Western Canadian Spill Services Ltd.

# Field Improvement Record

**Program Year:** 2019

**Name of Initiative:**

Utilizing BoomVane and Boom Deflectors as a Boom-set Deployment Alternative

**Budget (if applicable):**

$2500.00

**Issue (Background)**:

The typical deployment scenario for in-stream boom includes the use of an in-stream anchor system, bridge pier bridles and/or trolley lines, followed by ferrying handlines (via boats) to shoreline crews in order to bring the boom back to the recovery point. In some cases, access to the recovery site and/or poor site conditions may compromise this typical scenario for both shoreline crew and boat operators. As an alternative, the BoomVane along with both 2' and 4' boom deflectors were utilized to determine their effectiveness in deploying and maintaining correct boom angle. The effectiveness of the new 2' deflector was of particularly interest since WCSS only has 4' deflectors in inventory and they are difficult to handle due to their size and weight.

**Equipment required/used:**

1) 0.5 m Shallow-draft BoomVane (See Photo 1)
2) 50' rope
3) ParaVane
4) 300' Boom
5) 6 x 2' Boom Deflectors (See Photo 2)
6) 6 x 4' Boom Defectors (See Photo 3)
7) Pedco Skimmer
8. 50' Shoreline Protection

**Location and Site Conditions:**

Public boat launch located on the North Saskatchewan River at Devon, Alberta. The weather was ~ 20C and the water current was ~2 km/h near the shoreline and approximately 4km/h in the main stream.

**Strategy and Implementation:**

Install the BoomVane followed by 50' rope, ParaVane and 300' (6 x 50' sections) of fast water boom. Install 2 x 2' or 1 x 4' boom deflectors on each 50' length of boom as needed to maintain proper boom angle and test the effectiveness of the 2' boom deflectors. Bring the boom back to the Pedco Skimmer and install 50' of shoreline protection.

**Progress and/or Results:**

Both the 2' and 4' boom deflectors worked well to bring the boom back to shore and maintain desired boom angle. Using a marker buoy as a reference point we were able to observe the boom deflectors' ability to move the boom to the desired angle (see Photo 6). Although the slow near-shore current resulted in initial difficulty in deploying the BoomVane, once it was manually moved into the higher current of the main channel, it worked extremely well (see Photos 4 & 5). The BoomVane was able to easily deploy the 300' of boom with the boom deflectors open.

**Lesson Learned:**

1) Boom deflectors were installed on the first section of boom behind the BoomVane. The opposing forces from the BoomVane (pushing away from shore) and the boom deflectors (pushing towards the shore) might have contributed to the difficulty in launching the BoomVane in the slower current.
2) The 2' boom deflectors were as effective as the 4' deflectors and are much easier to handle. The new clip-on style design of the 2' deflector enables it to be installed on any hand-line attachment (Photo 7)
3) Boom deflectors can make suitable replacements for hand-lines whether the boom is connected to an anchor set or to a BoomVane.
4) In general, the boom deflectors are effective at maintaining the correct boom angle, however some handlines are alternative may still be required to bring the boom end to the collection point.

**Potential application:**

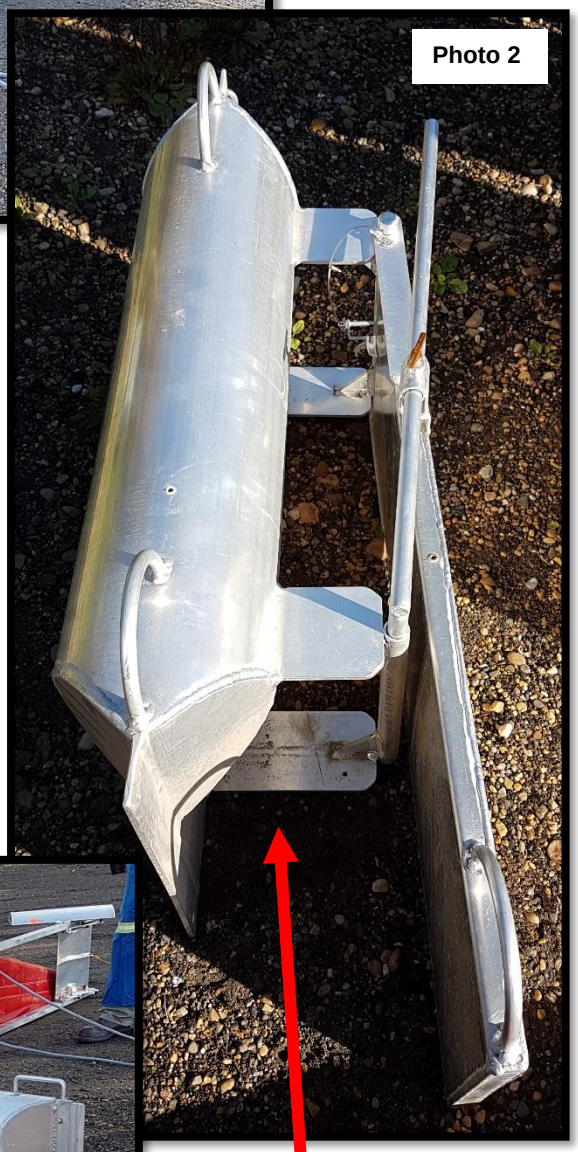
When steep banks or other features prohibit responders from launching boats or gaining access to the shorelines to install hand-lines, the use a BoomVane in conjunction with boom deflectors is a viable option.

**Next steps:**

No further testing is planned. WCSS will consider retrofitting the existing 4' boom deflectors with the quick clip connections as per the design of the 2' deflectors. Additionally, the purchase of 2' deflectors may be considered for the future.

**Photo Log or Video Link (if applicable)**

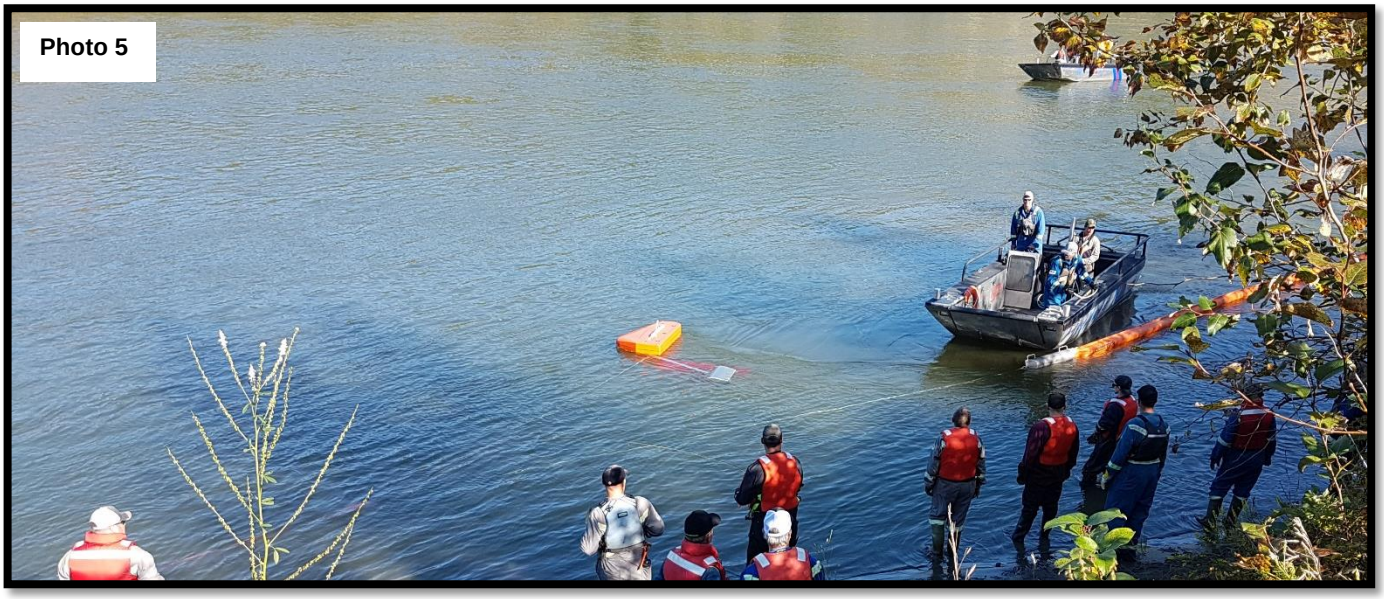
Shallow Draft Boom Vane



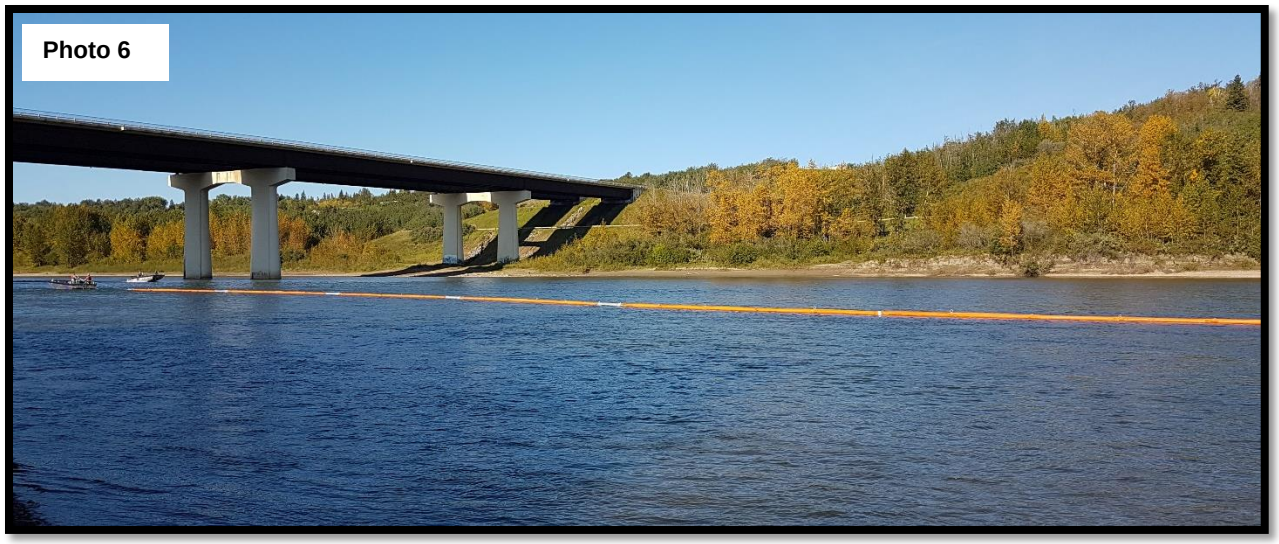

4’ Boom Deflector

2’ Boom Deflector

**Boom Vane pulling out Boom and Deflector**




**Vessel being used to help get Boom Vane into the current**




**Boom and Boom Deflectors**

**New 2’ Boom Deflector “Clip-on” design**