

OCEAN SCIENCES PROGRESS REPORT

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2 December 2024

1. INTRODUCTION AND PURPOSE OF THE REPORT

In pursuit of its vision to be a dynamic, African university recognised for its leadership in generating cutting-edge knowledge for a sustainable future, Nelson Mandela University aspires to be a destination of choice for Ocean Sciences on the African continent.

The Ocean Sciences strategy is underpinned by the following key pillars, namely to:

- Scale up current and potential ocean sciences academic programmes and qualifications, including developing short learning programmes (SLPs) that respond to the continuing professional development needs of the ocean economy.
- Harness inter- and transdisciplinary research and innovation strengths and capabilities aligned with ocean sciences thematic areas that contribute to addressing national and global sustainability challenges.
- Promote extensive and ongoing engagement with relevant ocean sciences stakeholders to forge mutually beneficial quintuple helix partnerships with civil society, industry, government, and other post-school educational institutions nationally, on the African continent, and internationally.
- Develop an integrated resourcing model that promotes innovative resource mobilisation, strategy-aligned budgeting, and long-term sustainability through optimally utilising financial, infrastructural, human, digital, and environmental resources.

This report will provide an overview of progress in implementing the Ocean Sciences strategy during 2024. Furthermore, the key next steps for the first quarter of 2025 will be outlined to inform the proposed way forward.

2. PRINCIPLES INFORMING THE OCEAN SCIENCES STRATEGY AT NELSON MANDELA UNIVERSITY

The implementation of the Ocean Sciences strategy continues to be informed by various principles, most notably that it encompasses the three spheres of **sustainability**, i.e. environmental, social, and economic. In this way, the University aims to contribute to national efforts to unlock the economic potential of South Africa's oceans for the benefit of local communities while conserving marine biodiversity and ecological integrity.

This aligns with the [United Nations 2030 Sustainable Development Goals](#), especially [Goal 14](#), which aims to “*Conserve and sustainably use the oceans, seas and marine resources for sustainable development*”. The expansion of protected areas for marine biodiversity and existing policies and treaties that encourage responsible use of ocean resources are still insufficient to combat the adverse effects of overfishing and ocean acidification due to climate change. The UN correctly notes that billions of people depend on the oceans for their livelihood and food security and, given the transboundary nature of oceans, increased efforts and interventions are needed to conserve and sustainably use ocean resources at all levels.

Universities in Africa are expected to contribute to addressing the developmental needs of the continent through active civic engagement and social responsiveness. One of the key priorities of the [African Union Agenda 2063](#) is to aspire towards “*A Prosperous Africa, based on Inclusive Growth and Sustainable Development*” and this requires a dedicated focus on addressing persistent, real-world challenges facing the continent such as food security, resource scarcity, global change, conflict, poverty, rapid urbanisation and the burden of disease. To this end, [Goal 6 of Agenda 2063](#) prioritises the blue economy for accelerated economic growth with a focus on marine resources, energy, port operations, and marine transport.

Nelson Mandela University embraces efforts to give practical expression to its **African identity and rootedness** whilst remaining an integral part of an increasingly interconnected global community of scholars. This involves the promotion of innovative African-purposed curricula, learning and teaching, research, innovation, and engagement that draw on the rich cultural and biological diversity of Africa’s coastline and oceans and our unique geographical location.

As one of six comprehensive universities in South Africa, the University seeks to expand the frontiers of knowledge and harness the contribution of a wide range of disciplines from certificate to doctoral levels to facilitate **inter- and transdisciplinarity**. There is growing awareness that multiple viewpoints are best suited to address complex challenges, which are difficult to define and have no clear solution. In addressing interconnected societal issues, inter- and transdisciplinarity seeks to synthesise multiple knowledge paradigms to co-create contextually responsive solutions.

It is acknowledged that the University is no longer the single source of knowledge and expertise but constitutes a node within a network of **quintuple helix partnerships**, spanning local, regional, national, continental, and global domains. The quintuple helix model is an enhancement of the quadruple helix perspective that focuses on the contributions of academia, government, industry, and civil society as important stakeholders. The relationships between the actors are the context for achieving value-creating outcomes that none of the parties could have achieved alone ([Hasche, Höglund & Linton, 2019: 3-5](#)). Environmental issues have become increasingly critical due to the problems of climate change and the need to decrease the greenhouse effect ([Chen, Chien, & Hsieh, 2013](#)). In this context, the quintuple helix has emerged as a transdisciplinary perspective that strives to achieve a sustainable balance between the development paths of society and the economy, with their natural environments ([Carayannis & Campbell, 2011](#); [Mineiro, de Souza & de Castro, 2021](#)).

This aligns well with the intentions of Mandela University to position itself as a transformative, responsive university where engagement is conceptualised as convergence or the coming-together of university and community to co-create knowledge through real-life programmes that make a difference to ordinary people ([Muthwa, 2018](#)). The infrastructural development and spatial plan for the Ocean Sciences Campus ensures that current and future developments progressively build towards creating a **conductive ecosystem for convergence** or dedicated physical spaces where university staff and students can come together with local communities, government, and industry to address multi-faceted sustainability challenges. This serves to promote the emergence of a **national maritime consciousness**, which inspires the youth to pursue ocean sciences qualifications and careers.

The University is experimenting with the flexible design of **multi-purpose, shared spaces, or “commons”** to optimise synergies. Through the co-location of academics, research chairs, postgraduate students, research and engagement entities, and postdoctoral fellows in spatial precincts on the Ocean Sciences Campus, the University is intentionally fostering pioneering, boundary-spanning inter- and transdisciplinary learning and teaching, research, innovation, and engagement. The University is optimising the utilisation of the state-of-the-art Science Centre, as well as other facilities on the Campus to host public lectures, seminars, and conferences to engage with multiple internal and external stakeholders.

A further principle embedded in the University's Ocean Sciences strategy is the **hub and spokes model**, where the Ocean Sciences Campus is one of seven campuses of Nelson Mandela University and serves as a "hub" for transdisciplinary postgraduate studies, research, and innovation across various knowledge domains. This complements the undergraduate ocean sciences offerings located on the other six campuses in Gqeberha and George, as well as the research, innovation, and engagement undertaken by faculties at various other facilities and sites across the city such as the ports, industrial development zones, the Cape Recife conservancy, Algoa Bay, Sundays River, Pinnacle Point, and beyond. In this way, the phased development of the Ocean Sciences Campus to establish it as a centre of excellence will not detract from the resource capabilities and assets already available on other campuses.

The principles articulated above underpin the Ocean Sciences strategy, including the design of an ocean sciences governance and management model that facilitates inter- and transdisciplinarity and interfaces optimally with institutional and faculty-level governance and management arrangements. The University has established the Ocean Sciences Stakeholder Forum (OSSF) as a governance arrangement to oversee strategy implementation and ensure that Ocean Sciences is positioned to address societal and planetary challenges through the core academic missions of the University.

While excellent progress has been made in implementing the Ocean Sciences strategy in 2024, some key issues need to be finalised as part of the way forward.

3. KEY ISSUES INFORMING THE WAY FORWARD

3.1 Ocean Sciences Leadership and Management Arrangements

In April 2024, the Vice-Chancellor's Office announced that the Executive Committee of Council had approved the appointment of an **interim Head of Ocean Sciences** from 1 March 2024 to 30 December 2024. This arrangement aimed to ensure continued oversight of this important strategic trajectory while the governance and management model for Ocean Sciences was being finalised by Executive Management.

Given that the term of office of the interim Head of Ocean Sciences is ending in December 2024, the finalisation of the leadership and management model for this important strategic trajectory is important. This model should provide for visionary leadership and effective,

integrative transversal coordination across all faculties, entities, research chairs, and support service divisions. To this end, the following key activities need to be prioritised in the first quarter of 2025, namely:

- Document the experience of the interim Head of Ocean Sciences in performing this role in 2024 to outline the lessons learnt from the pilot and how these should shape the way forward.
- Update the benchmarking of similar, comparable roles at other national and international universities to inform organisational design.
- Refine the position description of this role including articulating key performance areas and competencies required of the incumbent, based on the benchmarking and the lessons learnt from the pilot.
- Submit the revised position description for job evaluation, following which the Management Committee (MANCO) can approve an appropriate job title and the talent acquisition processes can be undertaken.

3.2 A Conducive Ecosystem for Inter- and Transdisciplinarity

Ocean Sciences is a transversal strategic priority area which cuts across all faculties and support service divisions. It is therefore crucial that ongoing efforts to create an ecosystem conducive to transdisciplinarity are sustained. As outlined in the discussion document on advancing transdisciplinarity at Nelson Mandela University, enabling institutional conditions such as the following need to be attended to:

- Appropriate governance, management, and organisational design arrangements which foster transversal collaboration and eliminate siloes. Ocean Sciences cannot be equated to a faculty, campus, entity, or professional support service division in its breadth and depth of scope, complexity, strategic impact, and transversality. To this end, a distinctive organisational design needs to be carefully benchmarked and developed to ensure that this trailblazing strategic trajectory is governed and led in a pioneering and visionary manner.
- Academic performance management should ensure that inter- and transdisciplinary engagement is appropriately recognised and rewarded. This should include developing and disseminating explicit guidelines and criteria for assessing excellence in inter- and transdisciplinary learning and teaching, curriculum development, research, innovation, and engagement.
- A dual affiliation system needs to be fostered to enable academics and researchers to be active in various inter- and transdisciplinary knowledge domains of Ocean Sciences while retaining their disciplinary and faculty affiliation. Clear terms of reference, role allocation, and workload management are important for academics

and researchers participating in transdisciplinary endeavours to reduce the risk of double administrative, teaching, and research loads.

- A revenue- and cost-sharing model (i.e., Resource Allocation Model funding from research outputs and postgraduate supervision conducted by Ocean Sciences research chairs and entities to be partly allocated to Ocean Sciences as a “cost centre” along with the “home” faculties, where relevant).
- A matrix operating model for support service delivery on the Ocean Sciences Campus must continue to be implemented and monitored to improve efficiencies and ensure responsiveness to stakeholder needs. This can be shaped and refined as part of the multi-campus management model, which is under development in collaboration with the Senior Directors for Missionvale, Second Avenue, Bird Street, and George Campuses to promote strategic alignment.
- An integrated spatial planning framework that fosters inter- and transdisciplinary collaboration and space utilisation within functionally coherent spatial clusters or precincts.

3.3 Ocean Sciences Research Chairs

Meetings were held with the Ocean Sciences Research Chairs to explore the support required to ensure their longevity and sustainability through succession planning, resource mobilisation, and tapping into national, continental, and international networks. There is a need to support the consolidation and embedding of the existing Ocean Sciences Research Chairs beyond their current terms. In doing so, an assessment must be undertaken of where each of the research chairs are in their cycles of appointment to proactively plan for talent continuity in alignment with the policies of the University.

3.4 Ocean Sciences Infrastructure Development and Spatial Planning

The Ocean Sciences Stakeholder Forum (OSSF) has affirmed the importance of developing and implementing a five-year spatial framework for the Ocean Sciences Campus indicating who currently occupies which spaces and how this may change over time. To this end, Infrastructure Services and Space Optimisation (ISSO) have developed a high-level spatial planning framework for the Ocean Sciences Campus that provides an overview of proposed future developments and space allocations to give effect to the clustering of activities into spatial precincts that optimise inter- and transdisciplinary collaboration and synergies.

There is also a need for ongoing maintenance on the Ocean Sciences Campus to advance academic excellence and project a positive image of the University through well-maintained infrastructure and facilities. This requires that the maintenance requirements of the Campus are embedded in the five-year institutional capital maintenance budget, while the refurbishment of existing infrastructure is integrated into the Institutional Resource Mobilisation Strategy approved by Council on 28 November 2024 and future cycles of the Department of Higher Education and Training (DHET) Infrastructure and Efficiency grants.

3.5 Ocean Sciences Communication, Marketing and Branding

Given the need for more frequent and transparent communication with Ocean Sciences stakeholders about strategic and operational issues impacting them, ongoing attention is being devoted to:

- Publishing a quarterly newsletter for Ocean Sciences to showcase the vast intellectual and research capabilities of Nelson Mandela University.
- Setting up a dedicated Ocean Sciences email address to which stakeholders can direct complaints, suggestions, and queries.
- Updating the Ocean Sciences web page to indicate upcoming events and a directory of experts.
- Establishing a social media presence for Ocean Sciences on various platforms.
- Producing a professionally edited video of Ocean Sciences research chairs, entities, qualifications, and partnerships to position Mandela University as a leader in this field.
- Publishing opinion pieces in the media on various topical issues relating to the ocean to position the University nationally and globally.

A graduate in training (GIT) pursuing her Advanced Diploma in Public Relations at Mandela University has been appointed to assist in implementing these recommendations in 2025.

3.6 Naming and renaming of buildings on the Ocean Sciences Campus

Numerous meetings have been held with the OSSF, including students pursuing ocean/marine sciences and maritime studies qualifications, to focus on the principles, criteria, and processes to guide the naming and renaming of buildings on the Ocean Sciences Campus. As part of the way forward, the next steps will be to request stakeholder inputs for the names of the twelve (12) buildings needing to be renamed using a customised online form generated by Communication and Marketing.

Thereafter, the suggested names of buildings will be considered by the Arts, Culture and Heritage Committee at its first meeting in 2025. Once the names have been widely consulted on and approved by MANCO and the Council, a launch event can be arranged as a further positioning tool to foreground the University.

3.7 Ocean Sciences Resource Mobilisation and Budgeting

As part of the process of developing the Institutional Resource Mobilisation Strategy, the interim Head of Ocean Sciences liaised with the Senior Director of Strategic Resource Mobilisation and Advancement (SRMA) to assess the resource mobilisation requirements of Ocean Sciences. These include the following:

- *New academic programmes:* Seed funding is needed to support the faculties in developing new or repurposed inter- and transdisciplinary under- and postgraduate programmes in various domains of ocean sciences and maritime studies.
- *Ocean Sciences research chairs and entities:* There is a need to support the research chairs in catalysing high-impact projects which have the potential to generate significant third-stream funding. Resources may also be required to continue with existing chairs with new incumbents or to establish new chairs, which may be partly funded by the NRF and/or industry. Various entities may require support to promote their long-term sustainability, including SAIMI and the African Centre for Coastal Paleosciences.
- *Research Dive Tank:* A business plan is being developed by the Investment Company to assess the viability of this facility as a commercialisation venture.
- *Infrastructure refurbishments:* Several unoccupied buildings and spaces on the Ocean Sciences Campus need to be refurbished and repurposed to accommodate emerging strategic initiatives such as the Virtual Academy and the newly established Department of Atmospheric and Oceanographic Sciences in the Faculty of Science.

As a next step, the resource requirements of the abovementioned Ocean Sciences projects and programmes will need to be forecasted and phased in over the next three to five years as additional third-stream income is mobilised. In addition, Ocean Sciences will need to be progressively mainstreamed into the Council budget (CAPEX, salary, operations) from 2026 to 2030 since it is beyond the three years of seed funding provided through strategic resource allocations.

4. WAY FORWARD

As part of the way forward, MANCO is requested to advise on the following key issues impacting the future sustainability of Ocean Sciences, namely, the need for:

- Finalising the leadership and management model for Ocean Sciences through a benchmarking and organisational design process.
- Undertaking talent management processes to revise the position description, job designation and title of the substantive Head of Ocean Sciences to inform talent acquisition.
- Liaising with the Senior Directors for Missionvale, Second Avenue, Bird Street, and George Campuses to finalise the multi-campus management model and ensure that the distinctive features of Ocean Sciences are accommodated in this model.
- Proactive planning regarding the continuation of existing research chairs (or the introduction of new research chairs) to enhance the academic stature, positioning, and research productivity of Ocean Sciences.
- Finalising the Ocean Sciences spatial planning framework in consultation with key stakeholders.
- Finalising the renaming of the Ocean Sciences buildings and launching these new names once approved.
- Prioritising the Ocean Sciences resource mobilisation requirements and phasing these in over the next three to five years as part of the Institutional Resource Mobilisation Strategy.