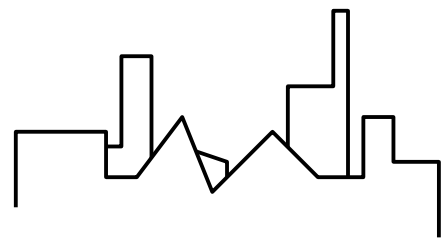


Recirculation Systems for the Mariculture of Finfish

**Uwe Waller
Leibniz-Institut für Meereswissenschaften**



Skyline

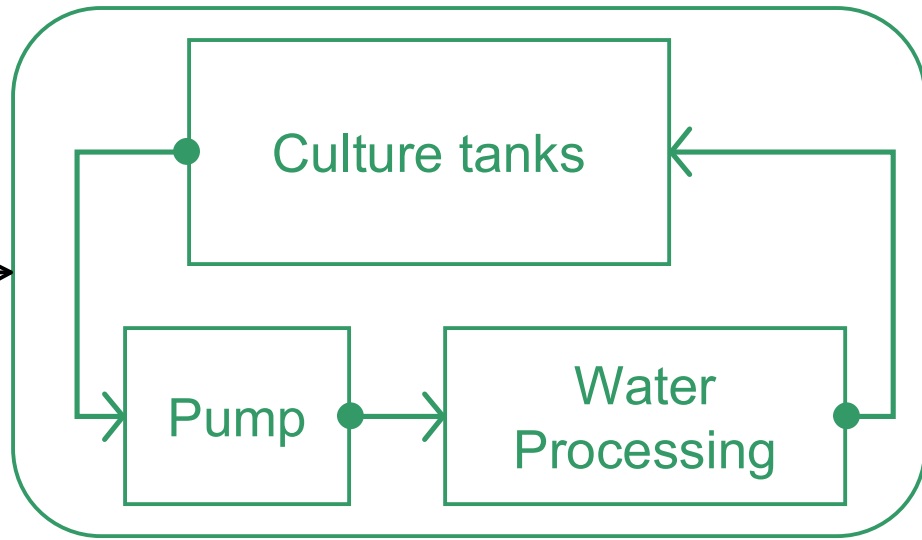
Water preparation

Water Intake



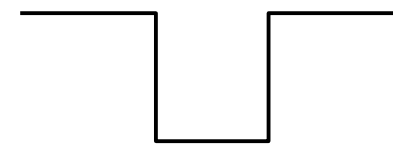
Coastline

Recirculation System



„Effluent polishing“

Post-treatment

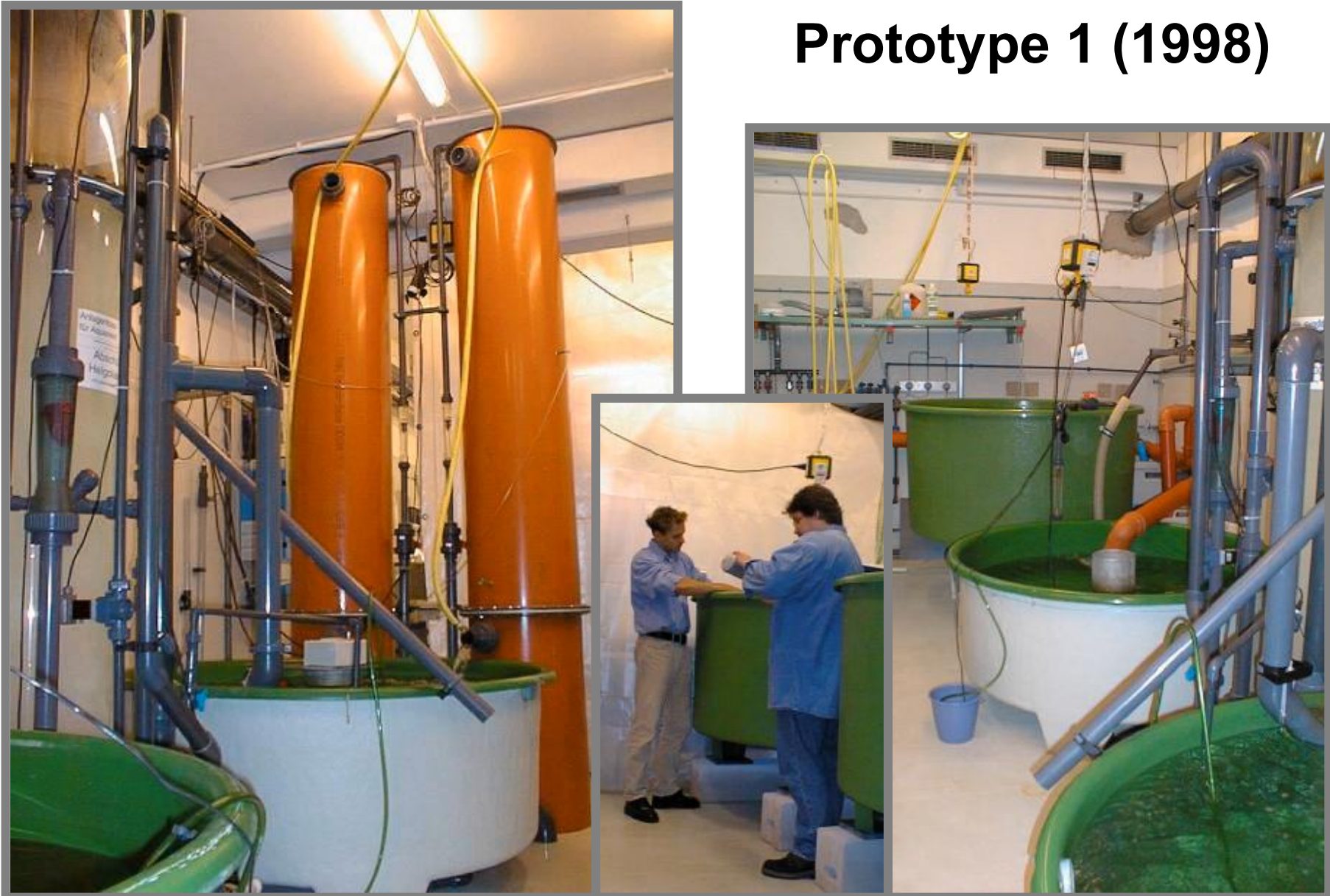


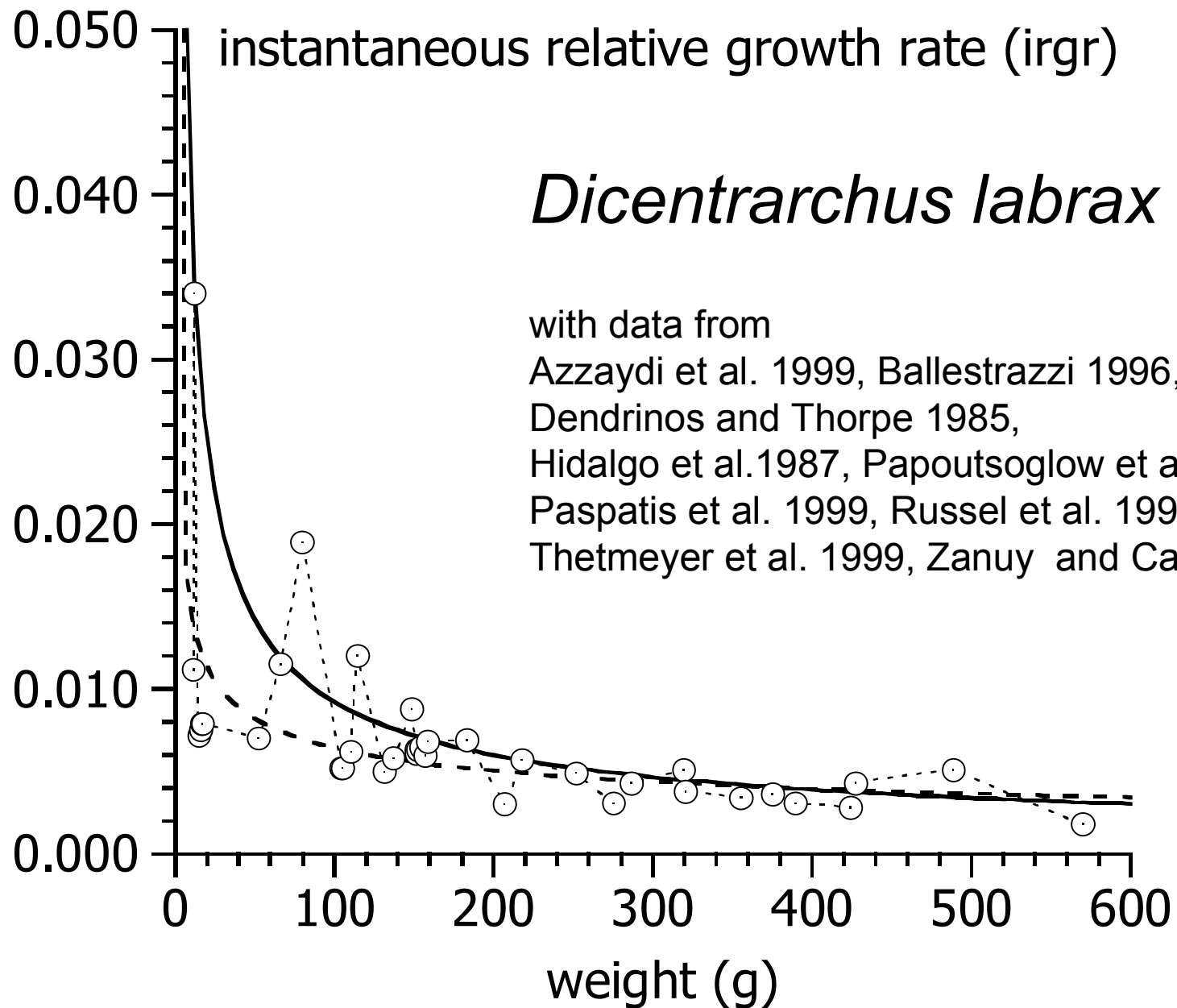
Discharge

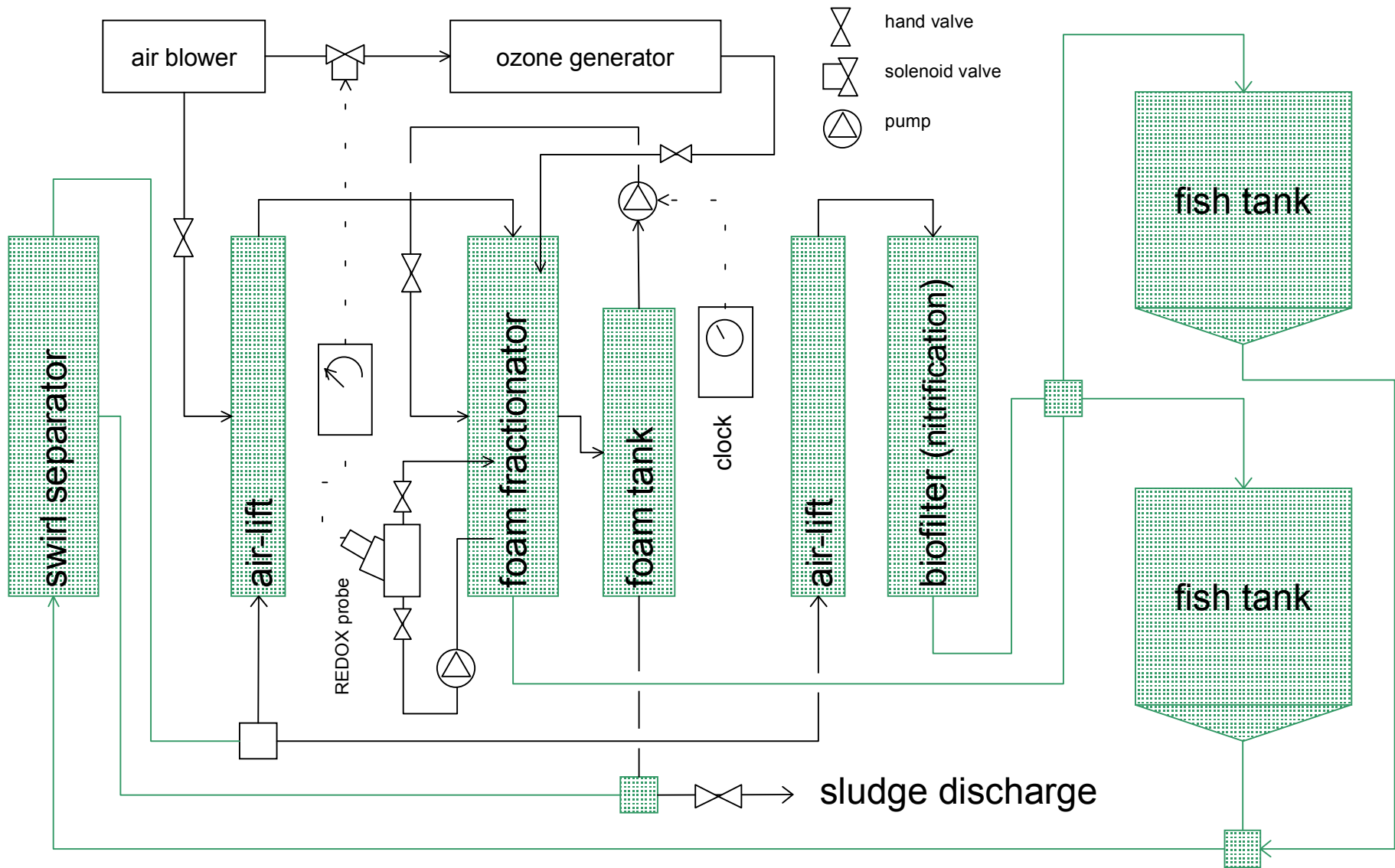
WALLER U (2000) Tank culture – including raceways and re-circulating systems.

in: Environmental impacts of aquaculture (ed. K D Black). Sheffield Academic

Prototype 1 (1998)

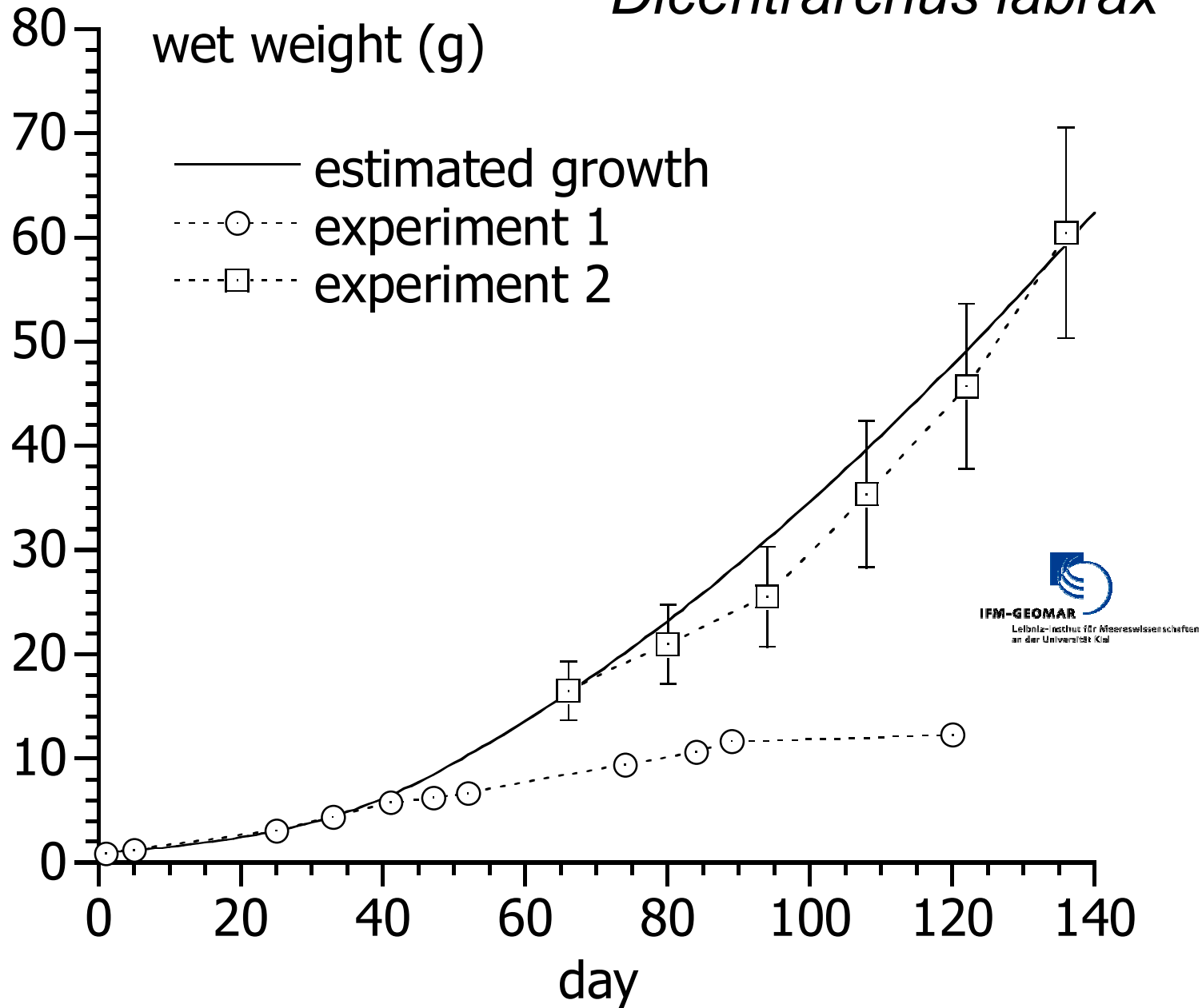




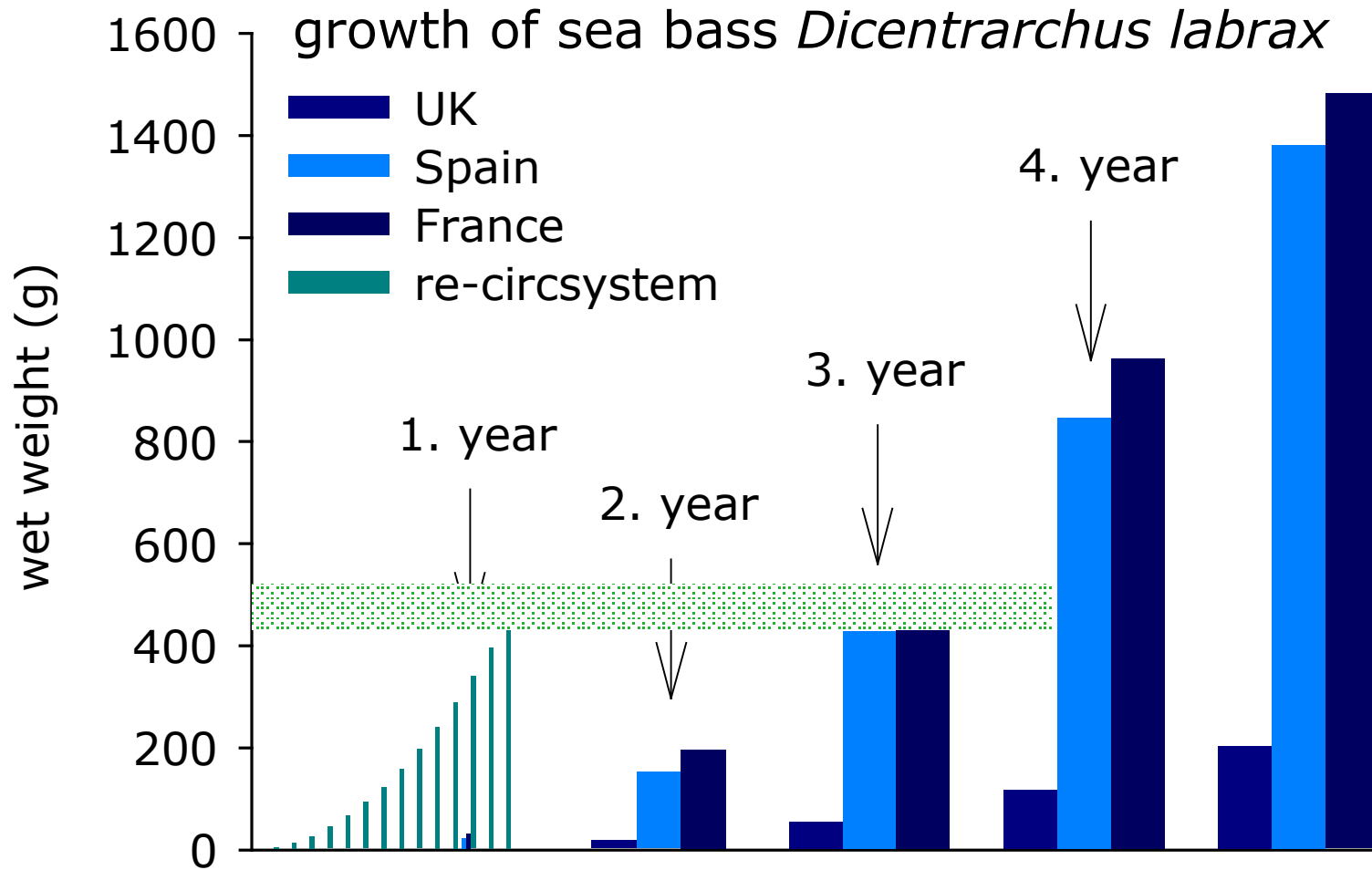




Dicentrarchus labrax

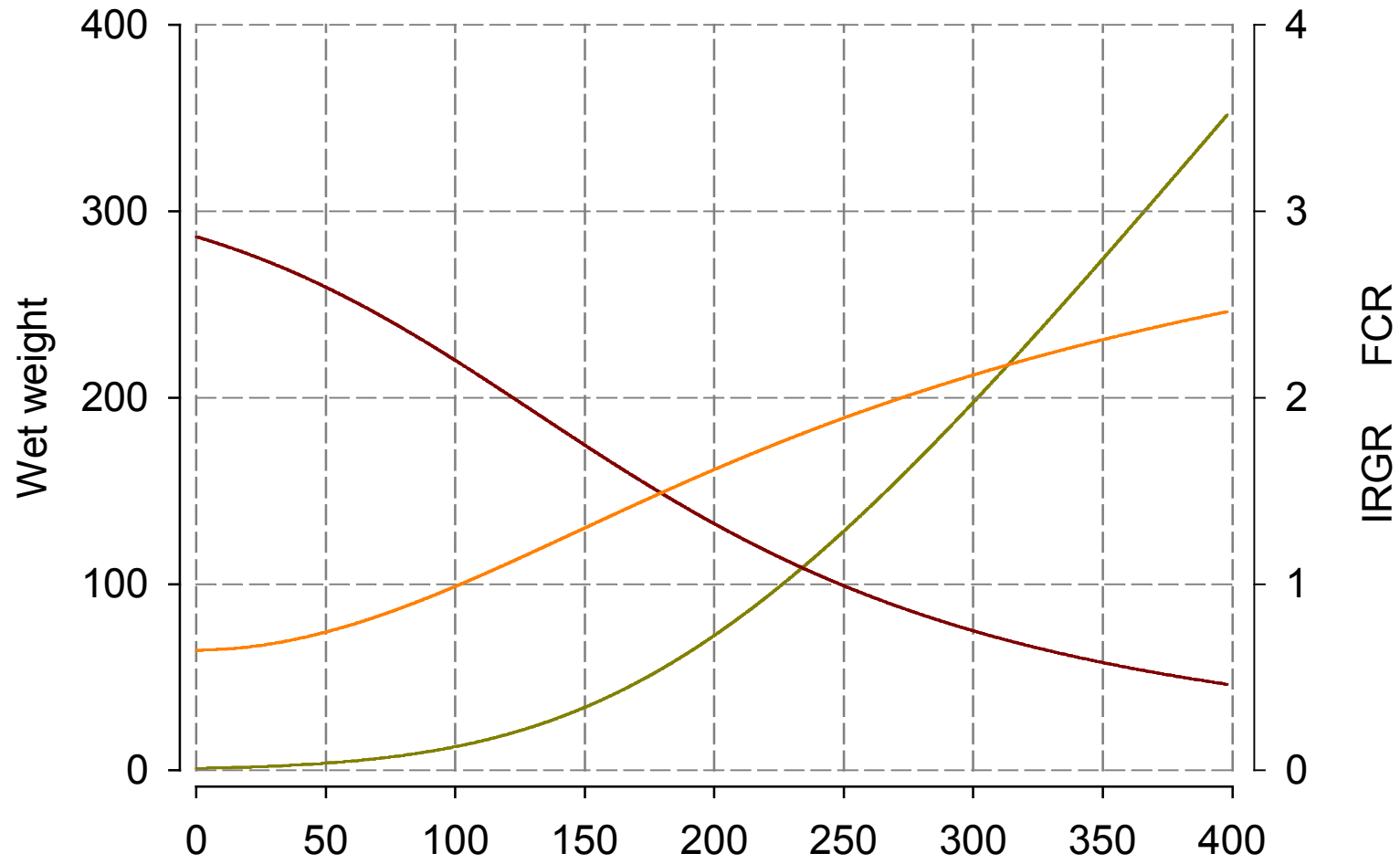






day	measured weight (g* ind ⁻¹)	measured irgr	measured FCR
experiment			
1	0.90		
5	1.20	0.053	0.68
25	3.10	0.047	0.69
33	4.40	0.044	0.96
40	5.80	0.039	0.66
experiment			
66	16.49		
80	20.96	0.017	1.54
94	25.49	0.014	2.14
108	35.36	0.023	1.63
122	45.69	0.018	1.92
136	60.43	0.020	1.70

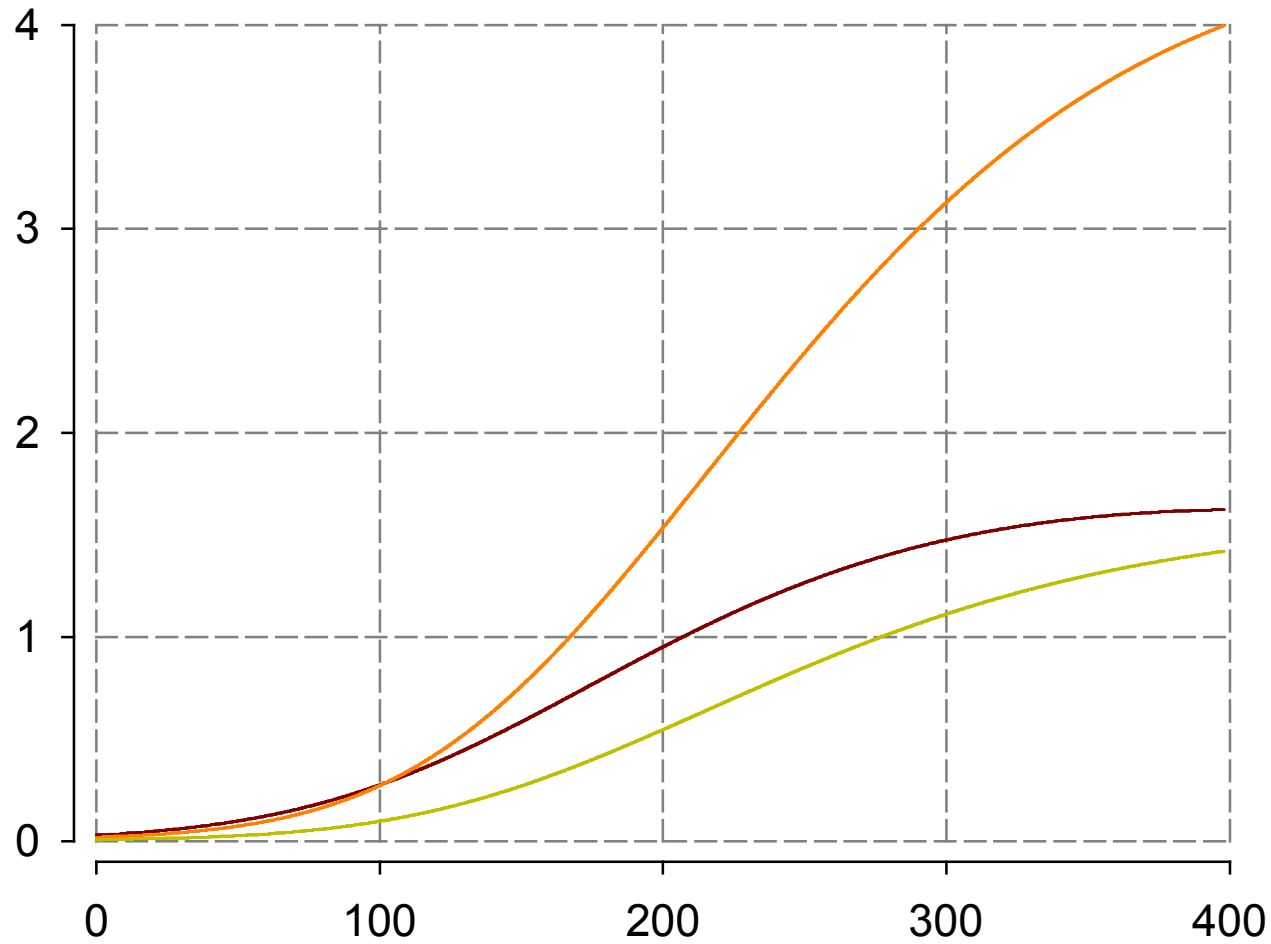
DICENTRARCHUS LABRAX



- Day vs Wet weight [g]
- Day vs IRGR*100
- Day vs FCR

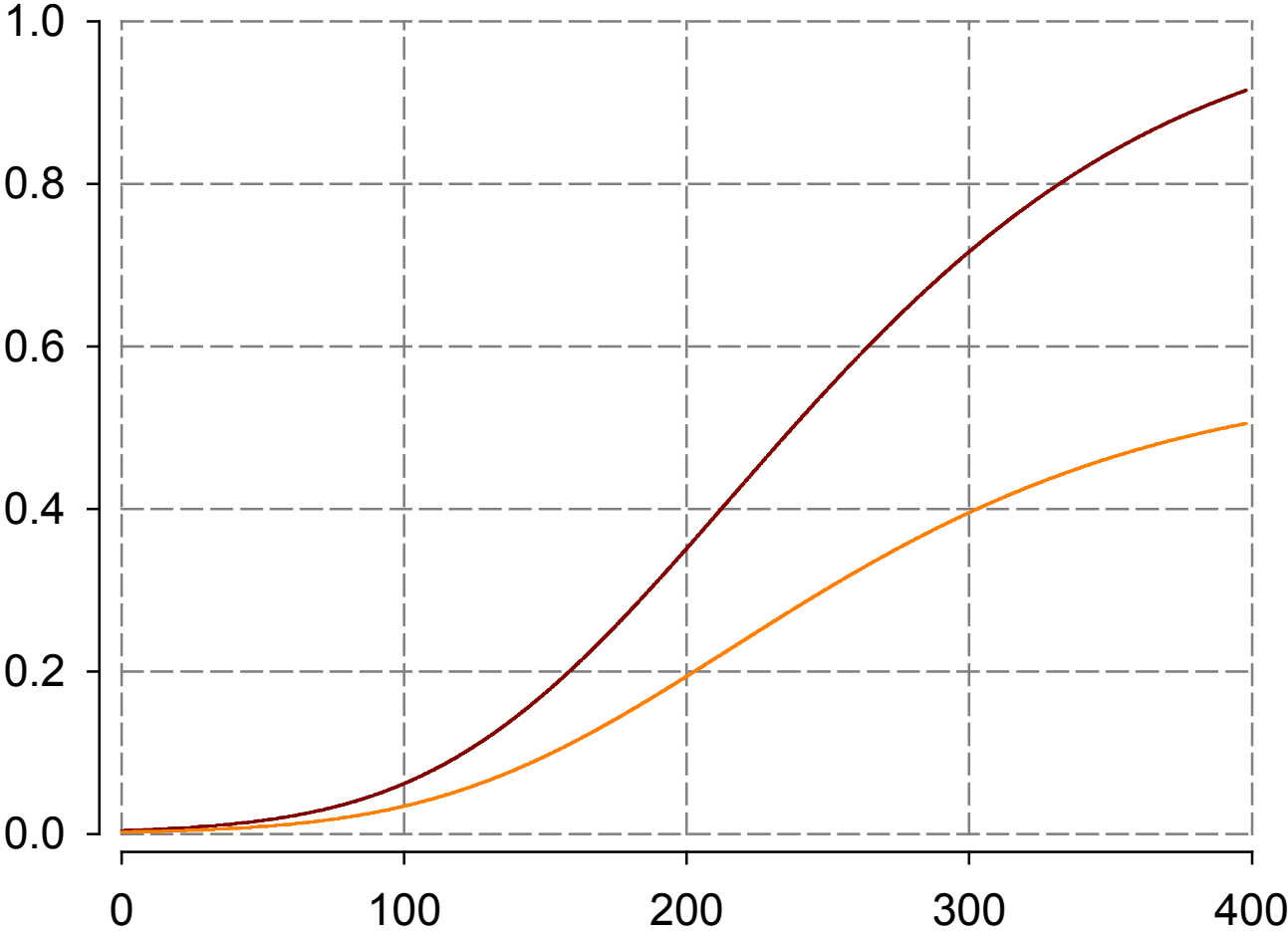


DICENTRARCHUS LABRAX



- day vs weight increment [g d⁻¹]
- day vs feed uptake [g d⁻¹]
- day vs waste (feces) [g DW d⁻¹]

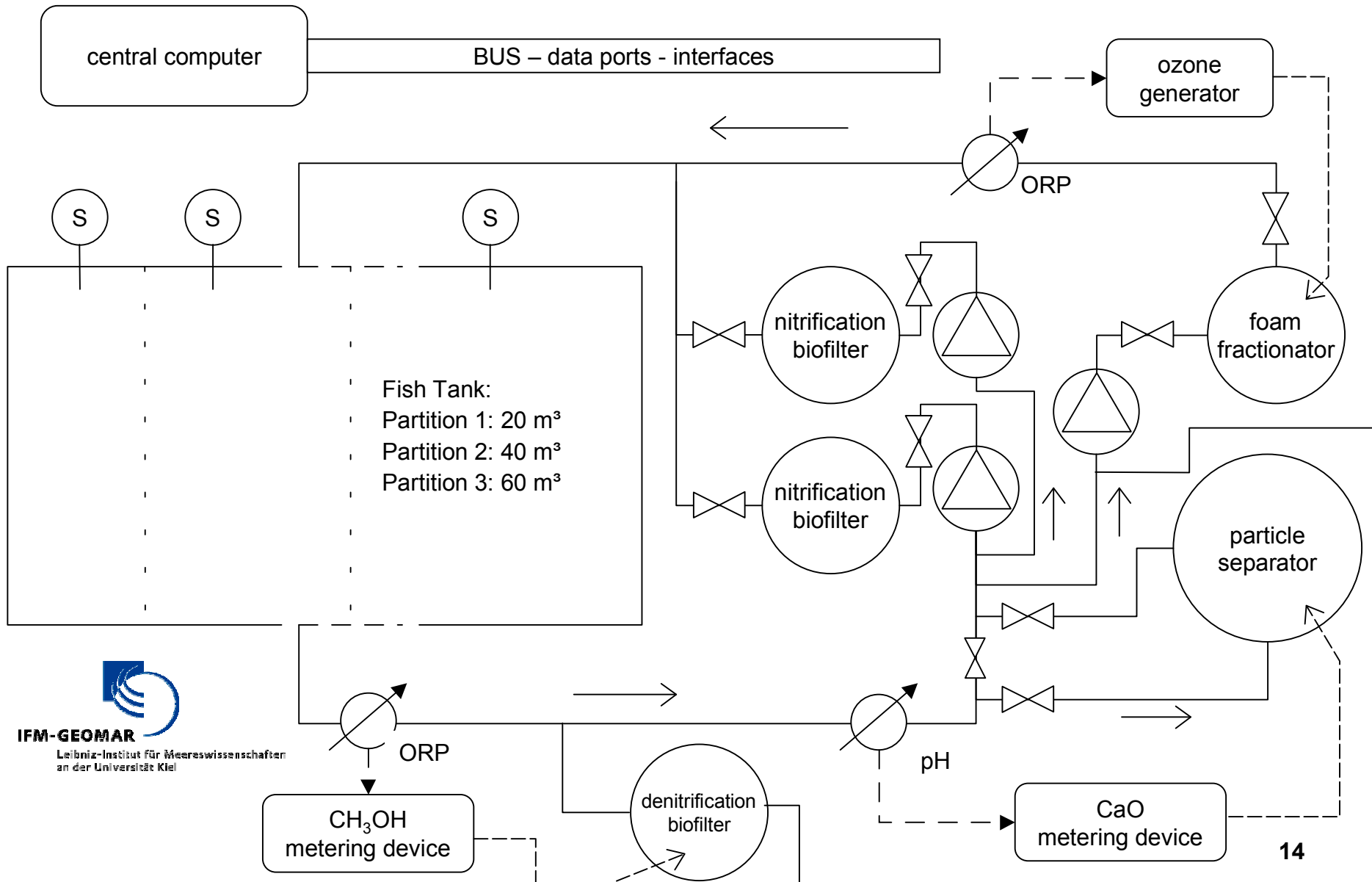
DICENTRARCHUS LABRAX



- day vs waste non-soluble [g DW d-1]
- day vs waste soluble [g DW d-1]



PISA Poly Integrated Seawater Aquaculture

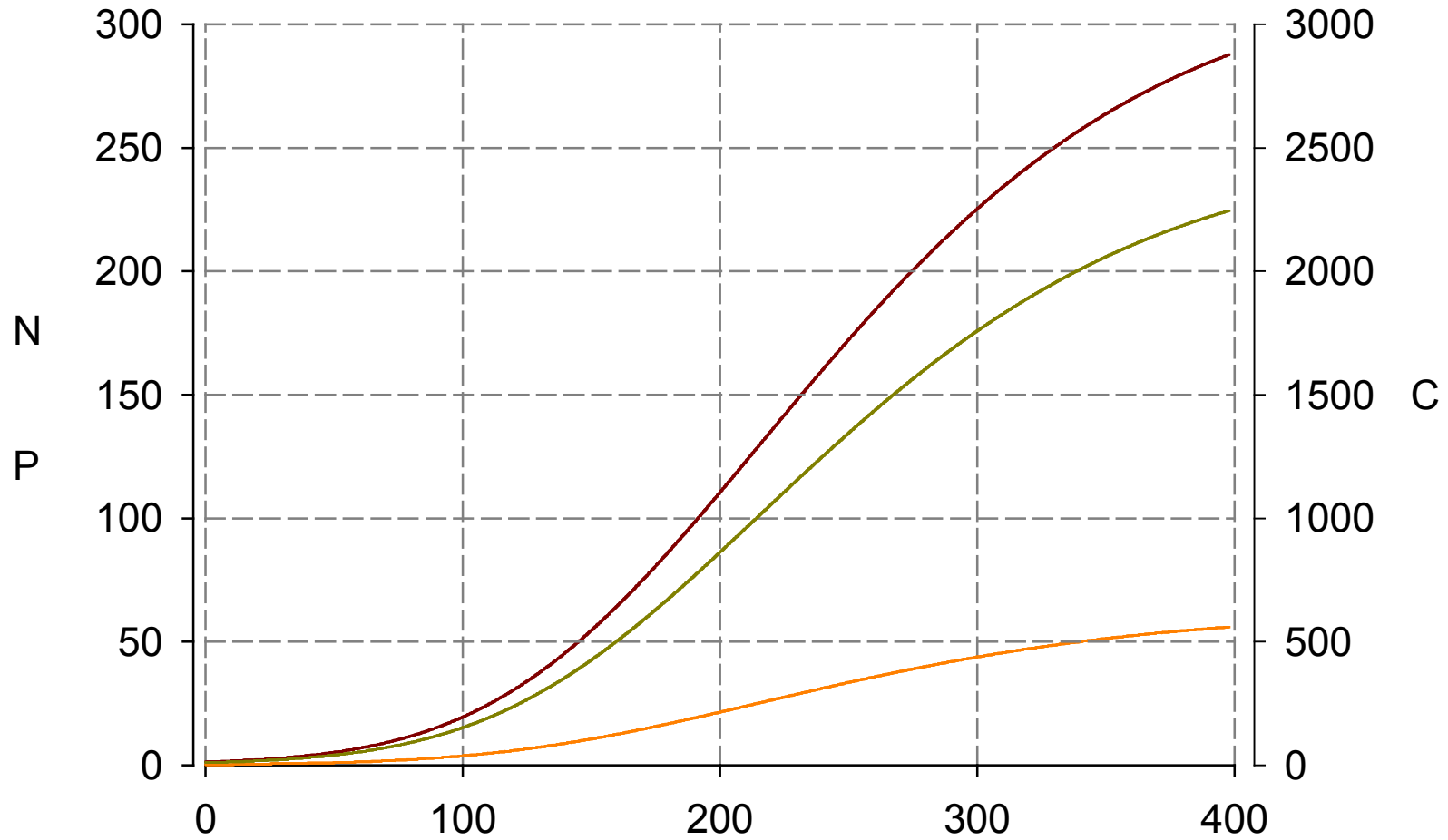




Sander

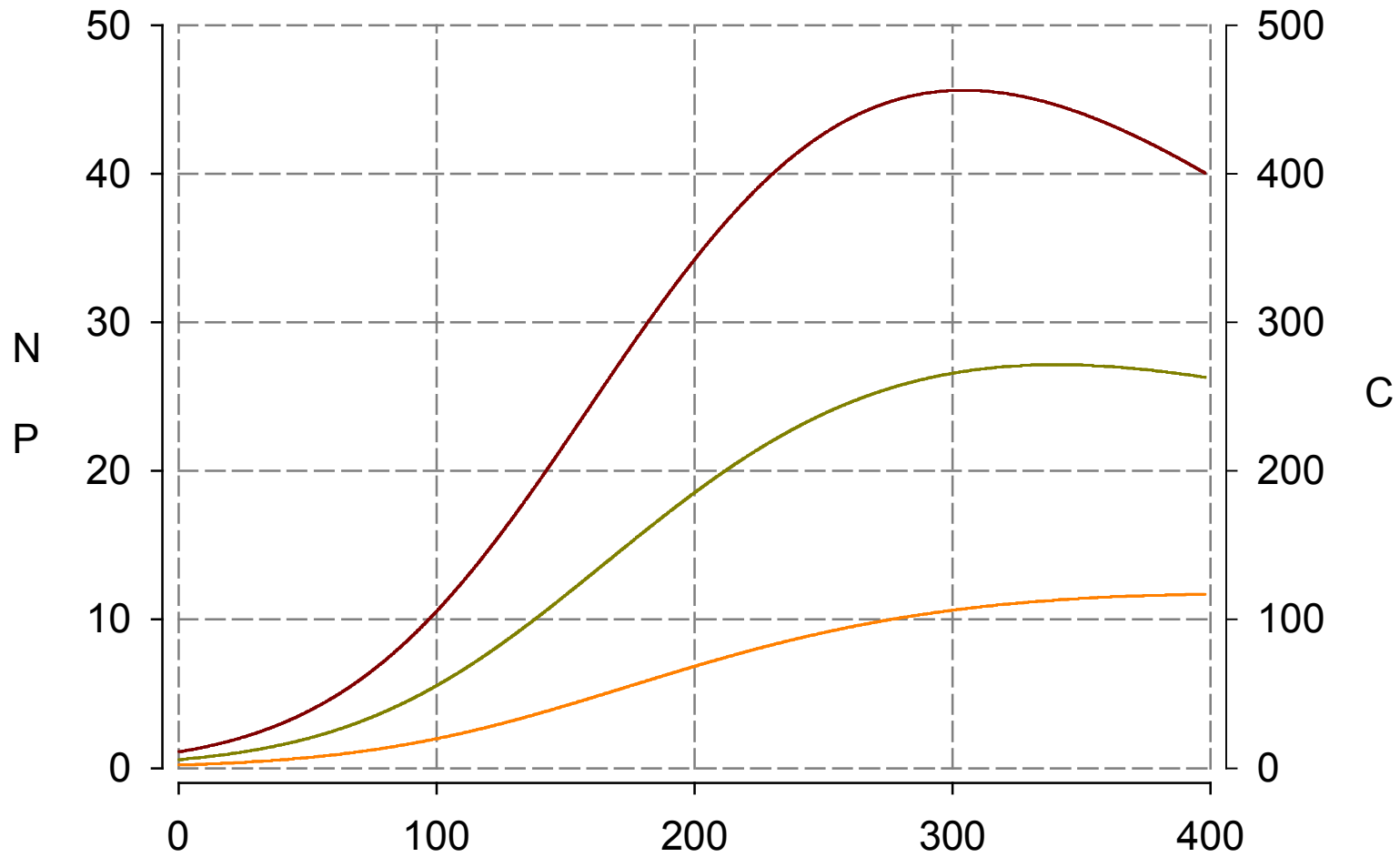


DICENTRARCHUS LABRAX



- day vs N feed [mg d-1]
- day vs P feed [mg d-1]
- day vs C feed [mg d-1]

DICENTRARCHUS LABRAX

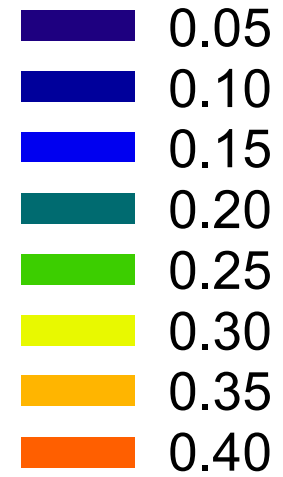
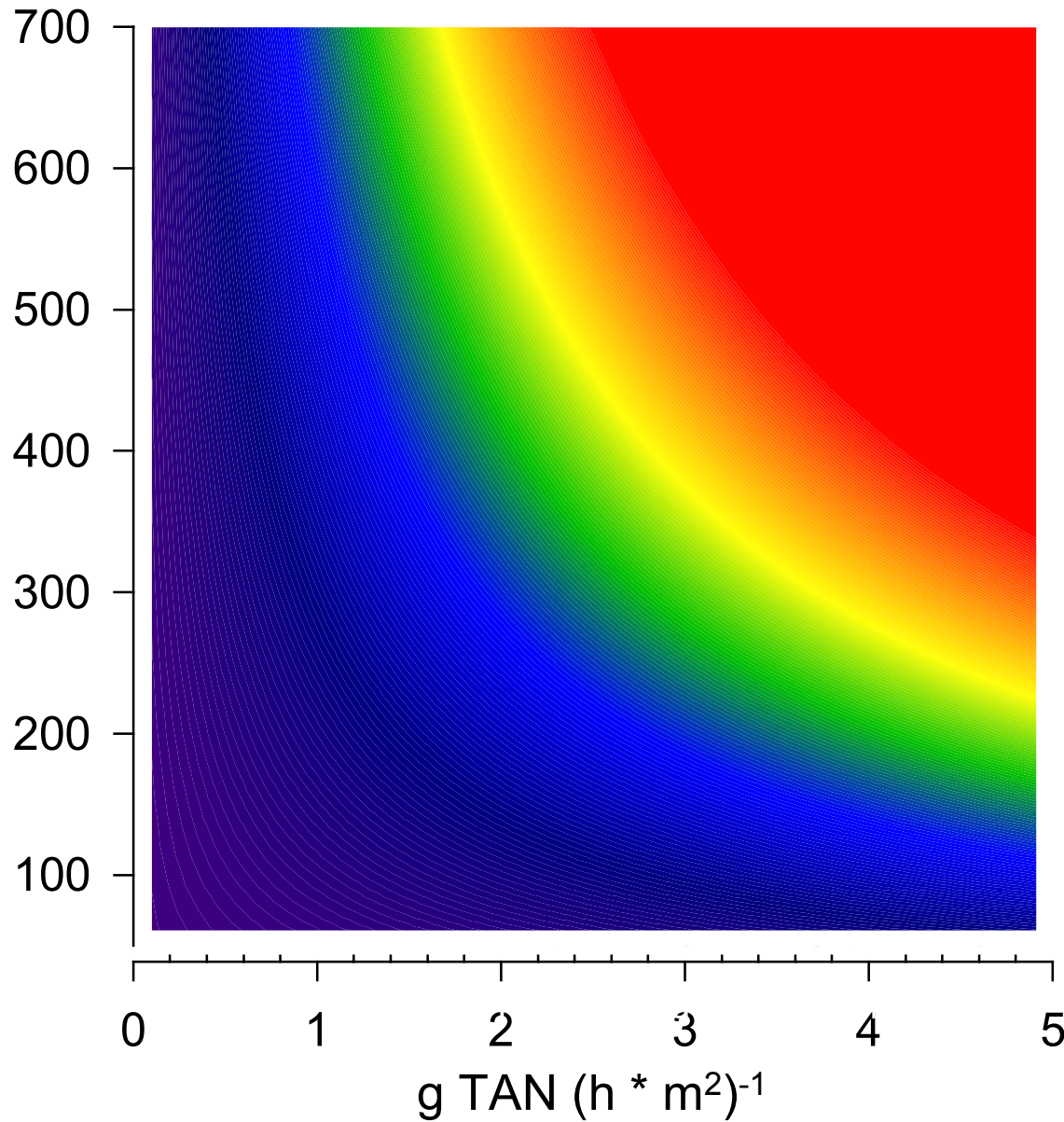


- day vs N retention tissue [mg d-1]
- day vs P retention tissue [mg d-1]
- day vs C retention tissue [mg d-1]

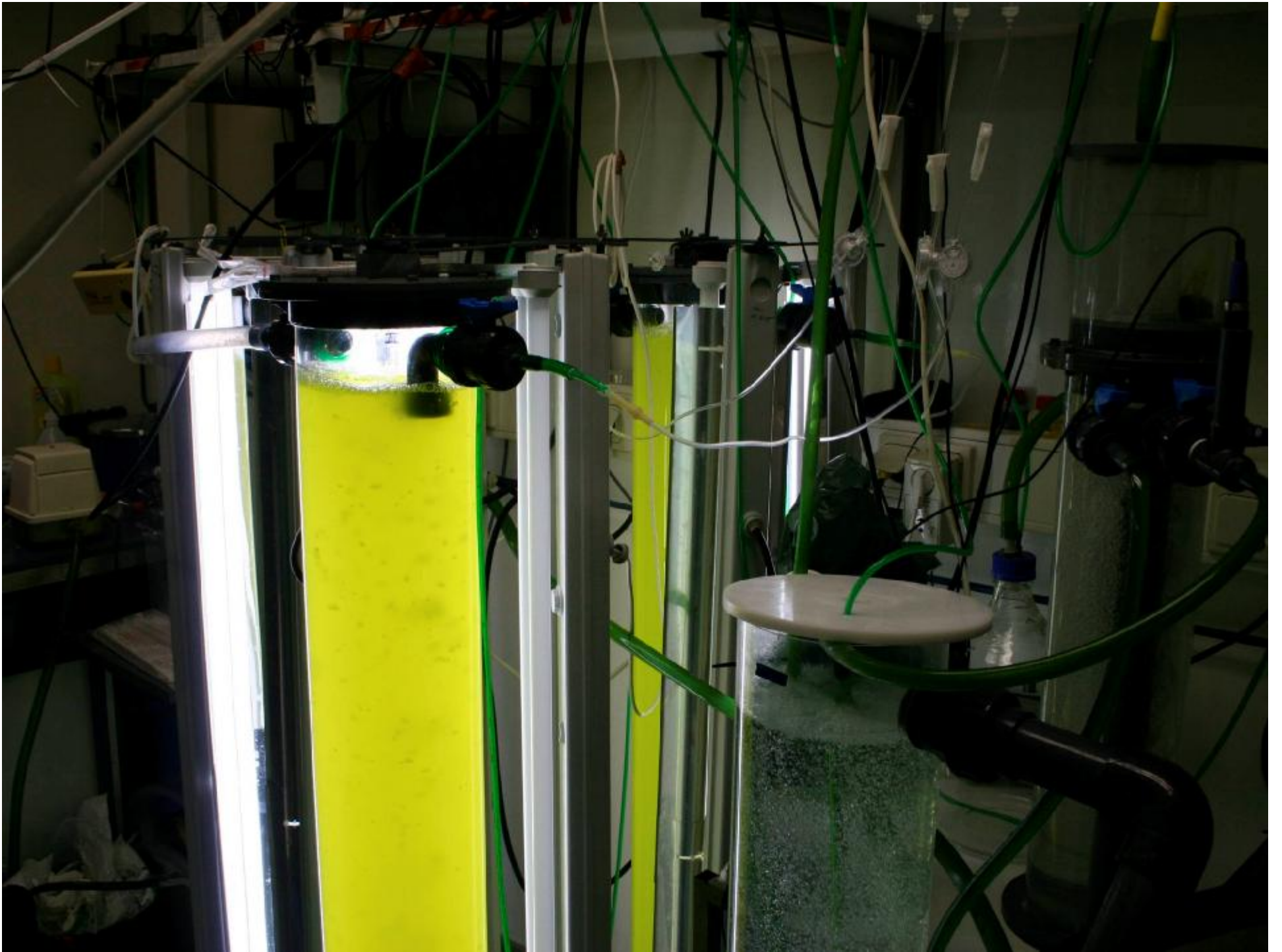
μE ($s * m^2$)⁻¹

Soleria chordalis

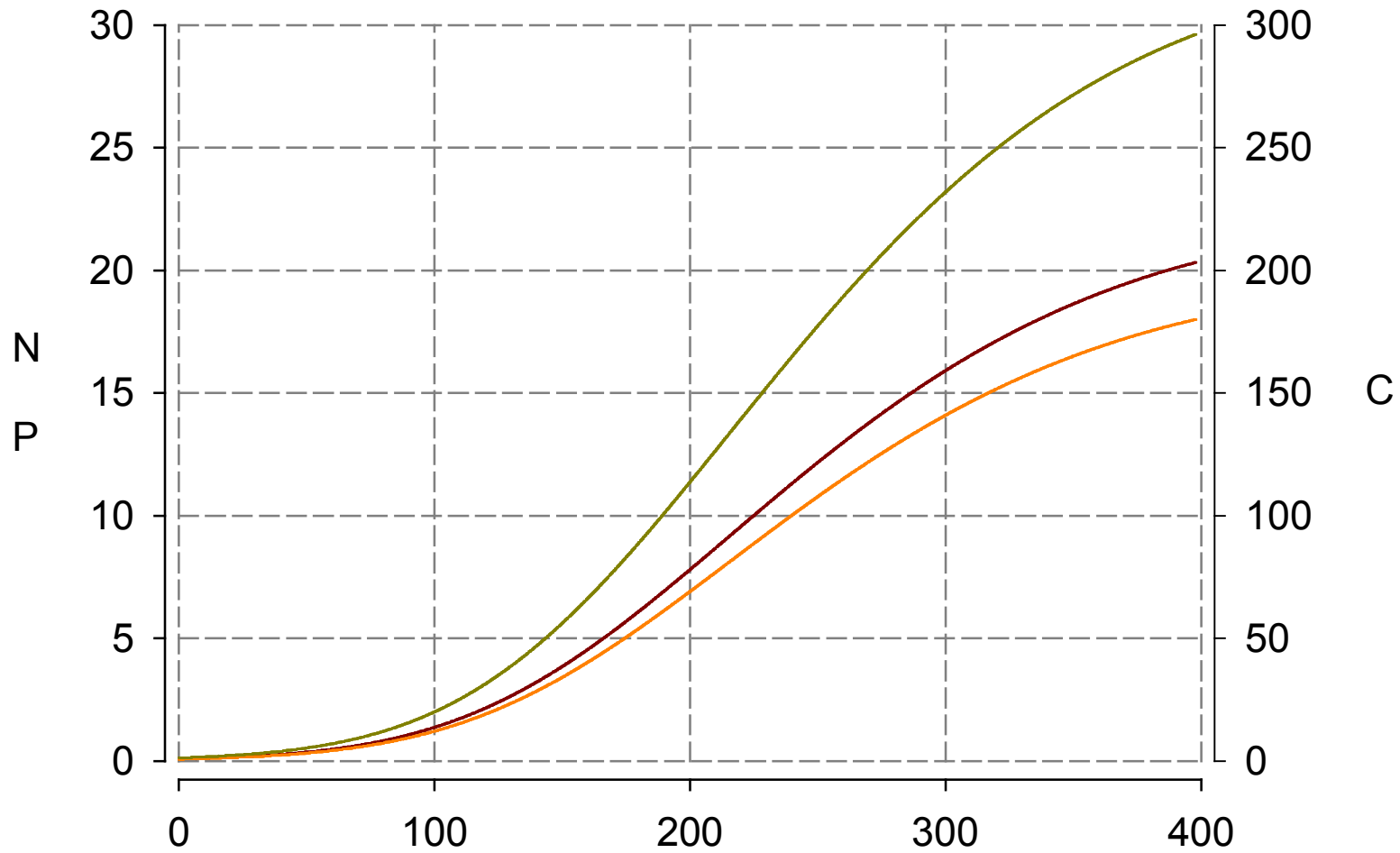
g TAN ($h * m^2$)⁻¹





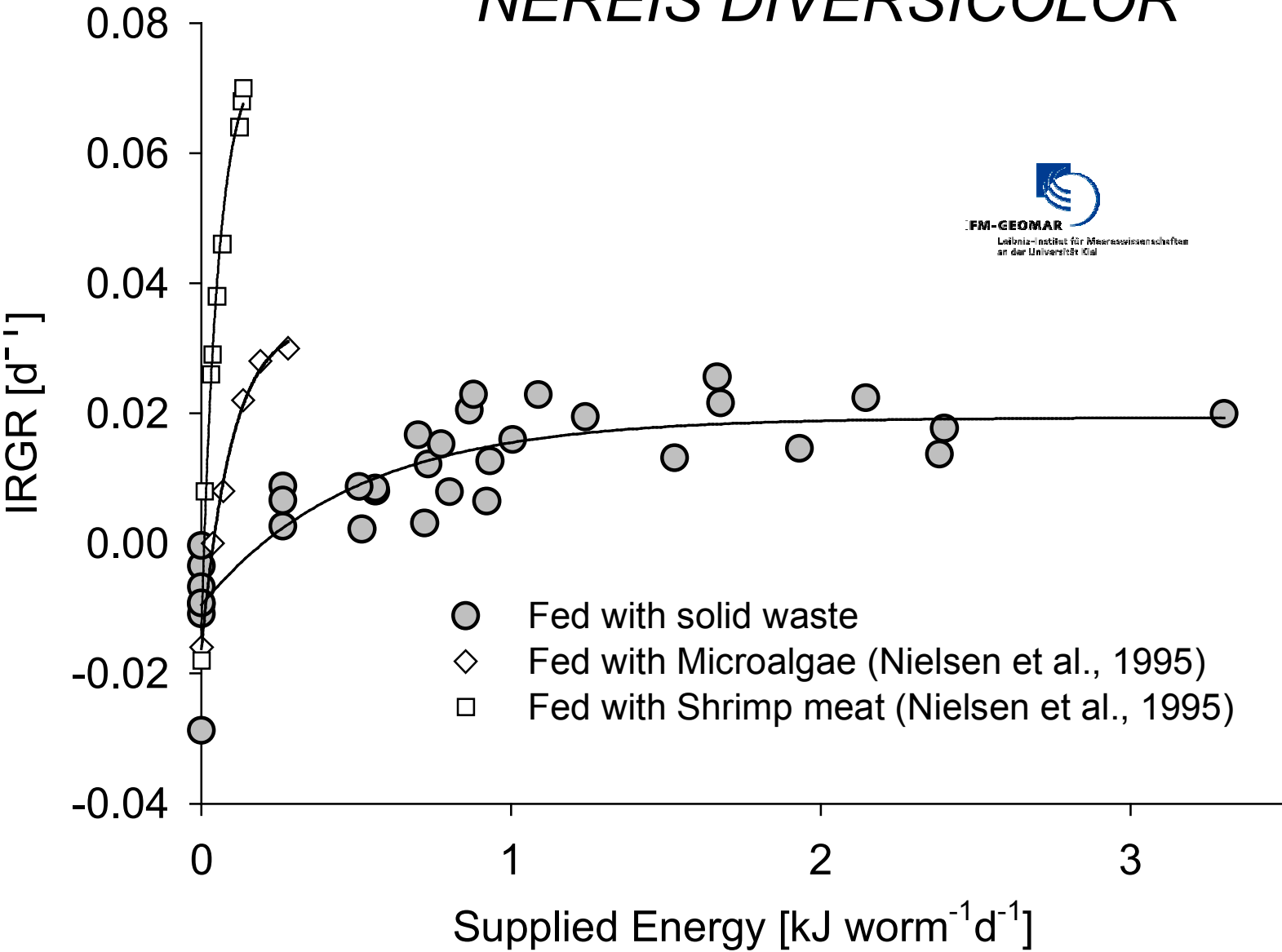


DICENTRARCHUS LABRAX

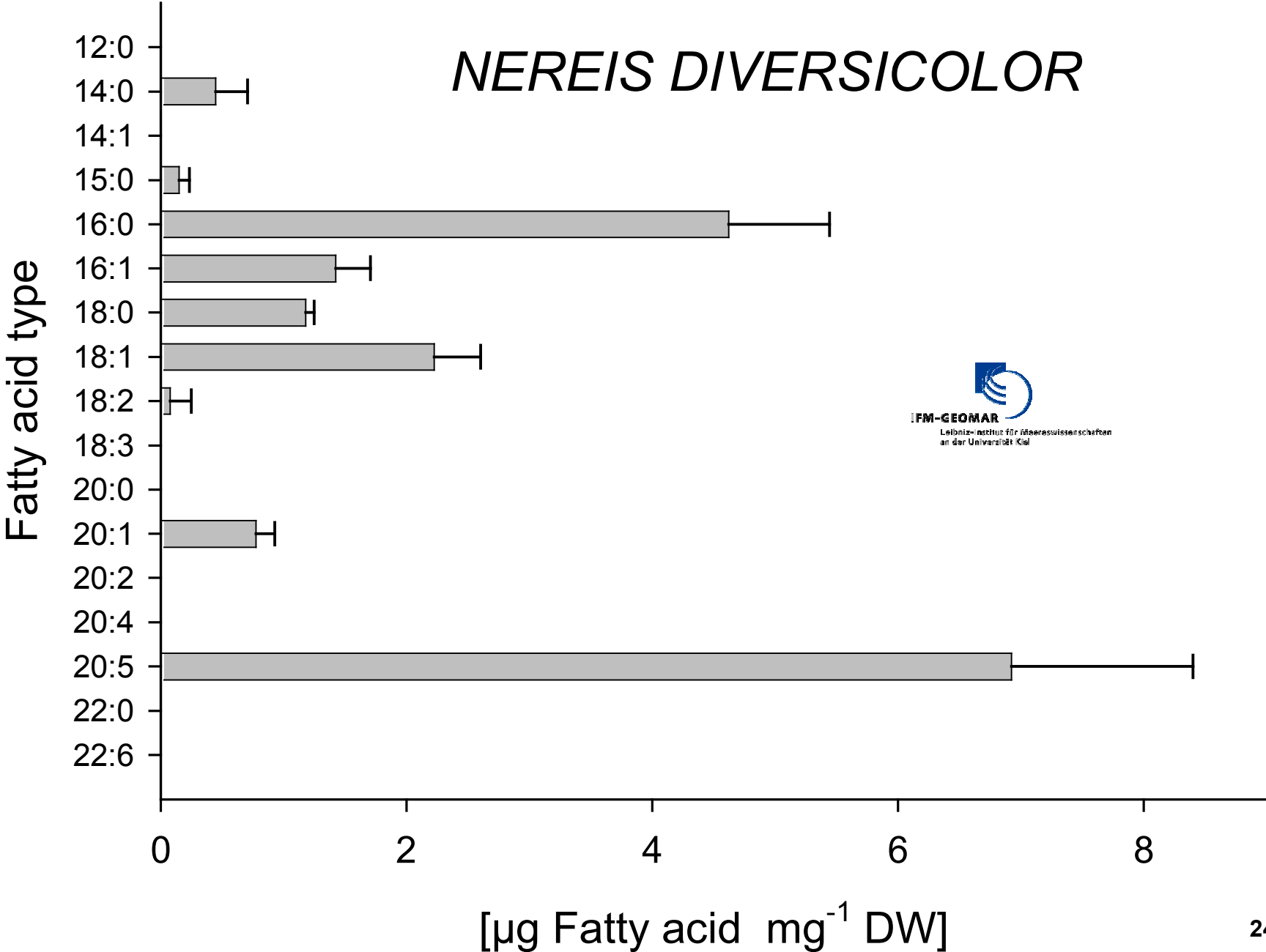


- day vs N in swirl [mg N d-1]
- day vs P in swirl [mg P d-1]
- day vs C in swirl [mg C d-1]

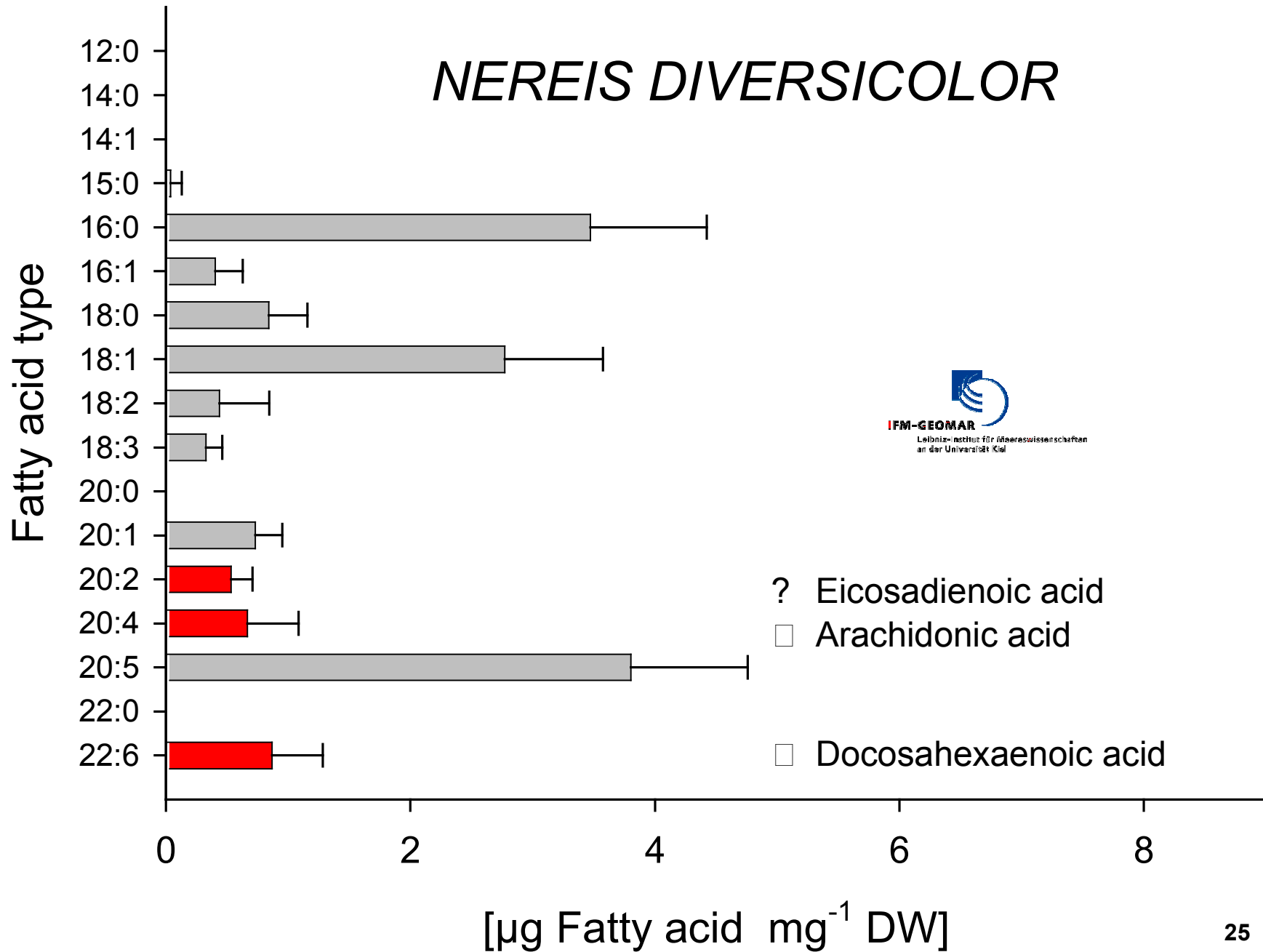
NEREIS DIVERSICOLOR



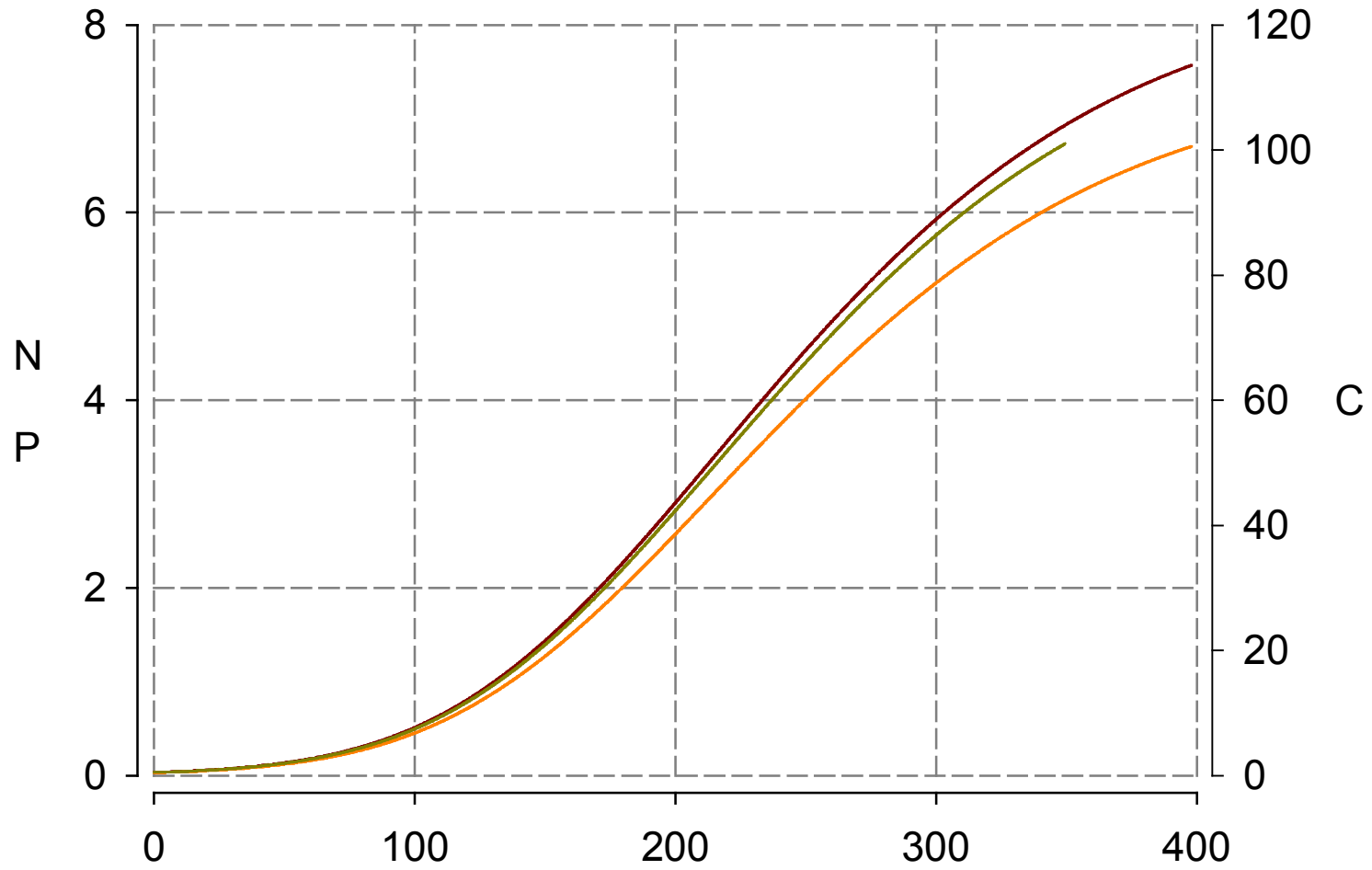
NEREIS DIVERSICOLOR



NEREIS DIVERSICOLOR



DICENTRARCHUS LABRAX





IFM-GEOMAR

Leibniz-Institut für Meereswissenschaften
an der Universität Kiel

The Aquaculture Working Group as it was ...

Adrian Bischoff

Jie He

Nicole Hielscher

Alena Rydel

Jörg Langer

Nicole Kube

Andrea Sassenberg

Kari Attramadal

Oliver v. Halem

Annalena Schiller

Lasse Marohn

Ratree Sukswan

Bert Wecker

Maïke Hartwig

Regine Koppe

Christine Krieger

Marc Nolting

Stefan Inselmann

Corinna Gränert

Maria Di Maggio

Stefan Molzio

Daniela Brokmann

Martin Sander

Surapong Banchongmanee

Diana Schleuter

Matthias Schneider

Tina Kirby

Jaime Orellana

Nickolas Probst

Ursula v. Wussow



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Leibniz-Institut für Meereswissenschaften
an der Universität Kiel