




Writing and Publishing Scientific Papers

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Editor-in-Chief, Water Science & Technology 2005-2010
IEA, Lund University, Feb. 2011






Comparison of journals

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IWA Publishing Journals

Leading international water journals from IWA Publishing (www.iwapublishing.com)



Water Science and Technology Wat. Sci. & Tech.: Water Supply


WST

- Publishes 24 issues per year
- 800 papers
- 6400 pages
- Around 80 associate editors

WST:Water Supply

- Publishes 6 issues per year
- Some 200 papers

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Impact Factor (1)

- Impact factor is a proprietary metric, published annually by Thompson-Reuters in its annual Journal of Citation Reports (JCR).
- The journal impact factor is a measure of the frequency with which the average article in a journal has been cited in a particular year or period.

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Impact Factor (2)

- A journal's impact factor is calculated by dividing the number of citations in a calendar year by the total number of articles published in the previous two years.
- An impact factor of 5.0 means that, on average, the articles published in that journal within the past three years have been cited five times.

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Impact Factor (3)

- Impact factor should **only be considered in context**. There are inherent differences among fields of intellectual inquiry that result in natural differences in impact factor. Impact factor should only be used to compare journals within the same field of scientific specialization.

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Impact Factor (4)

- Impact factor as a metric applies only to journals. Impact factor should **never** be used to assess the work done by individual researchers.

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Table of Content

➔ Why publish

- Reasons for rejection
- Communicate – with whom?
- Writing a paper
- Cheating in scientific publishing
- Final remarks

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Why Publish?

- Publishing is the crucial **quality test!**
- It is the condition for open research
- You will get known
- You meet other researchers and can **compare** results
- You do not buy knowledge – you **exchange** it!

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Why publish?

If your research is not published
in a journal or
a well-known conference
it does not exist!!
It must be possible to find it.

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A Good Paper... (1)

(referring to water sciences)

- is driven or inspired by technological, industrial, management, environmental, economical or social challenges;
- contributes to new scientific methods or new applications of known methods;
- applies good scientific methods in technology applications;
- describes *new directions* and *early findings* in water science and technology.

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A Good Paper... (2)

(referring to water sciences)

- triggers constructive discussions – which also gives a high probability for citation;
- contains adequate references, good illustrations and tables;
- is of interest for and comprehensible for an international audience.

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Reasons for Rejection (1)

- There is *insufficient new and interesting information* in the paper
- The paper is *too commercial* (i.e. is essentially advertising a product or a company)
- The paper's *English is too poor to be understood* by an international readership
- Will probably not be cited

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Reasons for Rejection (2)

- **Local** issues (water quality in Songhua river etc) with insufficient interest for an international audience
- Lack of **history** on the topic (no literature study)
- Lack of **discussion** or conclusion
- Too few **references** and mostly self-references

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Reasons for Rejection (3)

- Data collection without any comparisons
- Lack of quantitative information (data, tables etc)
- Too long (consult the journal's *Instructions to Authors* for word limit)
- Findings not generalised or used to build theory
- Will probably not be cited

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Who is the Reader?

- A specialist?
- A wider audience?
- What is the key message?

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What makes you read a paper?

- **Title** – is it informative?
- **Abstract** – what is the message?
- Why was the paper written – the **Introduction**
- **Figures** – are they informative?
- **Conclusions** – what is the message?

After the first glance –
will the reader (=you) still be curious?

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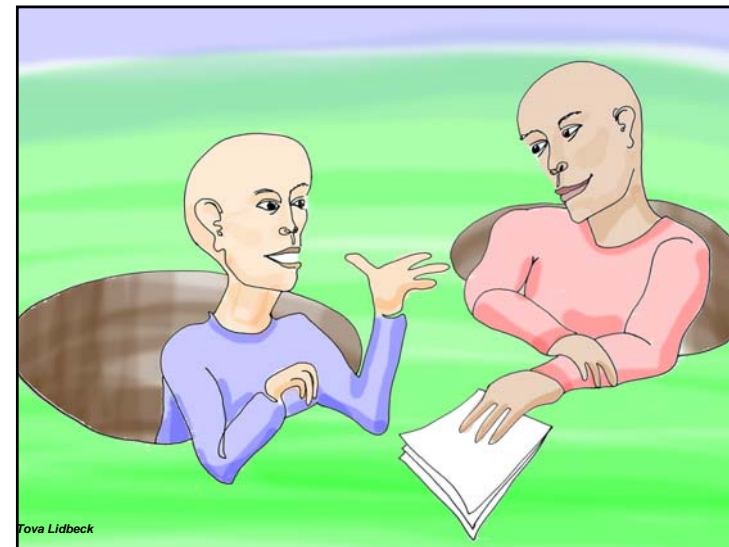
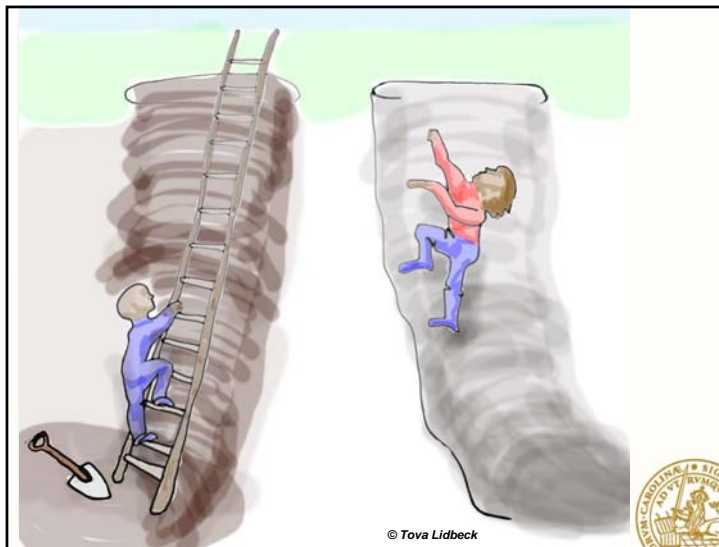
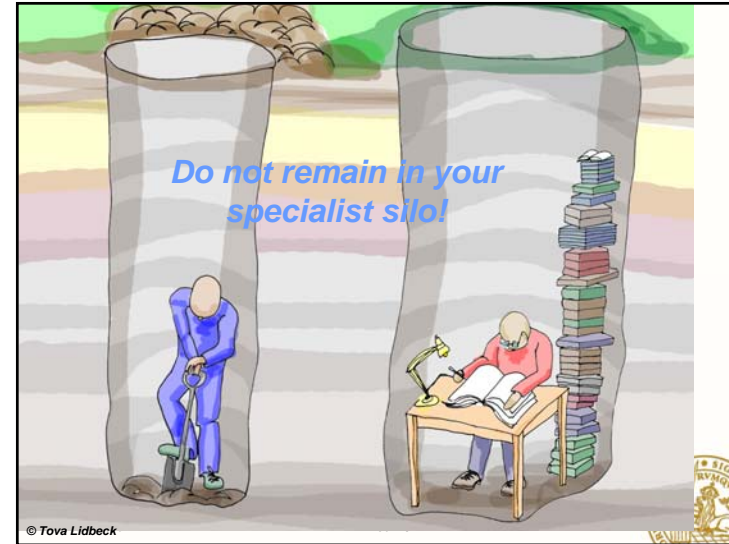



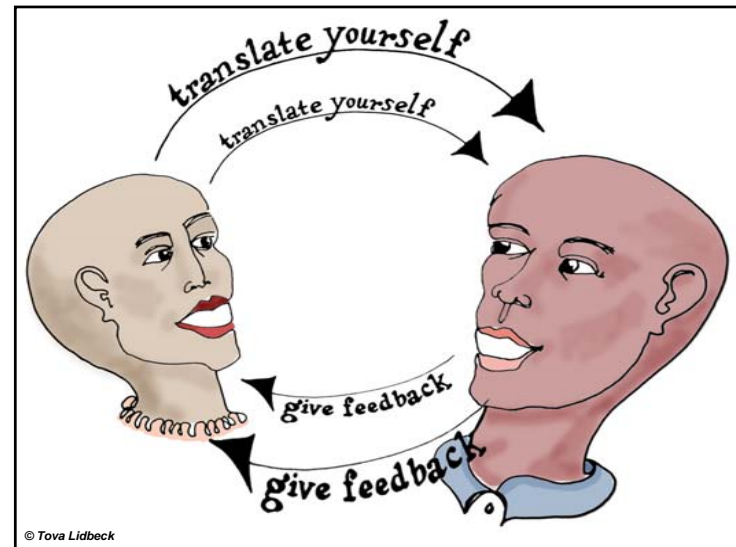
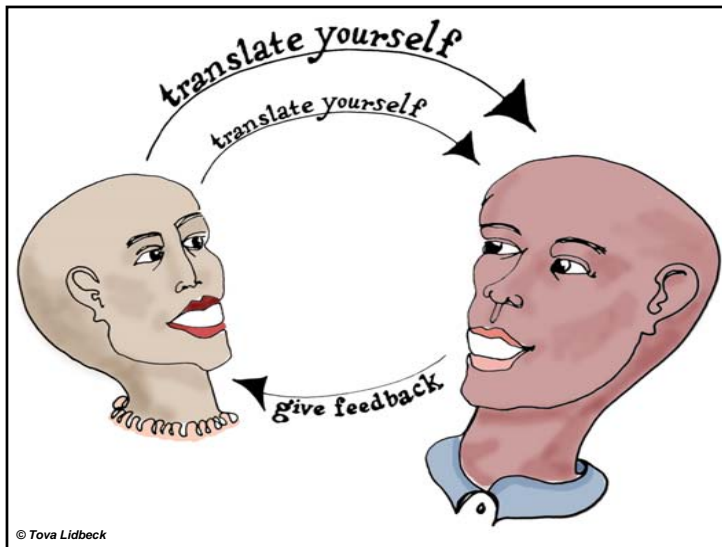
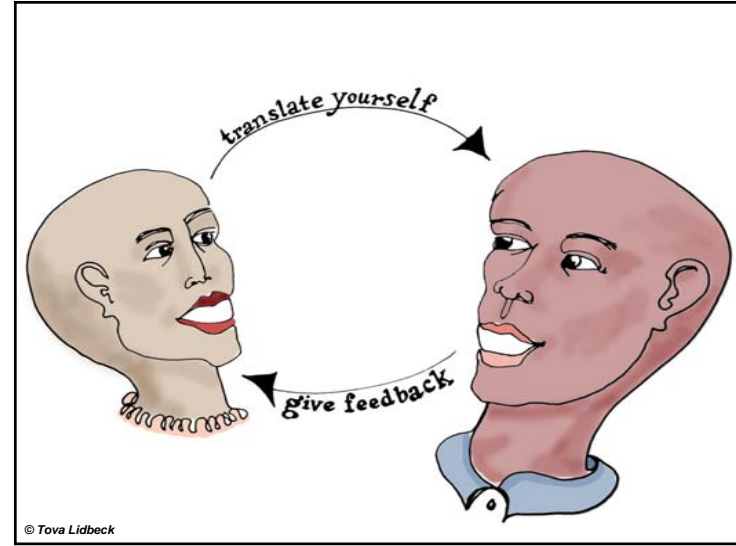
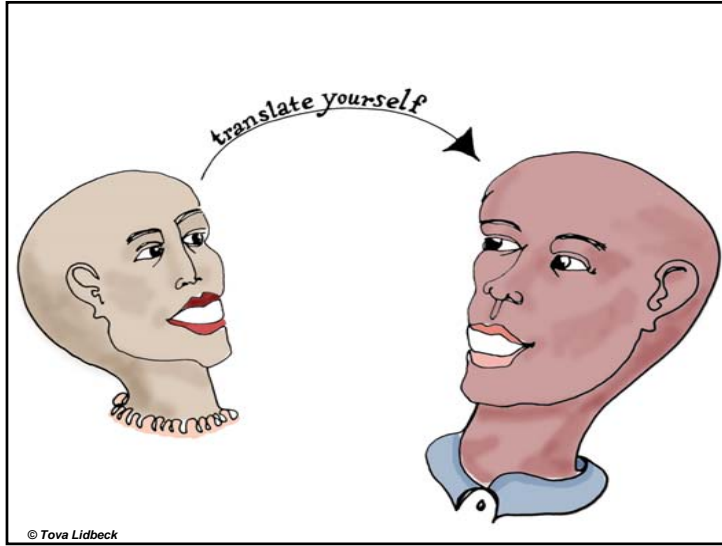
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How to communicate your paper?

- **Title** – ask a friend (not your closest colleague!) if the title can be understood
- **Why was the paper written** – the **introduction** (can your non-specialist friend understand the reason for the paper?)
- **Figures** – do the captions give any information?
- **Conclusions** – will your sponsor (manager) be happy?

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Important Features

- The probability that the paper will be read and cited by others should be high
- The results should be interesting for an international audience – not only of regional or local interest

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Start writing immediately...

- From the beginning of the project or the thesis: **write!**
- For the **first iteration**: just write down your ideas and **do not worry about the style** of the language!
- References – having read a paper, write the reference directly + your comments

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Abstract

- Think carefully about the **title of the paper**
- Make sure that the abstract is informative, can stand alone and covers the content
- It is the **selling point** – be brief and specific. Use < 200 words
- No figure and no reference in abstract

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Keywords

- Use 3-6 **descriptive** keywords
- Avoid general keywords like "wastewater treatment process"

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Introduction

- **Motivation for the research**
– why did you do the work
- Background information – set the scene and outline 'the problems' and hypotheses
- **Remember:** by reading the introduction the reader will decide if he/she will continue to read the paper

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References (1)

- It is important to refer to what has been done earlier. Document your findings and sources.
- You can of course refer to your own works but is **important to refer to > 5** other references. If **most** of the references are your own papers – it is a reason for rejection

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References (2)

- Make sure that you have **recent** references as well as the **original** references
- The references should be understood by an **international** audience (i.e. English)
- Should be retrievable by a librarian!

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References (3)

- If you copy a figure from another paper, **give the source** (from Johnson *et al.* (2006))
- Follow the **Journal Publishing format**. Check the style and format as required
- You are responsible for obtaining copyright clearance for any material, figures or tables that have been published elsewhere

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Reference list not acceptable

- AA. VV. (2005) Studio e valutazione della vulnerabilità intrinseca ... Provincia di Cuneo (*unpublished*).
- AA.VV. (2003). **Sistemi agricoli e inquinamento** ... Libri di Arpa Umbria, 261 pp.
- Civita, M. (1999) **Dalla Vulnerabilità** al rischio d'inquinamento. ... Parma, vol. 3, 18 pp..
- Civita, M. and De Maio, M. (2000) **Valutazione e cartografia** automatica Pitagora Editrice, Bologna, 240 pp, Pubbl. n° 2200 del GNDCI-CNR.
- Civita, M. and Vigna, B. (2000) **Le risorse idriche sotterranee**..... GEAM n.4/200, 20 pp.
- Civita, M. AndVigna, B. (2003) **Valutazione del rischio**.....IGEA n. 18/2003
- Padovani, L.and Capri, E. (2000) **Pericolo potenziale di** ... Pubbl. n° 2206 del GNDCI-CNR. 58 pp. ISBN 88-7830-321-6.
- Padovani, L. and Trevisan, M. (2002) **I nitrati di origine agricola** Pitagora Editrice, Bologna, 103 pp. Pubbl. n° 2478 del GNDCI-CNR.

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Materials and Methods

- The research should be possible to **verify** by anybody else
- **Describe** the methods (not only "I used the software XYZ and found...")

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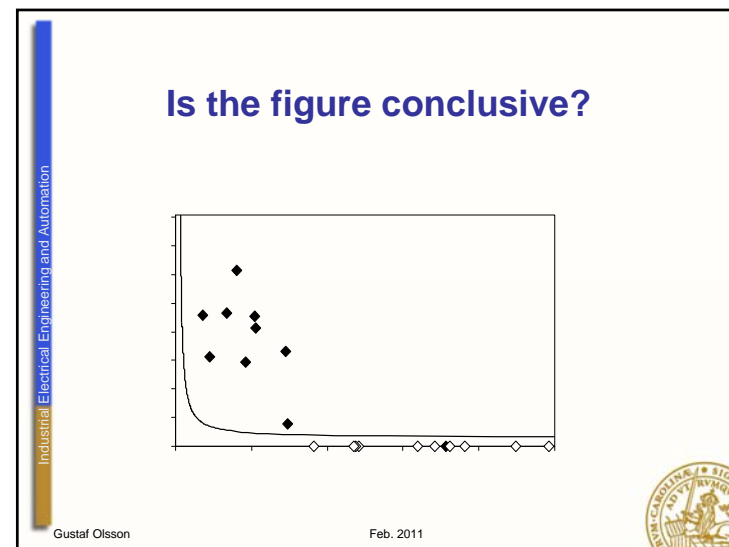
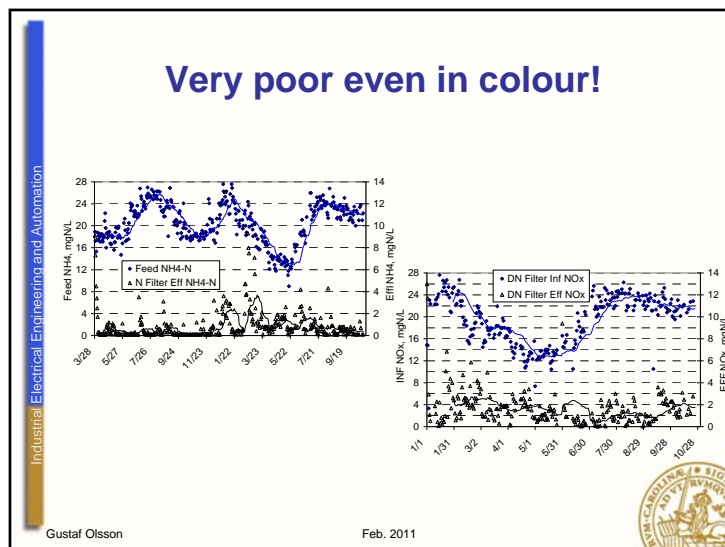
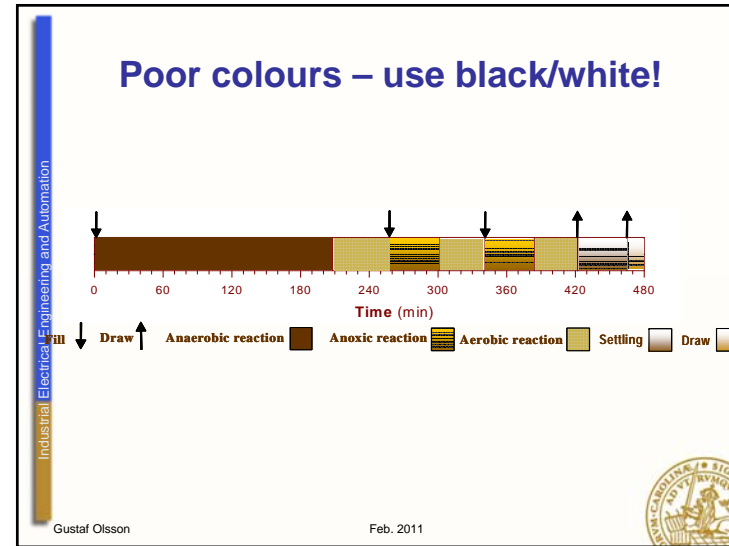
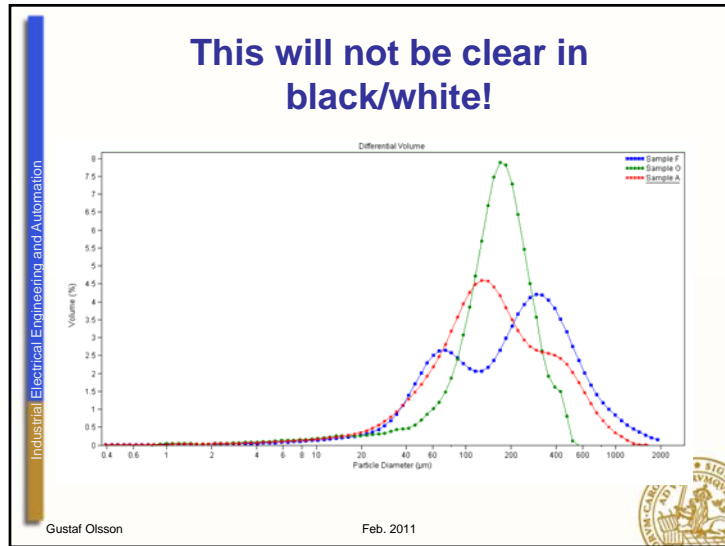
Figures and Tables

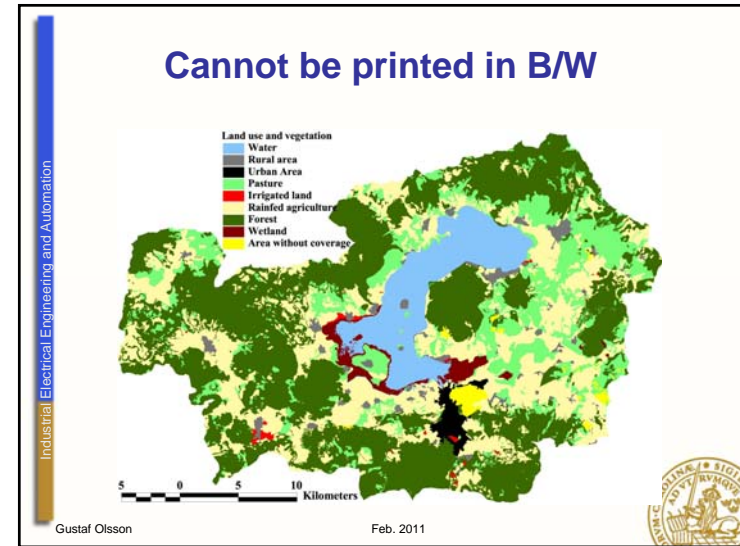
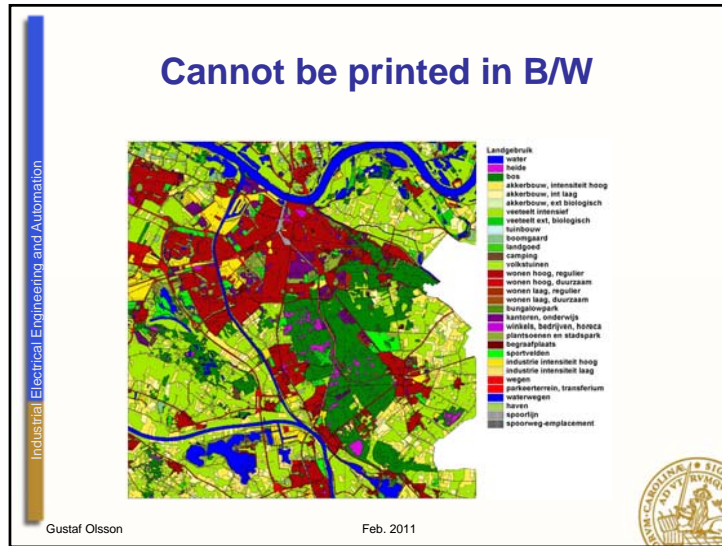
- Remember: the paper will be **printed in black/white**
- Do not put too many details in the figure – it should be easily readable!
- Have an **informative caption** (do not repeat information)

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**Not a good table!
Unrealistic accuracy**

	Unit	SFR	MFR	T	V
RC		0.29	0.33	0.75	0.23
Total Coliform	MPN /100mL	1395691	n/d	806940	21288
Fecal Coliform	MPN /100mL	1085354	n/d	1340167	2175
SS	mg/L	105	46	75	164.68
Oil & Grease	mg/L	1.36	n/d	3.19	0
Total Copper	µg/L	15	12	52	9

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**Not a good table!
The numbers are not believable**

BMPs	Influent /Effluent	TSS (mg/L)	BOD5 (mg/L)	TN (mg/L)	TP (mg/L)
STF	In	42.02±20.73	8.5±4.62	4.33±1.78	0.21±0.05
	Out	16.06±15.28	4.62±3.24	3.05±1.23	0.14±0.04
VDTF	In	54.02±29.29	10.2±9.21	3.86±2.66	0.32±0.1
	Out	12.64±6.4	4.68±1.77	3.08±1.49	0.16±0.05


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Not a good table! Unrealistic accuracy

Table 2. Total N and P average loads by sources

Sources	Total N (tons)	Total P (tons)
Pasture	12.47	0.35
Cropland	78.61	2.13
Farm Animals	736.78	181.49
Groundwater	1,041.99	19.81
Point sources	490.75	115.97
Septic Systems	151.29	31.29
Total	2,556.22	352.21




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Discussion

- **Discussion is important** - be careful to present the results clearly
- Do **not** just present the results. Try to **explain** them!
Explain and discuss results that may be surprising!




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Conclusions


- **The conclusion is the message** of the paper!
- In the conclusions the reader will find out how successful you were




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Cheating – Breaking the Rules - in Scientific Publishing

- Cheating – breaking the rules
- Plagiarism
- Self plagiarism
- Salami

(from Mogens Henze)

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Cheating is considered much more serious today than earlier

- The definition of cheating has changed
- Higher ethic standards now

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Breaking the rules... includes:

- Multiple submissions – submitting the same paper to more than one journal at the same time
- Previously published publications
- Plagiarism
- Data fabrication and falsification
- Improper author contribution and attribution

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Breaking the rules is very serious... So why do authors cheat?

- Accident
- Publishing demands
- Increase personal status
- Internal research group fights

(from Mogens Henze)

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How do they break rules?

- **New author to old paper**
- **Cut and paste – often directly from Internet (*this is now tested!*)**
- **Add author (that was not involved)**
- **Omit author**
- **Forget to cite earlier literature**
- **Self plagiarism**
- **Thin salami pieces** (from Mogens Henze)

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Citation missing

Eberhard Küster, Falk Dorsch, Carsten Vogt, Holger Weiss and Rolf Altenburger.
On line biomonitors used as a tool for toxicity reduction evaluation of in situ groundwater remediation techniques
Biosensors and bioelectronics, Vol 19, Issue 12, 2004, pp 1711-1722


Petersen, F and Xiu Wang, Biosensors in pregnant elephants, Journal of long nosed animals, 2005

To gain the specific advantages of real time monitoring an on line biomonitor should have long standing times with short service and maintainance times.

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(from Mogens Henze)

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(from Mogens Henze)

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Very serious

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(from Mogens Henze)

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Serious

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Correct

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(from Mogens Henze)

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Eberhard Küster, Falk Dorsch, Carsten Vogt, Holger Weiss and Rolf Altenburger.
On line biomonitors used as a tool for toxicity reduction evaluation of in groundwater remediation techniques. **OK**
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(from Mogens Henze)

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Examples of Breaking the Rules (1)

- Supervisor published PhD student's work without his acceptance
- Scientist added husband as author
- Same paper submitted at the same time to 2 journals
- Results stolen from old paper
- Cut and paste, because: 'I could not do it better than the old author' (but forgot citations!)

(from Mogens Henze)

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Examples of Breaking the Rules (2)

- PhD student published results in local journal without supervisor being informed
- Student wrote part of paper (forgot citations). Supervisor did not check the paper before submission
- Author stole full paper, including all tables and figures. Changed title and a few headings.

(from Mogens Henze)

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Who should be shown as author?

- Talk about this with your co-workers
- Different traditions
- All the authors should have been involved in the work – not enough to make the funding possible
- Have an open policy
 - Every author is responsible for the whole content of the paper

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Summary - Cheating

- Be careful with **citations**
- Be careful about who should be the **author**
- Behave **ethically** with respect to people involved in the research

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Some Final Remarks

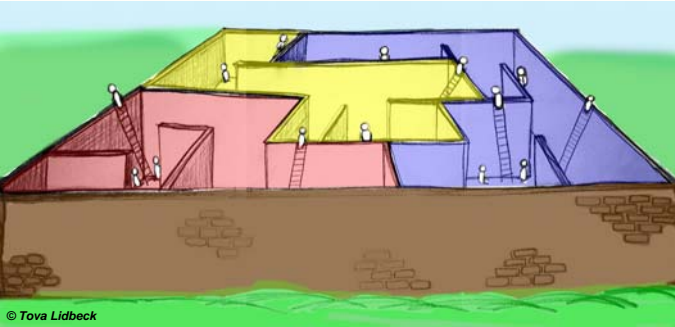
- Why is the work done?
- What is the message?
- Is the paper interesting for international readers?
- Check the English language!
 - Look for some language reviewer
- Present the paper to colleagues
- Do not forget the past (do not reinvent the chopstick)
- Do not cheat

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Discover the others...



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... and they will discover you!

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Why?

The driving forces
The motivation

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What?

The task
The challenge

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How?

Materials and
methods

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So what?

Conclusions
The message
Recommendations

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