integration and operation with Autonomous Unmanned Vehicles AUV's and automated vertical profilers fitted with optical instruments.

Since 1993, a series of research initiatives, including the ***US GLOBEC North East Pacific*** and ***Coastal Advances in Shelf Transport*** programs, have supported the deployment of a series of subsurface moored radiometers and optical drifters off the Oregon Coast and Northen California (Abbott and Letelier, 1998). The drifters deployed were WOCE Ocean Color Monitor (OCM) Lagrangian drifters, manufactured by METOCEAN Data Systems Ltd. and Satlantic, Inc. These instruments measure the location, sea surface temperature, upwelling radiance at 7 wavebands in the visible (412, 443, 490, 510, 555, and 670 nm (20 nm bandpass); and 683 nm (10 nm bandpass)) and downwelling irradiance at 490 nm (20 nm bandpass). Measurements are made every 90 seconds, averaged over a one hour period, and transmitted to shore-based laboratories via ARGOS. The subsurface moored radiometers are deployed below the first optical depth, between 5 and 10 m depth, and measure downwelling irradiance at the same 7 visible wavebands used in the drifters. All these optical sensors are calibrated by Satlantic, Inc., before deployment.

AVPPO: The Woods Hole Oceanographic Institution has developed a profiling mooring for coastal waters, the Autonomous Vertically Profiling Plankton Observatory (AVPPO). The AVPPO consists of buoyant sampling vehicle and a trawl-resistant bottom-mounted enclosure, which holds a winch, the vehicle (when not sampling), batteries, and controller. Three sampling systems are present on the vehicle: a video plankton recorder, a CTD with accessory sensors, and a suite of bio-optical sensors including Satlantic OCI-200 and OCR-200 spectral radiometers and a WetLabs ac-9 dual path absorption and attenuation meter. At preprogrammed times the vehicle is released, floats to the surface, and is then winched back into the enclosure with power and data connection maintained through the winch cable. Communication to shore is possible through a bottom cable and nearby surface telemetry buoy, equipped with a mobile modem, giving the capability for near-real time data transmission and interactive sampling control.

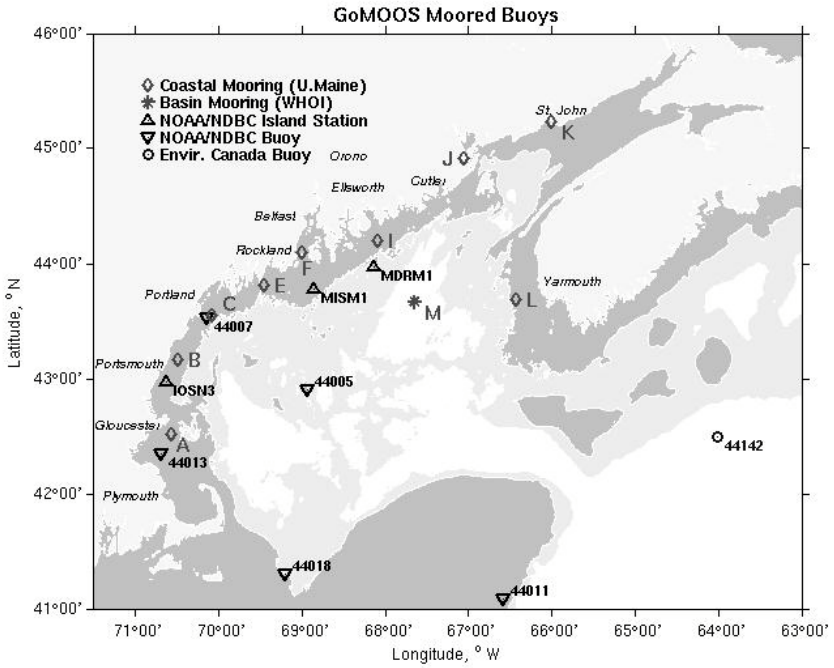

Figure 3.4: Locations of the GoMOOS moorings in the Gulf of Maine. For exact locations see http://gyre.umeoce.maine.edu/GoMoos/gommrg.phtml.

GoMOOS: The Gulf of Maine Ocean Observing System was initiated in late 2000, with the first deployment of the entire mooring array completed in July 2001. GoMOOS was initiated as an opterational observatory, serving as a benchmark for other user-driven ocean observing systems. The primary obective of GoMOOS is to provide the