

State Wide Array Surveillance Program

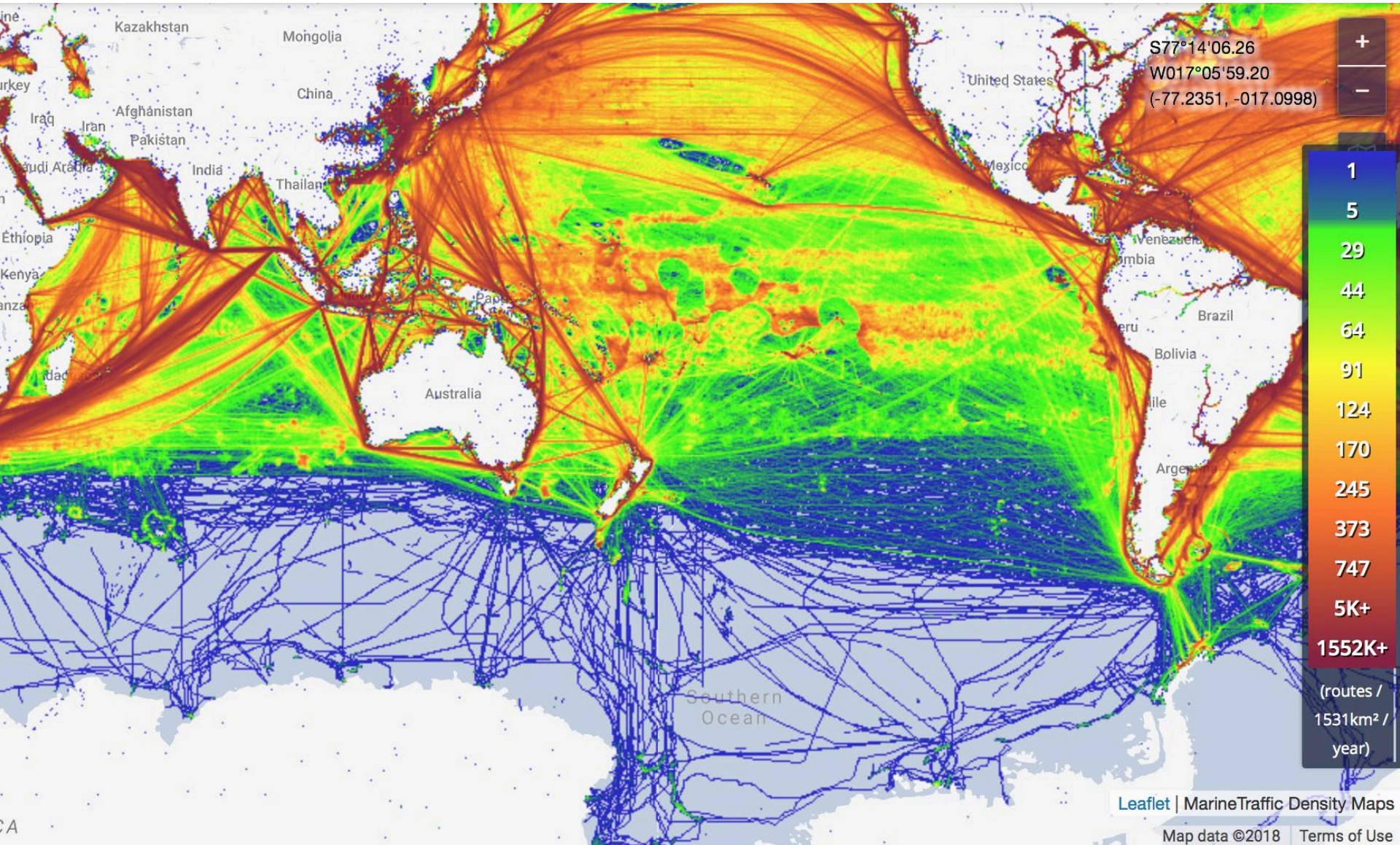


Invasive Marine Species (IMS)

- Marine plants or animals that are not native
- Introduced by human activities



Blue Highways



IMS Monitoring

Early Warning System for Introduced Marine Pests

2009

Department of Primary Industries and Regional
Development Biosecurity Division (Fisheries)

WA Port Authorities

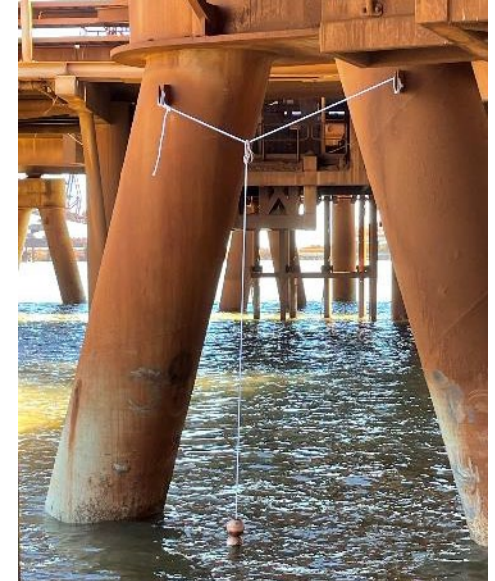
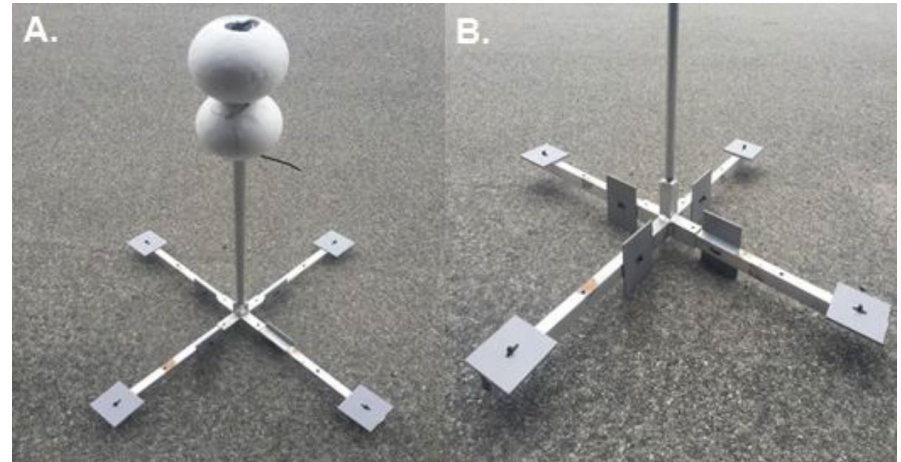
Taxonomic Identification

State Wide Array Surveillance Program (SWASP)

2015

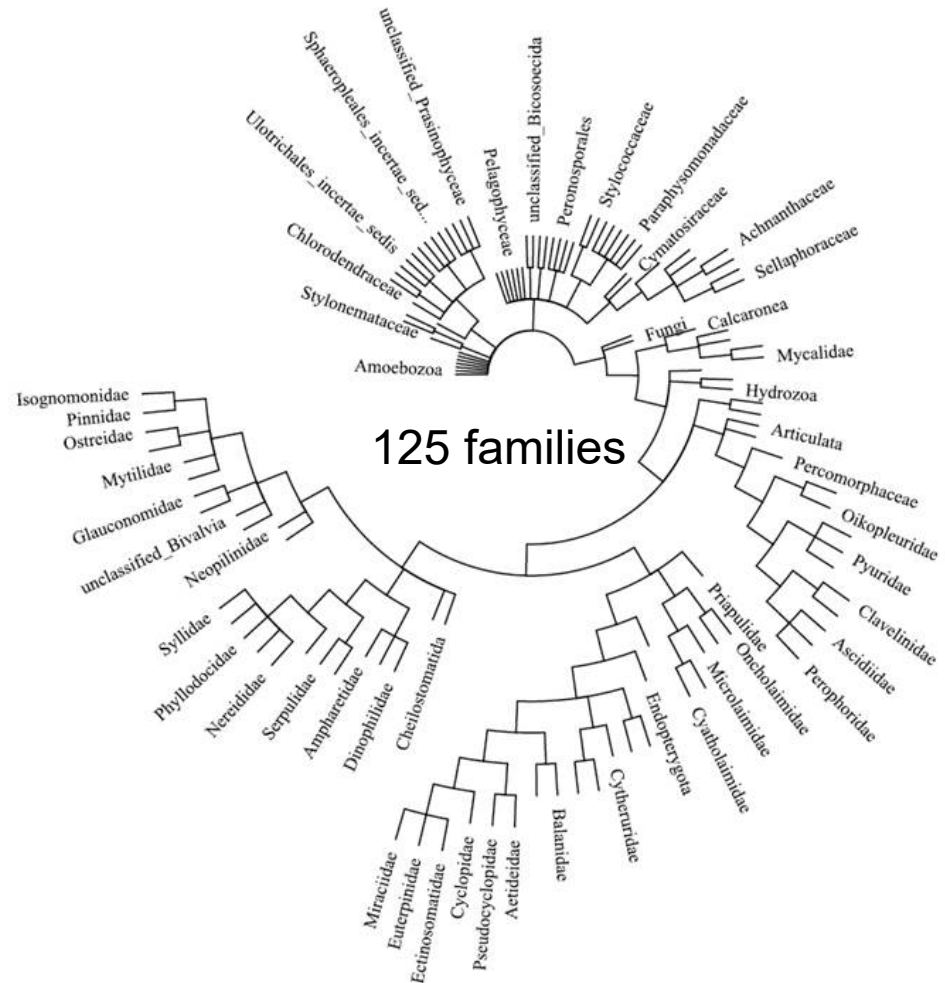
Expanded Port Participation

DNA Sequencing for Identification



SWASP Design Original (Top) New (Bottom); SWASP Deployed Between AP1&4

DNA Sequencing for Identification

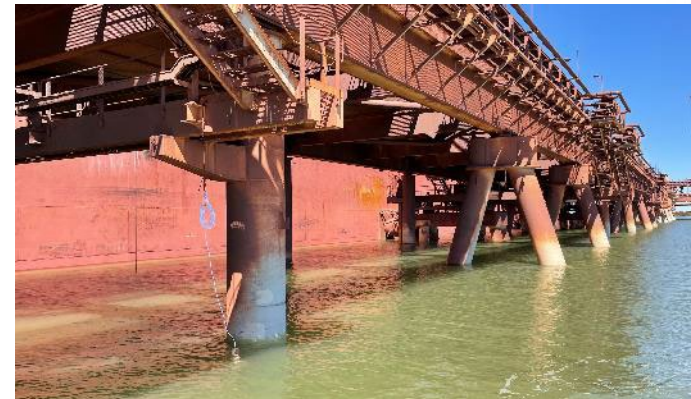
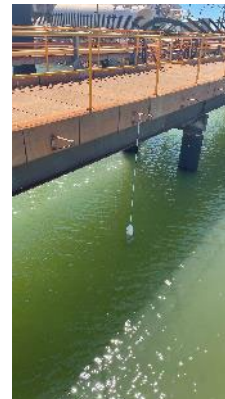
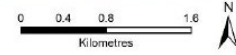


And we are finding pests we know are there

SWASP



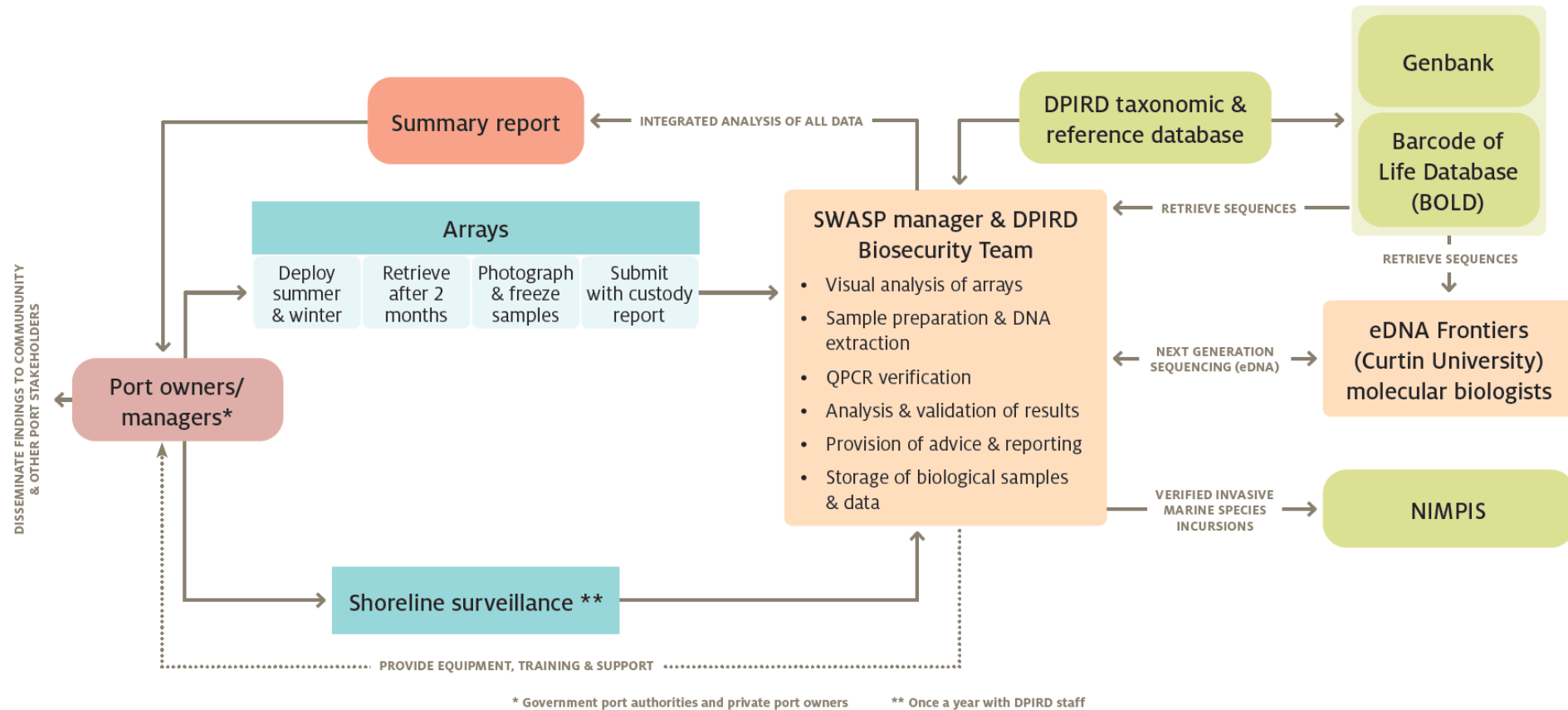
DPIRD Aquatic Pest Biosecurity - State-Wide Array Surveillance Program (SWASP)



SWASP Deployed Tug Pen; SWASP Deployed Between SP1 & SP2

SWASP Collaborative approach

The data flow process



2022 Port Hedland SWASP



- Industry (PHIC) and DPIRD Collaboration
- Industry funding of PH program through PHIC
- PHIC Environmental Working Group (EWG) members coordinate summer and winter soaks
- PPA organizes vessel for field work
- DPIRD field support, technical support, coordinate identification and eDNA analysis, reporting

- Summer Soak (February to April)
- Winter Soak (August to October)

2022 Port Hedland SWASP





Why we are doing this – environmental, economic and socio-cultural impacts

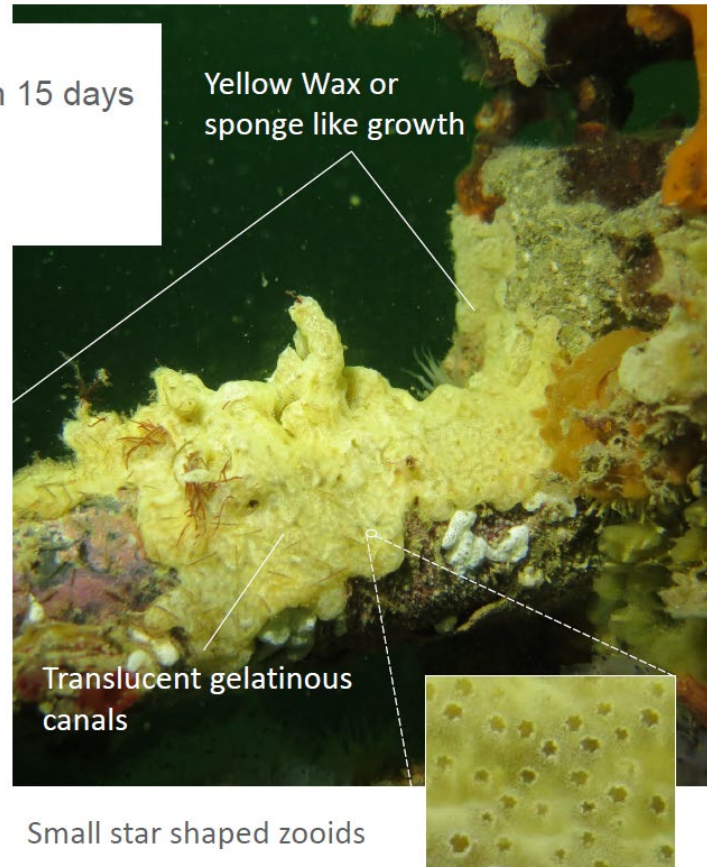


Case Study – *Didemnum vexillum*

Commonly called “Sea Vomit”

Didemnum vexillum identification

- Colonial ascidian
- Fast growing – 6-11 fold increase in 15 days
- Large temperature range (0-28°C)
- High reproductive potential

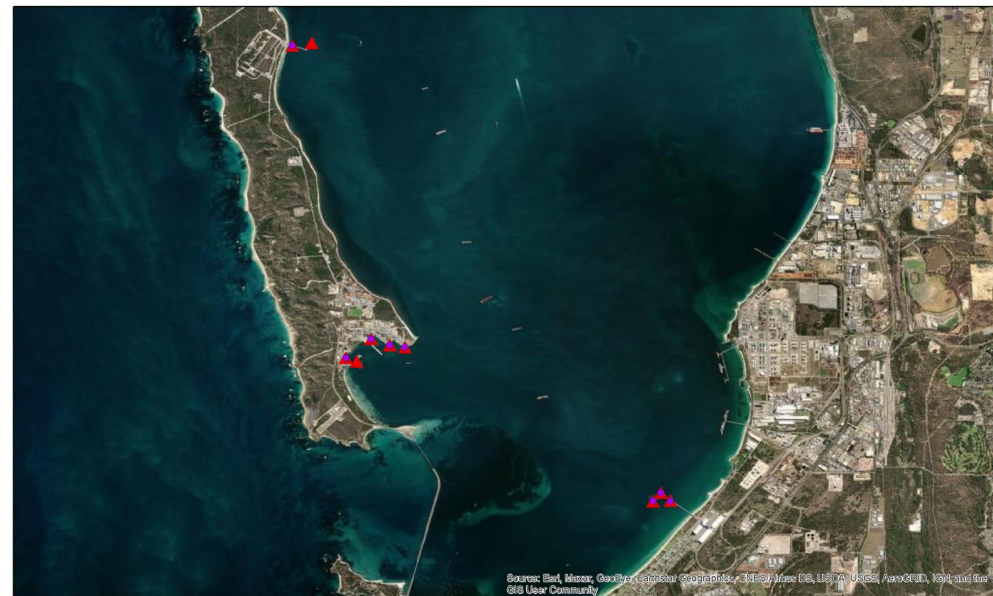
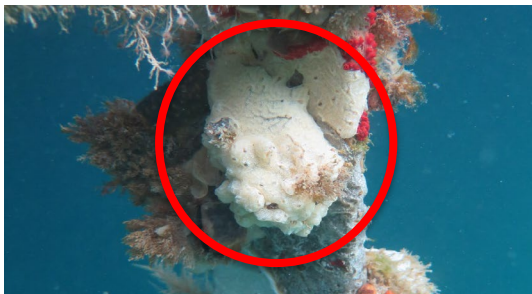


Photos: Matthew Hewitt and Claire Wellington, DPIRD

- Excludes toxic substance
- Can overgrow native species
- Larvae free-swimming stage short

Case Study – *Didemnum vexillum*

- Detected at HMAS Stirling, specimens collected and verified in early 2021
- Delimiting surveillance in 2021 indicates restricted to the naval base and surrounding Careening Bay
- No detection at nearby Kwinana jetty
- Remediation underway



DPIRD Aquatic Pest Biosecurity Surveillance
HMAS Stirling Garden Island & CBH Kwinana Grain Jetty

Coordinate System: GCS GDA 1994
Datum: GDA 1994
Units: Degree

0 625 1,250 2,500 3,750 5,000
Metres



An Award-Winning Program

- Golden Gecko 2018
- Australian Biosecurity Award 2019
- Institute of Public Administration Australia 2020



State-Wide Array Surveillance Program (SWASP)

SWASP has succeeded in providing robust, coordinated, collaborative and consistent surveillance of potential marine pests within ports across Western Australia (WA), filling an important gap in the existing marine biosecurity surveillance for the state.

Successes of the program:

- Collaborative
- Consistent across the state
- Effective in early detection



TRUST IS KEY TO SUCCESSFUL COLLABORATION

- There is strong trust between DPIRD staff and the ports
- It takes time and effort to build up trust
- Annual DPIRD visits to the ports helps to maintain the relationships and two-way communication
- Trust enables a strong collaboration between the regulator (DPIRD) and the ports and opens opportunities for collaboration on other issues
- Ports like to feel connected and part of a larger program



SWASP PROVIDES MORE THAN BIOSECURITY SURVEILLANCE

- Strong collaboration supports trialling new innovations
- Molecular ID enabled biodiversity data (not just species presence/absence) to be collected
- Ports utilise community interest in biodiversity information to increase engagement with them
- Community engagement increases general knowledge and awareness of invasive species



INNOVATION HAS ITS CHALLENGES

- Get the program up and running, then 'iron out the bugs'. (e.g. *Adapt surveillance design and equipment*)
- Change is initiated by ports identifying a problem or DPIRD identifying an opportunity
- Change and innovation presents new challenges so SWASP needs to be adaptable
- Because the ports trust DPIRD they accept the challenge

2008

Initial array trial in WA



2013

EWS implemented in 6 ports



2015

Added eDNA identification to taxonomic methods



2017

SWASP implemented in 11 ports



2018

Won WA Golden Gecko Award



2020

QLD implemented SWASP in 5 pilot ports



2010

'Early Warning System' (EWS) program established in 3 ports



2015

EWS implemented in 10 ports



2016

EWS transitioned to the SWASP program



2017

Presented program to Commonwealth Marine Pest Sectorial Committee



2019

Won Australian Biosecurity Award

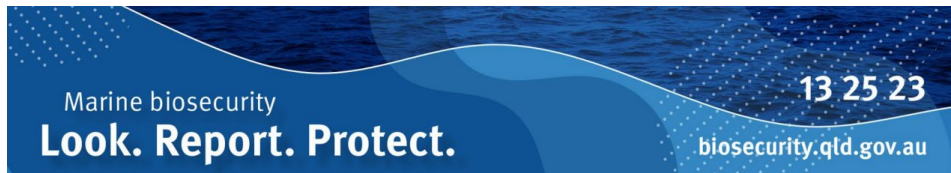


2020

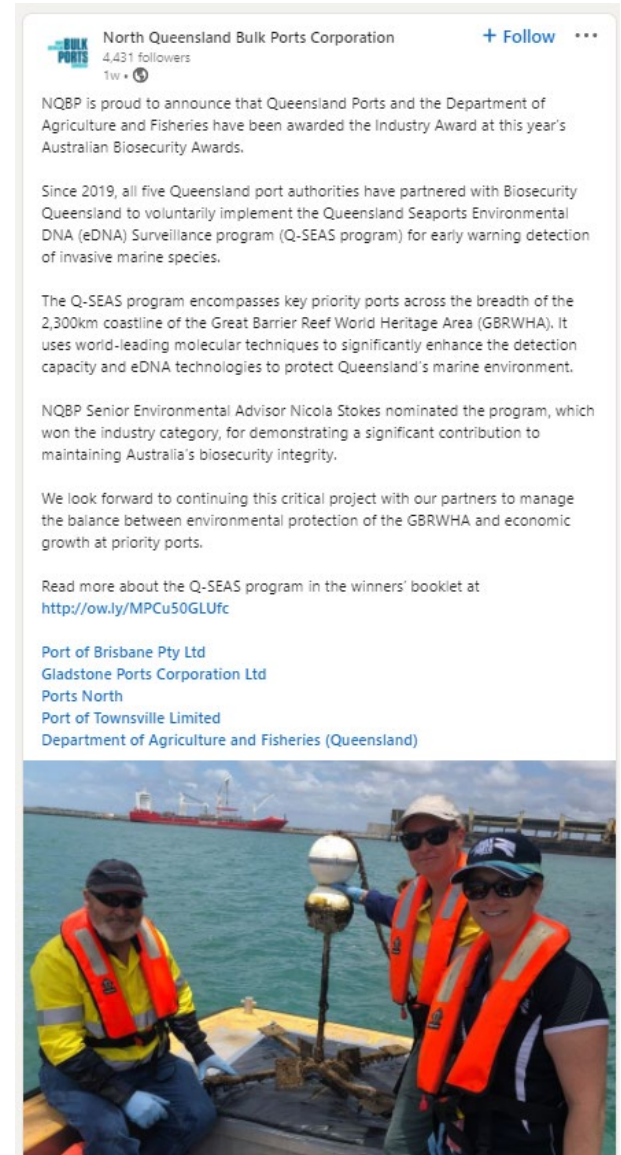
Won Institute of Public Administration Australia Achievement Award

Imitation the Greatest form of Flattery

- Queensland Seaports Environmental DNA (eDNA) Surveillance Program (Q-SEAS)
- Australian Biosecurity Award 2021



Partnering to improve early detection of marine pest threats



North Queensland Bulk Ports Corporation
4,431 followers
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NQBP is proud to announce that Queensland Ports and the Department of Agriculture and Fisheries have been awarded the Industry Award at this year's Australian Biosecurity Awards.

Since 2019, all five Queensland port authorities have partnered with Biosecurity Queensland to voluntarily implement the Queensland Seaports Environmental DNA (eDNA) Surveillance program (Q-SEAS program) for early warning detection of invasive marine species.

The Q-SEAS program encompasses key priority ports across the breadth of the 2,300km coastline of the Great Barrier Reef World Heritage Area (GBRWHA). It uses world-leading molecular techniques to significantly enhance the detection capacity and eDNA technologies to protect Queensland's marine environment.

NQBP Senior Environmental Advisor Nicola Stokes nominated the program, which won the industry category, for demonstrating a significant contribution to maintaining Australia's biosecurity integrity.

We look forward to continuing this critical project with our partners to manage the balance between environmental protection of the GBRWHA and economic growth at priority ports.

Read more about the Q-SEAS program in the winners' booklet at <http://ow.ly/MPCu50GLUfc>

Port of Brisbane Pty Ltd
Gladstone Ports Corporation Ltd
Ports North
Port of Townsville Limited
Department of Agriculture and Fisheries (Queensland)

