

Abridged Curriculum Vitae: Dr Paulus KAINGE



PRESENT POSITION, EMPLOYER AND CONTACT DETAILS

Chief Scientist (Fisheries), Ministry of Fisheries and Marine Resources (MFMR), based at the National Marine Information and Research Centre (NatMIRC) in Swakopmund, Namibia.

ACADEMIC QUALIFICATIONS

Qualification	Institution	Obtained
Doctor of Philosophy (PhD) Degree, Marine Science and Fisheries Management	Technical University of Denmark, Copenhagen	December 2017
Master of Philosophy (MPhil) Degree, Fisheries Biology and Fisheries Management	University of Bergen, Norway	January 2003
Master of Philosophy (MPhil) Diploma, Fisheries Biology and Fisheries Management	University of Bergen, Norway	June 2001
Bachelor of Science (BSc) Degree, Biological Sciences	University of Namibia, Windhoek, Namibia	April 1998

AREAS OF EXPERTISE

A total of **24 years in the Ministry:** Natural Resources Management, Data collection/analysis/interpretation, Scientific/professional writing, Ocean Governance, Blue Economy, Marine Science/Fisheries Management, Fisheries Economics, Scientific research surveys, Fish Stock Assessment, Population/Ecological Dynamics, Fisheries Oceanography/Environmental Variability, Trophic Interactions, EAF Management/EBM, Socio-Ecological changes, Benthic/Bottom Ecology, Fisheries and VMEs in ABNJ/BBNJs, UNCLOS issues.

EMPLOYMENT HISTORY

Employer	Position held & Period
Ministry of Fisheries and Marine Resources, <i>Swakopmund</i>	Chief Fisheries Biologist: Demersal/Deep-sea resources [Nov. 2012 to Present]: Planning, supervising and conducting research through scientific data collection, analysis, interpretation, and formulating management advice on conservation and management of marine living resources.
Ministry of Fisheries and Marine Resources, <i>Swakopmund</i>	Principal Fisheries Biologist: Demersal/Deep-sea resources [Aug. 2007–Oct. 2012]: Provide assistance to the head of Subdivision in the planning, co-ordination and administration of research projects within the Subdivision.
Ministry of Fisheries and Marine Resources, <i>Swakopmund</i>	Senior Fisheries Biologist: Demersal resources [Sep. 2004 – Jul 2007]: Head of the Hake Section
Ministry of Fisheries and Marine Resources, <i>Swakopmund</i>	Fisheries Biologist [Mar. 2003 – Aug. 2004]: Assist the Head of the Hake Section in conducting research.
Ministry of Fisheries and Marine Resources, <i>Swakopmund</i>	Fisheries Research Technician [Apr. 1998 – Feb. 2003]: Assist Biologists to conduct research on commercial stocks and provide advice.
University of Namibia, MRC, <i>Windhoek</i>	Junior Researcher on Environment [Feb. – Mar. 1998]: Co-participant in the Northern Namibia Environmental Project (NNEP – MET).
Ministry of Education and Culture, NatMUS, <i>Windhoek</i>	Student Trainee (holidays): [Dec. 1995 – Jan. 1997]: Trained on practical principles of Entomological research methods by preparing for, and undertake field excursions.

MEMBERSHIP IN PROFESSIONAL CAPACITY

- [2021 – 2022] - Member of the Writing Team for the Dr Fridtjof Nansen History of the FAO-EAF Nansen Programme: Investigations of Fishery Resources in Developing Regions, History of the Programme and Review of Results - Volume 2 (1994 – 2016) (Team Leader for the ABNJ chapter).
- [2019 – to date] - Member of the Inter-Ministerial Technical Committee on the Blue Economy.
- [2019 – 2021] - Member of the Expert Group (<https://www.oceanpanel.org/expert-group>) of the High-Level Panel for a Sustainable Ocean Economy.
- [2018 – 2021] - Chairperson of the Demersal Working Group (DWG) of the Benguela Current Convention (BCC).
- Member of the National Inter-Sectoral Committee on Ocean Governance (NISCOG) for BCC [2017-2021].
- [2018 – 2021] - Member of the BCC National Fisheries Climate Change (NFCC) Working Group.
- [2015 – to date] - Member of the Marine Stewardship Council Certification Committee.
- [2014 – to date] - Member of the Fisheries Policy and Legislative Review Committee.
- [2013 – 2016] - Board member of the Marine Resources Advisory Council (MRAC).
- [2012 – 2018; 2021] - Chairperson of the Scientific Committee (SC) of the South East Atlantic Fisheries Organization (SEAFO).
- [2011 – 2021] - Member of the Natural Sciences Programme Committee of the Namibia National Commission for UNESCO.

RECENT EXPERIENCE IN MAJOR NATIONAL, REGIONAL AND INTERNATIONAL ISSUES

- **Delegate at the United Nations Ocean Conference [27 June-01 July 2022, Lisbon], and Panelist at the UNOC EAF-Nansen side event: Dr. Fridtjof Nansen survey data for improved deep-sea fisheries management in areas beyond national jurisdiction (ABNJ) [29 June, Lisbon]**
- Delegate at the High Level Panel for a Sustainable Ocean Economy Sherpa meeting [09-10 May, Mexico City]
- Delegate at the Our Ocean Conference [13-14 April, Palau].
- Delegate at the Benguela Current Convention (BCC) Demersal WG (as Chair) [December 2021, Virtual]
- Delegate at the SEAFO SC (as Chair) and Commission meetings [November 2021, Virtual]
- Delegate at Sherpa meetings of the HLP for a Sustainable Ocean Economy [September, October, November & December 2020, all Virtual]
- Delegate at the MSC Certification Harmonization meeting between Namibia and South Africa [February 2020, Cape Town]
- Delegate at the SEAFO SC and Commission meetings [November 2019, Swakopmund]
- Delegate at UNECA's High level Policy Dialogue on Blue Economy, Climate change and environmental sustainability meeting [November 2019, Windhoek] (<https://archive.uneca.org/stories/experts-urge-member-states-mainstream-climate-change-and-environmental-sustainability-blue>).
- Delegate at the BCC Commission meeting [November 2019, Luanda]
- Delegation of the Technical Committee on Blue Economy benchmarking visit to Australia [October 2019: Perth, Canberra and Wollongong]
- **Delegate at the 3rd Inter-Governmental Conference (IGC 3) on an international legally binding instrument under the UNCLOS on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (BBNJ) [August 2019, New York]**
- Presented the report of the BCC Regional Demersal WG to the BCC's EAC meeting [May 2019, Luanda]
- Delegate at the FAO's ABNJ Deep Sea meeting [May 2019, Rome]
- Delegate at the 2nd Expert Group meeting of the HLP for a sustainable Ocean Economy [February 2019, Abu Dhabi]
- Delegate at BCC/EAF-Nansen Regional Demersal Working Group meeting [December 2018, Cape Town]
- Participant at FAO EAF-Nansen expert workshop on habitat mapping [December 2018, Rome]
- Participant at BCC FCC validation of vulnerability assessments methodology workshop [October 2018, Cape Town]
- Participant at BCC State of the Environment Information System (SEIS) workshop [October 2018, Swakopmund]
- Observer at the NAFO WG-EAFFM workshop [August 2018, London]
- Participant at the FAO's workshop: National Strategy on Port State Measures on IUU Fishing [May 2018, Swakopmund]
- Participant at the 1st Multi-Sector Stakeholder workshop on MSP [April 2018, Swakopmund]
- Delegate at the 6th BCC Ministerial Conference [November 2017, Windhoek]
- Delegate at the DOSI-FAO Climate Change and Fisheries meeting [August 2017, Boston]

- **Participant in the ABNJ Regional Leaders Program at UNDOALOS, and Delegate at the 1st PrepCom 69/292 [March 2016, New York]**
- Participant in the EuroMarine's First International Workshop on Global Trends in the Marine Biodiversity in African and Mediterranean ecosystems [December 2015, Cape Town]
- Delegate at a Planning meeting for the FAO's EAF-Nansen Programme [November 2015, Cape Town]
- **Delegate at the 6th Ad Hoc Open-ended Informal Working Group meeting to study issues related to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdictions [August 2013, New York]**
- Delegate at the CCAMLR XXX2011 Scientific and Commission meeting [October 2011, Hobart]
- Participant in the FAO EAF-Nansen's Expert Workshop on the Use of Research Vessels [August 2011, Rome]

PUBLICATIONS WITH PEER-REVIEW PROCESS

- 31) Bridges AEH, Howell KL, McQuaid KA, Butt S, Sink K, Atkinson L, Brandt A, ..., **Kainge P** (*In prep.*). Review of the Central and South Atlantic Deep-Sea Benthos: Science, Policy and Management. *Oceanography and Marine Biology: An Annual Review*, Volume 60.
- 30) **Kainge P**, Yemane D, Estevao V, Axelsen BE, Kirkman S (*In prep.*). Approach to identify potential demersal indicator species of climate-related variability in the BCLME. *African Journal of Marine Science*.
- 29) Kathena JN, Sampedro PM, **Kainge P**, Paulus P, Sikongo B, Mwanangombe CH, Kalwenya L, Shoopala E, Gordo A (*In prep. for re-submission*). Review of the input values in the Namibian hake stock assessment model. *African Journal of Marine Science*.
- 28) Buhl-Mortensen L, Houssa R, Weerakoon WRWMAP, **Kainge P**, Faye S, Wagne MM, Myo S, Voado Cudjoe G, Olsen M, Grøsvik BE (*In review*). Litter on the seafloor along the African coast and in the Bay of Bengal based on trawl bycatches from 2011 to 2020. *Marine Pollution Bulletin*.
- 27) Bahamon N, Kathena JN, van der Plas AK, **Kainge P**, Paramo J, Gordo A (2022). Spatial and biomass structure of shallow-water Cape hake (*Merluccius capensis*) in the light of episodic environmental shifts. *Fisheries Oceanography*. DOI: 10.1111/fog.12602
- 26) Iitembu JA, **Kainge P**, Sauer WHH (2021). Climate Vulnerability and its Perceived Impact on the Namibian Rock Lobster Fishery. In: Leal Filho W, Luetz J, Ayal D (eds) *Handbook of Climate Change Management*. Springer, Cham. https://doi.org/10.1007/978-3-030-22759-3_265-1.
- 25) **Kainge P**, Kirkman S, Estevão V, van der Lingen CD, Uanivi U, Kathena JN, van der Plas A, Githaiga-Mwicigi J, Makhado A, Nghimwatya L, Endjambi T, Paulus S, Kalola M, Antonio M, Tjizoo B, Shikongo T, Nsiangango S, Uahengo T, Bartholomae C, Mqoqi M and Hamukuaya H (2020). Fisheries Yields, Climate Change, and Ecosystem-Based Management of the Benguela Current Large Marine Ecosystem. *Environmental Development*. <https://doi.org/10.1016/j.envdev.2020.100567>.
- 24) Mazor T, Pitcher CR, Rochester W, Hiddink JG, Jennings S, Amoroso R, ..., Garcia C, **Kainge P**, Paulus S, Kathena JN, ..., Horness B, Hilborn R (2020). Trawl fishing impacts on the status of seabed fauna in diverse regions of the globe. *FISH and FISHERIES*. DOI:10.1111/faf.12506.
- 23) Thompson A, **Kainge P** (2019). Vulnerabilities: fish and fisheries. Chapter 7. In: Deep-ocean climate change impacts on habitat, fish and fisheries, pp 45-47. Ed. by L. Levin, M. Baker, A. Thompson. FAO Fisheries and Aquaculture Technical Paper No. 638. Rome, FAO. 186 pp. Licence: CC BY-NC-SA 3.0 IGO.
- 22) Kirkman S, Nsiangango S, Kilongo Nsingi K, Holness S, Harris L, Sink K, Lombard A, **Kainge P**, Majiedt P, Samaai T (2019). Using Systematic Conservation Planning to support Marine Spatial Planning and achieve marine protection targets in the transboundary Benguela Ecosystem. *Ocean and Coastal Management* **168**: 117–129.
- 21) Amoroso R, Pitcher CR, Rijnsdorp AD, McConnaughey RA, Parma AM, ..., Jenkins C, Jonsson P, **Kainge P**, Kangas M, ..., Hilborn R, Kaiser MJ, Jennings S (2018). Bottom trawl-fishing footprints on the World's continental shelves. *Proceedings of the National Academy of Sciences USA*. www.pnas.org/cgi/doi/10.1073/pnas.1802379115.
- 20) **Kainge P** (2018). Environmental effects on the availability of shallow and deep-water hake to the demersal trawl survey in Namibian waters. **PhD thesis**, DTU Aqua. *National Institute of Aquatic Resources*. 119 pp.

- 19) **Kainge P** and Wieland K (2017). Fine-scale environmental effects on Cape hake survey catch rates in the Northern Benguela, using data from a trawl-mounted instrument package. *Marine Ecology Progress Series* **584**: 185–198.
- 18) Jansen T, Kristensen K, Fairweather T, **Kainge P**, Kathena J, Durholtz D, Beyer JE and Thygesen UH (2017). Geostatistical modelling of the spatial life history of post-larval deep-water hake (*Merluccius paradoxus*) in the Benguela Current Large Marine Ecosystem. *African Journal of Marine Science* **39(3)**: 349–361.
- 17) **Kainge P**, van der Plas A, Bartholomae CH and Wieland K (2017). Effects of environmental variables on survey catch rates and distribution by size of shallow- and deep-water Cape hakes, *Merluccius capensis* and *Merluccius paradoxus* off Namibia. *Fisheries Oceanography* **26(6)**: 680–692. DOI:10.1111/fog.12227.
- 16) Henriques R, von der Heyden S, Lipinski MR, Heunis N, **Kainge P**, Bloomer P and Matthee CA (2016). Spatio-temporal genetic structure and the effects of long-term fishing in two partially sympatric offshore demersal fishes. *Molecular Ecology* **25**: 5843–5861.
- 15) Jansen T, Kristensen K, **Kainge P**, Durholtz D, Strømme T, Thygesen UH, Wilhelm M, Kathena J, Fairweather T, Paulus S, Degel H, Lipinski MR and Beyer JE (2016). Migration, distribution and stock structure of shallow-water hake (*Merluccius capensis*) in the Benguela Current Large Marine Ecosystem revealed with a geostatistical population model. *Fisheries Research* **179**: 156–167.
- 14) Strømme T, Lipinski MR and **Kainge P** (2016). Life cycle of hake and likely management implications. *Reviews in Fish Biology and Fisheries* **26**: 235–248.
- 13) **Kainge P**, Wieland K and Feekings J (2015). Diel effects on bottom-trawl survey catch rates of shallow- and deep-water Cape hakes, *Merluccius capensis* and *M. paradoxus*, off Namibia, using solar zenith angle. *African Journal of Marine Science* **37(4)**: 583–592.
- 12) Wilhelm MR, Kirchner CH, Roux J-P, Jarre A, Iitembu JA, Kathena JN and **Kainge P** (2015). Biology and fisheries of the shallow-water hake (*Merluccius capensis*) and the deep-water hake (*M. paradoxus*) in Namibia. Chapter 3 In: Hakes: biology and exploitation, pp 70-100. Ed. by H. Arancibia. John Wiley & Sons, Ltd: Chichester, UK.
- 11) Jansen T, **Kainge P**, Singh L, Wilhelm M, Durholtz D, Strømme T, Kathena J and Erasmus V (2015). Spawning patterns of shallow-water hake (*Merluccius capensis*) and deep-water hake (*M. paradoxus*) in the Benguela Current Large Marine Ecosystem inferred from gonadosomatic indices. *Fisheries Research* **172**: 168–180.
- 10) Salvanes AGV, Bartholomae C, Yemane D, Gibbons M, **Kainge P**, Krakstad J-O, Rouault M, Staby A and Sundby S (2015). Spatial dynamics of the bearded goby and its key fish predators off Namibia vary with climate and oxygen availability. *Fisheries Oceanography* **24 (Suppl. 1)**: 88–101.
- 09) Jarre A, Hutchings L, Kirkman SP, Kreiner A, Tchipalanga PCM, **Kainge P**, Uanivi U, van der Plas AK, Blamey LK, Coetzee JC, Lamont T, Samaai T, Verheye HM, Yemane DG, Axelsen BE, Ostrowski M, Stenevik EK and Loeng H (2015). Synthesis: climate effects on biodiversity, abundance and distribution of marine organisms in the Benguela. *Fisheries Oceanography* **24 (Suppl. 1)**: 122–149.
- 08) Holness S, Kirkman S, Samaai T, Wolf T, Sink K, Majiedt P, Nsiangango S, **Kainge P**, Kilongo K, Kathena J, Harris L, Lagabriele E, Kirchner C, Chalmers R, Lombard M (2014). Spatial Biodiversity Assessment and Spatial Management, including Marine Protected Areas. Final report for the Benguela Current Commission project BEH 09-01.
- 07) Paterson B and **Kainge P** (2014). Rebuilding the Namibian hake fishery: a case for collaboration between scientists and fishermen. *Ecology and Society* **19(2):49**.
- 06) **Kainge P**, Bahamon N, Bartholomae CH, Kathena JN, van der Plas AK and Gordo A (2013). Stock- environment recruitment analysis for Namibian Cape hake (*Merluccius capensis*). *African Journal of Marine Science* **35(4)**: 555–564.
- 05) Flynn BA, Richardson AJ, Brierley AS, Boyer DC, Axelsen BE, Scott L, Moroff NE, **Kainge PI**, Tjizoo BM and Gibbons MJ (2012). Temporal and spatial patterns in the abundance of jellyfish in the northern Benguela upwelling ecosystem and their link to thwarted pelagic fishery recovery. *African Journal of Marine Science* **34(1)**: 131–140.
- 04) Kirchner C, **Kainge P** and Kathena J (2012). Evaluation of the Status of the Namibian Hake Resource (*Merluccius spp.*) using Statistical Catch-at-Age Analysis. *Environment for Development Discussion Paper Series*, EFD DP 12-12,

56pp.

- 03) Field JG, Moloney CL, du Buisson L, Jarre A, Strømme T, Lipinski MR and **Kainge P** (2008). Exploring the BOFFFF hypothesis using a model of Southern African deep-water hake (*Merluccius paradoxus*). In: Tsukamoto K, Kawamura T, Takeuchi T, Beard TD Jnr, Kaiser MJ (Eds). *Fisheries for Global Welfare and Environment*, 5th World Fisheries Congress 2008, pp. 17–26.
- 02) **Kainge P**, Kjesbu OS, Thorsen A and Salvannes AG (2007). *Merluccius capensis* spawn in Namibian waters, but does *Merluccius paradoxus*? *African Journal of Marine Science* **29(3)**, 379–392.
- 01) Jørgensen T, Engås A, Johnsen E, lilende T, **Kainge P** and Schneider P (2007). Escapement of Cape hakes under the fishing line of the demersal sampling trawl. *African Journal of Marine Science* **29(2)**: 209–221.

POSTGRADUATE STUDENT CO-SUPERVISION/EXAMINATION

- **Research Supervisor:** Martha L. Nakapiji, 2021-2022, **MBA, UNAM NBS**. *Blue Economy*.
- **External Supervisor:** Ndamonoghenda L. Mateus, 2018-2022, **MSc, UNAM**. *Spatial distribution and diversity of soft-bottom benthic invertebrates from demersal trawl surveys off the coast of Namibia*.
- **External Examiner:** Ester N.G. Shoopala, 2019, **MSc, UNAM**. *Stock separation of the shallow-water hake *Merluccius capensis* in the Benguela using Otolith shape analysis and parasite infestation*.
- **External Examiner, including the Viva Voce examination:** Hendrina K. Kadila 2019, **MSc, UNAM**. *Trophic relationships of shallow water cape hake (*Merluccius capensis*) and cape horse mackerel (*Trachurus capensis*) in the Northern Benguela ecosystem*.
- **Viva Voce examination:** Josef Shikeva, 2019, **MSc, UNAM**. *The use of underwater video footage as a tool in the assessment of mining related impacts on the hard-bottom benthic environment in southern Namibia*.