The **Sakai Hydrothermal vent** site is a **priority for conservation** to protect connectivity between all vents of the **Okinawa Trough**

Hydrothermal Vent Community Assemblage Networks of the North-West Pacific

INTRO

- Vents support rare and endemic species.
- Okinawa is targeted for the world's first vent mines.
- The regional impact of this mining depends on how connected they are through shared species.

METHODS

1. N = 32 vents | 117 species

2. From literature and publicly available sources (JAMSTEC and University of Victoria)

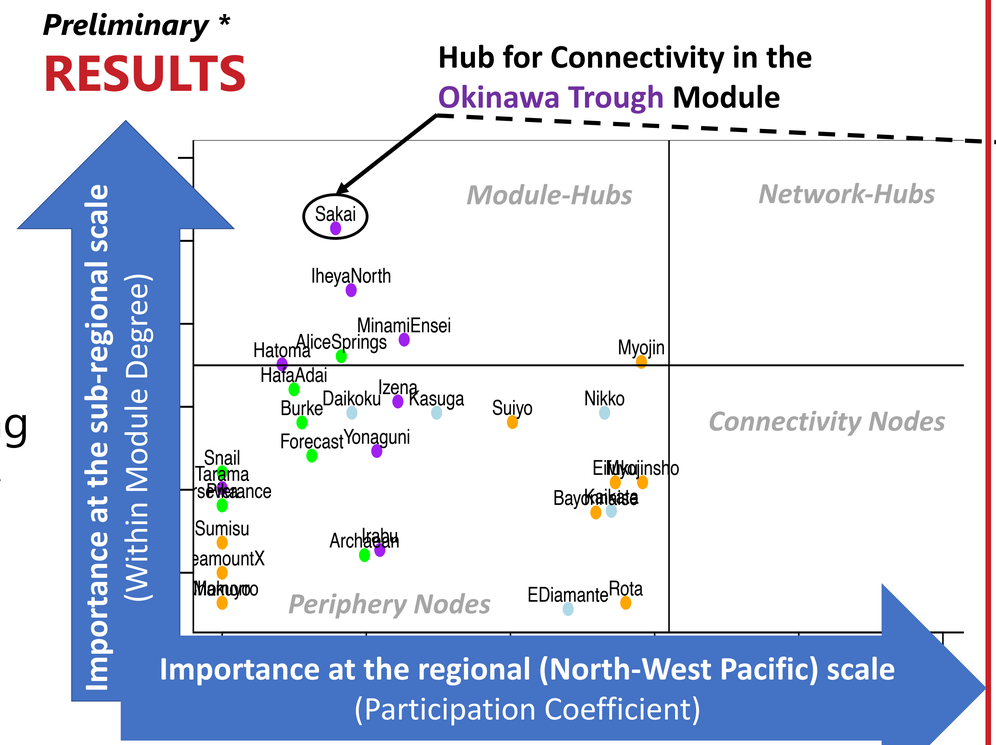
3. Analysed using techniques from **Network Theory**
   - Modularity with Simulated Annealing
   - Cartographic roles

   (*Guimera & Amaral, 2005a,b*)

O. Brunner, C. Chen, T. Giguere, S. Kawagucci, H. Watanabe, V. Tunnicliffe, S. Mitarai

Preliminary *

RESULTS



Cartographic roles of each vent site in the network. Coloured by module membership; purple – Okinawa Trough, orange – Izu-Bonin-Mariana(a), blue – Izu-Bonin-Mariana(b), green – Mariana Trough.

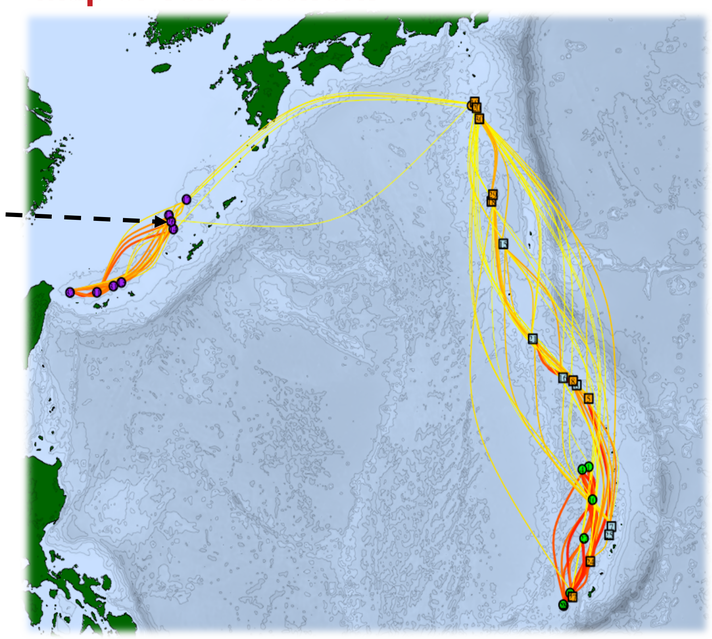
** Results may vary after adding newly available occurrence data.*

DISCUSSION

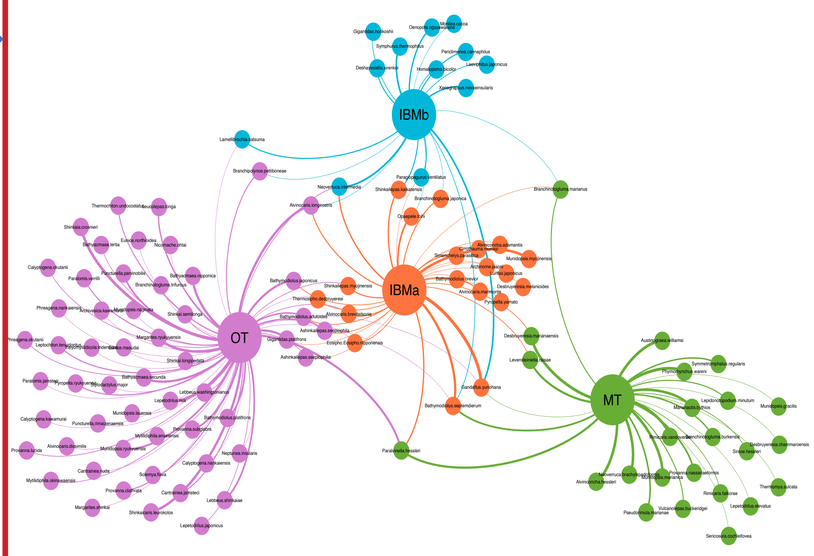
- Each Module (colour) represents a **biogeographic 'sub-region'** of North-West Pacific Vents.
- Connectivity at the scale of the sub-region is most **relevant to conservation**.
- 'Sakai' (Iheya Ridge) is a target for mining but **disturbance to this key site in Okinawa would have the most profound impact** the biodiversity of the sub-region.

Additional Figures

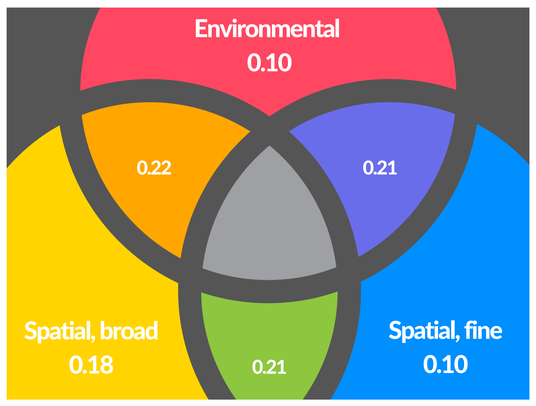
Map of Vent Network



Contracted Vent – Species Network



Variance Partitioning of Vent Communities



SUSTAINABLE DEVELOPMENT GOALS

Take a picture to visit the **Marine Biophysics Unit** website

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