

Water at stake - how to connect science, policy and 'stakeholders'?

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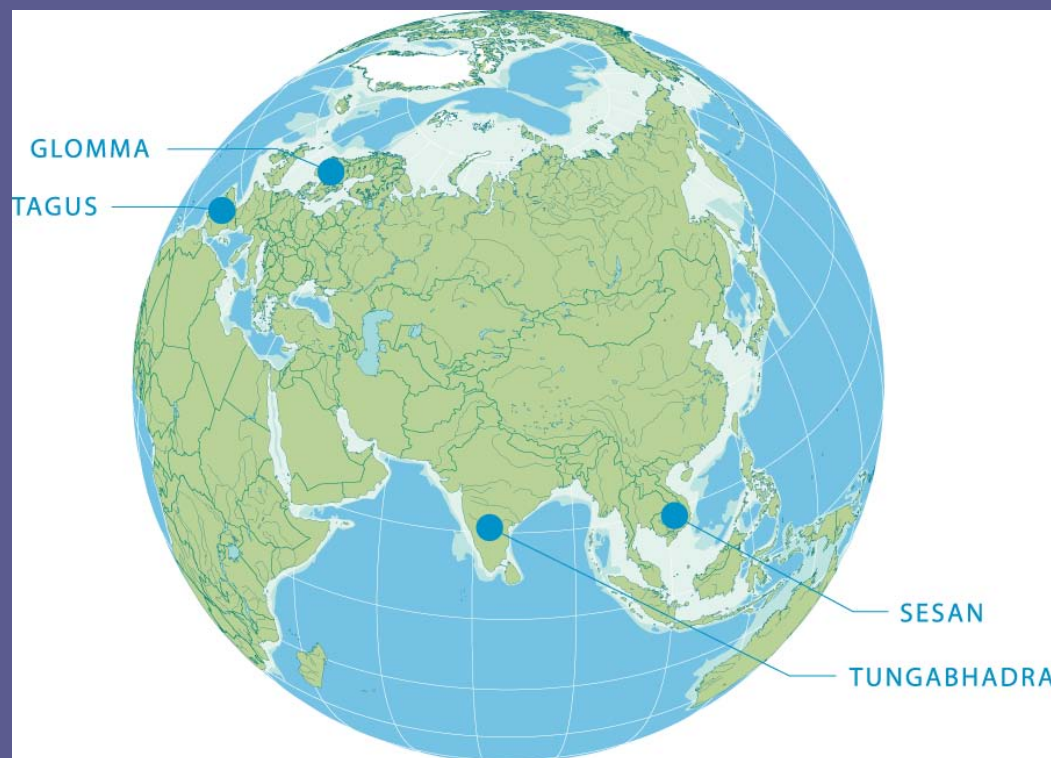


Outline

- Part 1: 'The dilemma of the scientist'
 - Part 2: Examples from a 'typical' and 'real case' - in SE Asia
 - Part 3: Reflections around scenarios
- > concluding remarks

Part 0: The STRIVER project

- One of the seven 'twinning' projects funded by DG RES
- STRIVER (2006-2009)

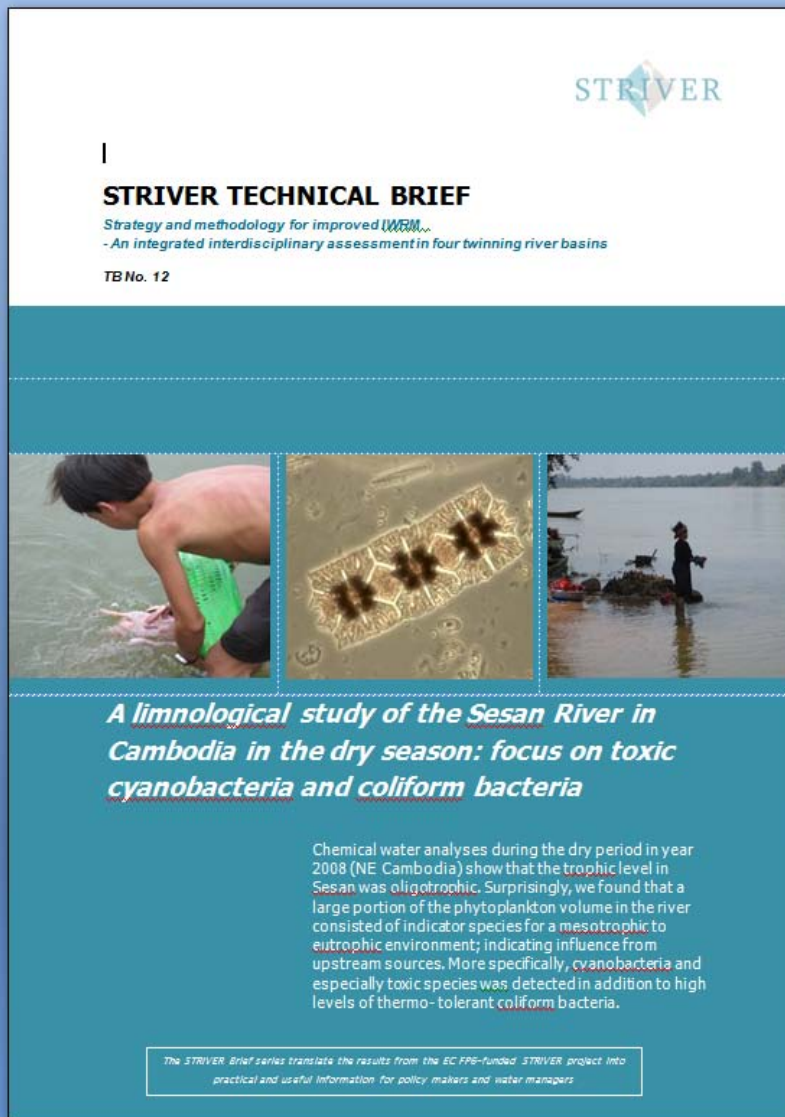


www.striver.no

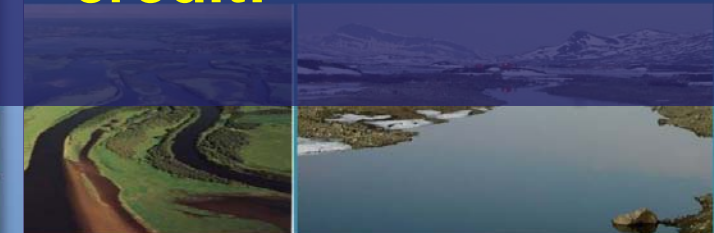
Part 1. The dilemma of the scientist



Part 1. The dilemma of the scientist



- **35 Briefs produced!**
- **But no scientific credit!**



Strategy and recommendations for Integrated Water Resources Management in Glomma, Norway

STRIVERs close interaction with water managers and local stakeholders in Glomma has strengthened science-policy linkages and has laid ground for more science-based implementation of the EU Water Framework Directive and national legislation, particularly related to hydropower development. The two scientific STRIVER tools applied; modeling of nutrients and multi-criteria environmental flow analysis has proven to be useful in practical IWRM in Glomma.

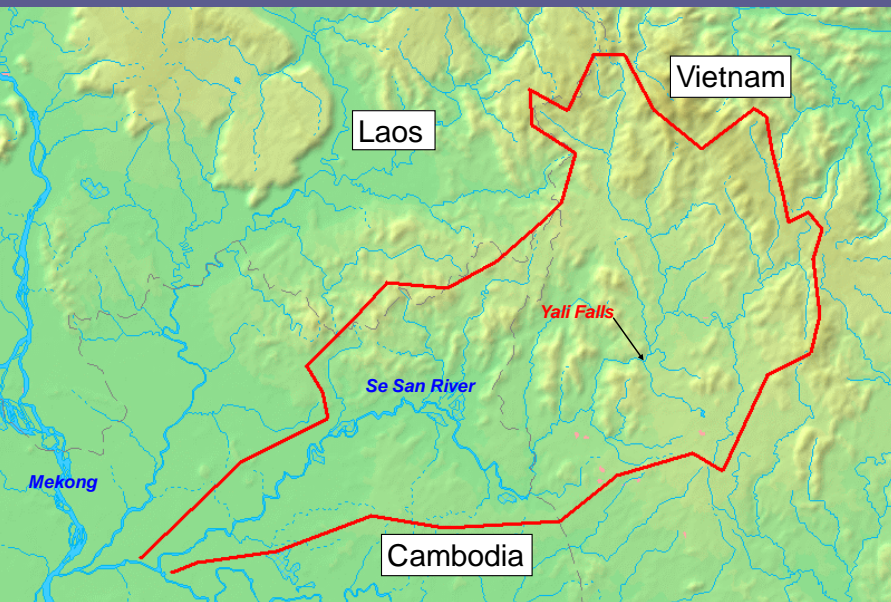
Part 2: the 'real-case': Mekong

- 1500 fish species in Mekong
- Fish the dominant protein source
- Rice production and 'river-bank gardening'
- Hydropower development
- CC
- Little environmental data

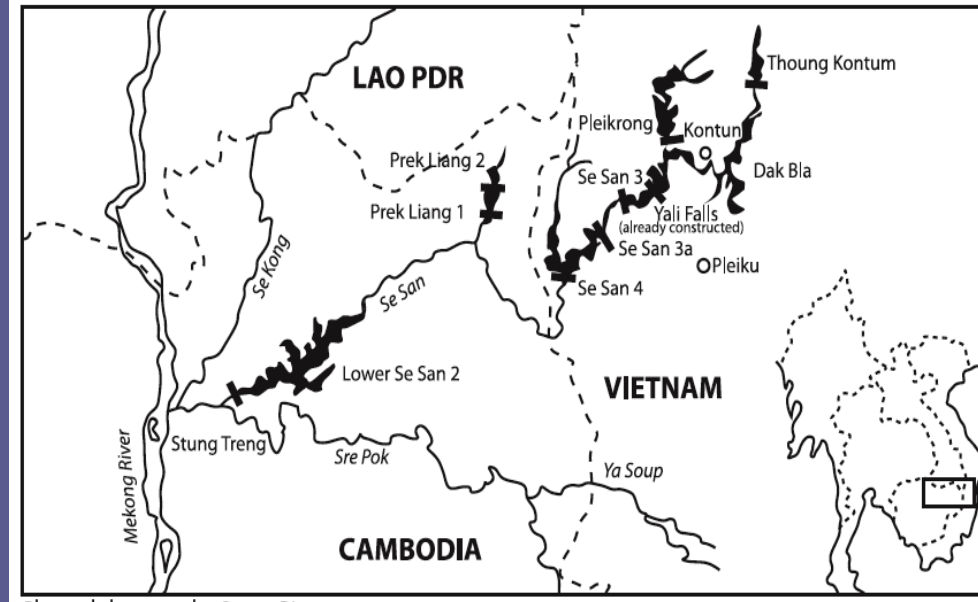


Sesan River (before and after 1998)

Before 1998



Existing or planned HPs



According to NGOs: large local impacts in Cambodia due to hydropower

- No financial compensation of lost 'livelihood'
- Worsened water quality and health problems (respiratory and skin)
- 55,000 people affected
- 50 deaths due to sudden flooding (release of water from HP dams)



According to official sources:

‘a year-long study of monthly water from the Sesan river showed that it was safe.’

Long Saravuth, Cambodian Ministry of Water Resources
(The Cambodia Daily, Apr. 11, 2006).

Scientific monitoring of WQ and toxic algae (March 2008; M.Sc M.Tiodolf)



THE PHNOM PENH POST SEPTEMBER 9, 2009

Dams threaten Sesan

Report links high levels of algae, toxins to Vietnamese dams

BY MAY TITTHARA AND
ROBBIE COREY-BOULET

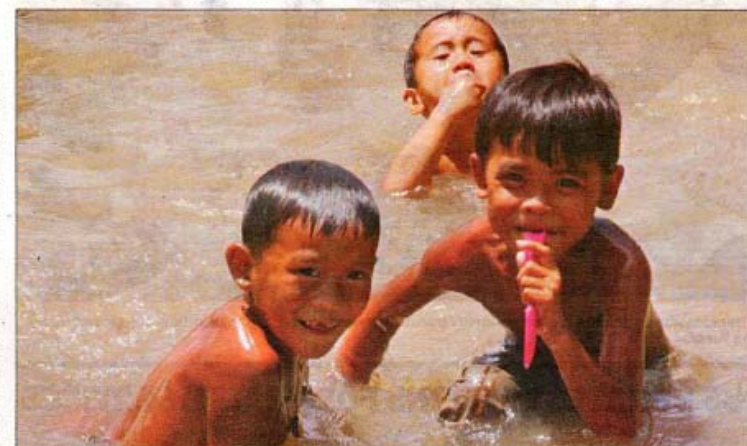
STAGNANT reservoirs formed by hydropower dams on the Sesan River have led to high levels of toxic algae and bacteria that could poison tens of thousands of people living downstream in Ratanakkiri province, according to a new report distributed Tuesday by the 3S Rivers Protection Network.

Research conducted by Anna Madeleine Tiodolf from the Norwegian University of Life Sciences confirmed the presence of cyanobacteria, or blue-green algae, and cyanotoxins in the Sesan. According to a press release distributed with a technical brief on Tiodolf's findings, cyanotoxins "are cancerous to the liver after longer periods of exposure".

The release also cited other reported health problems that could be explained by the findings, including gastric disorders and skin problems.

Cyanobacteria was not detected in three Sesan tributaries, indicating that it was caused by large reservoirs of stagnant water created by dams upstream in Vietnam, according to the press release.

One of the largest tributaries of the Mekong River, the Sesan



Children play in a stream on the road to Ratanakkiri. Water from the Sesan River dam in Vietnam has reportedly polluted water downstream throughout the Ratanakkiri river system. TRACEY SHELTON

has a drainage area of 17,000 square kilometres, 6,000 of which are in Cambodia. Most of the people living in the river basin are members of ethnic minority groups. The press release cited a 2000 Fisheries Administration estimate that roughly 28,000 people "rely on the Sesan River for their drinking water, fishing, bathing and feeding livestock".

Tiodolf's research was conducted over a two-week period in March 2008. Samples were taken from one site along

the river located 30 kilometres from the Vietnamese border and another located 130 kilometres from the Vietnamese border.

Meach Mean, coordinator for the 3S Rivers Protection Network, said Tuesday that villagers were particularly at risk during the dry season.

"People face a lot of problems during the dry season because most of them get their water directly from the river, and there is no rainwater to dilute the river water," he said.

Ka Lanthry, who serves as a representative for villagers who claim to have been affected by dam projects, said villagers were "afraid to cross the river because it gives us skin problems".

He added that officials "should be thinking about this case because a lot of people just can't use the water".

Pich Dun, secretary general of the Cambodian National Mekong Committee, could not be reached for comment Tuesday.

Photo: P. Stålnacke, M.
Tiodolf

www.BIOFORSK.NO

Interviews with local communities along the river



Photos: P. Stålnacke

Stakeholders must be dealt with carefully!



3 'stakeholders' meetings

First one in Vietnam in 2006



3rd one in December 2008 in Laos



Foto: A. Rieu-Clarke

The role of media: 'The
tropical storm/typhoon
Ketsata'
in September 2009.....



Foto: Meach Mean



Foto: Meach Mean



Foto: Meach Mean

Part3: Reflections around scenarios



Økt kraftproduksjon/forvaltning /
sektorer som idag

Økt kraftproduksjon/mer
samhandling mellom
sektorer/forvaltningsmyndighe
ter

Klimaendring

Forvaltning

Kraftproduksjon som i dag /
sektorer/forvaltning som idag

Kraftproduksjon som idag/mer
samhandling mellom
sektorer/forvaltningsmyndighet
er

STRIVER

3rd stakeholder meeting
Glomma, February 2009

www.bioforsk.no

Food, Water and Energy

3 fundamental drivers in the future

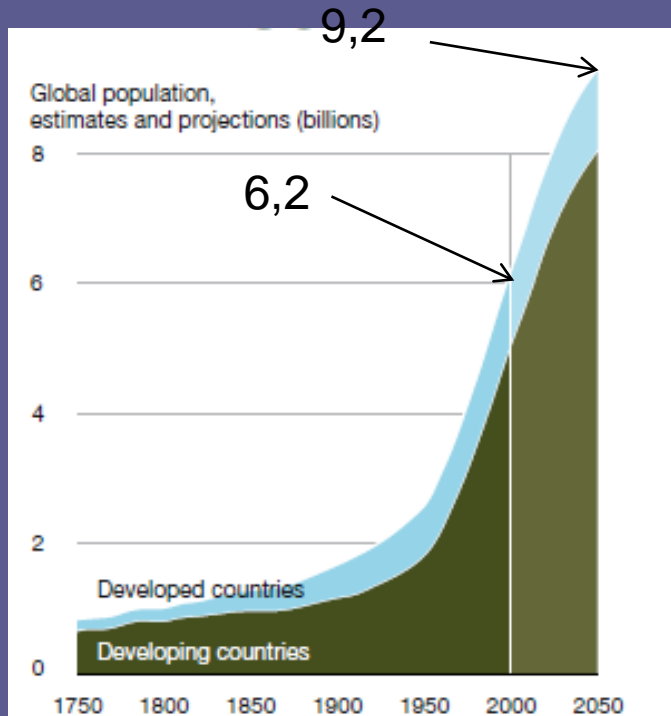
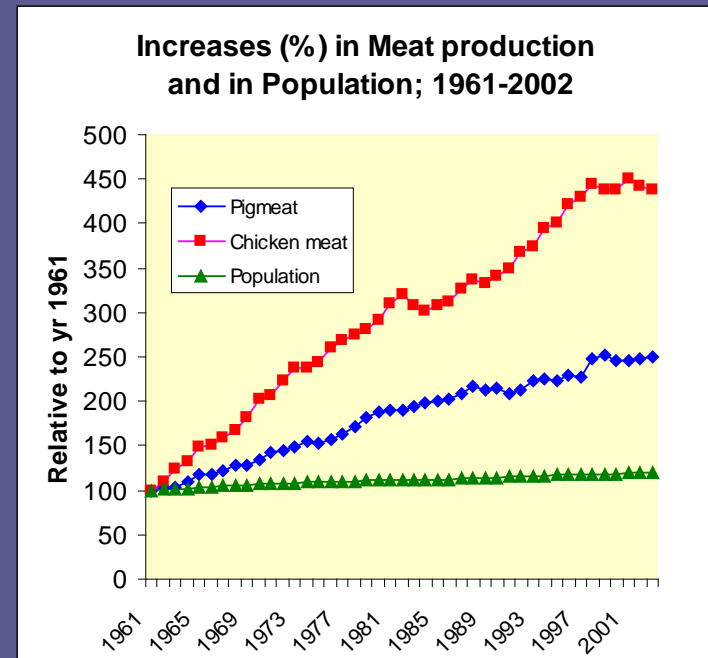


Figure 4: Human population growth in developed and developing countries (Mid range projection) (UN Population Division). Continued population growth remains one of the biggest challenges to world food security and environmental sustainability. (Source: UN Population Division, 2007).

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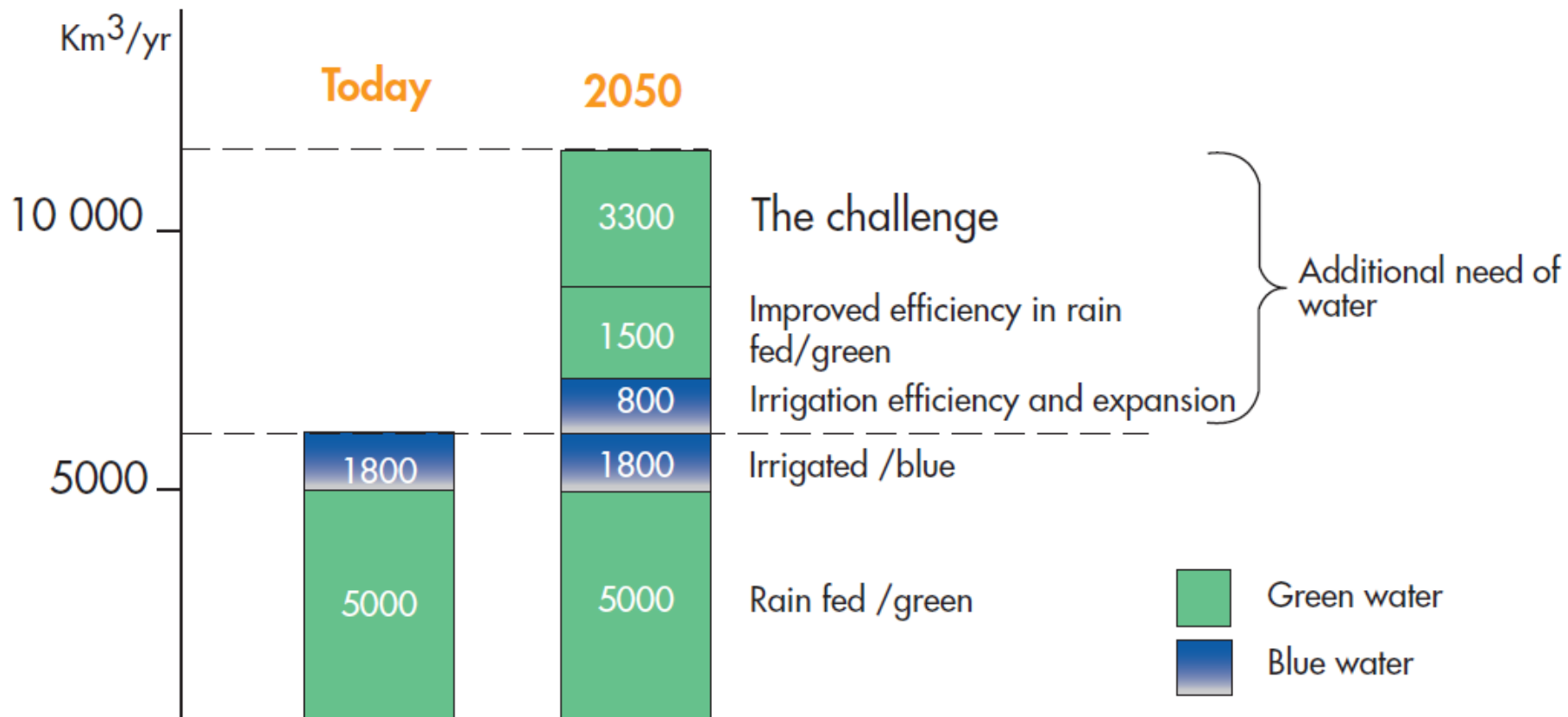
1 kg of meat -> 15000 liters of water

Water consumption at global scale



- Agriculture account for 69%, 21 % for industry, 10% domestic/household usage.

Water usage and food production (Falkenmark, Lundqvist)



Summary / statements

- RTD projects like STRIVER can act as an independent facilitator and neutral platform for 'fueling' up the start of the IWRM-process
- Independent data (environmental) and natural scientific fact and figures is very crucial (but need to be coupled to socio-economical context)
- Scenarios is a independent 'tool' that facilitate discussions regardless of yesterdays and problems of today -> but should be within a 10-20 time horisont
- "Stakeholder" - participation a critical element in IWRM in order for research to be relevant and trustworthy.
- Scientific tools must be developed together with the users
- Scientific results must be transfered to easily read reports ('Briefs') for maximal uptake -> but no appreciation of this within the scientific community



Foto: Per Stålnacke

Thank you for your attention!

This presentation was based on 2 books:

- Gooch, Rieu-Clarke and Stålnacke, 2010
- Gooch and Stålnacke, 2010

