A Web-Based Tool for Evaluating Surface-Water Nutrient Conditions across the Pacific Northwest

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SPARROW Relates Monitoring Data to Information on Watershed Characteristics and Nutrient Sources
## Nutrient Sources Explicitly Considered in the PNW SPARROW Models

<table>
<thead>
<tr>
<th>Point Sources</th>
<th>Nonpoint Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>WWTP’s</td>
<td>Farm Fertilizer</td>
</tr>
<tr>
<td>Fish Hatcheries</td>
<td>Livestock Waste</td>
</tr>
<tr>
<td>Industrial Facilities</td>
<td>Developed Land (mostly fertilizer)</td>
</tr>
<tr>
<td></td>
<td>Atmospheric N Deposition</td>
</tr>
<tr>
<td></td>
<td>Forest Land (N fixation)</td>
</tr>
<tr>
<td></td>
<td>Red Alder Trees (N fixation)</td>
</tr>
<tr>
<td></td>
<td>Geologic Phosphorus</td>
</tr>
</tbody>
</table>
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by Daniel R. Wise and Henry M. Johnson

Article and supplemental material

Online Decision Support System (Guidance Document) -- Informing Nutrient Management Decisions

The regional nitrogen and phosphorus SPARROW models have been incorporated into an interactive, online decision support system so water managers, researchers, and the general public can access SPARROW models and map predictions of long-term average water quality conditions, track transport to downstream receiving waters, and evaluate management source-reduction scenarios.

http://water.usgs.gov/nawqa/sparrow/mrb/7.html
PNW SPARROW Web Applications
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SPARROW Decision Support System
Learn about SPARROW and the DSS
SPARROW Decision Support System

Select an application
SPARROW Decision Support System

- Predict water-quality conditions where no water-quality data are available
- Predict contaminant delivery by source type and location
- Predict changes in water-quality conditions under different management scenarios
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Predicting Water-Quality Conditions

Total Phosphorus Yields – all sources
Predicting Water-Quality Conditions

Total Phosphorus Yields – all sources
Predicting Water-Quality Conditions

Tualatin River at mouth
290,694 kg/yr of total phosphorus
SPARROW Decision Support System

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Contribution from Different Sources

Tualatin River at mouth (total phosphorus)

- Point Sources: 50.2%
- Urban Runoff: 17.2%
- Geologic Sources: 16.6%
- Agricultural Sources: 16.0%
Delivery to Downstream Waters

Tualatin River
(290,694 kg TP/yr)

Rock Creek Watershed
(28% of exported TP load)
SPARROW Decision Support System

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Running Management Scenarios

Sources

Land-to-water Transport

Nutrients from Upstream

Instream Transport and Decay

Monitoring Site

Instream Transport and Decay
Running Management Scenarios

Tualatin River at mouth
25% Reduction in Upstream Point Source Loading to Streams

Adjusted TP Load | 254,192 kg/yr (-13%)
How can this information be used?

* Prioritize Areas for Nutrient Reduction
* Identify Important Sources of Nutrients
* Evaluate Nutrient Reduction Plans
How can I get more information?


- Contact:
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