



CLASSIFYING FISHER BEHAVIOUR IN THE NETHERLANDS

A replication of the fishing styles method of Boonstra & Hentati-Sundberg (2016)

September 2018, Amanda Schadeberg, Marloes Kraan, Katell Hamon, Jurgen Batsleer & Eva van den Broek



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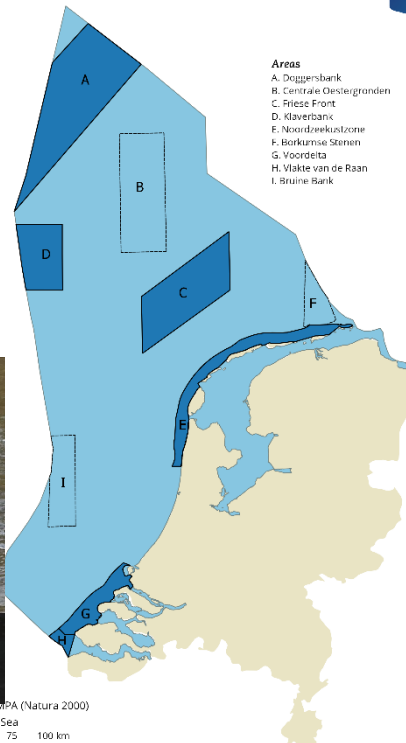


Change is coming in the Dutch fishery



The Guardian

Legally designated MPA's 2017



European parliament votes to end electric pulse fishing

Campaigners hail movement towards prohibiting the controversial practice but warn other measures will leave European waters in a worse state



▲ MEP Philippe Lambert holds a placard to stop electric pulse fishing, next to German co-president of the Greens parliamentary group, Ska Keller, before a voting session at the European parliament in Strasbourg on 16 January. Photograph: Frederick Florin/AFP/Getty Images

The European Union's parliament has voted to prohibit the controversial practice of **electrical pulse fishing** within EU waters, to the approval of some groups of small-scale fishermen and green campaigners.

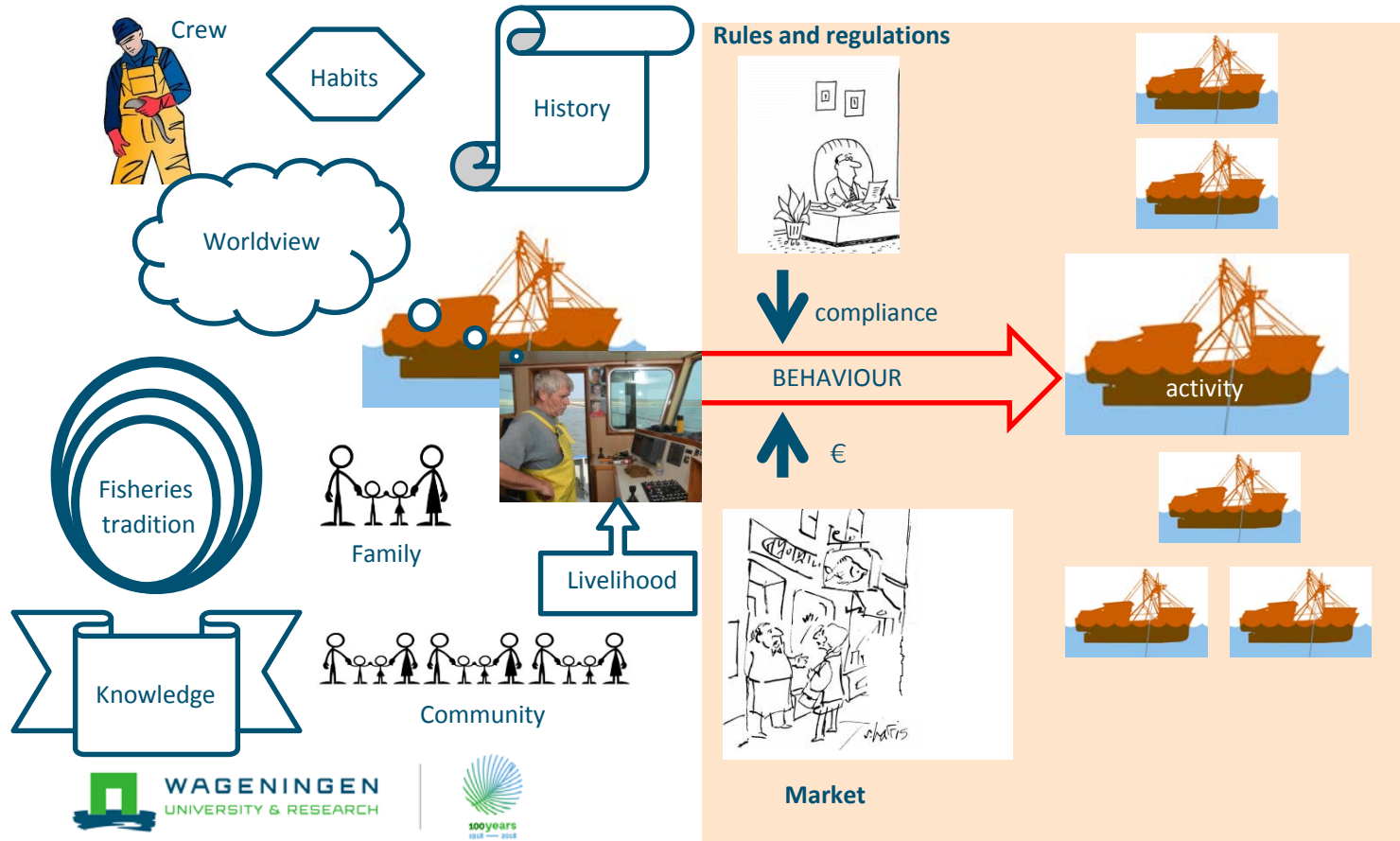
However, a series of other measures designed to prevent overfishing and preserve the marine environment were voted down. Campaigners say the rejection will have a damaging effect on Europe's fisheries for many years.



Will managers deal effectively with this change?

- Management has been dominated by a focus on the resource (**fish**)
 - TACs
 - Closed areas
 - Landing obligation
- This is sometimes ineffective due to unexpected adaptive behaviours from the resource users (**fishermen**)

Understanding fisher behaviour



**Outcomes:
Catch &
impact**

Boonstra & Hentati-Sundberg (2016) offer a solution

Fishing styles:

Patterns of actions, which aim to create congruence between *normative notions about how fishing should be practiced*, and *fishers' dependence on different social and ecological contexts*

What the fisherman himself thinks of his behaviour

The external factors that motivate fisher behaviour

The Boonstra & Hentati-Sundberg (2016) method



Figure 1 A conceptual illustration of the methodology used for identifying fishing styles in the Swedish Baltic Sea fishery.

Boonstra & Hentati-Sundberg (2016: 83)

Practice	N Trips	Species	N Species per trip (mean)	Annual Landings (mean, 1,000 tons)	Landings per trip (mean kg)	Calendar month (mode)	Area (mode, name)	Gear (mode, name)	Mesh Size (mean mm)	Vessel length (mean m)	Trip length (mean whole days)
1	9,112	Razor Clams (100/0)	1	3	4,629	12	Zeeland	Boat Dredge	73	37	Same day
2	137,667	Shrimp (99/1)	1	16.2	1,886	10	Data Missing	Beam Trawl	23	21	2
3	10,111	Blue Whiting, Horse Mackerel, Sardinella, Atlantic Mackerel (25/25/19/11/20)	6	215.2	345,140	5	The Channel (Normandy)	Bottom Otter Trawl	68	36	5
4	18,140	Sole (85/15)	2	0.3	315	7	Katwijk	Nets	90	12	Overnight
5	27,791	Plaice, Sole (40/35/25)	9	11.5	7,195	9	Offshore Belgium	Beam Trawl	82	39	4
6	6,897	Gurnard, Striped Red Mullet (33/32/35)	9	2	5,867	6	The Channel (Normandy)	Scottish Seine	87	29	2
7	1,533	Herring, Horse Mackerel (78/12/10)	2	107.7	1,126,256	11	The Channel (Normandy)	Midwater Otter Trawl	41	68	11
8	6,795	Nephrops, Plaice (50/35/15)	7	1.6	4,008	8	Dogger Bank	Bottom Otter Trawl	80	25	5
9	7,187	Dab, Cod (66/8/26)	3	0.5	1,224	11	Katwijk	Nets	90	16	Overnight
10	11,209	Plaice (85/15)	8	9.7	14,501	6	Skagerrak & Kattegat	Beam Trawl	91	35	5
11	14,753	Cod (77/23)	3	0.8	1,030	1	Zeeland	Hooks and Lines	112	14	Overnight
12	7,643	Flounder (76/24)	3	0.3	573	5	Zeeland	Beam Trawl	85	17	Overnight
13	23,572	Plaice, Sole, Dab, Flounder (35/25/16/11/13)	8	9.3	6,588	3	Zeeland	Beam Trawl	82	35	4
14	24,630	Plaice, Sole (68/16/16)	9	15.1	10,153	1	Southern North Sea	Beam Trawl	80	40	4
15	13,258	Flounder, Sole, Plaice (41/32/10/17)	5	1.9	2,328	7	Katwijk	Beam Trawl	85	22	2

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Fishing practice 4

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23		
	27	28	29	30		

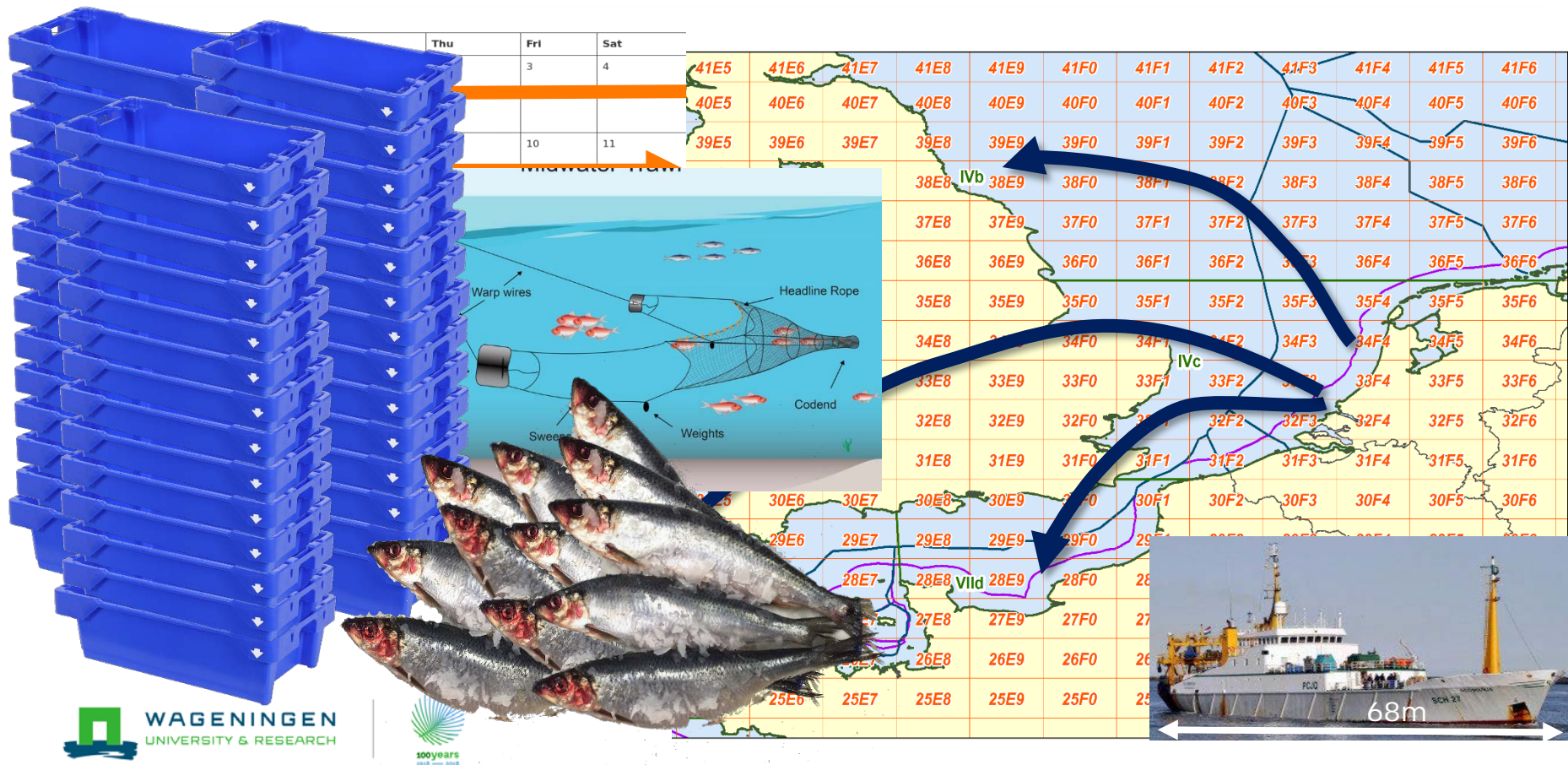
41F0	41F1	41F2
40F0	40F1	40F2
39F0	39F1	39F2



35F3	35F4	35F5	35F6
34F3	34F4	34F5	34F6
33F3	33F4	33F5	33F6
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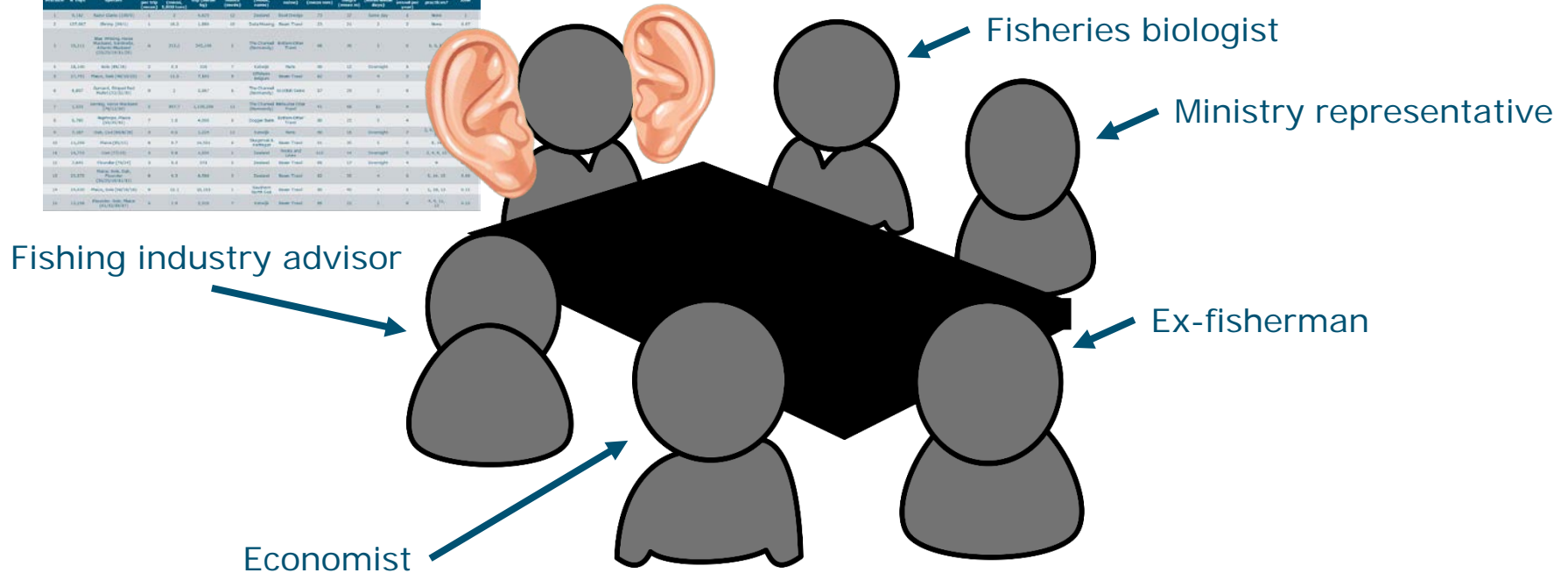


Fishing practice 7

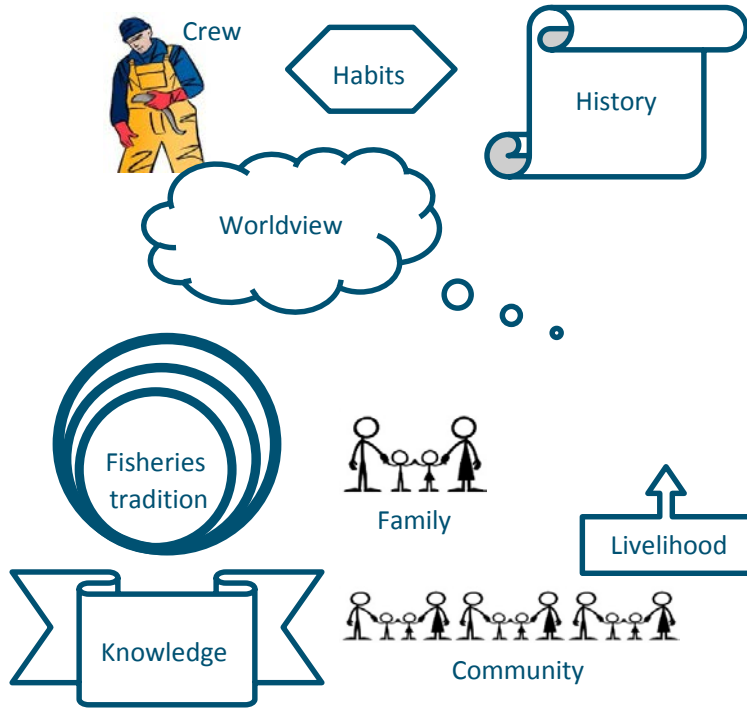


Expert focus groups

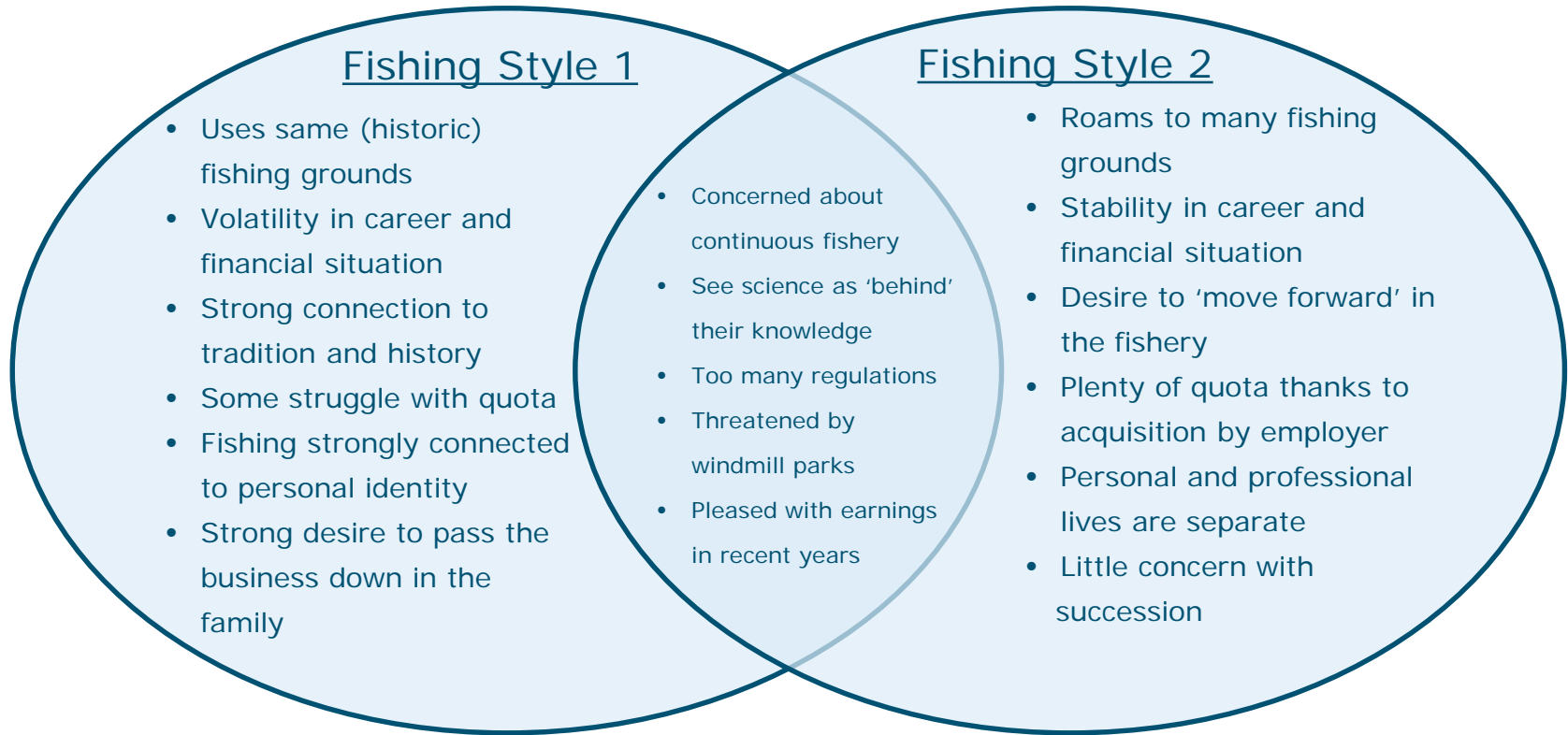
Project	Area	Location	Year	Duration	Lead	Co-lead	Participants	Outputs	Impact	Notes
1	1.1	1.1.1	1.1.1.1	1.1.1.1	1.1.1.1	1.1.1.1	1.1.1.1	1.1.1.1	1.1.1.1	1.1.1.1
2	2.1	2.1.1	2.1.1.1	2.1.1.1	2.1.1.1	2.1.1.1	2.1.1.1	2.1.1.1	2.1.1.1	2.1.1.1
3	3.1	3.1.1	3.1.1.1	3.1.1.1	3.1.1.1	3.1.1.1	3.1.1.1	3.1.1.1	3.1.1.1	3.1.1.1
4	4.1	4.1.1	4.1.1.1	4.1.1.1	4.1.1.1	4.1.1.1	4.1.1.1	4.1.1.1	4.1.1.1	4.1.1.1
5	5.1	5.1.1	5.1.1.1	5.1.1.1	5.1.1.1	5.1.1.1	5.1.1.1	5.1.1.1	5.1.1.1	5.1.1.1
6	6.1	6.1.1	6.1.1.1	6.1.1.1	6.1.1.1	6.1.1.1	6.1.1.1	6.1.1.1	6.1.1.1	6.1.1.1
7	7.1	7.1.1	7.1.1.1	7.1.1.1	7.1.1.1	7.1.1.1	7.1.1.1	7.1.1.1	7.1.1.1	7.1.1.1
8	8.1	8.1.1	8.1.1.1	8.1.1.1	8.1.1.1	8.1.1.1	8.1.1.1	8.1.1.1	8.1.1.1	8.1.1.1
9	9.1	9.1.1	9.1.1.1	9.1.1.1	9.1.1.1	9.1.1.1	9.1.1.1	9.1.1.1	9.1.1.1	9.1.1.1
10	10.1	10.1.1	10.1.1.1	10.1.1.1	10.1.1.1	10.1.1.1	10.1.1.1	10.1.1.1	10.1.1.1	10.1.1.1
11	11.1	11.1.1	11.1.1.1	11.1.1.1	11.1.1.1	11.1.1.1	11.1.1.1	11.1.1.1	11.1.1.1	11.1.1.1
12	12.1	12.1.1	12.1.1.1	12.1.1.1	12.1.1.1	12.1.1.1	12.1.1.1	12.1.1.1	12.1.1.1	12.1.1.1
13	13.1	13.1.1	13.1.1.1	13.1.1.1	13.1.1.1	13.1.1.1	13.1.1.1	13.1.1.1	13.1.1.1	13.1.1.1
14	14.1	14.1.1	14.1.1.1	14.1.1.1	14.1.1.1	14.1.1.1	14.1.1.1	14.1.1.1	14.1.1.1	14.1.1.1
15	15.1	15.1.1	15.1.1.1	15.1.1.1	15.1.1.1	15.1.1.1	15.1.1.1	15.1.1.1	15.1.1.1	15.1.1.1
16	16.1	16.1.1	16.1.1.1	16.1.1.1	16.1.1.1	16.1.1.1	16.1.1.1	16.1.1.1	16.1.1.1	16.1.1.1
17	17.1	17.1.1	17.1.1.1	17.1.1.1	17.1.1.1	17.1.1.1	17.1.1.1	17.1.1.1	17.1.1.1	17.1.1.1
18	18.1	18.1.1	18.1.1.1	18.1.1.1	18.1.1.1	18.1.1.1	18.1.1.1	18.1.1.1	18.1.1.1	18.1.1.1
19	19.1	19.1.1	19.1.1.1	19.1.1.1	19.1.1.1	19.1.1.1	19.1.1.1	19.1.1.1	19.1.1.1	19.1.1.1
20	20.1	20.1.1	20.1.1.1	20.1.1.1	20.1.1.1	20.1.1.1	20.1.1.1	20.1.1.1	20.1.1.1	20.1.1.1



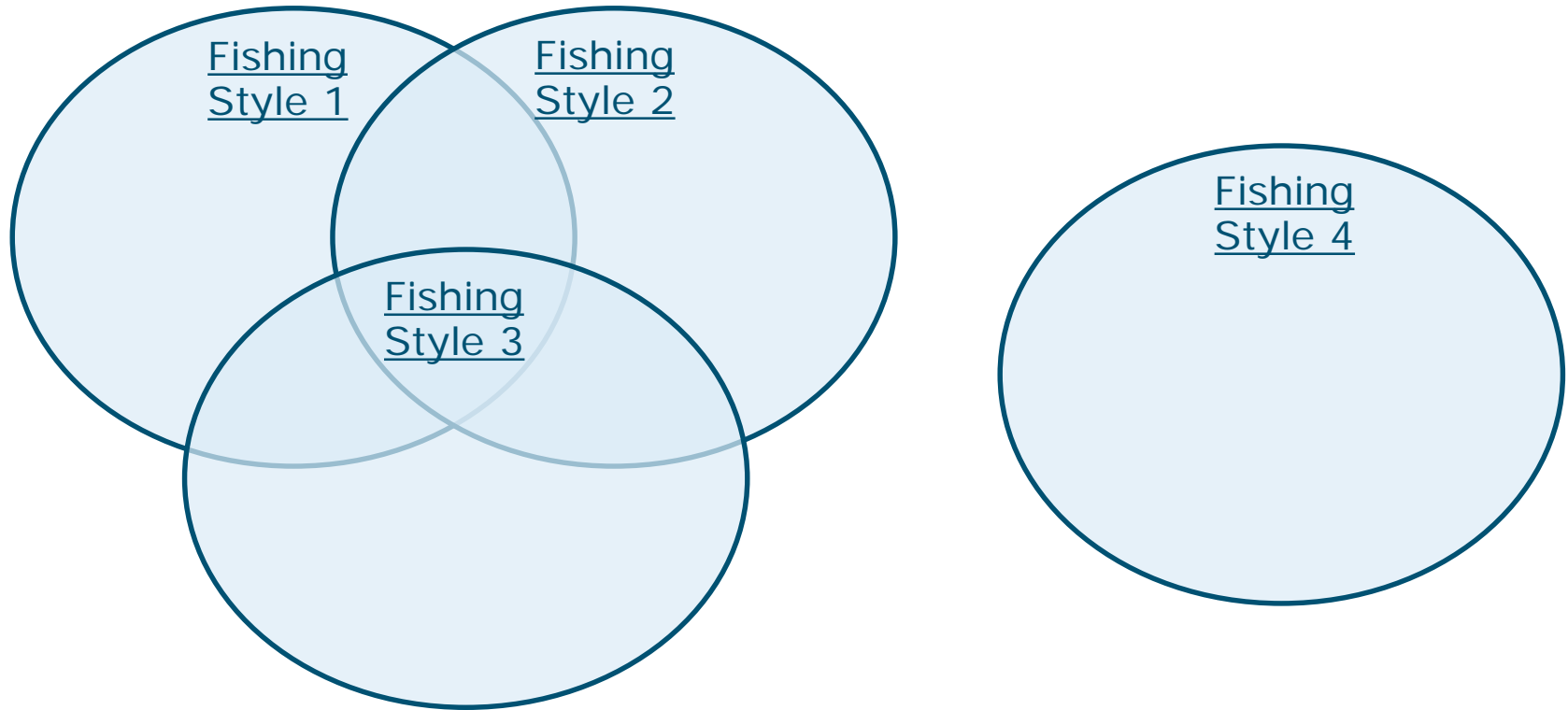
Fisher interviews



What can we learn from fishing styles (so far)?



What can we learn from fishing styles (so far)?





What can we do with this knowledge?

- **Monitor** the trend towards consolidation and specialisation over time
- **Evaluate** the effects of policy on different fishing styles
- **Explain** (and potentially improve) non-compliance behaviour
- **Employ** fishing practices as a starting point for organising stakeholder consultations

With thanks to

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The other experts:

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& Jurgen Batsleer

- *Wageningen Marine Research*

Katell Hamon & Eva van den Broek

- *Wageningen Economic Research*

Joeri Scholtens & Javier Garcia-Bernardo

- *University of Amsterdam*

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