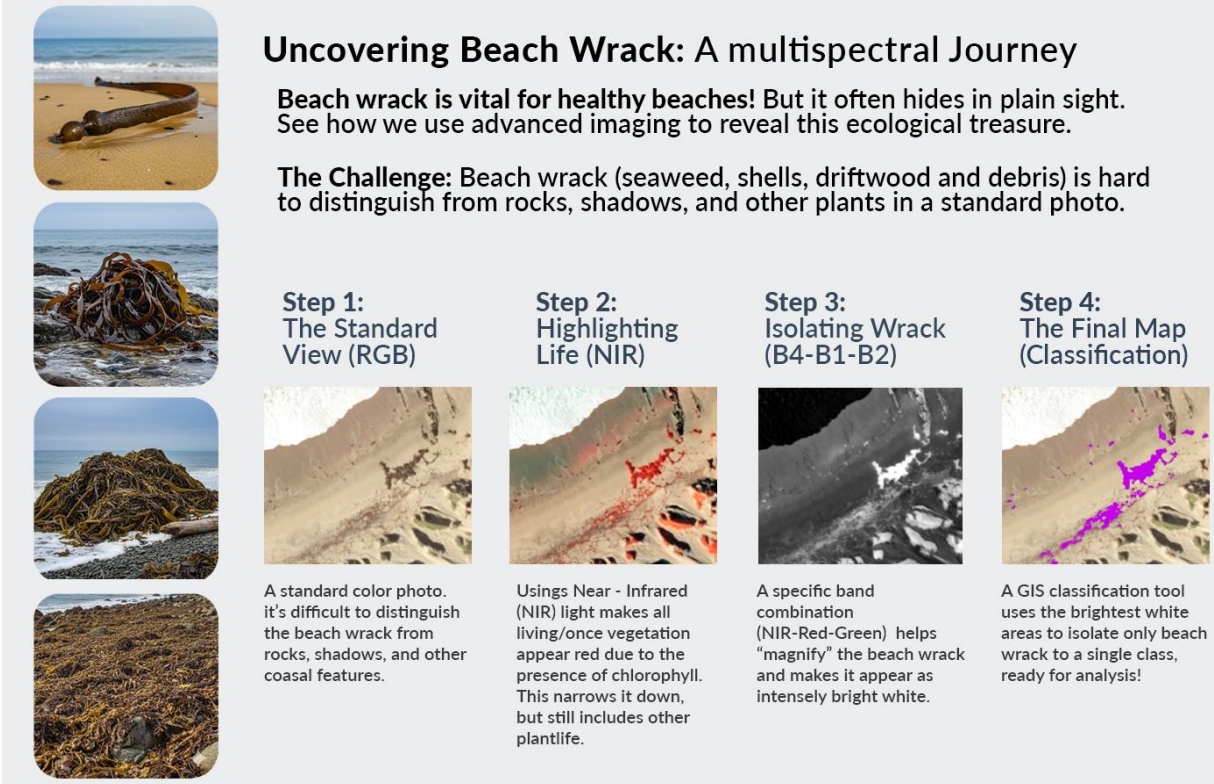
Ocean Imaging



Ocean Imaging has been mapping Giant Kelp surrounding San Nicolas Island off the coast of California for over 15 years. Last year we began a multi-year project to not only map kelp, but also the beach wrack covering the island's sandy beaches and rocky shoreline. What is beach wrack, you ask? Wrack can come in many forms from Giant Kelp and other seaweeds such as sargassum that washes ashore, to most any type of organic material that finds its way onto beaches. While sometimes seen as unsightly and you might avoid it when strolling along the sand, wrack is a critical part of the coastal ecosystem and provides a variety of essential ecological services.

For example, Beach wrack is a primary source of nutrients for the beach ecosystem. When it decomposes, it releases nutrients that are used by both terrestrial and marine organisms. It forms the base of the food chain by providing food and shelter for a variety of invertebrates like beach hoppers, kelp flies, and beetles. These small creatures, in turn, become a vital food source for shorebirds, migratory birds, and even some land animals. Wrack also provides nesting habitat for some birds and a safe place for sea turtle hatchlings to take cover as they make their way to the ocean.

Beach wrack essentially provides the ecological link between land and sea. It acts as a bridge, transferring nutrients and energy from the marine environment to the terrestrial environment. Since the sandy beach itself has little to no primary production, it is highly dependent on this imported material to support its unique ecosystem. This constant flux of organic matter ensures the health and biodiversity of both the beach and nearshore environments.

In addition, beach wrack plays a critical role in coastal geomorphology. It acts as a natural barrier that helps to reduce wave energy and protect the shoreline from erosion. The organic material and its

associated fauna can trap windblown sand, which over time contributes to the formation and stabilization of coastal dunes. These dunes are essential for protecting coastal properties from storm surges and rising sea levels.

This is why it is important to keep tabs on this constantly changing mini ecosystem, which Ocean Imaging is proud to be a part of! So, the next time you are walking on the beach, maybe take a closer look at the organic debris piled on the sand. We are!