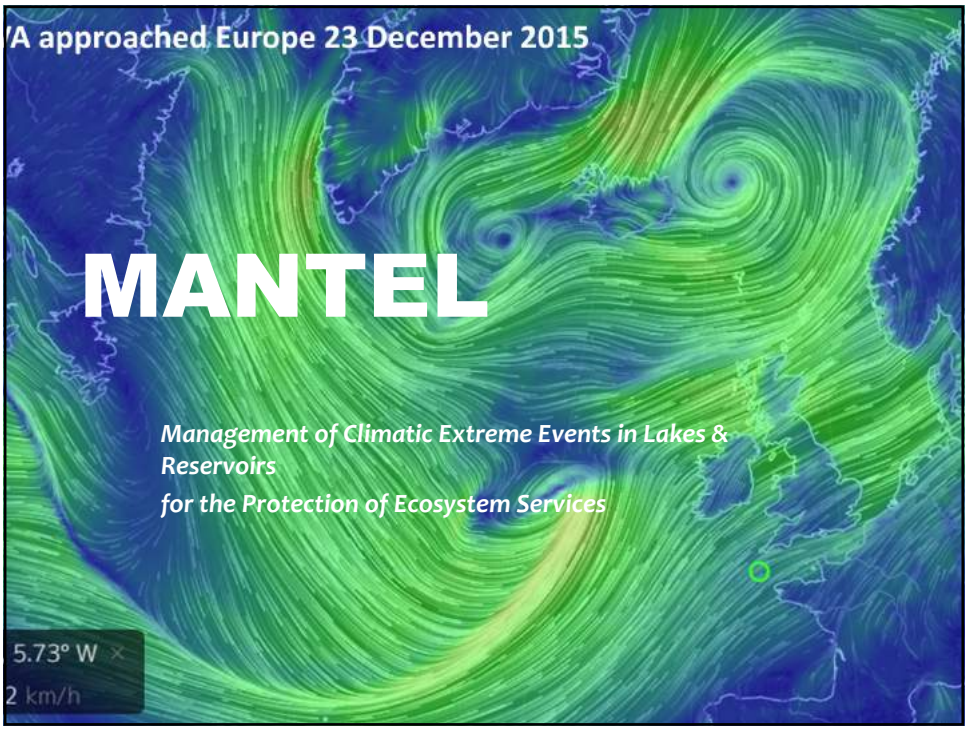
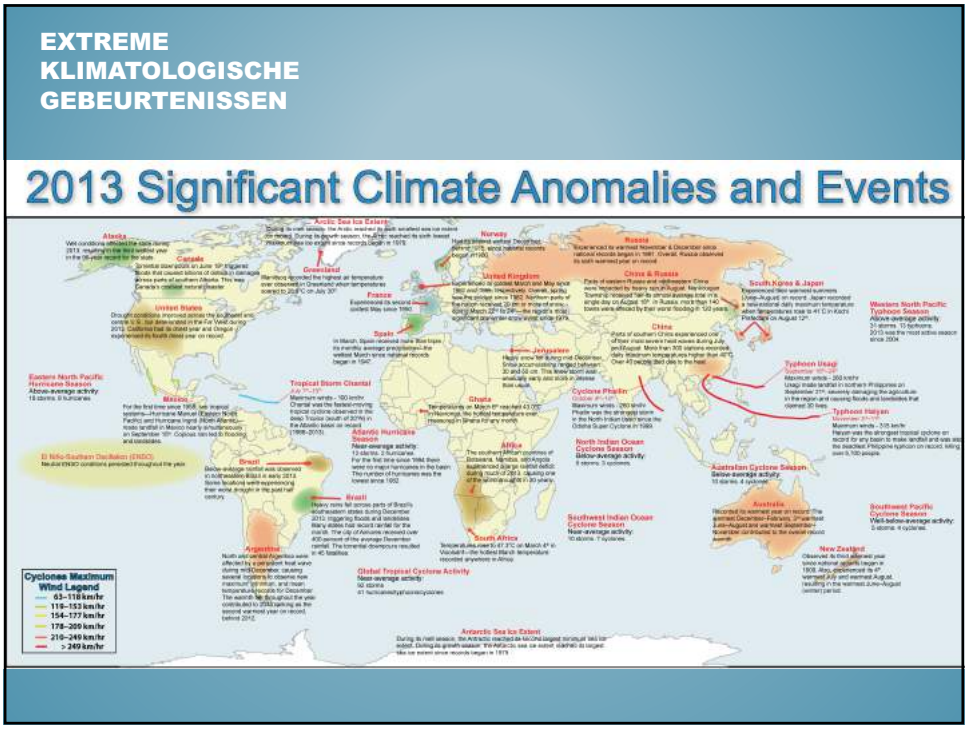
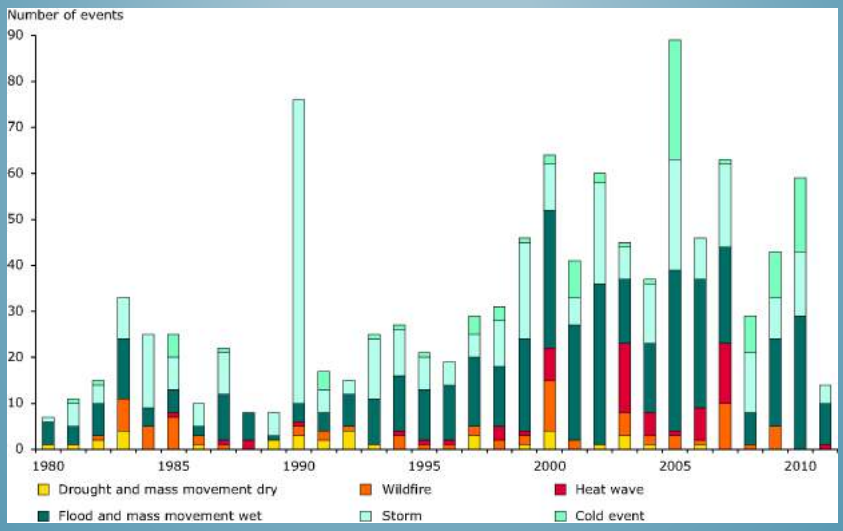
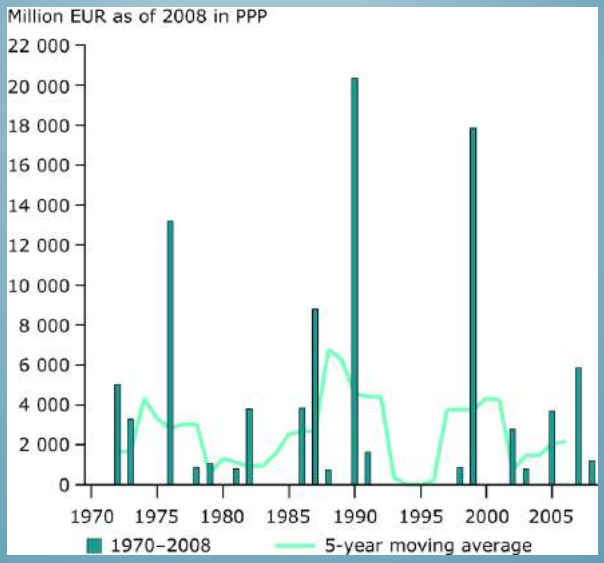

/A approached Europe 23 December 2015
MANTEL
Management of Climatic Extreme Events in Lakes & Reservoirs
for the Protection of Ecosystem Services
5.73° W
2 km/h


EXTREME
KLIMATOLOGISCHE
GEBEURTENISSEN
2013 Significant Climate Anomalies and Events
Cyclones Maximum Wind Legend
63–118 km/hr
119–153 km/hr
154–177 km/hr
178–209 km/hr
210–249 km/hr
> 249 km/hr

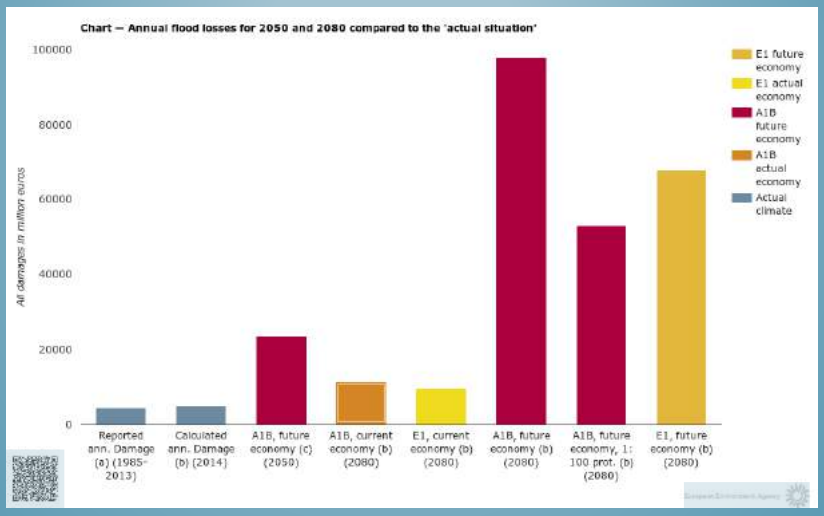
EUROPA



KOSTEN DOOR STORMEN



KOSTEN DOOR OVERSTROMINGEN



CONSEQUENTIES VAN EXTREME GEBEURTENISSEN IN AQUATISCHE SYSTEMEN

Floods → High loads of DOM

→ Disinfection by-products

Heatwaves → Blooms

→ Toxic cyanobacteria

GEBRUIK VAN HFM OM GEBEURTENISSEN TE VOLGEN

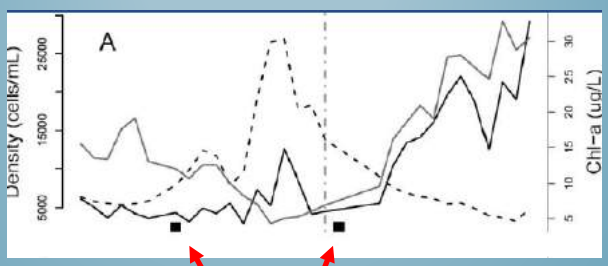
Typical monitoring station will have:

- Weather station
- Thermistor chain
- Dissolved oxygen
- pH
- Turbidity
- Chlorophyll fluorescence
- All every 2-5 minutes

Inzicht in processen op relevante tijdschaal

OPSPOREN VAN GEBEURTENISSEN DIE JE MET REGULIER MONITORING MIST…

Mixing event

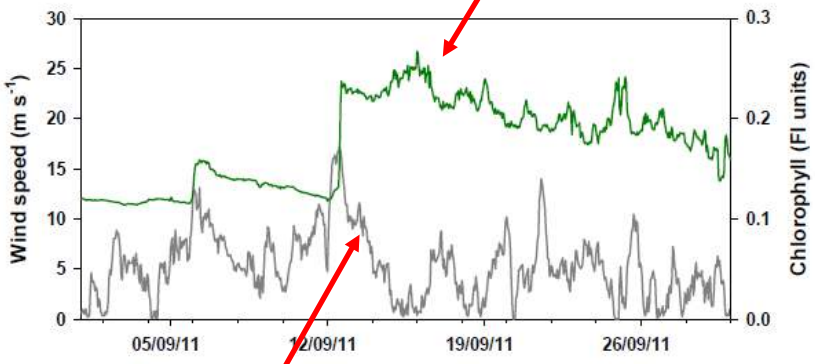


Traditional monitoring

Pomati et al. 2011, EST

SO MANAGERS CAN BE INFORMED…

Blue-greens appear…



When windspeed drops

MARIE-CURIE INNOVATIVE TRAINING NETWORK MANTEL

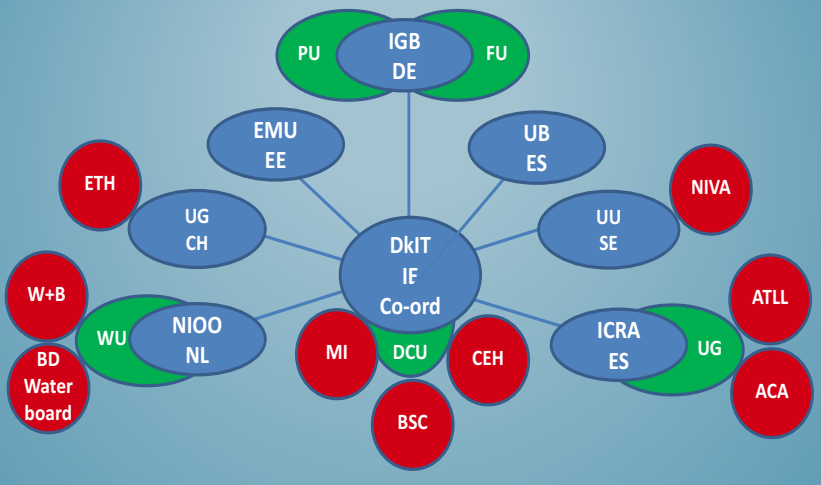
Plukt de vruchten van het NETLAKE netwerk

ITN GOALS

- *A minimum of three academic organisations form a network with the aim of delivering joint, double or multiple degrees. Joint supervision of the research fellow and a joint governance structure are mandatory.*
- *The aim is to promote international, intersectoral and multi/interdisciplinary collaboration in doctoral training in Europe.*

European Commission

MANTEL NETWORK



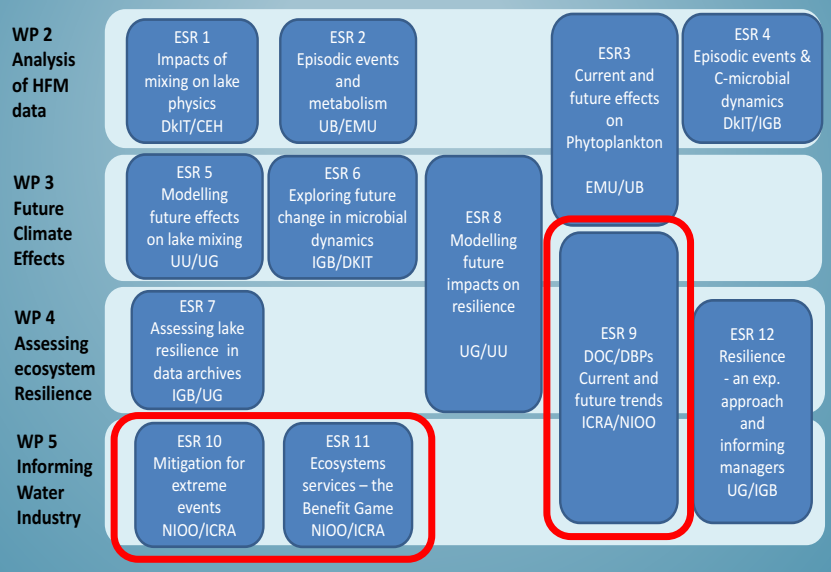
8 beneficiaries (blue) 5 degree awarding partners (green) 9 partners (red)

EEN NETWERK VAN MENSEN

MANTEL DOEL

*We will provide **training** in state-of-the art **technology**, **data analysis** and **modelling**, and sustainable provision of ecosystem services by water management or **benefit-oriented protection of ecosystems services**.*

12 PHDS VERDEELD OVER 5 WPS



WP5 (LEAD NIOO):
INFORMING STAKEHOLDERS TO ENSURE PROTECTION OF KEY ECOSYSTEM SERVICES IN THE FACE OF EXTREME EVENTS

Objectives:

- *To quantify the management implications of episodic and extreme events*
- *explore mitigation for **two key challenges** for the water sector: increases in DOM loading, and occurrence of toxic algal blooms*

3 PHDS ON EXTREME EVENTS AND PROVISION OF ECOSYSTEM SERVICES

ESR 9 (ICRA/NIOO): Managing impacts of extreme events related to organic matter	→ Link extreme events, input of organic matter in water supply reservoirs and formation of DBPs
ESR 10 (NIOO/ICRA): Mitigating negative impacts of extreme events on sustained provision of ES	→ Rehabilitated waters are more resilient to increased water temperatures, but also to pulsed inflows of nutrients
ESR 11 (NIOO/ICRA): Towards benefit-oriented rehabilitation	→ Develop guidelines on benefit-oriented rehabilitation to make degraded lakes more resilient

ESR 10: ARE REHABITATED SYSTEMS MORE RESILIENT?

Waterschap Brabantse Delta

Timeseries modeling of HFM of two degraded systems with ongoing rehabilitation

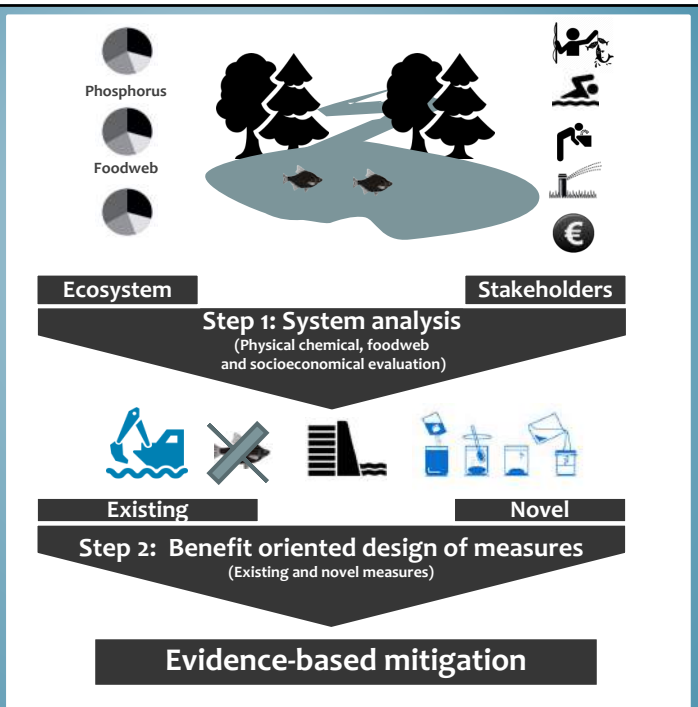
Mark-Vliet-Dintel catchment

Binnenschelde-Markiezaat

ESR 11: SOCIO-ECONOMICAL ASPECTS OF REHABILITATION MEASURES

Witteveen Bos

ESR 11: SOCIO-ECONOMICAL ASPECTS OF REHABILITATIO N MEASURES



Witteveen Bos

STARTDATUM:
01-01-2017