"News from the field"

Intertidal Areas: Mapping critical environment and subsistence areas:

The intertidal areas are a critical and niche habitat that provides a large proportion of the subsistence livelihoods however they are also threatened by environmental and unsustainable practices.

Through the Vava'u Ocean Initiative, the team has mapped and surveyed 4 intertidal habitats collecting data on habitat type such as sediment, macroalgae, cyanobacteria and seagrass. Also collected is marine invertebrate abundance such as sea cucumbers, starfish, mollusks and fish species in the shallow waters. These criteria show us the overall health of the intertidal area and the potential for habitat of the varying marine resources.

Marine organisms have a hard life in the intertidal areas with the changes from high to low tide each day often leaving them in harsh, bright and hot conditions. Many of the organism's burrow making them hard to survey, however species such as sea cucumbers, starfish, crabs and others find shelter under rocks and in the macroalgae and seagrass.

Current threats to intertidal mudflats include run-off and pollution from land, rising sea levels, increasing ocean temperatures and habitat destruction from unsustainable practices such as a'a feke (smashing of rocks to gather octopus) and 'aukava (a plant-based form of cyanide) reduce the habitat and health.

The findings of these surveys will be used to identify critical environmental threats to inter tidal areas and to look to effective management of these critical habitats.

Figure 1 Measuring benthic (bottom) cover

Figure 2 Kaloa'a (ark clams) are an important food source for communities

Algae, algae everywhere!

One of the things with changing environments and increasing temperatures is changes in the algae between summer and winter.

Figure 2 Halimeda macroalgae is a calcifying alga that breaks down and build beaches and aid coral development

There are many different types of macroalgae some which are useful for human consumption (limu) and Halimeda sp. which eventually is broken up and creates beaches as well as providing substrate for coral reefs and others that can be harmful and smother coral reef habitats.

Herbivorous fish such as parrotfish can eat macroalgae (except Halimeda) however when these are overfished, macroalgae can bloom and dominate reefs.

Cyanobacteria

Cyanbacteria also known as "blue-green algae" can be either microscopic or form strands and mats that smother intertidal areas and inhibit the marine organisms that's live there.

Figure 3 Juvenille mangrove covered in cyanobacteria

Cyanobacteria can also cause "harmful algae blooms" such as that in Neiafutahi in 2014. These can be caused by warmer waters and increased nutrients (phosphate, nitrate and carbon) entering the coastal waters from land.

"Eyes on the Reef" –

As summer time arrives, our coral areas can have increasing stress with rising ocean temperatures.

Corals have a mutual relationship with an algae called "zooxanthellae" which not only gives coral its colours, but provides a critical service through photosynthesizing and providing the essential nutrients to the corals.

When the zooxanthellae are stressed through pollution, increased sedimentation and increasing ocean temperatures, the algae leave the coral host – this process is known as bleaching, turning the coral white.

Corals survive in tropical waters however if ocean temperatures exceed 28C for an extended time, they may bleach. Bleached corals can recover if temperatures reduce quickly.

This summer, if you see any white patches or corals turning white report them to the VEPA office or Facebook Message us at Vepa Vava'u

Figure 1 Coral bleaching in 2014, water temperatures remained at over 30C for 6 weeks