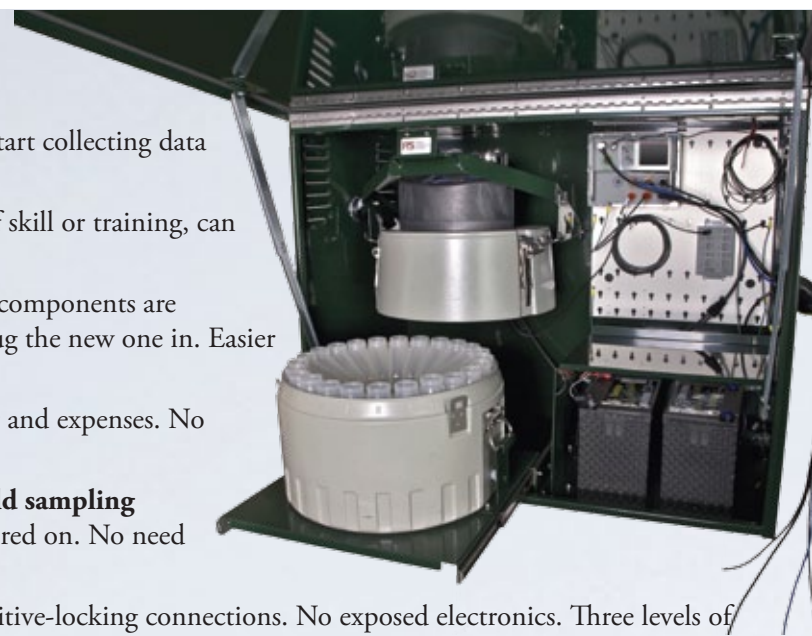


Key Benefits of SedEvent

- **Simplicity. A complete, turn-key system.** Install it and start collecting data immediately.
- **No programming required.** Any technician, regardless of skill or training, can be successful operating and maintaining the system.
- **No complex wiring.** Color-coded, keyed connectors. All components are interchangeable and field swappable—just disconnect, plug the new one in. Easier maintenance, greater reliability.
- **Minimal maintenance.** Reduced site visits, reduced labor and expenses. No guessing of when to carry out site visits.
- **Built-in, customizable, event-driven, turbidity threshold sampling algorithm** is ready to go as soon as the datalogger is powered on. No need to program, no need to hire expensive consultants.
- **Extreme ruggedness.** Watertight, corrosion-resistant, positive-locking connections. No exposed electronics. Three levels of lightning protection. Even a waterproof touchscreen. Reliable data in any climate or weather condition.
- **Accurate calculation of sediment loads.** Accuracy that just can't be achieved with manual grab sampling or even continuous turbidity monitoring.
- **Reduced lab analysis costs.** An autosampler without a threshold sampling algorithm takes many non-event samples that yield no sediment. SedEvent takes only the samples that count.
- **One-stop support.** A fully integrated system from a single supplier offers a single source for obtaining support and service.



About FTS

FTS is in the business of **remote data collection**. We design and manufacture extremely rugged systems, dataloggers, DCPs and sensors for **hydrology and hydromet monitoring**. One of our areas of focus is **continuous instream turbidity and sediment monitoring**.

We've developed the world's first fully integrated turbidity event-triggered grab sampling system that can determine sediment and nutrient loads significantly more accurately than with traditional methods. It provides **the best method of characterizing impairments**, ensuring sound decisions affecting public safety are made and best management practices are implemented and effective.

Our technology is engineered specifically for **harsh environments in remote locations**, so it has to operate continually, reliably, for long periods of time, with minimal maintenance requirements.

We don't just manufacture equipment, we constantly innovate advanced environmental monitoring technology. And because **we understand our customers and their goals**, we produce solutions that have a direct impact on ease-of-use. Our customers have told us that tremendous power and flexibility should not come at the expense of simplicity.

The Evolution of Sediment Monitoring

| 1 Manual Grab Sampling | 2 Continuous instream monitoring | 3 Automated grab sampling | 4 Event-driven automated grab sampling |
|---|--|---|---|
| <ul style="list-style-type: none"> • occasional or regular frequency • attempts to correlate SSC with discharge ✓ obtains actual water samples that can be analyzed in the lab for sediment content ✗ spatial and temporal coverage typically very limited ✗ poor correlation of discharge to SSC ✗ obtaining samples can be dangerous and is costly (labor) ✗ can miss >90% of information | <ul style="list-style-type: none"> • sensors and datalogger deployed full-time in-situ • one or multiple parameters are continually measured and recorded ✓ low cost after equipment purchased—no manual samples needed ✓ better temporal coverage ✗ without water samples taken, cannot establish correlation to SSC | <ul style="list-style-type: none"> • automated sampler with simple programming to grab water samples at timed intervals • stage sensor or turbidity sensor for continuous measurement of threshold trigger ✓ obtains water samples and continuous turbidity measurement ✗ low probability of samples taken in storm events (when turbidity is high) ✗ frequent site visits required to obtain samples and reset sampler — costly ✗ high water analysis cost, yet little valuable information ✗ poor correlation to SSC | <ul style="list-style-type: none"> • automated sampler triggered by rising and falling turbidity thresholds measured by instream turbidity sensor through a programmed datalogger ✓ obtains water samples and continuous turbidity measurement ✓ samples obtained all provide useful information—no over or under sampling ✓ lab handling costs kept to minimum ✓ site visits needed only when all sample bottles are full—labor costs kept to minimum |

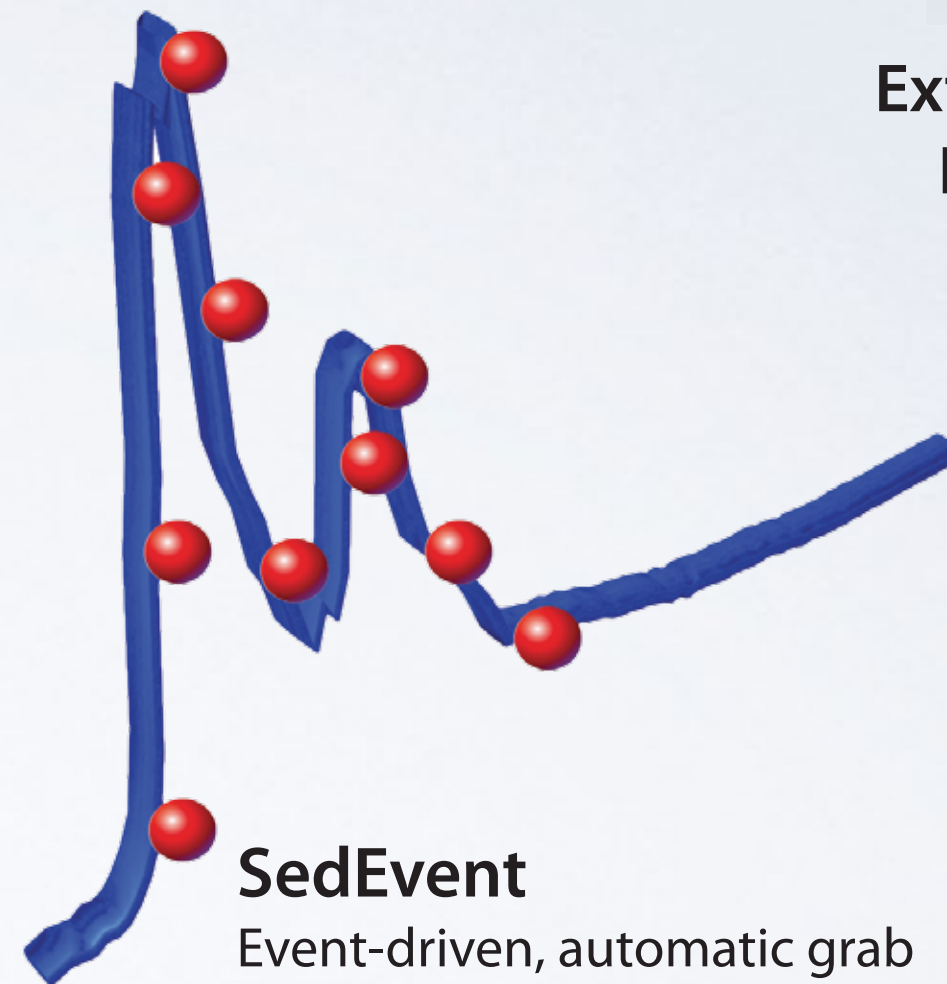


It simply works. In any environment.

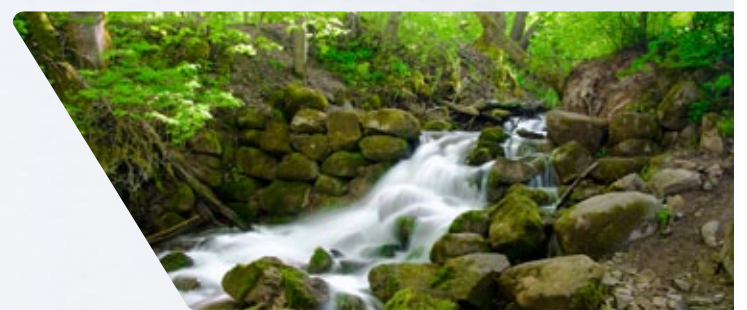


"We purchased the SedEvent turbidity threshold sampling system over 4 years ago and have had nearly flawless performance. The equipment is reliable, rugged, and designed with the end user in mind. This is literally a "turn-key" system that allows my field staff to concentrate on the field work, rather than troubleshooting the electronics."

William Ehinger Ph.D.,
Washington State Dept. of Ecology



SedEvent
Event-driven, automatic grab sampling system



**Extreme environments.
Extreme ruggedness.
Extremely simple.**

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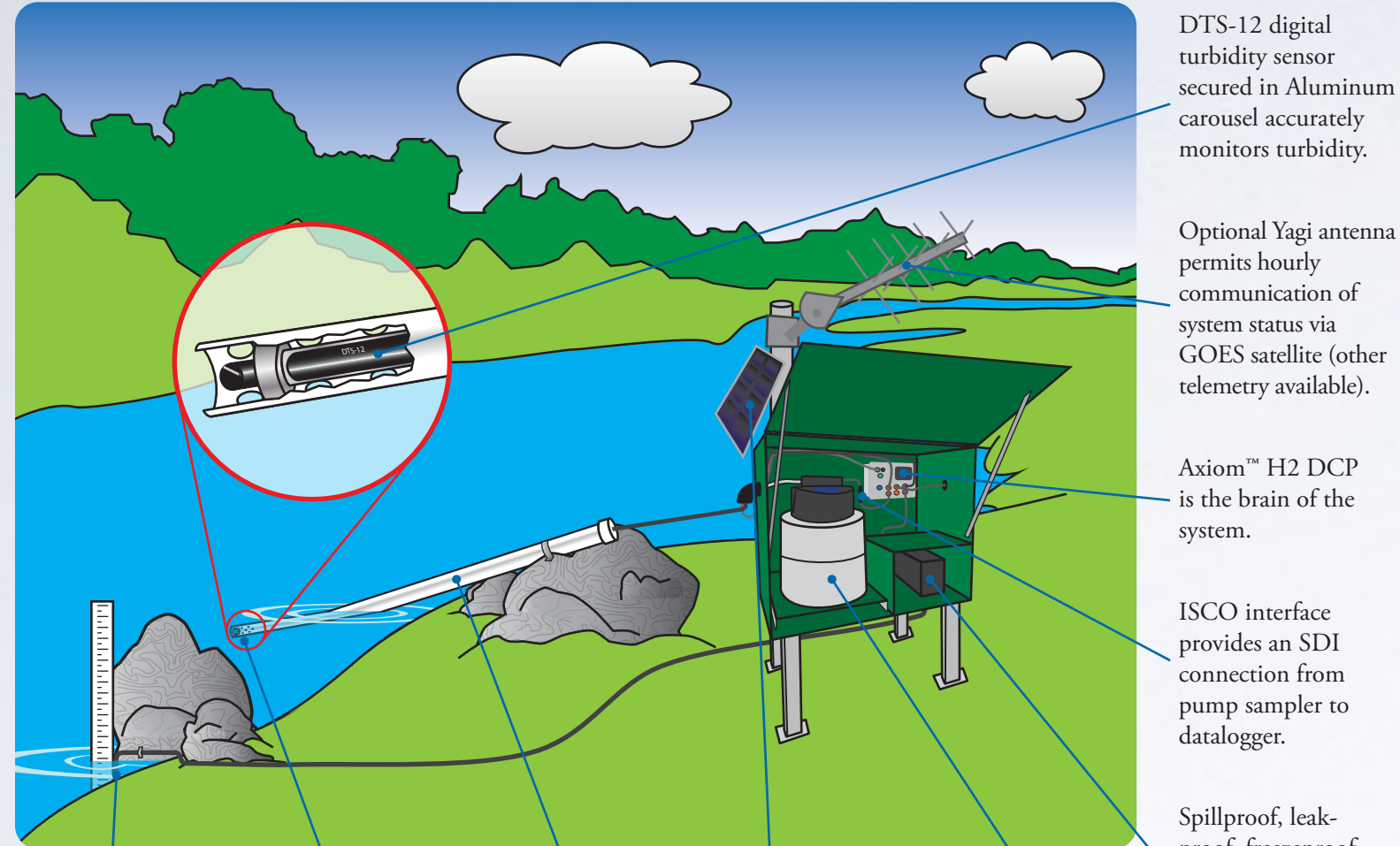


Turbidity Threshold Sampling for the Rest of Us.

Finally, a simple way to accurately determine suspended sediment and nutrient loads.

We didn't invent the concept of Turbidity Threshold Sampling (that distinction goes to Rand Eads and Jack Lewis of the USDA Forest Service). But we did invent the concept of a turn-key system that uses this effective method of intelligent, automated grab sampling that requires **no programming and minimal reliance on consultants** to install and maintain.

SedEvent™: What is it?



DTS-12 digital turbidity sensor secured in Aluminum carousel accurately monitors turbidity.

Optional Yagi antenna permits hourly communication of system status via GOES satellite (other telemetry available).

Axiom™ H2 DCP is the brain of the system.

ISCO interface provides an SDI connection from pump sampler to datalogger.

Spillproof, leak-proof, freezeproof, 12V starved electrolyte photo-voltaic battery.

- Submerged stage sensor (pressure transducer or bubbler).
- Perforated and cut away end maintains good flow and protects sensor from debris.
- 4" PVC or ABS plastic pipe conduit optimizes DTS-12 installation.
- Solar panel recharges batteries for long-term remote deployment.
- ISCO 3700 or 6712 portable autosampler, controlled by the DCP.

In efforts to manage and mitigate the environmental impact of suspended sediment the **Clean Water Act** introduced TMDLs (total maximum daily loads), calculations of the maximum amount of suspended sediment and other contaminants for a given waterbody.

While suspended sediment concentration (SSC) cannot be directly measured accurately or reliably, turbidity has been shown to be an excellent *surrogate* for SSC. Turbidity is caused by suspended particulate matter such as clay, silt, algae, organic and inorganic chemicals and acids like fertilizers, and microscopic organisms like harmful bacteria. These contents give water its cloudy or turbid appearance, and **turbidity in natural waters is recognized as an important indicator of natural health.**

Measuring suspended sediment concentrations used to be labor-intensive, costly, inaccurate and impractical. **SedEvent not only makes it possible and practical, it makes it simple.**

The ability to collect useful data about sediment transport and other pollutants closely coupled to SSC (such as nutrients, e-coli, phosphates and nitrates) is dependent on the timing and frequency of manual grab samples during run-off events. Most sediment and pollutant is transported during a small number of storm events which are infrequent and unpredictable. When they do occur, trained personnel or the proper equipment may not be available to collect grab samples. **Manual grab sampling schemes are also labor-intensive, inefficient, dangerous and costly (and aren't done 24/7/365).**

An automated pump sampler can eliminate the need to sample manually, but for the expense of a rechargeable power system, the autosampler, and possibly a datalogger and a typical turbidity probe (which is often "noisy" and can trigger many unnecessary samples), you're no better off. The primary limiting factor is the number of sample bottles. By the time the autosampler is full, the probability that any sample will have been taken during the critical point of a storm event is low. Expensive lab analysis costs are likely wasted.

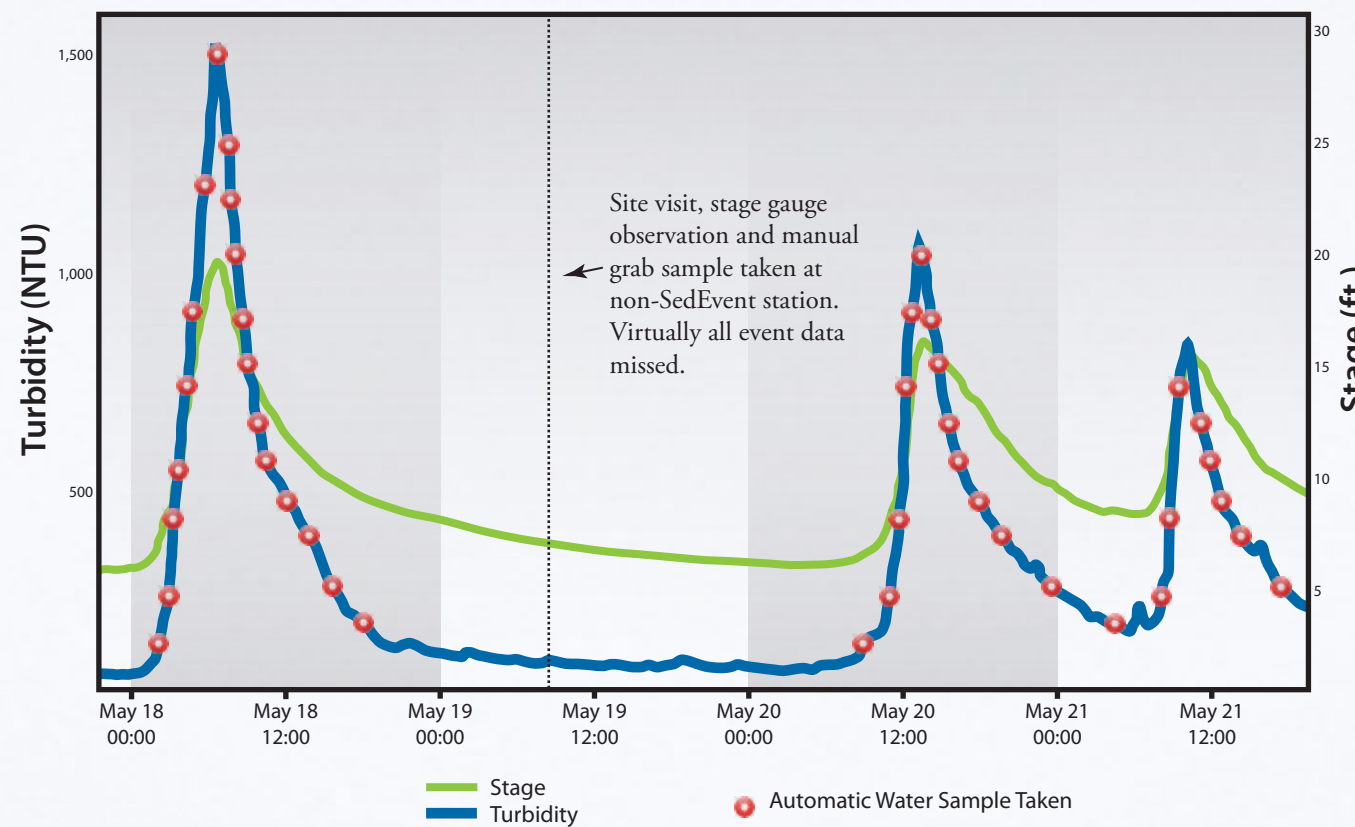
Neither method provides adequate information to make credible suspended sediment load estimates.

The logged turbidity data coupled with actual lab analysis of suspended sediment at specific thresholds, allows turbidity to be correlated to SSC and sediment loads to be computed.

With an automated pump sampler driven by the DTS-12 digital turbidity sensor and controlled by the Axiom H2 datalogger, you **obtain a better understanding of the water's quality, while taking a minimum number of samples, reducing site visits and saving lab analysis costs.**

The graph below illustrates three rain-driven events and the associated data recorded by a SedEvent system. The DTS-12 digital turbidity sensor monitors the turbidity of the water constantly. All measurements are recorded in the Axiom datalogger, which controls the attached automated pump sampler to take samples when it detects a rise or fall in turbidity at configurable thresholds.

The result is a series of water samples, intelligently taken—only during an event, when the water's turbidity is high. Site visits are required only when the pump sampler is at capacity (which can be determined remotely via optional telemetry or scheduled for after known storm activity), and lab analysis costs are minimized as every sample counts.



By contrast, a manual grab sample taken during a scheduled site visit and gauge observation on May 19 at 10:00am would miss all three events, yielding a sample with a low SSC.

The only complete, turn-key system.

If you need to measure SSC, we need to talk.

FTS's unique SedEvent enclosure is designed specifically for water quality stations utilizing an ISCO pump sampler.

- Rain canopy door swings up and locks open keeping you dry during operation and maintenance.
- Keyway mounting plate for secure, tool-less vertical mounting of datalogger and other components at eye level.
- Unique lid lift and carousel drawer provide one-handed access to sample bottles.
- Heavy-duty keyed lockbox latches keep equipment secure.
 - Heavy-gauge, marine grade, powder-coated, welded aluminum shell and stainless steel hardware protect equipment from mother nature and vandals.

The Axiom™ H2 datalogger was the **first to offer an integrated waterproof touchscreen** to provide a simple, graphical interface to all logged data, scripts, configurations, sensor and power conditions and diagnosis tools. It eliminates the need for field laptops and cables, and includes **full support for event-triggered programming, without the need to program.** Power and flexibility, without sacrificing simplicity.

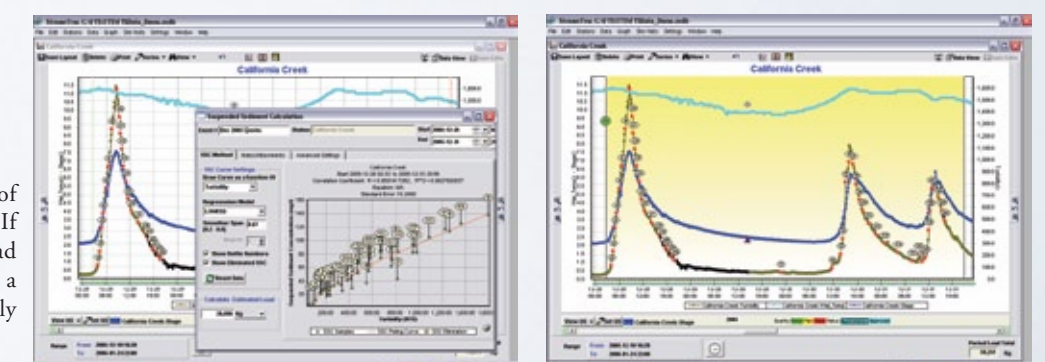
- Built-in threshold sampling functionality that can be set up to initiate triggers based on any measured time series data point. Invoking this feature and customizing thresholds and sampling logic is done using a simple graphical interface on the integrated color touchscreen, without the need to do any programming whatsoever. All you do is enter the threshold values. If your trigger measurement is turbidity, just use the built-in set of thresholds—there's nothing more to do.
- The Axiom will automatically log the bottle sample number taken at each threshold.
- Four independent SDI ports double the reliability when using many sensors in a complex hydromet station.
- Integrated GOES transmitter, and plug-and-play connections to any other telemetry required (cellular, RMX radio, Globalstar, etc.)

The DTS-12 is the **World's Best Instream Turbidity Sensor™**. A proprietary design provides unparalleled accuracy and extremely low maintenance. Unlike analog sensors and even other digital sensors it eliminates "noisy" data. Unlike multisondes the DTS-12 does only one task, but does it extremely well. It's the ideal sensor for turbidity threshold sampling.

- Unique bidirectional, self-cleaning wiper keeps optic face clean so the sensor can stay submerged without maintenance for 12 months in many locations.
- Unique non-degrading laser diode-based light source provides unparalleled stability and extreme accuracy with less than 2% annual drift.
- Angled sensor head and an optimized viewing volume delivers equal sensitivity over the entire dynamic range of 0 to 1,600 NTU.
- Integrated microprocessor performs real-time statistical data analysis on 100 measurements taken over 5 seconds. This insures that only reliable data is output, by compensating for debris and bubble spikes, and eliminates the need to perform complex datalogger programming to attempt similar analysis.

All the heavy lifting of the data collected from your SedEvent station is handled off-site in StreamTrac™, our water quality monitoring data management and analysis platform.

- StreamTrac automates the collection of remote data from one or multiple sites. If you don't use telemetry, simply download data directly from the Axiom datalogger to a USB memory stick, then upload directly into StreamTrac.
- Powerful graphing tools can plot an unlimited number of datapoints, and combine multiple time series' on the same graph. This makes it easy to compare different data sets, spot trends, make correlations.
- Sediment load totals by event or by period.



- Pump sample bottle mapping, dynamically linked to graph and rating analysis tools.
- Sediment and discharge rating curves, multiple regression models.
- Alarms via email triggered when specified data conditions are met.
- Analysis is available in seconds simply by picking time frame graphically.
- Powerful data correction tools.
- Auditing of edited data and preservation of RAW data.