

State Water Board Proposed Toxicity Provisions

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Summary

- Toxicity 101
- What's in my permit now?
- What's going to change?
- What will this change look like in my permit?
- Next steps?

Toxicity 101: Toxicity test conducted by exposing organisms to effluent

Plants



Selenastrum capricornutum

Invertebrates



Mytilus edulis



Ceriodaphnia dubia



Arbacia punctulata

Vertebrates



Pimephales promelas

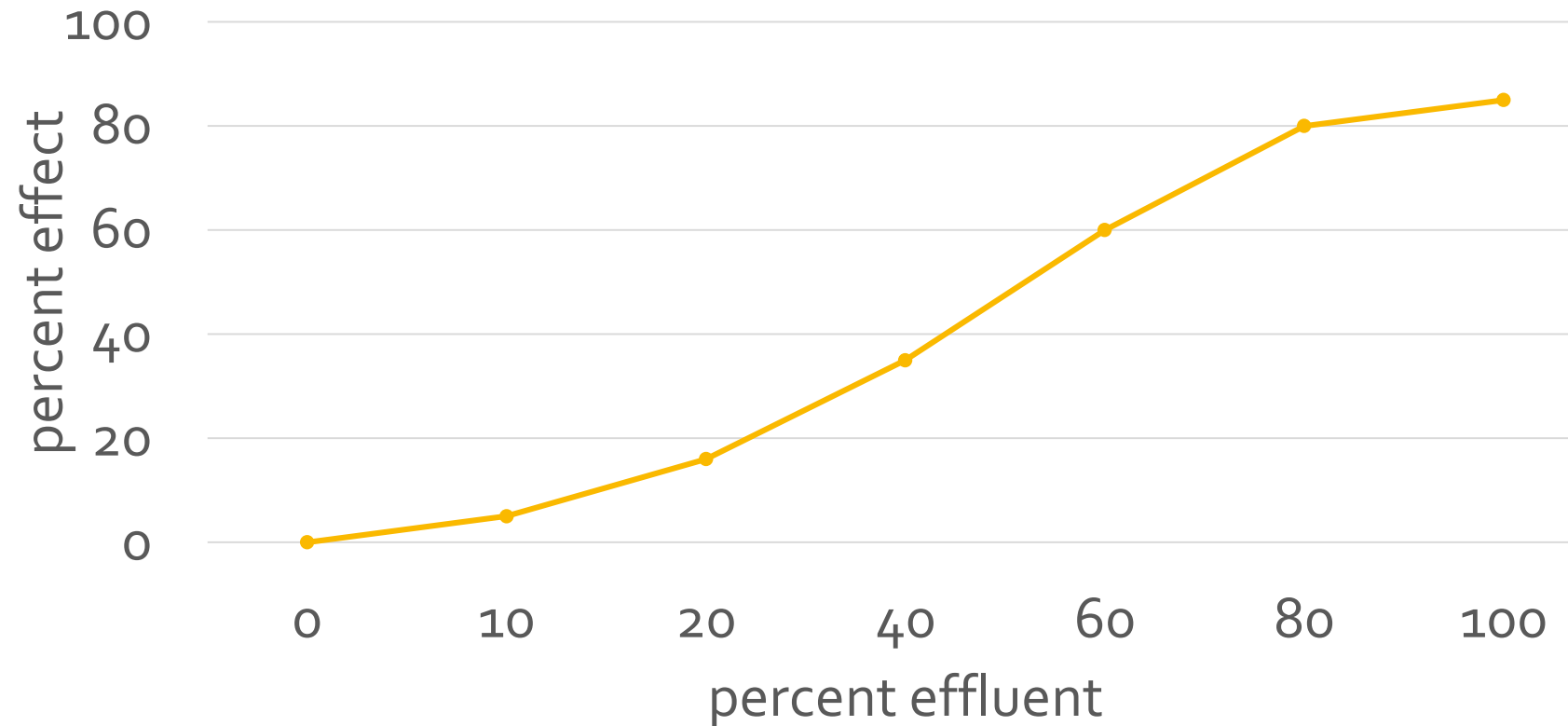


Orthorhynchus mykiss

Toxicity 101: How do we measure toxicity?

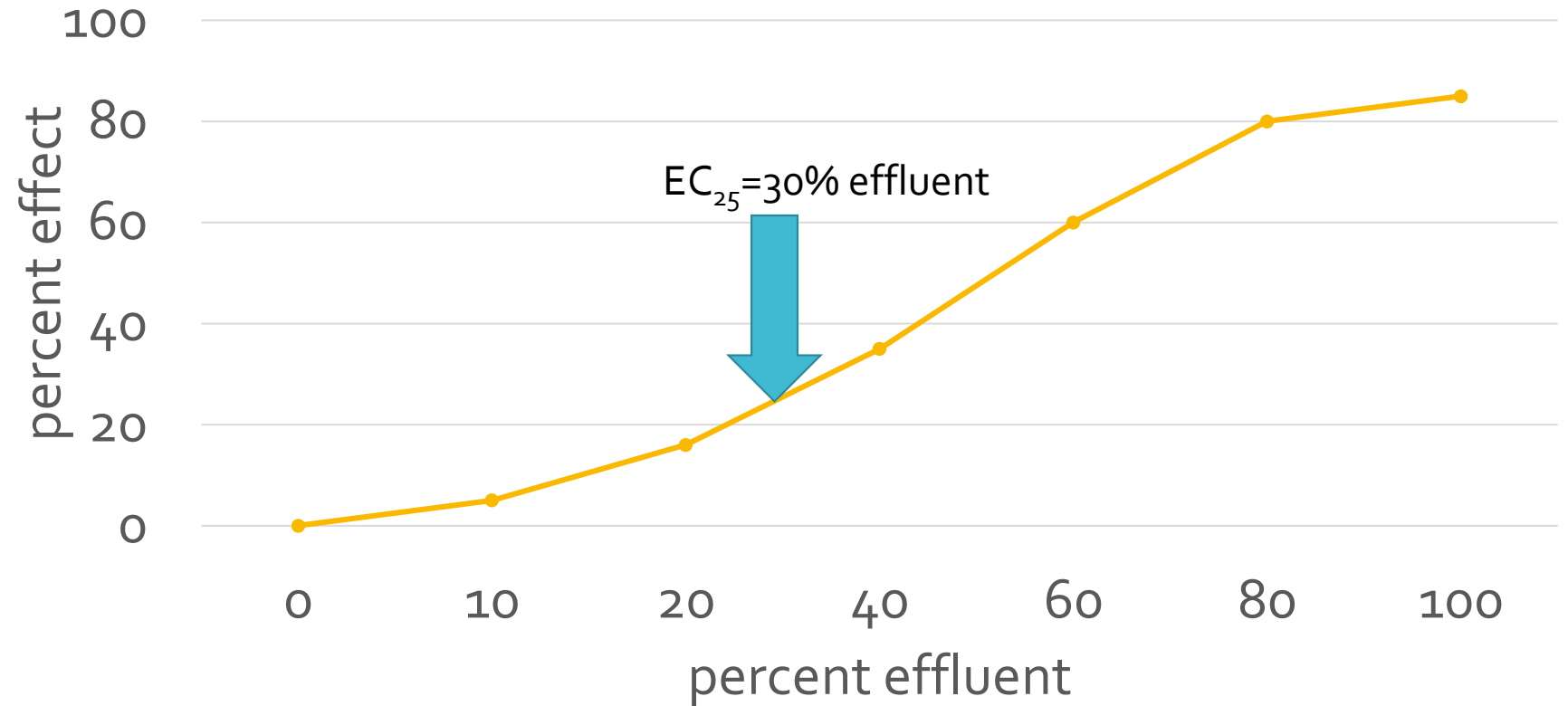
$$\% \text{ effect} = \frac{\text{control response} - \text{test response}}{\text{control response}}$$

Well-behaved dose-response curve



How does chronic toxicity show up in my permit?

$$TU_c = \frac{100}{\% \text{ effluent at EC}_{25}} = 3.3$$



- Most agencies in Region 2 have **triggers** for chronic toxicity, NOT **limits**
- Triggers are set at 10/20 median/max TU_c for deep water dischargers, and 1/2 median/max TU_c for shallow water dischargers

What's going to change?

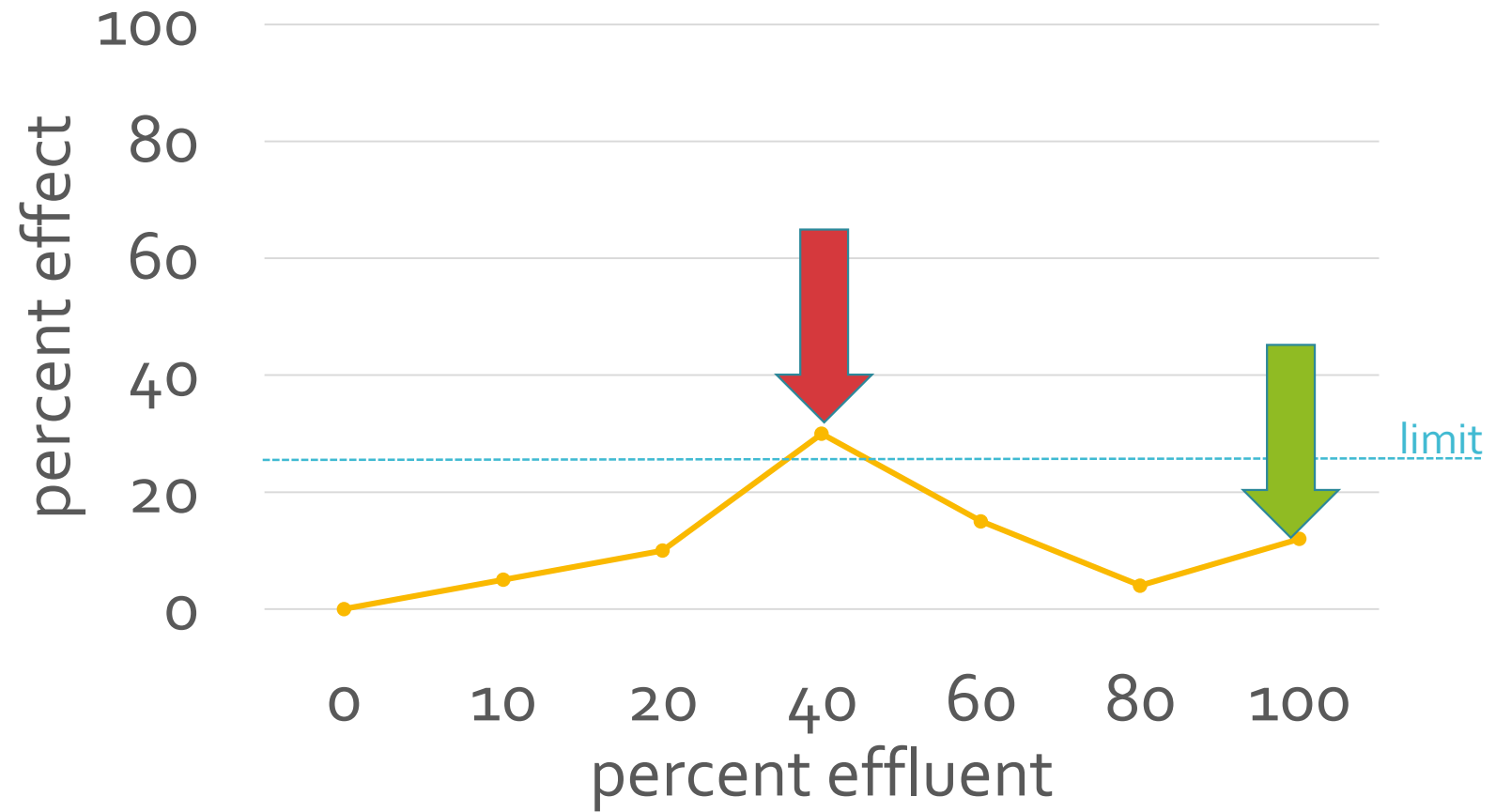
- **NEW!** Chronic toxicity limits
- **NEW!** Tests analyzed by Test of Significant Toxicity (TST)
- **NEW!** Implementation plan that supersedes Basin Plan

- No change to EPA WET Test Methods

What's different about the TST?

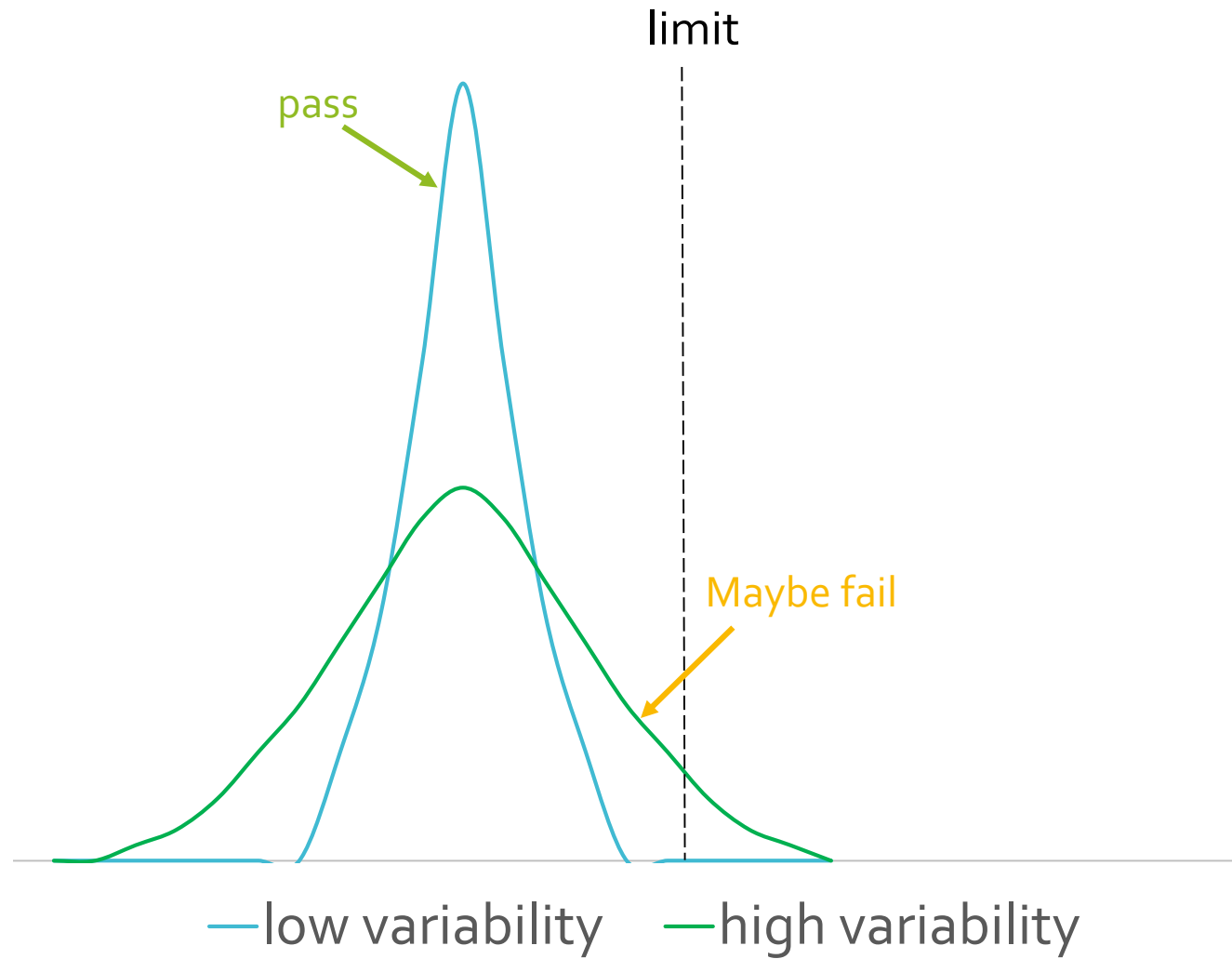
- SAME toxicity test method, DIFFERENT statistical evaluation
- TST is performed only at Instream Waste Concentration (IWC), not using dose-response curve
- TST give a “pass” or “fail”, rather than a measure of toxicity like TUc
- Agencies can input historic toxicity data at IWC into TST calculator to see if they would have passed

TST only
looks at the
IWC



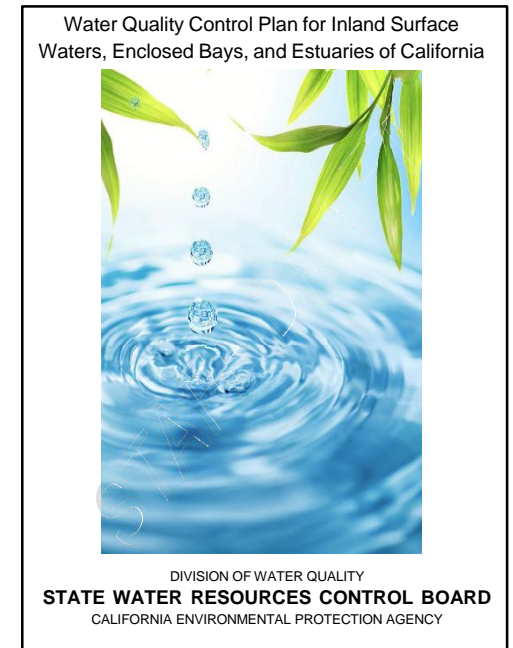
No built-in safeguards against anomalous dose-response curves

The TST punishes variability



Current Toxicity Provisions Status

- **New Draft Toxicity Provisions Released – October 19, 2018**
- Now proposed as a component of the State's Inland Surface Waters, Enclosed Bays, and Estuaries Plan
 - It is to be "Provisions" in the SIP, not a "Policy"
 - Will not require amending the Basin Plan
- **They did make some changes in response to comments!**



What will this
look like in my
permit?



Reasonable Potential - Who Will Get Numeric Limits?

- For POTWs ≥ 5 MGD – You have limits, no RP necessary
- For POTWs < 5 MGD – If any single test exhibits a 10% effect or greater, you will have RP

Minimum Monitoring Frequencies

Routine testing

- For POTWs ≥ 5 MGD – Chronic Testing Monthly
- For POTWs < 5 MGD – Chronic Testing Quarterly

Reduced monitoring for dischargers with clean compliance history

Sensitive Species Screening

- Three toxicity tests conducted concurrently using three different species.
- Repeated four times.
 - Quarterly for one year for continuous dischargers
 - Evenly spaced through out a year for non-continuous dischargers
- **Frequency** - At least once in ten years, “unless the discharger is participating in a regional monitoring program”

What will the
Limits look
like?

MDEL

- Must “PASS” AND have a Percent Effect less than 50% effect for survival endpoint

Or if no survival endpoint can be measured, then:

- Must “PASS” AND have a Percent Effect less than 50% effect for sublethal endpoint

What Will The Limits Look Like?

MMEL

Routine Monitoring Test	Compliance Test 1	Compliance Test 2	MME Violation?
Pass	NA	NA	No
Fail	Pass	Pass	No
Fail	Pass	Fail	Yes
Fail	Fail	NA	Yes

Agencies have 30 days to initiate all three tests.
In written comments BACWA has asked for six weeks.

Areas for Regional Water Board discretion

- Acute toxicity RPA
- How to set instream waste concentration
- Reduced compliance monitoring during TRE/TIE

Compliance Challenge!

- Because toxicity limits are **NEW**, and because the TST has a higher rate of false determinations of toxicity, many agencies will violate their toxicity limits
- This threatens clean compliance records
- Agencies producing recycled water don't want their effluent labeled as "toxic"

Next steps

- POTWs to meet with State Water Board staff and Board members
- Adoption April 2019 (?)
- Agencies should look at their data now and consider whether they would be in compliance

Contact Lorien Fono

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