SCIENCE & DATA INTERFACE

PRIMER

Guidelines for Industry – Science Data Collection

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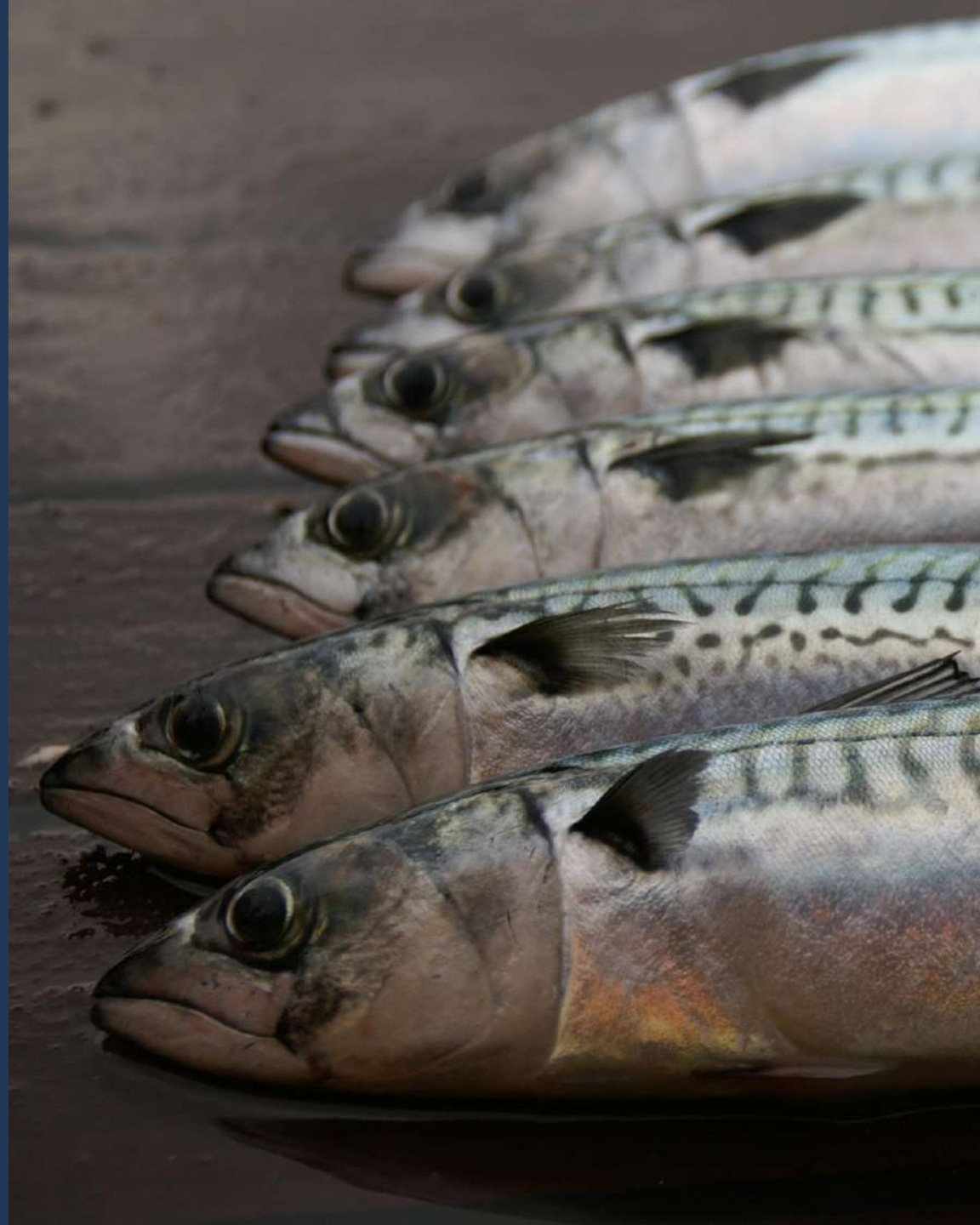
Cefas

SUSTAINABLE SEAS

Government, industry, scientists and the public demand that their fisheries are well managed, that they generate reliable sources of protein and that the fisheries - and fishermen - are sustainable.

To achieve this, more complete evidence is needed. Fishermen can contribute to gathering this evidence, but they need to be sure the information they collect can inform management and policy.



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THE ISSUE

Some scientists and managers have concerns about how well the industry can provide quality-controlled data that is useful to scientists, and how trusted this data can be.

The industry also has concerns that some fisheries scientists and managers are not committed to making use of any relevant data the industry can provide, even when collected in a scientific manner. Distrust prevails on both sides. Working in partnership benefits both industry and science because co-creation builds trust.

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THE SOLUTION

Our **Guidelines for Industry-Science Data Collection** provide a tool to help fishermen generate trusted, credible and relevant data which has the best chance of being used as evidence in fisheries management.

For the first time, scientific protocols sit alongside advice for fishermen and scientists on how to collaborate together effectively. That's because consideration needs to be given to the collaboration process ***at the same time*** as the practical aspects, since the roles that people play and the way they interact with one another are key to determining success in Industry-Science initiatives.

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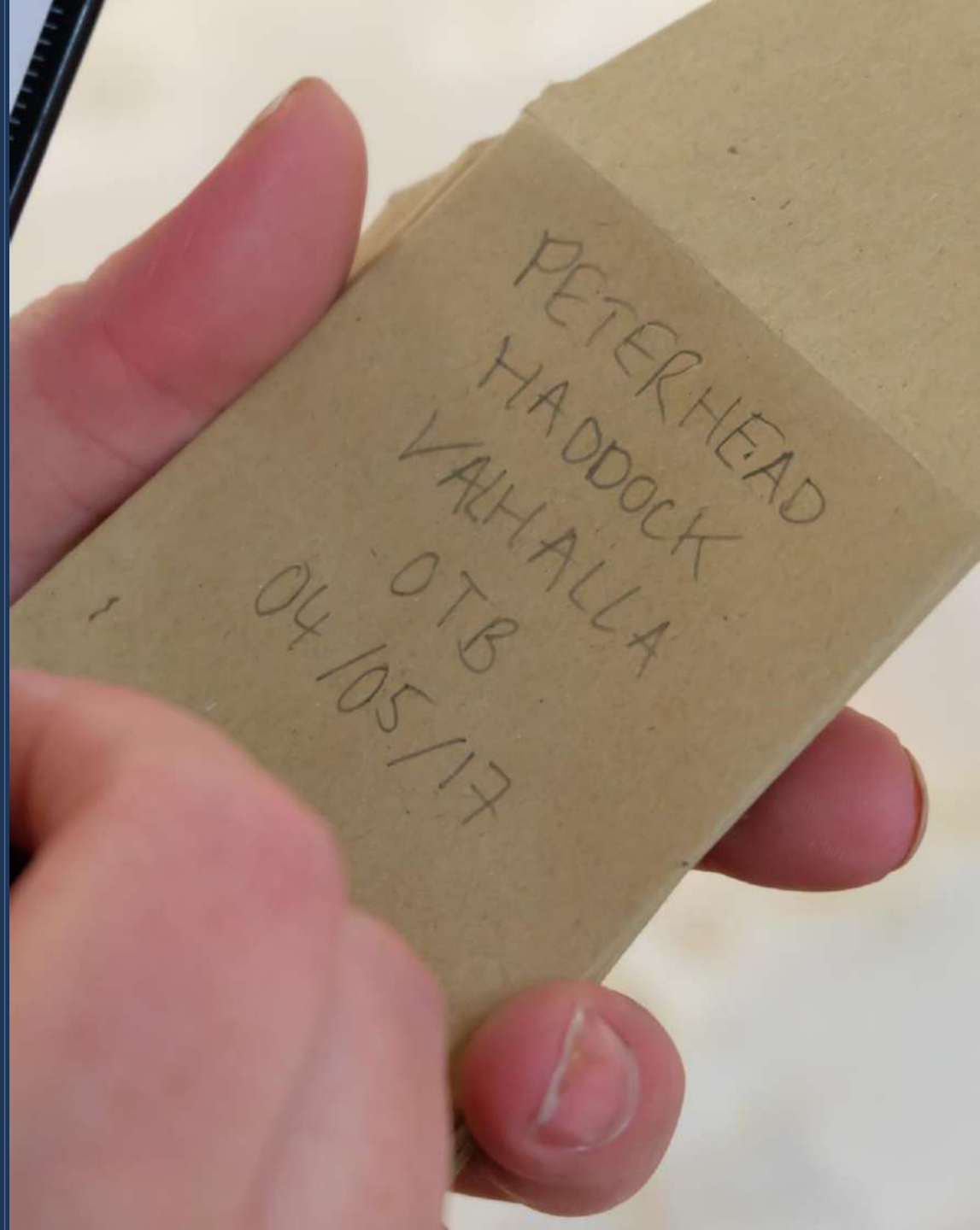
WHAT'S DIFFERENT?

Our **Guidelines** have been co-developed by leading UK fisheries scientists, fishermen and managers. They are backed by government institutions and are a model of the principles for Responsible Research and Innovation.

They marry a sound approach to building a scientifically rigorous research and monitoring programme with advice on approaches that support collaboration.



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WHO ARE THEY FOR?

If you think collaborative science could make a contribution to managing your fishery, then these **Guidelines** are for you.

<u>They will support:</u>

- Scientists looking for better ways of working with the fishermen and the fishing industry.
- Fishermen wanting to contribute better evidence to fisheries science and management.
- Managers tasked with improving the evidence supporting their fisheries.

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HOW DO THEY WORK?

Initiating a collaborative research project can be a daunting task. Having a set of recommended steps – set out as a series of questions to consider – provides a reassuring structure to follow. The logical nature of the steps ensures your project will progress in the right order.

Because each fishery is different, each research and monitoring programme will require its own precise set of protocols, but the *approach* set out in our guidelines providers a road-map to success and is applicable across all fisheries where scientists and fishermen want to work together.

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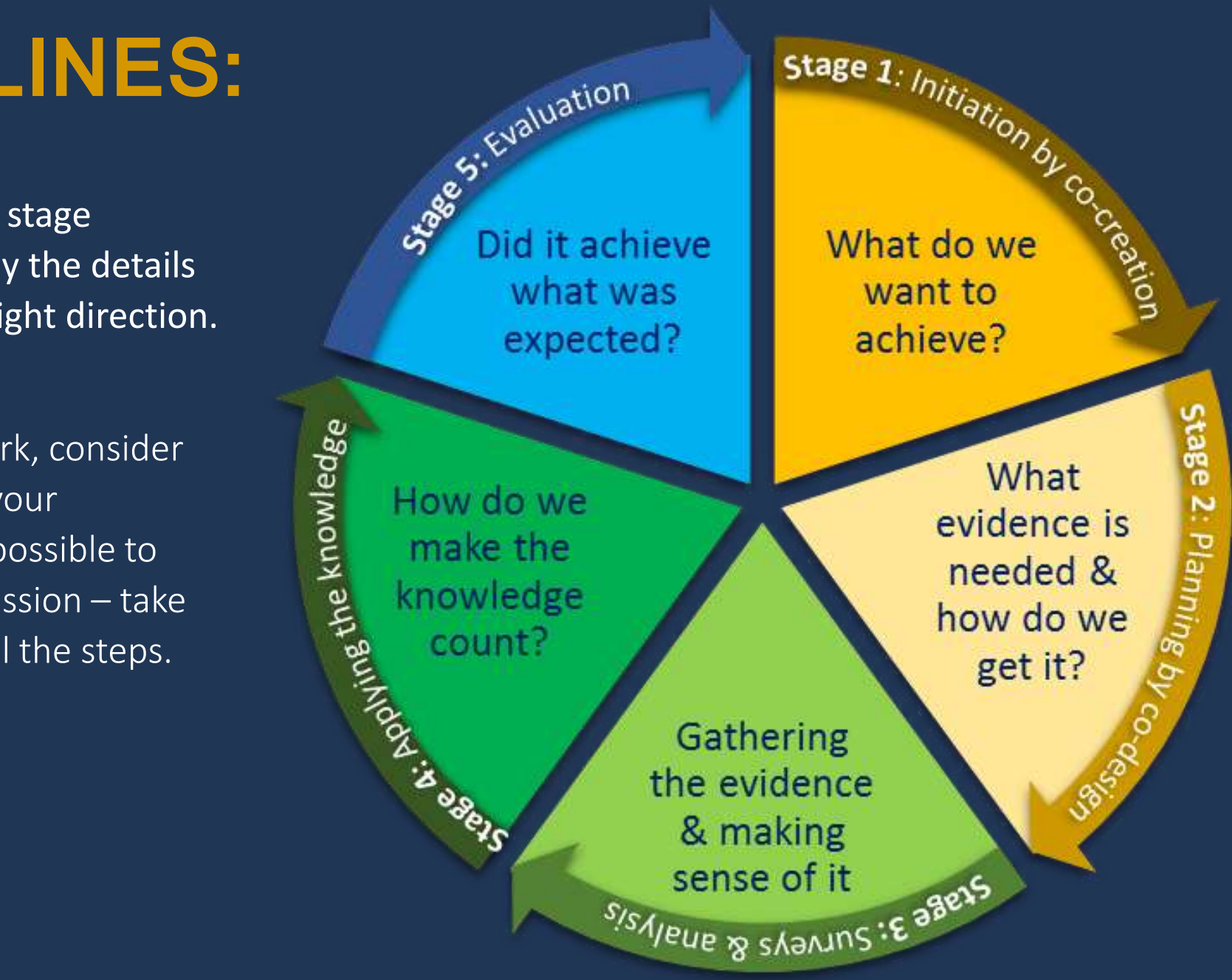
THE GUIDELINES:

Our **Guidelines** use a simple 5 stage planning cycle, underpinned by the details needed to make steps in the right direction.

When planning this kind of work, consider where and how to meet with your collaborators. It might not be possible to address all the issues in one session – take as long as you need to cover all the steps.



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STEP-BY-STEP

INITIATE

STAGE 1: Initiation by Co-Creation
(What do we want to achieve?)

Science: Initiation	**Collaboration:** Co-Creation
• What is the problem and why does it need to be solved? • Who wants to solve it and what outcomes do they expect? • What are the aims for the project? • Who are the gatekeepers that will influence how the evidence will be applied? • What is the scope, scale and timing of the project? • Are the outcomes achievable?	• *Who are the end-users and knowledge providers who need to be involved?* • *What understanding and expectations do people have?* • *Is the aim agreed and understood?* • *What core values are needed to make the collaboration work?* • *Who needs to be on the project team?*

STEP-BY-STEP

PLAN

STAGE 2: Practical planning by co-design
(What evidence is needed and how do we get it?)

Science: Practical Planning

- What objectives are needed to ensure the aims are achieved?
- What information is needed to make it fit-for-purpose?
- Are there any critical needs or constraints that must be addressed?
- What's required to make the data collection scientifically robust?
- What skills and training are required?
- What are the costs and resource requirements?
- Who owns the data and what access arrangements are needed?

Collaboration: Co-Design

- *What are the conditions needed to motivate industry's participation & the commitment to sustain it?*
- *Who needs to be involved and in what role?*
- *What feedback mechanisms are needed to ensure quality participation that's valued by individuals?*
- *What working practices can meet the operational needs of scientists and fishermen?*
- *What research tools might help co-delivery?*
- *What communications will help promote and strengthen the collaborative effort?*

STEP-BY-STEP

COLLECT

STAGE 3: Survey and Analysis
(Gathering evidence and making the most of it)

Science: Data Collection and Analysis

- What on-board procedures are needed to make the data collection work?
- How will the work be managed to ensure a quality job gets done?
- How will the team and others be kept up to date with progress?
- How will the data be analysed, interpreted and reported?

Collaboration: Co-Delivery

- *How can we build shared knowledge and skills?*
- *Why is it a good idea for scientists to be on board fishing vessels whenever possible?*
- *How do we keep a focus on getting the job done to the required standard?*

STEP-BY-STEP

APPLY

STAGE 4: Applying the Knowledge
(How do we make the knowledge count?)

Science: Application	**Collaboration:** Knowledge Management
• What routes lead to getting the data used as scientific evidence, and who takes it? • What format do the data need to be in for quality review? • What's required to justify any proposal based on the findings?	• *How do we gain the support of relevant managers and other stakeholders?* • *What needs to be communicated about the process and outcomes?* • *Why is it important to give visibility to fishermen's contributions and how they have been used?*

STEP-BY-STEP

REVIEW

STAGE 5: Evaluation
(Did it achieve what was expected?)

Science: Objective Evaluation	**Collaboration:** Process Evaluation
• Has the aim been achieved? • Do the benefits outweigh the costs? • What worked well and what could be improved? • What strategic actions need to occur to ensure continued relevance?	• *How did the collaboration process go?* • *What was the value and benefit of knowledge co-construction?* • *Why should you give credit where it's due?* • *What should the group do next?*

FRAMEWORK SUMMARY

1. INITIATION BY CO-CREATION	2. PLANNING BY CO-DESIGN	3. SURVEY AND ANALYSIS	4. APPLYING THE KNOWLEDGE	5. EVALUATION
What do we want to achieve?	The evidence we need and how to get it	Gathering evidence and making the most of it.	How do we make the knowledge count?	Did it achieve what was expected?
- What is the problem and why does it need to be solved? - Who wants to solve it and what outcomes do they expect? - What are the aims for the project? - Who are the gatekeepers that will influence how the evidence will be applied? - What is the scope, scale and timing of the project? - Are the outcomes achievable?	- What objectives are needed? - What information is needed for it to be fit for purpose? - Critical needs and constraints to address? - What is needed to make the data robust scientifically? - What skills and training are required? - What are the resource implications? - Who owns the data and what access will they require?	- What on-board procedures are needed to make the data collection work? - How will the work be managed to ensure quality control? - How will the team and others be kept up to date with progress? - How will data be analysed and interpreted?	- What routes lead scientific data to being used as evidence and how takes it? - What format does the data need to be in for a quality review? - What's required to justify any proposal based on the findings?	- Has the aim been achieved? - Do the benefits outweigh the costs? - What worked well and what can be improved? - What strategic actions need to occur for this to continue?
- Who are the end-users and knowledge providers who ned to be involved? *- What understanding and expectations do people have?* *- Is the aim agreed and understood?* *- What core values are needed to make the collaboration work?* *- Who needs to be on the project team?*	*- How to motivate industry's participation?* *- Who needs to be involved and how?* *- What feedback mechanisms are needed?* *- What working practices can meet the needs of the science?* *- What research tools might help co-delivery?* *- What communications will strengthen collaboration?*	*- How can we build shared knowledge and skills?* *- Why is it a good idea for scientists to be on board fishing vessels whenever possible?* *- How do we keep a focus on getting the job done to the required standard?*	*- How do we gain the support of relevant managers and other stakeholders?* *- What needs to be communicated about the process and outcomes?* *- Why is it important to give visibility to fishermen's contributions and how they have been used?*	*- How did the collaboration process go?* *- What was the value and benefit of co-construction?* *- Why should we give credit where it is due?* *- What should the group do next?*

WHAT NEXT?

Try these for yourself. Steps **One** and **Two** may take some time, and it is important to ensure you have the right people in the room from the outset. For example, if one user-group or sector is absent from the discussion, this might hinder progress on deciding what data issues need to be addressed.

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Have confidence: other countries are supporting the positive contributions industry-science collaboration can make:

- **New Zealand:** Research Science and Information Standard
- **Australia:** Guidelines for Engaging Fisheries Stakeholders
- **FAO:** Code of Conduct for Responsible Fisheries

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For a full treatment of the processes and issues involved in co-designing industry-science data collection, visit our website: www.fishingintothefuture.co.uk/industry-science-and-data/

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