

1 **APPENDIX 1**

2 Table A1.1 Quantitative resilience questionnaire of Pacific herring social-ecological system
 3 resilience. Questions were answered based on a Likert scale from 1 (low) to 5 (high) for each
 4 governance era.
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Resilience Principle	Metric	Question
Maintain Diversity & Redundancy	Marine Species & Habitat Diversity	How would you rank the variety of marine species and habitats of the Central Coast?
	Species Response Diversity	How would you rank the variety of ways in which these marine species respond to abrupt ecological, social, or economic disturbances?
	Diversity of Perspectives	How would you rank the variety of perspectives (ex: ideas, views, opinions) that inform decision-making in Central Coast herring fisheries?
	Diversity of Livelihoods	How would you rank the variety of occupations in which Central Coast First Nations participate?
	Diversity in Herring Size Structure	How would you rank the relative abundance of large-sized individual herring in Central Coast populations?
	Diversity in Herring Spawning Season Dates	How would you rank the length of the spawning season along the Central Coast?
Manage Connectivity	Degree of Information Sharing	How connected are ALL the groups involved in the Central Coast herring fisheries in terms of information sharing?
Manage Slow Variables & Feedbacks	Understanding of Gradual Changes	How would you rank decision-makers' understanding of gradual, long-term changes along the Central Coast (Ex: Slow changes in ocean productivity, people's values etc...)?
	Decisions Updated With New Information	How would you rank the level to which information about the entire system is used and then evaluated in decision-making?

	Ability of Managers to Respond to Key Changes	How would you rank the ability of managers to respond to important changes (ecological, economic, & social)?
Foster Complex Adaptive Thinking	Willingness to Embrace Change	How would you rank the willingness to embrace change in the Central Coast herring fisheries?
	Preparedness to Cope with Unexpected Events	How prepared is the herring system to cope with unexpected events?
Encourage Learning	Innovation & Willingness to Experiment	How would you rank innovation (Ex. experimentation) in the management of Central Coast herring fisheries?
	Sharing of Scientific Resources	How would you rank communication and the sharing of scientific resources (data, research boats, and modeling tools) across government bodies in the herring fisheries?
Broaden Participation	Level of Participation	How would you rank the level of participation of all users in decision-making?
	Level of Trust	How would you rank the level of trust among ALL governing institutions of the Central Coast herring fisheries?
	Level of Cooperation	How would you rank the level of cooperation among groups involved in decision-making?
Promote Polycentric Governance	Use of Indigenous Knowledge & Stewardship Protocols	How would you rank the use and integration of First Nations knowledge and stewardship protocols in the management of herring fisheries?
	Distribution of Power in Decision Making	How would you rank the distribution of power in decision-making around the herring fisheries?
	Accountability	How would you rank the accountability (following through on responsibilities) among governments in the herring fisheries?

Indigenous
Authority to Access
Herring

How would you rank Central Coast First Nations'
authority to access herring?

Willingness for
Conflict Resolution

How would you rank the willingness for conflict
resolution and negotiation among decision-makers
in the herring fisheries?