rather have requested an extension from MME in order to complete Scoping Phase correctly and actually conduct an EIA as required by law. The reasoning provided by NMP is unacceptable, and indicates their unwillingness to comply with the due-process and legal requirements in Namibia, and internationally accepted best practice. The document submitted as an EIA should be rejected and NMP forced to undertake a complete EIA, including all marine and terrestrial activity and a complete Public Participation component.

5. No Public Participation (incl. stakeholders such as the Ministry of Fisheries and the Fishing Industry) was conducted on the "EIA" document submitted to the DEA. As such the document should be considered incomplete and rejected.

6. Environmental Impact Assessments (EIA's) are conducted at project level. NMP's decision to split the EIA into two, namely the marine and terrestrial components is aims to circumvent the laws of Namibia and is unethical. The project should be considered in its entirety. The marine component cannot operate without the terrestrial component and the terrestrial component is considered part of mining operations under the Minerals Act. As such it is one project and one EIA should be undertaken incorporating all components of the project showing each impact on its own as well as the cumulative impacts of the terrestrial and marine components. Only when the public and the decision makers are able to see the cumulative impacts will they be able to make the necessary informed decision about environmental impacts of the project as a whole.

7. No social equity and economic issues are addressed at this stage, even though mining in the marine environment will clearly affect social equity, economic issues, and potential job losses in the fishing industry. The report states, that this is to be addressed together with the terrestrial component of the EIA, however it is very clear that even from just the marine component, these factors will be seriously affected. In order to make an informed decision, the entire EIA for the project should be completed and submitted to government, before any decision is taken.

8. Not all of the marine components of the project have been addressed (the mooring and pipeline to transport the sediment to the coast), even though the impacts will be below the high water mark. This component should have been addressed in the marine component of the report or at the very least submitted simultaneously for constructive review.

9. The Vision 2030 Document is only partially quoted. Should the Environmental Consultant wish to incorporate the Vision 2030 Document, all relevant quotations should be provided, including:

- Sustainable development is defined as the type of development that meets the needs of the present without limiting the ability of future generations to meet their own needs. Development activities should address the actual needs of the people.

  -Summary Vision 2030 pg 13

- Things to avoid: Anything that threatens Namibia's unique sense of place, regional problems that might threaten the tourism industry. The worst case scenario is to use ecologically sensitive areas for other activities than tourism.

  -Chapter 5 Vision 2030 pg 153 (18)

- The Natural resources are the nation's ecological wealth and must remain healthy and productive and only minimal pollution from industrial areas will be permitted. Deserts, wetlands, coastal and marine ecosystems will be open, diverse, stable, and productive.

  -Preface Vision 2030 pg 14 (2)

- Our environment is clean and we will continue to keep it clean.

  -Summary Vision 2030 pg 14

- No atmospheric pollution or minimal pollution from industrial or urban areas. Natural ecosystems should be stable and sustainable socially, economically, and ecologically. Deserts, wetlands, coastal and marine systems are open, diverse, stable, and productive.

  -Summary Vision 2030 pg 40

- Things to avoid: any activities that threaten marine biodiversity or cause pollution, increase in litter sewerage, water demand, traffic, noise or developments that do not have an acceptable Environmental Management plan and could be harmful to human health or the environment and threaten sustainable development. Worst case scenario: increasing

pollution, coastal degradation and biodiversity loss. Industry becomes too powerful and exerts pressure on government.

-Chapter 5 Vision 2030 pg 159 (24)

- Namibia's marine species and habitats contribute significantly to the economy and the functioning of the natural ecosystems and biodiversity must be maintained.

- Summary Vision 2030 pg 43

- There should be a focus on environmentally friendly economic opportunities and livelihood options.

- Summary Vision 2030 pg 28

- The integrity of ecological processes, natural habitats and wildlife populations throughout Namibia must be maintained. Significant support for national socio-economic development comes from low-impact, high quality consumptive and non-consumptive uses.

-Summary Vision 2030 pg 44

- Tourism has more potential as a sustainable industry than virtually any other form of economic development in Namibia. It amounts to the same product- be it scenery, wildlife or open spaces (provided it remains unspoiled) - being sold repeatedly, without being depleted.

-Summary Vision 2030 pg 29

- Sustainable use of marine ecosystems in fishing and tourism industries provides ideal opportunities for economic growth.

-Summary Vision 2030 pg 44

- VISION 2030: failure to protect Namibia's threatened and endangered species, inadequate or inconsistent implementation of environmental laws. Worst case scenario: rapid rates of biodiversity loss, increased vulnerability

to environmental change and loss of productivity, decline in Namibia's tourism potential.

- Chapter 5 Vision 2030 pg 168 (33)

- Things to avoid:
  - urbanisation spilling over into sensitive coastal areas causing the destruction of valuable ecosystems and their resources
  - discouraging public participation and decentralization
  - limited waste management and hazardous waste control
  - negligent governance which ignores vital issues pertaining to sustainability
  - NO accountability, public participation and security
  - a loss of green space, noise pollution, and aesthetically unpleasant sights and smells which can erode civic pride, lower morale and result in a loss of well-being amongst urban residents

Worst case scenario: aesthetically unpleasing uncontrolled urban sprawl and informal areas, health hazards, citizens with low morale, limited civic pride and minimal involvement in decision making.

-Chapter 5 Vision 2030 pg 172 (37)

10. Environmental Management Act of 2007
    - section 3(2) (d) functional integrity of ecological systems must be taken into account to ensure the sustainability of the systems and to prevent harmful effects
    - section 3(2) (g) Namibia's cultural and natural heritage including, its biological diversity, must be protected and respected for the benefit of present and future generations
    - section 3(2) (k) where there is sufficient evidence which establishes that there are threats of serious or irreversible damage to the environment, lack of full scientific certainty may not be used as a reason for postponing cost-effective measures to prevent environmental degradation
    - section 3(2) (l) damage to the environment must be prevented

11. Nature Conservation Ordinance of 1975:
    - Section 14: "for the propagation, protection, study and preservation therein of the wild animal life, fisheries, wild plant life and objects of geological,

ethnological, archaeological, historical and other scientific interest and for the benefit and enjoyment of the inhabitants of the Territory and other persons"

- Section 18 makes it illegal to convey any explosive or poison, negligently injure or disturb any animal or nest, cause any damage to anything of scientific interest, damage or destroy an indigenous plant in a Park.
- Section 83(6)(a) states that "any permit, licence, registration, approval, permission or exemption issued or granted contrary to the provisions of this Ordinance shall be invalid."

12. Marine Resources Act of 2000:
    - Section 52(3)(e) "Any person who discharges in or allows to enter or permits to be discharged in Namibian waters anything which is or may be injurious to marine resources or which may disturb or change the ecological balance in any area of the sea, or which may detrimentally affect the marketability of marine resources, or which may hinder their harvesting, shall be guilty of an offence and liable on conviction to a fine not exceeding N$ 500 000."

    - Section 52(3)(f) "Any person who kills or disables any marine animal by means of any explosive, poison or noxious substance, or by means of a firearm except as may be prescribed, shall be guilty of an offence and liable on conviction to a fine not exceeding N$ 500 000."

13. The entire Chapter 6 is invalid. No Public Participation was completed on the EIA Report. A single series of Public Participation was completed on the Scoping Phase only. During the Public Participation, stakeholders and the public were deliberately misled to believe that follow-up meetings on the Scoping Phase would be completed prior to the completion of the Scoping Phase Report - this is available on video records. During the Public Participation for the Scoping Phase, stakeholders and public were deliberately misled to believe that the EIA process was yet to commence, and that full Public Participation would be conducted for the EIA process. This is also available on video records.

14. In the Public Participation meeting for the Scoping Phase, NMP went to great lengths to inform the public that all Namibian legislation would be reviewed, and

that in addition all international best practices would be applied. NMP and the Environmental Consultants have failed to deliver on this commitment.

15. Numerous concerns and comments brought forward by stakeholders and the public have not been addressed in the Scoping Phase Report and therefore the "EIA" Report. This includes:

    - the use of incorrect diameter sieves in sediment studies
    - the lack of sufficient relevant specialist studies
    - the questioning of the competence of the unsuitably qualified consultants (for example Mr. Midgely is a geologist - he does not have a suitable qualification to be completing marine specialist studies)
    - the fact that the project was divided into 2 EIA's, namely Marine and Terrestrial
    - the involvement of Mr. Pat Morant as the 'external reviewer' raised numerous concerns among the public and MFMR. He was also listed as a specialist consulted in the fisheries, mammals and seabirds specialist studies, thereby making his 'independence' questionable. He also answered questions for the NMP at the public meetings as if he were in fact a consultant for NMP. A full EIA needs to be conducted and reviewed by an independent reviewer appointed by MET as stipulated in the Environmental Management Act (2007).

16. During the scoping phase, issues were raised by marine experts about the need for additional specialist studies. These should have then been included in the ToR for the full EIA. However, since a full EIA was never conducted, these specialist studies were never considered or conducted. The modelling of plumes was not done and therefore the possible effects on the biota are impossible to tell. International experts have raised another major issue in the use of incorrect diameter sieves in sediment studies. Due to the flawed sediment studies conducted by consultants not qualified in this field, it is impossible to determine how many and what species will be affected by the project and the ultimate disastrous affect this will likely have on the entire marine ecosystem and potentially the fishing industry. The various desk top studies are simply not acceptable as there is at present no previous experience worldwide with marine phosphate mining since it has never occurred before or anywhere else in the world.

All the more reason to be sure that all potential environmental concerns are adequately addressed. The potential for marine ecosystem collapse is a very real concern based on the scientific understanding of the sensitivity of deep sea marine ecosystems. The lack of experience, expertise, and adequate studies by the consultants is being seriously downplayed and the uncertainty of the consultants is being used to justify a so-called low or non-existent environmental impact for the various components. According to the Environmental Management Act, lack of full scientific certainty may not be used as a reason for postponing cost-effective measures to prevent environmental degradation. One such cost-effective measure is to conduct a full EIA by qualified experts in order to determine the true environmental impact.

17. Scientific documents used to justify the lack of need to undertake an EIA were outdated. More modern, relevant documentation is available and was provided to the Environmental Consultants for inclusion. The Environmental Consultants have stated that the Ministry of Fisheries and Marine Resources failed to provide relevant studies. This is inaccurate. All studies were provided. More recent studies were ignored by the Environmental Consultants. The fact that these documents were clearly excluded is highly concerning!

18. Even if the studies were insufficient or even unavailable to the consultants, it is the onus of NMP to ensure that all studies are completed in order to remove all doubt of the environmental impact, no matter the cost of time frame. This, after all is the purpose of conducting an EIA in the first place. The desktop studies are simply insufficient and actual research must be conducted by the EIA consultants. Where the hired consultants do not have the necessary qualifications and experience to conduct this research on their own, additional experts need to be hired to complete these studies sufficiently. This is international best practice. It is simply not acceptable that a scoping report be substituted for a full EIA due to the lack of expertise to adequately demonstrate the numerous environmental impacts.

19. All calculations regarding the percentages of the different fisheries which will be negatively affected should be made on the total MLA area and not on the individual initial target mining areas (referred to as SP1, 2 and 3) alone. The total MLA covers

an area of 2233km^2 while SP 1, 2 and 3 cover areas of only 176 km^2, 176 km^2 and 66 km^2, respectively, or 418 km^2 collectively.

20. Scientific documents used to justify the lack of need to undertake an EIA were outdated. More modern, relevant documentation is available and was provided to the Environmental Consultants for inclusion. The exclusion of these documents is highly concerning!

21. The Environmental Consultants have stated that the Ministry of Fisheries and Marine Resources failed to provide relevant studies. This is inaccurate. All studies were provided. More recent studies were ignored by the Environmental Consultants. If the studies were insufficient, it is the onus of NMP to ensure that all studies are completed in order to remove all doubt of the environmental impact, no matter the cost of time frame.

22. There is concern regarding the selection of the Public Participation Specialists. The Public Participation has been incomplete. Re-appointment of suitably qualified and competent Public Participation Specialists should be considered.

Comments by MFMR – Detailed (07-02-2012)

Detailed comments on the report "Sandpiper Project: Proposed Recovery of Phosphate Enriched Sediments from the Marine Mining License Area No. 170 off Walvis Bay – Environmental Impact Assessment Report for the Marine Component". Comments were compiled by scientists of the National Marine information and Research Centre (NatMIRC)

General comments:

The tight timeline of six months to submit an EIA clearly influenced the quality of the report submitted as draft EIA, as it is impossible to conduct a complete EIA for an activity of that nature, which is the first in the world, within six months. This development is the first of its kind in the world and the potential impacts on the marine ecosystem and fisheries need to be clearly identified before the project can go ahead. This is not possible within a six month period as very little data exists from the MLA. There is at present no previous experience worldwide with such a project at this scale and very little biological and ecological information is available in the MLA (with the exception of commercial fishing).

During the stakeholder meetings the external reviewer has downplayed some of the concerns raised by public and authorities (his responses are noted in the minutes of the meetings). This clearly shows that he does not act independent of the EIA team or the proponent and therefore should be replaced by an independent external reviewer.

Only the draft EIA of the marine component is submitted; no social equity and economic issues are addressed at this stage. The report states, that this is to be addressed together with the terrestrial component of the EIA. In order to make an informed decision, the entire EIA for the project should be completed and submitted to MET-DEA, before any decision is taken. Part of the marine part (e.g. the mooring and pipeline to transport the sediment to the coast) is not addressed in the marine component of the report, even though the possible impacts will be below the high water mark.

The specialist studies were commissioned before the completion of the scoping phase, while issues raised during the scoping phase should have been included in the terms of

reference for the specialist studies and were not done as a result. Many of the concerns raised by the public and authorities (and posted on the EnviroDynamics website) have not been addressed at all in the report.

Although many issues were identified during the stakeholder participation those need to be addressed through *in situ* studies as very limited data exists for the mining area, apart from the benthic study, no additional field studies have been conducted for the EIA process. Both the marine benthic specialist study and the water column study recommend that more studies need to be done before impacts can be assessed with certainty as a result these studies need to be done for the EIA.

Non commercial fish species (except gobies and jellies) are totally neglected, despite the fact that Namibia is implementing the ecosystem approach to fisheries and that these species play a key role in our marine food chain and ecosystem.

Detailed comments on specialist studies:

1. Fisheries, mammals and seabirds specialist study:

- The literature cited is outdated and recent literature with new insights is often neglected. Examples: Conservation status of birds is outdated, Crawford's (1987) hypothesis on sardine not spawning in the central area is outdated and proven wrong (e.g. le Clus 1990, 1991; Kreiner 2011)
- Not all the ichthyoplankton data submitted by MFMR was used. The data of the mesopelagic survey (2003), one of the few surveys that covered the area south of Walvis Bay was not included in the desk top study.
- The absence of data is often presented as no fish/no fish eggs being present in the area.
- It is shown that sardine spawn more in the areas off Walvis Bay in the 2000s than in the 1980s, i.e. a southern shift in preferred spawning area, possibly due an increase in water temperature (Kreiner *et al.* 2011). This might be the case for other species as well so research needs to be done to confirm what spawning takes place in the mining area, as other species might also have shifted their spawning activities to more southern areas.

- The impacts of the mooring point, pipeline and possible plume development at that position on the biota are not assessed.
- Statements like "significant impact" need to be supported by data, e.g. significant impact on monk trawling. What is significant?
- Impacts on all fisheries should also be evaluated socio economically (e.g. if 13% of the monk catches are in the initial mining areas, and thus cannot be caught in future, what are the economic and social implications?)
- The report mentions that the MLA is a relatively small area, but in fact the MLA covers 2233km^2
- All calculations should be made on the areas of the total MLA not on individual initial mining areas.
- It should be clearly stated that hake surveys are not conducted during peak spawning time, thus gonad data cannot be used to make conclusive statements on spawning activities.
- Stations on the hake and monk surveys are fixed and may not fall into MLA – i.e. no data on hake might be available which does not mean that there is no hake. Actual stations of the hake and monk surveys need to be plotted in relation to the mining area in order to get a clear picture on what data is available.
- The external reviewer (P. Morant from CSIR) was also a consultant for this specialist study and thus his independence is questionable.
- The EIA only includes commercial fish and jellyfish in the biodiversity index, no other species, and not even non commercial fish species.
- It is stated that trawling for hake is highly unlikely to be affected (pg 45). This area is regularly fished by hake trawlers. What is the "unlikely" based on?
- Extent of the plume is stated to be 500 to 1500 meters. On what is this statement based?
- Impact of plumes will be low provided it is contained in the mining area. How do you contain the plume in the mining area?
- Due to the northward current it is possible, but unlikely that the impact is transported northwards! The speed of the current is 29 cm/s. What does possible but unlikely mean and what is this statement based on?
- Assessment does not consider the impact of dredging on the bottom but rather compares it to bottom trawling, which is totally different.

- The report does not consider the impact of removal or disturbance of naturally occurring bacteria on the ocean bottom.
- The report states that the mortality of hake is unlikely and that the impact on the ecosystem is expected to be low. No quantitative evidence is provided.
- The report states that the removal of the substrate for monk will have a long term effect of 15 years! Is the industry supposed to stay out of the mining area for 15 years?
- The report states that an unlikely impact on pelagic fish? No studies are done, so what is this statement based on?
- Removal of gobies will have a moderate impact on the whole ecosystem. No ecosystem studies were conducted to support this conclusion.
- No mitigation measures for any of the impacts are proposed.
- It is stated that spawning hake are not commonly found in the area, hake recruitment is therefore not expected to be significantly impacted. Gonads are only inspected during surveys, which are done once a year outside the spawning time. No gonad inspections are done on catches – so there is no data to support this statement. What about eggs and larvae? Are they found here? There is very limited data, so we simply don't know.
- Impact on monk will be high but no mitigation measures are put forward.
- Potential spawning site for small pelagic fish - impact only moderate. With our low small pelagic biomass any possible impact on spawning activities will be high.
- Unlikely to have significant impact on recruitment of all species but could impact on hake spawning. Contradicting statements.
- Increased turbidity - there is concern that mining operations might have an effect of recruitment of monk and hake. Needs to be studied.
- Conservation status of most seabirds is wrong.
- Appropriate monitoring needs to be done by proponent, not MFMR as recommended by the study.

2. Water column specialist study:

- Much of the physical & chemical background information refers to old & outdated references. Some newer or missing references, specifically on current measurements and water column properties are Gründlingh (1991, surface currents

drifter study), Lass & Mohrholz (2005), Mohrholz et al (2007), Monteiro et al (2006, GRL).

- No modeling with actual current speed and directions in the mining license area and taking the different seasons into account has been done – the CSIR modeling was done for an area farther south and closer inshore (p.39) and thus an area of quite different environmental conditions in comparison to the MLA. Thus all the impacts are based on assumptions or studies done in other areas with other baseline conditions. *In situ* data on current velocity ranges, sediment types, biogeochemical properties etc. needs to be collected and site specific modeling studies to be done over the whole mining license area prior to commencement of the mining operation.
- The sediment type identification refers to some of the benthic grab sampling. However, proper cores should be collected covering the whole MLA so that the varying/changing sediment types over the whole MLA are noted and the plume dynamics correctly modeled & applied to each area. Question: Where do the 40%Mud / 50% Sand samples originate from that are shown but not annotated in Fig 3-10, p.29?
- Most impacts are rated as low/medium, although the impacts are based on assumptions and not on data. Almost all mitigation actions proposed are none.
- Thus the hydrogen sulphide levels are assumed to be low (e.g. p.42 & 46) and thus effects are predicted to be low. However, the actual hydrogen sulphide concentrations in the surface sediments over the MLA need to be determined before any predictions of the impacts are made. For instance, sulphide bacteria were found in the MLA during the RV *Merian* survey in October 2011 thus indicating the presence of sulphide in the sediments.
- The cumulative effects of phosphate mining should be assessed (section 4.6, p. 47) based on increasing the area to cover whole MLA and possibly expansion to other areas. This does not have to wait on a prior analysis effects of demersal trawling.
- None of the impacts are fully described, how they or could they impact the water column, benthos, fisheries and how much. The impact discussion seems very brief, summarized sentences or rather statements, thus also the lack of mitigation measures.
- A possible mitigation would be to limit operations to times when currents are weakest to limit impacts (of course current studies incl. seasonal variability need to be done)

- The mining plans to remove 5.5 million tonnes annually, this will lead to a lot of suspended material in the water column including phosphates, nitrates, etc. These increased nutrient concentrations need to be quantified (p.41).
- The marine EIA does not cover the pumping of the sediment to land via the offshore moored pipeline although any spillage there would affect the marine environment. The marine component of the EIA should therefore look at impacts on the nearshore marine environment between Walvis Bay and Sandwich Harbour.
- According to the Environmental Act the precautionary approach should be followed if there is insufficient or no data such as on biogeochemical properties and the plume characteristics of the MLA. These should be collected before approval of the EIA and commencement of mining rather than only at the onset of mining as part of the EMP.
- Are there other ways of dredging or sediment return that could be investigated that might reduce the plume effect? Please explore and present.

3. Marine benthic specialist study:

Additional studies are recommended in this report and have to be included in the final EIA, before the impacts can be evaluated.

4. Jellyfish study:

It is unclear, why there is an extensive report on jellies and other non commercial species are totally neglected.

Comment by MFMR – Additional (07-02-2012)

Additional comments by scientists from the National Marine Information and Research Centre on the report "Sandpiper Project: Proposed Recovery of Phosphate Enriched Sediments from the Marine Mining License Area No. 170 off Walvis Bay – Environmental Impact Assessment Report for the Marine Component".

These comments address the main report.

1. The criteria used to evaluate "significance" are flawed for the statement made on page 13: "*There are presently no identified issues of environmental significance to preclude the dredging of phosphate-enriched sediments from the Mining Licence Area No. 170.*" The criteria and significance levels are not credible because in most of the so-called "specialist studies", *in situ* data were either i) not used, or ii) insufficient statistically to make such a statement. Only after thorough *in situ* data have been collected and analysed in a scientifically acceptable manner, can credible assessments be made. The reviewer's leniency to the submitted studies is unacceptable.
2. The **"Impact Criteria"** described on p.131 and further in all the specialist studies for **"intensity/magnitude"** are ridiculous. Using the descriptor "*environmental functions*" for example, intensity registers as "serious" only when "*Environmental functions and processes are altered to such extent that they permanently cease*"! The descriptors are not appropriate. What exactly – in the marine environment – is meant by the grand term "environmental functions", when in most studies you are judging only one very small part?
3. Many assumptions made from extrapolating data from other areas are wrong*. (* list can be compiled if wished – more details are also given in the comments on the specialist studies)
4. Recognizing that the mining activity directly disturbs the surface (upper 3 metres) of seabed: there is no detailed biogeochemistry report of this sediment layer or of the directly overlying water column. This is a severe omission: such measurements are expected, and are commonly standard, for both water column studies related to dredging activities, and for benthic studies. The reviewer's leniency to such a gross omission is totally unacceptable.
1. With regard to Chapter 2 "Policy and Legislation" another omission: In the SADC Fisheries Protocol (Namibia signatory) which is accepted as customary international law

THE PRECAUTIONARY APPROACH requires : "in the case of NEWLY PROPOSED PROJECTS, in the absence of scientific certainty that no unjustifiable environmental harm will be caused, the proponent is to err on the side of caution", i.e. in favour of the environment. New projects include any projects in the marine environment. This means that the developer must prove the absence of environmental harm. In this case the proposed phosphate mining could not possibly pass this burden of proof.

2. Chapter 4 "Description of the Environment" is padded with a lot of irrelevant information
3. Why are jellyfish included in the assessment when many more important ecosystem indicators of relevance could/should have been used?
4. RE fisheries p. 134: where is bullet point "***Disturbance of normal trophic interactions and the general ecosystem functioning;"*** adequately addressed? This is very important because of the ecosystem-wide impacts and knock-on impacts (e.g. quality of products) that will be felt by the fishing industries
5. Re water column: no *in situ* measurements; all based on extrapolation or assumptions therefore whole report is flawed and unacceptable
6. Benthos study: several typo mistakes e.g. >0.1mm should read <0.1mm. Assumptions made regarding smaller fauna: as fauna in low-oxygen environments are typically tiny: sampling should be to 300µm and not >1mm. Several animals have been missed in the study. *Thioplaca* and *Beggiatoa* are found in the area and were missed: only examination of fresh core samples will provide accurate estimations of benthos, therefore sampling strategy was flawed. Note that recent findings show that sulphide-oxidizing bacteria are far more widely distributed along the Namibian shelf than reported in publications. These bacteria indicate sufficient H_2S in the sediment to support them.
7. Ch 8: EMP: several requirements for "pre-dredging studies" pp. 8-14-8-16. These studies are prerequisites for the EIA, not only as a requirement once the project is underway. The listed "pre-dredging" studies for an EMP on these pages are misplaced: such studies must be carried out prior to the project, and be made available for EIA scrutiny.
8. Statements in this section chapter EMP, such as *"Revise EIA assumptions in context accordingly"* are unacceptable.

Comment by M. Feng (06-02-2012)

From: MifengNam [mailto:mifengnam@gmail.com]
Sent: 06 February 2012 08:48 PM
To: sigi@envirod.com
Subject: Namibian Marine Phosphate Project

Dear Sir/Madam,

The scoping report and impact assessment report are in fact the same and you are aiming to submit the Scoping report as a Full EIA- which is simply not acceptable in terms of Namibia's legislation. The impact on the environment, health and other jobs (fishing/tourism) has not been adequately discussed in these reports and this is an unacceptable way of doing business in Namibia.

I thank you for your serious consideration of this aspect and revision of what you are doing.

Kind regards,

Mi

Comment by R. Eimbeck (20-01-2012)

From: Rainer Eimbeck [mailto:rainer.eimbeck@gmail.com]
Sent: 20 January 2012 09:59 AM
To: Sigi Horsthemke
Subject: Re: Draft EIA Report - Sandpiper Phosphate Mining Project - Marine Component

Attached the article as mentioned in the previous email.

On Fri, Jan 20, 2012 at 9:58 AM, Rainer Eimbeck <rainer.eimbeck@gmail.com> wrote:

Good Day!

Attached please find an article as reported by MiningWeekly.

I am outraged by the contradiction of your email above with the information as reported by mining weekly.
It very much appears that officially (as reported by Mining Weekly) everything is over and done with (the draft EIA was sufficient) according to Minemakers's chairperson, while you have told us specifically at the public meetings that a FULL EIA would certainly have to be done to address the VERY IMPORTANT issues of concern which we as the puplic have raised.

The irregularities in how this particular whole process is conducted seem to become more and more. [First the mining licence granted without EIA, now the draft being submitted and accepted as sufficient without our public reviews - which you claim will be added later, but I have serious doubts that these will be taken into serious consideration at a later stage since an official publication (see the Mining Weekly report) already states that all is accepted].

You as the conductors of this EIA have an obligation and responsibility to FULLY assess ALL the potential impacts and NOT to take any short-cuts or allow any such short-cuts to be taken.

Please comment on the above officially so that we can understand what exactly is happening with this particular EIA process.

Kind regards,
Rainer Eimbeck