

Habitat restoration is immediate, whereas natural recovery could take decades or longer

## SAND WAND™ SYSTEM

*A stark visual contrast of the clean cobble bottom versus the sediment choked conditions of the unrestored area →*

Sedimentation is the primary water quality and habitat impact in rivers, streams, ponds, canals & estuaries. To date, there have generally been inadequate, inappropriate, or counterproductive responses after excess sediments enter a stream. The Sand Wand technology was developed to address sediment impacts by selectively removing the harmful sediment & silts to restore both the surface and subsurface habitat.

*The technology is manually operated, and involves a combination of variable water jet and suction removal to selectively remove sediment →*



### How it works

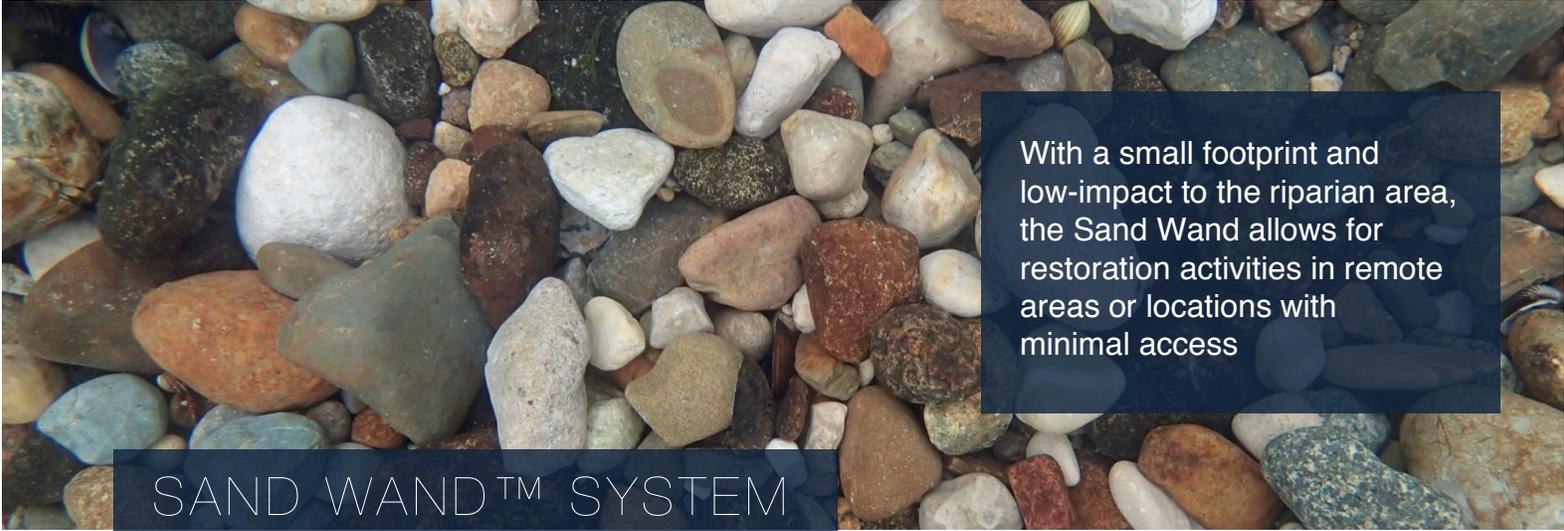
The Sand Wand uses a combination of water jet and suction, offset from the streambed and within a hooded shroud that selectively removes harmful fine sediments with minimal localized turbidity impacts. As surface fines are removed, the water jet is progressively increased to penetrate and remove the fines into the subsurface gravels, to restore clean, native spawning habitat. After restoration, the surface of the streambed appears natural and restored, and core samples show full restoration of critical interstitial habitat.



### Applications

- Removal of silts & sediment to restore impacted habitats
- Restore spawning channels and create improved areas for benthic activity and fish habitat
- Removal of sediment in boat slips & marinas to maintain navigation
- Removal of sediment from culverts and channels under road crossing bridges
- Removal of contaminated sediment to prevent downstream migration impacts (PCBs, DDT, bentonite, oil, and other chemicals/metals)
- Emergency response sediment removal

FULL SERVICE RESTORATION AND EQUIPMENT LEASING OPTIONS AVAILABLE



## SAND WAND™ SYSTEM

With a small footprint and low-impact to the riparian area, the Sand Wand allows for restoration activities in remote areas or locations with minimal access

### Case Study

The Nova Scotia Salmon Association and Adopt a Stream performed a fish habitat restoration to improve spawning on Irish Cove Brook in Cape Breton, Nova Scotia.

The results: The initial test site showed an 89% reduction of sand and silts and follow-up sampling showed almost double the trout population the following year.

### Benefits

- Selective removal of targeted sediments to restore impacted habitats
- Restore spawning habitat to improve spawning success and recruitment
- Improve dissolved oxygen levels and reduces water temperature
- Restore sediment-impacted habitat for aquatic life including threatened or endangered species
- Restoration poses no significant risk to aquatic resources
- Removal of contaminated sediments and material



### Discharge methods

Once the material has been removed from the stream, it is pumped to a discharge location. There are various discharge and

handling options for the removed material (e.g., land application, dewatering pit, settling basin, geotextile bag or haul away for contaminated materials). The method is determined by site-specific details including access/distance to disposal areas, transportation, volume of material, particle sizes removed, and potential value of the material.

### Address the source

A Sediment Collector can be installed to protect restoration efforts performed by our Sand Wand. It will also act as a prevention method to ensure that sedimentation does not further impact a site.

A Sediment Collector is placed at the bottom of the stream and uses simple physical principles to selectively capture targeted bedload sediments. The removed material is pumped to a discharge location therefore reducing downstream impacts. In combination, our Collector and Sand Wand can effectively restore sediment-impacted habitats.



### For more information:

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