

# **Fluorescence sensor metrology :**

## **Main issues and Ifremer's actions**

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### Chlorophyll *a* calibration with pigment extraction:

- Time consuming
- Dependent on algae species
- Dependent on algae physiology



**Ifremer's choice:**

**Perform calibration in fluorescence rather than in chlorophyll *a* concentration**

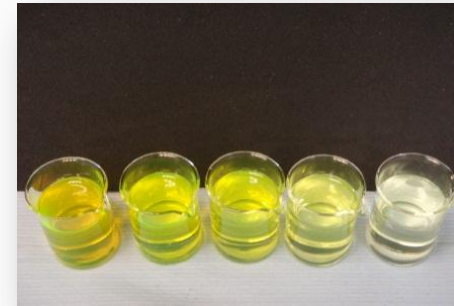
## Fluorescence calibration:

- Range: depending on sensor / fluorophore
- Current Procedure: calibration with fluorescein solutions



## Issues:

- Controls only the drift and the stability of measurement
- Not the measurand to achieve ( $\mu\text{g/l}$  vs chlorophyll *a* or algae estimation)
- No Certified Reference Material (no traceability)

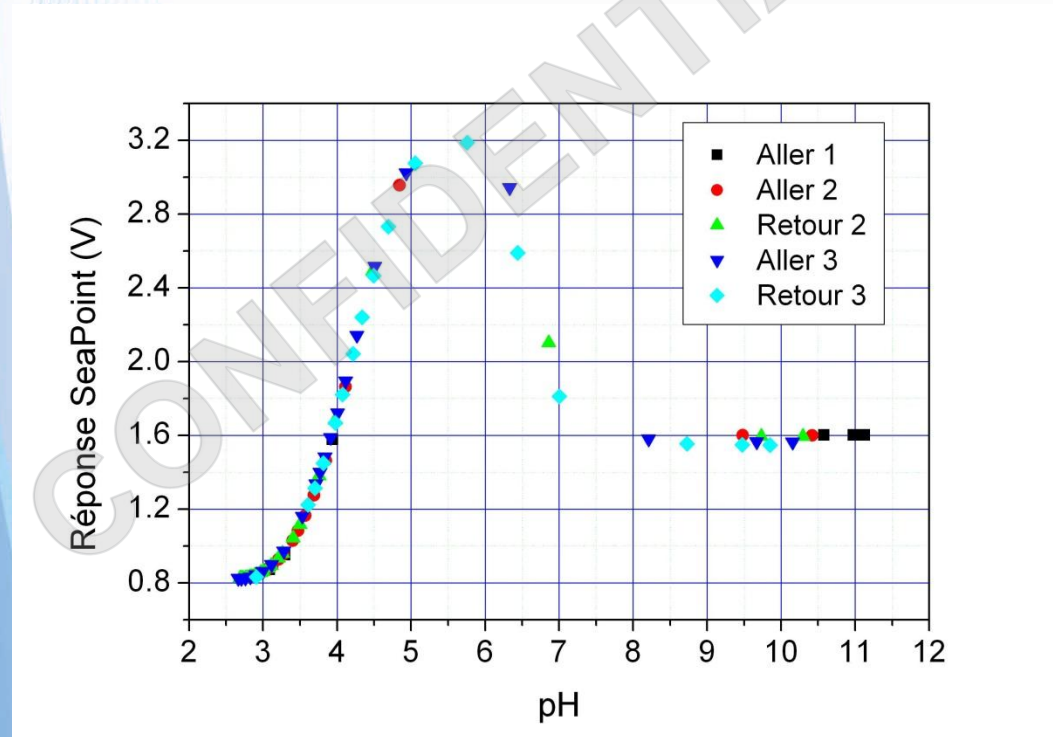


Fluorescein

## Fluorescence calibration:

### ➔ Issues:

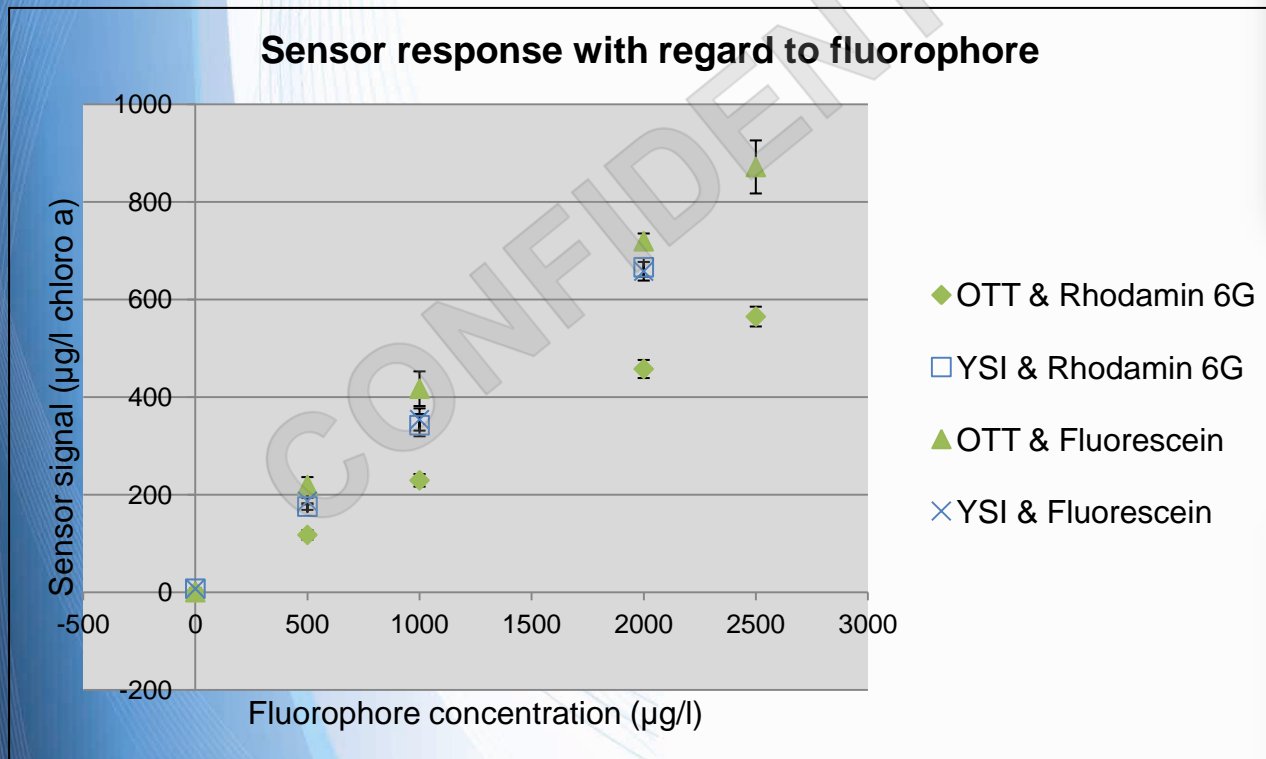
- pH influence on fluorescein



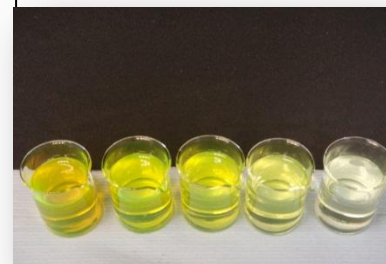
## Fluorescence calibration:

### ➔ Issues:

- **Sensor comparison impossible: sensor response dependent on technology**



**Rhodamin 6G**



**Fluorescein**

### Fluorescence calibration:

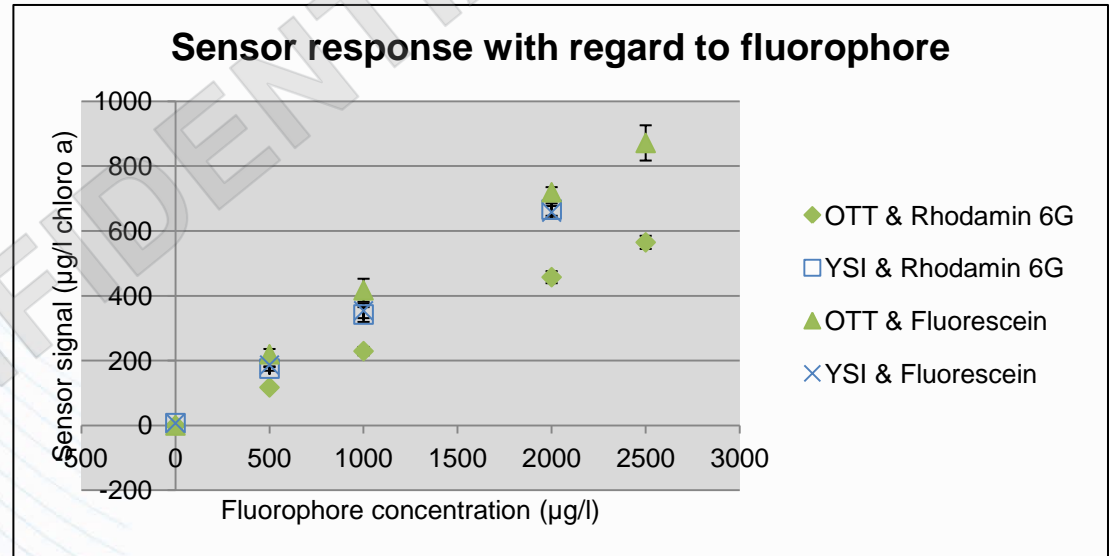
#### Issues:

- Lack of understanding of optode response (signal drift, noise, ... interactions with parameters to be found)

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## Fluorescence calibration:

- Calibration protocol studies on multi-parameter probes (YSI, OTT, NKE, Seapoint, Seatech): fluorophore effect



- *In situ* campaign studies (YSI, OTT, NKE, Seapoint, Seatech) with chlorophyll a extraction.