- **Purpose**
- **How to apply the tool**
- **Context of the tool**

WATER RESEARCH COMMISSION

GroundTruth

Introduction to the Velocity Plank

PURPOSE OF TOOL

- It was created in the 1940's (Wilm and Storey, 1944), and was originally made out of wood but it has since been modified to be transparent and lighter.

- The velocity plank is a simple tool that allows you to measure the velocity of a stream. The velocity plank is solid, lightweight, and simple enough to allow velocity measurements to be made effectively on site. It has a good accuracy; it is typically precise to within 5%.

- It is 1.1 meters high and 10 cm wide, the thickness is 7 mm with a reinforcement bar at the back. The top of the tool has a handle to hold whilst taking measurements. A lanyard has been attached to the handle to prevent the user from losing the TVHR in the river.

HOW TO USE IT: SAMPLING PROCEDURE

Steps to do before sampling

- Place the safety loop on one of your wrists.
- Do not stand in front of the velocity plank, as this will alter stream flow, which will impact on the readings you take.

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HOW TO USE IT: SAMPLING PROCEDURE

- Measure the **depth** and height of the stream at 3 points along the cross section of the river using the velocity plank.

Measuring depth

- Hold the velocity plank at a 90 degree angle perpendicular to flow to measure depth. During this step, the velocity plank needs to be pushed firmly against the stream bed to prevent any slipping.

Step 1 — Put firm pressure on the TVHR while swivelling — 90° — Flow

Step 2 — Flow
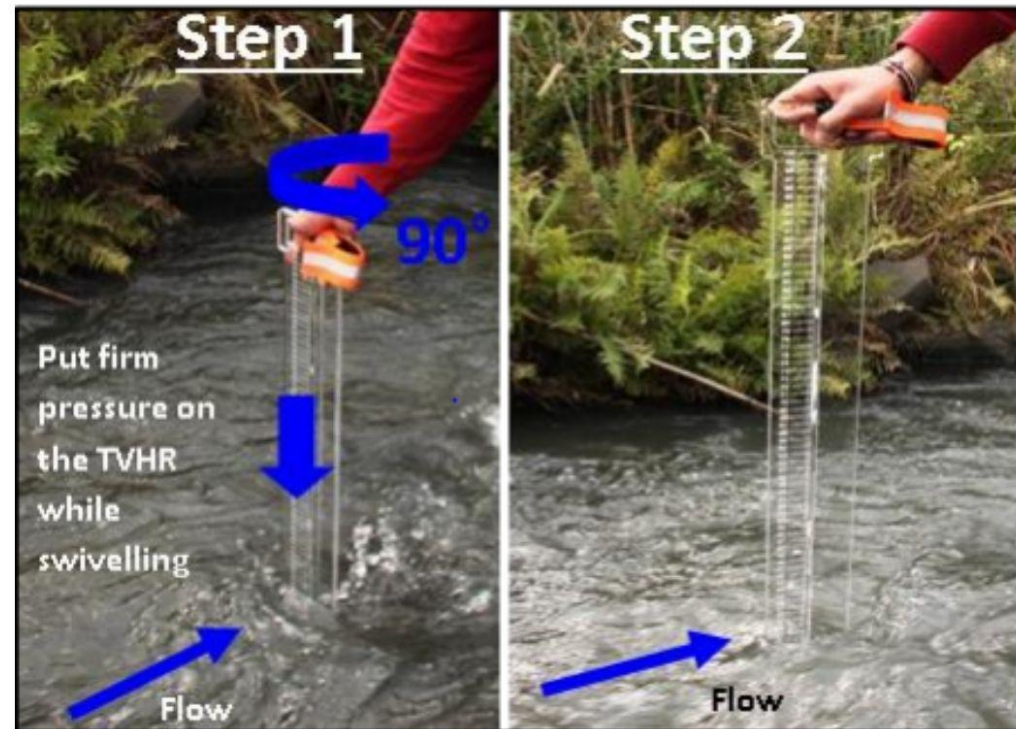
HOW TO USE IT: MEASURING HEIGHT

- Place the velocity plank at 90 degrees to the stream flow and 90 degrees to the water's surface, even in the case of a sloping streambed.

- Observe the maximum height reached by the water on the velocity plank for 20 seconds. The highest point is the maximum height, and lowest point, minimum height.
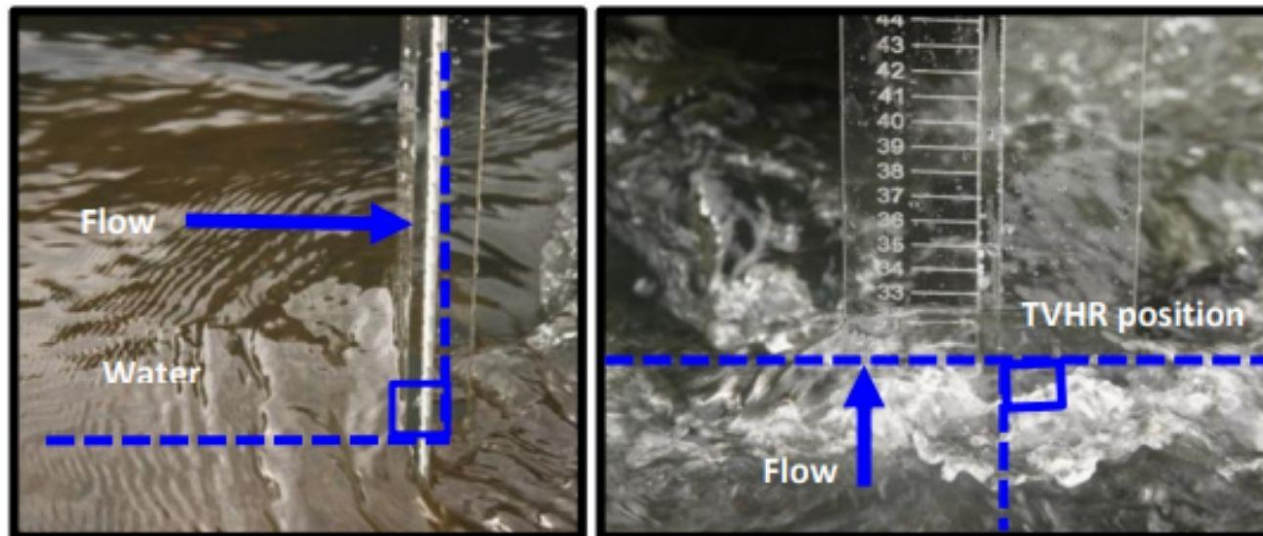
DETERMINING STREAM VELOCITY

- Calculate the change in height (ΔH) = maximum height minus the minimum height (measured in cm).

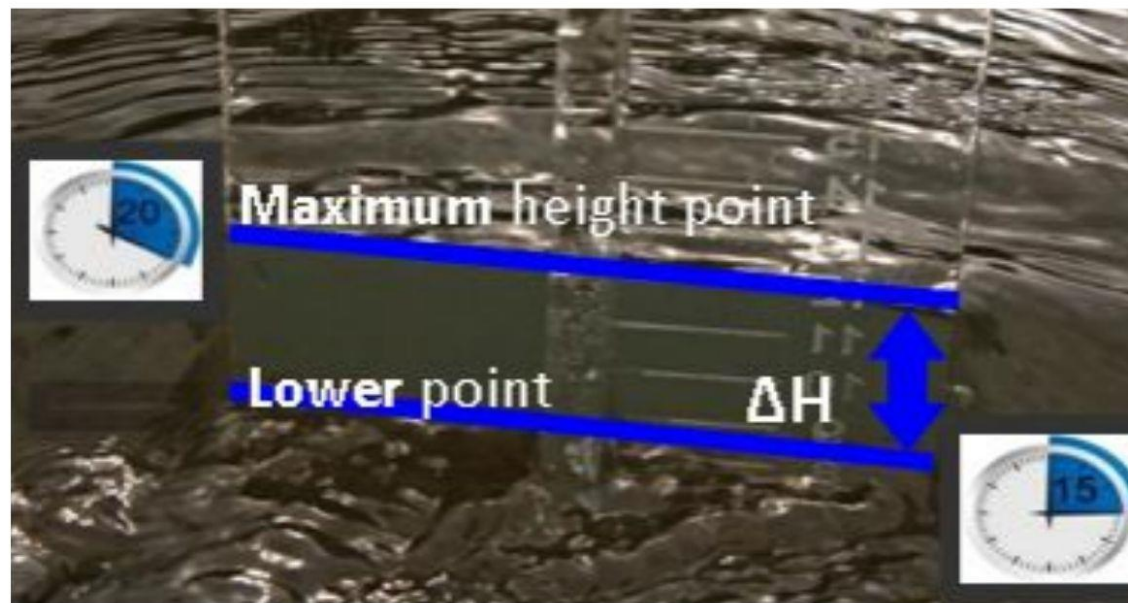- Find ΔH on the table of velocities and determine the corresponding velocity for that ΔH.

TABLE OF VELOCITIES

ΔH (cm)	Velocity (m/s)	ΔH (cm)	Velocity (m/s)	ΔH (cm)	Velocity (m/s)	ΔH (cm)	Velocity (m/s)	ΔH (cm)	Velocity (m/s)
0.5	0.12	5.5	0.80	10.5	1.17	15.5	1.45	20.5	1.70
1.0	0.24	6.0	0.84	11.0	1.20	16.0	1.48	21.0	1.72
1.5	0.33	6.5	0.88	11.5	1.23	16.5	1.50	21.5	1.74
2.0	0.41	7.0	0.92	12.0	1.26	17.0	1.53	22.0	1.76
2.5	0.48	7.5	0.96	12.5	1.29	17.5	1.55	22.5	1.79
3.0	0.54	8.0	1.00	13.0	1.32	18.0	1.58	23.0	1.81
3.5	0.60	8.5	1.03	13.5	1.34	18.5	1.60	23.5	1.83
4.0	0.65	9.0	1.07	14.0	1.37	19.0	1.63	24.0	1.85
4.5	0.70	9.5	1.10	14.5	1.40	19.5	1.65	24.5	1.87
5.0	0.75	10.0	1.13	15.0	1.43	20.0	1.67	25.0	1.89