

<b>Title</b>	<b>Measure and calculate suspended sediment load</b>		
<b>Level</b>	<b>5</b>	<b>Credits</b>	<b>15</b>

<b>Purpose</b>	<p>This unit standard is intended for people who will measure and calculate suspended sediment load in rivers and streams.</p> <p>People credited with this unit standard are able to: measure suspended sediment concentration using depth-integrated methods; operate and maintain a continuous suspended sediment sampler or surrogate sensor; and calculate suspended sediment load.</p>
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<b>Classification</b>	Water Industry > Field Hydrology
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<b>Available grade</b>	Achieved
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### Guidance Information

- 1 Legislation relevant to this unit standard includes but is not limited to:
  - Health and Safety at Work Act 2015.
- 2 Suspended sediment discharge measurements must be performed, along with collecting continuous suspended sediment concentration or surrogate data, in accordance with:
  - National Environmental Monitoring Standards (NEMS);
  - organisational procedures.
 The complete list of NEMS can be found on the NEMS website [www.nems.org.nz](http://www.nems.org.nz).
- 3 Candidates must collect 10 depth-integrated suspended sediment samples from rivers or streams, over a minimum of two independent occasions, then derive the corresponding measurement results, to achieve this unit standard
- 4 It is recommended that candidates complete Unit 28802, *Carry out discharge measurement by wading*; Unit 28803, *Carry out discharge measurements using a range of platforms and methods*; and Unit 28806, *Construct, apply, evaluate and store hydrometric rating curves*, before commencing this unit standard.
- 5 Definition
 

*Organisational procedures* refer to the policies and procedures set out in a verbal or written form by the employer or organisation. Procedures must be consistent with current legislative requirements and manufacturer's recommendations or instructions where relevant.

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## Outcomes and performance criteria

### Outcome 1

Measure suspended sediment concentration using depth-integrated methods.

#### Performance criteria

- 1.1 Identify appropriate sites for the purpose of measurement.
- 1.2 Select appropriate equipment and perform pre-deployment checks.
- 1.3 Determine sampling locations, parameters and decide methodology.
- 1.4 Carry out the measurement and record all relevant observations.
- 1.5 Perform post-deployment checks, take remedial action as required, and record results.
- 1.6 Transfer samples to laboratory using preservation and custody protocols.

### Outcome 2

Operate and maintain a continuous suspended sediment sampler or surrogate sensor.

#### Performance criteria

- 2.1 Verify equipment performance, and retrieve data or samples.
- 2.2 Obtain manual readings or samples, and record relevant details.
- 2.3 Investigate any equipment faults, or discrepancies between manual readings and logged data, and carry out or plan remedial action.
- 2.4 Complete maintenance and repairs.
- 2.5 Document and report verification outcomes for equipment performance and received data or samples.
- 2.6 Transfer samples to laboratory using preservation and custody protocols.
- 2.7 Collate, reconcile, process and store data and results according to organisational procedures.

### Outcome 3

Calculate suspended sediment load.

**Performance criteria**

- 3.1 Collate laboratory results and flow information.
- 3.2 Calculate cross-section mean suspended sediment concentrations using flows and results from depth-integrated measurements.
- 3.3 Evaluate and determine the relationship between sediment concentration, and other parameters.
- Range must include two of the three parameters – flow, turbidity, acoustic back-scatter measurements.
- 3.4 Correlate cross-section mean concentrations with continuously monitored concentrations or surrogates to obtain suspended sediment load.
- 3.5 File all results and metadata.

<b>Planned review date</b>	31 December 2024
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**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	21 May 2015	31 December 2022
Review	2	24 October 2019	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0232
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

**Comments on this unit standard**

Please contact the Primary Industry Training Organisation [standards@primaryito.ac.nz](mailto:standards@primaryito.ac.nz) if you wish to suggest changes to the content of this unit standard.