

The evolution of science-industry research collaboration in the Netherlands: crossing boundaries to co-produce knowledge

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Photo: Hugo Schultemaker



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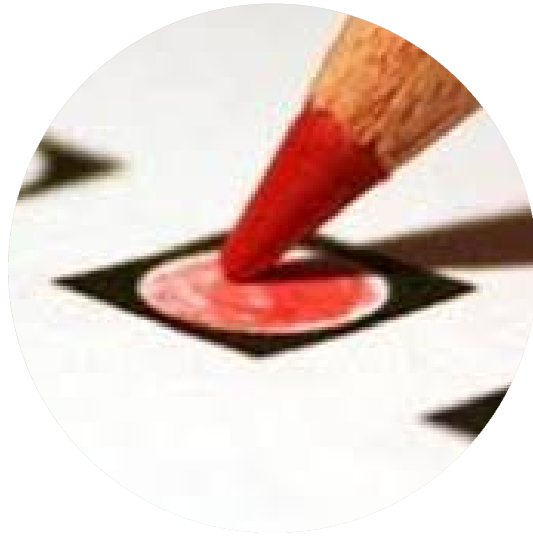


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My name is Nathalie Steins and I will presenting joint work on crossing boundaries in science-industry research collaboration.

Poll

Science-Industry
Research
collaboration
(SIRC) is invaluable
in improving our
knowledge base for
ICES advice on
fisheries
management.



AGREE/YES = STAND UP

Yesterday was a late night with the conference dinner, and it's still very early now. So let's wake everyone up. Can you all stand up?
Going to show a number of statements. If you agree, you stand. If you don't, you sit down.

Poll

A number of scientists have changed jobs and moved from research institutes to the fishing industry.

Who has ever heard the joke about them moving to "The Dark Side"?



AGREE/YES = STAND UP

Poll

Scientists employed by the industry should be able to participate as full members of ICES expert groups and advice drafting groups.



AGREE/YES = STAND UP

Lessons of 15 years of Science-Industry Research Collaboration (SIRC) in NL



Capacity-building fishers and scientists

Equity: who are "the fishers"?

Multi-level governance barrier

Dynamics in knowledge domain and relationships

"Science wall": data, knowledge, people

I had a reason for asking these questions. Our paper on crossing boundaries in SIRCS covers many aspects and I only have ten minutes. So I am not going to talk about these lessons....

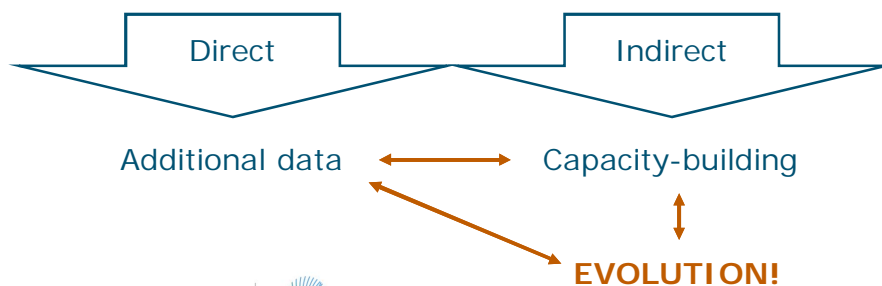
Instead, because we are here as an ICES community, I would like to discuss one particular dilemma we encounter: "the science wall". I am happy to talk to you about the other lessons during the break.

10 years ago: what do SIRC's bring?

Benefits and organization of cooperative research for fisheries management

Teresa R. Johnson and Wim L. T. van Densen

Johnson, T. R., and van Densen, W. L. T. 2007. The benefits and organization of cooperative research for fisheries management. – ICES Journal of Marine Science, 64: 834–840.



A little over 10 years ago Johnson and Van Densen published a paper on guidelines to set up SIRC's. The guidelines focus on using fishers as a platform to collect data; in a way, on a situation where scientists benefit from additional data provided by the industry. J&VD also pointed out indirect benefits of SIRC's, particularly when it concerns capacity building. SIRC's empower fishers to improve understanding and appreciation for information produced through scientific research and how this then translates to management advice.

Our first SIRC in NL was one of the case studies for the J&VD paper. This project started from a deep crisis in the relation between the national institute and the fishing industry over the ICES stock assessment for plaice and sole. It was "them against us", on both sides. In 2002, government, industry and scientists jointly agreed to start a project aimed at better use of fisheries data in the ICES stock assessments and increasing understanding of the role of science in the process of setting the catch quota.

One of the project outcomes was that it made fishers realize that they could make a real contribution to filling in data gaps and information to inform management; it also helped scientists to overcome concerns that data collected by fishers were bound to be biased. The project was key in establishing trust between fishers and scientists. And so it became the mother of many SIRC's in NL. After 15 years of SIRC we see an evolution. Capacity-building and empowerment of fishers AND scientists led to changes in who initiated SIRC's and also in the nature of knowledge that became part of the SIRC's.

Fisheries Knowledge Research (FKR) Spectrum

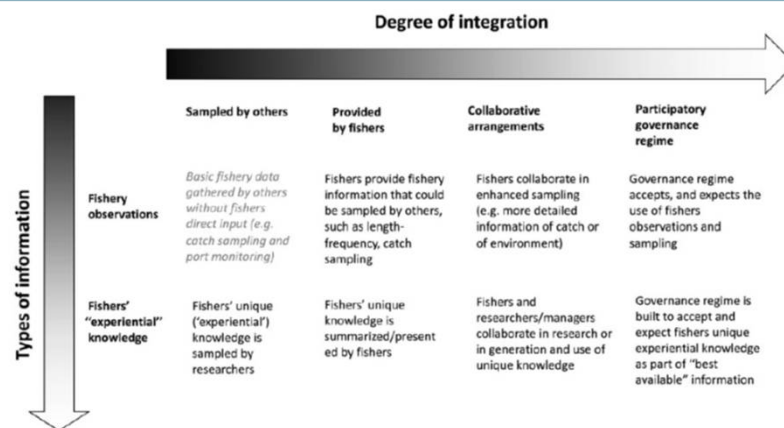


Figure 1. Spectrum of the types of contribution and degree of integration of fishers' knowledge in fisheries assessment and management. All but the italicized cell are considered examples of "Fishers Knowledge Research".



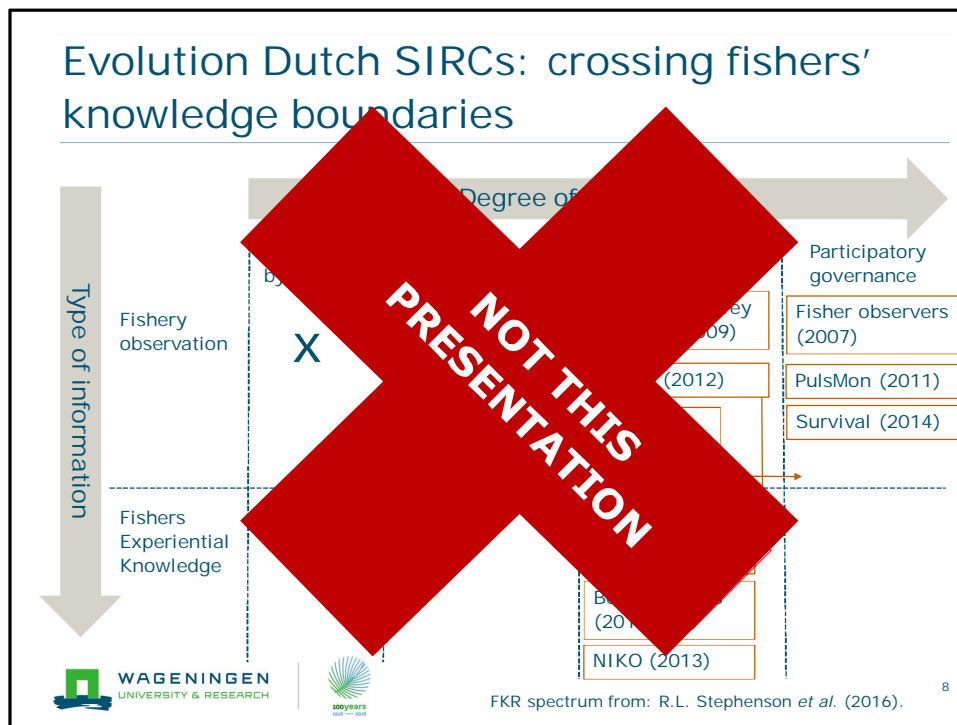
R.L. Stephenson *et al.* (2016).

<https://doi.org/10.1093/icesjms/fsw025>

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Two years ago, Stephenson c.s. published a paper on fisheries knowledge research. They distinguish between Fisheries Observation (the platforms of J&VD) and Fishers' Experiential Knowledge, which is unique knowledge fishers have derived from fishing as a social practice. For both types of information, there are different levels in the degree to which this information is integrated in fisheries assessment and management: from fishers just providing data and information to eventually evolving to a fully participatory governance regime in which fishers' information and knowledge is used in management (in some way).

[definition: Stephenson et al: Fishers' knowledge includes, but is much greater than, basic biological fishery information. It includes ecological, economic, social, and institutional knowledge, as well as experience and critical analysis of experiential knowledge.]



In NL we have seen SIRC evolving across all levels of Stephenson's spectrum. And while I would love to share some examples of the boundaries we crossed here, I am not going to as I don't have time.

But what's directly linked to the crossing of the fishers' knowledge boundaries is the crossing of scientist boundaries.

Evolution (Dutch) SIRC: crossing boundaries as scientists

“Institute scientists” moving to industry



The birth of the “industry scientist”



Through the SIRC industry became aware about how industry information feeds into science and then feeds into management advice. This led to the realization that employing their own scientists would benefit that process. So we have seen a number of scientists, also outside of NL, moving to what has been jokingly called “The Dark Side”.

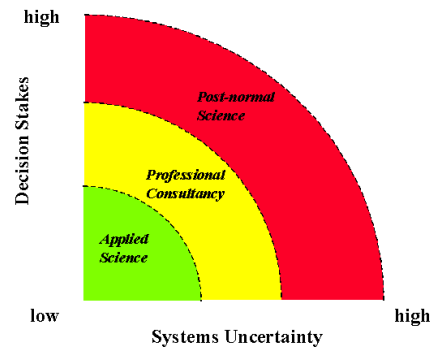
What does that mean for us as “institute scientists”? And what does it mean for industry scientists?

Fisheries management

- About and with people
- “Wicked” problems
- No definitive, objective answers/solutions
- Trade-offs required

(Evolved) SIRC are part of post-normal science.

What does that mean for us?

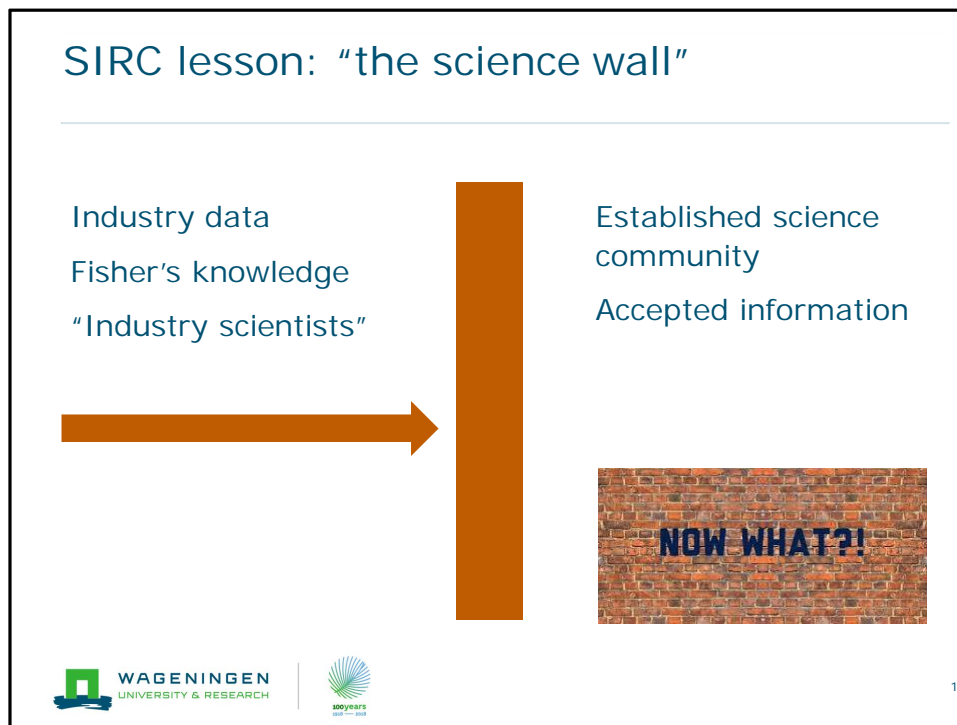


See: Funtowicz & Ravetz, 1990, 1993; Kloprogge & Van der Sluijs, 2006

To answer this question, it is important to realize that the context in which we as ICES community operate, is changing.

We are working on problems that are shrouded by increasing uncertainties, with many different and high stakes and where science is no longer the exclusive realm of research institutes and universities. We have moved into the arena of post-normal science.

This means that also as ICES community, we need to reflect on the changing interface between industry and science for advice in relation to the evolving role of SIRC. And one of the issues we have to reflect on is “the science wall”



I use the term science wall to refer to the barrier between the established science community and accepted information on the one hand, and fishers knowledge research on the other.

The science wall is related to data, to knowledge and to industry scientists. I will give a few examples.

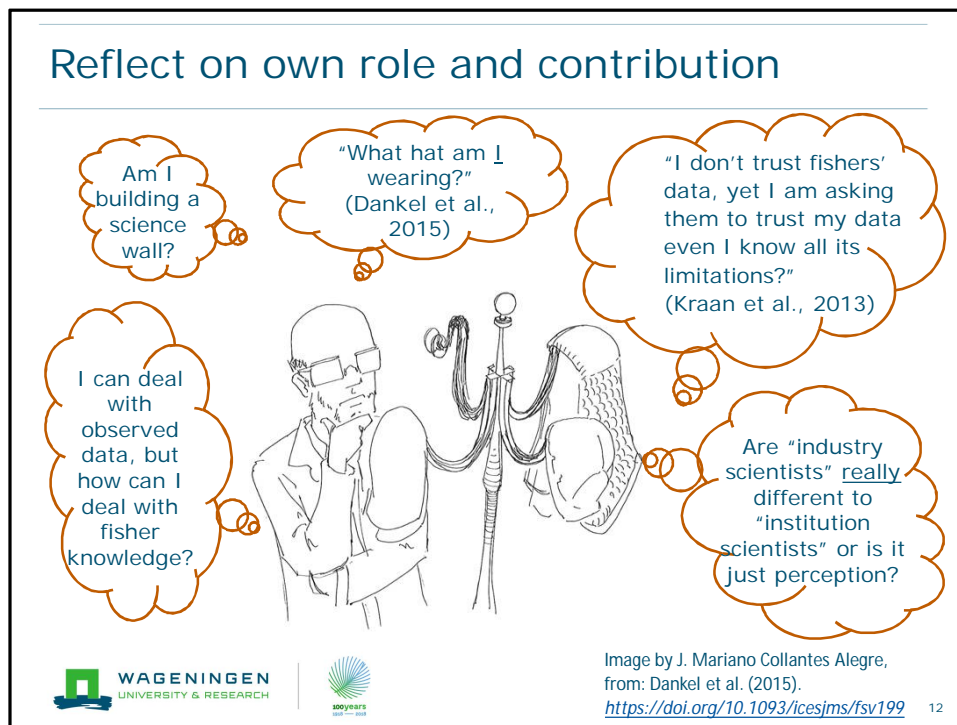
At first the wall was built around the use of data collected by the industry. Questions were raised about the potential bias in data collected by those who had a vested interest in them. The SIRC provided a forum to discuss these issues and to develop checks and balances to ensure these data could pass scrutiny by external scientists. But this did not mean that these data were actually used. The data series for plaice and sole generated in our first SIRC never made it into the assessment. The main reason was that at the time no one in the assessment working group seemed to be really committed to using the industry's data. This may have been reinforced by the lack of real processes to deal with these new kind of data. We now have processes in ICES for this: the benchmark process. By being clear about the standards data should meet, in combination with an evaluation process, 'data trust' is now much less of an issue.

FK remains a dilemma; often this fishers knowledge is not quantitative which is what fisheries scientists like. But we have seen in our SIRC that fishers knowledge is very

useful in interpreting results or assisting in setting up research. Here social scientists can help.

The final aspect of the science wall is related to "the industry scientist". Colleagues from outside NL regularly ask what we think of these *former* scientists now working with the industry, or have moved to The Dark Side. The mere fact that they are employed by the industry suddenly seems to change their credibility or integrity. "The Dark Side" analogy is of course always used in a joking way, and has even been adopted by the industry scientists themselves. But the joke in itself expresses discomfort; discomfort in how to position 'the other who used to be one of us'. To my colleagues and myself, the industry scientists are not *former* scientists: they are colleagues who are hired in a science role. And for us, it is only natural that any scientist who brings data and knowledge to the table and reflects on his role as scientist, should be treated as any other scientist in the ICES advisory system.

So what now? These are not only questions for us as Dutch scientists. How are we as ICES community going to deal with the "science wall". A wall that seems be more or less broken down when it concerns the use of industry data, but that is still present in the discussions about whether or not industry scientists should be entitled to the same roles within ICES as their colleagues who are employed by research institutes.



There are no easy fixes to the issues I raised. One thing we can do is reflect on our own attitude towards “industry scientists”. Are they really different from scientists who work in institutes of in academia? Or is it just a perceived risk that they bring in bias? Or are we just afraid what the outside world, like ICES clients, may think? We all agree that the risk of bias or subjectivity should be avoided at all times. This is why we have codes of conduct and oaths about integrity in academia. In our experience, the scientists who are employed by the industry tend to be much more consciously aware of the risks of their role and contributions. Instead of wasting time and focus on “those industry scientists”, what we should do is reflect on the role of science in the complex societal arena in which we operate, discuss what knowledge would be valuable to bring to the table and how SIRC and industry scientists can help us addressing such questions together.

BIG thanks to
all fishers and
colleagues
working
together in our
SIRCs!



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