Continuous Instream Monitoring: Responding to Increasing Deep Well Activity

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Purpose and Scope

Purpose and scope is unique – results in different methodologies

Objectives:
• Measure baseline stream parameters in areas with deep well activity.
• Discover potential violations to water quality criteria.
• Data collection for Antidegradation surveys

Current Effort:
• Continue annual monitoring cycles
• Development/implementation of a new reporting format and protocol.
Purpose and Scope
Purpose and Scope
Deployment
Deployment

Monitor Loop

Carabineer

Steel Cable

Monitor Shroud

Streambed

Form/Rebar Stakes with Eyelet Bolts

Stream Flow
Field Maintenance

- Download and review data
- Side-by-side before and after cleaning checks (Fouling Drift)
- Calibration checks (Calibration Drift)
- Final side-by-side

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Manufacturer/Model</th>
<th>Monitor Serial No.</th>
<th>Field Water Serial No.</th>
<th>Comment</th>
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</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Before Cleaning</th>
<th>After Cleaning</th>
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<tbody>
<tr>
<td>Time</td>
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<tr>
<th>CALIBRATION DRIFT CHECKS</th>
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<table>
<thead>
<tr>
<th>FIELD NAME</th>
<th>START TIME</th>
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<tbody>
<tr>
<td>Field Name</td>
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<tr>
<td>Monitor</td>
<td>12:30</td>
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<tr>
<td>Calibration</td>
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Data Management
Reporting
Reporting

Continuous Instream Monitoring Report (CIMR)

STATION DESCRIPTION

STREAM CODE: [stream code]
STREAM NAME: [stream name]
SITE NAME: [site name]
MOST RECENT REVISION: [most recent revision]
REVISED BY: [revised by]
LATITUDE: [latitude]
LONGITUDE: [longitude]
COUNTY: [county]
HUC: [HUC]
LOCATION DESCRIPTION: [location description]
DRAINAGE AREA: [drainage area]
BACKGROUND AND HISTORY: [background and history]
WATER QUALITY PARAMETERS (Table): [water quality parameters]
EQUIPMENT: [equipment]
PERIOD OF RECORD: [period of record]

DATA:

Depth: [depth]
Temperature: [temperature]
Specific Conductance: [specific conductance]
pH: [pH]
Turbidity: [turbidity]
In-situ Water Chemistry: [in-situ water chemistry]
Biology: [biology]

ASSESSMENT:

Conductivity/TDS relationship: [conductivity/TDS relationship]
Biological: [biological]

SUMMARY:

[summary]
Lessons Learned

• Importance of field form documentation for corrections and data interpretation
  • Sediment fouling – product of deployment methodology
  • Sensor integrity – operation and life span

• Identifying data needs vs. equipment and supplies used
  • Turbidity Calibration Standard
  • Depth/Discharge
Lessons Learned

Unvented pressure sensors, affected by baro. press.

Major flood event

1st monitor lost, buried

2nd monitor deployed
Lessons Learned

Relating TDS to Specific Conductance

$y = 0.2658x + 27.513$

$R^2 = 0.0218$

$R^2 = 0.009$

Relating TDS to Specific Conductance
Lessons Learned

Characterizing acid deposition issues

- pH
- Depth

Date


pH Units


Feet
Lessons Learned

Wetsuit jackets and gloves are great for cold weather field checks!!!
Questions?

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