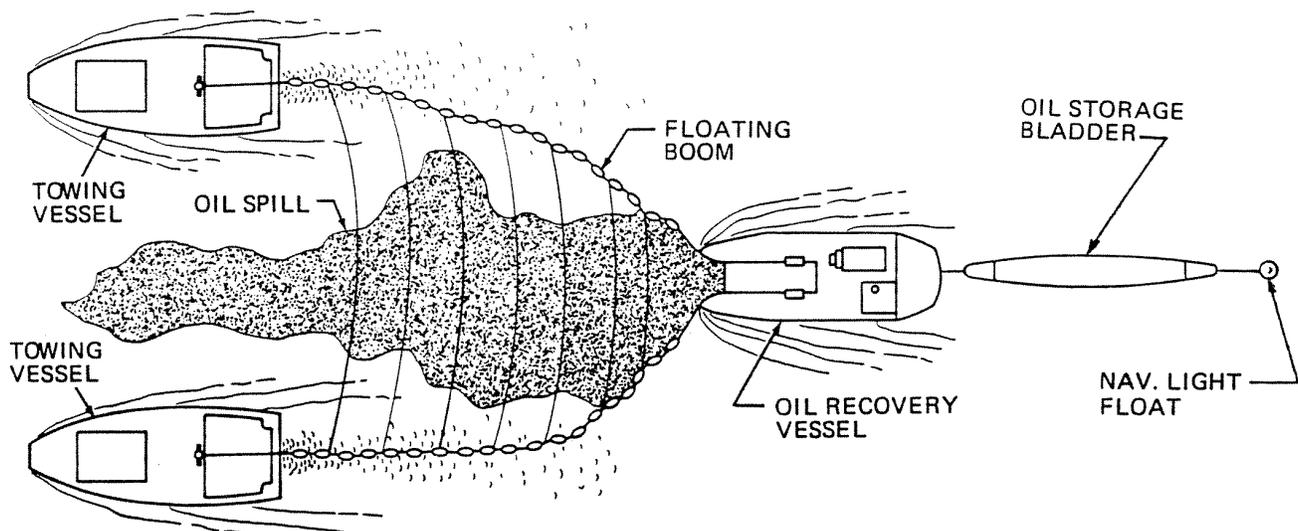


## RAPID DEPLOYMENT SKIMMER SYSTEM



The Navy's Rapid Deployment Skimmer System includes: a modular, 36-foot long, aluminum-hulled, skimming vessel; a pair of 330-foot long containment boom (in a "V-configuration"); a high-capacity, spill recovery bladder; and with the exception of towboats, all ancillary components necessary for system deployment and operation. Navy towboats can be mobilized with the skimmer system or commercially available towboats hired on-scene as appropriate. As indicated in the photograph and drawing, the towboats pull the skimmer system through a floating oil slick. The V-boom legs, with a sweep width of over 216 feet, encounter the floating oil and funnel or concentrate it into a thick layer at the mouth of the skimmer. Then the skimmer vessel's rotating sorbent belt absorbs the oil, lifts, and transports it from the water's surface to squeeze rollers positioned over a 1200-gallon sump or storage tank on the skimmer vessel. Recovered oil (and some water – depending on the oil type) drops into the sump. Free water will naturally separate from the oil due to gravity and can be pumped off the bottom of the sump. When the sump is full, recovered oil can be pumped from the sump to the oil recovery bladder towed astern of the skimmer vessel.



(Also see separate vessel skimmer, boom, and storage bladder descriptions)

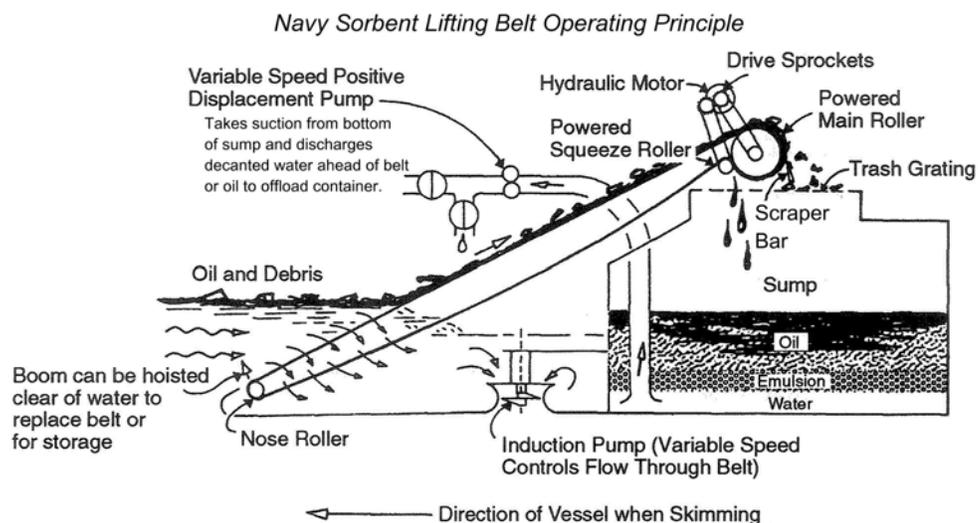
## NAVY OFFSHORE VESSEL SKIMMER



An oil skimmer is an oil spill response device designed to remove floating oil from the surface of the water. Skimmers come in a wide range of sizes, shapes, and designs, and employ a variety of operating principles for recovering various oil types under a range of environmental conditions.

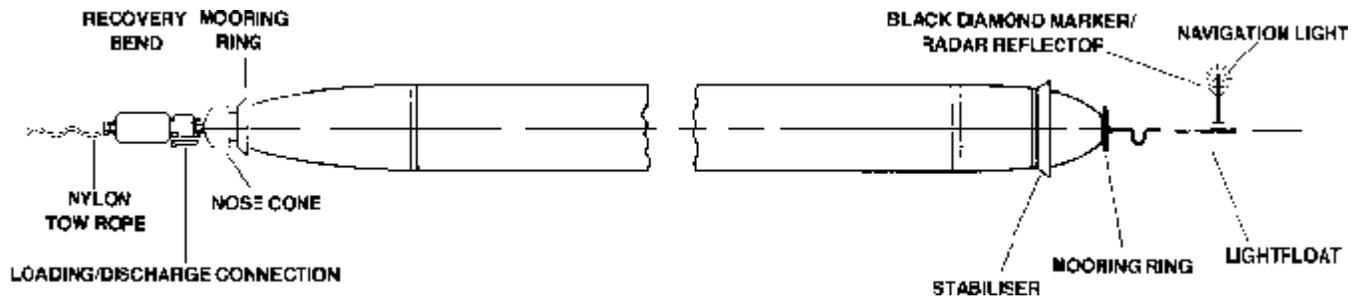
The Navy's Offshore Vessel Skimmer is a 36-foot long aluminum-hulled vessel with a 12-foot beam, and a sorbent lifting belt oil recovery mechanism fitted into the hull, facing aft. In the oil skimming mode, the vessel is self-propelled or towed backwards. The rotating sorbent filter belt is lowered into the water while an induction pump under the belt pulls water through the belt to eliminate or reduce the head wave created by the vessel's motion through the water. The pore size of the sorbent belt allows water to pass through as it traps the oil. The oil is then lifted from the water's surface and transported to a scraper bar and squeeze rollers positioned over the vessel's recovered oil tank, or sump. Heavy viscous oils are scraped from the belt into the sump, while lighter oils are removed from the belt into the sump by the squeeze rollers. A range of sorbent belts with differing pore sizes and of differing sorbent materials are available to optimize recovery of the full range of oil viscosities.

During normal oil recovery operations, the vessel skimmer is towed in a V-boom configuration by two towboats. It can also be operated in an independent, free-skimming mode, or in a stationary mode, with or without boom.



(Also see separate description of the Navy's Rapid Deployment Skimmer System.)

## SPILL RECOVERY BLADDERS



26K-Gallon Bladder with Class V Skimmer System



Palletized 26K-Gallon Bladder



The Spill Recovery Bladder System consists of either a 26,000-gallon or 50,000-gallon Spill Recovery Bladder with ancillary items necessary for deployment in support of the Navy's Rapid Deployment Skimmer System. The bladder effectively expands the vessel skimmer's 1200-gallon, on-board oil storage sump capacity by up to 50,000 gallons, allowing extended operation for high-volume oil recovery. The Spill Recovery Bladder is a cylindrical, durable rubberized-fabric, floating storage tank that can be easily towed behind the skimmer or towing vessel.

## OIL CONTAINMENT BOOM, MODEL USS-42 High Buoyancy



Oil containment boom is a floating barrier used to stop the spread or movement of floating oil slicks. Booms are also used to deflect or redirect slick movement away from sensitive areas or toward a recovery point. Booms typically include a “skirt” that extends down from the water’s surface to a given depth, “freeboard” that extends up from the water’s surface, solid or inflatable buoyancy devices to keep the boom afloat, ballast weight to keep the bottom of the skirt down, a tension member to provide longitudinal strength, and fittings at the boom section ends to allow connecting multiple sections of boom to a desired length. The boom end fittings also allow towing or anchoring one or multiple sections of boom.

The Navy’s offshore Model USS-42 High Buoyancy Boom is an inflatable, heavy-duty, rubberized-fabric boom with an overall height of 42 inches (24-inch skirt / 18-inch freeboard). Each boom section is 55 ½ feet long, and has five, 10-foot long, 18-inch diameter inflation chambers with inflation/deflation valves. A ½ -inch galvanized ballast/tension chain runs through a reinforced pocket on the bottom of the skirt. The high buoyancy boom has a higher buoyancy-to-weight ratio than the standard offshore boom, providing improved performance in higher sea states, as well as providing increased freeboard. This boom is normally towed in a V-configuration to funnel floating oil to the offshore skimmer or it is held in position by mooring systems or towboats to contain or redirect floating oil.