

Availability and comparability of labs for compliance monitoring

The Background

- Compliance monitoring requires a laboratory accredited by the State of California (ELAP)
- ELAP accreditation requires a standard level of quality
 - Standardized methodology
 - Documentation (TNI)
 - Once per year Performance Evaluation samples
- ELAP does not require comparability
 - There are allowable variations (or interpretations) of standardized methods
 - Does not standardize Data Quality Objectives (like detection limits)
 - Performance Evaluation samples are typically highly concentrated and in the simplest of matrices

The Challenge

- Commission asked if there is adequate lab capacity for running compliance samples
- “If I give two labs the same sample, will I get the same answer”
- The goal of this talk is creating an inventory:
 - **How many ELAP accredited contract labs are available?**
 - **How many ELAP accredited contract labs are available in Southern California?**
 - **How many ELAP accredited contract labs are available in Southern California and are vetted for comparability?**

What Does Vetted Comparability Mean?

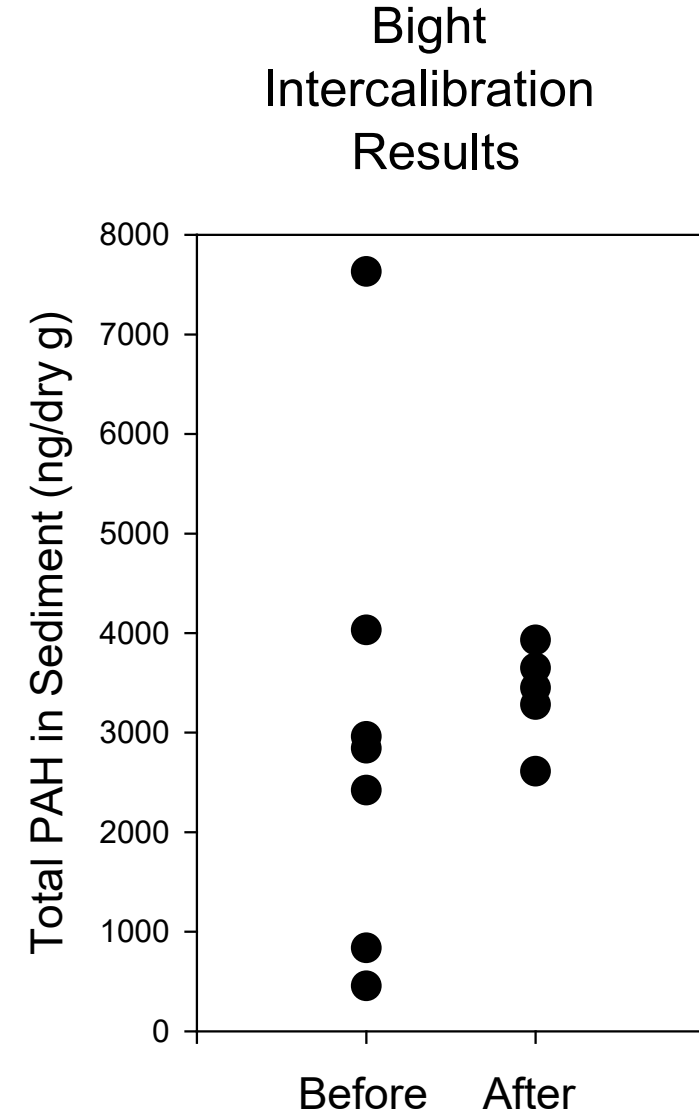
- Passes ELAP accreditation requirements
- Passes a laboratory intercalibration exercise
 - Multiple samples, in matrix of concern
 - Range of realistic concentrations
- Intercalibration defines data quality objectives
 - Detection limits
 - Background contamination
 - Accuracy
 - Precision

How Important Is Comparability?

- SCCWRP is a leader in laboratory intercalibrations
- Bight Regional Marine Monitoring program
 - More than 200 parameters in saltwater, sediment, and tissues
- Stormwater Monitoring Coalition (SMC) Regional Monitoring
 - More than 120 parameters in stormwater

How Important Is Comparability?

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 - More than 200 parameters in saltwater, sediment, and tissues
- Stormwater Monitoring Coalition (SMC) Regional Monitoring
 - More than 120 parameters in stormwater
- Able to show this level of comparability remains between surveys



Today's Questions: Creating a Lab Inventory

- How many accredited contract labs are available?
- How many accredited contract labs are available in southern California?
- How many accredited contract labs are available in southern California with vetted comparability?

Today's Answers: Creating a Lab Inventory

- How many accredited contract labs are available?

436 labs accredited, more than 60% are “non-contract” labs

- How many accredited contract labs are available in southern California?

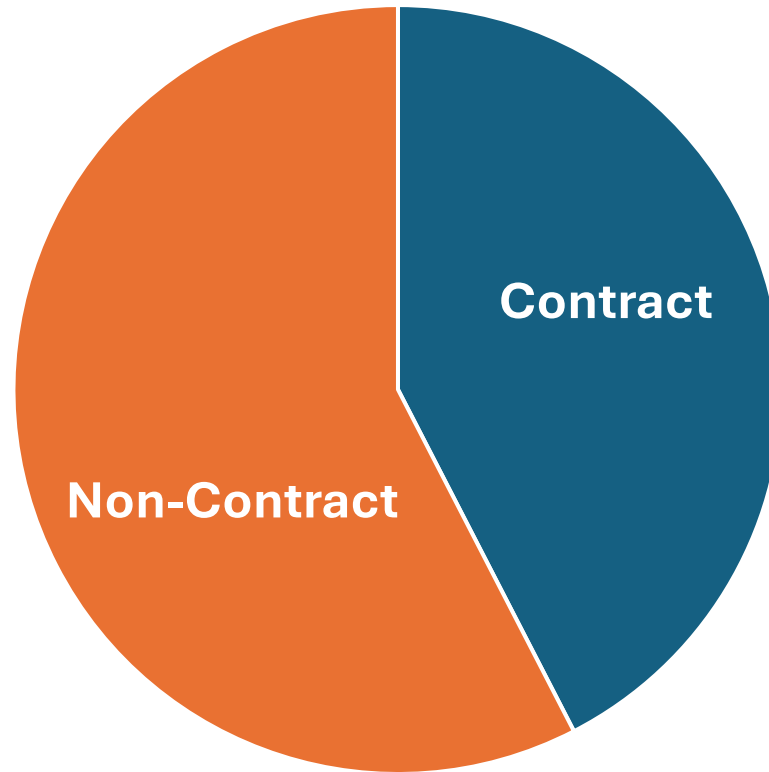
<15% of all accredited contract labs, depending on analysis or matrix

- How many accredited contract labs are available in southern California with vetted comparability?

As few as 1 or 2 labs for some parameters

How Many Accredited Labs?

436 labs total



How Many ELAP Accredited Contract Labs?

Parameter group	Non-potable water	Sediment	Tissue
Microbiology	57	N/A	N/A
Inorganics	116	108	108
Elements (metals)	98	108	108
Semi-volatile organics	65	87	87
Toxicity	15	12	N/A

Total N = 185

How Many ELAP Accredited Contract Labs in So Cal?

Parameter group	Non-potable water	Sediment	Tissue
Microbiology	12	N/A	N/A
Inorganics	35	37	37
Elements (metals)	33	37	37
Semi-volatile organics	17	24	24
Toxicity	5	5	N/A

Total N = 58

Contract labs successfully vetted during SCCWRP intercalibration exercises

Parameter group	Non-potable water	Sediment	Tissue
Microbiology	2	N/A	N/A
Inorganics	7	2	N/A
Elements (metals)	7	1	2
Semi-volatile organics	6	2	2
Toxicity	4	5	N/A

Did Bight labs meet SQO requirements for reporting limits in sediment?

SQO parameter	Max SQO reporting limit	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5 (contract)
Cadmium	0.09 µg/g	✓	✓	✓	✓	✓
Copper	52.8 µg/g	✓	✓	✓	✓	✓
Lead	25.0 µg/g	✓	✓	✓	✓	✓
Mercury	0.09 µg/g	✓	✓	✓	✓	✓
Zinc	60.0 µg/g	✓	✓	✓	✓	✓
PAHs	20-80 ng/g	✓	✓	✓	✓	✓
OC pesticides	0.5-4.6 ng/g	✓	✓	✗	✓	✓
PCBs	3.0 ng/g	✓	✓	✓	✓	✓

Did SMC labs meet requirements for reporting limits in stormwater?

SMC parameter	Max RL	Lab 1	Lab 2	Lab 3 (non-contract)	Lab 4	Lab 5	Lab 6	Lab 7
General (e.g., TSS, ions, nutrients)	0.05-5 mg/L	✓	✓	✓	✓	✓	✓	✓
Metals	0.2-1 µg/L	✓	✓	✓	✗	✓	✓	✗
OC pesticides	10-50 ng/L	✓	✗	✓	✗	✗	✗	✗
PAHs	10 ng/L	✓	✗	✓	✓	✓	✓	✗
Pyrethroids	10 ng/L	✓	✓	--	✓	--	✓	✓

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