

2004 Prince William Sound Drifter Buoy Experiment

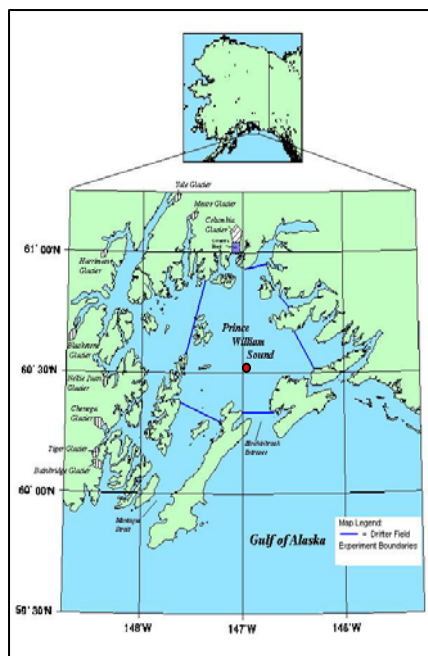
Funded jointly by

Prince William Sound Science Center and Oil Spill Recovery Institute.

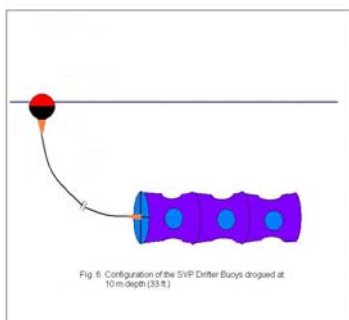
Participating organizations include:

Prince William Sound Science Center, NOAA-Hazmat, University of Alaska Anchorage/ Alaska Experimental Forecast Facility, University of Miami/Rosenstiel School of Marine and Atmospheric Science, Geo-Watersheds Scientific, and SINTEF Applied Chemistry, University of Alaska Fairbanks Institute of Marine Science / Sea Air Land Monitoring and Observing Network

Prince William Sound Nowcast-Forecast (PWSNF) is an ongoing marine research program funded primarily through the Oil Spill Recovery Institute (OSRI) and housed within the Prince William Sound Science Center (PWSSC). PWSNF is directed at developing an ecosystem level understanding of the Prince William Sound and Copper River Delta regions. The foundation of PWSNF includes an atmospheric circulation model coupled to an ocean circulation model and an oil spill trajectory model. These models were developed during Phase I, spanning fiscal years 1998 to 2002, and focused primarily on the development of a quasi-operational prototype Nowcast-Forecast system for Prince William Sound. Phase II of PWSNF was initiated in fiscal year 2003 with the stated intention of transitioning PWSNF from primarily a research-driven effort into one balancing research objectives with an operational core focused on delivering informational products and services to residents and stakeholders within the relatively underserved Prince William Sound region. Also in 2003, the Prince William Sound Ocean Observing System (PWSOOS) was established as part of a national initiative and is developing as the transition vehicle for the phasing out of PWSNF.



The 2004 drifter experiment was developed to facilitate the identification of operational needs within the PWSNF system, as well as the



development of external partnerships for long-term operational interactions. In the event of an oil spill, NOAA scientific staff advise the U.S. Coast Guard on probable spill trajectories based on modeled scenarios using available wind and current data. While the models developed through the PWSNF are intended to assist research and planning efforts prior to spills, they do not replace the existing spill response process.

The PWS Drifter Experiment will be conducted **July 28-August 10, 2004**, and will consist of a release of approximately 20 drifters at the mid-sound “discharge point” (CFOS-13 – the red dot in PWS graphic above), ten of which are to be surface drifters and ten drogued to 10 meters. These buoys will be tracked, telemetered and modeled in near real-time as coordinated from a base station in the Cordova offices of the Prince William Sound Science Center. The bouys are relatively small (approximately 24 inches in diameter) and are painted a bright orange color with Prince William Sound Science Center markings. The duration of the exercise is fourteen days, dependent upon weather and logistics, and will be conducted within an

“experiment box” (see figure above right) comprising, roughly, Western Orca Bay and the central Prince William Sound basin. Instrumentation will be deployed to measure initial oceanographic conditions at the release point in conjunction with the collection and archival of data from existing meteorological and oceanographic instruments normally deployed in PWS.

Additionally, a dye release is planned to measure the horizontal dispersion of water at the release point over the first 24 to 48 hours. **This dye may be visible from both the air and on the waters surface as one or more large colored streaks or patches.** The dye utilized (fluorescein dye) was developed expressly for use in oceanographic studies and is harmless to the marine environment and the resultant water coloration is temporary. The dye will be released by a drifting buoy

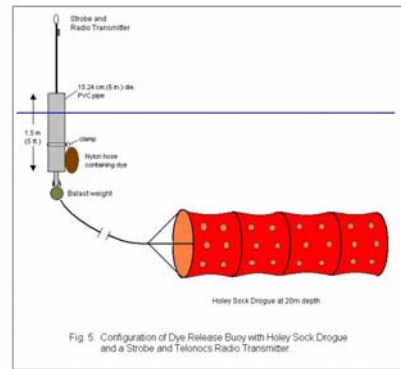


Fig. 5. Configuration of Dye Release Buoy with Holey Sock Drogue and a Strobe and Telenox Radio Transmitter

(diagram at right) and its dispersion measured by an instrument (fluorometer) that detects dye concentration in the water. This instrument is towed behind a seiner vessel and, combined with other instruments is measuring the water’s motion, temperature, salinity and the depth at which the instrument is taking measurements.

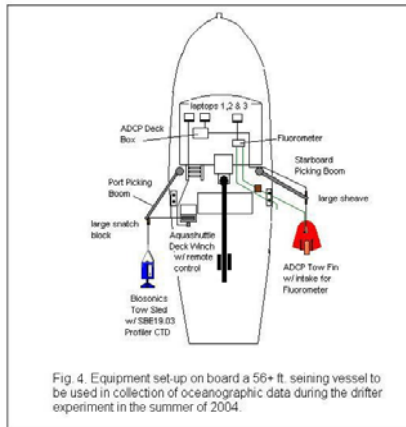


Fig. 4. Equipment set-up on board a 56-ft seining vessel to be used in collection of oceanographic data during the drifter experiment in the summer of 2004.

Ultimately, the goal of the research of which the 2004 Drifter Experiment is a part is to improve the understanding of the physical and biological systems operating within Prince William Sound. Part of this understanding includes the knowledge of what occurs during an oil spill and how oil might move within the

Sound during a spill. By utilizing the drifters, dye release and models of ocean and atmosphere the participants in this experiment hope to garner an improved knowledge of the workings of Prince William Sound and how it can be protected in the event of a spill.

Objects visible in the PWS during the experiment:

1. Orange colored drifter buoys – 20 of these are being used, they are small spherical buoys. Markings on the buoys identify PWSSC as the owner.
2. Dye release – one or more dye releases will be made during the period July 28 to July 31, 2004. The dye is likely to be visible from the air and on the water as a bright colored area. The dye is harmless to marine life and the color is temporary.
3. Dye buoy – a small spar buoy (6” circumference by 60” high) will be used to deploy the dye. This buoy has a strobe mounted on a short mast, the buoy body is painted orange and is made of PVC pipe.
4. Boats – Both a seiner and a bowpicker will be employed during various portions of the experiment. The seiner may be seen towing instruments and the bowpicker may be seen retrieving and/or deploying the orange buoys.