

Assessment of the BONUS impact on scientific excellence and dissemination

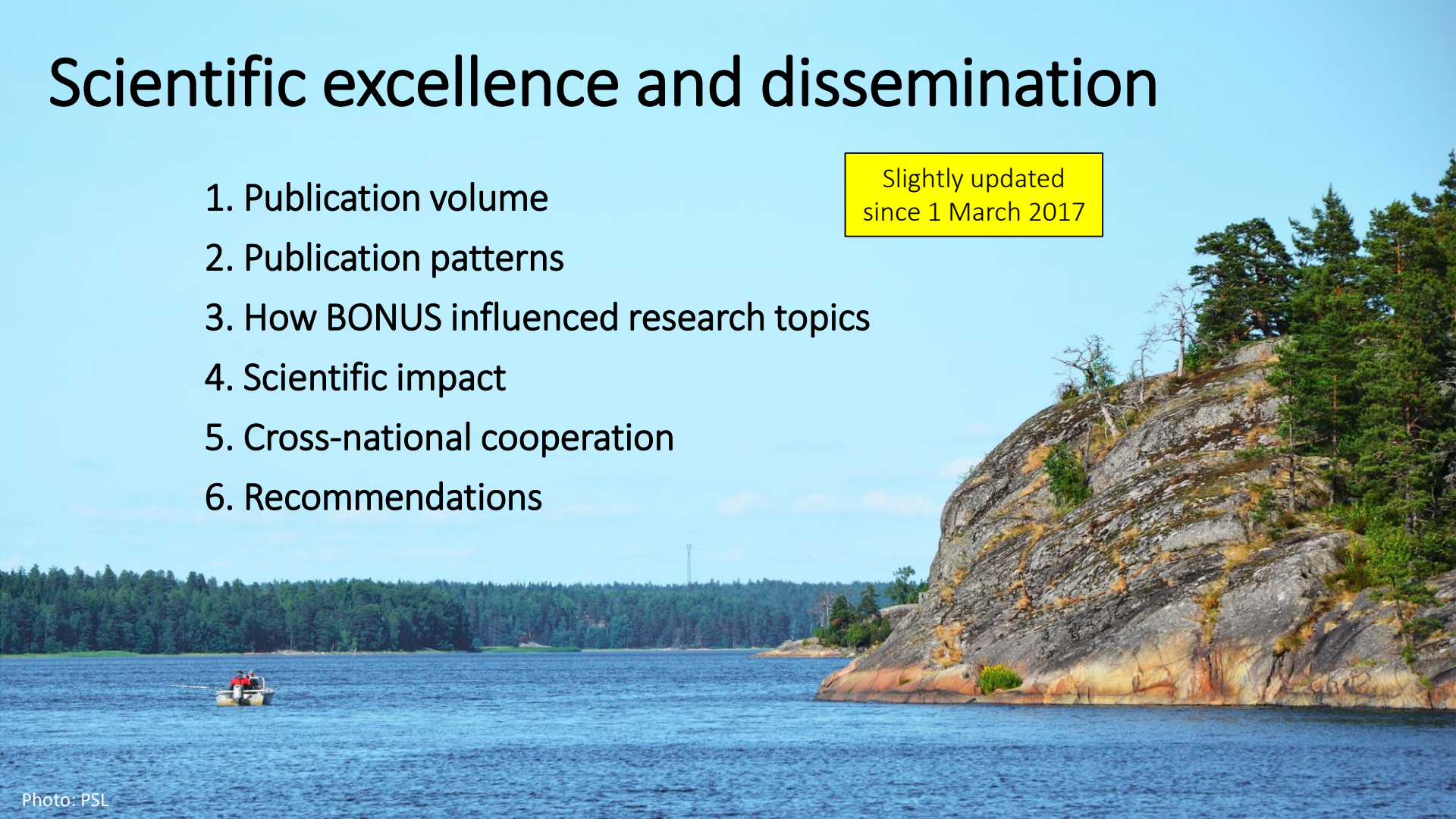
The 6th BONUS Forum: Dimensions of BONUS impact
4 May 2017

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Stockholm University

Scientific excellence and dissemination

1. Publication volume
2. Publication patterns
3. How BONUS influenced research topics
4. Scientific impact
5. Cross-national cooperation
6. Recommendations

Slightly updated
since 1 March 2017



Web of Science (WoS) - ranked papers

- Included in the study are peer-reviewed scientific papers in WoS-ranked international journals, *i.e.* the results have been **quality-assured** by other scientists and are **widely disseminated**
- When scientific results are not disseminated in this way, they remain hidden, and the investment of society in the scientific achievement will **not contribute to the progress of science ...**
- **... and also not to evidence-based decision-making**, which requires peer review of the science that produced the evidence
- BONUS is **policy-driven** and **solution-oriented** so that adequate dissemination of scientific results to society is an absolute necessity

BONUS papers

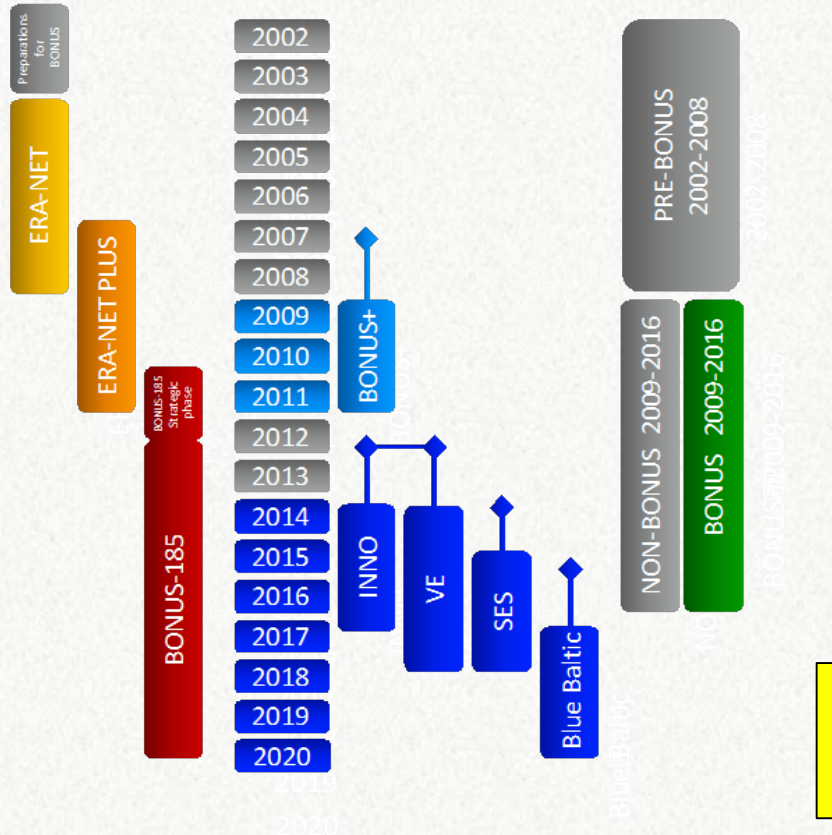
- **Funded** or co-funded by BONUS (in acknowledgements)
- **Identified** in WoS by "Baltic" + 24 other geographical criteria
- The research is carried out in the **Baltic Sea Area** or mentions its relevance for the Baltic Sea Area
- Excludes papers that report scientific results that may be relevant, but not specific, for the Baltic Sea that **do not mention** any part of the Baltic Sea Area in the text
- Excludes papers in conference proceedings or books because such publications are generally much **less accessible**, possibly **not peer-reviewed** and have **no JIF**

1. Publication volume



Publication volume

BONUS phases **Project implementation** **Bibliometric data sets**



2,994 WoS-ranked papers

4,856 WoS-ranked papers

BONUS contribution:
504 papers (10 %)

BONUS prognosis:
1,400 – 1,600 papers
Published in 2017-2024 (15-20 %)

In 15 years:
7,850 papers published
in 958 different journals

BONUS+ price
ca. 50,000 EURO/paper

PROGNOSIS:
if equally productive
as the BONUS+ projects

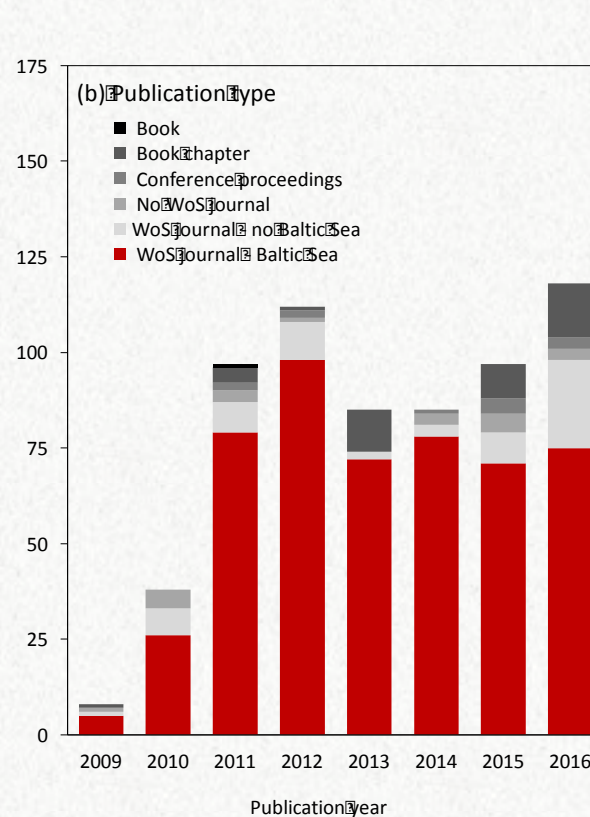
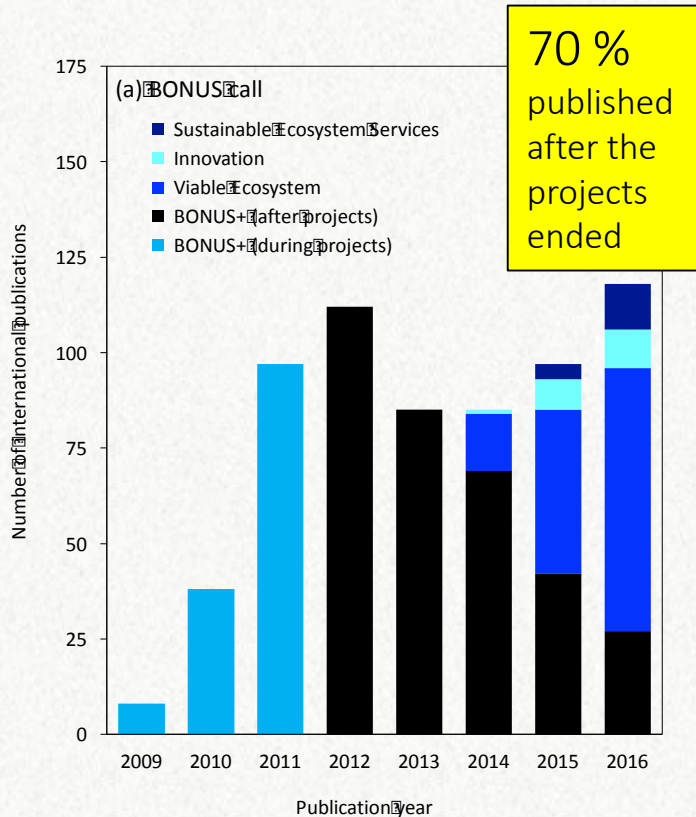
WARNING:
there are a number of
BONUS-185 projects
that publish very little,
e.g. in the "Viable
Ecosystem Call" the
variation is 1-58 papers
in three years between
projects

2. Publication patterns



Photo: Stefan Beskow (*Neomysis integer*)

Publication patterns - all 640 international publications (WoS-ranked and others)



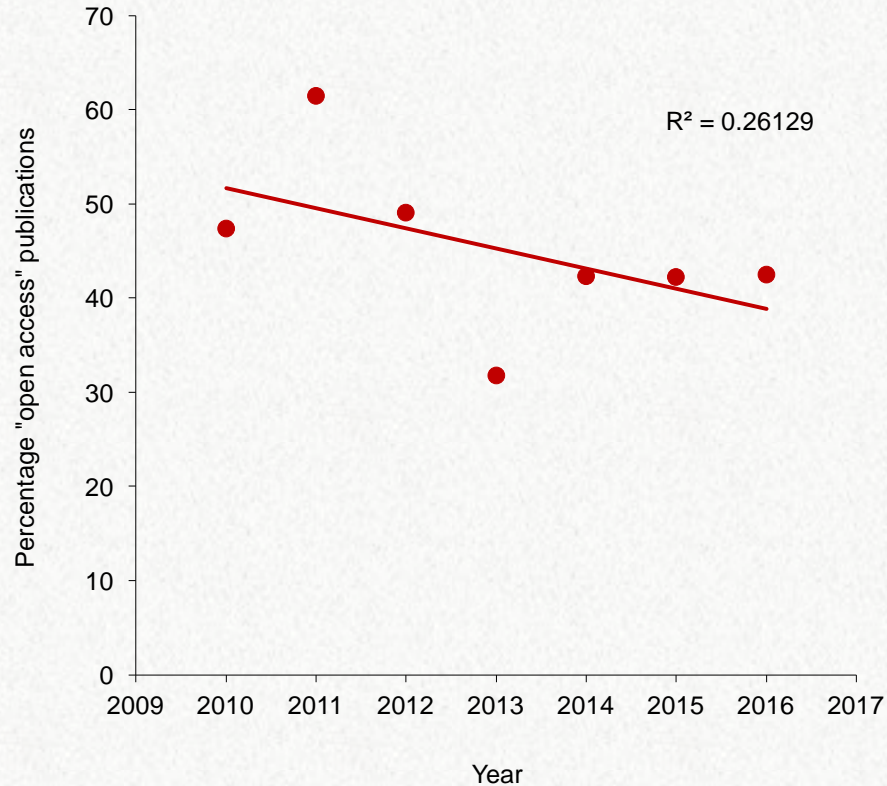
Not all BONUS results were published optimally

74 papers (11 %) in books, conference proceedings or non-WoS ranked journals

62 papers (10 %) in WoS-ranked journals but not mentioning the Baltic Sea

504 papers (79 %) in WoS-ranked journals

Publication patterns



Open access publication

was on average 45 % but decreased with time

Open access means that a publication is freely available to anyone

This implies that more people will read and use the research results

3. How BONUS influenced research topics



How BONUS influenced research topics

Research topic	% PRE-BONUS (of 2994)	% NON-BONUS (of 352)	% BONUS (of 504)	% Change between PRE-BONUS and NON-BONUS	% Difference between NON-BONUS and BONUS
Social Sciences	0.0	0.0	0.2	39	330
Evolutionary Biology	2.3	1.6	6.0	-31	270
Genetics (heredity)	1.2	1.3	3.6	6	173
Environmental Engineering	4.5	3.6	9.1	-19	151
Multidisciplinary Sciences	0.5	4.1	6.5	932	84
Technology	9.9	10.0	16.3	774	60
International Relations	3.0	2.0	3.8	533	50
Biodiversity Conservation	0.2	1.1	1.6	30	89
Multidisciplinary Geosciences	1.5	2.0	3.8	1	63
Toxicology	0.3	3.4	6.3	-34	93
Water Resources	2.7	2.8	1.4	4	-50
Fisheries	9.5	8.0	3.4	-15	-58
Plant Sciences	2.2	1.5	0.6	-34	-60
Chemistry	3.3	3.2	0.8	-2	-75
Zoology	3.6	2.8	0.0	-23	-100
Remote Sensing	1.4	1.4	0.0	-4	-100

4. Scientific impact



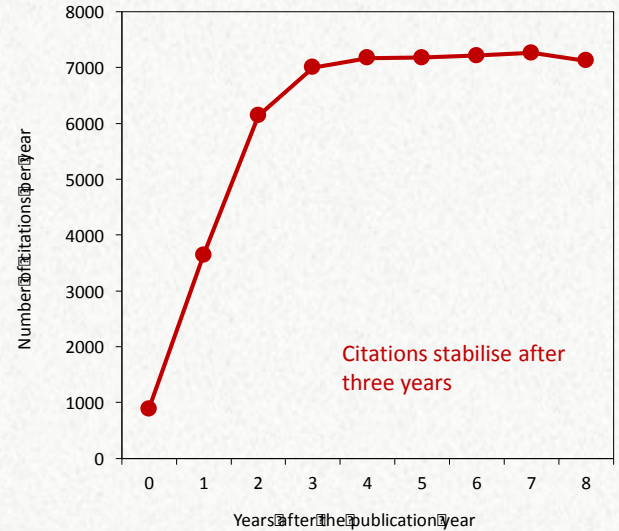
Scientific impact

Citations

- How often a paper is used for the progress of science

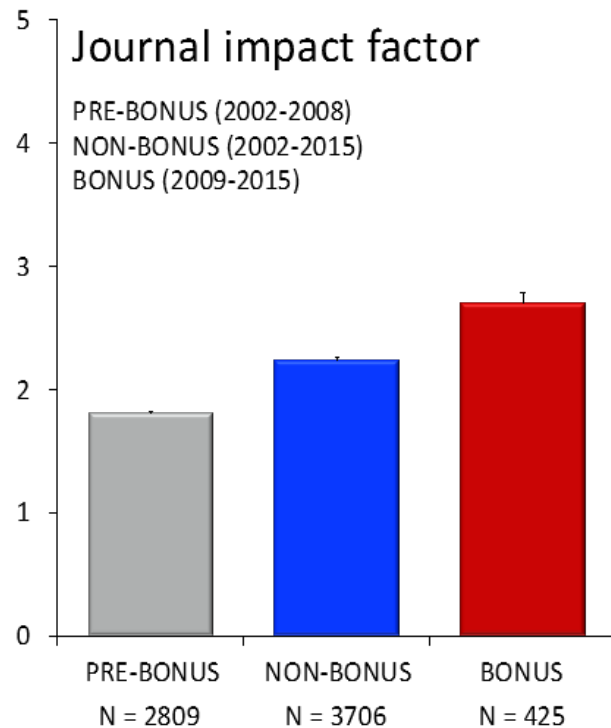
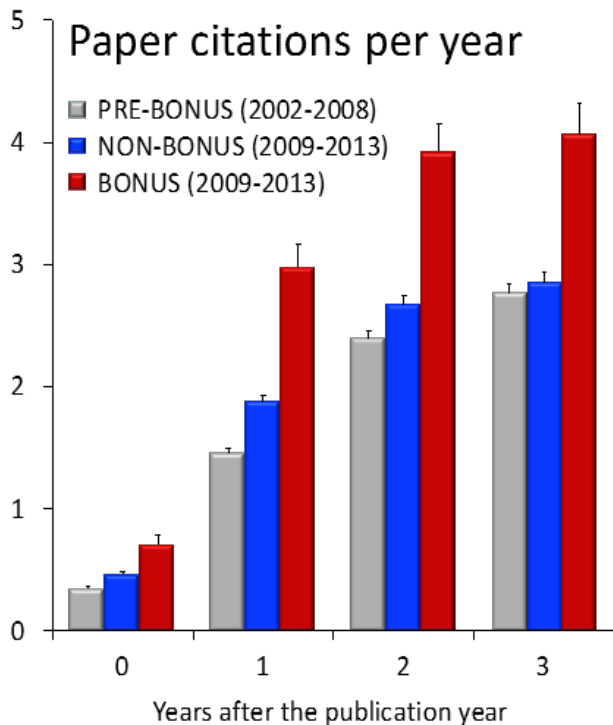
Journal Impact Factor (JIF)

- How promising a paper is in the eyes of editors and reviewers



The scientific impact of BONUS

Baltic Sea papers, and especially BONUS papers, have higher impacts than other papers published in the same journals



5. Cross-nationality



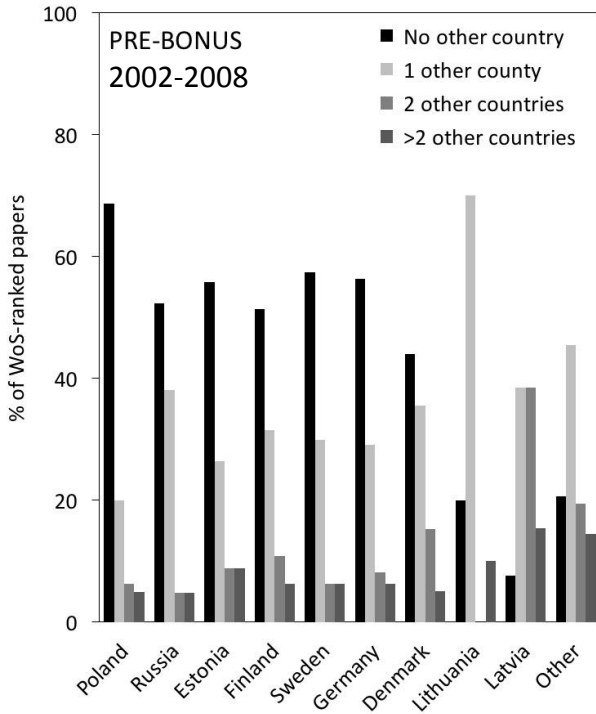
Photo: PSL (*Calothrix scopulorum* and *Cladophora glomerata*)

Cross-national cooperation

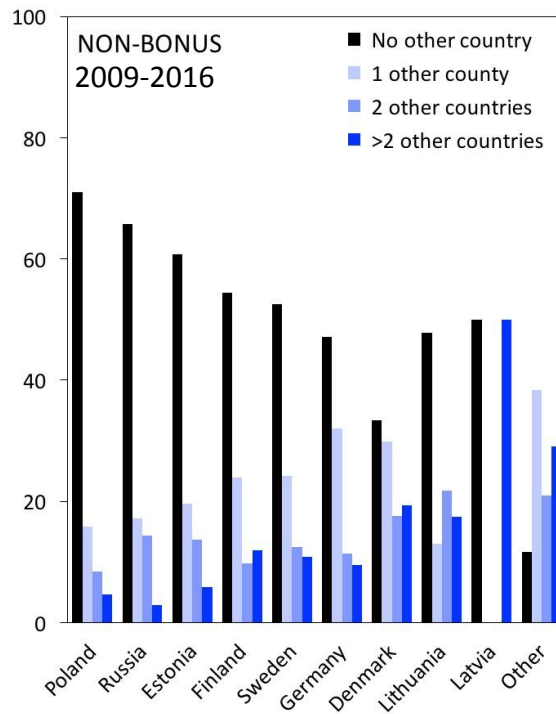
No difference in cross-national cooperation

BONUS increased cross-national cooperation

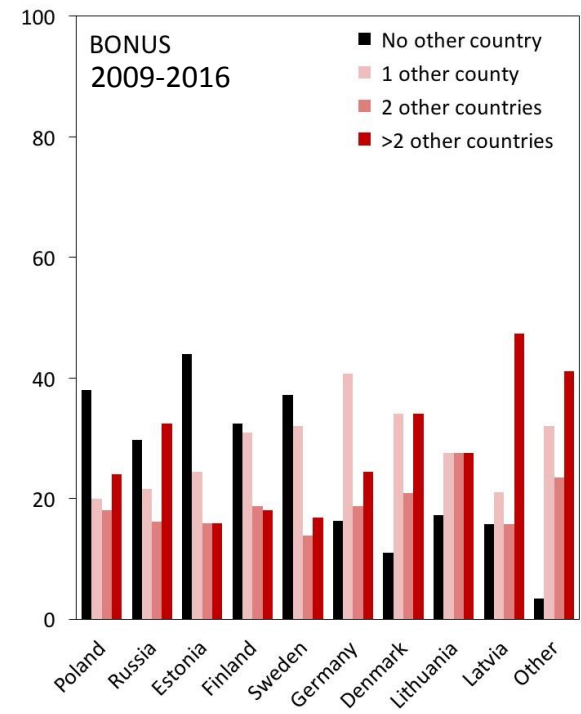
33 % of papers cross-national



32 % of papers cross-national



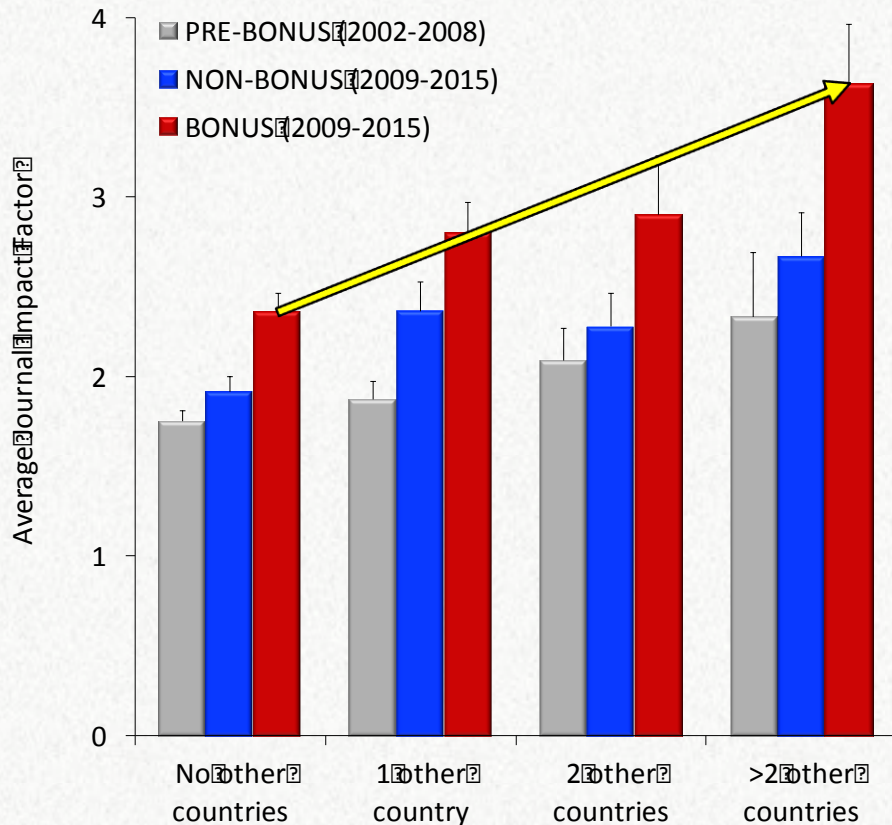
52 % of papers cross-national



Cross-nationality and scientific impact

BONUS increased cross-national research cooperation for all Baltic Sea countries

- and this increased the scientific quality of the Baltic Sea core papers



Cross-national papers have higher scientific impact

For example:

Multidisciplinary studies

Meta-analyses

Ensemble models

Pan-European or circumpolar studies on:

- Genetics & evolution
- Climate change
- Aerosols
- Fisheries

6. Recommendations



Recommendations to BONUS

to improve general access to the BONUS results:

1. Publish in **Wos-ranked journals** with **open access**

In contract: "The scientific output from a BONUS project should reach other scientists in the best possible way to maximise the likelihood that it will contribute to the progress of science in the Baltic Sea Area and elsewhere"

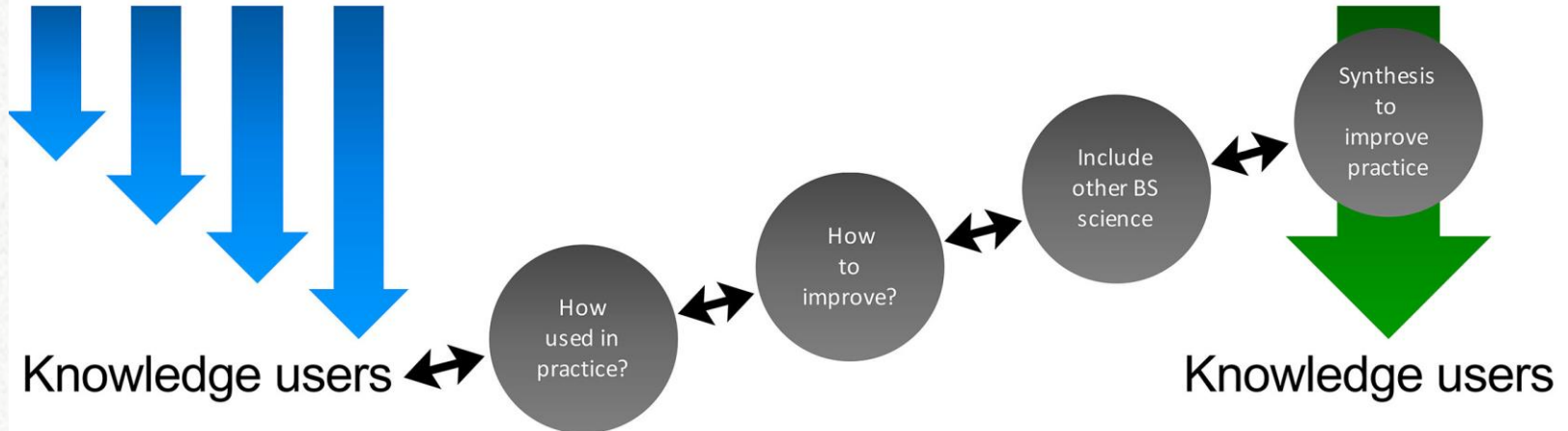
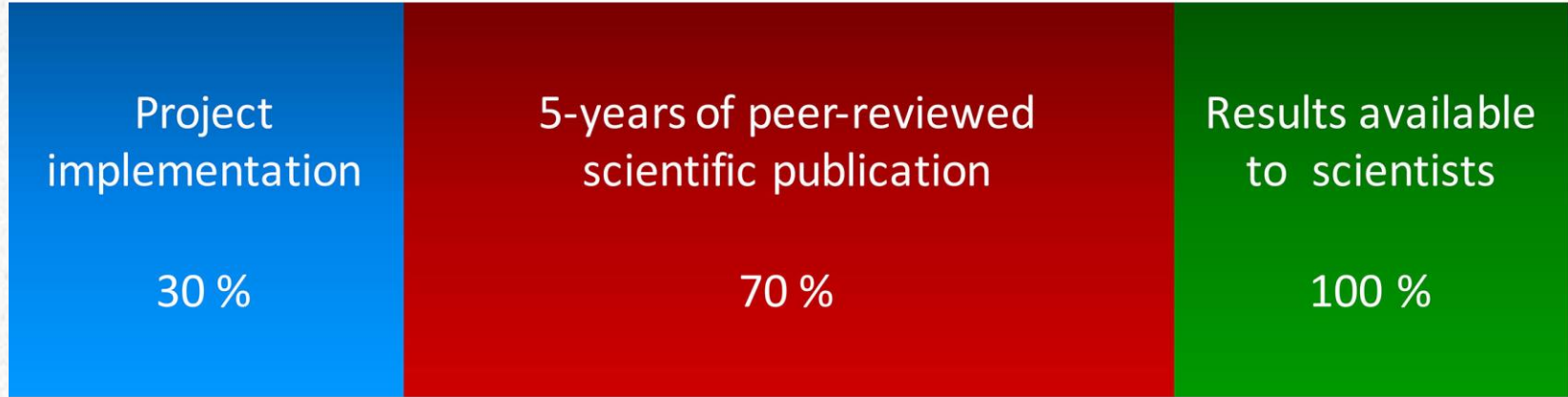
2. Stimulate **cross-national cooperation** even more
3. Publish and update list of BONUS publications at the **Bonusportal** (from WoS)
4. **Baltic Sea must be mentioned** in the text at least once (to find it in WoS)
5. **BONUS must be acknowledged** if BONUS funding was used

Recommendations to BONUS

to improve societal use of the BONUS results:

Integrate scientific **synthesis & critical review** with studies on **practical use in society**

Improved dissemination from science to society



Recommendations to BONUS

to improve societal use of the BONUS results:

Integrate scientific **synthesis & critical review** with studies on **practical use in society**

Dissemination problems today

- Much knowledge is not used
- Not even tools (e.g. models)
- Who reads all papers on policy?
- Too theoretical (WoS)
- Too popular
- Not practical
- Time lag

Proposed study design

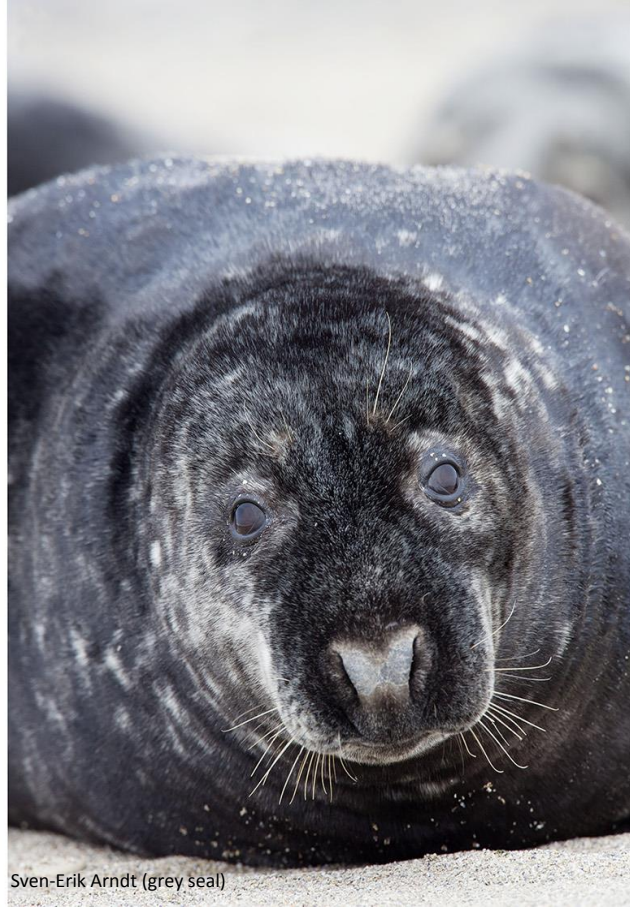
- Thematic research projects
- Driven by key scientists
- Involving specific knowledge users
- Combining theory and practice
- Use peer-reviewed science
- Evaluate use by society
- How stimulate better use?
- Publish in WoS ranked journals

Advantages

- Combine theory & practice
- Two-way communication
- Using existing knowledge
- Seeking consensus
- Relatively cheap
- Fast results
- **High societal impact!**



Sven-Erik Arndt (harbour seal)



Sven-Erik Arndt (grey seal)



Charlotta Moraeus (ringed seal)

Thank you!