

Precisionsodling för hållbar växtodling



Innovationer för
hållbar växtodling

Projektets finansiärer

Förutom Interreg Öresund-Kattegat-Skagerack har projektet även följande finansiärer:

promilleavgiftsfonden
för landbrug



Partnermöte 20-21 juni 2017

Delaktivitet:

Nya metoder för uppföljning av vattenkvalitet

Andreas Gustavsson Hushållningssällskapet Skaraborg

Din
logotype

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Tidigare avrapportering

 Temporal Monitoring of Organochlorine Compounds in Seawater by Semipermeable Membranes following a Flooding Episode in Western Europe - Environmental Science & Technology (ACS Publications)

 Real-time remote monitoring of water quality: a review of current applications, and advancements in sensor, telemetry, and computing technologies

 A remote wireless system for water quality online monitoring in intensive fish culture

 Wireless in-situ Sensor Network for Agriculture and Water Monitoring on a River Basin Scale in Southern Finland: Evaluation from a Data User's Perspective | HTML

 GGC® Sensor Web Enablement: Overview and High Level Architecture - Springer

 IEEE Xplore Abstract - SmartCoast: A Wireless Sensor Network for Water Quality Monitoring

 Optochemical sensor for water monitoring based on SnO₂ particle layer deposited <http://adsabs.harvard.edu/abs/2003ASnPre...11103C>

 Water Quality Monitoring System Using Zigbee Based Wireless Sensor Network - Universiti Teknikal Malaysia Melaka Research

 Thomson Reuters - IP & Science - InCites

 Wireless sensors in agriculture and food industry—Recent development and future perspective

 Regional and on-farm wireless sensor networks for agricultural systems in Eastern Washington

 Integration of Wireless Sensor Networks into Cyberinfrastructure for Monitoring Hawaiian "Mountain-to-Sea" Environments - Springer

 FloodNet Overview

 LARGE AREA HYDROLOGIC MODELING AND ASSESSMENT PART I: MODEL DEVELOPMENT - Arnold - 2007 - JAWRA Journal of the American Water Resources Association - Wiley Online Library

 Retention performance of a constructed wetland as measured automatically with sensors

 SAM Viktiga datum - Jordbruksverket

 Water Quality Analysis Information | Thermo Fisher Scientific

 Orion™ AquaMate 8000 UV-Vis Spectrophotometer

 WTW – Trocon® analyzer for total phosphorus

 Sensors in the Stream: The High-Frequency Wave of the Present - Environmental Science & Technology (ACS Publications)

 Alliance for Coastal Technologies - Nutrient Sensor Challenge

 Nutrient Challenge Test Protocols_PV16-01.docx

 Nitro Pod – by Decagon Devices

 Home - Real Tech Inc.

 Adjusting_the_Frequency_of_Automated_Phosphorus.pdf

 System Scientific papers referring to our products

 Alliance for Coastal Technologies - Nutrient Sensor Challenge

 Pro Series 1006 Nitrate ISF Sensor | yni.com

 Water Quality Monitoring System Using Zigbee Based Wireless Sensor Network

Teknik finns

Men är fortfarande förhållandevis dyr
tillämpa i jämförelse med dagens
recipientkontroll uppbyggd på månatliga
vattenprover för analys på labb

Analyslabbet flyttas ut i fält

Provtagning och analys
kombineras

Provresultaten rapporteras digitalt

Fördelarna är:

Kort/ingen tid mellan provtagning och analys

Många prover på kort tid

Omedelbar rapportering

Bättre förståelse av vad som verkligen händer

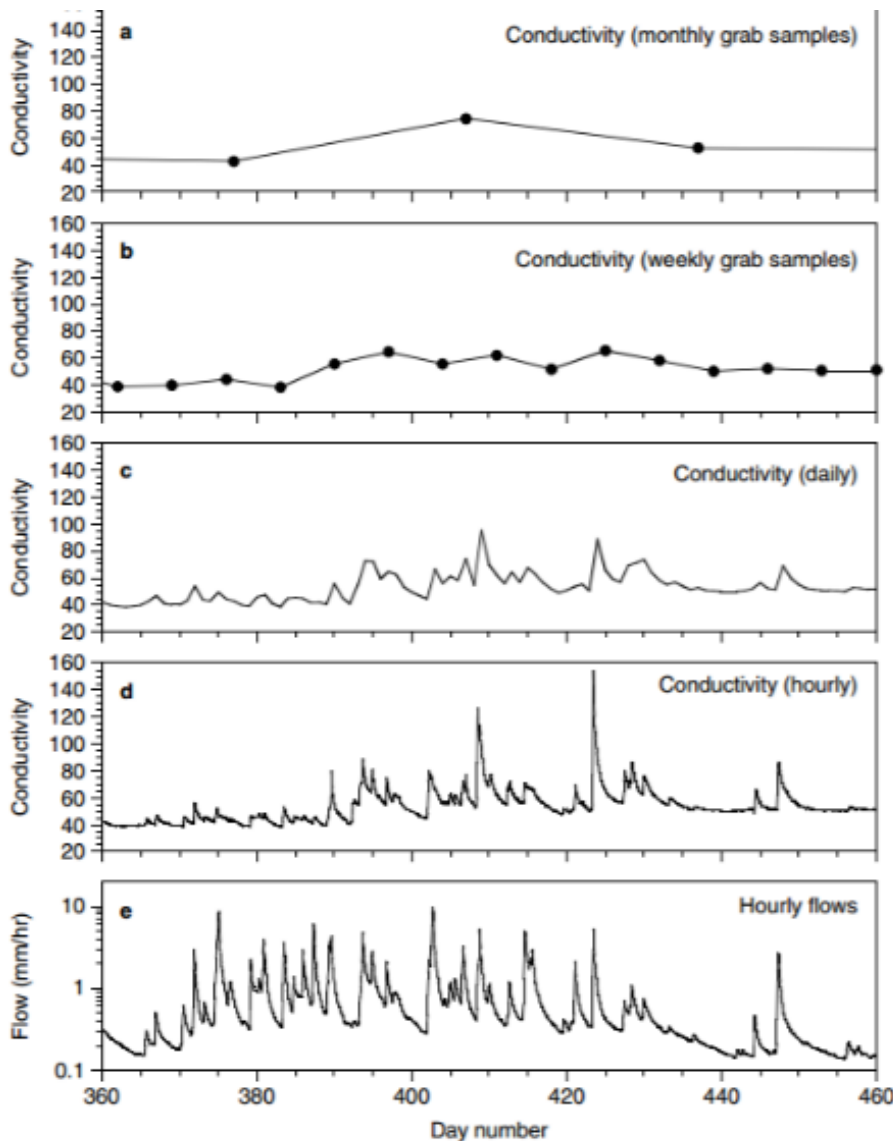
Nackdelar

Dyr apparatur
Omfattande installation vid långtidsmätning
Behov av energikälla
Känsligt för sabotage och klimatfaktorer
Indirekt mätning av vissa parametrar
Instrumentdrift?

Utmaningar

Enkel installation
Minimerat underhåll
Robusthet
Stora mängder data
Fosfor

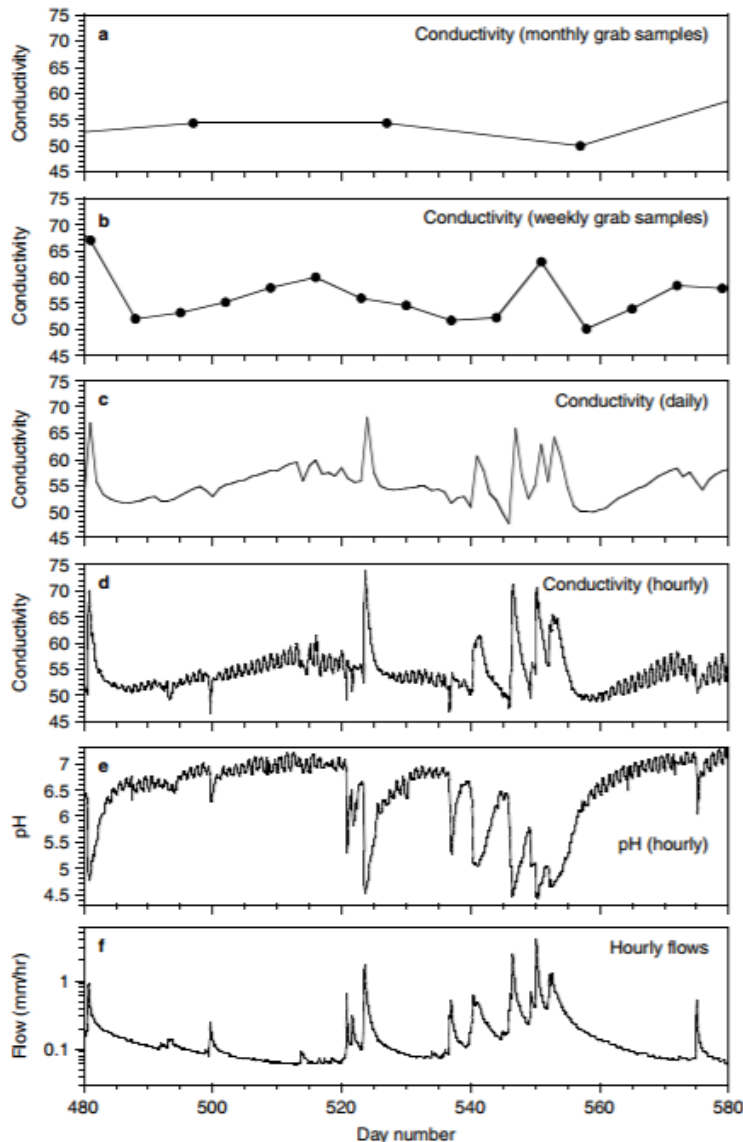
Nödvändigt för att förstå och utvärdera effekt av åtgärder



Högfrekvent vs lågfrekvent mätning

J. W. KIRCHNER
ET AL. 2004

The fine structure of
water-quality
dynamics: the (high-
frequency) wave of
the future



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The fine structure of
water-quality
dynamics: the (high-
frequency) wave of
the future

“Imagine trying to understand a Beethoven symphony if one could only hear one note every minute or two! That is what we are trying to do when we infer the hydrochemical functioning of a catchment from weekly or monthly grab samples. “

“Or imagine trying to understand a symphony from a high-fidelity recording of just one of its crashing crescendos. That is what we are trying to do when we analyse high-frequency samples of an individual storm event.”

“If we want to understand the full symphony of catchment hydrochemical behaviour, then we need to be able to hear every note.”

Continuous high-frequency monitoring of catchment hydrochemistry will require significant resources and tenacity. In our view, however, what we stand to learn is well worth the effort.” J. W. KIRCHNER ET AL. 2004 The fine structure of water-quality dynamics: the (high-frequency) wave of the future