



Timeplan and outline for WP6/WP4 workshop

Theme: **Spatial modeling of pelagic and benthic data**

Location: Alfred Wegener Institute, Am Handelshafen 12, Bremerhaven
Room: E4005

16-18 June Spatial Habitat Modeling Workshop, Bremerhaven

19 June Scientific Advisory Board Carlini (Tom, Lili, Walter, Doris a.o.)

20 June WP leader Meeting, Bremerhaven

24-25 June Food Web modelling Workshop in Gent
(we have an AWI car for 9 people and leave on Monday 23rd)



Room, AWI, E 4005

Part 1:

Day 1, Beginning: 9:00

- Welcome Doris & timeline of the workshop for the next 2 weeks (15 min)
- **Spatial habitat modeling**

9:15 – 9:45	Introduction: <u>Kerstin Jerosch</u> presents possibilities, advantages and principles of GIS-based spatial modeling
9:45 – 10:15	<u>Frauke Scharf/Kerstin Jerosch</u> : 1. Benthic terrain analysis of PC. 2. WebGIS-PC as a platform for data presentation and sharing
10:15 – 11:00	Break
11:00 – 11:30	<u>Leonardo Saravia</u> : "A model to understand the dynamics of ecological networks in space and time"
11:30 – 12:30	Discussion
12:45 – 14:00	Lunch
14:00 – 14:30	<u>Irene Schloss</u> : Why is hydrodynamics important to the (benthic or

	pelagic) ecosystem? Some practical demos
14:30 – 16:00	Final discussion
	<ul style="list-style-type: none"> • What are the most important species in PC on a quantity basis beside the algae? • Which are the best investigated species? • What data do we need in the next period? • What are the environmental parameters influencing the distribution? Sedimentation, hypoxia? Which data are spatially available? • What are the critical thresholds for tipping the system? • Data description standardization: What metadata do we need beside Parameter, Description, Project, Time Period, Datatype, Spatial Resolution, Spatial Resolution, Calibration/georeferenced, Data processing, Reference, Data/Metadata, Methods (see table Frauke sent to you on Monday, May 5)? • Ice sea floor interactions • Do we need to consider the whole PC or does it help to focus firstly on PC subsections? • How can we integrate information of 3 stations into a spatial model?
Day 2, 9:00 Data presentation of new and extended data sets	
Short talks basically to show the geo-referenced data sets and to present the state of the art of the modelling efforts (talks of 20' max. + discussion)	
Abiotic benthic zonation	
9:00 – 9:30	<u>Kerstin Jerosch</u> : Projection to other/comparable areas along the WAP and predictions of climatic change effects by e.g. MaxEnt identifying spatial shifts of species distribution – <i>Examples</i> : Multivariate spatial modeling to predict and quantify areas of free gas in surficial sediments of the Belt Sea, Baltic Sea a. o.
9:30 – 10:00	<u>Questions & Comments</u>
10:00 – 10:30	<u>Christian Hass/Gerhard Kuhn</u> : Marine habitats and the sedimentary development of the Potter Cove through the recent past.
10:30 – 11:15	Break
11:15 – 11:45	<u>Barnie Schnetger/ Susann Henkel</u> : Biogeochemical benthic provinces in Potter Cove. Can we combine these data with the benthic sediment map?
11:45 – 12:00	<u>Questions & Comments</u>
Biological benthic zonation	
12:00 – 12:30	<u>Ricardo Sahade</u> Benthic communities shifts: thresholds and alternative states or gradual replacement?
12:30- 14:00	Lunch
14:00 – 14:30	<u>Francesca Pasotti</u> : Benthic spatial and temporal dynamics in relation to change
14:30 – 15:00	<u>Luciana Torre</u> : Spatial modeling of sedimentation increase and ice-scouring impact on a coastal Antarctic benthic system
15:00 – 15:30	<u>Quartino and group</u> : Algal species distribution, associated benthic fauna; physiological capacities and species distribution in PC
15:30 – 16:00	<u>Marleen de Troch</u> : Fatty acid biomarkers to detect spatial and

	temporal dynamics in a changing ecosystem
16:00 – 17:00	Discussion : <ul style="list-style-type: none"> • What is our current state of knowledge and data correlation matrix? • What is missing or to come?

Day 3, Wednesday, 18. June	
9:00 Breakout Groups	
9:00 – 11:00	<u>Two/three breakout groups</u> : interactive table discussions on PC datasets: which big questions can we answer?
11:00 – 11:30	Coffee break
Pelago-benthic interactions	
11:30 – 12:00	<u>Irene Schloss/D. Dumont</u> : Simulating the combined effects of plankton and benthos dynamics on ecosystem carbon: some simple examples
12:00 – 12:30	<u>ECLIPSE</u> : contributions to understand Potter Cove ecosystems. <u>Ricky, Irene</u> , Vero Fuentes (absent)
12:30 – 13:00	Discussion
13:00 – 14:30	Lunch
14:30 – 16:00	Discussion <ul style="list-style-type: none"> • What is the best overall modeling approach? • What can we do in the next days to come up with a joint modeling approach? • Knowledge (data and data products) availability and knowledge gaps • How do we integrate GIS models and benthic community diversity into a hydrodynamic model? • What are the specific needs for coupling different benthic organisms (i.e. macroalgae, meiofauna, etc.)? • How do we model the effects of long-term global change? • How can we compare and generalize to other ecosystems along the WAP?
	Outlook to the next days in discussion
	Completion of the core data sets <ul style="list-style-type: none"> • Hydrography (nutrients) • Benthic communities, epifauna, infauna, algae • New sampling/experimental/survey activities <ul style="list-style-type: none"> ○ Optimizing sampling strategies through geostatistical analysis of existing data and geo-referenced data management ○ GPS data calibration and tolerance in PC

Optional:

Kerstin Jerosch: Automatic geo-referenced image analysis for sediment texture mapping using Geospatial Image Database and Analysis System (GIDAS)