

## Appendix 2. Network findings.

Table A2.1. Identified themes of stakeholder interactions and their descriptions. ‘Frequency’ reports the number of mentioning of identified themes by the interviewees. The numbers in brackets reflect how many times the theme was associated to strong vs. weak relational links.

Category	Theme name	Theme description	Frequency (strong/weak)
Communication relations	Opinions	Exchange of opinions, consultations and recommendations on current work, plans and initiatives; exchange of project management experiences.	81 (50/31)
	Ecological data	Exchange of data and knowledge directly or indirectly related to Pontocaspian communities. For example, data on ecosystem functioning and dynamics to which Pontocaspian species are incidental; data on invasive species, which potentially harm Pontocaspian species; data on species distribution and population genetics, which sometimes involve Pontocaspian species; assistance with species identification.	76 (49/27)
	Environmental data	Exchange of information on the state of environment. For example, exchange of study results on the sea and fresh water parameters, pollutants and water resources.	33 (22/11)
	Unspecified content	Exchange of Pontocaspian biodiversity related information reported by an interviewee without specifying the context or the content of interaction. For example, ‘if we need specific data we are in touch’, ‘sometimes our interests overlap’.	25 (11/14)
	Threatened species data	Exchange of information on the state of threatened species, including the red list species; providing consultations.	24 (12/12)
Collaboration relations	Research	Joint fieldwork, lab work and publications, which sometimes involve Pontocaspian species and habitats. Hosting the fieldworks and lab works, providing the necessary equipment and/or space for work and receiving the generated results.	54 (47/7)
	Conservation planning	Collaboration and joint conservation planning, e.g. agreeing on actions; developing and working in joint nature restoration projects; providing scientific support for different conservation activities.	36 (22/14)
	Commercial fishing	Joint planning and regulation of matters related to commercial fishing. For example, rules, methods, mode of fishing, limits, and quotes.	15 (9/6)
	Expert groups	Participation of experts in working group meetings and discussions, which are facilitated by the Ministry of Ecology to solve the coastal lake, river and Black Sea related problems, which sometimes concern Pontocaspian habitats.	7 (4/3)
	Resource management	Joint planning and agreeing on the procedures, limits and standards of use of different biological resources.	6 (2/4)
	Sturgeon conservation	Collaboration, planning and data exchange through the projects on charismatic Pontocaspian species, such as the sturgeons. For example ‘Life for Danube Sturgeons’ ( <a href="https://danube-sturgeons.org/">https://danube-sturgeons.org/</a> ).	3 (3/0)
Authority/power relations	Directing action	Giving directions of work and research, and asking for the generated study results or reports on outcomes, which sometimes involve Pontocaspian species and habitats.	10 (5/5)
	Scientific supervision	Developing and providing research standards and methodology.	7 (6/1)

Table A2.2. Number of mentioning of interaction themes by individual stakeholders. Values between brackets represent No. times the theme characterized the incoming ties and No. times the theme characterized the outgoing ties.

Abbr.	Communication relations					Collaboration relations					Authority/power relations		
	Opinions	Ecological data	Environmental data	Unspecified content	Threatened species data	Research	Conservation planning	Commercial fishing	Sturgeon conservation	Expert groups	Resource management	Directing action	Scientific supervision
MENR	22(11,11)	8(7,1)	7(6,1)	2(1,1)	8(5,3)	1(1,0)	7(6,1)	3(2,1)	1(1,0)	2(1,1)	4(1,3)	6(0,6)	0
IMB	20(7,13)	21(8,13)	1(1,0)	2(2,0)	4(2,2)	10(3,7)	6(5,1)	0	0	0	0	0	4(0,4)
BSBR	9(5,4)	15(6,9)	6(3,3)	6(3,3)	2(1,1)	9(5,4)	3(1,2)	2(1,1)	0	0	0	1(1,0)	1(1,0)
DBR	13(5,8)	12(4,8)	2(1,1)	2(2,0)	2(1,1)	7(3,4)	10(4,6)	2(1,1)	1(1,0)	0	0	2(2,0)	1(1,0)
IZAN	6(3,3)	11(5,6)	0	1(1,0)	3(1,2)	10(4,6)	3(1,2)	0	0	0	0	0	1(0,1)
ONU	6(3,3)	14(5,9)	0	1(1,0)	0	13(9,4)	0	0	0	2(1,1)	0	0	0
IHB	13(4,9)	4(4,0)	0	11(1,10)	0	12(5,7)	2(0,2)	0	0	1(1,0)	0	0	1(0,1)
KHS	4(2,2)	11(3,8)	5(1,4)	1(1,0)	3(0,3)	9(4,5)	2(1,1)	2(1,1)	0	0	0	0	1(1,0)
YN	4(2,2)	7(3,4)	12(3,9)	1(1,0)	9(2,7)	6(5,1)	1(0,1)	11(3,8)	0	0	0	1(1,0)	0
US	6(3,3)	5(1,4)	4(1,3)	3(2,1)	2(0,2)	3(2,1)	3(1,2)	2(1,1)	0	5(2,3)	0	1(1,0)	1(1,0)
KSRP	9(4,5)	8(3,5)	4(0,4)	2(2,0)	0	5(2,3)	2(1,1)	0	0	0	0	2(2,0)	1(1,0)
KNU	7(3,4)	3(2,1)	1(0,1)	4(2,2)	0	8(4,4)	0	0	0	0	0	0	0
CRS	5(2,3)	8(6,2)	4(3,1)	3(1,2)	2(2,0)	0	6(3,3)	0	0	0	0	0	0
KSU	2(2,0)	2(2,0)	0	2(1,1)	0	8(3,5)	3(0,3)	0	0	0	0	0	1(0,1)
OSRA	8(6,2)	4(4,0)	1(1,0)	0	3(3,0)	0	5(3,2)	0	0	0	4(2,2)	1(0,1)	0
LDNP	3(3,0)	3(1,2)	3(2,1)	3(1,2)	1(1,0)	4(2,2)	3(1,2)	1(1,0)	0	0	0	2(2,0)	0
MAPF	1(1,0)	3(2,1)	5(3,2)	1(1,0)	2(1,1)	1(1,0)	1(1,0)	5(3,2)	1(1,0)	2(1,1)	0	1(0,1)	0
MSRA	5(4,1)	7(4,3)	6(3,3)	0	1(1,0)	0	3(1,2)	0	0	0	3(2,1)	1(0,1)	1(1,0)
NPBS	8(3,5)	2(2,0)	2(2,0)	4(2,2)	1(1,0)	2(1,1)	1(0,1)	1(1,0)	0	0	0	1(1,0)	1(1,0)
WWF	3(2,1)	1(1,0)	1(1,0)	0	4(2,2)	0	8(4,4)	1(1,0)	3(0,3)	0	0	0	0
KSRA	3(2,1)	3(3,0)	1(1,0)	0	1(1,0)	0	2(2,0)	0	0	0	1(1,0)	1(0,1)	0
NECU	5(4,1)	0	1(1,0)	1(0,1)	0	0	1(1,0)	0	0	2(1,1)	0	0	0

Table A2.3. Identified themes of insufficient interactions and their descriptions. ‘Frequency’ reports the number of times a theme was mentioned, with strength of representing links in parentheses.

<b>Name</b>	<b>Description</b>	<b>Frequency (strong/weak)</b>
Budget constraints	Organizations cannot achieve the desired levels of interaction due to the general lack of funding for research and conservation initiatives; and/or due to the unfavourable funding schemes, which restrict the participation of different types of stakeholder organizations in a project.	18 (13/5)
Legal limitations	The desired levels of interaction cannot be achieved due to the lack of consistency in conservation policy, which results from the contradicting national laws and complicates collaboration and exchange of information.	15 (8/7)
Lack of interconnection	The desired levels of interaction cannot be achieved because one of the stakeholders abstains from having more contact.	6 (1/5)
Employee turnover	The desired levels of interaction cannot be achieved because of the staff turnover and the loss of established contacts.	3 (2/1)

Table A2.4. Stakeholder group relations. Values in brackets under ‘Category’ report the number of ties within or between stakeholder groups. An \* indicates significant difference from random expectation at 5% level according to the null-model test.

Category (No. ties)	Density (%)	No. ties strong /weak	Reasons for insufficient interaction (No. mentioning)	Themes of interaction (No. mentioning)
Pa-Pa (14)	70	4/10	Budget constraints (1)	<u>Communication relations (Total 19)</u> Opinion (7) Unspecified content (7) Pontocaspian species data (4) Environmental data (1) <u>Collaboration relations (Total 3)</u> Research (3)
Acad-Acad (47)	65*	35/12	Budget constraints (11)	<u>Communication relations (Total 55)</u> Pontocaspian species data (22) Opinion (21) Unspecified content (8) Environmental data (3) Threatened species data (1) <u>Collaboration relations (Total 36)</u> Research (28) Conservation planning (3) Expert groups (3) Commercial fishing (2) <u>Authority/power relations (Total 2)</u> Scientific supervision (2)
Gov-Gov (10)	50	6/4	Legal limitations (5) Lack of interconnection (1)	<u>Communication relations (Total 8)</u> Opinion (4) Environmental data (3) Pontocaspian species data (1) <u>Collaboration relations (Total 8)</u> Resource management (6) Commercial fishing (2)
NGO-NGO (2)	33	2/0	NA	<u>Communication relations (Total 1)</u> Opinion (1) <u>Collaboration relations (Total 2)</u> Conservation planning (2)
Acad-Pa (43)	24	29/14	Budget constraints (5) Legal limitations (4) Lack of interconnection (2)	<u>Communication relations (Total 48)</u> Pontocaspian species data (19) Opinion (12) Environmental data (8) Threatened species data (6) Unspecified content (3) <u>Collaboration relations (Total 34)</u> Joint research (21) Conservation planning (7) Commercial fishing (6) <u>Authority/power relations (Total 4)</u> Scientific supervision (4)
Gov-NGO (12)	21	8/4	Employee turnover (2)	<u>Communication relations (Total 14)</u> Opinion (6) Threatened species data (4) Environmental data (2) Pontocaspian species data (2)

Gov-Pa (19)	21	10/9	Lack of interconnection (3)	<u>Collaboration relations (Total 9)</u> Conservation planning (5) Expert groups (2) Sturgeon conservation (2) <u>Communication relations (Total 28)</u> Opinion (13) Pontocaspian species data (9) Environmental data (6) <u>Collaboration relations (Total 8)</u> Conservation planning (8) <u>Authority/power relations (Total 8)</u> Directing action (8)
Acad-Gov (28)	15	13/15	Legal limitations (2) Budget constraints (1) Employee turnover (1)	<u>Communication relations (Total 44)</u> Opinion (12) Pontocaspian species data (12) Threatened species data (11) Environmental data (6) Unspecified content (3) <u>Collaboration relations (Total 13)</u> Conservation planning (5) Commercial fishing (4) Joint research (2) Expert groups (2) <u>Authority/power relations (Total 3)</u> Directing action (2) Scientific supervision (1)
NGO-Pa (6)	11	3/3	Legal limitations (2)	<u>Communication relations (Total 8)</u> Pontocaspian species data (4) Opinion (3) Environmental data (1) <u>Collaboration relations (Total 5)</u> Conservation planning (4) Sturgeon conservation (1)
Acad-NGO (10)	8*	6/4	Legal limitations (2)	<u>Communication relations (Total 14)</u> Unspecified content (4) Pontocaspian species data (3) Environmental data (3) Threatened species data (2) Opinion (2) <u>Collaboration relations (Total 3)</u> Conservation planning (2) Commercial fishing (1)

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Figure A2.1. Boxplot on number of themes representing a link and the strength of the link. Horizontal lines in the boxes represent the median values. Diamonds represent the mean number of the themes.

