

2019

ANNUAL REPORT

OceanWorks

Part of the Woodside FutureLab Network



OceanWorks

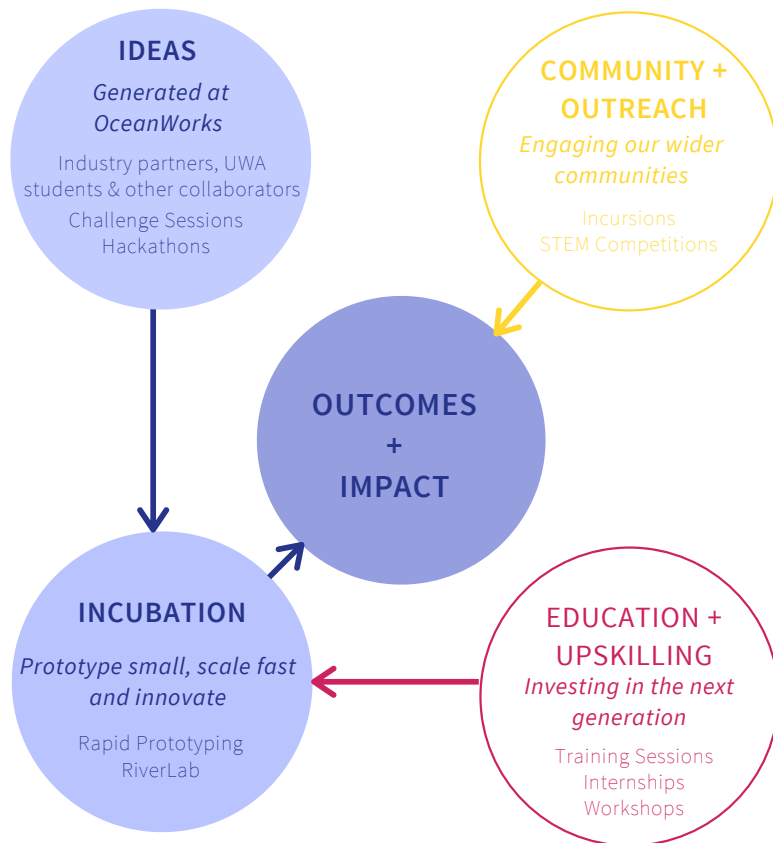
Part of the FutureLab Network

OceanWorks is a collaboration between The University of Western Australia and industry that seeks to boost innovation in ocean engineering.

We work closely with industry partners to develop innovative engineering solutions to real problems that deliver high impact quickly and efficiently.

OceanWorks provides a physical space for problem-sharing and collaboration, a unique portfolio of programs to enable applied research and a rich program of outreach and teaching activities to upskill our community.

In 2019 OceanWorks saw over 4500 visitors across 293 industry events.



Rapid Prototyping and Innovation

IDEATE

Funding approval

PROTOTYPE

Ideas researched and developed

OUTCOMES

Presented and developed further

OceanWorks provides a link between innovative research and offshore and related industries. Prototype Fund provides small grants to collaborative ideas with potential for significant positive impact on industry. Challenge Sessions unite industry and UWA research to stimulate idea sharing and collaborative problem-solving.



OceanWorks gave me a more practical perspective

Through the two prototype projects that I worked on this year, I was able to engage more closely with industry and apply my research to a real-world problem. Meeting and working with major industry players as well as understanding the role of innovation at UWA was a valuable experience.

- Dr Marie-Lise Schläppy
Research Fellow, AIMS/UWA



11

Prototype Projects funded

3

Challenge Sessions

31

Academics working on current industry problems

Highlight Project

Detection of pipeline dynamic response using distributed optic fiber strain

Intrinsically safe sensing of structural response is one of the important challenges for condition monitoring of long-distance oil and gas pipelines. This project investigates whether distributed acoustic sensing (DAS) using coherent Rayleigh backscattering in an optical fibre may offer an solution to this challenge. In this project, DAS technique is applied to measure the distributed vibration of a laboratory pipeline subjected to unsteady flow, operating pump and motor, and impact hammer.

RiverLab and Education

Riverlab brings together a community of practitioners and researchers from diverse disciplines with state-of-the-art equipment to undertake unique field measurements and experiments in Perth's Swan River basin.

RiverLab has provided a unique learning experience for our MPE thesis students.

These students have produced measurable outcomes including conference publications and receiving prizes for their outstanding theses. Some of these talented students have since started their engineering career in industry upon graduation.

*- Dr Shiao Huey Chow, Research Fellow
Centre for Offshore Foundation System*



426

Students working with
RiverLab data via
coursework

26

Students engaged in
RiverLab Projects

Highlight Project

Research on composite materials for offshore applications

Steel members in offshore facilities are susceptible to corrosion and for aged facilities this process could eventually lead to non-compliant members or joints. A possible solution is strengthening the non-compliant components by wrapping Fibre Reinforced Polymers around the external surface of the corroded members or joints. Promising results from this study encourage future research on composite materials for offshore applications.

Community and Outreach

OceanWorks is committed to growing our relationships and fostering a culture of inclusion and diversity within oceans science and engineering. This year, we supported a range of activities aimed at increasing awareness, interest, and ownership of today's marine challenges in our broader communities.

In 2019 OceanWorks supported:

- *Future Engineers Program (with Women in Subsea Engineering)*
- *Emerging Engineers Competition (with UWA Girls in Engineering)*
- *Life Below Water STEAM competition (with UWA Girls in Engineering)*
- *Women of IOMRC Network*

12

Outreach Activities
Supported

The opportunity to work with experts in different fields to support our work with students is immeasurable.

We have relished the experience of collaborating with UWA and OceanWorks. It is so important for girls to connect with professionals in STEM fields at a young age to ameliorate stereotypes and inspire girls to follow their dreams.

*- Michelle Clayton, Gifted & Talented Coordinator,
Presbyterian Ladies' College*





THE UNIVERSITY OF
**WESTERN
AUSTRALIA**

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WORK WITH US

We are always looking to expand our partnerships

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Thank you to Woodside for your support