

Strategic Environmental Assessment for Marine and Freshwater Aquaculture Development in South Africa

2019

STRATEGIC ENVIRONMENTAL ASSESSMENT FOR MARINE AND FRESHWATER AQUACULTURE DEVELOPMENT IN SOUTH AFRICA

FINAL SEA REPORT

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SUMMARY

Context for the SEA

The global community is facing one of the world's greatest challenges – how to feed in excess of nine billion people by 2050 in the context of climate change, economic and financial uncertainty, and growing competition for natural resources. Agriculture and food are key to achieving the entire set of Sustainable Development Goals (SDGs), and many SDGs are directly relevant to fisheries and aquaculture, in particular SDG 14 – Conserve and sustainably use the oceans, seas and marine resources for sustainable development. These sectors continue to make crucial contributions to global food security and providing nutrition (protein) through the use of natural resources to ensure sustainable development in economic, social and environmental terms (FAO, 2018¹).

Since the 1960s, the South African marine and freshwater aquaculture sectors have shown notable growth compared to other industries in the agriculture sector, and although it is generally considered to still be in its infancy, the South African government has recognised its potential to improve and make a meaningful contribution towards food security, economic prosperity, sustainable livelihoods and transformation in South Africa. Aquaculture also has the potential to reduce the pressure on wild fisheries stocks.

In 2012, Cabinet has adopted the National Development Plan (NDP), which provided South Africa's plan to accelerate infrastructure development and address service delivery backlogs. Following in 2014, Operation Phakisa was launched with the sole aim of implementing priority economic and social programmes and projects better, faster and more effectively. One of the key sectors within Operation Phakisa is the promotion of Oceans Economy, with Aquaculture being a focus area earmarked for enhancement.

Need for the SEA

The South African marine and freshwater aquaculture sectors currently face many challenges which include inter alia the economic crises, climate change, access to land and sea space, freshwater scarcity and the fact that this is a highly regulated sector, requiring authorisations, licenses and permits from a number of different authorities at the national, provincial and local level.

The now Department of Environment, Forestry and Fisheries (DEFF) has committed their mandate to identify adaptive processes creating an appropriate enabling environment where aquaculture development can be promoted and incentivised. To achieve this, the SEA identifies strategically suitable focus areas where marine and freshwater aquaculture facilities can be developed in a way that optimizes sustainable aquaculture production with limiting negative impacts on the natural environment, while yielding the highest possible socio-economic benefits. Pre-assessments of the biophysical and social environments typified of these areas were undertaken as part of the SEA to produce sensitivity maps of each focus area.

Scope of the SEA

The SEA has considered various types of marine (i.e. offshore, nearshore and land-based) and freshwater (i.e. instream and land-based) aquaculture environments; different types of marine (i.e. cages, longlines, rafts and tanks) and freshwater (i.e. cages, ponds, raceways and tanks) aquaculture production systems; and several marine (i.e. Abalone, Atlantic salmon, Dusky kob, Mediterranean mussel and Pacific oyster) and freshwater (i.e. African Sharptooth catfish, Brown and Rainbow trout, Mozambique and Nile tilapia, and Marron crayfish) aquaculture species. Areas for potential marine aquaculture (mariculture) were identified from all four coastal provinces, whereas areas in all nine provinces of South Africa were assessed for potential freshwater aquaculture development.

Identification of the proposed aquaculture development zones (ADZs) was enabled through integrated spatial analyses and iterative stakeholder consultation (Figure 1). The proposed ADZs were identified by firstly considering, with expert stakeholder input, a wide range of key environmental and socio-economic variables, ranked as opportunities and constraints that are vital to determining potential for small-scale and commercial aquaculture development. Applying an environmental and technical constraints mask, the most suitable aquaculture areas were extracted, after which a number of strategic focus areas were identified. Refining these strategic focus areas resulted in the identification of 25 potential study areas that lead to the delineation of 17 draft ADZs. More expert input has facilitated the further refinement and identification of the final nine freshwater (Figure 2) and eight marine (Figure 3) proposed ADZs, which were further assessed by specialists.

Integrated Aquaculture Application and Authorisation Process

A key objective of the SEA is to recommend options for possible integration and streamlining of the regulatory environmental approvals required for aquaculture to facilitate more efficient and effective decision-making. Based on a review of the existing regulatory system for marine and freshwater aquaculture, together with discussions with DEA and DAFF (now DEFF) and other stakeholders through the course of the SEA, two approaches have been conceptualized. These approaches aim to potentially reduce complexity and eliminate duplication of legal requirements under different mandating authorities, and to possibly integrate the environmental regulatory process applicable to marine and freshwater aquaculture development and operations. The two approaches are (i) an integrated aquaculture application and authorisation system for projects wherever they are located in South Africa, and (ii) a facilitated authorisation process for projects located within proposed aquaculture development zones (ADZs) where environmental sensitivities have been pre-assessed in this SEA.

Therefore, the SEA strongly recommends the development of an **integrated and intergovernmental decision-making platform** for marine and freshwater aquaculture that is administered by national DEFF in terms of the – to be gazetted – Aquaculture Development Act and its regulations. It is recommended that ideally this integrated decision-making platform should be implemented through the development and coordination of a centralised **integrated aquaculture application and authorisation system** that is preferably internet-based and housed in the applicable Fisheries Branch of DEFF. It is envisaged that this integrated aquaculture application and authorisation system would follow a two-step process: Step 1 – application for a license to engage in aquaculture that is valid for 30 years, and Step 2 – application for relevant permits, that carry a validity period of at least 24 months, to exercise the aquaculture license. The SEA also recommends a further streamlining of the requirement for Environmental Authorisation (EA) for aquaculture activities inside of the proposed ADZs. Also, the identification of aquaculture related activities that may be excluded from obtaining an EA but must comply with any standards to be developed and gazetted in terms of NEMA, 1998 or if applicable under the Aquaculture Development Act, when gazetted, are strongly recommended from this SEA.

¹ Food and Agriculture Organization of the United Nations. 2018. The State of World Fisheries and Aquaculture 2018. Meeting the sustainable development goals. Rome. License: CC BY-NC-SA 3.0 IGO.

Identification of Proposed Aquaculture Development Zones

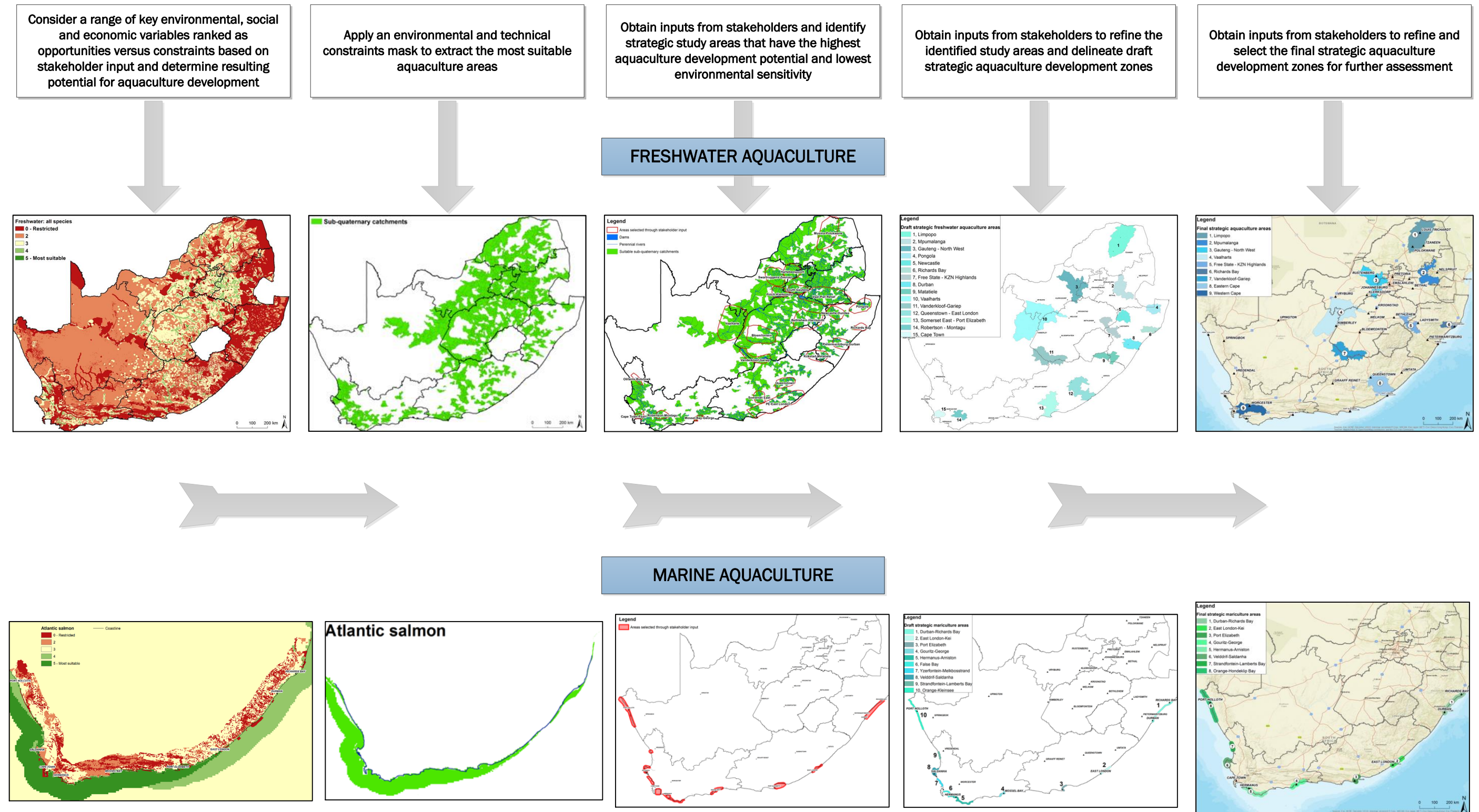


Figure 1: Illustration of Aquaculture Development Zones (ADZs) identification process.

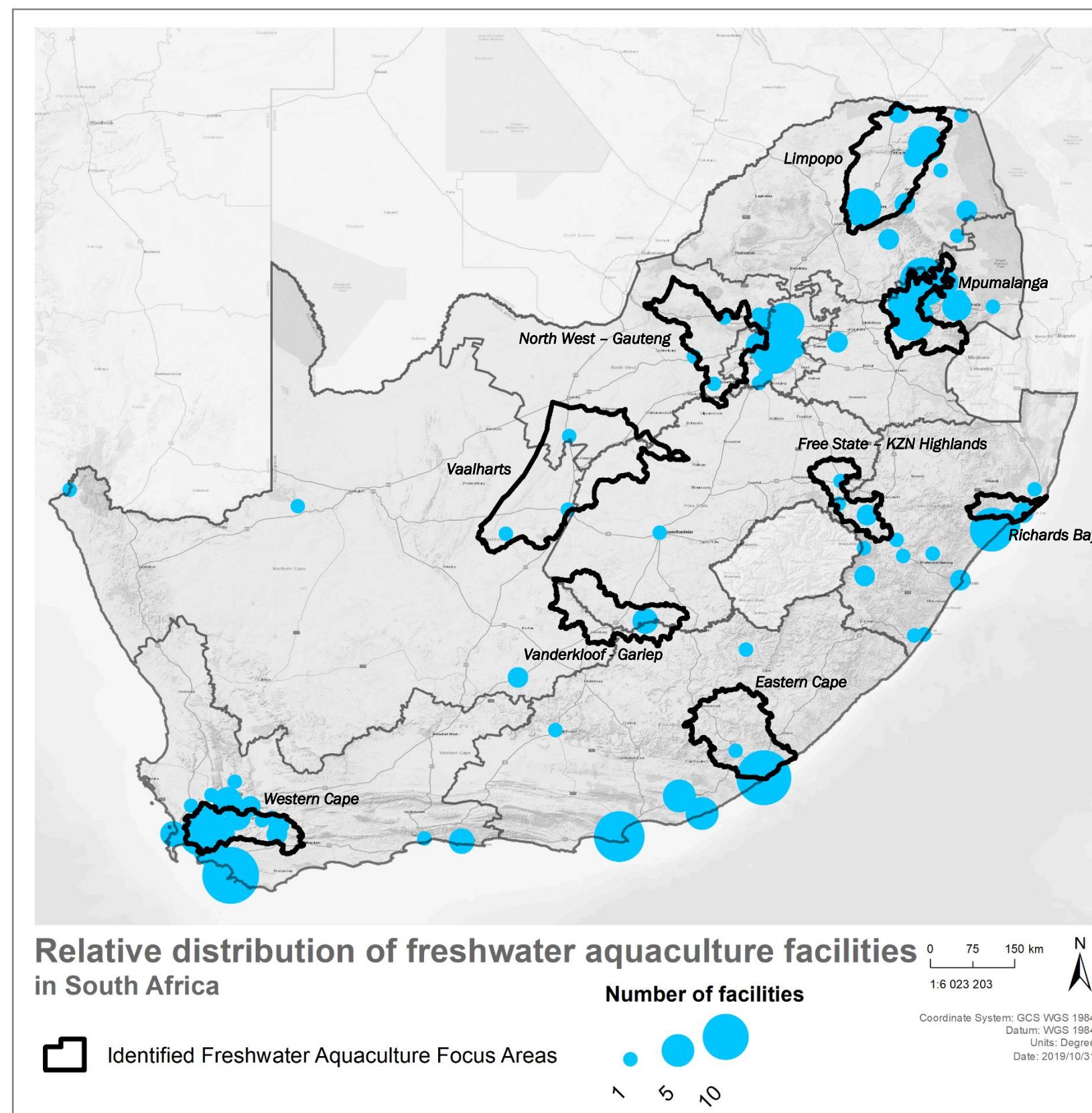


Figure 2: Proposed Freshwater Aquaculture Development Zones (ADZs).

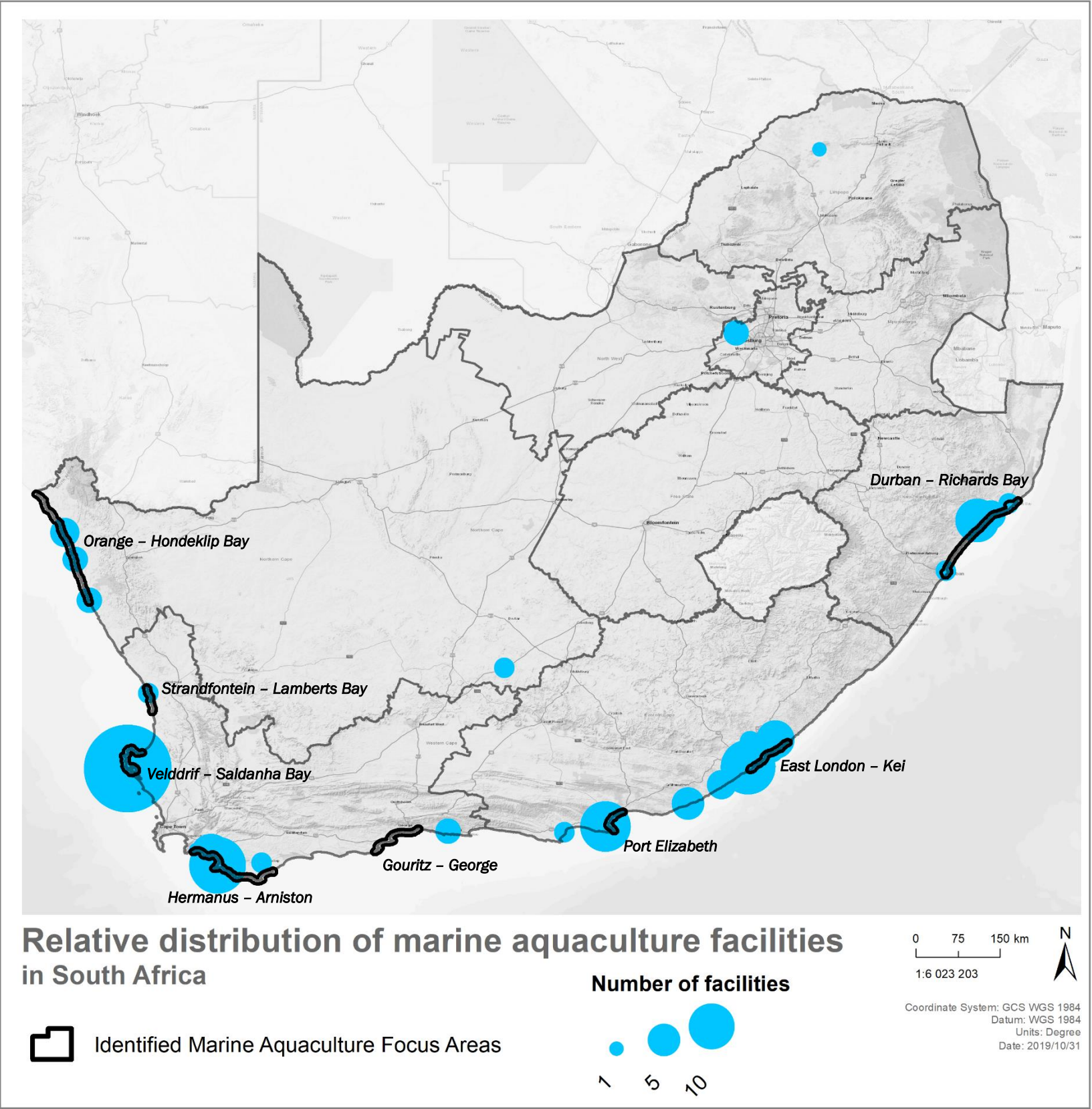


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ABBREVIATIONS & ACRONYMS

AASA	Aquaculture Association of Southern Africa
ADA	Agribusiness Development Agency
ADEP	Aquaculture Development and Enhancement Programme
ADZ	Aquaculture Development Zone
AFASA	Abalone Farmers Association of South Africa
AMD	Acid Mine Drainage
ARC	Agricultural Research Council
BSASA	Bivalve and Shellfish Farmers Association of South Africa
BGIS	Biodiversity Geographical Information System
CBA	Critical Biodiversity Area
CES	Coastal Environmental Services
CESA	Critical Ecological Support Area
CFB	Cape Fold Belt
CLD	Causal Loop Diagram
CMA	Catchment Management Agency
COEGA DC	Coega Development Corporation
COEGA IDZ	Coega Industrial Development Zone
COGTA	Cooperative Governance and Traditional Affairs
C-Plan	Conservation Plan
CPPP	Community Public Private Partnerships
CPR	Common-pool Resource
CPUT	Cape Town University of Technology
CSIR	Council for Scientific and Industrial Research
CV	Coefficient of Variation
DAFF	Department of Agriculture Forestry and Fisheries
DDT	dichlorodiphenyltrichloroethane
DEA	Department of Environmental Affairs
DEM	Digital Elevation Model
DNAPL	Dense Non-Aqueous Phase Liquid
DRDLR	Department of Rural Development and Land Reform
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
DHSWS	Department of Human Settlements, Water and Sanitation
DWS: IWU	Department of Water and Sanitation: Integrated Water Use
EA	Environmental Authorisation
EC DEDEA	Eastern Cape Department of Economic Development and Environmental Affairs
ECBCP	Eastern Cape Bioregional Conservation Plan

ECO	Environmental Control Officer
ECPHRA	Eastern Cape Provincial Heritage Resources Authority
EDC	Endocrine Disrupting Chemical
EFZ	Estuarine Functional Zone
EI	Ecological Importance
EIA	Environmental Impact Assessment
EIF	Environmental Integrity Framework
EMP	Environmental Management Plan
EMPr	Environmental Management Programme
ERG	Expert Reference Group
ES	Ecological Sensitivity
ESA	Early Stone Age
ESA	Ecological Support Area
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FEPA	Freshwater Ecosystem Priority Area
FOSAF	Federation of South African Flyfishers
FS DARD	Free State Department of Agriculture and Rural Development
GA	General Authorisation
GAA	Global Aquaculture Alliance
GDARD	Gauteng Department of Agriculture and Rural Development
GDP	Gross Domestic Product
GDPR	Gross Domestic Product Per Region
GIS	Geographic Information System
GMO	Genetically Modified Organisms
GN	Government Notice
GVA	Gross Value Added
HA	Heritage Authority
HIA	Heritage Impact Assessment
HIK	HIK Abalone (Pty) Ltd
HWC	Heritage Western Cape
IA	Iron Age
ICMZ	Integrated Coastal Management Zone
IDC	Industrial Development Corporation
IDP	Integrated Development Plan
IDZ	Industrial Development Zone
IUCN	International Union for Conservation of Nature
KOBWA	Komati Basin Water Authority

KZN	KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs
DEDTEA	Environmental Affairs
LDEDET	Limpopo Department of Economic Development, Environment and Tourism
LIFDs	Low-income food-deficit countries
LNAPL	Lighter non-aqueous phase liquid
LSA	Later Stone Age
MAP	Mean Annual Precipitation
MLRA	Marine Living Resources Act No. 18 of 1998
MoU	Memorandum of Understanding
MP	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs
DARDLEA	Land and Environmental Affairs
MPA	Marine Protected Area
MPRDA	Mineral and Petroleum Resources Development Act No. 28 of 2002
MRL	Maximum residue levels
MSA	Middle Stone Age
MTF	Mpumalanga Trout Forum
MTPA	Mpumalanga Tourism and Parks Agency
NBA	National Biodiversity Assessment
NC DENC	Northern Cape Department of Environment and Nature Conservation
NCW	Not conservation-worthy
NEM: ICMA	National Environmental Management: Integrated Coastal Management Act No. 24 of 2008
NEM:BA	National Environmental Management: Biodiversity Act No. 10 of 2004
NEM:PAA	National Environmental Management: Protected Areas Act No. 57 of 2003
NEMA	National Environmental Management Act No. 107 of 1998
NEPAD	New Partnership for Africa's Development
NFEPA	National Freshwater Ecosystem Priority Area
NGOs	Non-Governmental Organisations
NHRA	National Heritage Resources Act No. 25 of 1999
NHS	National Heritage Site
NMBM	Nelson Mandela Bay Municipality
NMMU	Nelson Mandela Metropolitan University
NPAES	National Protected Areas Expansion Strategy
NRC	National Research Council

NRE	Natural Resources and Environment
NW DREAD	North West Department of Rural, Environment and Agricultural Development
NWA	National Water Act No. 36 of 1998
NWU	North West University
PES	Present Ecological State
PHRA	Provincial Heritage Resources Agencies
PHS	Provincial Heritage Site
PIA	Palaeontological Impact Assessment
PO4-P	Orthophosphate as phosphorus
POPs	Persistent organic pollutants
PSC	Project Steering Committee
RAS	Recirculating Aquaculture Systems
RDM	Resource Directed Measures
RDP	Resource Development Plan
RMP	Resource Management Plan
RQOs	Resource Quality Objectives
RU	Rhodes University
SA	South Africa
SADC	Southern African Development Community

SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SAIAB	South African Institute for Aquatic Biodiversity
SALGA	South African Local Government Association
SANBI	South African National Biodiversity Institute
SANParks	South African National Parks
SAPAD	South African Protected Areas Database
SBOC	Saldanha Bay Oyster Company (Pty) Ltd
SDC	Source Directed Controls
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
SKEP	Succulent Karoo Ecosystem Plan
SOP	Standard Operating Procedure
SPCA	Speak, Protect and Care for Animals
SPLUMA	Spatial Planning and Land-use Management Act No. 16 of 2013
SUN	Stellenbosch University
TIN	Total Inorganic Nitrogen
TNPA	Transnet National Port Authority
TSA	Trout South Africa
UCT	University of Cape Town

UFH	University of Fort Hare
UKZN	University of KwaZulu-Natal
UL	University of Limpopo
UP	University of Pretoria
USA	United States of America
VAC	Visual Absorption Capacity
VIA	Visual Impact Assessment
WC CN	Western Cape CapeNature
WC DEA&DP	Western Cape Department of Environmental Affairs and Development Planning
WC DEDAT	Western Cape Department of Economic Development and Tourism
WC DoA	Western Cape Department of Agriculture
WC TFA	Western Cape Trout Farmers Association
WHO	World Health Organisation
WMA	Water Management Area
WRC	Water Research Commission
WULA	Water Use License Application
WWF	World Wildlife Fund for Nature
WWTW	Wastewater Treatment Works
ZVI	Zone of Visual Influence