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Workshop on Identifying and Co-ordinating Research as an Adaptation to Climate Change in the South African Marine Fisheries and Marine Aquaculture Sectors

(Revised 13 March 2017 & updated post-workshop)

Date: 14 – 16 March 2017

Time: 9:00 am – 16:00 pm

Venue: DAFF Research Aquarium Building, Beach Road, Sea Point, Cape Town

Note: Workshop participants are requested to use the entrance on Upper Beach Road only to access the building; free parking is available in the public car park on the seaward side of Lower Beach Road adjacent to the Research Aquarium

(Map attached)

Objectives:

The Climate Change Task Team (CCTT) of the Chief Directorate: Fisheries Research and Development, Branch: Fisheries, Department of Agriculture, Forestry and Fisheries, is developing a detailed Climate Change Adaptation and Mitigation Plan (CCAMP) for South Africa's marine fisheries and marine aquaculture sectors. This includes the identification of possible adaptation measures for all of South Africa's marine fisheries as well as elaborating implementation plans for such measures.

Research to better understand how climate is changing and how these changes will influence South Africa's marine fisheries and aquaculture is required. This is because improved knowledge can lead to informed predictions regarding changes in the abundance, distribution patterns and other characteristics (phenology, etc) of harvested species that may arise from climate change. Similar predictions regarding how climate change could impact cultured and wild-caught species via physiological effects arising from changes in temperature and water chemistry and ecological or ecosystem effects such as increased harmful algal blooms, altered freshwater runoff from land and changes in sediment dynamics may also be possible. In addition, research to better understand the direct effects of climate change on marine fishery and aquaculture operations, for example increased storminess and extreme weather events is also necessary to enable appropriate adaptation measures.

This workshop seeks to identify and co-ordinate research as an adaptation to climate change impacts on South Africa's harvested or cultured living marine resources. The aims of the workshop will be to:



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- Inform interested and affected parties of current research on climate change impacts on South Africa's marine environment and harvested or cultured living marine and estuarine resources;
- Discuss overarching questions and approaches regarding research into potential climate change impacts on living marine resources;
- Discuss overarching questions and approaches regarding research into potential climate change impacts on marine fisheries and aquaculture;
- Identify possible collaborators, institutions and funding agencies for such research; and
- Initiate development of an integrated research plan, including the identification and prioritization of specific research projects to be implemented in the short, medium and long term, as part of developing a Fisheries-specific CCAMP.

These issues will be discussed at this Workshop, and the Workshop Report will form the basis of a Research Implementation Plan for Adapting to Climate Change in South Africa's Marine Fisheries and Marine Aquaculture Sectors



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Day 1: Tuesday 14 March 2017	
Session 1: Welcome, Introduction and (09h15–09h45) Chair: Carl van der Lingen (FCCTT, DAFF)	
09h00–09h10	1. Welcome - Ms Sipokazi Ndudane, Deputy Director General, Branch: Fisheries Management, DAFF
09h10–09h30	2. Overview of the DAFF CCAMP and aims and scope of the Workshop - Dr Jean Githaiga-Mwicigi, Chair: Fisheries Climate Change Task Team, DAFF
Session 2: Are Our Oceans Changing in Response to Climate Change? (09h45–10h45) Chair: Mrs Michelle Pretorius (FCCTT, DAFF)	
09h45-10h00	1. The Atmosphere over the South Atlantic. A synopsis on mean state, recent trends and projected change – Drs <u>Ross Blamey</u> and Fabien Desbiolles, and Prof. Chris Reason, Department of Oceanography, UCT
10h00-10h15	2. Ocean Climate Change and Variability in the Benguela Upwelling – Prof Mathieu Rouault, Nansen-Tutu Centre, Department of Oceanography, Mare Institute, UCT
10h15-10h30	3. Ocean acidification – Dr Warren Joubert, SA Weather Service
10h30-10h45	4. De-oxygenation of South Africa's ocean – Dr Grant Pitcher, DAFF
Tea Break (10h45-11h00)	



11h00-11h15	1. Are our Oceans responding to Climate Change? The Case for Marine Aquaculture – Ms Wendy Engel and Dr <u>Khalid Salie</u> , Department of Animal Sciences (Aquaculture), Stellenbosch University
11h15-11h30	2. Are our oceans changing in response to climate change? What ocean colour tells us about phytoplankton variability – Dr Tarron Lamont, DEA
11h30-11h45	3. Zooplankton – Drs <u>Hans Verheye</u> and Jenny Huggett, DEA
11h45-12h00	4. Coastal ecosystems – Dr Laura Blamey, Biological Sciences, UCT
12h00-12h15	5. Responses of estuarine and inshore fish and fisheries to climate change– Drs <u>Stephen Lamberth</u> and Sven Kerwath, DAFF
12h15-12h30	6. Climate Change and South African Offshore Living Marine Resources – Dr Carl van der Lingen, DAFF
12h30-12h45	7. Long-term observations from the East Coast as baselines for investigating climate change – Dr Sean Fennessy, SAAMBR/ORI
Lunch Break (12h45-13h30)	
Session 3: Identification of Overarching Research Themes and Questions (“What do we want to know”) (13h30–15h00) Chair: Prof Coleen Moloney, Biological Sciences, UCT Rapporteur: Dr Carl van der Lingen (FCCTT, DAFF)	
13h30-15h00	Group discussion to identify critical gaps in knowledge and understanding about climate change impacts, and to identify overarching research themes and questions pertinent to investigating climate change impacts, on South Africa's marine environment and the commercially exploited living marine resources that it supports. Identification of perceived key questions regarding climate change impacts on both the environment (e.g. rates of increase/decrease in temperature, acidification, dissolved oxygen etc) and living marine resources (both direct and indirect impacts and including e.g. changes in their abundance, distribution, physiology, phenology, behaviour etc) will be discussed.
Tea Break (15h00–15h30) and end of Day 1	



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Day 2: Wednesday 15 March 2017

Session 4: Research Tools: Data, monitoring, modelling and experiments

(09h00-10h45)

Chair: Dr Jean Githaiga-Mwici (FCTT, DAFF)

09h00-09h15	1) Current monitoring programmes: DEA oceanographic surveys and other monitoring (past, present and near-future) – Dr <u>Tarron Lamont</u> and Messers Gavin Tutt and Marcel van den Berg, DEA
09h15-09h30	2) DAFF Offshore Resources Research Surveys - Dr Deon Durholtz, DAFF
09h30-09h45	3) Current monitoring programmes: DAFF Inshore Resources Research Surveys: Potential data sources for climate change research - Dr Rob Tarr, DAFF
09h45-10h00	4) Current SAEON Monitoring Programmes: Egagasini Offshore Node and Elwandle Coastal Node – Ms Tamaryn Morris, SAEON
10h00-10h15	5) South African Coastal Temperature Network (SACTN) – Prof <u>AJ Smit</u> and Mr Rob Schlegel, Department of Biodiversity and Conservation Biology, UWC
10h15-10h30	6) Climate and Global Change Research: SAIAB and Rhodes Ichthyology – Prof <u>Warren Potts</u> (Rhodes University) and Dr <u>Nikki James</u> , SAIAB
10h30-10h45	7) Status of Hydrodynamic Models – Dr Charine Collins, SAEON



Tea Break (10h45-11h00)	
11h00-11h15	8) Climate change, fisheries, management and modelling approaches – Dr Dawit Yemane, DAFF
11h15-11h30	9) Ecosystem models: A model of intermediate complexity for ecosystems for anchovy and sardine – Drs <u>Kelly Ortega-Cisneros</u> , DIFS, Rhodes University, and Carryn de Moor, MARAM, UCT, and Prof Kevern Cochrane, DIFS, Rhodes University
11h30-11h45	10) Experimental studies – Dr Lutz Auerswald, DAFF
11h45-12h00	11) Research to inform Marine Spatial Planning (with considerations for climate change) – Prof Mandy Lombard, CMR, NMMU
12h00-12h15	12) Marine Biodiversity Monitoring - Dr Lara Atkinson, SAEON
12h15-12h30	13) Estuaries and Climate Change – Dr Lara van Niekerk, CSIR
Lunch Break (12h30-13h15)	
Session 5: Developing Research Approaches (“How do we answer major research questions”) (13h15–15h00) Chair: Prof Mike Roberts (NMMU) Rapporteur: Dr Jean Githaiga-Mwicigi (FCTT, DAFF)	
	The aim of this session is to discuss the development of multi-disciplinary research approaches and to identify key measurements for investigating climate change impacts on the South African marine environment and the commercially exploited living marine resources that it supports, pertinent to the overarching research themes and questions identified in Session 3.
Tea Break (15h00–15h30) and end of Day 2	



Day 3: Thursday 16 March 2017

Session 5: Research Collaboration and Funding

(09h00–10h30)

Chair: Dr Stephen Lamberth (FCTT, DAFF)

09h00-09h15	1. Multi-faceted collaboration in the coastal zone – Dr Tommy Bornman, SAEON
09h15-09h30	2. Enhancing Climate Change Resilience in the Benguela Current Fisheries System – Dr Ben van Zyl, BCC
09h30-09h45	3. DST Global Change Research Plan, Key Programmes and Initiatives, and Funding Instruments and Opportunities – Mr Leluma Matooane, DST
09h45-10h30	4. General discussion

Tea Break (10h30–11h00)

Session 6: Synthesis and closure

(11h00–12h30)

Chair: Dr Jean Githaiga-Mwiciqi (FCTT, DAFF)

11h00–12h00	1. Review of workshop, objectives achieved and way forward – Drs <u>Grant Pitcher</u> (environment) and <u>Carl van der Lingen</u> (LMRs), Fisheries Climate Change Task Team, DAFF
12h15–12h30	2. Closure of the Workshop – Mr Justice Matshili, Acting Chief Director, Research and Development, Fisheries Management, DAFF (delivered by Dr <u>Jean Githaiga-Mwiciqi</u>)

Lunch and Dismissal (12h30–13h30)

End of Workshop



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Map to the DAFF Research Aquarium, Sea Point, Cape Town

