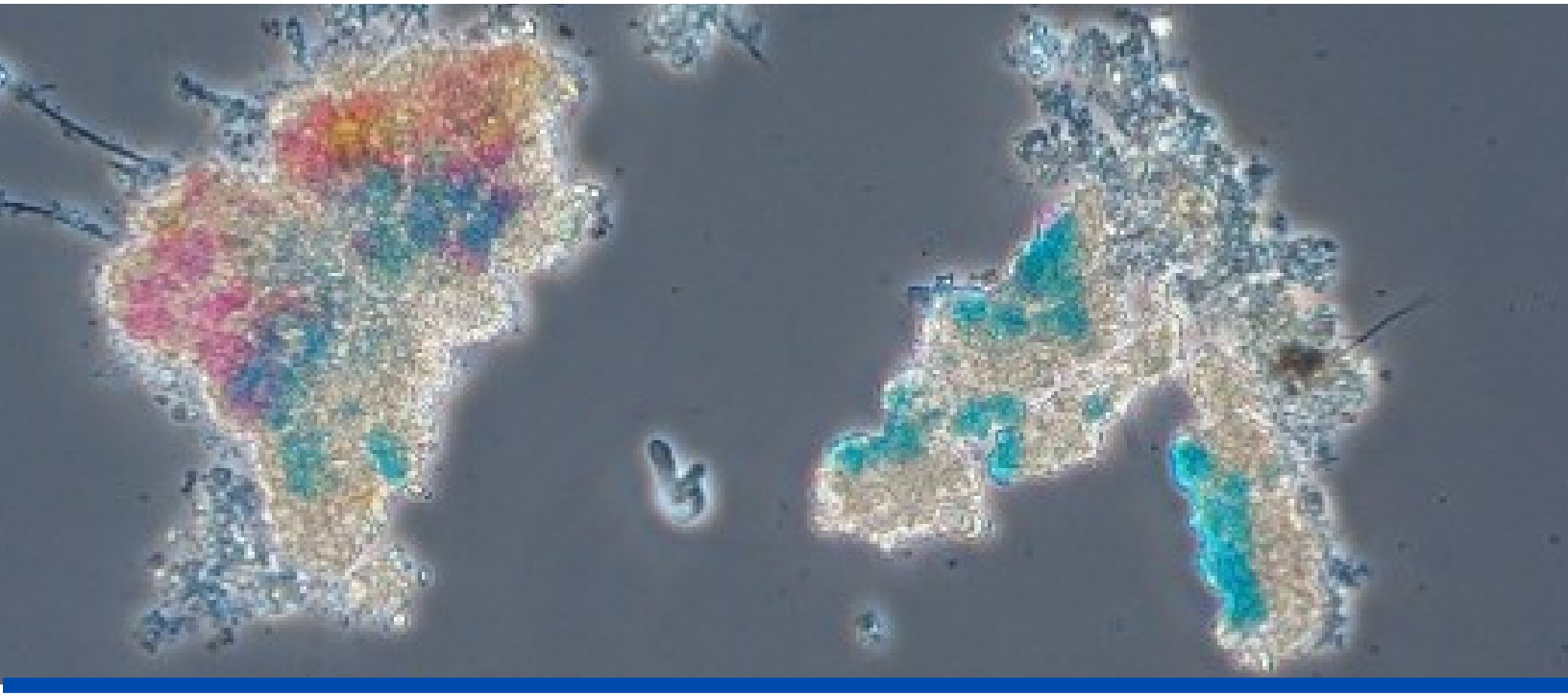
Summer 2026

EBS
An Employee-Owned Company
Comprehensive Wastewater Solutions

Issue 8

Lab Lines

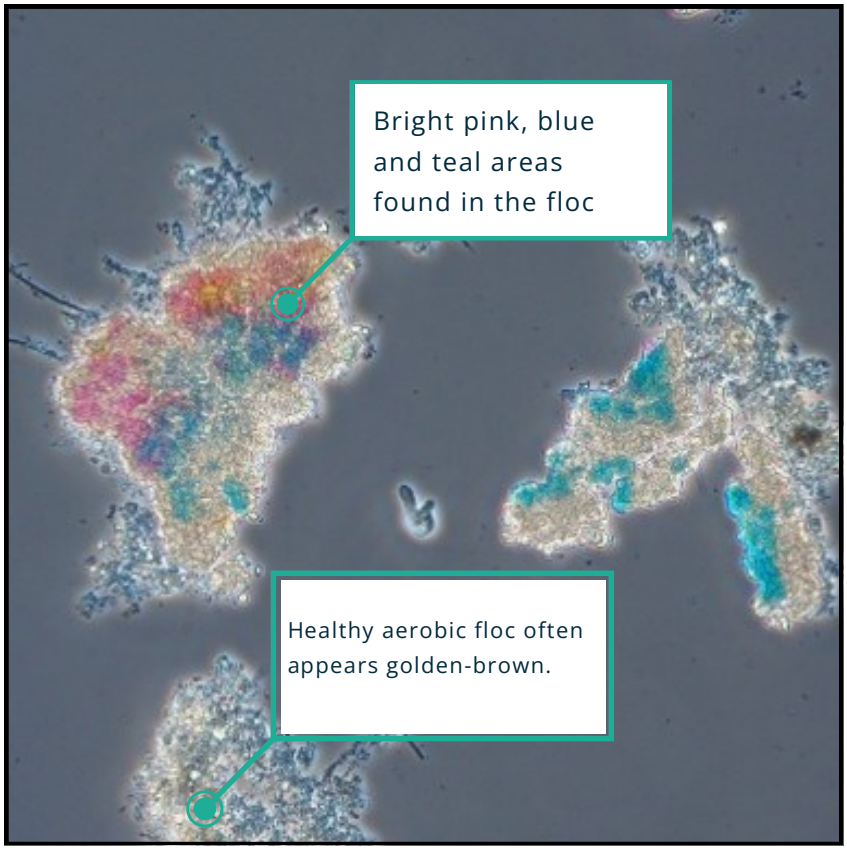
Wastewater Consultants Like No Other



In this Issue

Have you ever seen color-changing floc?

During a routine exam, bright colors were observed within our client's biomass. This phenomenon can often happen when excess fibers, dyes, pigments, coating materials, or colored processed solids enter the biological system and become incorporated into the biomass.



Paper mill Biomass Sample Observed Through a Phase- Contrast Microscope

Key Takeaway:

Color-changing floc does not necessarily indicate poor biological health or distress; however, it should be documented and tracked. When combined with process data, microscopy can help link visual changes in biomass to influent characteristics, product loss, or, ultimately, treatment performance.

What causes it?

These materials may physically attach to the biomass, resulting in a visible color change under the microscope.

What does it mean?

These alterations do not necessarily signify poor biological health; rather, they can indicate a shift in the influent. However, certain dyes may be more challenging to break down, contributing to color and Chemical Oxygen Demand (COD) in the final effluent.

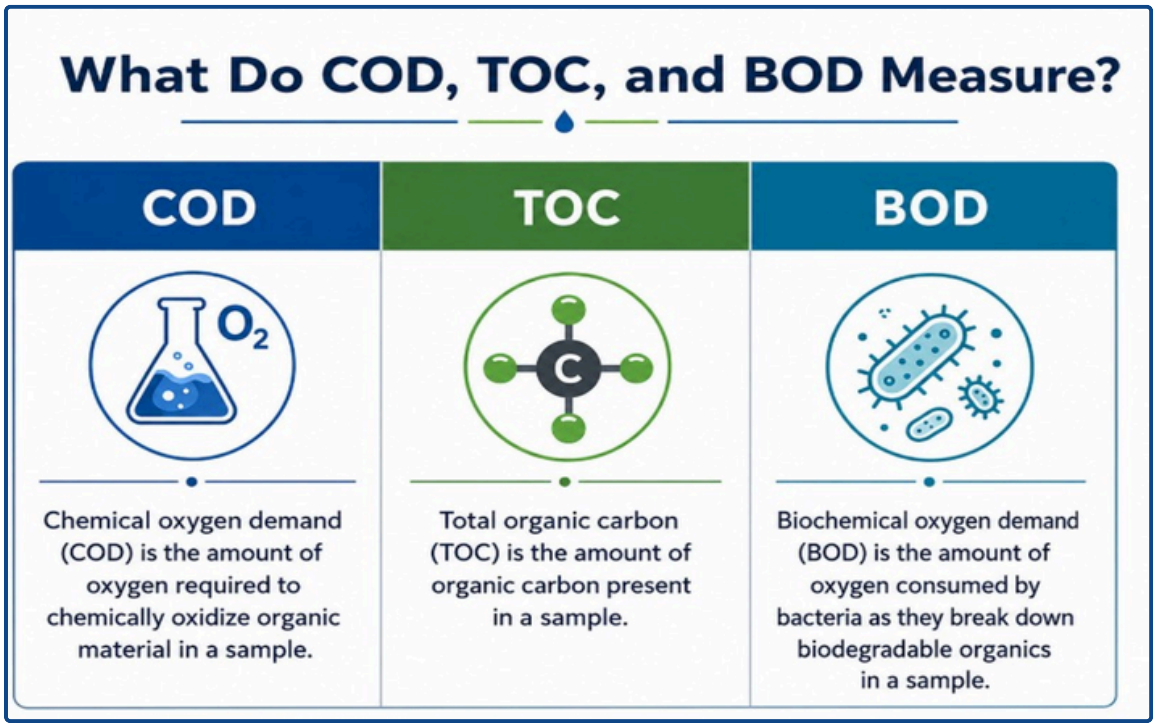
What should I trend?

Trending color-changing floc and increased COD/BOD patterns can assist in identifying whether the event is isolated or part of a broader process of change.

Ask the Biowizard:

>>> What is the difference between COD/TOC/BOD?

Abbreviated terms in wastewater management, such as COD, TOC, and BOD, can be quite confusing! Are you familiar with what these acronyms stand for and what insights they provide about your wastewater treatment system?



COD and TOC are the most common tests run in wastewater laboratories for their ability to return same-day results for actionable decision-making. BOD results take five days to obtain; by the time they are received, the water tested is long gone from the system. However, COD and TOC results don't tell you the whole story of what changes in incoming wastewater characteristics mean for your biological system. Not all TOC and COD represent biodegradable material, so large spikes in these tests may not mean that your system will be put under stress.

Based on a typical system's influent COD/TOC:BOD correlation, an influent COD spike to around 2,000 mg/L could suggest a BOD of around 900 mg/L. This high loading would put a significant strain on the biological system and could threaten effluent permit limits if steps are not taken to alleviate the stress (such as diversion, holding back water to increase retention time, adding supplemental oxygen, etc.).

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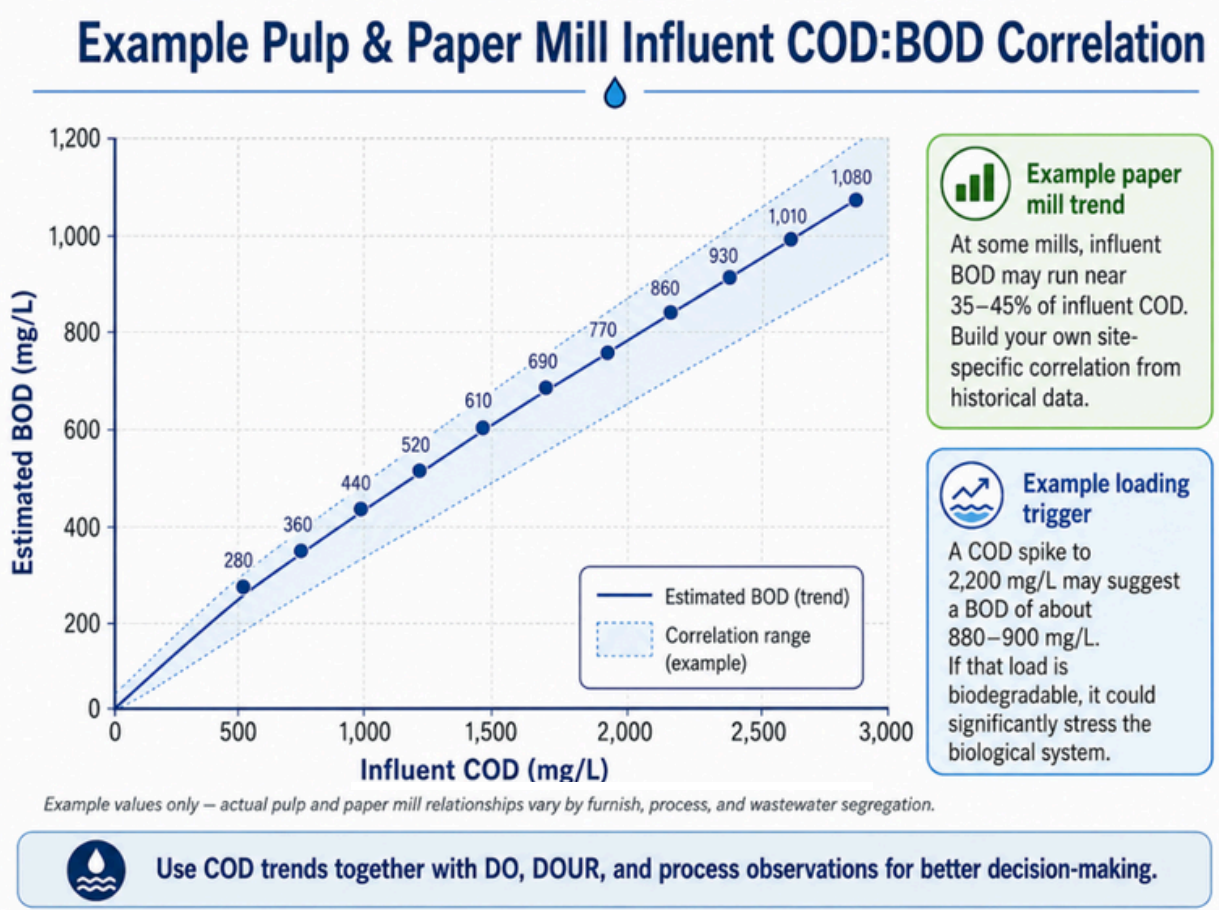
COD,TOC,BOD Continued:



HOW ELSE CAN YOU TELL IF YOUR SYSTEM IS STRESSED?

Dissolved Oxygen (DO)

Using other tests and process control data, you can go beyond just the COD/TOC numbers to understand how your system will react to increased COD/TOC loading. First of all, routinely monitor basin dissolved oxygen (DO) concentrations and pay special attention when high loading is suspected. When there is more biodegradable material in the water, the bugs will consume more oxygen as they degrade it, resulting in less residual DO in the basin.

LOW DO MEANS THAT YOUR BUGS ARE WORKING HARDER; BOD LOADING HAS INCREASED!

Dissolved Oxygen Uptake Rate (DOUR)

The DOUR test is a quick way to assess biological activity and help decision-makers know when to pull the trigger on a layer of protection for their system. Essentially a rapid BOD test, the DOUR will tell you how hard your bugs are working, and therefore the extent of the potential problem. From there you can put action plans for high BOD loading into place to give your system the best chance at success during this period of strain.

CHEMICAL FINGERPRINTS:

TURNING WASTEWATER CLUES INTO ANSWERS!

CASE FILE

Industry: Paper Mill

Problem: Floating sludge + dewatering issues

Suspected Source: Wax product

Test Used: Fingerprint GC/MS Analysis

The specific cause of a wastewater upset can be difficult to determine. There are often confounding factors that make it difficult to pinpoint a single root cause. Even if there is a suspected root cause, it can be difficult to prove.

When a process chemical is the suspected cause of an upset, EBS can conduct a fingerprint analysis on the suspected chemical(s) using a gas chromatography/mass spectrometry (GC/MS) Analysis.

This fingerprint analysis develops a chemical signature of the product that can be compared to samples collected during an upset. If the chemical signature of the product is found in the wastewater samples (foam, floating solids, etc.), it indicates that the product is the likely cause of the abnormal conditions.

> **When a process chemical is the suspect, GC/MS fingerprinting can help move the investigation from suspicion to evidence.**

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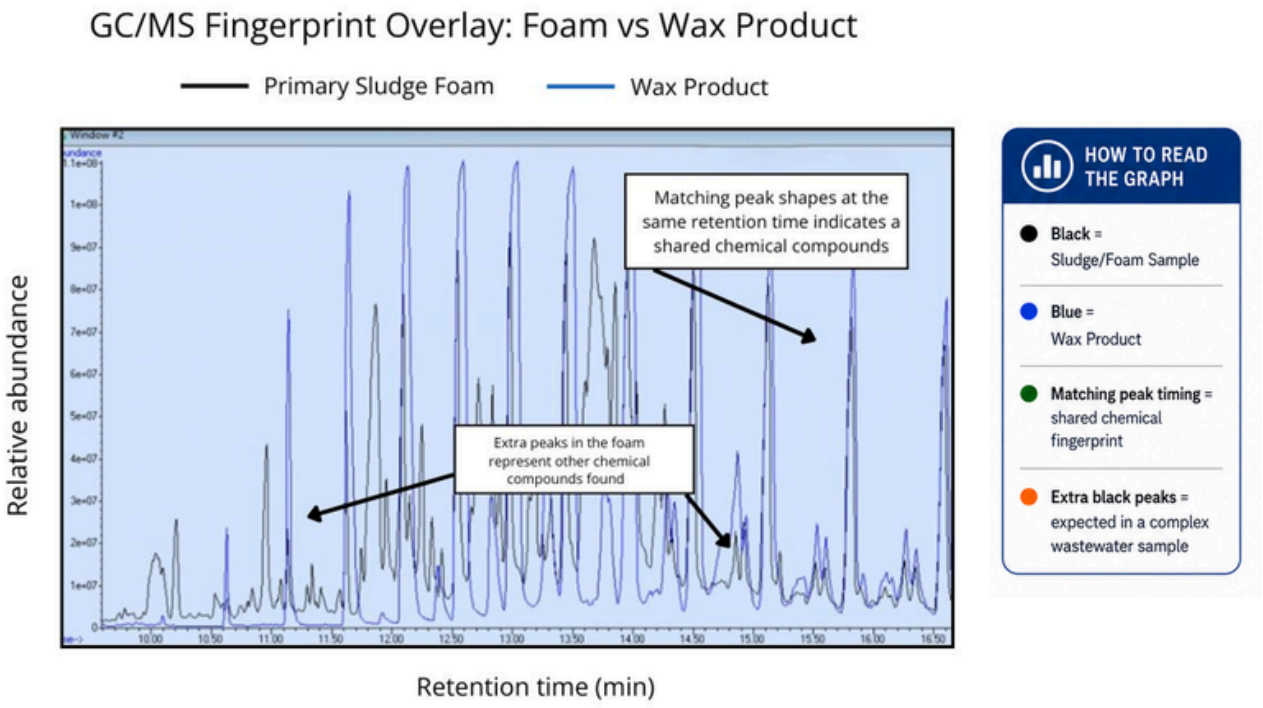
THE EVIDENCE

WHEN THE PEAKS LINE UP

CHEMICAL FINGERPRINTS CONTINUED:

The following example is from a paper mill that was experiencing dewatering issues and floating solids in their primary clarifier. A sample of the floating sludge was submitted for GC/MS analysis, along with a wax product used in the process.

The chromatographs produced from the GC/MS were then compared to determine if there were similar peaks and compounds between the wastewater samples and the wax product.



RESULT

The wax product was identified as a likely contributor to the floating sludge and dewatering issues.

When wastewater symptoms point to possible chemical contamination, GC/MS fingerprinting studies can help move the conversation from suspicion to evidence.

Contact EBS using our Contact Us form @ www.ebsbiowizard.com to learn how advanced analytical testing can support source identification, troubleshooting, and corrective action planning.

EBS ON THE ROAD:

LEARNING, CONNECTING & COLLABORATING

EBS puts continued education and relationship building at top priority. We are always looking for ways to connect, collaborate, and find other companies where we can learn from each other — and hopefully teach a few things along the way.


LCA Trade show

NCASI

NJWEA

IPPE

EVENTS ATTENDED SO FAR

- **IPPE** | Jan 27–29 – Poultry and protein industry event focused on production and innovation.
- **NJWEA** | May 11–15 | Atlantic City, NJ – Wastewater conference for operators, engineers, and environmental professionals.
- **LCA Reverse Trade Show Region 4** | June 25 | Lake Charles, LA – Opportunity to connect with Louisiana industry contacts.
- **NCASI** | June 16–18 | Vancouver, WA – Pulp and paper event focused on environmental topics and collaboration.

UPCOMING EVENTS

- **AWT Annual Convention** | Sept 16–19 – Water treatment networking and technical learning.
- **US Egg & Poultry** | Sept 17–18 – Event focused on poultry operations and wastewater needs.
- **WEFTEC** | Sept 26–30 – Major water quality conference for education, innovation, and industry connections.

★ ***Heading to one of the trade shows? Let's meet up!***

Mark Your CALENDAR

WE HAVE A FEW TRAINING EVENTS LEFT IN 2026

DON'T MISS OUT—SIGN UP NOW!

JULY 15-16 ASB/AST WORKSHOP: SAVANNAH, GA

SEPTEMBER 15-16 ASB/AST WORKSHOP: PORTLAND, OR

OCTOBER 6-7 ASB/AST FALL SEMINAR: MANDEVILLE, LA

LEARNING THAT LASTS: HEAR FROM OUR ATTENDEES

"Overall experience was awesome. The teachers were very knowledgeable and would highly recommend to those who are starting out or looking to improve troubleshooting."

Utilities Process Specialist, Pulp & Paper ★★★★★

"It was very informative; it gave me a different perspective on things. Also, it gave me insight into how to approach situations I run into from time to time."

Water Treatment Manager, Oil & Gas ★★★★★