



## SHORESIDE RECOVERY

### OBJECTIVE & STRATEGY



The objective of Shoreside Recovery is to remove spilled oil that has been diverted to a designated recovery site accessible from the shore.

The general strategy is to:

1. Identify the primary recovery site.
2. Assess site conditions and access routes.
3. Determine the appropriate recovery and storage systems based on oil type, access, and deployment restrictions.
4. Mobilize and deploy equipment to recover and temporarily store the oil from the recovery site.
5. Take precautions to minimize contamination of the shoreline at the collection site.
6. Man and monitor the system as appropriate.
7. Store and transfer recovered oil and oily water according to an approved waste management plan.



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### TACTIC DESCRIPTION

Shoreside recovery systems are comprised of a skimming system, oil storage system, and associated personnel. Shoreside recovery can be deployed from land access routes (roads, beaches, all-terrain), water access (marine vessels), or air access (helicopter). Access to the recovery site and the oil type will influence/dictate the options of equipment to be used.

#### **Skimming Systems**

Shoreside Recovery requires at least one portable skimming system to remove spilled oil. The typical portable skimming system includes:

- Skimmer with pump and power pack
- Hose (suction and discharge with fittings)
- Oil transfer and decanting pump(s)
- Repair kit (tools and extra parts)



There are many models of skimmers to choose from, but they all fall into three types:

- **Weir skimmers** draw liquid from the surface by creating a sump in the water into which oil and water pour. The captured liquid is pumped from the sump to storage. The operator can usually adjust the working depth of the weir, controlling the rate that liquid is recovered. Weir skimmers can recover oil at high rates, but they can also recover more water than oil. Especially when the oil is in thin layers on the surface of the water. This creates the need to separate the water from the

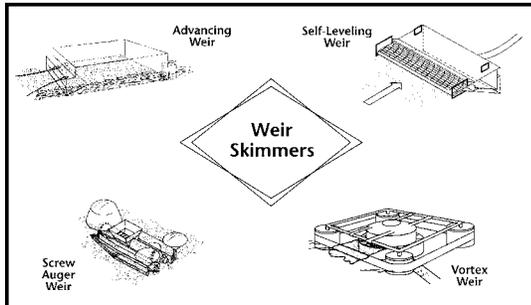


Figure SR-1. Various types of weir skimmers.

oil and decant it back into the environment. Otherwise, the recovered water takes available storage volume. Weir skimmers are best employed where oil has been concentrated into thick pools or where there are very large volumes of oil and recovered liquid storage capacity. Avoid using centrifugal pumps to transfer liquids recovered by a weir skimmer, as this will cause the oil and water to emulsify; use a diaphragm pump instead. Weir skimmers are a good choice where large volumes of oil can be concentrated and where liquid storage is not an issue.

- **Oleophilic skimmers** pick up oil that adheres to a collection surface, leaving most of the water behind. The oil is then scraped from the collection surface and pumped to a storage device. The collection surfaces in oleophilic skimming systems include rotating disks, brushes and drums; or endless belts or ropes. Belt, brush and rope skimmers can be used in any type of oil, while disk and drum skimmers are best in fresh oil. Oleophilic skimmers do not recover oil as fast as weir skimmers, but they have the advantage of recovering very little water. Oleophilic skimmers may be used where oil is very thin on the surface. Oleophilic skimmers are a good choice where liquid storage capacity is limited.

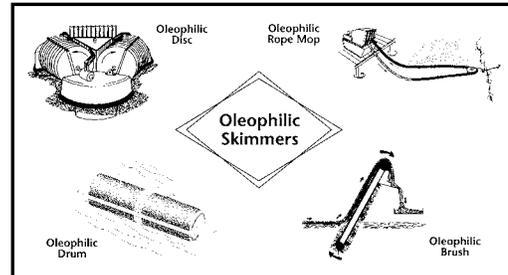


Figure SR-2. Various types of oleophilic skimmers

- **Suction skimmers** use vacuum to lift oil from the surface of the water. These skimmers require a vacuum pump or air conveyor system. Like weir skimmers, suction skimmers may also collect large amounts of water if not properly operated. Most suction skimmers are truck mounted and work best at sites with road access.

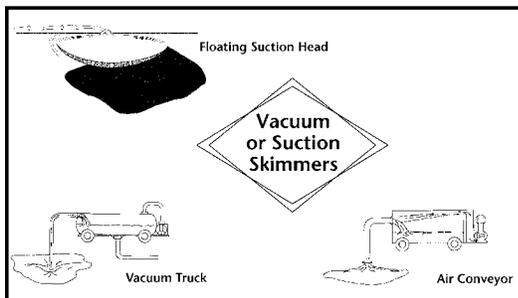


Figure SR-3. Various types of vacuum/suction skimmers.

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## Primary Oil Storage Devices

Primary oil storage devices for the shoreside recovery can be portable tanks, bladders, or truck-mounted tanks on the shoreline. Small barges can also be anchored just offshore or allowed to go dry at low tide. If access is restricted to All-terrain Vehicles (ATV), then the systems chosen need to be light enough to be transported by ATV and capable of being setup/deployed by a minimal number of personnel. If access is not restricted, larger systems can be used and deployed by heavy lifting equipment. If the site is accessible by road, vacuum trucks may be used for oil recovery, storage and transport.

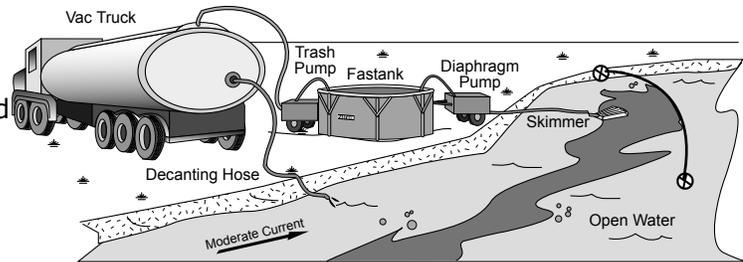


Figure SR-4. Shoreside recovery unit general configuration.

## Recovery Location

Selection of a shoreside recovery location is critical to the success of this tactic. A recovery site should be in calm water with minimal currents. One option is to construct a quiet recovery spot by excavating a recovery lagoon or trench in the shoreline. However, a permit will be required perform such an excavation. Commercial oil recovery enhancement devices, such as the River Circus™ and

Current Buster™, are also available to provide a quiet recovery impoundment.

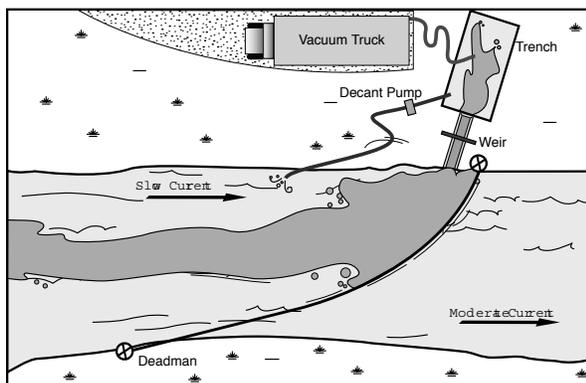


Figure SR-5. Shoreside recovery unit skimming lagoon.

The site must have enough level ground to set-up and operate a power pack and portable tanks. Sites with road access are preferred, but if not available, the site must have some other suitable access. Shelter, food and water for the response crew must also be considered in selecting a site.

It is important to minimize shoreline contamination at the recovery site. If possible, oil should not be allowed to contact the inter-tidal zone or shoreline. Oil contamination can be avoided by constructing a boom-pocket in the water off the shoreline, covering the shore with a geo-textile at the recovery location, or using a cold-water deluge to keep the collection location wetted. If oil does reach the beach, efforts should be taken to avoid pushing the oil into the substrate. Do not walk on oiled muddy soils and avoid driving or operating equipment on oiled surfaces.

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## Shoreside Recovery

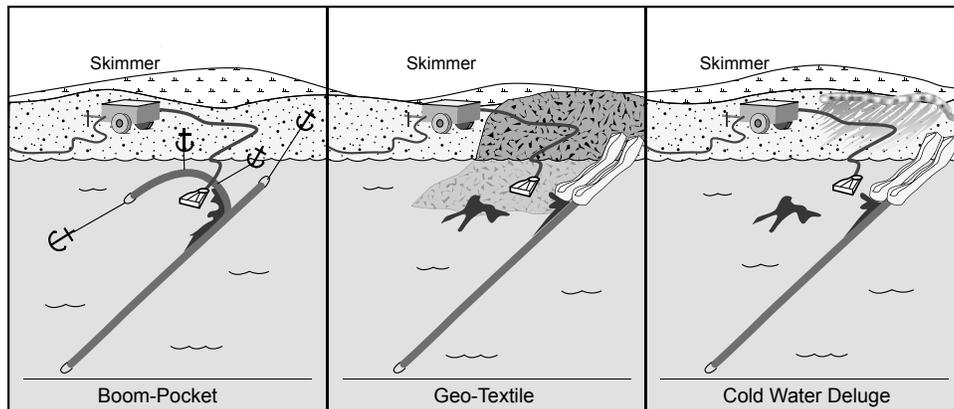


Figure SR-6. Methods to keep oil from contaminating collection beaches.

### Operating Environments

Oil recovery on land and solid ice is covered under On-Land Recovery. Shoreside Recovery is not recommended for open water environments.

#### PROTECTED WATER

Shoreside Recovery can be deployed in areas considered protected water, but it is only feasible to operate from shoreline in calm conditions. In some cases, oil can be diverted from protected water into calm water for recovery.

#### CALM WATER

Calm water Shoreside Recovery systems are composed of skimmers that can be deployed and operated in seas of 1 foot. Wind is normally not a limiting factor for shoreside recovery. If vessels are used to transport and support the recovery system, they should be able to transit seas up to 3 feet with winds up to 20 knots for safety.

#### FAST WATER

Shoreside Recovery is often deployed in areas considered fast water, but oil is usually diverted from high current areas into calm water for recovery.

### Deployment Configurations

Typical configurations are shown below, but responders should consider the actual conditions, and modify their deployment accordingly.



# Shoreside Recovery

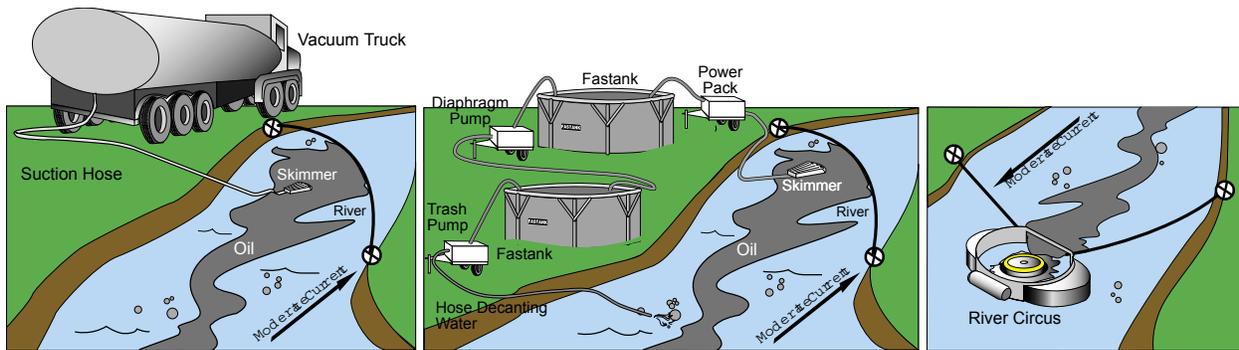


Figure SR-7. Shoreside Recovery deployment configurations.

## DEPLOYMENT CONSIDERATIONS AND LIMITATIONS

- + Daily fair and foul weather evaluations are recommended, and should include distance to safe shelter and transit times.
- + If mobilizing by water, consider vessel stability when placing equipment on deck.
- Access and oil type will influence equipment options.
- Team leader should coordinate closely with diversion booming units.
- Constant monitoring of system efficiency is required.
- Where access is restricted, system efficiency should be increased to minimize excess waste/water, and decant options should be reviewed.
- A transfer pump may be required to move oil from storage to vacuum truck or other mobile storage.
- May need to request a permit from ADEC to decant free water from storage back into recovery area.

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## REFERENCES TO OTHER TACTICS

Other tactics associated with shoreside recovery include:

-  • Marine Recovery
-  • On-Land Recovery
-  • Diversion Boom
-  • Marine-based Oil Storage and Transfer
-  • Land-based Oil Storage and Transfer
-  • Pumping Oily Liquids.

# Shoreside Recovery



## EQUIPMENT AND PERSONNEL RESOURCES

Resources for this module have been defined as a recovery system, a storage device, deployment vehicle/vessel along with the associated support personnel, equipment, and materials. Quantity of units required will be determined by operating environment, site conditions and resources availability.

The following tables provide basic components for the two types of shoreside recovery systems: restricted access, where the system must be deployed by vessel, ATV, or helicopter; and no access restriction, where the system can be reached from the road system.

### Shoreside Recovery System – Restricted Access



Equipment	Function	Quantity	Notes
Calm/Protected water rated skimming system	Recover oil	1	Includes power pack, hoses, fittings and rigging
Primary oil storage system(s)	Store recovered oil	Depends on logistics of transporting recovered liquids, recommend a minimum of at least the daily recovery capability of the skimming system	Portable and easy to set up
Decanting System	Removing recovered water	1 minimum	Permit is required to decant
Mobilization Options	Function	Quantity	Notes
Vessel Class 2, 3, 4, 5	Deploy system to recovery locations accessible from the marine environment	1 or more	Locations with marine access
ATV with trailer	Deploy system to recovery location at an off-road location	1 or more	Locations with ATV access
Helicopter	Deploy system to recovery location at an off-road location	1 or more	Locations with a helicopter landing zone
Personnel*	Function	Quantity	Notes
Field Team Leader	Supervise operations	1	
Skilled Technicians	Operates response equipment	1 to 2	Depending on recovery system and hours of operation
General Technicians	Work under the direction of skilled technicians	1 to 3	Depending on recovery system and hours of operation

\* Personnel may be part of a Diversion Booming team.

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# Shoreside Recovery



## Shoreside Recovery System - No Access Restriction

Equipment	Function	Quantity	Notes
Calm/Protected-water rated skimming system	Recover oil	1	Includes power pack, hoses, fittings and rigging
Primary oil storage system(s)	Store recovered oil	Depends on logistics of transporting recovered liquids, recommend a minimum of at least the daily recovery capability of the skimming system	May be part of a truck mounted system, such as a vacuum truck
Decanting System	Removing recovered water	1 optional	Permit is required to decant
Mobilization Options	Function	Quantity	Notes
Truck or truck with ???	Deploy system to recovery locations accessible road system	1 or more	Locations with road access
Personnel*	Function	Quantity	Notes
Field Team Leader	Supervise operations	1	
Skilled Technicians	Operates response equipment	1 to 2	Depending on recovery system and hours of operation
General Technicians	Work under the direction of skilled technicians	0 to 3	Depending on recovery system and hours of operation

\* Personnel may be part of a Diversion Booming team.

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