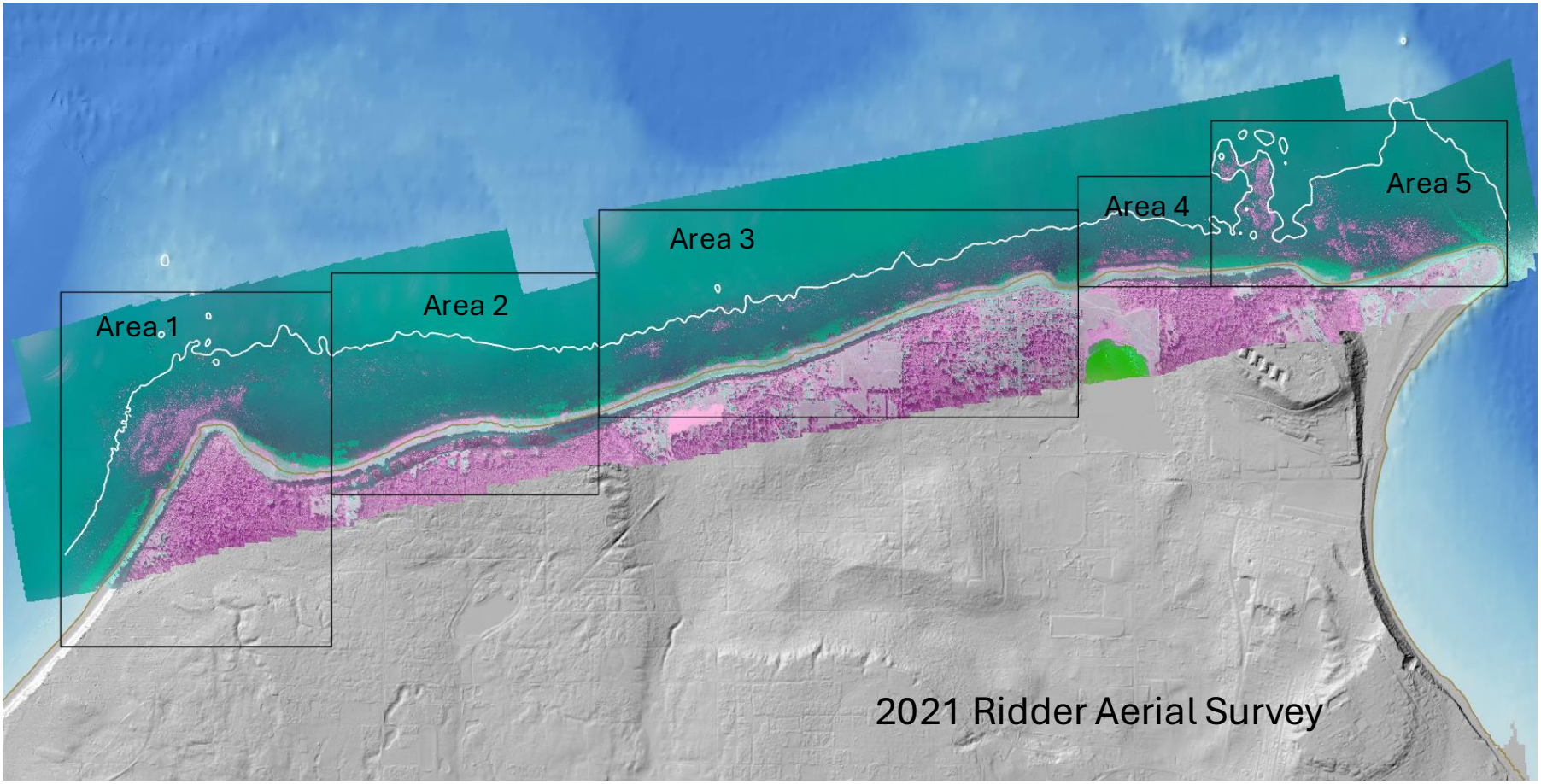
Jefferson County Citizen Kelp Surveys: Old Retired Guys Having Fun With Drones

Christopher Kelley, Joe Roubal, & Jeff Taylor



Prior to Conducting Drone Surveys, We Divided the Northern Coast of the Quimper Peninsula into 5 Discrete Kelp Areas Based on Previous NIR Aerial and Satellite Data



We Use Three DJI Mini Pro 4 and 5 Drones with RC2 Controllers



When Possible, We Operate All Three Drones Simultaneously

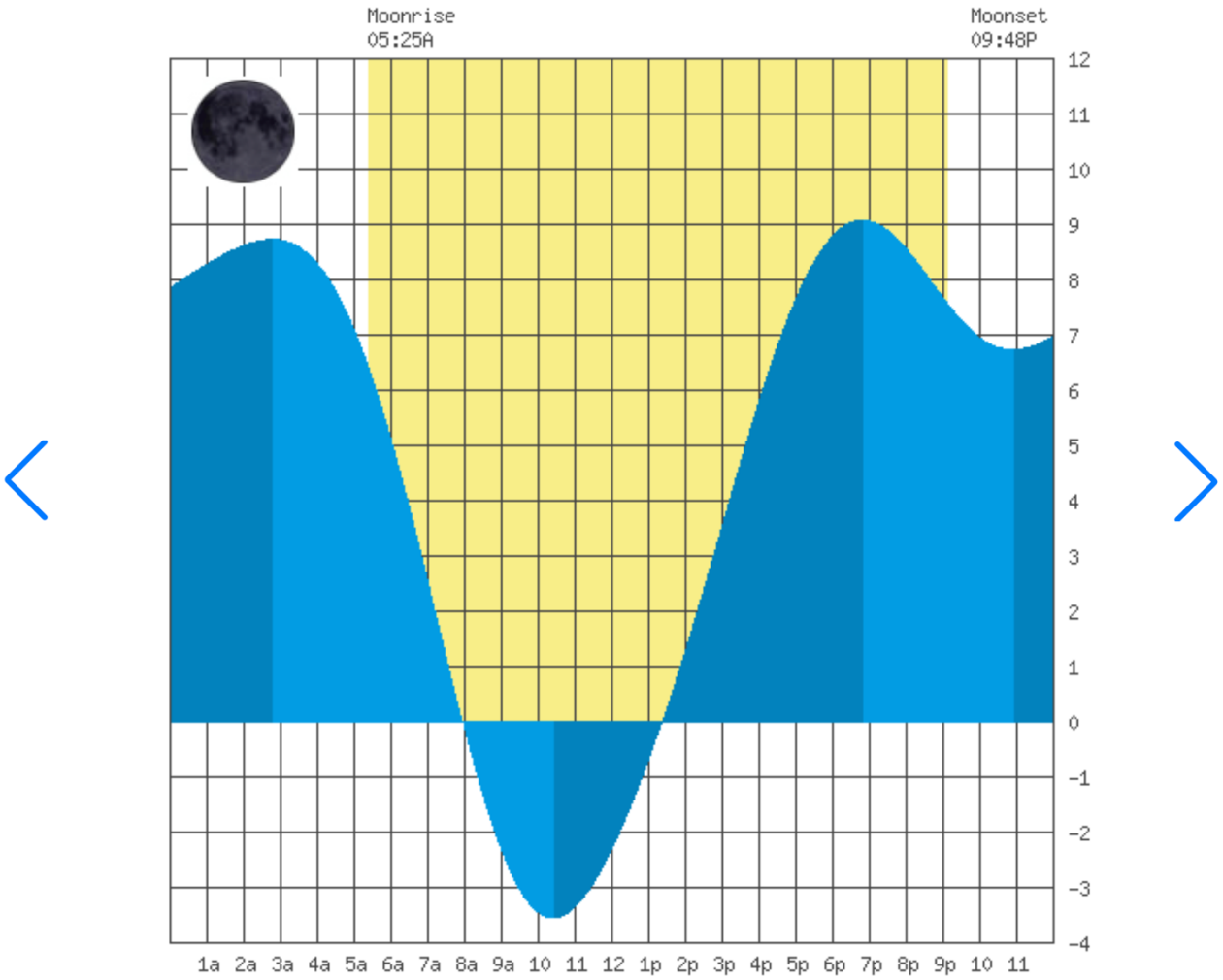


The Drones Follow Waypoint Plans so They Essentially Fly Themselves While We Just Monitor Their Flights



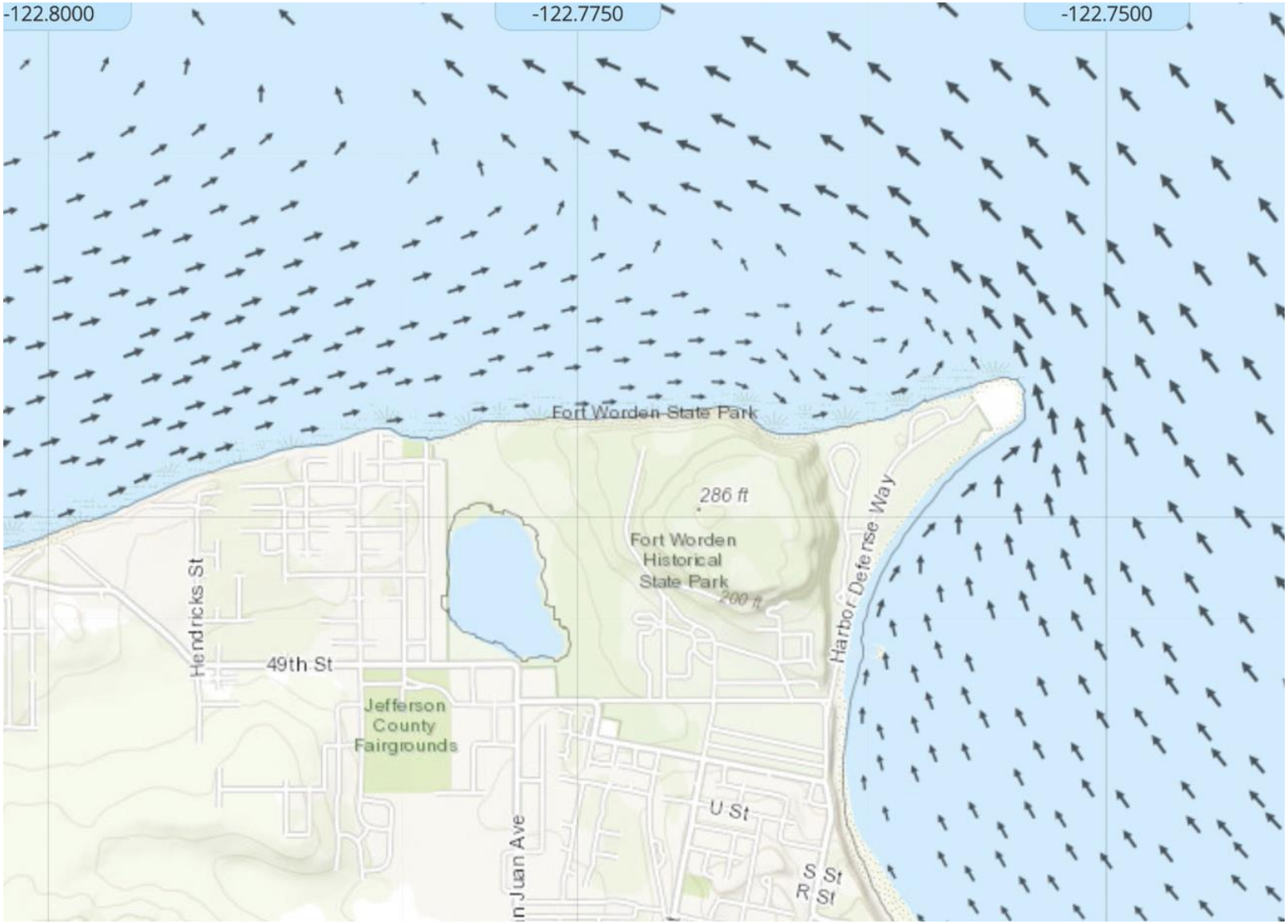
We Use Tide Charts to Target the Outgoing Tide Approximately 2 Hours Before Peak Low When Possible

Port Townsend Tide Chart for (Tue) July 14, 2026

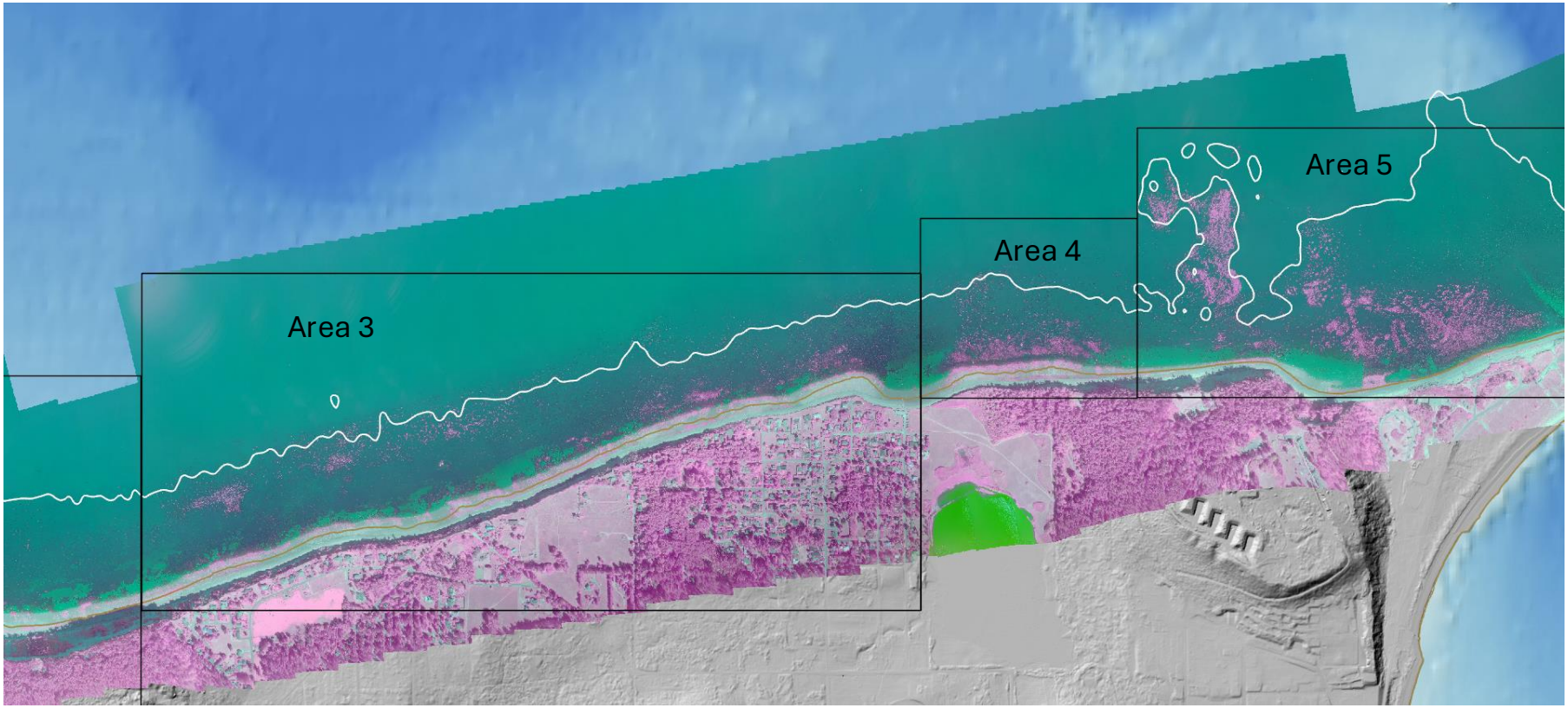


Port Townsend tides for **Jul 14th**, the **sunrise** is 5:26am-9:07pm and the **tide times** are **H** 2:46am 8'8" **L** 10:24am -3'6" **H** 6:48pm 9'0" **L** 10:53pm 6'8" .

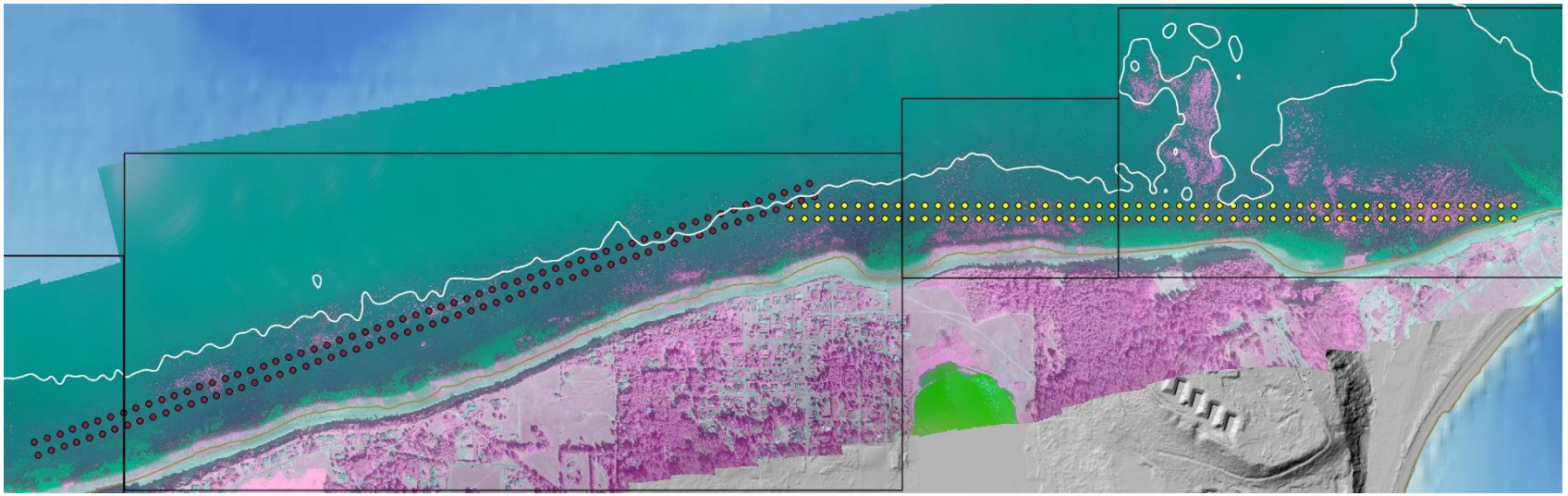
Our Surveys Take Advantage of the Outgoing Current Shadow Effect Created By Point Wilson



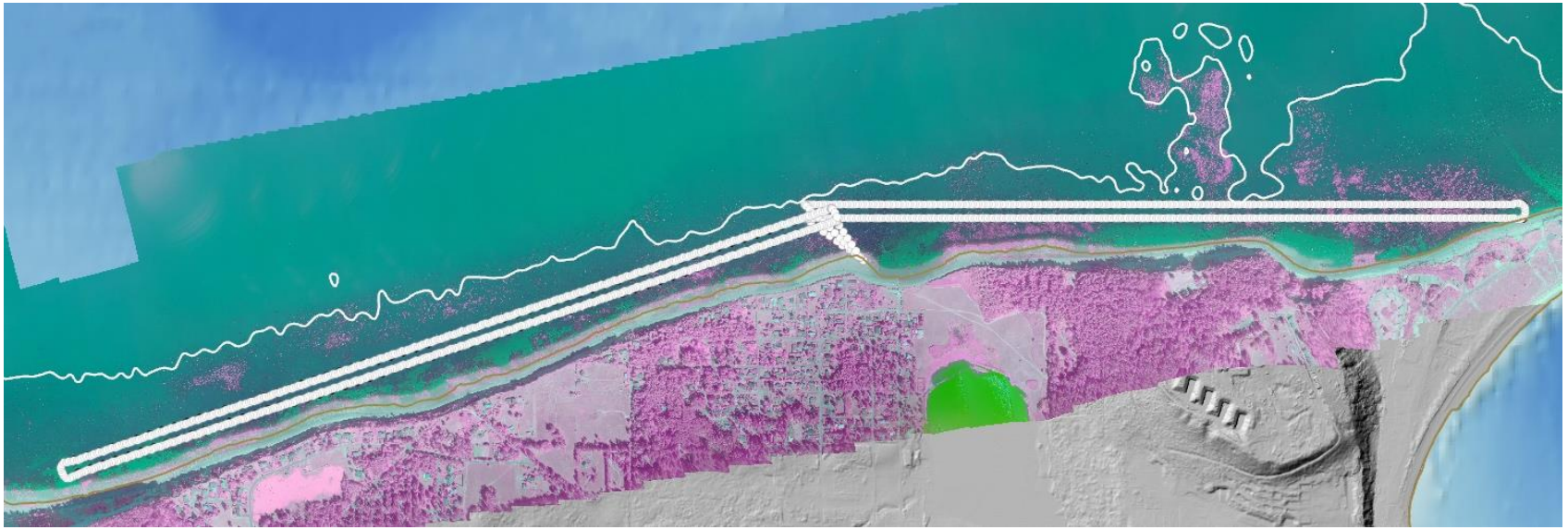
To Date Our Surveys Have Focused Primarily on the Eastern Half of the North Quimper Coast



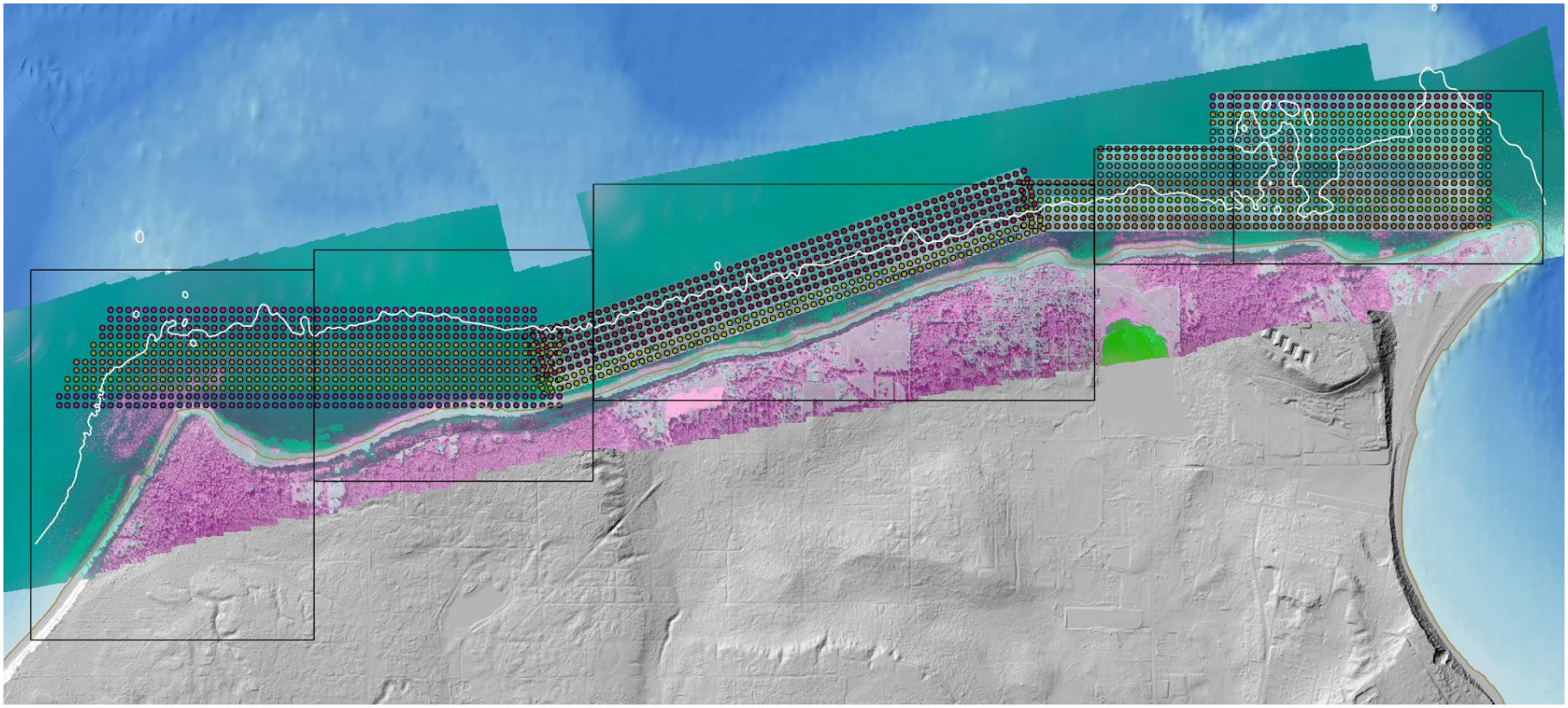
The Upper Image Shows 2 Waypoint Flight Plans Created
So We Can Launch The Drones From a Promontory Just West of North Beach Park



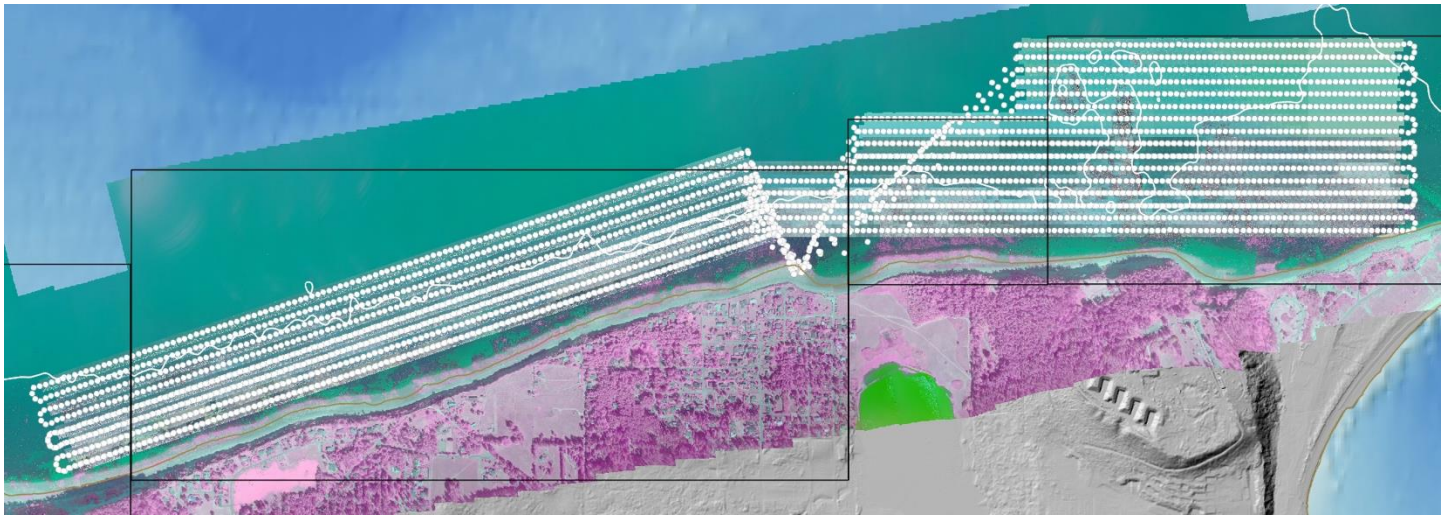
The Lower Image Shows The GPS Positions of Each Photo Taken During the Surveys

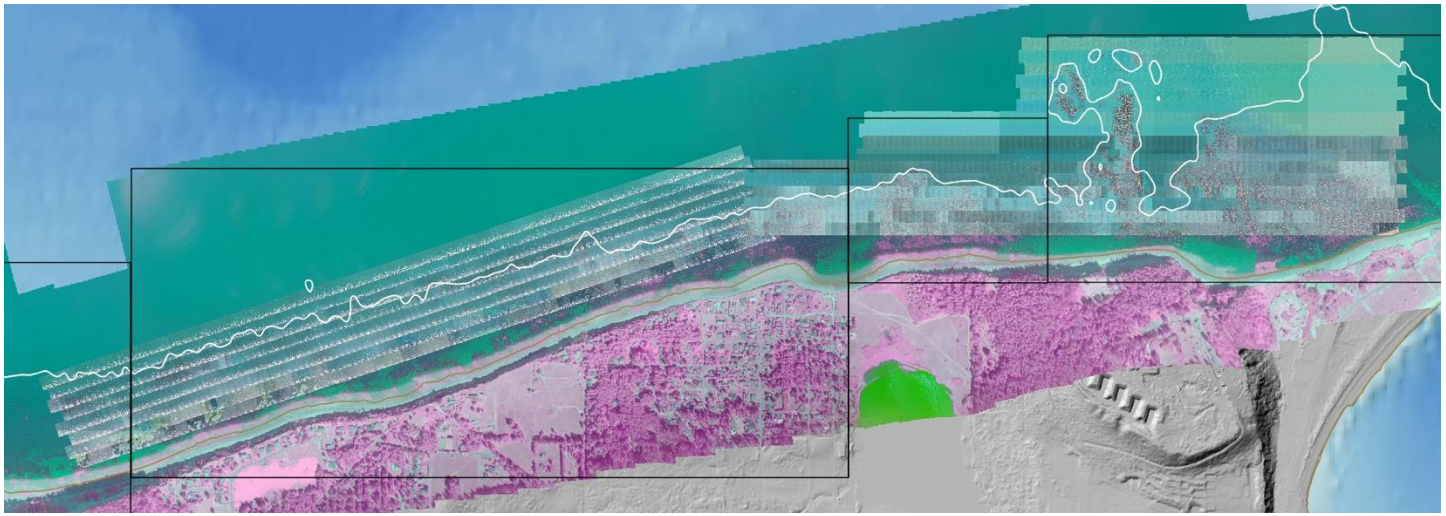


We Have Created 18 Waypoint Plans
For Using Drones to Survey the Entire Northern Coast

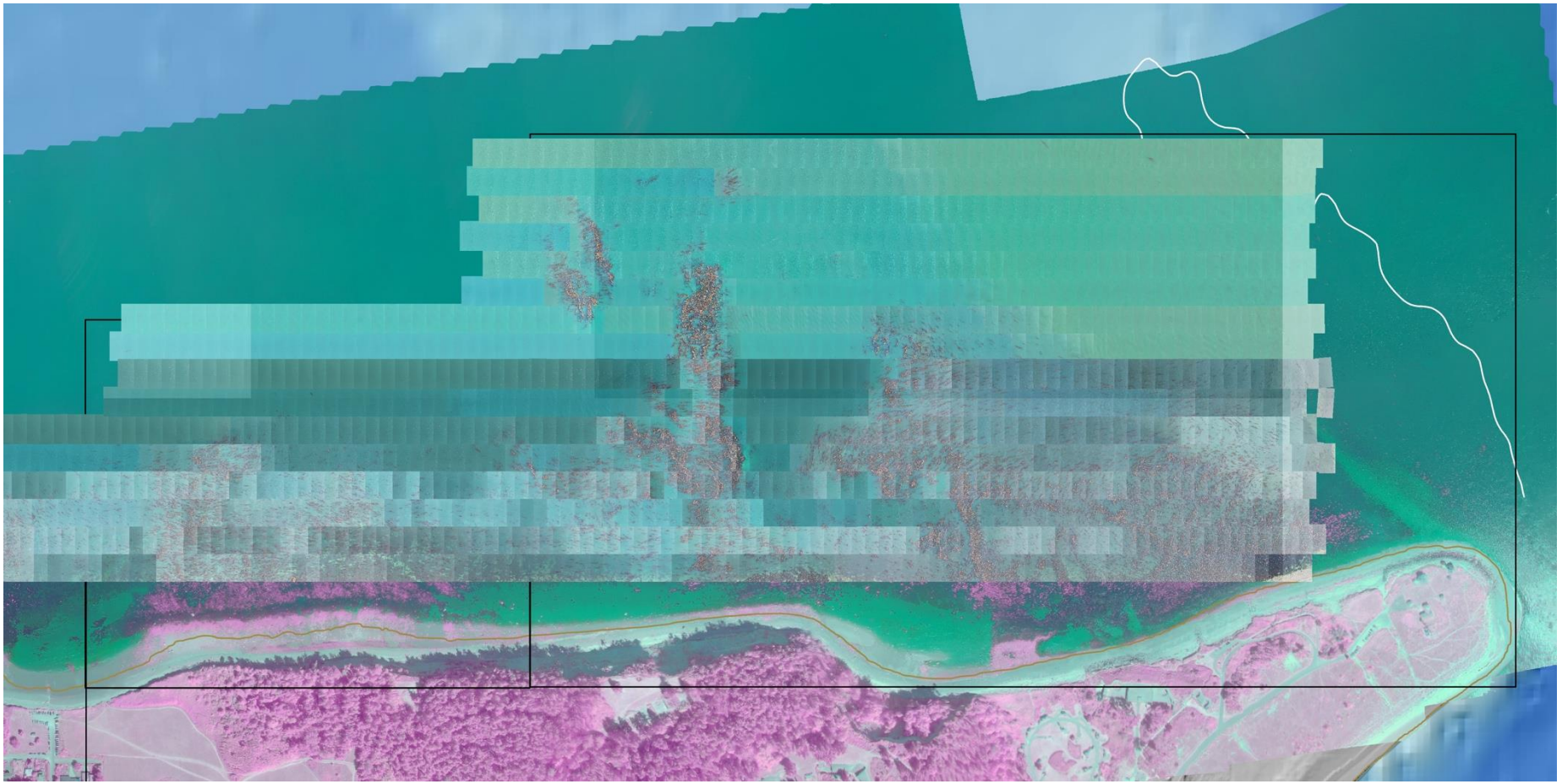


These Images Show the Locations of Thousands of Photos Taken in Areas 3,4, and 5 and the Mosaics Created From These Photos





This Shows the Mosaics of the Floating Kelp Beds Offshore From Fort Worden Park



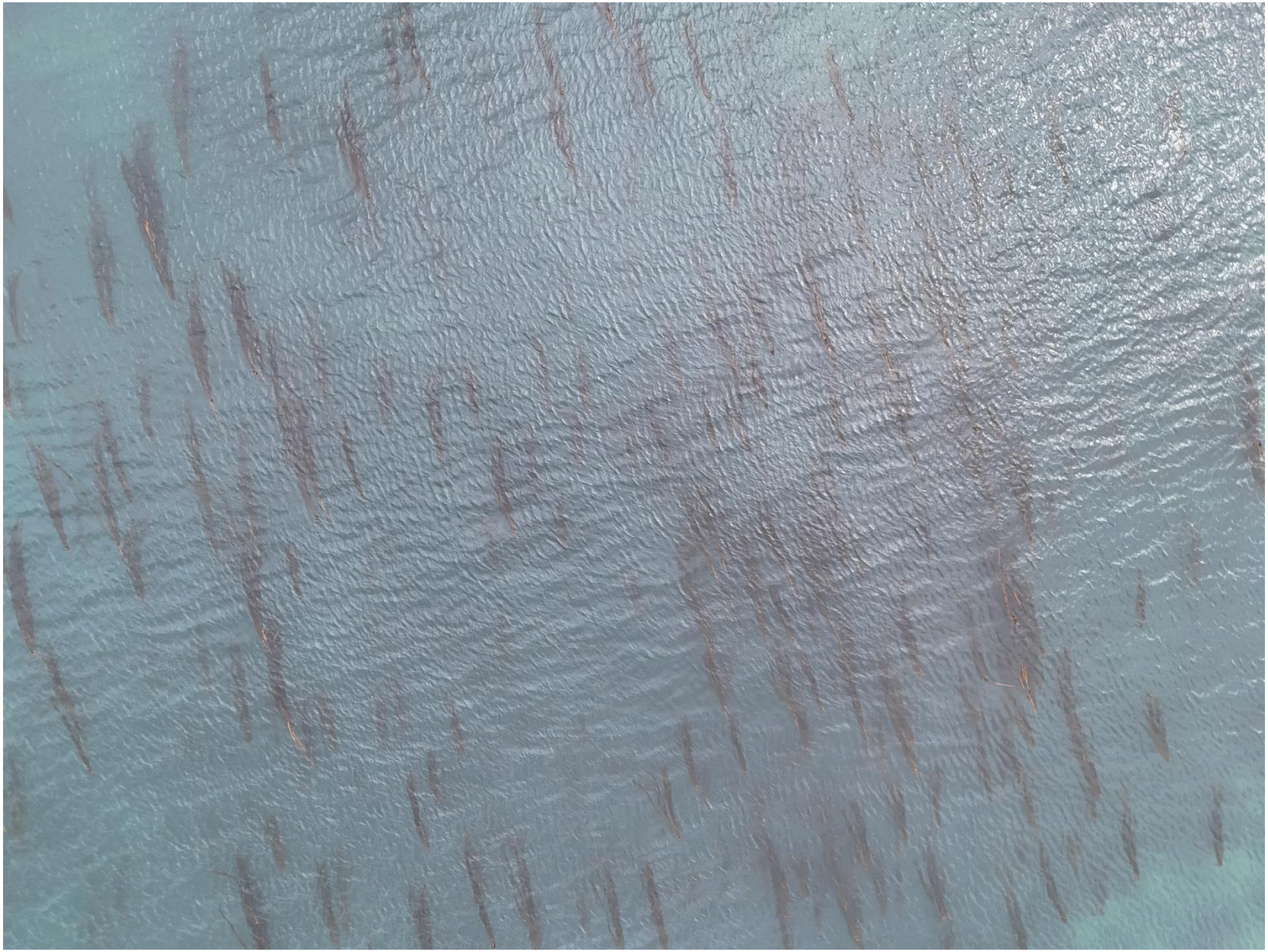
Example Drone Photo Taken in July When Wind, Tides, and Currents Were Optimal



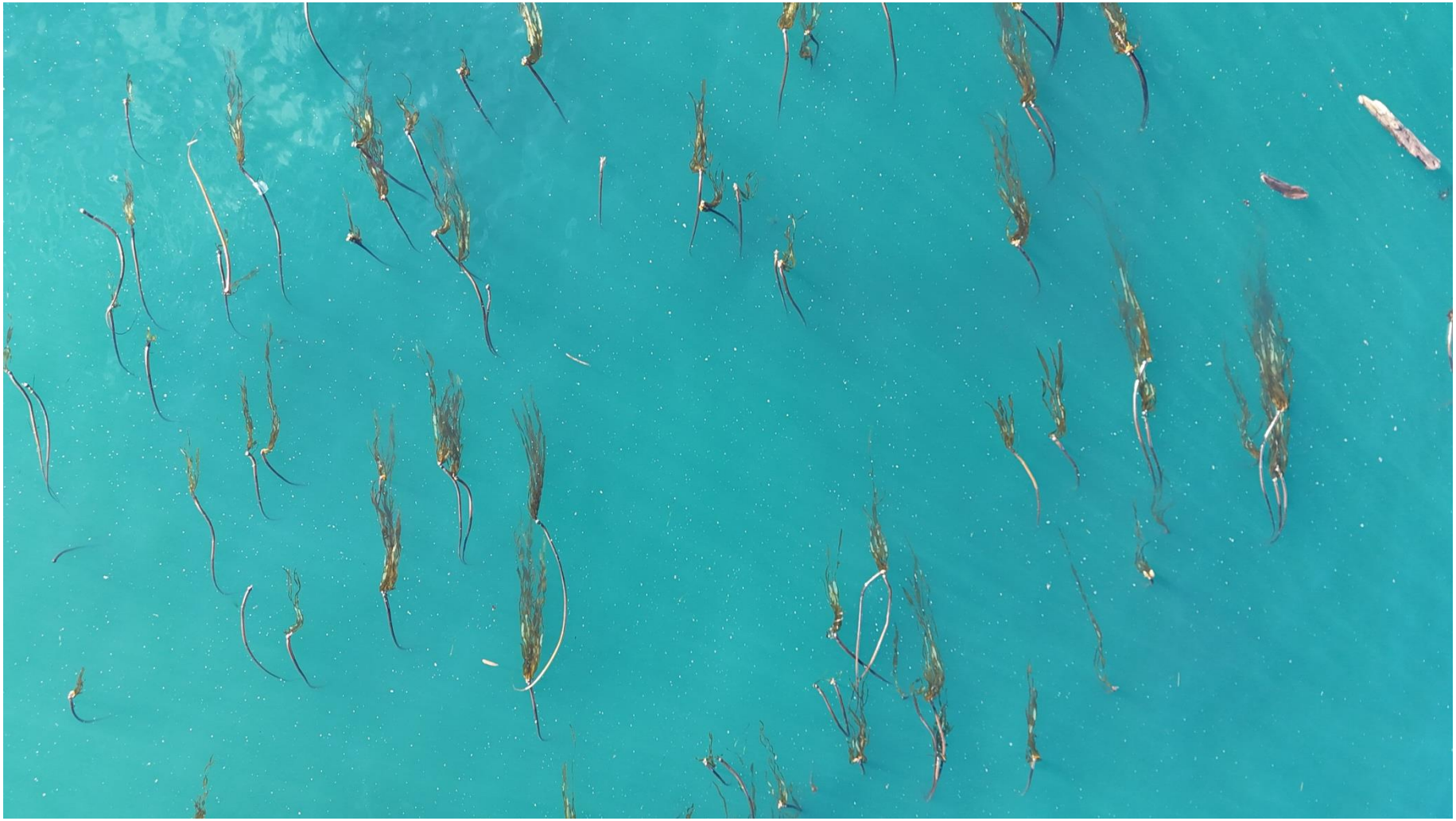
Example Drone Photo Taken in July When Wind, Tides, and Currents Were Optimal



Example Drone Photo Taken in May When Wind, Tides, and Currents Were Not Optimal



Example Drone Photo of Kelp in January 2026

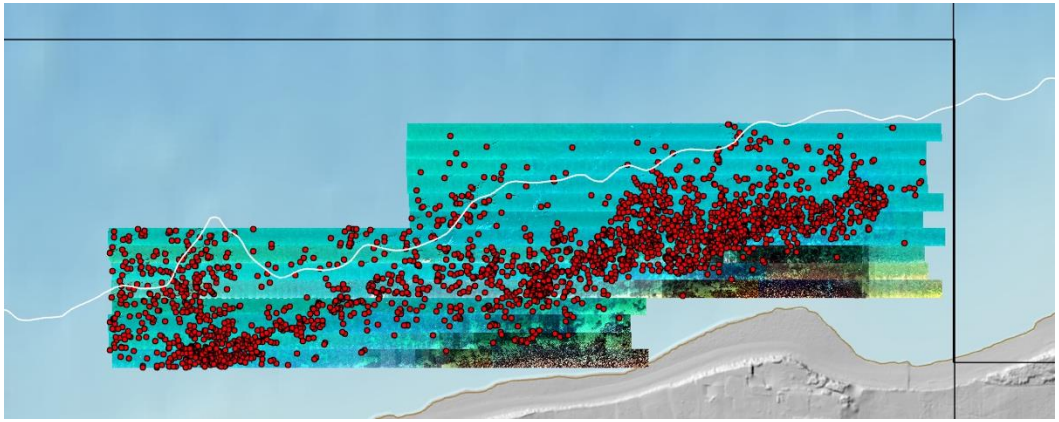


Digitizing Individual Kelp Locations

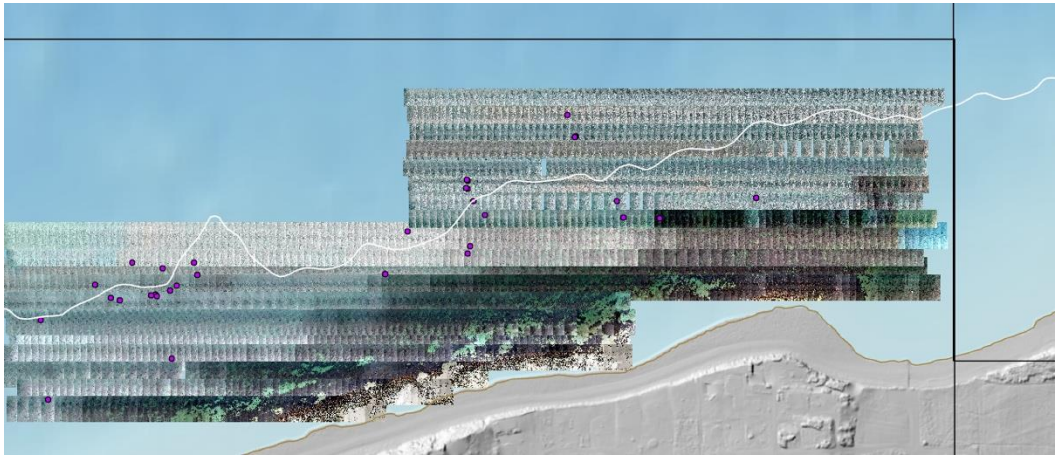


Digitizing Individual Kelp Locations

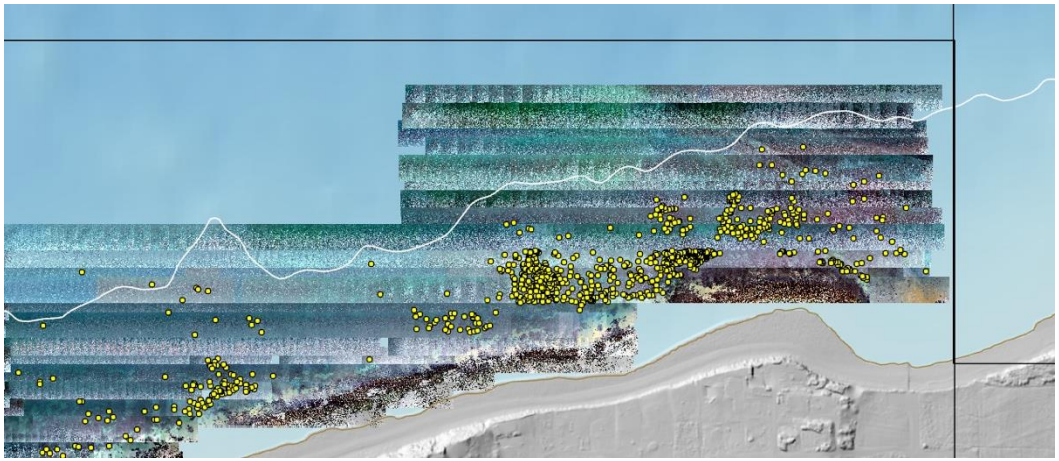
01/24/2026



04/18/2026



05/19/2026



Part of Mosaic in Area 3 Last Month on September 23, 2026

