Appendix 3

Full interview protocol

Part 1 -- Mental Model Basics:

Associative Networks and Analogical Representations of WCVI region and ecology

I – Identity, location and spatial cognition

1) "May I ask …. your name?" … [Optional "…where and when were you born?"]

2) "Where do you live and/or work (and/or are you visiting)?"

3) "What do you do / are you doing (t)here?" … "What's involved in your line of work?" … "How long have you been doing [main activity *X*]?" … "What part(s) of the coast does [main activity *X*] take you to?" … "Are there any other kinds of activities you engage in regularly on the west coast?" … "Do you use or harvest the resources in any other way?"

Additional projection tasks:

4) "Would you like to show me, using these drawing utensils and notepad, the area where we are now / where you live/work / where you('ve) come to visit?" [Prompt for explanations] – Photograph.

5) [Show map of west coast / specific sub-region] – "Please tell me what you see here. Are there any particularly important areas for you? Particularly important places? What are they?" [Make a list, and/or mark on the map] … "Why are they important?" [Extra time: prompt for stories] – Photograph.

II -- Most accessible associations with place

1) "What do you like about living / working / visiting here (on the west coast of the island)?"

2) "What do you dislike about living / working / visiting here (on the west coast of the island)?"

3) "What are the 'problems' or 'challenges' in this area that you drew / described? What is [problem or challenge x or y] 'like'? How would you describe it to someone who knew nothing about [issue x or y]?"

Prompt for specifics.

III – Most accessible species/resources; associations and mental models of their interrelationships; additional focus on trophic cascade species

1) "Now let's make a list of species (plants and animals) / resources on the west coast of Vancouver Island that come to mind / that are important to you."

[*have the participant write down the name of each species on an individual flashcard or piece of paper; record the order in which these species are listed*]

1a) [*Optional*] "How would you arrange these species/flashcards … into groups … or in a line?" [*Can ask for both kinds of arrangement, one at a time*] "Please do so." [*Prompts and optional forced orderings: "Which species 'go together by nature'?" (via Atran et al.) … What's related to what … Most tasty to least tasty …. Most abundant to least abundant … Most valuable to least valuable … Most expensive to least expensive… Most important to least important … What lives where … ask for explanations as they do these sorts*] – Photograph for each arrangement.

2) Present popsicle sticks, with 'eats→' … "Now let's build a food web… please show me/tell me what eats what," … ask for descriptions as participant builds food web. If possible, in inoffensive way, ask how they know, or why they guess one way or another, how sure they are, about each trophic interaction … – *Photograph.*

3) *Extra focus on associations/beliefs pertaining to sea otters, if they have not already come up:* "What can you tell me about sea otters?" … "What do sea otters eat?" … "What effect do sea otters have on the ecosystem / other species?" … "How do you feel about sea otters?" … "Do you have any stories about sea otters?" … "Do you think sea otters should be managed?" … "*Can* sea otters be managed?"" … etc.

4) *Extra focus on associations/beliefs pertaining to kelp forests, if they have not already come up:* "What can you tell me about kelp (forests)?" … "What role do kelp forests play in the ecosystem?" … "What effect do they have on other species" … "How do you feel about kelp forests?" … "Do you have any stories about kelp (forests)?" … etc.

If the participant has not done so themselves, you can ask participants if they distinguish between different kinds of kelp, and ask similar questions about the different kinds.

5) "Now let's talk about health and well-being, of the ecosystem, and/or of these species." [*Point to flashcards already laid out*] … "What sort of things tell you if the ecosystem, or the species/resources that are important for you, are (un)healthy?" … "What are your 'indicators'?" [*Prompt: E.g. When there's an algae bloom, what does that mean about the ecosystem? … or … How do you know if its going to be a good year/season for species x or y?*] [Optional: *list and/or add flashcards for these--Photograph*] … **Why** are these your indicators? **How** does this tell you about the ecosystem? I.e. How does indicator **x** or **y** affect species **z**, or vice versa? [*This prompts for theories and mental models of the ecosystem dynamics* in addition *to the food web*]

6) "What else affects the health of these species/resources?" … "Are there any natural (or other) processes that affect these species/resources/the ecosystem?" … [*Prompt: E.g. change in seasons, El Nino, migrations, things that occur in remote regions such as fishing pressure or ecological conditions in Alaska, human activities etc.*] *Prompt for underlying mental models.*

IV – Most accessible changes; associations and mental models relating to these processes; historical cognition

[Depending on time, do this either before, or after, the following section, according to priority]

1) "Now let's talk about changes. What are some of the biggest changes you see happening on the west coast, in the past, now, or in the future?" … I.e. important changes that have happened, are happening, or probably will happen. *[Can ask for each of these separately]* *[Prompt: ecological changes, policy changes, social/socioeconomic changes, … More specifically: Sea otter reintroduction, climate change, development, deforestation, salmon or other fishery depletion, recent salmon returns, changes in fishery legislation, invasive species, new species sightings, etc.]* … [Optional: *add flashcards in for these changes*] … If possible, inoffensively ask how they know: "What is it that tells you these changes are happening / have happened?" *[If they cite ecological indicators, query about the underlying mental model]*

2) "How do you feel about (each of) these changes?" … "How will they affect the ecosystem, or what's important to you in that system?" … "What are your hopes or fears about what will happen to the ecosystem and/or your community into the future?"

3) Optional: "Going back as far as you like, what have been the most significant events, in your mind, here on the WCVI?" … *Prompt: e.g. arrival of Europeans, collapse of salmon fishery, etc.*

Part 2 -- Focusing on the human element:

Associative networks and analogical representations of user groups / stakeholders and their interrelationships with the WCVI SES

V – Most accessible user groups/stakeholders; associations and mental models

1) "Now let's talk a bit more about *people*, specifically." … "How do *people* affect this foodweb/ecosystem?" … [*point to earlier flashcard arrangement of species/resources/habitats/foodweb*] …"Please describe."

2) "Who are the important resource users / stakeholders / individuals / groups of people /organizations that affect this ecosystem and vice versa?" … "Let's make a list." *[Optional: add in flashcards for these names]* –Photograph.

2a) Optional: [For each 'stakeholder' flashcard]—"What (thee-to-five) words would you use to describe/do you associate with this flashcard [i.e. stakeholder]? What makes them important?" [Extra time: "Anything else you want to add? Any stories about these stakeholders/people?"]

3) "How do you think these different stakeholders/groups see the ecosystem(s) of the west coast?" … "Do they each see things the way you do?" … "What might be the differences?" …

"Do they know what you know, or vice versa?" … "Why or why not?" … "Should they?" *[Prompt for theories and beliefs about these other stakeholders]*

4) Optional: "How would you arrange these 'people' flashcards … into groups … or in a line?" [Can ask for both, one at a time] … "Please do so." [*Prompts and optional forced orderings: Which affect your life/business the most, versus the least? … Most trustworthy to least trustworthy … Biggest effect on the ecosystem to smallest effect … Most transparent to least transparent … Most familiar to you to least familiar to you … Most powerful to least powerful*] – Photograph (for each arrangement).

Part 3 – Ecosystem Services

VI – *Most accessible ecosystem services and their function in mental models*

1) "Now we're going to talk a bit more about the ecosystem/nature, and its relationship to people." … "What things does the ecosystem/nature do for people? What does it provide for people?" … "Let's make a list" … [*Optional: add flashcards for these*] – Photograph.

1a) Optional: "How would you order these things?" … E.g. from most important to least important – Photograph.

2) "You mentioned changes **x, y, z** above … do you think those changes might affect any of these things (i.e. the list of ecosystem services) in the future?" … "How?"

Part 4 – Policies and parks status

VI – *Most accessible government policies; associations and role in mental models*

1) "Now let's talk briefly about the role of government and regulation here on the west coast" … "Are there any government policies or actions (past or present) that come to mind (federal, provincial, local) as important to you or your life here on the west coast?" … If so: "Let's make a list." [*Optional: add flashcards*]

2) For each policy: "What can you tell me about this policy?" ... "How does it work?" ... "How does it affect you?" ... *Prompt for explanations of the policy mechanisms: e.g. how the fishing license buy-back worked, why it was put in, etc. ...* "How do you feel about it?" ... "Why do you think this policy was put in place?" ... "Is it a good thing? A bad thing? Why?"

3) *Optional*: "Did you know the Clayoquot Sound region is a 'Biosphere Reserve'?" ... "What does that mean to you?" ... "What is a Biosphere Reserve? How would you describe it to someone who knows nothing about Biosphere Reserves or the west coast?" ... "Has it had any major successes/accomplishments?" ... "Do you consider it a success?" ... "Why/why not?"

4) *Optional*: "What do you think about the protected areas on the west coast?" ... E.g. the Pacific Rim Park Reserve? [Others?] ... "Are they important to you / do they affect you?" ... "If so, why?"

Part 5 – Information sources [optional – discretionary]

VII – Social cognition

"Now, if you're willing, I have a few more personal-sounding questions that pertain to who you are as a participant, and how knowledge gets passed on... you're free, of course, to answer these, or not, as you feel comfortable"

1) "Where did you learn about [main activity *X*, e.g. fishing]?" ... "How did you learn?" ... "Who taught you?"

2) "If or when you have questions about certain species or resources / the ecosystem / certain policies, where do you turn / who do you turn to for information, advice or clarification?"

3) "Do you have, or have you had, 'role models,' or people you 'look up to' or 'turn to,' in life, or with respect to [main activity *X*], or life in general?" ... alternatively: "Who would you say has had the biggest influence on your [working] life / how you view life?" ... "Why?"

4) "Do you have any particular places you like to go to unwind / socialize with other people?" ... "Where are they, if you don't mind my asking?" ... *Can ask about what kinds of conversation go on in these places, who / which kinds of people tend to be there.*

VIII – Cultural cognition

1) "Where do you get information about what's happening in your community, or on the west coast?"

2) *Optional*: "Do you listen to the radio / watch T.V.?" ... "Do you have any favourite channels or programs?" ... "Do you read much?" ... "If so, what sorts of things do you like to read?" ... "Have

you ever read anything, or seen any movies, that have really shaped the way you see things?" … "If so, what / how?"

Part 6 – Specific associations [optional]

1) "What [kinds of things] do these terms mean to you [if at all]?" … "What [one, three or five] word(s) do you associate with them / would you use to describe them?" *Prompt: e.g. if I say 'banana', you say..?*

[Development; Conservation; Sustainability; Sustainable development; Biosphere reserve; Ecosystem services; Science; Traditional knowledge; Sea otters (if this hasn't come up already); Kelp (same as above); DFO (same as above)]

END

(If there is extra time, go back over questions and ask those marked 'optional' or 'extra time' that weren't already asked)

Thank participant for their time. Remind them about contact information in case they would like to see any outputs of the study.