

# Effects of Off-Bottom Oyster Aquaculture and Development of BMPs

**Main Goals:** This research will evaluate the effects of off-bottom oyster culture on the local environment and neighboring shellfish operations. Collected data will inform predictive models to evaluate farm effects at different spatial scales and under a variety of scenarios. Findings from this study will be used to site structures to maximum sustainable production and to help develop best management practices (BMPs) in collaboration with regional shellfish farmers.

**Background:** Oyster culture practices are changing rapidly on the U.S. West Coast from conventional on bottom to off-bottom methods. Primary reasons for this shift include a renewed interest in expanding the industry, and growing



Fig. 2. Flip-bag oysters destined for the singles market, buoys allow bags to rise and fall with the tide.

**Project Summary:** This project will evaluate the effects of off-bottom oyster culture at 3 primary growing areas: Willapa Bay (southern coastal Washington), Eld Inlet (South Puget Sound), and Samish Bay (North Puget Sound). In addition to directly comparing on-site and off-site data, we will utilize existing models to predict additional effects under different production scenarios; increased size of arrays, stocking density, and shellfish age or size. A workshop will be held to present results and develop best management practices (BMPs) with stakeholders.

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Fig. 1. An off-bottom growing method for oysters called “flip-bags”. These oysters tumble in the bags, creating a uniform, deep cupped shell. Photo: Eld Inlet

consumer demand for a visually pleasing deep cupped and uniform single in-shell oyster. This premium product is best produced using off-bottom cultivation practices, especially flip-bags (Figs.1&2). Longlines (Fig.3) are another off-bottom culture methods used in recent years, often installed at densities up to several acres in size. It’s unclear how these large arrays may effect direction and velocity of tidal currents, sediment transport and deposition, light and phytoplankton availability. Off-bottom oysters filter up to four times as much as on-bottom oysters (Wheat and Ruesink, 2013), which may impact neighboring shellfish farms.



Fig. 3. In this off-bottom method, cultch or juvenile “seed” oysters growing on old shell, are attached by hand to polypropylene lines (left) and then strung in long rows supported by PVC pipes. Photos: Willapa Bay

