



Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences



Mälaren

Utvecklingen under nästan 50 år

Lars Sonesten

Institutionen för vatten och miljö

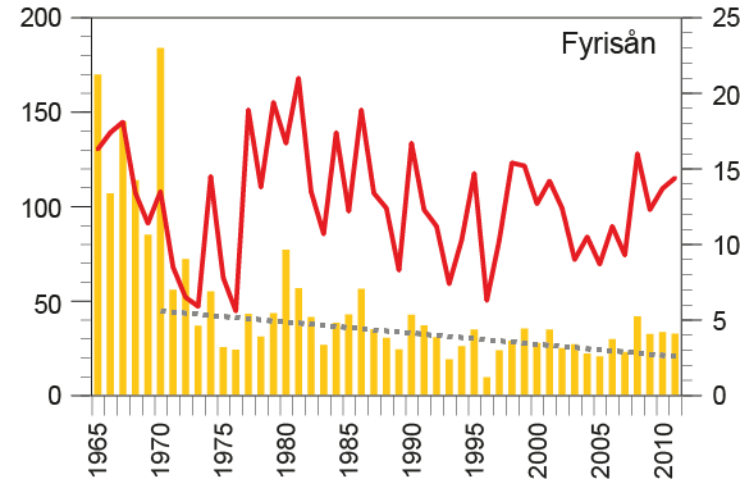
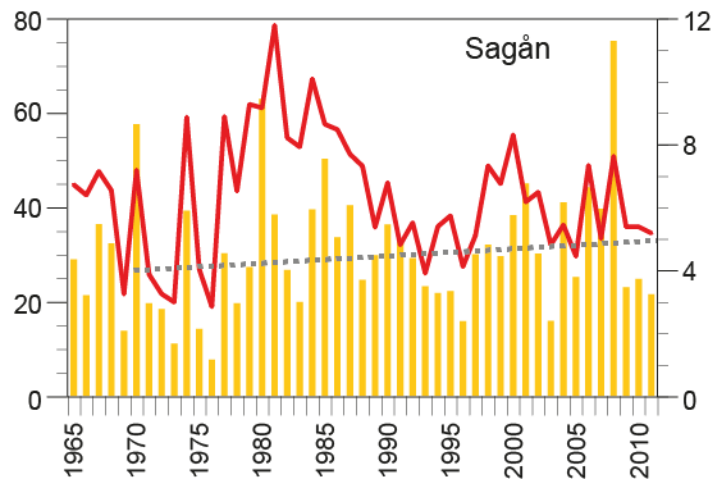
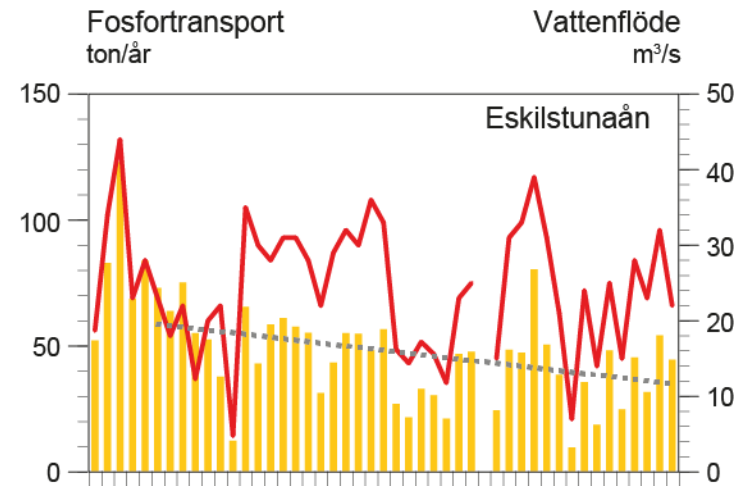
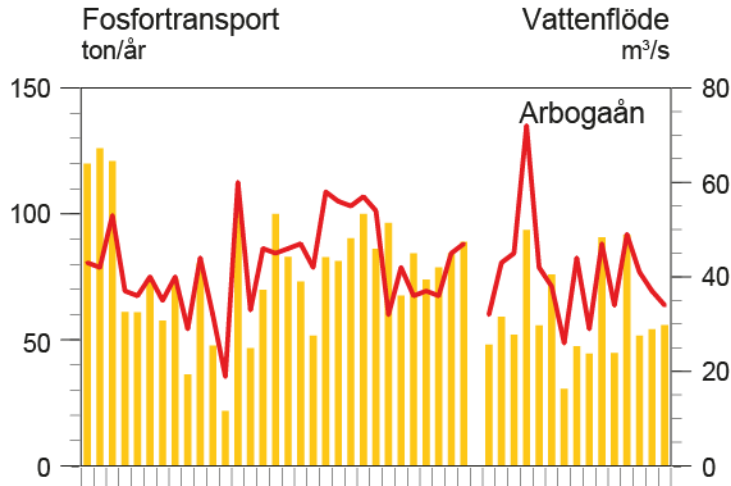
Vattnet vi dricker och badar i !?



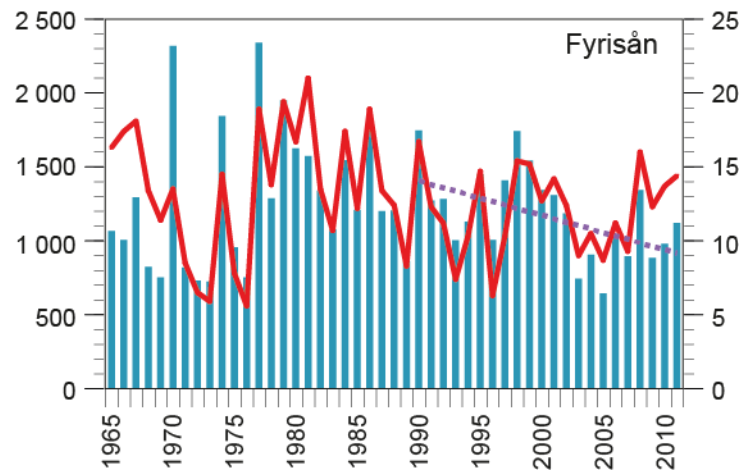
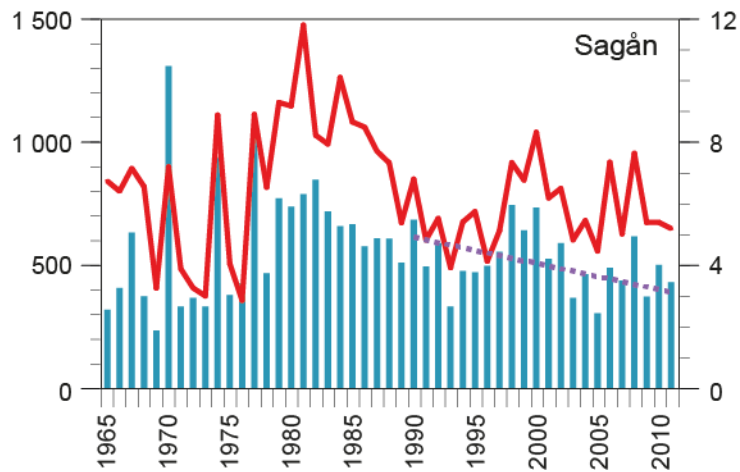
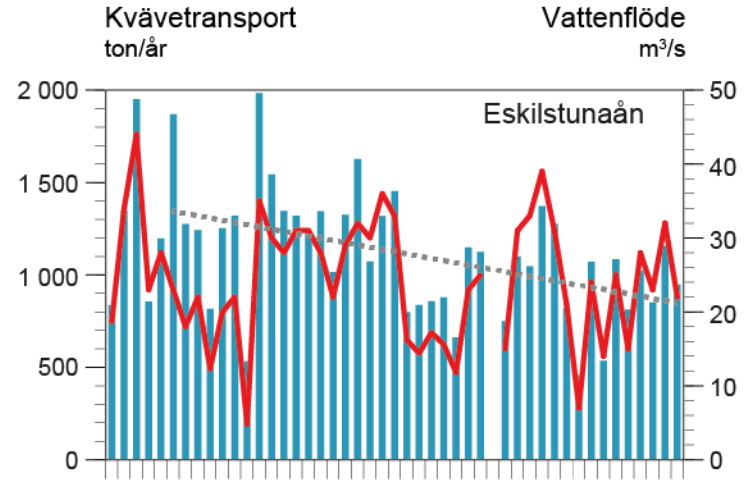
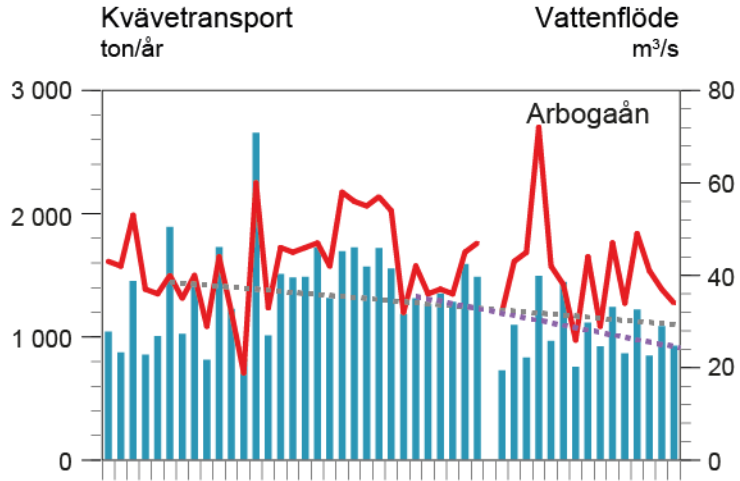


Mälarens tillflöden

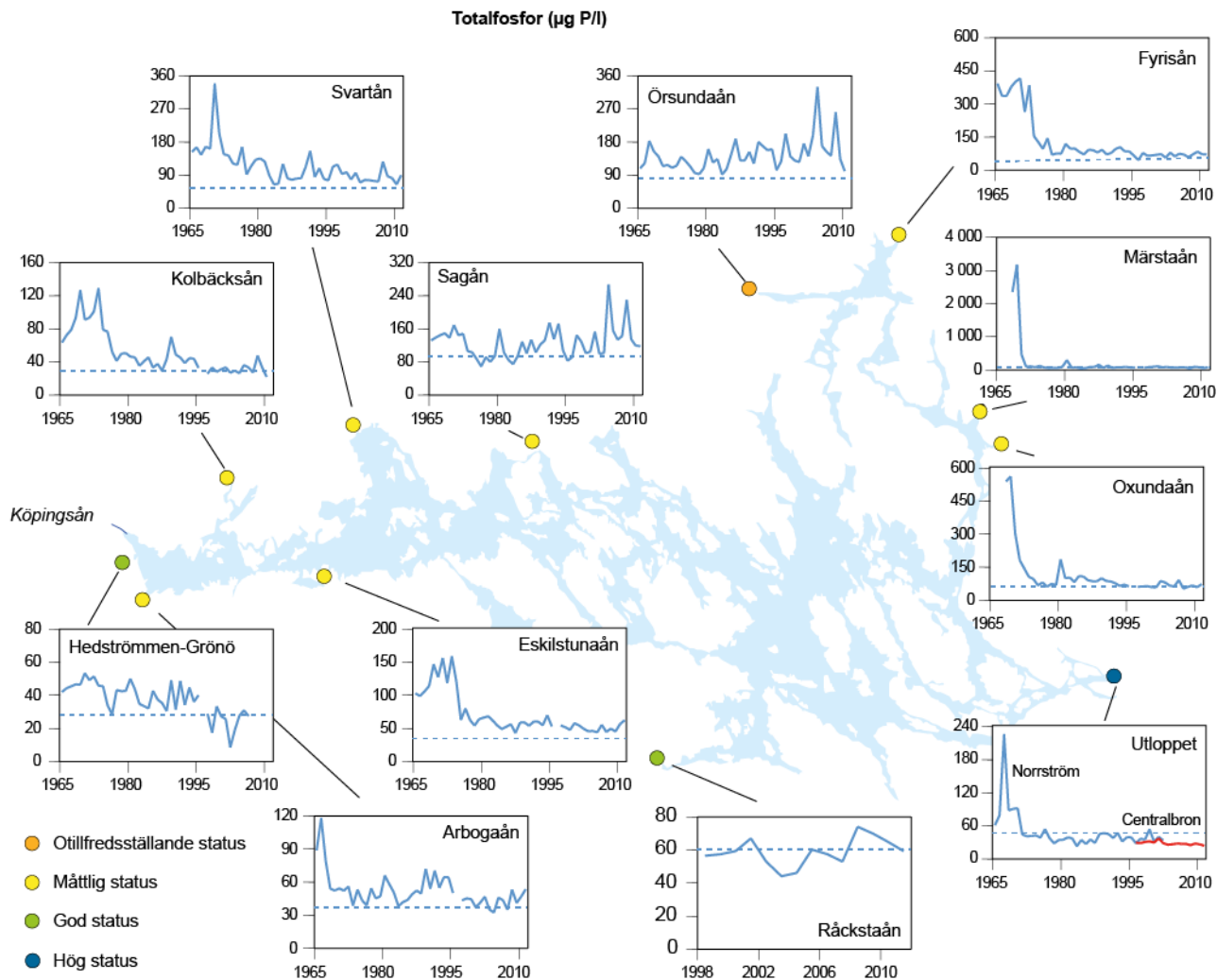
Årstransport av fosfor



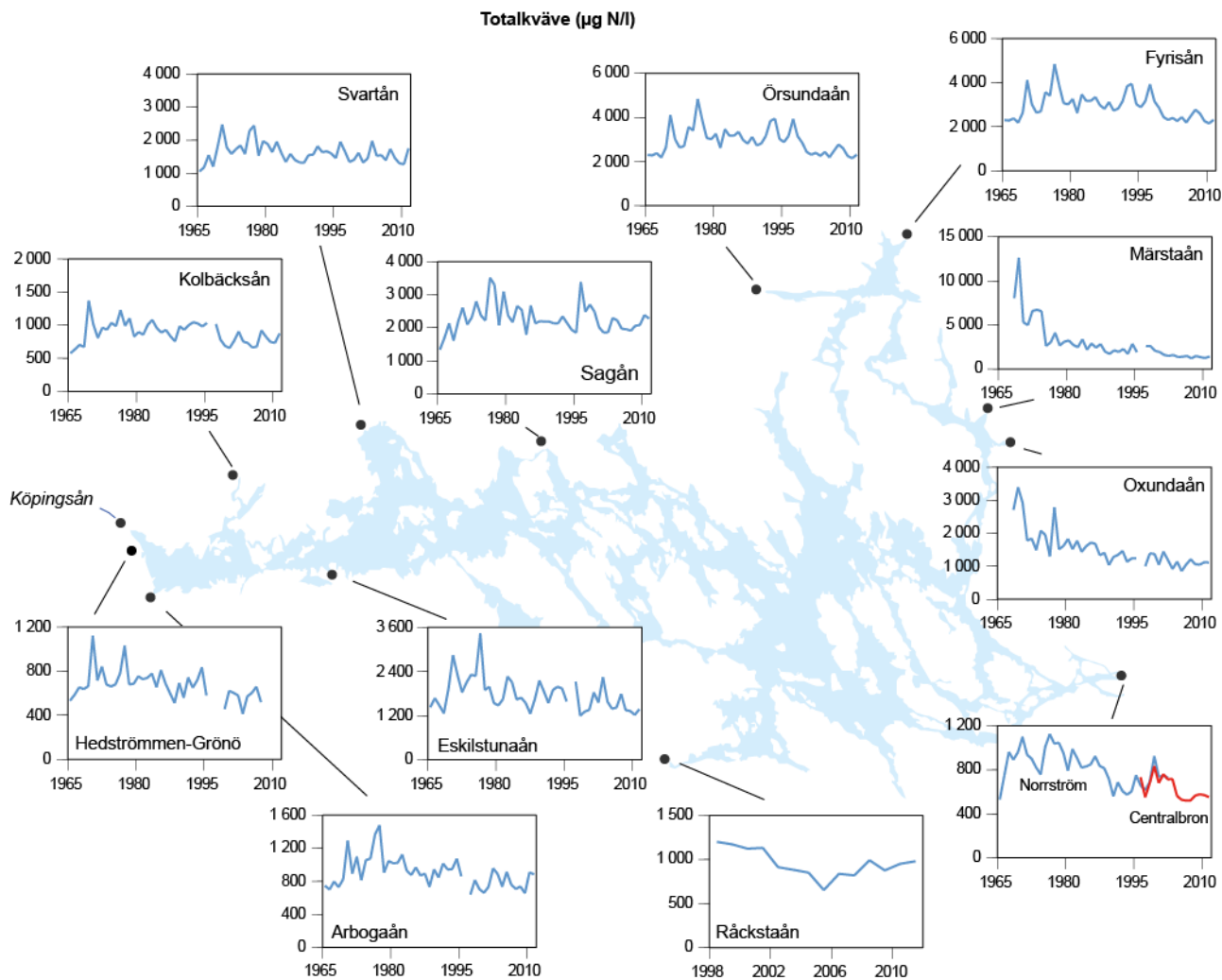
Årstransport av kväve



Totalfosfor i tillflödena



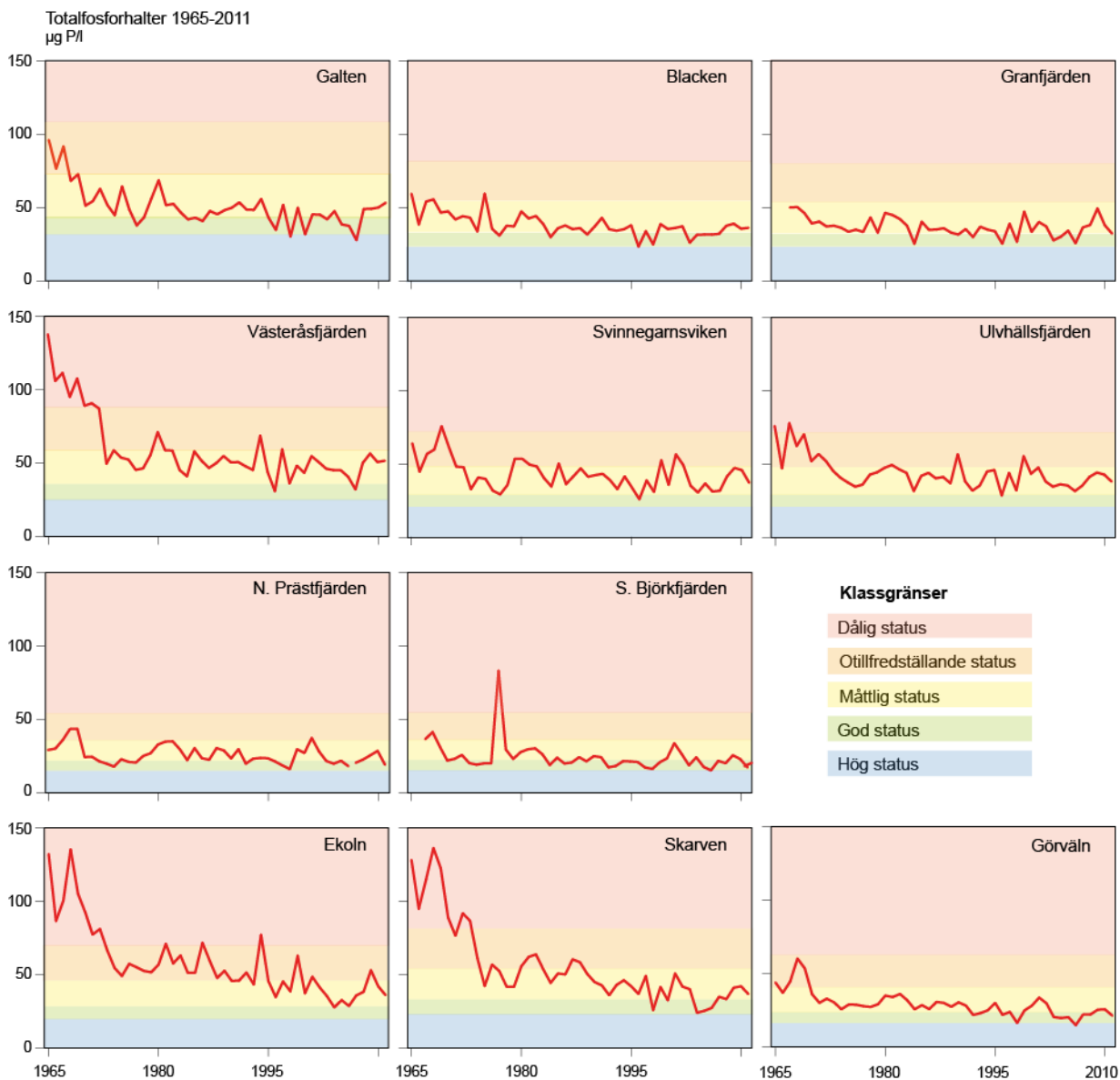
Totalkväve i tillflödena





Vattenkemin i Mälaren

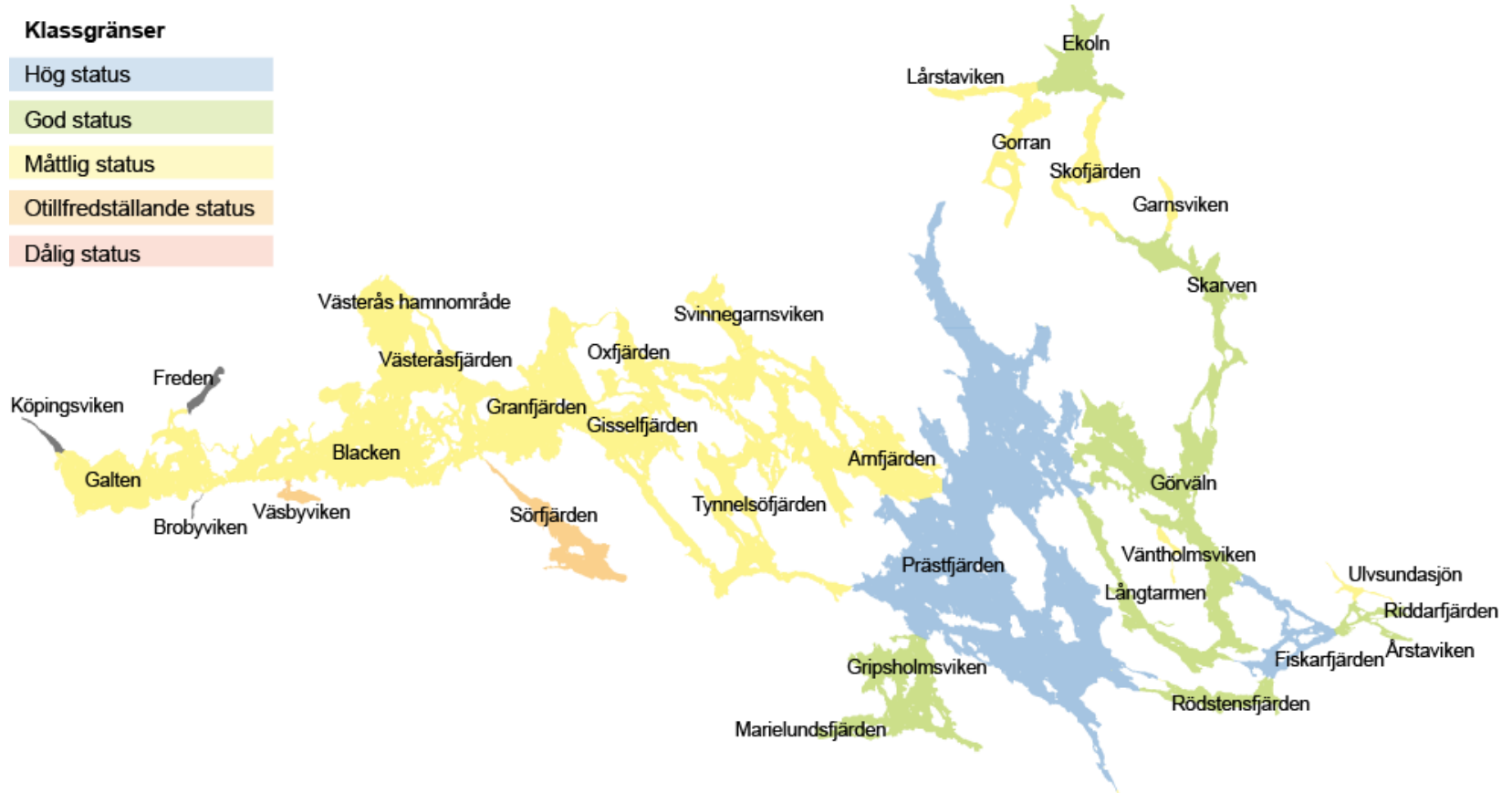
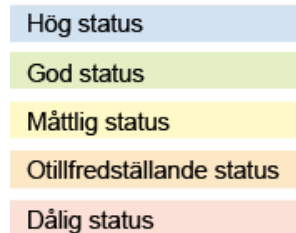
Totalfosfor i Mälaren



Totalfosfor i Mälaren (synoptisk)

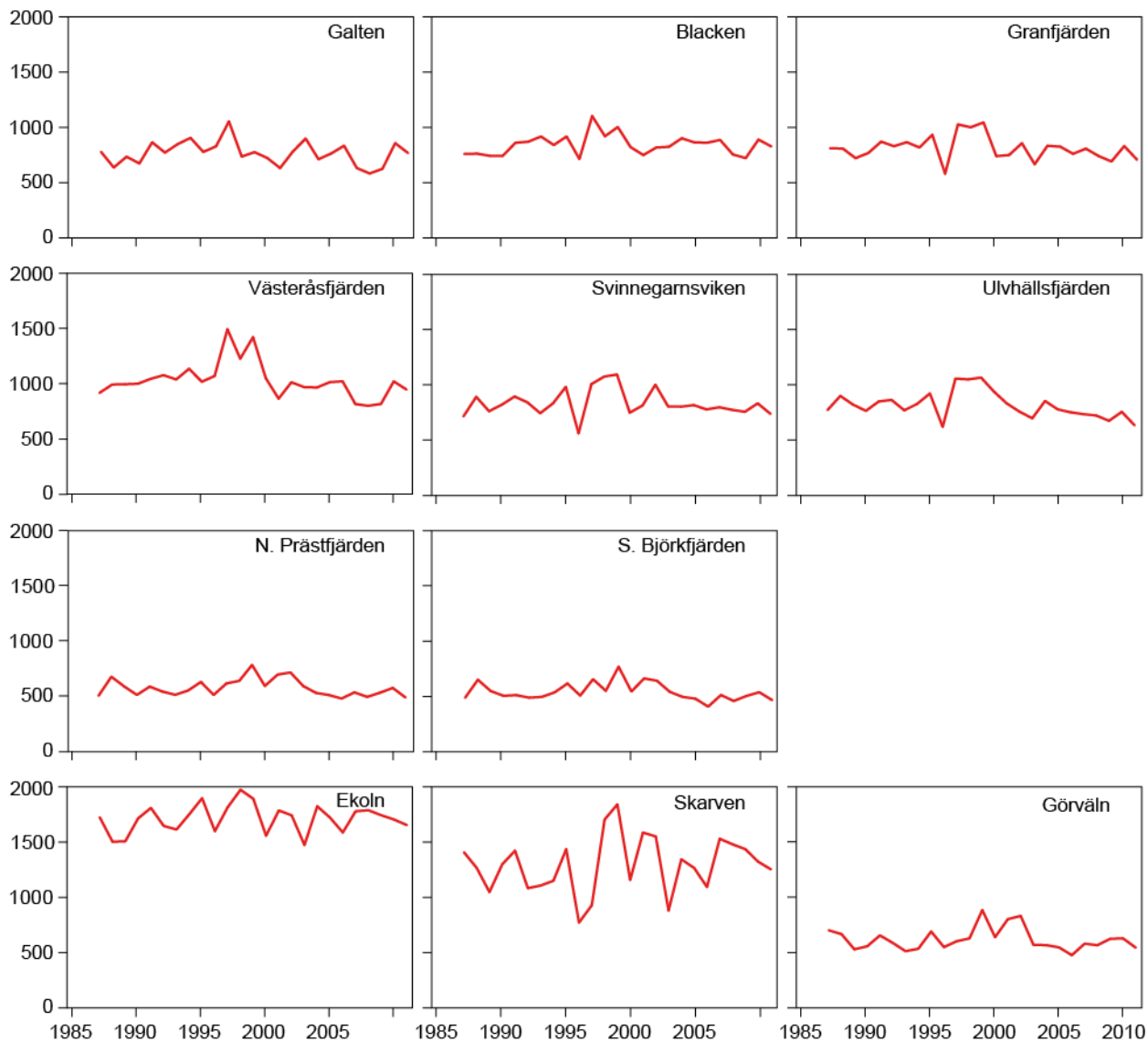
2008-2010

Klassgränser

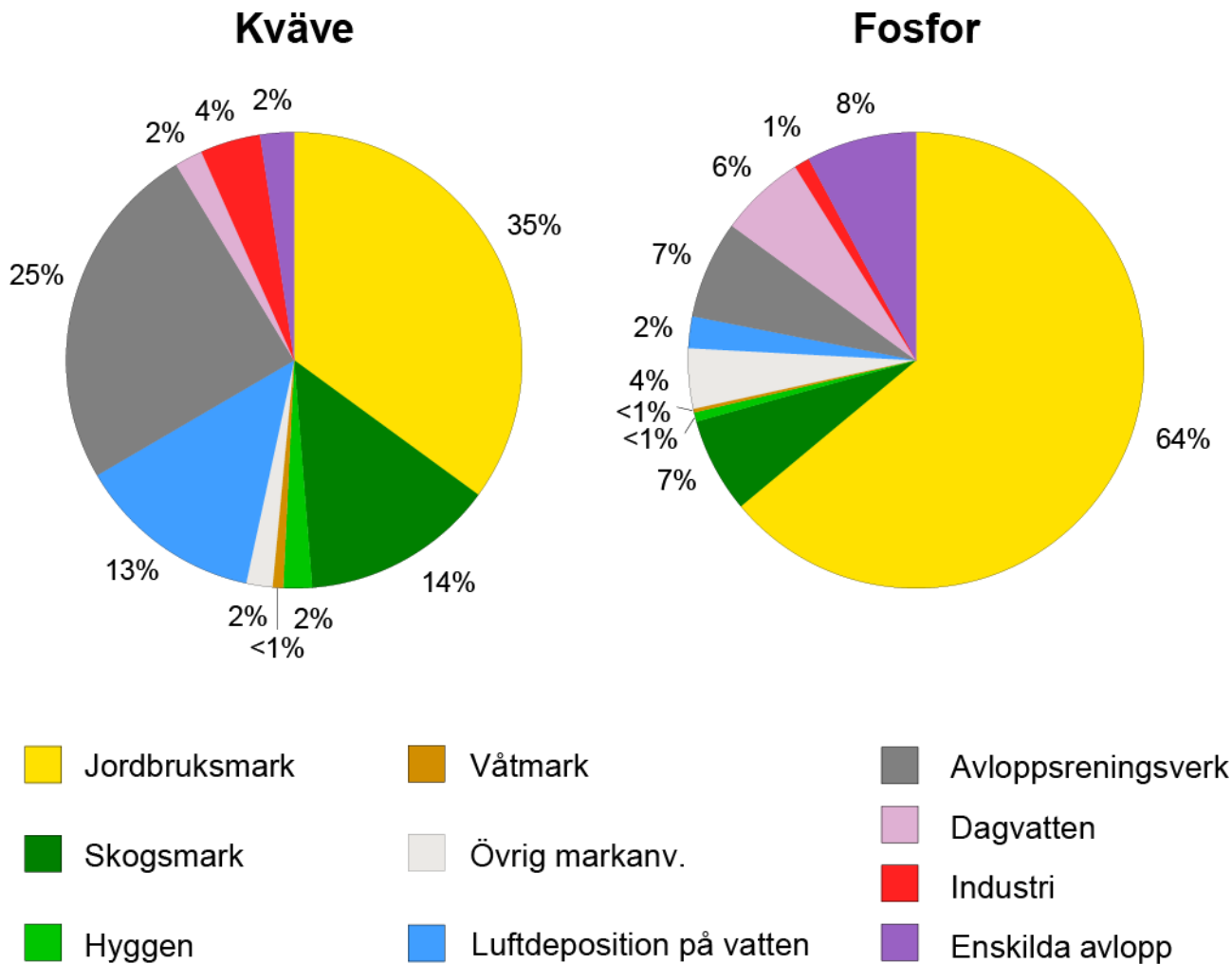


Totalkväve i Mälaren

Totalkvävehalter 1965-2011
 $\mu\text{g N/l}$

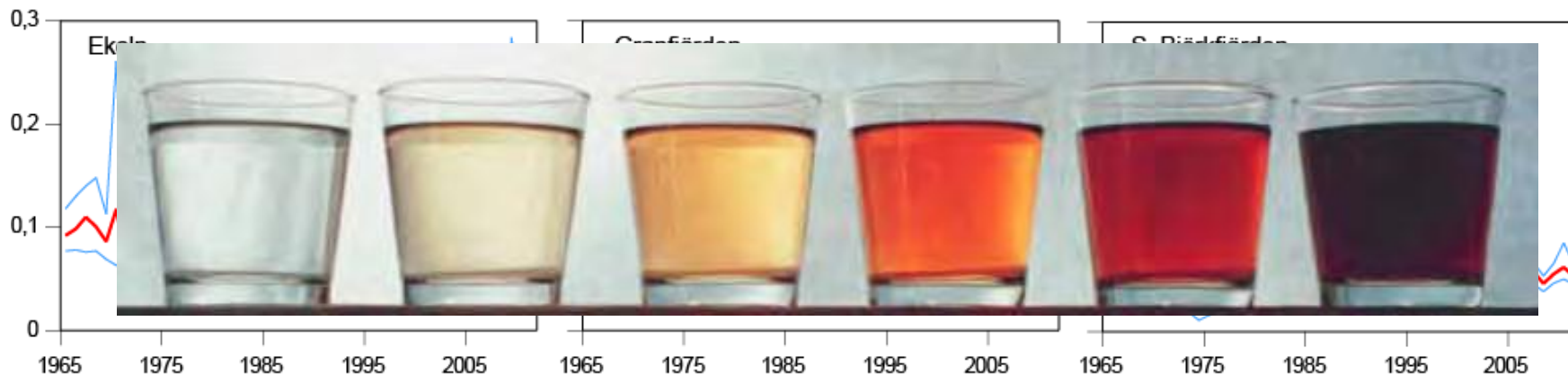


Varifrån kommer näringsämnena?

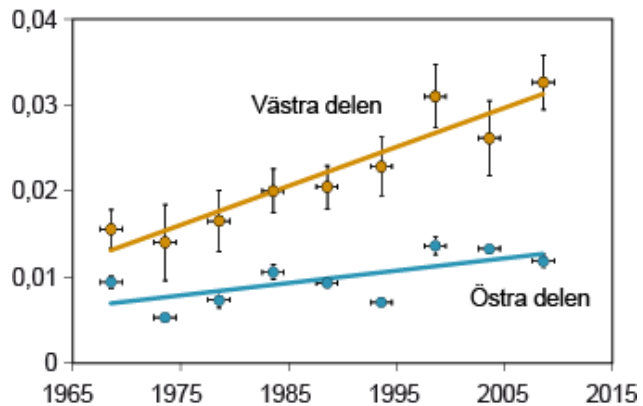


Brunifieringen av Mälaren

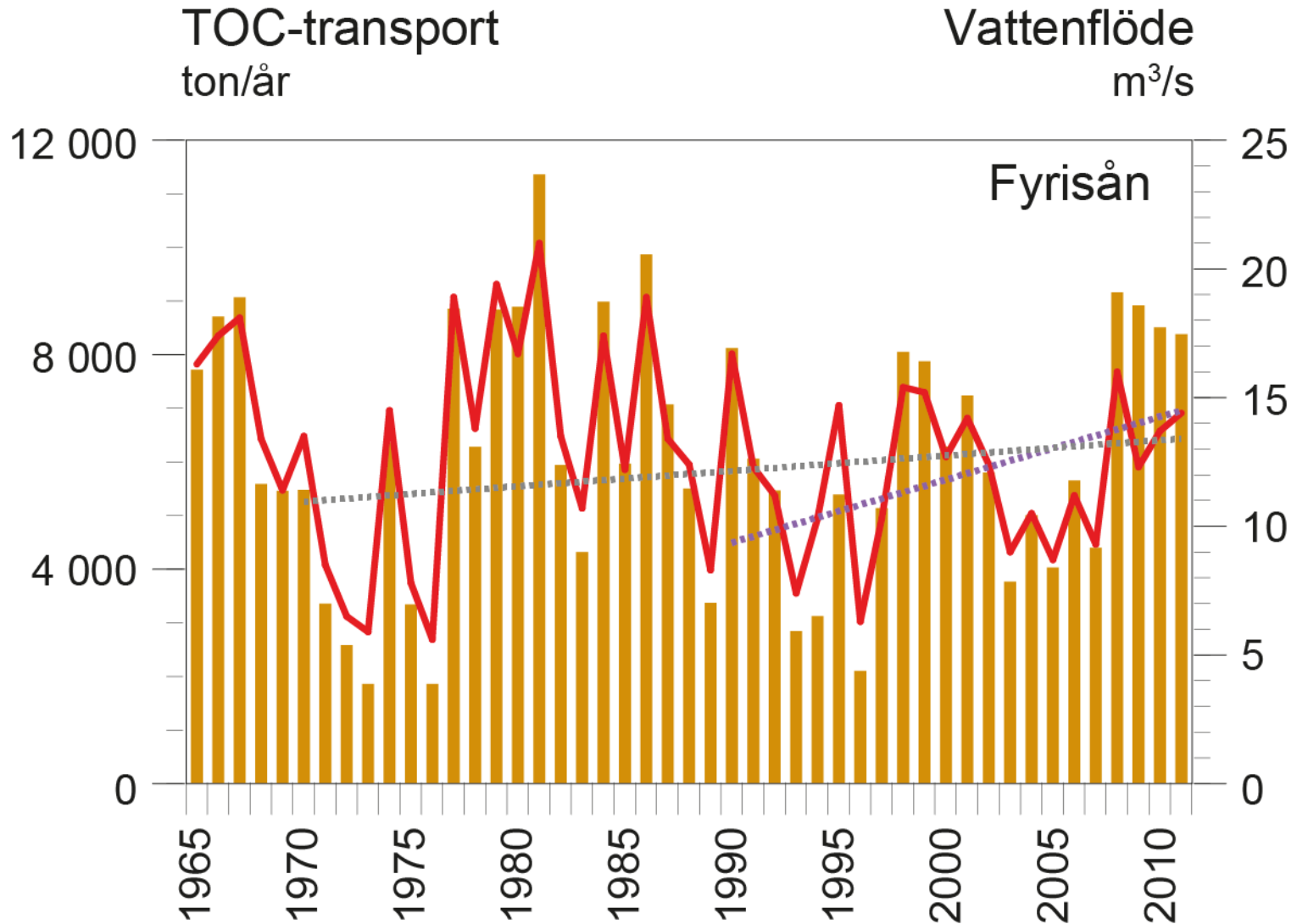
Absorbans filtrerat prov 1965-2011
420nm/5cm



Absorbans filtrerat

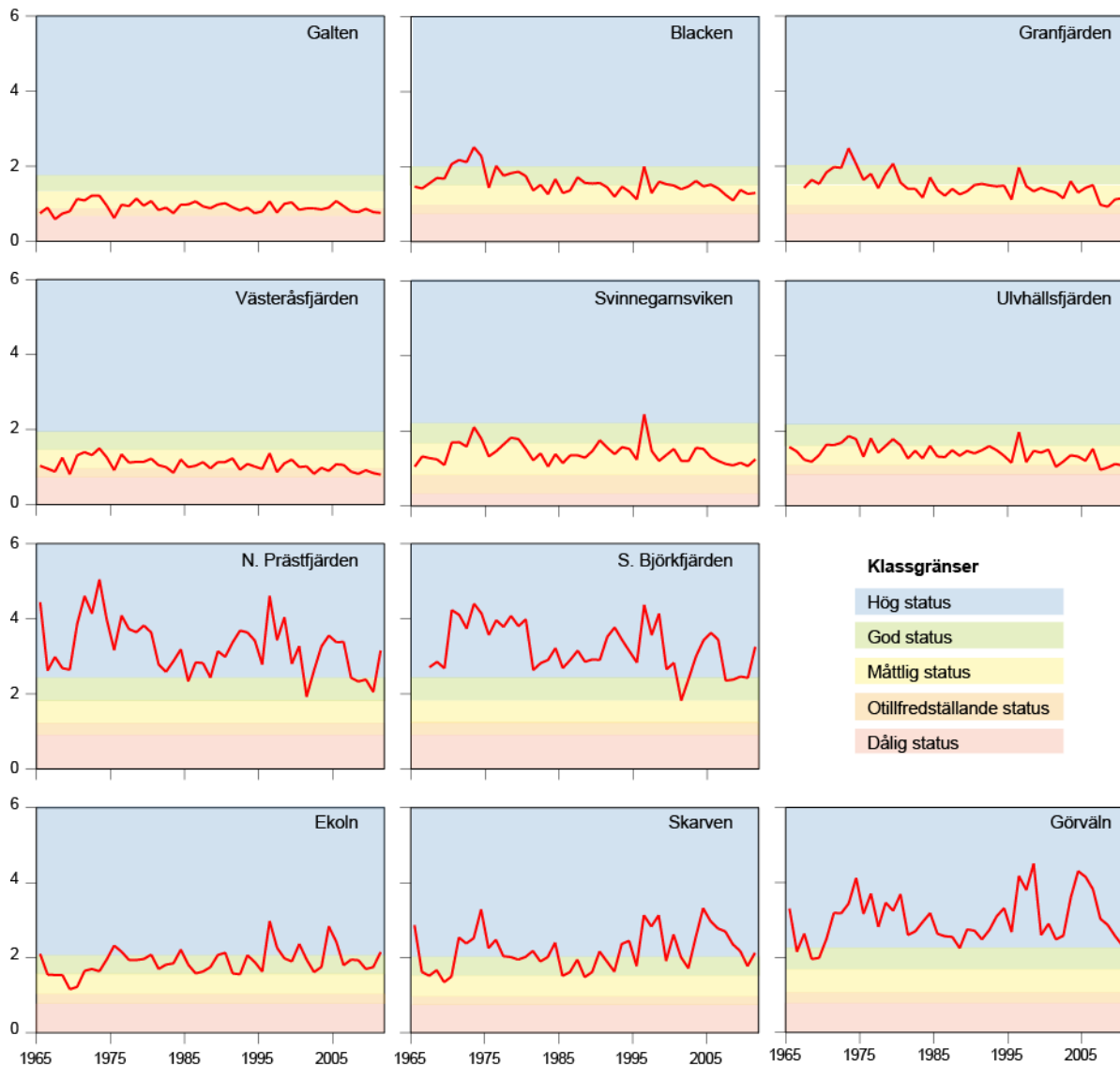


Brunifieringen i tillflöden



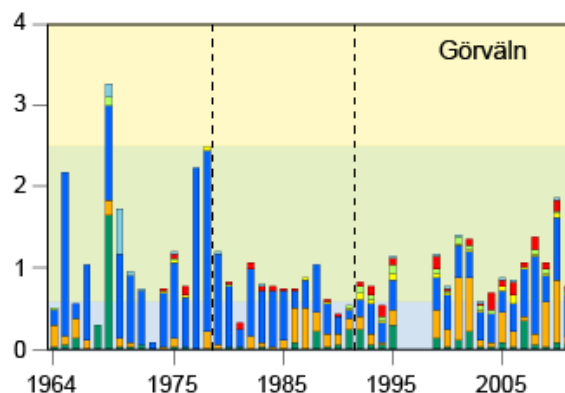
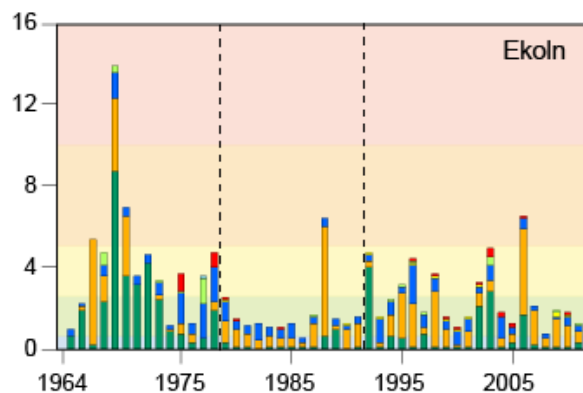
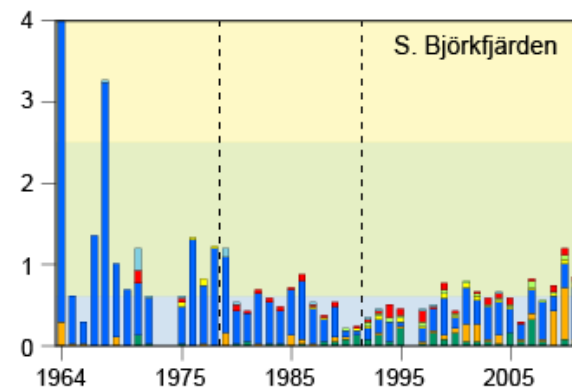
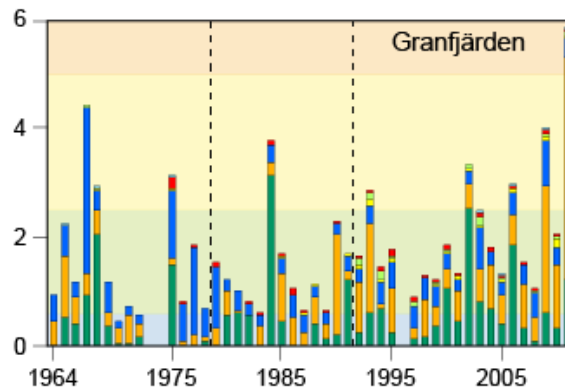
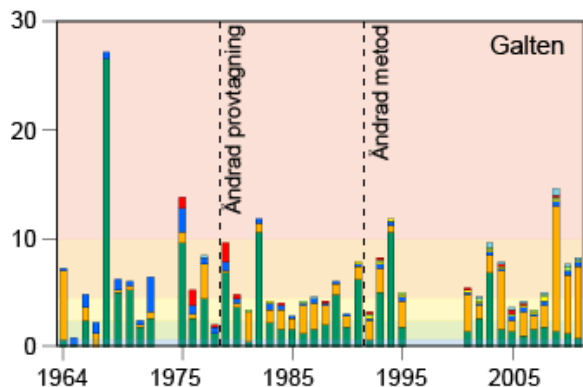
Siktdjupet i Mälaren

Siktdjup maj-okt 1965-2011
m



Växtplankton i Mälaren

Biovolym växtplankton
mm³/l



Klassgränser

Dålig status

Otilfredställande status

Måttlig status

God status

Hög status

Cyanobakterier

Kiselalger

Cryptofycéer

Gulalger

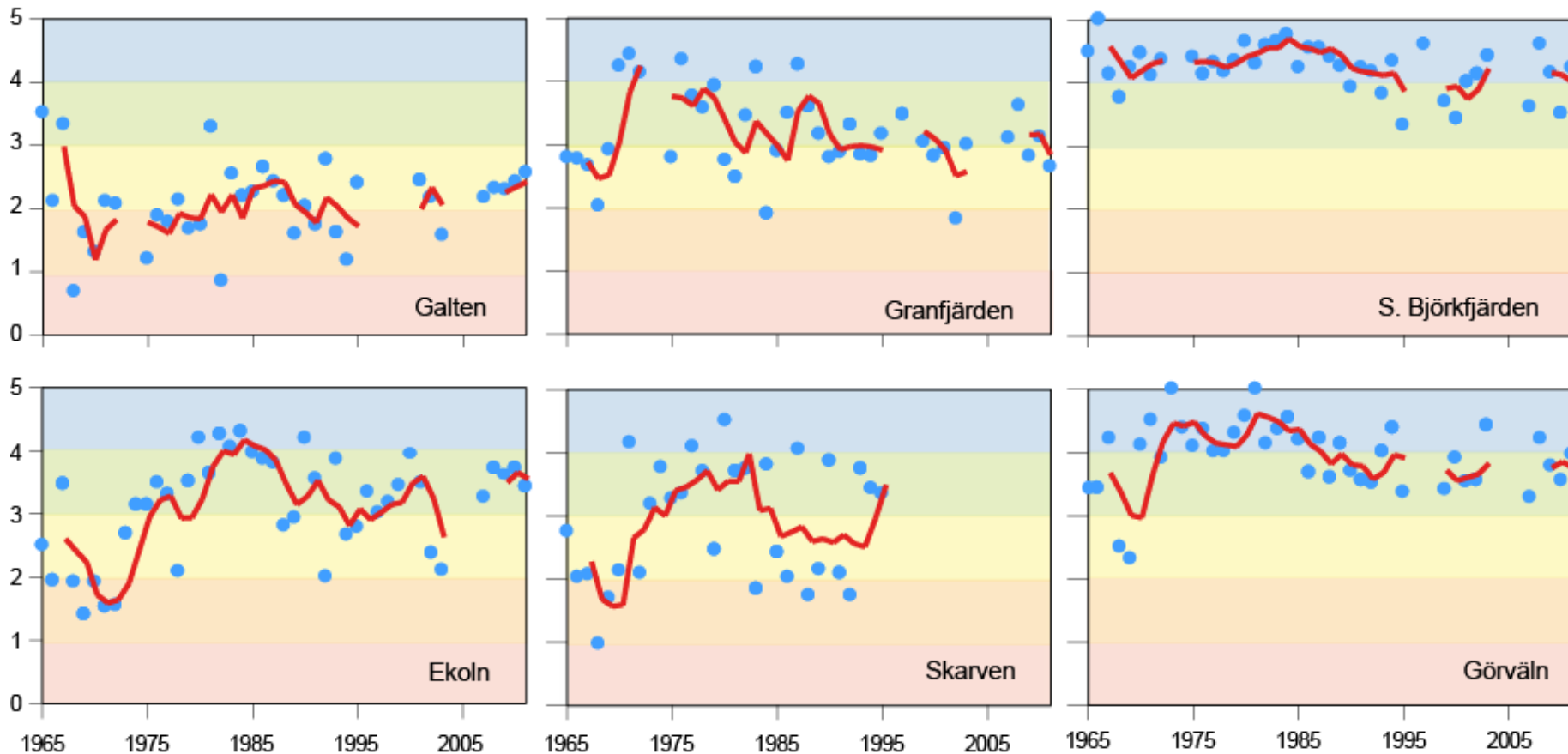
Grönalger

Dinoflagellater

Övrigt

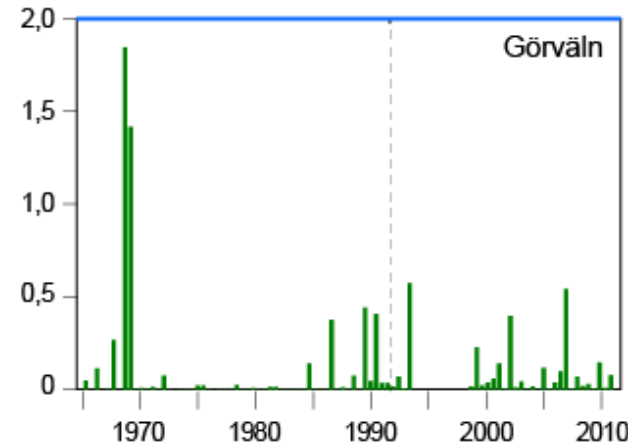
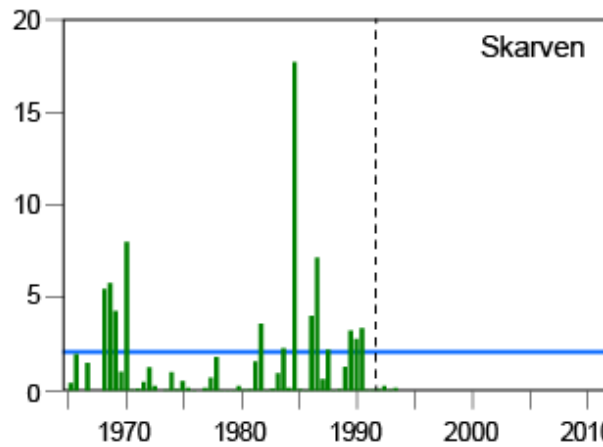
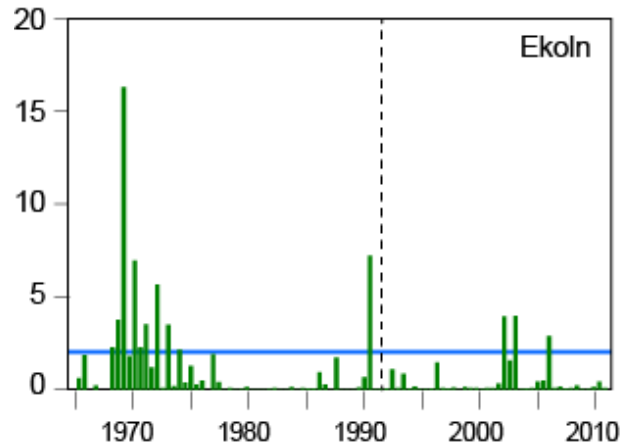
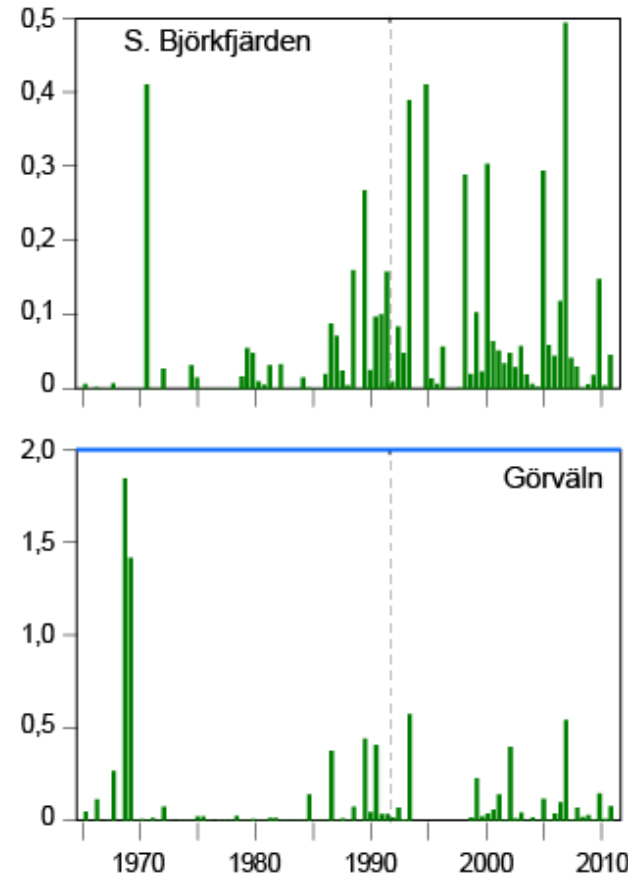
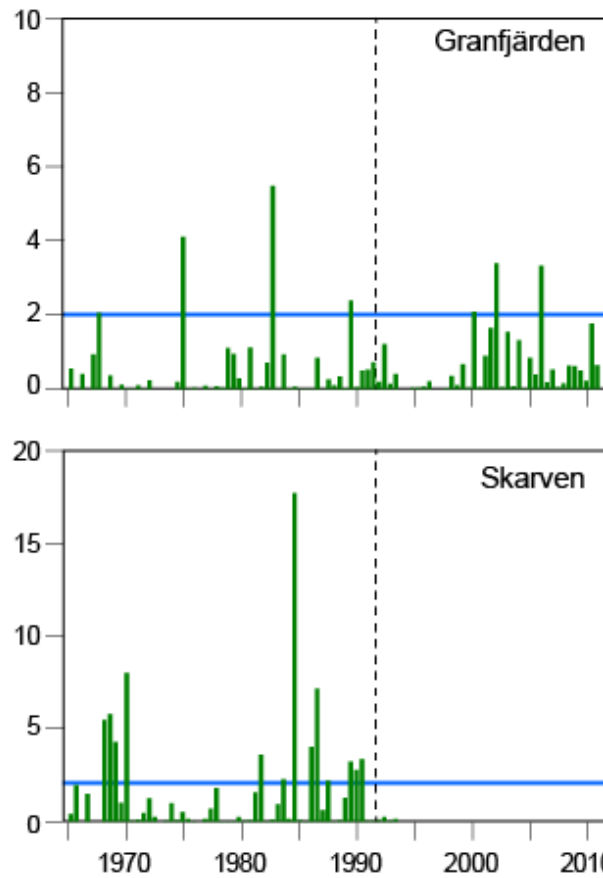
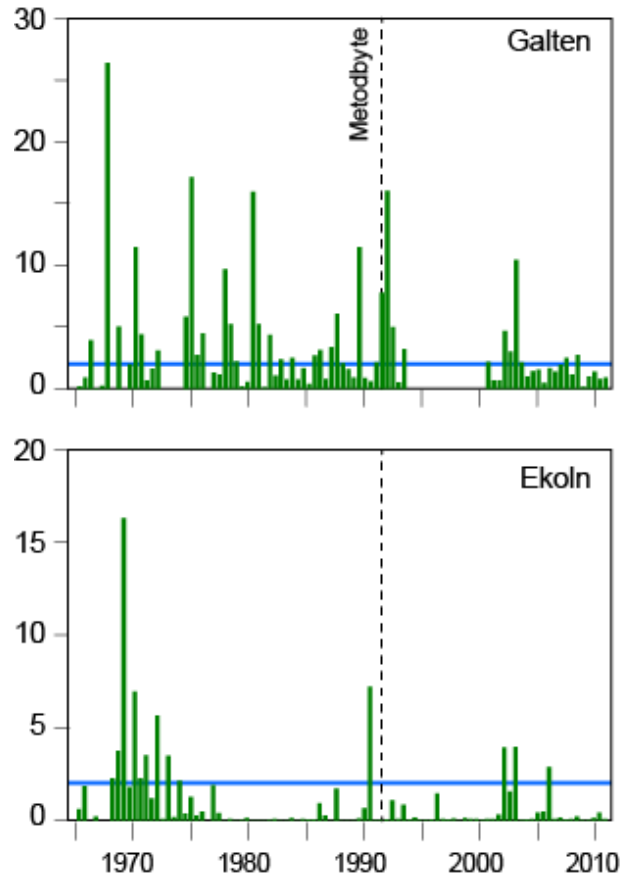
Växtplankton i Mälaren

Sammanvägd status växtplankton 1965-2011



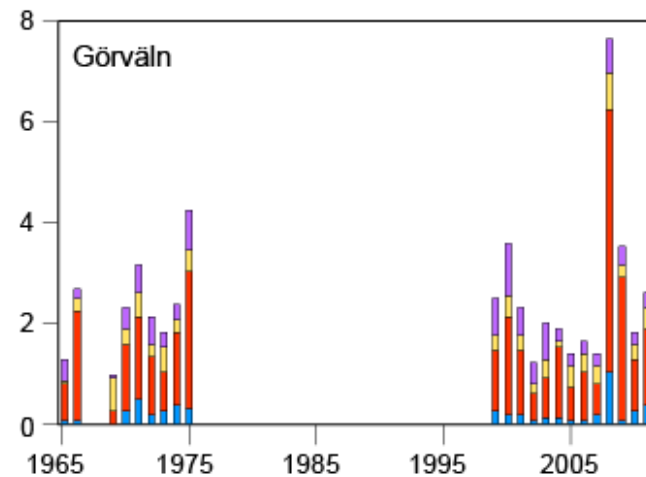
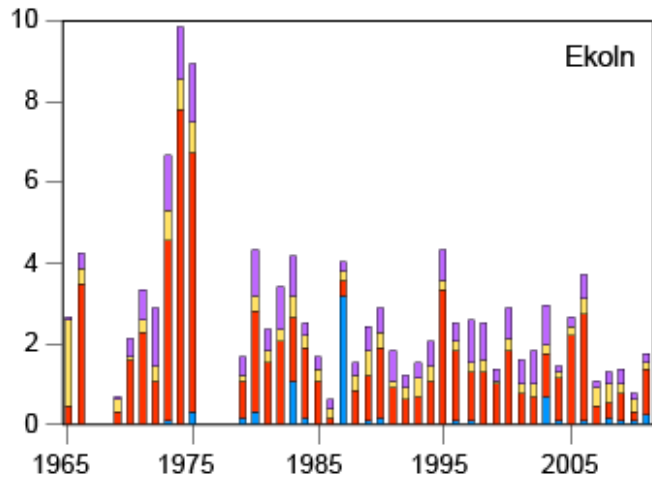
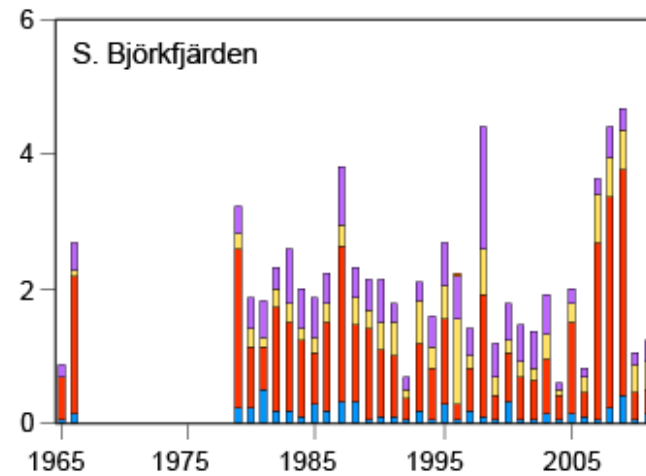
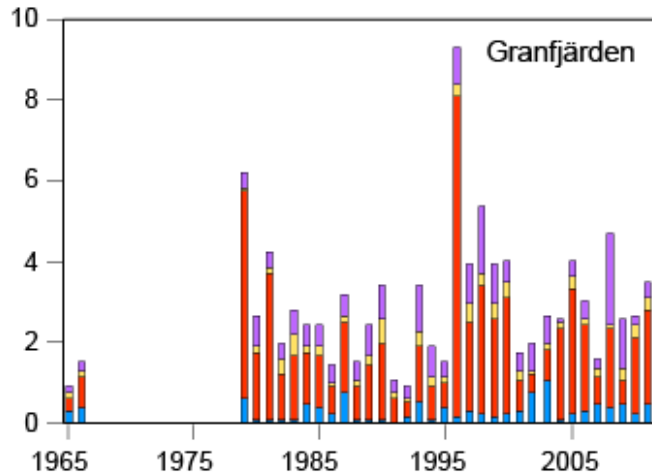
Cyanobakterier i Mälaren

Biomassa av cyanobakterier (mm³/l)




Djurplankton i Mälaren


Biovolym djurplankton
mm³/l



 Hjuldjur

 Hinnkräftor

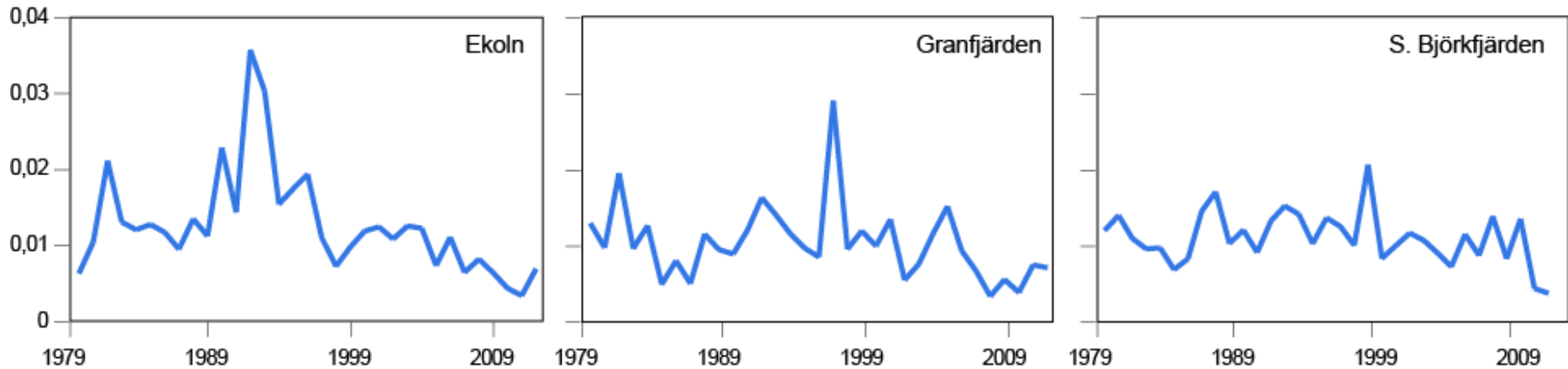
 Hoppkräftor
(Calanoida)

 Hoppkräftor
(Cyclopoida)

Djurplankton i Mälaren



Medelstorlek
mm³/individ

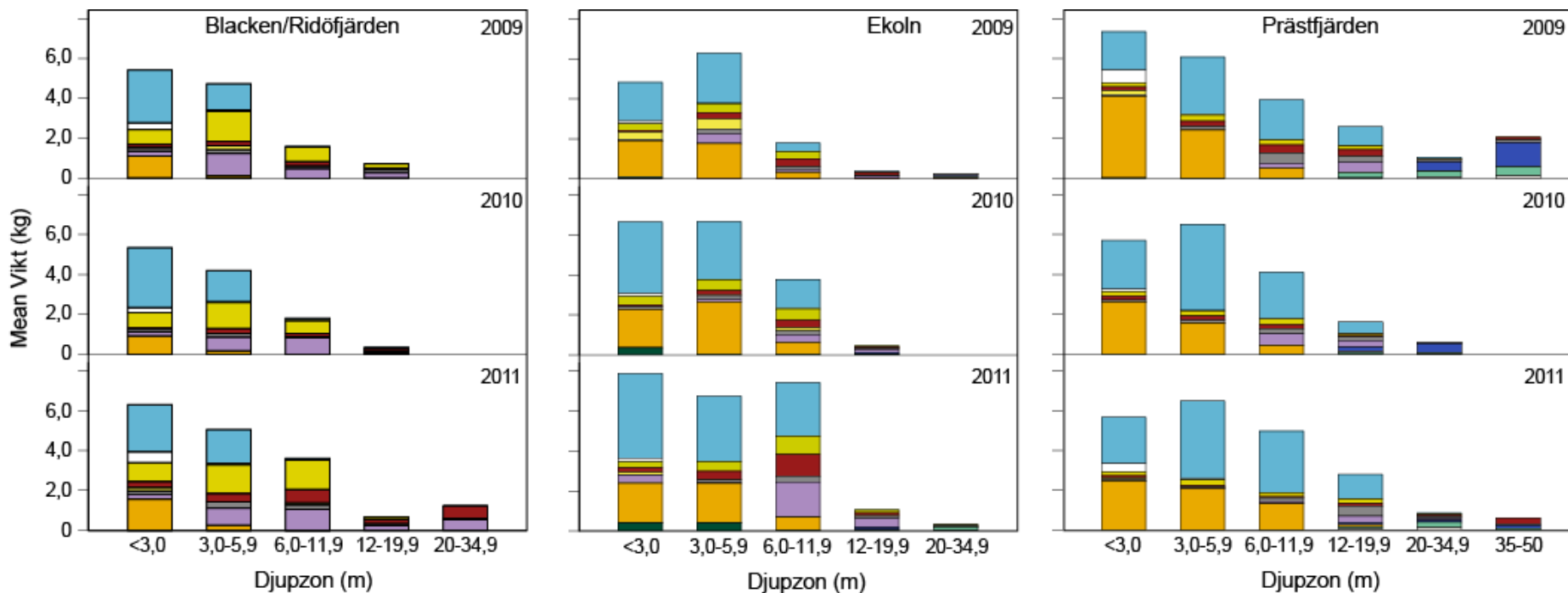


Bottendjur i Mälaren

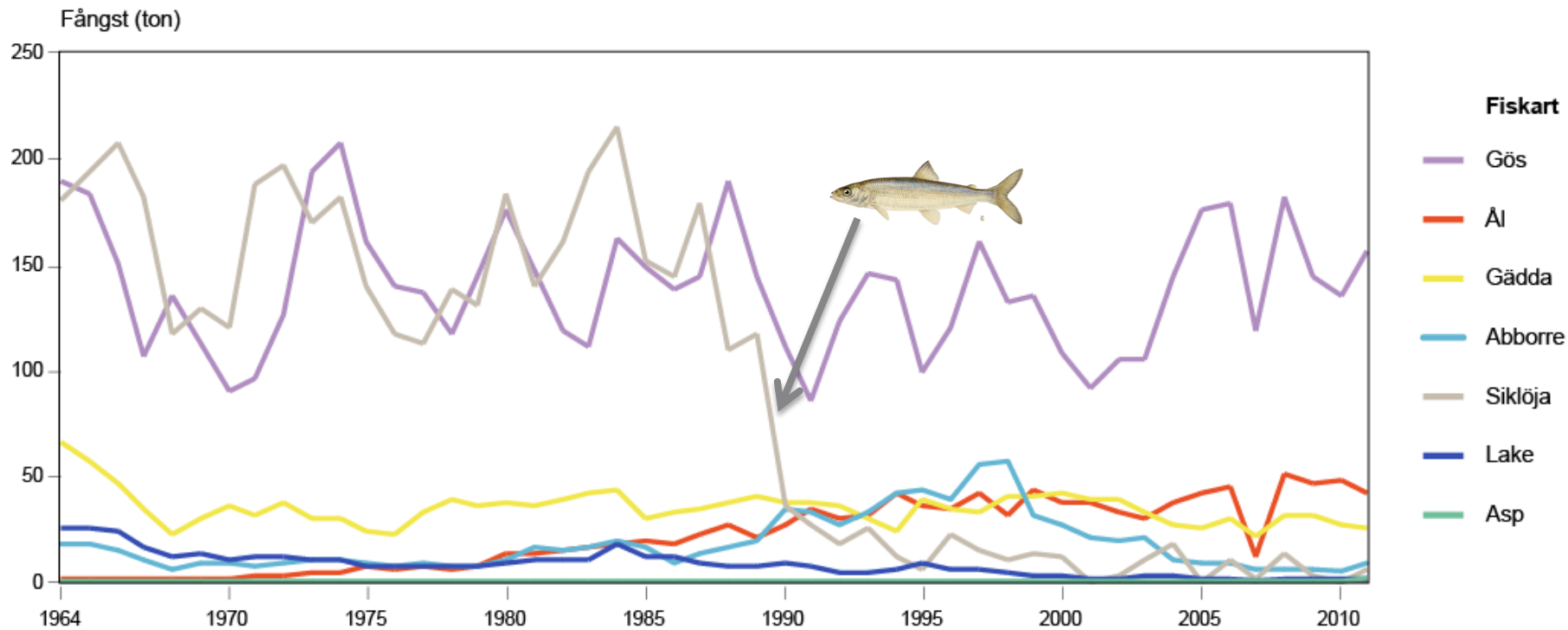
Benthic Quality Index (BQI)



Provfiske i Mälaren

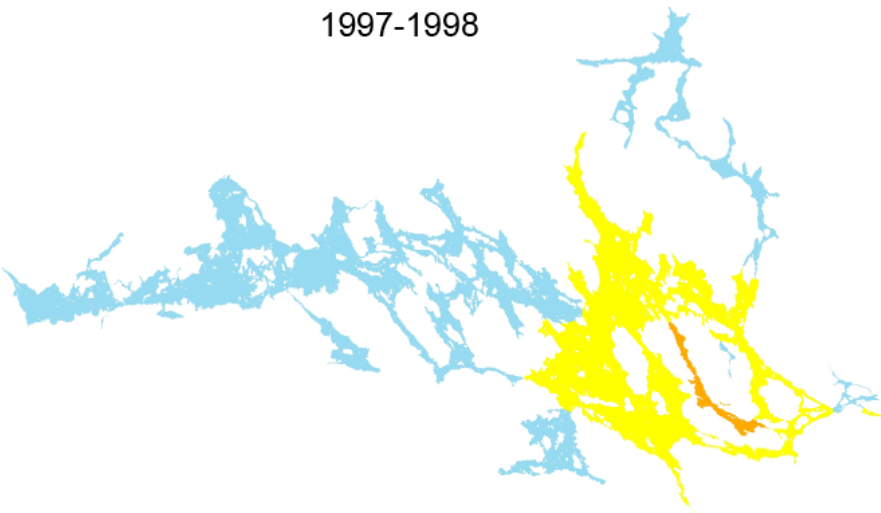


Yrkesfisket i Mälaren

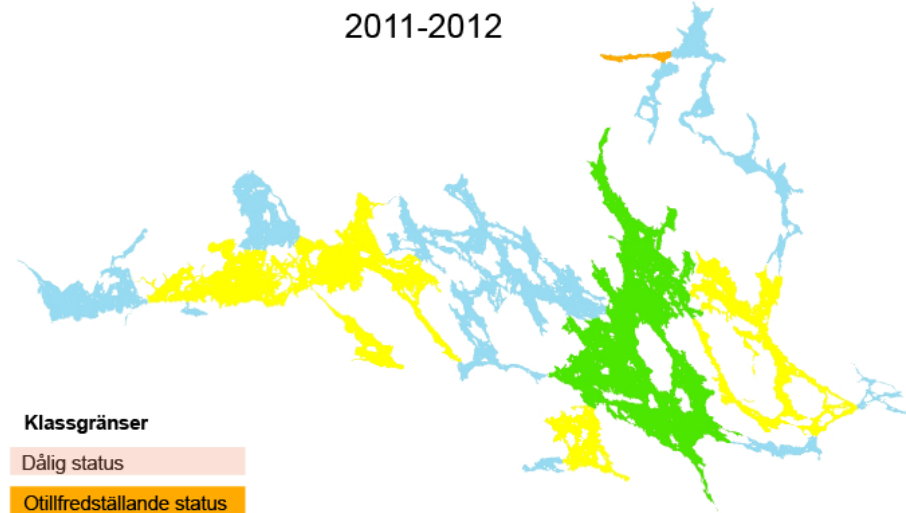


Vattenväxter i Mälaren

1997-1998



2011-2012



Klassgränser

Dålig status

Otillfredställande status

Måttlig status

God status

Hög status

Främmande arter i Mälaren



Främmande arter i Mälaren

Svenskt namn Art eller grupp	Latinskt namn	Införselvektor
Ålnematod	<i>Anguillicola crassu</i>	
Kräftpest	<i>Aphanomyces astaci</i>	
Laxdjävul	<i>Gyrodactylus salaris</i>	
Rotatorie	<i>Kellicottia bostoniensis</i>	
Kalmus	<i>Acorus calmus</i>	
Vattenpest	<i>Elodea canadensis</i>	akvarier/dammar
Smal vattenpest	<i>Elodea nuttallii</i>	
Sjögull	<i>Nymphoides peltata</i>	akvarier/dammar
Glattmask	<i>Branchiura sowerbyi</i>	barlastvatten/skrov
Glattmask	<i>Limnodrilus cervix</i>	barlastvatten/skrov
Glattmask	<i>Potamothenis bavaricus</i>	barlastvatten/skrov
Glattmask	<i>Potamothenis bedoti</i>	barlastvatten/skrov
Glattmask	<i>Potamothenis heuscheri</i>	barlastvatten/skrov
Glattmask	<i>Potamothenis moldaviensis</i>	barlastvatten/skrov
Glattmask	<i>Potamothenis vejvodskyi</i>	barlastvatten/skrov
Ullhandskrabba	<i>Eriocheir sinensis</i>	barlastvatten/skrov
Signalkräfta	<i>Pacifastacus leniusculus</i>	
Tusensnäcka	<i>Potamopyrgus antipodarum</i>	
Vandarmussla	<i>Dreissena polymorpha</i>	
Karp	<i>Cyprinus carpio</i>	
Regnbåge	<i>Onchorhynchus mykiss</i>	
Bäckröding	<i>Salvelinus fontinalis</i>	

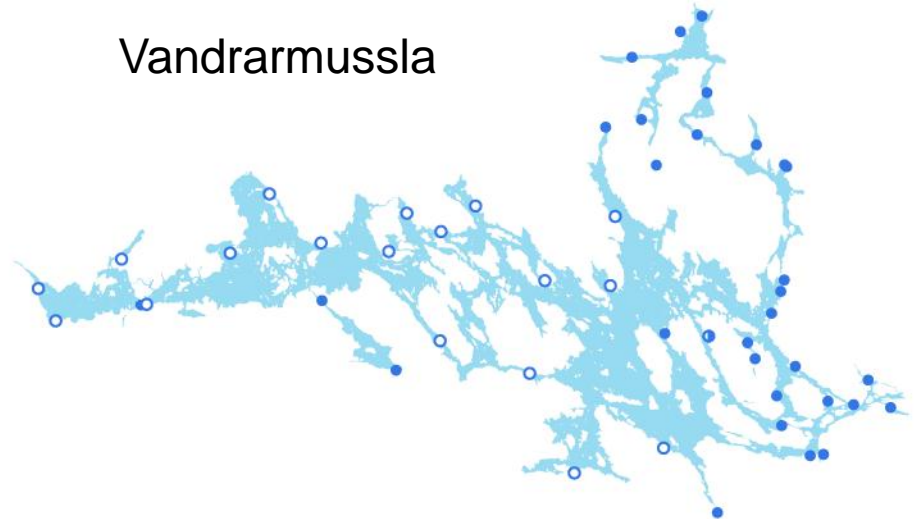
Främmande arter i Mälaren



Sjögull



Vandrarmussla





Vatten och miljö

Lars Sonesten, Karin Wallman, Stephan Köhler,
Stina Drakare, Tobias Vrede, Willem Goedkoop,
Frauke Ecke, Joel Segersten

Akvatiska resurser

Ulrika Beier, Thomas Axenrot