2027 HONOURS PROJECT

Project Title: Corals on the Move

Supervisor: Associate Professor Zoe Richards

Collaborators: Dr Natalie Rosser, Dr Claire Ross (DBCA), Mr David Juszkiewicz, Cam Nadler (ReefCraft), WA Museum.

Project Details: Ocean warming is driving the tropicalisation of temperate marine ecosystems**,** as tropical species expand poleward and potentially displace or restrict cool-water endemic taxa. Anecdotal observations suggest that coral assemblages around Perth and Rottnest Island are changing, with tropical species increasingly recorded, but unresolved taxonomy makes it difficult to distinguish genuine range shifts from historical misidentifications.

This project will address **two key questions:** 1) How accurate is our current understanding of coral biodiversity in the Perth metropolitan region? and 2) Is there evidence that coral assemblages are change due to tropicalisation?

To answer these questions, quantitative morphological analyses of historically collected coral specimens held in the Western Australian Museum will be used to verify species identifications and establish historical distributions for comparison with contemporary records. Targeted phylogenetic analyses will then be used to resolve uncertain morphospecies and determine whether they represent new species, cryptic genetic lineages, or southward range extensions of tropical species**.** Together, these approaches will provide a robust taxonomic and historical baseline for detecting climate-driven changes in coral biodiversity along southwestern Australia.

Funding: Equipment, materials and training will be provided by the CORE group.

Special requirements: This project will involve working with collections at the WA Museum, and a police clearance will be required to gain access to the facility. Students should have an interest in taxonomy and be willing to learn basic molecular techniques, including DNA extraction along with phylogenetic analytical techniques. The project will also involve detailed morphometric measurements of coral skeletons using microscopy, so attention to detail and an interest in morphological analysis are important.

Start date: This project could be offered with a Sem 1 or Sem 2 2027 start date.