

WATERWORLD

The South African Institute for Aquatic Biodiversity (SAIAB) is a National Research Facility of the National Research Foundation (NRF). SAIAB is a recognised centre for the study of aquatic biodiversity and serves as a major scientific resource for the knowledge and understanding of aquatic biodiversity and functioning of significant aquatic ecosystems. SAIAB is the proud host of Water World, the official main festival venue which hosts all water-related activities on the festival programme, including workshops and exhibitions.

OPENING HOURS AND VISITOR INFORMATION:

8-10, 13, 14 March: 09h00-17h00

11, 12 March: 10h00-17h00

SAIAB
Somerset Street
Grahamstown
www.saiab.ac.za

All welcome and entrance to the facility is free.

EXHIBITIONS DAILY - ENTRY IS FREE - REGISTER AT THE ENTRANCE

Albany Museum, Department of Freshwater Invertebrates <i>Exploring African freshwater insects</i>
Albany Museum <i>Keep Fin Alive</i>
Rhodes University, Department of Biochemistry and Microbiology (Marine Natural Products Research Consortium) <i>The Antarctic Circumnavigation Expedition: a window on the unseen Marine Microbial World</i>
Rhodes University Department of Zoology and Entomology <i>Hitchhiking weeds!</i>
Rhodes University, Institute for Water Research <i>Everyone lives in a catchment</i>
SAEON Elwandle Node
South African Institute for Aquatic Biodiversity (SAIAB) <i>ACEP Phuhlisa</i>
South African Institute for Aquatic Biodiversity (SAIAB) <i>DNA – The key to unlocking the Mysteries of our Aquatic World</i>
South African Institute for Aquatic Biodiversity (SAIAB) <i>Fishy Cams: underwater spying!</i>
South African Institute for Aquatic Biodiversity (SAIAB) <i>Ocean Acidification in a Cup!</i>
South African Institute for Aquatic Biodiversity (SAIAB) <i>Reduce, Reuse, Recycle!</i>
South African Institute for Aquatic Biodiversity (SAIAB) <i>Tour de Fish!!</i>
South African Institute for Aquatic Biodiversity (SAIAB) <i>Water! What is it?</i>

Start	End	Organisation Title	Audience	Capacity	Price	Venue
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TOURS - WEEKDAYS DURING SCIFEST - 8-10 MARCH & 13, 14 MARCH

09h00	11h00	South African Institute for Aquatic Biodiversity (SAIAB) TOURS	All	60	Free, Booking Essential	Water World
10h00	12h00					
11h00	13h00					
12h00	14h00					
13h00	15h00					
14h00	16h00					
15h00	17h00					

WEDNESDAY, 8 MARCH

09h00	12h00	South African Institute for Aquatic Biodiversity (SAIAB) APPRENTICESHIP Work with DNA in a Lab!	Gr 10-12	8	R25	SAIAB, Genetics Laboratory
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THURSDAY, 9 MARCH

09h00	12h00	South African Institute for Aquatic Biodiversity (SAIAB) <i>APPRENTICESHIP Fish with barcodes?</i>	Gr 11-12	8	R25	SAIAB, Collections Management Centre
09h00	12h00	South African Institute for Aquatic Biodiversity (SAIAB) <i>APPRENTICESHIP Work with DNA in a Lab!</i>	Gr 11-12	8	R25	SAIAB, Genetics Laboratory

FRIDAY, 10 MARCH

08h15	14h00	South African Institute for Aquatic Biodiversity (SAIAB) <i>FIELD TRIP Tour de Estuarios!</i>	Gr 8+ & Adults	20	R40	Water World
09h00	12h00	South African Institute for Aquatic Biodiversity (SAIAB) <i>APPRENTICESHIP Fish with barcodes?</i>	Gr 11-12	8	R25	SAIAB, Collections Management Centre
09h00	12h00	South African Institute for Aquatic Biodiversity (SAIAB) <i>APPRENTICESHIP Work with DNA in a Lab!</i>	Gr 10-12	8	R25	SAIAB, Genetics Laboratory

SATURDAY, 11 MARCH

07h15	13h30	Sustainable Seas Trust <i>FIELD TRIP Science and Fun</i>	Gr 7-8	30	R255	Water World
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SUNDAY, 12 MARCH

07h15	13h30	Sustainable Seas Trust <i>FIELD TRIP Science and Fun</i>	Gr 7-8	30	R255	Water World
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TOURS



DATE:	8-10, 13, 14 March
TIME:	09h00-11h00, 10h00-12h00, 11h00-13h00, 12h00-14h00, 13h00-15h00, 14h00-16h00, 15h00-17h00
VENUE:	Water World
AUDIENCE:	All
CAPACITY:	60
PRICE:	Free, Booking Essential

Meet a singing fish, try your hand at the techniques and tools used in aquatic biodiversity research in apprenticeships, visit the Rhodes University Department of Ichthyology and Fisheries experimental fish farm, take an excursion to the coast and learn more about our oceans, rivers and lakes, the variety of life found within them, and why this biodiversity is so important.

APPRENTICESHIPS

Spend a morning at SAIAB for a hands-on experience of what our scientists do in their day-to-day research.

FISH WITH BARCODES?



DATE:	9, 10 March
TIME:	09h00-12h00
VENUE:	SAIAB, Collections Management Centre
AUDIENCE:	Grade 11-12
CAPACITY:	8
PRICE:	R25

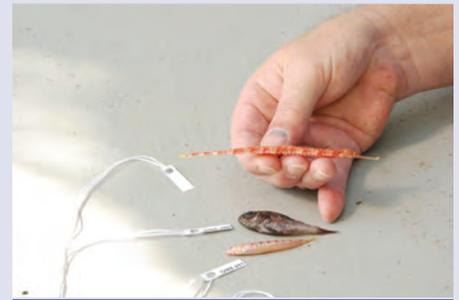
Learn about this method of identification and the exciting and growing endeavour to identify each species in the "supermarket of life" with a barcode.

Prepare tissue samples of different species of fish to be barcoded and included in the SAIAB biomaterials collection and see how the DNA barcode is generated in the laboratory, collect the data to accompany your barcode, and explore the barcoding database!

Dr Gavin Gouws is an Aquatic Biologist at SAIAB. He has a PhD in Zoology and his research interests include the systematics and population genetics of marine fish and freshwater crustaceans, biogeography and evolutionary biology.

www.saiab.ac.za/molecular-biology-&-systematics.htm

WORK WITH DNA IN A LAB!



DATE:	8-10 March
TIME:	09h00-12h00
VENUE:	SAIAB, Genetics Laboratory
AUDIENCE:	Grade 10-12
CAPACITY:	8
PRICE:	R25

Learn more about the structure of DNA by extracting DNA from fish in our Genetics Lab, and discover how valuable DNA is for biodiversity research.

Taryn Bodill is the Senior Molecular Laboratory Assistant at SAIAB and has eight years' experience in molecular lab techniques.

www.saiab.ac.za/molecular-laboratory.htm

FIELD TRIPS

WORK WITH DNA IN A LAB! TOUR DE ESTUARIOS!



DATE:	10 March
TIME:	08h15-14h00
VENUE:	SAIAB, Reception
AUDIENCE:	Grade 8+ and Adults
CAPACITY:	20
PRICE:	R40

An estuary is the meeting place of a river and the sea, and is characterised by the interaction between the two. Join Professor Alan Whitfield, Chief Scientist at SAIAB and an experienced estuarine ecologist, on his annual guided tour of the estuaries between the Great Fish and Kowie rivers, highlighting the different types of estuaries and some of the animals and plants living in these specialised systems.

Professor Alan Whitfield's research interests are the biology and ecology of fishes in estuaries in Southern Africa and he is the author of the book *Biology and Ecology of Fishes in Southern African Estuaries*.

Please note: The bus leaves promptly at 08h30 and this is a half-day excursion. Participants should bring a windbreaker, sun hat, sunscreen, a snack and drinks.

www.saiab.ac.za

SUSTAINABLE SEAS TRUST SCIENCE AND FUN



DATE:	11,12 March
TIME:	07h15-13h30
VENUE:	SAIAB, Entrance
AUDIENCE:	Grade 7-12
CAPACITY:	30
PRICE:	R255

Journey to the coast to identify, count, measure and photograph animals and plants in the Bushman's River and Kariega River estuaries and the intertidal zone at Kenton-on-Sea, then compare results to learn scientific method, build understanding, and even make new discoveries.

Please note: The bus leaves promptly at the times stipulated above and this is a half-day excursion. Participants should bring a windbreaker, sun hat, sunscreen, a snack and drinks.

www.sst.org.za

EXHIBITIONS

ALBANY MUSEUM, DEPARTMENT OF FRESHWATER INVERTEBRATES EXPLORING AFRICAN FRESHWATER INSECTS

What are freshwater insects, and why are they important? We cover early discoveries of African freshwater insects, naming of species and the importance of understanding biodiversity. Learners get hands-on experience of current techniques used to distinguish species. Practical uses of freshwater insects in biological monitoring are presented.

Dr Helen Barber-James is a freshwater biologist and Senior Curator of the National Collection of Freshwater Invertebrates at the Albany Museum, Grahamstown. Her research focuses on the systematics, biodiversity and biogeography of mayflies.

Mr Musa Mlambo is an aquatic biologist in the Department of Freshwater Invertebrates at the Albany Museum. His research focus is on the ecology of creatures inhabiting temporary water bodies.

Dr Alexandra Holland is a postdoctoral fellow at the Albany Museum where she is conducting research on the freshwater invertebrates of the Kruger National Park rivers, and the effects of pollution on the life in the rivers.

Dr Lyndall Pereira-da-Conceicao is a postdoctoral fellow at the Albany Museum where she is conducting research on mayflies confined to the rivers of the Southern and Western Cape of South Africa, with relatives in Asia and Madagascar, and looking for innovative modern ways to study the creatures inhabiting rivers.

Ms Ina Ferreira is currently based at the Albany Museum where she will complete a one-year internship funded by the NRF before registering for her PhD in Zoology at Rhodes University in 2017.

Ms Nonkazimulo Mdidimba is a DSRAC funded intern, working to the end of 2017 before taking up a BSc (hons) at Rhodes University in 2018. She plans to do research on dragonflies.

Mr Bayanda Sonamzi was an intern with the Albany Museum in 2015, and recently (2016) completed his BSc (hons) at Rhodes University. He is currently employed with the museum again, to help with data basing of information and imaging of the specimens in the museum's collection.



KEEP FIN ALIVE

Fin is a soft shark on a mission and the mascot of the Keep Fin Alive campaign. This exhibition will take a light-hearted approach to help change the common misconception of sharks and drive more attention to shark conservation, ocean conservation and plastic pollution whilst demonstrating to the public the vital role that sharks play in keeping the oceans healthy.

www.keepfinalive.com



RHODES UNIVERSITY



DEPARTMENT OF BIOCHEMISTRY AND MICROBIOLOGY (MARINE NATURAL PRODUCTS RESEARCH CONSORTIUM)

THE ANTARCTIC CIRCUMNAVIGATION EXPEDITION: A WINDOW ON THE UNSEEN MARINE MICROBIAL WORLD

In December 2016, the Russian Research Vessel, Akademik Treshnikov, with 55 international scientists on board, embarked on a three-month cruise - the first ever Antarctic Circumnavigation Expedition. The aim is to study the marine and terrestrial environments of the Subantarctic to gain insight into the consequences of climate change in the region. A team of South African scientists will be studying microbial communities – the unseen majority – of the Southern Oceans. These microorganisms (microscopic algae, bacteria, microzooplankton) form the basis of marine foodwebs. Join the scientists on the Treshnikov via satellite phone calls to learn about what they are doing and to take a look at their fascinating marine microbial world.

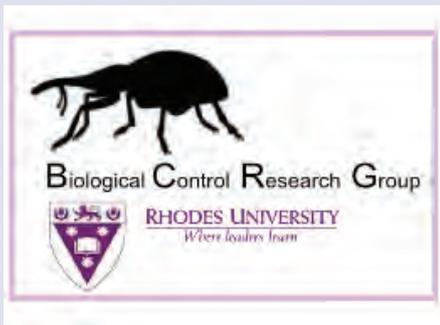
Note that in addition to this exhibition, Dr Tommy Bornman, from the Department of Biochemistry and Microbiology will present a lecture on this exciting venture into science on Thursday 9 March, 11h00-12h00 in the Monument, Olive Schreiner Hall, (Gr 8+, R25 per ticket, capacity 200, booking essential – see the Rhodes University programme for more details about the lecture).

<https://aceprojectxii.wordpress.com/>

RHODES UNIVERSITY

DEPARTMENT OF
ZOOLOGY AND
ENTOMOLOGY

HITCHHIKING WEEDS!



Discover the history of invasive weeds and biological control in South Africa. Plants from other parts of the world have invaded South Africa for many years and we have been trying to manage them through biological control by bringing back agents from their original countries to South Africa, this is helping to keep the weeds under control. Learn how you can be an environmental steward and be more aware of what is around you.

www.ru.ac.za/biologicalcontrolresearchgroup/aboutus

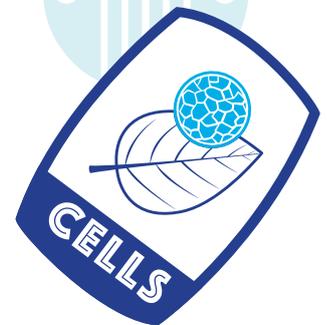
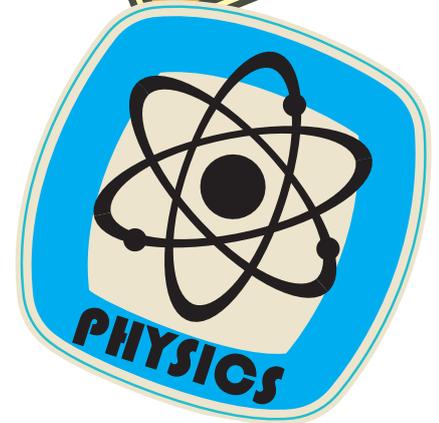
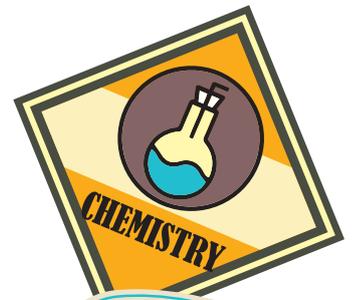
INSTITUTE FOR WATER
RESEARCH

EVERYONE LIVES IN A CATCHMENT



This exhibition introduces the concept of a catchment and shows how the actions of people living in a catchment affect downstream water quantity and quality for all living organisms, including people. Research fields associated with the structure, function and components of natural water systems are introduced.

ru.ac.za/iwr



SAEON ELWANDLE NODE

The South African Environmental Observation Network (SAEON) is a National Research Facility of the National Research Foundation (NRF). NRF/SAEON initiates and maintains a network of observations to execute the long-term monitoring of ecosystems and in this way detect, predict and react to environmental change. SAEON's science education outreach programme provides and supports hands-on awareness programmes, school-based monitoring projects, extra-curricular activities, and educator workshops. The facility is changing lives, and inspiring learners to pursue a career in science, through opportunities to engage in environmental monitoring and with scientists in an in-depth way.

www.saeon.ac.za



SOUTH AFRICAN INSTITUTE FOR AQUATIC BIODIVERSITY (SAIAB)

ACEP MARINE SCIENCE PLATFORM



The African Coelacanth Ecosystem Programme (ACEP) provides a marine science platform and specialised equipment to marine scientists, which would otherwise be unavailable, or too costly. View some of the equipment provided and discover how this equipment has enabled marine scientists in South Africa to do ground-breaking research.

www.saiab.ac.za/acep-marine-platform.htm

ACEP PHUHLISA



The African Coelacanth Ecosystem Programme (ACEP) Phuhlisa Postgraduate Programme is a strategic initiative led by the Department of Science & Technology that aims to accelerate transformation of the marine science research community. Meet some of the postgraduates and hear about their adventures as they learn to dive and skipper a boat and learn more about their ground-breaking work.

www.saiab.ac.za/acep-phuhlisa-programme.htm

DNA - THE KEY TO UNLOCKING THE MYSTERIES OF OUR AQUATIC WORLD



This display will highlight some basic principles, provide some background to genetics and present some of the tools that geneticists use in their work. Questions addressed include the following: How can the study of DNA help us to understand the diversity of aquatic life? How can genetics improve our understanding of evolution?

www.saiab.ac.za/molecular-biology-&-systematics.htm

FISHY CAMS: UNDERWATER SPYING!



How do we assess what fish and other animals there are beneath the surface of the ocean? One of the methods that researchers use is underwater remote video systems operated from boats on the water surface, to film down to depths of 250m. These systems can be baited to attract fish, invertebrates and other marine animals, so researchers get a better idea of what is where and how many fish there are in a particular area.

www.saiab.ac.za/marine-remote-imagery-platform.htm

OCEAN ACIDIFICATION IN A CUP!



Climate change and ocean acidification are having profound and diverse consequences on marine ecosystems. CO₂ emissions have increased since the start of the Industrial Revolution and this has caused the Earth's average surface temperature to increase. This has also led to an increase in ocean temperature, which causes rising sea levels, decreased sea-ice extent and altered patterns of ocean circulation, precipitation and freshwater input. It will also result in physiological changes in animals, especially marine organisms. By understanding more about climate change and ocean acidification, we will better understand the effects, and how we can lessen them.

<http://www.saiab.ac.za/conservation-biology-&-ecology.htm>

REDUCE, REUSE, RECYCLE!



We live in a time of an ever-increasing population and with it, comes a growing demand for easy packaging. Arguably, one of the best inventions of the 20th century – plastic – has become one of our biggest downfalls. Taking thousands of years to decompose, not only does plastic threaten the lives of animals and is harmful to the environment, but poses a direct threat to humans. Visit this interactive display on plastic and microbeads (tiny pieces of plastic from plastic bags, bottles and clothes) and learn how you can make a difference today!

www.saiab.ac.za

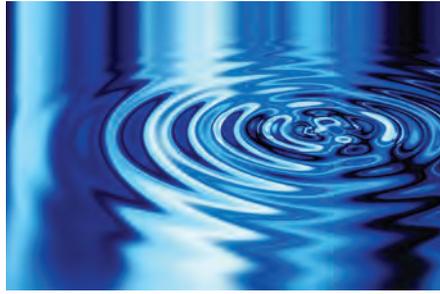
TOUR DE FISH!!



Fish are incredibly diverse. They come in all shapes and sizes and move in every way imaginable! Since they live underwater, it is not easy understanding or knowing about their movements. Visit the Acoustic Tracking Array Platform (ATAP) exhibition to find out how scientists unravel the riddle of fish movements and migrations. Discover how scientists can tag and monitor different fish, sharks and rays and learn more about this research platform and some of its important findings.

www.saiab.ac.za/atap.htm

WATER! WHAT IS IT?



Water is the most essential element to life on Earth. But what is water, what are the properties of water, how do these relate to aquatic life, and what makes water so important? Learn more about water at this exhibition, where you can do different experiments with water, including creating your own clouds!

www.saiab.ac.za

DID YOU KNOW?



A LUNGFISH CAN LIVE OUT OF WATER FOR SEVERAL YEARS. IT SECRETES A MUCUS COCOON AND BURROWS ITSELF UNDER THE UNBAKED EARTH. IT TAKES IN AIR WITH ITS LUNG THROUGH A BUILT-IN BREATHING TUBE THAT LEADS TO THE SURFACE. A LUNGFISH HAS BOTH GILLS AND A LUNG.