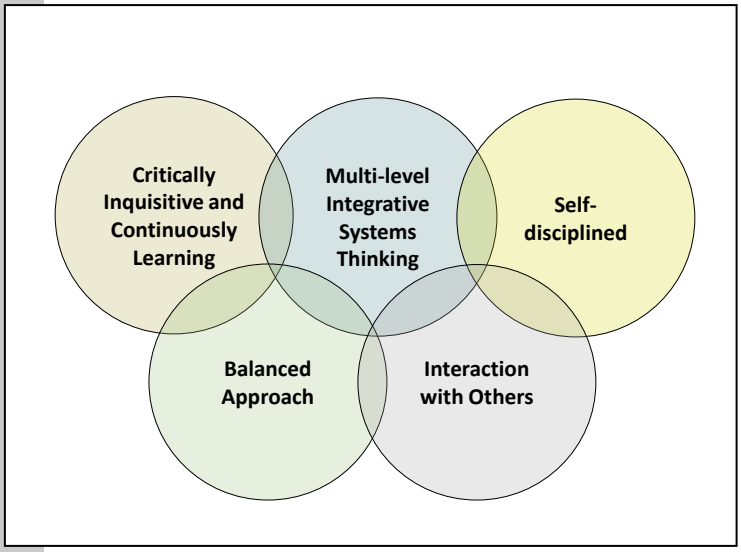
Identifying Habits and Practices of Effective Fish and Wildlife Professionals



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EXECUTIVE SUMMARY

Accelerating development of traits and competencies that contribute significantly to effectiveness of fish and wildlife (FW) management professionals is mission critical because social-ecological systems are changing rapidly and management challenges are growing. Recognizing that "effectiveness" is multi-faceted, this study focused on habits and practices leading to good reasoning and judgment found among consistently high-performing FW professionals. The two-round, expert panel study reported herein was designed to inform production of professional development materials (e.g., self-assessment tools, workshops, and individual professional development planning template). FW leaders were identified by project team members and referrals by others with broad experience in FW management across the U.S. The sample of experts included staff from state (primarily) and federal agencies and NGOs residing in 35 states representing all administrative regions of the Association of Fish and Wildlife Agencies. During spring 2019, input for rounds 1 and 2 of the study was received from 71 and 61 panelists, respectively.

Panelists identified 29 categories of habits and practices that contribute to reasoning and judgment of consistently high-performing FW managers. We assembled the habits/practices into five (5) broad groups based on our assessment of similarity and/or complementarity: Critically Inquisitive and Continuously Learning; Multi-level, Integrative Systems Thinking; Self-disciplined; Balanced Approach; and Interactions with Others. These groups can be thought of as clusters of competencies characteristic of consistently high-performing FW managers. Not unexpectedly given our method for identifying the habits and practices, all habits/practices were assessed as moderately or very important by a majority of panelists. When ranked, 8 habits/practices received a "top-5" priority ranking by 25% or more of panelists (Table A).

In addition to identifying 29 categories of habits and practices, several other relevant and potentially valuable observations can be extracted from the input of the expert panel. For instance, panelists' comments emphatically communicate ***recognition that many state agencies need to consider how they do their work (e.g., openly and collaboratively?) and with whom they do it (breadth of stakeholders considered?).*** These include:

- Being ***rigorously reflective*** is vital.
- ***Questioning the status quo***, asking "why?" and "what could be?"
- ***Understanding the bigger picture through the exercise of holistic, systems thinking.***
- ***Soft-skills*** are crucial and perhaps in greatest need of professional development.
- Uncertainty regarding whether the habits/practices identified are innate or teachable ***(nature versus nurture)***.
- The process of ***answering the question "why was each habit/practice important?" was a useful learning exercise for respondents***, prompting them to consider where they may need to develop personally.

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Table A. Eight habits/practices that received a "top-5" priority ranking by 25% or more of panelists.

Habits/Practices	
Thinking/acting **skeptically/critically + reflectively**	Constructively skeptical; not accepting assumptions, data, analyses or conclusions uncritically, and being self-critical for continuous improvement.
Thinking/acting **open-mindedly**	Taking a fresh look at a situation and searching for factors that may have been missed in the past to improve understanding of the coupled social-ecological system in which the management problem is embedded; always reserves right to change one's mind if new understanding of a situation indicates that is prudent.
Thinking-acting **holistically/broadly**	Being mindful that any specific situation is embedded in a larger context that either affects or is affected by FW management actions at any level; ability to see the sum for its parts, how they all fit together and identify what's missing.
Thinking/acting **ethically**	Operating in a morally good or correct manner that avoids harm to people, wildlife or the environment; routinely considers disparate ethical positions via-a-vis a management issue.
Thinking/acting **proactively/ strategically**	Anticipating and being ready to take action to control a situation rather than just responding to it after the fact, and doing so in a way that contributes to the achievement of long-term or overall aims and interests.
Actively/attentively **listening**	Asking stakeholders, co-workers and partners to share their thoughts, as well as listening to those offered unsolicited, whether or not they come from familiar or novel sources, or whether they represent views consistent or inconsistent with agency policy.
Thinking/acting **collaboratively**	Working in teams, populated with individuals from within and outside the agency who are willing to work together to achieve shared conservation goals.
Thinking/acting **transparently /truthfully/ honestly**	Being truthful and candid, lacking obfuscation or deceit, and behaving in a way that expresses honesty.

Another strong current of thinking in the comments received from the expert panel is ***the need to change state fish and wildlife agency culture by incorporating the identified habits and practices into agencies' standard operating procedures, including the expectations of what it means to be an agency professional.***

Next steps in the project will lead to preparation of personal assessment tools, a directory of professional development resources/opportunities for FW professionals, and an individual professional development template focused on the habits and practices identified in the panel study. The tool-development effort will include additional vetting of our interpretation of the important habits and practices essential to good reasoning and judgment. This will be accomplished through (a) review of our conclusions from the panel study by a sample of

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consistently high-performing FW professionals, from whom we also will identify types of training and/or experiences that contribute most to the development of those professionals, and (b) pretesting of the assessment tools with FW professionals in four state agencies.

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ACKNOWLEDGMENTS

We are indebted to the scores of fish and wildlife professionals who enthusiastically contributed their time and insights to this project. We were gratified to find so many colleagues willing to invest the hours of thought asked of them over multiple exchanges via email, telephone, and website. Their willingness to take personal time to provide thoughtful feedback is testament to the importance that panelists placed on supporting development of current and future fish and wildlife professionals.

We are especially grateful to the following colleagues, who participated in the scoping interviews we used to develop questions posed to the entire expert panel: Joe Benedict, Kyle Briggs, Steve Chadwick, Thomas Eason, Jennifer Fitzwater, Kipp Frohlich, Dave Golden, JR Jacobson, Bob Lanka, Karen Prentice, Tom Reinert, Jason Sumners, and Chris Wynn.

Chris Smith (Wildlife Management Institute) was our Principal Investigator. The Co-Investigators on this project (Pat Lederle, Emily Pomeranz, Shawn Riley, Ann Forstchen, Mike Schiavone, Dan Decker) come from three state wildlife agencies (i.e., Michigan Department of Natural Resources, Florida Fish and Wildlife Conservation Commission, New York State Department of Environmental Conservation) and two universities (Cornell University, Michigan State University). We appreciate the support we received from our employers to devote effort to this project.

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INTRODUCTION

As fish and wildlife (FW) management in the U.S. has grown increasingly complex, often with a greater community focus, and more decisions are necessarily relegated downward (decentralized) in the organizational chart, it is clear that the FW conservation institution faces a daunting challenge: *delivering consistently excellent performance at all levels of the enterprise.* There are many elements of this challenge, not least of which is quality of reasoning and judgment exercised by individuals contributing to or making decisions at all levels of management. Accelerating development of traits and competencies that contribute significantly to effectiveness of FW management professionals is mission critical because social-ecological systems are changing rapidly and management challenges are growing.

Public agencies and private NGOs that make up the professional FW management community in the U.S. have keen interest in improving competency in reasoning and judgment among otherwise well-trained college and university graduates seeking employment in their organizations. In practice, development and continuous improvement of *reasoning and judgment* skills among FW professional at all levels in state and federal FW agencies and conservation NGOs is largely relegated to "on-the-job training." This often means reliance on trial-and-error and, if one is fortunate, informal mentoring by more experienced and (hopefully) successful colleagues. This is not a reliable strategy for achieving consistent personal or organizational excellence.

Organizational leadership and management effectiveness have been subjects of informal conjecture, exhaustive inquiry and extensive training in the public and private sectors for several decades. However, most of the available insight on leadership and management effectiveness has been derived from outside the FW conservation institution and targets mid- to upper-level administrators. Given the need for and value of good reasoning and judgment skills at all levels of activity in FW agencies and NGOs, an egalitarian, inclusive approach to professional development focused on honing these skills could be prove beneficial to individual FW professionals and the organizations that employ them.

What Needs to Happen?

To address the professional performance challenge outlined above (i.e., delivering consistently excellent performance at all levels of the enterprise), FW agencies and NGOs need to accelerate development of highly effective staff who practice careful reasoning skills and continuous improvement of professional judgment throughout their careers. This can be facilitated by guidance on how to improve reasoning and judgment skills that contribute to consistent success in formulating recommendations, making decisions, and implementing actions of all types and at all levels in FW management. This suggests that, to the extent possible, practices of consistently high-performing FW professionals need to be taught to others to compensate for the mentoring void created by retirements and to narrow the gap between agency performance and public expectations. But before the requisite habits and practices can be taught, they need to be identified.

BACKGROUND

Professional Reasoning and Judgment Defined

Professional reasoning and judgment go hand-in-hand; they are different but interdependent concepts. They relate to skills needed for consistently effective practice among professionals of any kind. The relationship between reasoning (analysis) and judgment (assessment) is so tight and ever present that sometimes one or the other term is used to describe both concepts, but we make a distinction here.

Professional ***reasoning*** is the process whereby practitioners put specific evidence and general knowledge into a form useful for judgments and decisions about FW management in a particular situation. Professional ***judgment*** is the process of forming an opinion or evaluation, the ability to make considered decisions or draw conclusions, by discerning and comparing relevant evidence. Judgments are based on an analytic cognitive process (thus distinguishing judgment from intuition). **We refer to *professional reasoning* as the process professionals use to come to an understanding regarding *what to believe* about a particular situation, whereas *professional judgment* is the process professionals use to make a decision about *what to do* in that situation.**

Based on the premise that quality of reasoning and judgment are vital for effectiveness, our study sought greater understanding of reasoning and judgment characteristics of consistently high-performing FW professionals. We believe that overall competence as a FW professional requires one to adopt certain habits and engage in certain practices inherent to both reasoning and judgment. We also believe that the value that can be derived from these qualities in FW professionals is not relegated to formal leaders in agencies and NGOs—***anyone making or contributing to decisions at any level or of nearly any type can benefit themselves and their organization by improving quality of reasoning and judgment.***

Intuition, Reasoning and Judgment in FW Decision Making

In our conceptualization of decision making (Appendix 1), professional judgment is informed by, or a product of, reasoning and experience-based intuition. The reasoning component is consciously informed by scientific theories and facts, context-specific research, and consideration of pertinent ethics. The intuition component, informed by internalized knowledge and unconscious processing of experience to produce insight, is operating at multiple levels and in multiple places. This project sought experienced FW professionals' input about what constitutes consistently excellent performance in the broad sense by public FW management professionals, with emphasis on the role and form of reasoning and judgment. The question we are exploring is: How do highly effective public FW professionals think and what do they do (habits and practices) that result in them being regarded as consistently effective or successful? By effective and successful, we mean reliably contribute to or make well-reasoned, durable judgments that solve both modest and complex problems and achieve objectives.

Major Factors Contributing to Good Reasoning and Judgment

We designed this study assuming 4 broad factors were at work in the development of reasoning and judgment skills characteristic of consistently high-performing FW professionals:

- **A.** ***What they know***: kinds of knowledge needed for success (prerequisites).
- **B.** ***How they think***: habits of the mind inherent in their approach.
- **C.** ***How they implement their thinking***: skills, routines, strategies and tactics (practices) used regularly that enable consistently successful outcomes.
- **D.** ***How they continuously improve habits and practices over a career:*** approaches or activities contributing to on-going development (augmenting and refining) of habits and practices that result in high-quality reasoning, judgment and outcomes.

Our study was not designed to examine A. Our primary focus is on revealing elements of B and C— the ***way consistently high-performing FW professionals think*** (habits of the mind, or simply habits for short) and ***how they implement their thinking*** (practices). Looking ahead to preparing a guide to accelerate development of professional reasoning and judgment, D is also an important component of our inquiry.

PURPOSE

Identify important habits and practices contributing to reasoning and judgment of consistently high-performing FW professionals that should be the focus of professional development to encourage continuous improvement of FW staff at all levels in agencies and NGOs.

METHOD

We used a multi-step process to identify habits and practices that consistently high-performing FW professionals use to develop reasoning and professional judgment. First, we reviewed and synthesized literature on clinical reasoning and professional judgment from multiple disciplines. Next, we conferred with 12 FW professionals from across the country who themselves exemplified desirable traits and skills associated with consistently effective professional reasoning and judgment. We treated these individuals as "cases" to characterize high-performing professionals. We then used information from both our literature review and discussions with the 12 selected FW professionals to develop two versions of an input form for Round 1 of a panel study. Each version of the form included 5 general "habits of mind," or ways of thinking, that the literature review and the preliminary interviews indicated may contribute to practices leading to sound professional reasoning and judgment among consistently high-performing, effective FW professionals. We divided the panel into two groups, so that we could obtain input on a minimum of 10 habits (i.e., input on 5 habits from group A and input on another 5 habits from group B). Assuming that there may be more than the 10 habits we identified *a priori*, we asked panelists to suggest additional habits and practices displayed by high-performing professionals they knew. Panelists were also asked to provide specific examples of the habits and associated practices.

Input from Round 1 resulted in more than two dozen habits and practices of consistently effective FW management professionals. In Round 2, we asked all panelists to: (1) rate the importance of all the habits/practices for developing reasoning and judgment, (2) rank the 5 habits/practices most important to address through professional development experiences, (3) provide the reasons why they believed each habit/practice should be a priority for professional development, and (4) briefly explain how they believed those habits/practices could be developed among professionals. Based on both rounds of input, we arrived at 29 categories of habits and practices.

We implemented the expert panel process in spring, 2019. Our survey instruments and request to conduct survey research were reviewed and granted approval by the Cornell University Office of Research Integrity and Assurance (Institutional Review Board for Human Participants Protocol ID # 1006001472). Regional Directors from the Wildlife Management Institute and two active National Conservation Leadership Institute (NCLI) Fellows identified 150 individuals as being knowledgeable about traits of consistently effective FW management professionals. These people were candidates for potential inclusion in the expert panel. Our objective was to have approximately 30 "experts" consent to join the panel with the hope that we would end up with at least 20 contributing input to both rounds. Exceeding our expectations, a single invitation in March 2019 resulted in 85 FW management professionals agreeing to participate if specific scheduling was not a problem. Panelists represented multiple states and every AFWA region.

We implemented Round 1 of the panel study on March 1, 2019. Each panelist received a 3-page project background document and a personal link to a website where they could complete a web-based input form (Qualtrics). After 2 reminder emails, 71 of the 85 panelists completed the Round 1 input form. In April, 2019, we contacted all 85 panelists and invited them to participate in the second round of input. Each panelist received a 16-page document with collated input from Round 1 (i.e., definitions and examples of habits/practices of consistently effective FW professionals) and a personal link to a website where they could complete a second web-based input form (Qualtrics). After 2 reminder emails 61 panelists completed the Round 2 input form. Input forms for Rounds 1 and 2 can be found in Appendices A and B, respectively.

RESULTS

The panel study yielded voluminous input from 71 individuals (mostly experienced professionals holding leadership positions in state FW agencies). Condensing that input, we initially (i.e., after Round #1) identified 26 categories of "habits of the mind" (habits) and practices that contribute to reasoning and judgment of consistently high-performing FW professionals. We organized the habits/practices into 5 overlapping groups based on similarity and/or complementarity (Figure 1).

- Critically Inquisitive and Continuously Learning
- Multi-level, Integrative Systems Thinking
- Self-disciplined
- Balanced Approach
- Interactions with Others

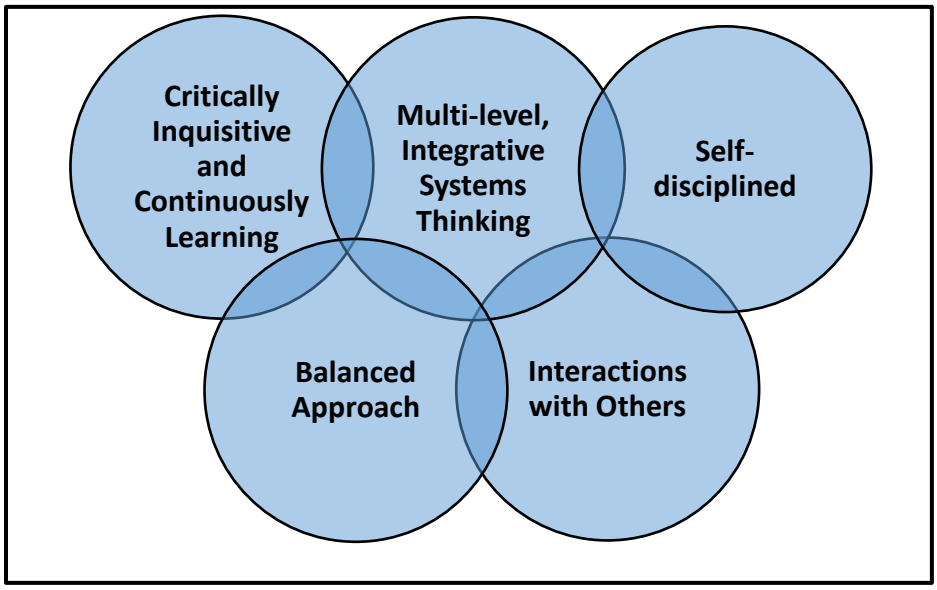

Figure 1. Habits and practices groupings.

Importance of Identified Habits and Practices

Input about the importance of the 26 habits and practices identified was provided by 61 of 85 expert panelists. These panelists rated the importance of the 26 habits and practices and ranked the top 5.

Importance ratings. All habits/practices identified in Round #1 were assessed as moderately or very important for high performance by a majority of panelists (Table 1). Only 4 habits/practices were considered moderately or very important by less than 75% of panelists. These habits/practices are thinking or acting: systematically, efficiently, patiently and passionately.

Ranking. Several panelists reported difficulty ranking the 26 habits/practices with respect to importance for training attention (the implication being all the habits/practices merit training effort), but they all tried to do so (Table 2). None of the habits/practices were universally perceived as a "top-5" training priority, but 8 of the 26 habits/practices received a top-5 priority ranking by 25% or more of panelists:

1. Thinking/acting skeptically/critically/reflectively
2. Thinking/acting open-mindedly
3. Thinking/acting holistically/broadly
4. Thinking/acting ethically
5. Thinking/acting proactively/strategically
6. Acting/listening attentively/actively
7. Thinking/acting collaboratively
8. Thinking/acting transparently/truthfully/honestly

At least 1 habit/practice in each of the 5 groups of habits and practices was identified as a high priority for training.

Note that we may not have been clear enough in our instructions on the topic of ethics. Based on specific comments recorded by respondents, it was apparent that two interpretations of "thinking ethically" were in play. Ethics was regarded as a very important topic by most panelists, but some seemed to think we were asking about personal ethics (e.g., codes of conduct). Our intent was to get feedback on the topic of ethical considerations in management decisions. That is, some respondents seemed to be thinking of ethics as a professional code of ethical behaviors (e.g., The Wildlife Society code of ethics) that an individual should adopt. Others viewed ethical considerations as world views, and therefore were indicating that effective FW professionals were sensitive to the fact that stakeholders in FW management may come at an issue from different ethical positions. The latter interpretation was our intent.

Following our review of panelist input from Round #2, we made a few modifications to our initial set of 26 habits/practices categories because of comments that suggested enough difference in them to warrant making them distinct items. That resulted in 29 habits/practices categories, which we present below along with brief definitions of each category.

Critically Inquisitive and Continuously Learning

Expert panelists indicate that FW professionals who demonstrate consistently effective reasoning and judgment might be thought of as "critically inquisitive and continuously learning." That is, they have a habit of being cautiously curious, critical and skeptical, but also open-minded and flexible. They think or act…

1. ***Skeptically/critically:*** constructively critical; not accepting assumptions, data, analyses or conclusions uncritically.

2. ***Reflectively:*** routinely self-critical and evaluating performance for the purpose of adapting and improving.

3. ***Open-mindedly:*** taking a fresh look at a situation and searching for factors that may have been missed in the past in an attempt to improve understanding of the coupled social-ecological system in which the management problem is embedded.

4. ***Inquisitively/curiously:*** learning as much as possible about a situation in order to understand sufficiently how the social-ecological system in which it is embedded works and to identify probable impacts of manipulation; asking lots of questions of the "how" and "why" type and seeking new evidence to support (or refute) existing perceptions.

5. ***Flexibly/adaptively:*** always reserves the right to change one's mind (and expects others to be able to do so) if new understanding of a situation indicates that is prudent; operates in a way that expects and can accommodate change in process, protocol or program as needed to adapt to different circumstances.

Multi-level, Integrative Systems Thinking

The experienced panelists consulted in this study associate "big thinking" with FW professionals who demonstrate consistently effective reasoning and judgment. These professionals are interested in both the trees and the forest. They think or act…

6. ***Holistically/broadly:*** being mindful that any specific situation is embedded in a larger context that either affects or is affected by FW management actions at any level; the ability to see the whole situation by studying its parts, to understand how they all fit together and identify what's missing.

7. ***Broadly/inclusively:*** seeking information about and trying to include any primary and secondary stakeholders (potentially affected persons) in a management decision or action and attempts to secure their input and involvement.

8. ***Creatively/divergently/imaginatively:*** looking for opportunities to adapt or create entirely new solutions to a problem at hand without undue concern about diverging from conventional practice when situations call for it.

Self-disciplined Thinking

The panel study revealed that several traits indicative of "self-discipline" (scientific, logical, systematic, analytic, etc.) are important, but also impartiality and sensitivity to competing ethical considerations are critical to effective reasoning and judgment. Thus, consistently high-performing FW professionals think or act…

9. ***Scientifically:*** approaching technical assessments by means of scientific methods and principles; evaluates the scientific methods used to address an issue to ensure the conclusions or recommendations are sound.

10. ***Logically:*** seeking understanding of a problem in a way that shows clear, sound reasoning that is obviously sensible (clear to others) under the circumstances.

11. ***Systematically:*** approaching technical assessments following a pre-determined plan in what can be recognized as a methodical fashion (e.g., manager's model, structured decision making), with clear focus on stated objectives.

12. ***Analytically:*** examining things very carefully by taking an organized, thoughtful approach that helps define complex issues and resisting an unorganized stream-of-consciousness approach to thinking about a problem.

13. ***Economically/efficiently:*** working or operating in a well-organized and competent way that gets good results with minimum wasted effort or expense--using no more funding, time, social capital and other resources than is necessary.

14. ***Impartially/clearly/objectively:*** recognizing and avoiding being influenced by one's own personal feelings or opinions, or by others who expect special treatment at the expense of being unfair to others or dismissive of undesirable effects on the resource.

15. ***Ethically:*** operating in a morally good or correct manner that avoids or minimizes harm to people, FW or the environment; routinely considers disparate ethical positions of stakeholders via-a-vis a management issue.

16. ***Patiently:*** handling delays and problems without becoming overly annoyed or anxious, and continues working on a project with commitment despite difficulties encountered.

Balanced Approach

Panel study participants identified several traits of consistently effective FW professionals that would contribute to these people taking a balanced approach to their exercise of reasoning and judgment. Such FW professionals think or act…

17. ***Pragmatically:*** operating in a sensible and realistic way that considers both practical and theoretical perspectives.

18. ***Proactively/strategically:*** anticipating and being ready to take action to control a situation rather than just responding to it after the fact, and do so in a way that contributes to the achievement of long-term or overall aims and interests.

19. ***Purposefully:*** being oriented toward achievement of established objectives (results- or outcomes-oriented) rather than being overly focused on process (means).

20. ***Politically:*** building a clear understanding of political ramifications of alternative choices, without allowing those realities to reduce integrity of the biological/ecological, social, and ethical assessments conducted to serve decision making.

21. ***Flexibly/adaptably:*** accommodating change in process, protocol or program as needed to adapt to changing circumstances.

Interactions with Others

The panelists queried in our study associate several "emotional intelligence" traits with FW professionals who demonstrate effective reasoning and judgment. Consistently high-performing FW professionals think or act…

22. ***Attentively/listening actively:*** asking stakeholders, co-workers and partners to share their thoughts, as well as listening to those offered unsolicited, whether or not they come from familiar or novel sources, or whether they represent views consistent or inconsistent with agency policy, professional convention or one's own beliefs.

23. ***Collaboratively:*** working in teams, populated with individuals from within and outside the agency who are willing to work together to achieve shared conservation goals.

24. ***Humbly/respectfully:*** showing politeness, deference and humility when working with others, thereby avoiding appearing self-important or better than others.

25. ***Transparently/truthfully/honestly:*** being truthful and candid, lacking obfuscation or deceit, and behaving in a way that demonstrates honesty.

26. ***Compassionately/empathetically:*** readily comprehending and genuinely identifying with other people's feelings, attitudes and circumstances.

27. ***Appreciatively/supportively:*** showing gratitude for contributions to conservation made by others.

28. ***Passionately:*** openly conveying strong feelings, emotions or beliefs without intimidating others.

29. ***Optimistically/positively:*** taking a favorable view of events or conditions and working in a way that expresses hope and confidence about the future.

Table 1. Perceived importance of habits and practices identified in Round #1 for developing the level of reasoning and judgment necessary to become a consistently high-performing fish and wildlife management professional.

	n	mean	Importance			
			Not important	Slightly important	Moderately important	Very important
Critically inquisitive, continuous learning						
Skeptically/critically/ reflectively	61	3.31	3.3	8.2	42.6	45.9
Open-mindedly	61	3.77	0	1.6	19.7	78.7
Inquisitively/curiously	61	3.33	0	8.2	50.8	41.0
Integrative systems thinking						
Holistically/broadly	61	3.46	0	8.2	37.7	54.1
Broadly/inclusively	61	3.44	0	3.3	49.2	47.5
Creatively/divergently/ imaginatively	61	3.21	0	21.3	36.1	42.6
Self-disciplined						
Scientifically	61	3.05	1.6	19.7	50.8	27.9
Logically	61	3.36	0	11.5	41.0	47.5
Systematically	61	2.79	3.3	29.5	52.5	14.8
Analytically	61	3.16	0	16.4	50.8	32.8
Economically/efficiently	61	2.89	3.3	29.5	42.6	24.6
Impartially/clearly/ objectively	61	3.49	1.6	4.9	36.1	57.4
Ethically	61	3.85	0	0	14.8	85.2
Patiently	61	2.95	3.3	27.9	39.3	29.5
Balanced approach						
Pragmatically	61	3.41	0	13.1	32.8	54.1
Proactively/strategically	61	3.51	0	3.3	42.6	54.1
Purposefully	61	3.49	0	11.5	27.6	60.7
Politically	61	3.38	1.6	6.6	44.3	47.5
Flexibly/adaptably	61	3.54	0	4.9	36.1	59.0
Interactions with others						
Actively listening	61	3.72	0	3.3	21.3	75.4
Collaboratively	61	3.54	0	6.6	32.8	60.7
Humbly/respectfully	61	3.49	0	8.2	34.4	57.4
Transparently/truthfully/ honestly	61	3.82	0	0	18.0	82.0
Compassionately/ empathetically/appreciately/ supportively	61	3.23	0	16.4	44.3	39.3
Passionately	61	2.90	3.3	26.2	47.5	23.0
Optimistically/positively	61	3.11	0	19.7	49.2	31.1

Table 2. Number and proportion of panelists who assigned each habit or practice as being one of the top 5 most important to address through training.

Habits and Practices Grouping	26 Specific Habits/Practices[1]	Count	% of all panelists
Critically inquisitive and continuously learning	***Skeptically/critically/reflectively***	***16***	***26.2***
	Open-mindedly	***20***	***32.8***
	Inquisitively/curiously	7	11.5
Integrative systems thinking	***Holistically/ broadly***	***19***	***31.1***
	Broadly/inclusively	14	23.0
	Creatively/divergently/ imaginatively	15	24.6
Self-disciplined	Scientifically	5	8.2
	Logically	5	8.2
	Systematically	1	1.6
	Analytically	8	13.1
	Economically/efficiently	2	3.3
	Impartially/clearly/objectively	9	14.8
	Ethically	***18***	***29.5***
	Patiently	3	4.9
Balanced approach	Pragmatically	15	24.6
	Proactively/strategically	***22***	***36.1***
	Purposefully	13	21.3
	Politically	12	19.7
	Flexibly/adaptably	11	18.0
Interactions with others	***Actively listening***	***20***	***32.8***
	Collaboratively	***21***	***34.4***
	Humbly/respectfully	6	9.8
	Transparently/ Truthfully /honestly	***16***	***26.2***
	Compassionately/empathetically/ appreciatively/supportively	7	11.5
	Passionately	1	1.6
	Optimistically/positively	5	8.2

[1]Bolded habits and practices received a top-5 priority ranking by 25% or more of panelists.

Other Valuable Observations

In addition to identification of the individual 29 categories of "habits of the mind" and practices and how they might logically be grouped, several other relevant and potentially valuable observations can be extracted from the input of the expert panel.

The need for change is widely recognized. Comments from the experienced FW management professionals on our expert panel emphatically communicate recognition that many state agencies have a deficit/need for changing how they do their work (e.g., openly and collaboratively) and with whom they do it (i.e., breadth of stakeholders considered).

Being rigorously reflective is vital. General literature on practitioner reasoning and judgment and this study strongly reinforce the idea that being deeply and explicitly reflective about one's habits/practices in the handling of a past, current/ongoing or anticipated (e.g., via scenario planning) management issue is key to continuous learning and professional improvement. This is an encompassing theme that cuts across perhaps all of the groups of habits and practices. It certainly puts emphasis on formative and summative evaluation for professional improvement.

Importance of asking questions such as "why?" and "what could be?" When asked for the reason many habits/practices were important, many of the comments respondents offered revolved around the idea of being willing to challenge the *status quo*; to challenge the frequently offered "it's how we've always done things" explanation for actions. Asking "why?" is also related to another common concern: avoiding groupthink. This theme juxtaposes individual initiative and the inertia of group norms and organizational culture.

The importance of understanding the bigger picture through multi-level, integrative systems thinking seems to be a theme running through some respondents' comments. Several of the habits from various groups contribute to one gaining such understanding.

Soft-skills are important and perhaps in greatest need of professional development. Attributes associated with soft skills (e.g., thinking open-mindedly, broadly, or collaboratively; listening actively) seemed to be perceived as a somewhat higher priority for training than more technical practices (e.g., thinking analytically, scientifically, efficiently). Some panelists mention that they think university courses or programs are failing to develop some of the soft skills that would be beneficial to FW professionals. Developing *listening skills* was mentioned multiple times as a training priority.

Nature versus nurture beliefs regarding whether the habits and practices identified are innate or teachable were expressed by panelists. Some panelists were skeptical that some of the habits or practices could be taught, believing these are traits or attributes that people either have or do not have when they arrive at an agency. To the extent this is true, they suggest improving staff effectiveness in reasoning and judgment is a hiring issue rather than a training issue. One implication of this outlook is that agencies may want to consider the list of important habits and practices as they develop protocols for interviews with prospective employees, possibly embedding important traits into scenario-based questioning. For habits/practices that have potential for improvement via content training, respondents observed that it is likely that some training aids need to be developed whereas others are adequately covered by existing training resources in natural resources or other fields (like business administration).

Reality check. In stark contrast to most respondents, one or two panelists expressed a view that decisions need to be based in science (or that FW professionals need to stick with the science). This is an orientation that has been common in the fields of modern ("science-based") FW management since their inception. It persists even though many decisions integrate a range of non-scientific considerations (and at best are only informed by some scientific considerations). Even though it was an outlier, any expression of the unqualified attitude that "science trumps everything" or "science indicates what a manager should do" in FW management reminds us that this is a deeply ingrained attitude.

Evidence that even a checklist to guide reflective thinking would be of value. Several of the experienced leaders in FW management that we had on the panel felt simply being asked to be reflective about the 29 habits and practices was personally helpful, prompting them to consider where they may need to develop personally. Panelists also found the process of answering the question "why was each habit/practice important?" was a useful exercise for them personally; they learned something by doing so.

CONCLUSION

Based on this inquiry, we conclude that certain habits and practices are associated with consistently high-performing FW professionals. Though numerous, the habits and practices identified by panelists with extensive experience in the FW management community all seem reasonable as traits of effective FW professionals; the authors have observed these traits in operation repeatedly over many years. Given recent and anticipated retirements among FW management professionals, it is clear that directed action to address honing the identified habits/practices is likely to be a good investment in professional development for staff at all levels in FW agencies and NGOs. Such training should be broadly available rather than reserved for mid- to upper-level administrators or formal leaders. The habits/practices identified can help determine content of professional development materials.

APPENDIX A: ROUND 1 QUESTIONS OF PANELISTS

Habits and Practices of Consistently High-Performing and Effective Fish and Wildlife Management Professionals

Views of an Expert Panel

Introduction

Thank you for agreeing to serve as a member of our Expert Panel. The purpose of this inquiry, conducted as part of an AFWA-supported Multi-state project, is to identify expert views on the habits and practices of fish and wildlife management professionals who have developed the reasoning and judgment skills necessary to make consistently effective fish and fish and wildlife management choices or decision recommendations typically required of mid to upper-level agency staff. We will tap into your expertise through a straightforward two-round process. We ask you first to help identify habits and practices of consistently high-performing, effective professionals (Round #1), and then later, after summarizing Round 1 input, we ask for your thoughts on priorities for helping professionals develop the habits and practices necessary to consistently make effective program choices or program recommendations.

In this first-round questionnaire, we ask you to respond to a list of open-ended questions in which you can describe, in your own words, the habits and practices of the fish and wildlife professionals you know who consistently make sound program decisions or program recommendations. We will synthesize the responses of all the experts participating in Round 1 of this process and share these results for your review and feedback in Round 2 (final round).

As you complete this first round of input, keep the following things in mind:

- Think of one or two fish and wildlife management professionals you know who have a track record of consistently making effective program decisions (or decision recommendations). Keep these "high-performing professionals" in mind as you answer the questions. Think of the habits and practices that help those individuals to be consistently high performing with respect to making decisions or decision recommendations. We want you to focus on the habits and practices of these real people, and to avoid suggestions about what you may feel would be ideal. In this way, we are attempting to capture the reality of high-performing fish and wildlife professionals' reasoning and judgment habits and practices, and thereby keep the study grounded in that reality.

- Because this first round is essentially a brainstorming exercise, try to identify as many habits and practices of the high-performing fish and wildlife professionals you know as you can. In Round 2, you will have an opportunity to see the suggestions made by all panelists, and to offer your view about the relative importance of suggested habits and practices.

- Offer your observations of habits and practices in the form of brief statements (i.e., bullet points or a brief sentence). This will reduce the amount of time necessary to complete the

questionnaire and it will facilitate quick and accurate synthesis of comments into categories that can be shared with other members of the expert panel in Round 2.

Round #1 Questions for Panel of Experts

Section 1:
General "Habits of Mind" Practiced by Consistently High-Performing Fish and wildlife Professionals

As a grounding for this project, we reviewed literature on development of professional reasoning and judgment in fields such as health care, education, and public administration. Collectively, those literatures refer to 10 general "habits of mind," or ways of thinking, that may contribute to practices leading to sound professional judgment among consistently high-performing, effective fish and wildlife professionals.

Those habits include thinking…

- logically
- skeptically
- open-mindedly
- impartially
- inquisitively
- creatively
- systematically
- pragmatically
- ethically
- reflectively

Q1: Have you observed any <u>other</u> general habits of thinking that contribute to sound judgment demonstrated by high-performing fish and wildlife professionals you know?

No →→ Skip to Section 2

Yes →→ **Q2: If yes, please write in the habits in the space provided below**
(please enter a one-word response; e.g., "thinking … logically"*)*

[New habit #1] thinking … _____
[New habit #2] thinking … _____
[New habit #3] thinking … _____

<u>Note</u>: You will be asked to provide examples of these habits later in the questionnaire

Section 2:

Specific examples of how consistently high-performing fish and wildlife professionals think, and what they think about

In Section 1, we described general ways of thinking that may contribute to sound professional judgment. Now we present a few examples of how a fish and wildlife professional might express those thinking habits. We ask you whether the high-performing professionals you know are using these habits of thinking. Then, we ask you to provide one or more specific examples (indicators) of how the high-performing professionals that you know are expressing these general habits in their thinking.

Habit 1: Thinking logically (or analytically)

- e.g., intuition plays a role in their judgments, but these professionals don't rely solely on "gut feelings" or intuition to make judgments
- e.g., they apply inductive and deductive reasoning in tandem
- e.g., they know what to pay attention to and what clarifying questions to ask

Q3: As described above, do high-performing fish and wildlife professionals you know routinely think logically (or analytically)?

No →→ Skip to Habit 2

Yes →→ **Q4: Please describe one or more specific examples of logical thinking practiced by high-performing fish and wildlife professionals you know.**

Logical thinking example #1: _____
Logical thinking example #2: _____

Habit 2: Thinking skeptically

- e.g., they are constructively skeptical: these professionals question all types of input, assumptions, theories, etc.; they question the quality of data or relevance of data to the current context
- e.g., they are aware of common reasoning errors and periodically question whether such errors have crept into their own reasoning

Q5: As described above, do high-performing fish and wildlife professionals you know routinely think skeptically?

No →→ Skip to Habit 3

Yes →→ **Q6: Please describe one or more specific examples of habits of skeptical thinking practiced by high-performing fish and wildlife professionals you know.**

New example #1: _____
New example #2: _____

Habit 3: Thinking open-mindedly

- e.g., they will accommodate new evidence (e.g., research findings, changing social or environmental conditions) and are willing to modify their thinking (even after a direction is set) if new evidence becomes available indicating course correction is prudent
- e.g., they value multiple sources of knowledge; they consult various sciences, indigenous knowledge, laypersons' knowledge
- e.g., they think about the range of values in play when making a recommendation or decision

Q7: As described above, do high-performing fish and wildlife professionals you know routinely think <u>open-mindedly</u>?

No →→ Skip to Habit 8

Yes →→ **Q8: Please describe one or more specific examples of habits of <u>open-minded thinking</u> practiced by high-performing fish and wildlife professionals you know.**

New example #1: _____
New example #2: _____

Habit 4: Thinking impartially

- e.g., they think about maintaining impartiality and fairness in decision-making processes
- e.g., they seek diverse perspectives

Q9: As described above, do high-performing fish and wildlife professionals you know routinely think <u>impartially</u>?

No →→ Skip to Habit 4

Yes →→ **Q10: Please describe one or more specific examples of habits of <u>impartial thinking</u> practiced by high-performing fish and wildlife professionals you know.**

New example #1: _____
New example #2: _____

Habit 5: Thinking inquisitively

- e.g., they are continually asking questions to take the measure of "facts" and assumptions
- e.g., they are continuously learning about the management environment, especially specific contexts

Q11: As described above, do high-performing fish and wildlife professionals you know routinely think <u>inquisitively</u>?

No →→ Skip to Habit 5

Yes →→ **Q12: Please describe one or more specific examples of habits of <u>inquisitive thinking</u> practiced by high-performing fish and wildlife professionals you know.**

New example #1: _____
New example #2: _____

Habit 6: Thinking creatively

- e.g., they recognize the potential of novel solutions
- e.g., they think about the merits of new/novel approaches to recurring management issues

Q13: As described above, do high-performing fish and wildlife professionals you know routinely think <u>creatively</u>?

No →→ Skip to Habit 6

Yes →→ **Q14: Please describe one or more specific examples of habits of <u>creative thinking</u> practiced by high-performing fish and wildlife professionals you know.**

New example #1: _____
New example #2: _____

Habit 7: Thinking systematically

- e.g., they are mindful of various inter-related parts of a social-ecological system and how change in one part may affect other parts (conditions, functions, etc.)
- e.g., they think about guiding principles that they can apply to specific recommendations or the decision at hand
- e.g., they think about how their decisions or decision recommendations will affect the management system (collateral or secondary effects of recommendations or decisions)

Q15: As described above, do high-performing fish and wildlife professionals you know routinely think <u>systematically</u>?

No →→ Skip to Habit 7

Yes →→ **Q16: Please describe one or more specific examples of habits of <u>systematic thinking</u> practiced by high-performing fish and wildlife professionals you know.**

New example #1: _____
New example #2: _____

Habit 8: Thinking pragmatically

- e.g., they recognize a distinction between unproductive distractions and novel ideas with potential value
- e.g., they know when enough is enough regarding seeking inputs (science inputs, stakeholder inputs), questioning, interacting, etc. and when it's time to make a judgment

Q17: As described above, do high-performing fish and wildlife professionals you know routinely think <u>pragmatically</u>?

No →→ Skip to Habit 9

Yes →→ **Q18: Please describe one or more specific examples of habits of <u>pragmatic thinking</u> practiced by high-performing fish and wildlife professionals you know.**

New example #1: _____
New example #2: _____

Habit 9: Thinking ethically

- e.g., they think about the ethical dimensions of management recommendations or decisions.
- e.g., they consider principles of good governance
- e.g., they think about the roles of fish and wildlife professionals as public trust managers

Q19: As described above, do high-performing fish and wildlife professionals you know routinely think about <u>ethical dimensions</u> of management?

No →→ Skip to Habit 10

Yes →→ **Q20: Please describe one or more specific examples of habits of <u>ethical thinking</u> practiced by high-performing fish and wildlife professionals you know.**

New example #1: _____
New example #2: _____

Habit 10: Thinking reflectively

- e.g., they follow up and think about (examine, explore) collateral and secondary impacts that transpired after decisions were implemented, as input for future decision recommendations
- e.g., they recognize that as decision makers, people are susceptible to influence of cognitive and emotional biases; they reflect on how such biases may have crept into their own judgments and how they might avoid those decision-making traps in future decisions
- e.g., they periodically think about and challenge the validity of their underlying assumptions about management issues

Q21: As described above, do high-performing fish and wildlife professionals you know routinely think <u>reflectively</u>?

No →→ Skip to end

Yes →→ **Q22: Please describe one or more specific examples of habits of <u>reflective thinking</u> practiced by high-performing fish and wildlife professionals you know.**

New example #1: _____
New example #2: _____

Section 3:
Other General "Habits of Mind" Practiced by Consistently High-Performing Fish and wildlife Professionals

We proposed 10 general "habits of mind," or ways of thinking, that may contribute to sound professional judgment among consistently high-performing fish and wildlife professionals. Those habits include thinking logically, skeptically, open-mindedly, impartially, inquisitively, creatively, systematically, pragmatically, ethically, and reflectively.

We asked if you had noticed any other general habits of thinking that contribute to sound judgment demonstrated by high-performing fish and wildlife professionals you know. You responded by mentioning the following ways of thinking. For each of the habits you identified, please provide 1 or more examples of how that habit is practiced by the consistently high-performing professionals that you know:

[auto insert first response to Q2]

Q23: Please describe one or more specific examples of how this habit is practiced by high-performing fish and wildlife professionals you know.

New example #1: _____
New example #2: _____

[auto insert second response to Q2]

Q24: Please describe one or more specific examples of how this habit is practiced by high-performing fish and wildlife professionals you know.

New example #1: _____
New example #2: _____

[auto insert third response to Q2]

Q25: Please describe one or more specific examples of how this habit is practiced by high-performing fish and wildlife professionals you know.

New example #1: _____
New example #2: _____

END OF QUESTIONS – Thank you!

In approximately four weeks you will receive a summary of the results from this first round of input from the expert panel. At that time you will be asked to participate in Round 2, the last round of this inquiry.

APPENDIX B: ROUND 2 QUESTIONS OF PANELISTS

Round 2 Habits and Practices of Effective Management Professionals

Thank you for agreeing to serve as a member of our Expert Panel. The purpose of this inquiry, conducted as part of an AFWA-supported Multi-state project, is to identify expert views on the habits and practices of fish and wildlife management professionals who have developed the reasoning and judgment skills necessary to make consistently effective management choices or decision recommendations typically required of mid to upper-level agency staff. In the first round, the panel identified habits and practices of consistently high-performing, effective professionals. We synthesized input from the entire panel, and in this final round we ask you to complete three tasks:

- Rate how important each habit/practice is as a means of developing the level of reasoning and judgment necessary to become a consistently high-performing F&W professional.

- Identify the five (5) habits/practices that you believe should receive the highest priority for professional development.

- Provide comments about why each of the 5 habits/practices should be a top priority for professional development and how that might be accomplished.

As you complete this final step, think about the fish and wildlife management profession broadly. We will use your insights to identify areas where professional development efforts can accelerate the growth of promising fish and wildlife professionals.

Relative Importance of Habits of Mind and Practices that Contribute to Reasoning and Judgment of Consistently High-Performing Managers
We synthesized input received from the panel of experts responding in Round #1, resulting in 26 categories of habits and practices. The labels for the categories generated by the panel are provided in the set of questions below.

You can use your cursor to hover over each category label to see its definition. Please take a few minutes to review the document Habits of the mind refined 3.31.19 (click the title to open it) to find examples of each habit or practice. You may find it useful to have a printed copy of this document with the examples on hand as you complete the questions in this survey.

Q1: For each habit or practice that has been identified previously by the panel, please rate its importance for developing the level of reasoning and judgment necessary to become a consistently high-performing F&W professional.

	Importance			
	Not (1)	Slightly (2)	Moderately (3)	Very (4)
Skeptically/critically/ reflectively (1)				
Open-mindedly (2)				
Inquisitively/curiously (3)				
Holistically/broadly (4)				
Broadly/inclusively (5)				
Creatively/divergently/ imaginatively (6)				
Scientifically (7)				
Logically (8)				
Systematically (9)				
Analytically (10)				
Economically/efficiently (11)				
Impartially/clearly/objectively (12)				
Ethically (13)				
Patiently (22)				
Pragmatically (14)				
Proactively/strategically (15)				
Purposefully (16)				
Politically (18)				
Flexibly/adaptably (20)				
Actively listening (17)				
Collaboratively (19)				
Humbly/respectfully (21)				
Transparently/truthfully/honestly (23)				
Compassionately/empathetically/ appreciatively/supportively (24)				
Passionately (25)				
Optimistically/positively (26)				

Priorities for Professional Development

Recall that the purpose of this project is to accelerate professional development of rising F&W managers. With your input and that of others on the expert panel, we intend to identify where to focus our effort. We need your help in identifying priority areas for attention.

The list below is a list of all habits and practices that you rated as being very important for developing the level of reasoning and judgment necessary to become a consistently high-performing F&W professional. Among these, please identify the five (5) habits/practices that you believe should receive the highest priority for professional development.

Note: When making your selections, keep in mind factors such as (a) large gaps between current and needed levels of competency typically observed in these habits/practices, (b) habits/practices that are susceptible to marked improvement when F&W managers are exposed to them in formal training.

Q2 Instructions: Drag the habit you think has the greatest priority to the top of the list in position 1. Drag the habit you think has the second highest priority to position 2, and so on until all 5 are in order of priority you would place on each, if you were allocating resources to professional development programs. As you rank the list, you can hover over the habit to read the definition and category.

Skeptically/critically/reflectively (1)
Open-mindedly (2)
Inquisitively/curiously (3)
Holistically/broadly (4)
Broadly/inclusively (5)
Creatively/divergently/imaginatively (6)
Scientifically (7)
Logically (8)
Systematically (9)
Analytically (10)

Economically/efficiently (11)

Impartially/clearly/objectively (12)
Ethically (13)
Patiently (14)
Pragmatically (15)
Proactively/strategically (16)
Purposefully (17)
Politically (18)
Flexibly/adaptably (19)
Actively listening (20)
Collaboratively (21)
Humbly/respectfully (22)
Transparently/truthfully/honestly (23)

Compassionately/ empathetically/ appreciatively/supportively (24)
Passionately (25)
Optimistically/positively (26)

Q3: Explanation of Priority Choices

For each of the 5 priority habits/practices that you identified, please provide a brief explanation

for why this should be a priority for professional development. We would benefit most from any insights you may have as to:

1. **Why** it is challenging for F&W managers to develop the area of competency you have selected.

2. **How** to help F&W managers improve in the area identified.

(Example: Why should the practice/habit of thinking skeptically be a top priority for professional development and how might that be accomplished?)

Q4: Your parting comments

We have no more questions, but in the space below feel free to offer any additional thoughts or comments you have about professional development that you believe would enhance sound reasoning and judgment among consistently high-performing, effective of F&W managers.

APPENDIX C: ROUND 2 HABITS AND PRACTICES ELABORATION

Habits and Practices (Elaborated) that Contribute to Reasoning and Judgment of Consistently High-Performing Wildlife Managers

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Critically Inquisitive and Continuously Learning

1. **Skeptical/critical:** Constructively critical; not accepting assumptions, data, analyses or conclusions uncritically.

    a. they question quality and relevancy of all types of input, assumptions, theories, dogma, etc. for the current context; they think about and challenge the validity of their own and others' underlying assumptions about management issues and previous decisions

    b. they are aware of common reasoning errors and question whether such errors have crept into their own reasoning; they quickly detect illogical or flawed reasoning; they will ask uncomfortable questions to ensure quality analysis

    c. they will look at a problem or recommendation from a variety of angles to determine whether something was overlooked; they ask probing questions from multiple perspectives to ensure thorough consideration of possible factors and actions

    d. they often conduct their own search for information to verify independently what others provide

    e. they seek others' verification of information they perceive as important or leading to a particular direction for management

    f. they encourage their agency to be continuously learning from critical analysis of experience

2. **Reflective:** Routinely self-critical and evaluating performance for the purpose of adapting and improving.

    a. they think about and challenge the validity of their own and others' underlying assumptions about management issues and previous decisions

    b. they routinely engage in after-action review, including others in the process; they consider how other alternatives may have played out;

3. **Open-minded:** Takes a fresh look at a situation and searches for factors that may have been missed in the past in an attempt to improve understanding of the coupled social-ecological system in which the management problem is embedded.

    a. they will accommodate new evidence (e.g., research findings, changing social or environmental conditions), ask for clarification or justification of information before delving further and agreeing or disagreeing, and modify their thinking (even after a direction is set) if new evidence indicates course correction is prudent

b. they value multiple sources of knowledge; they consult various sciences, indigenous knowledge, laypersons' knowledge, etc.; they are constantly seeking new information and updating their situational awareness

c. they are willing to critique popular or administrative ideas in a constructive manner

d. they think about the range of values in play when making a judgment and thereafter constantly assess the social environment (considering views, attitudes, implications of stakeholders) and adapt to changing situations while maintaining progress toward goal

e. they seek out rather than avoid individuals who will share conflicting views; they embrace input in an open and honest manner, for the purpose of understanding why an alternative view is held; they don't respond negatively (angrily, defensively) to staff input that is contrary to their own views or take such input personally

f. they listen to different perspectives, seek to understand them and then incorporate them into the information base prior to describing a situation or solution to a problem; they point out different perspectives at play in a situation; they avoid forming opinions or beliefs about outcome prior to obtaining information or listening to diverse input; they choose to listen more than talk, especially when initially processing details of a situation

4. **Inquisitive/curious:** Learns as much as possible about a situation in order to understand sufficiently how the social-ecological system in which it is embedded works and to identify probable impacts of manipulation; asking lots of questions of the "how" and "why" type and seeking new evidence to support (or refute) existing perceptions.

   a. they are hungry for new information, asking many questions to ensure they and their staff, colleagues and partners understand a situation prior to forming an opinion about it; they take time to become knowledgeable if they have gaps in their understanding; they continually seek opportunities to learn rather than unthinkingly accepting the *status quo*; they genuinely question assumptions and continually ask questions to take the measure of "facts" and assumptions presented; they continuously learn about the management environment, especially specific contexts, often asking naïve questions

   b. they seek knowledge and expertise from various sources (scientific literature, experts, etc.); they don't let their own ego get in the way of seeking information from others; they make clear that they are inquisitive rather than seeking to prove a point when they question team members from all levels of an agency about technical, social and policy aspects of the issue

   c. they ask challenging questions without belittling or judging others (partners, staff, stakeholders, etc.); they seek confirmation that staff, partners or other colleagues come to the same conclusions, and why or why not; they seek out and look for an understanding of stakeholder concerns, partner questions, and public opinion when making decisions

   d. they try to fill information gaps so as to make new options plausible; they routinely ask "what if" to identify novel options and information needs; they contemplate various scenarios; they put into practice alternative actions to test whether the *status quo* is correct or best, looking for ways to improve process or outcome

5. **Flexible/adaptive**: Always reserves the right to change one's mind (and expects others to be able to do so) if new understanding of a situation indicates that is prudent; operates in a way that expects and can accommodate change in process, protocol or program as needed to adapt to different circumstances.

a. they follow up and think about (examine, explore) collateral and secondary impacts that transpired after decisions were implemented, as input for future recommendations

b. they recognize that change is constant and encourage adaptation

c. they are willing to modify their recommendations or approach as the process reveals new information or perspectives

Multi-level, Integrative Systems Thinking

6. **Holistic/broadminded:** Being mindful that any specific situation is embedded in a larger context that either affects or is affected by FW management actions at any level; the ability to see the whole situation by studying its parts, to understand how they all fit together and identify what's missing.

    a. they recognize that everything is interconnected in the social-ecological system and cannot be simply split into neat categories and therefore they are willing to look beyond traditional borders or perspectives; they keep in mind the big picture, understand how details of particular management situations fit into that picture, and can communicate at both levels; they try to understand how a decision about a specific problem or situation may affect the larger organization or broader goals; they are mindful of various inter-related parts of a social-ecological system and how change in one part may affect other parts (conditions, functions, etc.)

    b. they think critically about the social-ecological (and political) system and weigh consequences of alternative actions; they look beyond the biological components of the management problem to reveal underlying social issues that will affect how the agency responds; they try to ascertain the "true" underlying fish/wildlife management issue, recognizing that at times the initially verbalized management issue/question is only part of a larger issue or folks are merely presenting a smoke-screen to avoid attention on the "real" issue; they meld biological/ecological and social sciences with stakeholder input; they think about how their judgments will affect the management system (collateral or secondary effects of recommendations or decisions); they consider short-term and long-term impacts of actions on resource, agency, program and stakeholders

7. **Broadminded/inclusive:** Seeks information about and tries to include any primary and secondary stakeholders (potentially affected persons) in a management decision or action and attempts to secure their input and involvement.

    a. they are open to hearing ideas from people with different backgrounds and experiences and seek diverse staff, partner and stakeholder input and involvement in identifying solutions

    b. they convene teams with diverse viewpoints

    c. they understand the agency needs to include differing cultural or community viewpoints; proactively bring under-represented people into the profession

8. **Creative/divergent/imaginative:** Looks for opportunities to adapt or create entirely new solutions to a problem at hand without undue concern about diverging from conventional practice when situations call for it.

a. they “think big,” outside the box

b. they are willing to consider new or alternative ways of gathering information; they look at things from a direction other than the one historically used; they think about the merits of new/novel approaches to recurring management issues; they are not hesitant to express or consider all ideas, no matter how different they are from the *status quo*; they recognize the potential of novel solutions; they are willing to hear and try new things, reflecting a trust in others and a willingness to allow trial and error

c. they routinely look for alternatives or solutions that are not offered and do not automatically accept choices provided (especially “easy” routes); they ask "why not?" and "what if?" to identify novel options and information needs as a routine part of problem solving; they seek to bring new ideas to discussions by introducing information from other disciplines and experiences or discussions from seemingly unrelated professions to consider with respect to issues within the agency; they allow for creativity to occur in a team environment by being willing to entertain differing thoughts and processes.

Self-disciplined

9. **Scientific:** Approaches technical assessments by means of scientific methods and principles; evaluates the scientific methods used to address an issue to ensure the conclusions or recommendations are sound.

    a. they have are comfortable with and have a good grasp of scientific processes, principles and current state of knowledge (strengths, weaknesses and uncertainties) and are willing to be creative in search of additional knowledge

    b. they utilize the scientific, peer-reviewed literature and subject matter experts to ascertain what are accepted facts and then heavily weight such facts as the basis for decisions, recognizing science should not be the only aspect of decision making, but should be the foundation for establishing the “facts”

    c. they practice hypothesis testing, even informally, as an effective way to think flexibly about issues, develop alternative explanations, and favor those supported by the evidence

    d. they develop scientifically credible resource-assessment programs; they display good judgment about priority research needs so as to avoid attempting to do too much with too little research support; they encourage peer review of reports or other documents

10. **Logical:** Seeks understanding of a problem in a way that shows clear, sound reasoning that is obviously sensible (clear to others) under the circumstances.

    a. they think about using information for building an understanding as one would build a house: solid base (foundation), strong walls (support) and roof (conclusion); after analyzing knowledge available, they seek clarification to questions in a logical manner and sequence (if we choose option A, then B will happen; if we add C, then D will happen, too; etc.); they follow a stepwise process that is understandable and replicable

    b. they apply inductive and deductive reasoning in tandem to thoroughly think through a problem; they know what questions to ask to make progress without getting lost in the weeds; they choose an appropriate type of planning process for the specific circumstance

c. they "think through" a problem, that is they think through ideas and suggestions before accepting or rejecting them; they mentally work through alternatives to identify likely pitfalls and the most promising solutions; they avoid "crisis" group think; rather than reacting, they take time to think through potential repercussions before acting; they understand that just because you can do something is not the same as doing the right thing

d. they recognize what is logical is not always right, that being logical and analytical can also serve to be self-perpetuating, status quo, etc. and tend toward a linear process rather than a more integrated, systems or critical thinking approach

11. **Systematic:** Approaches technical assessments following a pre-determined plan in what can be recognized as a methodical fashion (e.g., manager's model, structured decision making), with clear focus on stated objectives.

    a. they work initially to understand context (including structural components [laws, rules, etc.] well before trying to solve particular problem; they are mindful not to jump to solutions right away, prior to fully thinking through the problem; they routinely gather input from internal and external stakeholders

    b. they understand the importance of clear direction from the outset, consistent with the accepted/stated purpose, guiding principles and goals for a program

    c. they lay the groundwork, identify pitfalls and strategies to avoid them, develop needed alliances, evaluate best timing; they identify unintended consequences and collateral impacts, and ways to avoid or mitigate them

12. **Analytic:** Examines things very carefully by taking an organized, thoughtful approach that helps define complex issues and resisting an unorganized stream-of-consciousness approach to thinking about a problem.

    a. they typically ask questions before offering solutions; they are comprehensively briefed on an issue by staff, but ask probing questions from multiple perspectives to ensure thorough consideration of possible factors and actions; they know what to pay attention to and what clarifying questions to ask to ensure they understand the situation; they ask for data to back up staff claims

    b. they use objective information (of many kinds) with attention paid to social input that is not advocacy; they recognize that intuition plays a role in their judgments, but don't rely solely on "gut feelings" or intuition to make judgments; they rely on results reported from other experiences and eschew conjecture; they consider different kinds of data (biological, economic, social, political, etc.) from multiple sources

    c. they can deconstruct a complex issue, and then rebuild it using clear logic

    d. they predict future trends based on data about key factors in a situation and take projections into consideration in making a judgment, including likely relative impacts of proposed actions on various groups of stakeholders, managing agencies, and future ability to invoke additional changes as needed; they identify potential unintended consequences and collateral impacts, and determine ways to avoid or mitigate them

13. **Economical/efficient:** Works or operates in a well-organized and competent way that gets good results with minimum wasted effort or expense--using no more funding, time, social capital and other resources than is necessary.

    a. they employ various rapid assessment methods, where appropriate

    b. they routinely ask questions about program or activity purpose and efficiency of implementation

    c. they evaluate costs and benefits of all decisions and decision options to judge what is in the best interest of meeting agency mission; they consider the economic impacts on all vested stakeholders resulting from of actions arising from management or policy decisions; they consider the economic impacts to their respective agencies resulting from management or policy decisions

    d. they spend an appropriate (i.e., not an undue) amount of time information gathering, analysis/assessment and making a judgment, and then move on to the next problem

    e. they act decisively; they strongly influence how a situation will progress or end by making decisions relatively quickly and efficiently, thereby settling an issue convincingly, confidently, and resolutely to produce a definite result

14. **Impartial/clear/objective:** Recognizes and avoids being influenced by one's own personal feelings or opinions, or by others who expect special treatment at the expense of being unfair to others or dismissive of undesirable effects on the resource.

    a. they embody a public-service mindset that compels them to serve people with diverse viewpoints, treating all with respect and fairness (e.g., respect for different opinions) and minimizing personal biases and feelings about others.

    b. they are impartial and fair in decision-making processes (e.g., resource allocation decisions), seeking diverse, even dissenting perspectives and making judgments based on merits of ideas, not influence of people proposing them; they reach out to unusual sources to elicit different viewpoints; they create a "safe" environment for people to share diverse or dissenting opinions

    c. they share alternative or dissenting views in communications about a decision

15. **Ethical:** Operates in a morally good or correct manner that avoids or minimizes harm to people, FW or the environment; routinely considers disparate ethical positions of stakeholders via-a-vis a management issue.

    a. they routinely think about the ethical dimensions of management recommendations or decisions (impacts of many types on primary and secondary stakeholders, near and far); they always striving to do "the right thing," regardless of difficulty, cost or need to admit a mistake; they consider decisions from the "Golden Rule" perspective

    b. they think about the roles of fish and wildlife professionals as public trust managers (align practices with principles of good governance; do not place personal opinions over scientifically obtained facts or personal interests over those of other citizens; ensure current use interests do not threaten viability of the resource or foreclose future options); they are mindful that they are managing wildlife for all citizens (current and future), not just special interests, and that they work for people, not for the resource

c. they adhere to a code of professional conduct expecting high ethical and professional standards; they avoid situations that put their personal interests and professional responsibilities at odds

d. they advocate for careful handling of captured animals

e. they use strong morals and ethical grounding in their reasoning and judgment practices; they understand that truth and transparency are essential

16. **Patient:** Handles delays and problems without becoming overly annoyed or anxious, and continues working on a project with commitment despite difficulties encountered.

    a. they are quickest to figure out how long they have to make the decision and plot a course of action given the time allowed; they avoid snap decisions.

    b. they schedule time for reflective thinking as part of their course of action

Balanced Approach

17. **Pragmatic:** Operates in a sensible and realistic way that considers both practical and theoretical perspectives.

    a. they quickly scope out the situation (rapid appraisal) before deciding how to engage on an issue and then match timing of more thorough situation assessment to decision urgency; they quickly determine if assessment of the issue requires an immediate response or whether time can be taken for more complete evaluation prior to a decision; they are effective at setting priorities and are good time managers for themselves and staff

    b. they recognize a distinction between unproductive distractions and essential processes or novel ideas with potential value

    c. they know when enough is enough when seeking inputs (science inputs, stakeholder inputs), questioning, interacting, etc. and when it's time to make a judgment; they know limits of certain public-facing processes; they will make a judgment without perfect information

    d. they can determine whether a partial solution is adequate for immediate need, recognizing that a more comprehensive solution can be worked on over time; they routinely settle for improving a situation, even though that may fall short of desired outcome; they temper expectations based on capacity, funding, time, etc. limitations and constraints

    e. they can think through implications of complex decisions; they mentally work through alternatives to identify land mines and find most effective solutions; they can weigh economic, political, social, ecological, biological and logistical factors in decision making.

    f. they are organized in their communication responding to an issue, understanding that not all stakeholders will be satisfied

18. **Proactive/strategic:** Anticipates and is ready to take action to control a situation rather than just respond to it after the fact, and does so in a way that contributes to the achievement of long-term or overall aims and interests.

a. they are future-looking; they think about where a situation is headed and what that means; they assess potential outcomes of different decisions/behaviors; they think strategically about the actions needed to propel the agency forward, the long-term view for our fish and wildlife resources, and what parties, partners, agencies need to be involved to move forward successfully; they evaluate how they use their own time to focus on making the biggest impact possible in their role

b. they can anticipate the impacts of various alternatives and avoid negative consequences of some decisions; they are adept at identifying the unintended consequences that could result from a decision, imagining outcomes/effects of the decision in the future, not just at the time the decision is made (is the decision sustainable?); they try to voice any issues that may arise down the road and how those might be productively addressed

c. they are able to keep small problems from blowing up into big issues

d. they are willing to risk making a mistake

19. **Purposeful:** Oriented toward achievement of established objectives (results- or outcomes-oriented) rather than being overly focused on process (means).

    a. They are focused on delivering a decision that produces an intended result with acceptable consequences, which includes regularly evaluating management actions to ensure they are serving their intended purpose

    b. They question whether or not resources are focused strategically: Are we working on the right things? They think in terms of outcomes and not just inputs and outputs, with an ability to see through to the heart of the matter and sort out noise that clouds situation; know what to ask and what to pay attention to

20. **Political:** Builds a clear understanding of political ramifications of alternative choices, without allowing those realities to reduce integrity of the biological/ecological, social, and ethical assessments conducted to serve decision making.

    a. they consider the political ramifications of management or policy decisions and their communication; they recognize that how things are presented (the 'optics') may have implications at higher levels, and therefore seek advice from the agency's legislative liaison for evaluation of political sensitivity and to understand potential pitfalls regarding how decisions are communicated

    b. they seek clarity about the immediate impact and the long-term implications to the agency/organization, recognizing how decisions will be viewed by those currently in positions of power and funding oversight will make a difference in the political landscape

    c. they cultivate relationships and grow political support (e.g., state legislature, congress) for large-scale changes in agency operations, programs and directions by providing information and arguments/justifications, a process often taking longer than many agency staff think it should (patience needed)

    d. They continuously seek to understand the political landscape because timing can often be very important--being prepared for success when the opportunity presents itself is key, often requiring both patience and skill to get to the point of the opportunity, and when that point is reached being prepared to accept it and move forward.

21. **Flexible/adaptable**: Accommodates change in process, protocol or program as needed to adapt to changing circumstances.

    a. they follow up and think about (examine, explore) collateral and secondary impacts that transpired after decisions were implemented, as input for future recommendations

    b. they recognize that change is constant and encourage adaptation

    c. they are willing to modify their recommendations or approach as the process reveals new information or perspectives

Interactions with Others

22. **Actively listens:** Asks stakeholders, co-workers and partners to share their thoughts, and listens to those offered unsolicited, whether or not they come from familiar or novel sources, or whether they represent views consistent or inconsistent with agency policy, professional convention or one's own beliefs.

    a. they make every effort to understand (through active listening) what the issues are before they try to address them, including seeking reactions from polar opposite interests, engaging with staff and asking lots of questions of them, and carrying on substantive discussions with subject experts

    b. they listen to others first, then speak; they typically ask questions before offering solutions

    c. they ask for feedback on their understanding of the system, issue or problem, to see if they have missed anything

    d. they are able to put themselves in the shoes of others, even in confrontational situations, and by doing this they are able to re-frame their responses using language and examples that allow them to be more clearly communicated, enabling them to get their point across effectively.

23. **Collaborative**: Works in teams, populated with individuals from within and outside the agency who are willing to work together to achieve shared conservation goals.

    a. they recognize the strengths other entities and individuals can bring to solving a problem or implementing a program successfully, so they strategically form collaborations to engage needed expertise and support from a variety of partners (agencies, NGOs, institutions, communities)

    b. they routinely create diverse teams internally (e.g., within and across work units) and with other entities to acquire expertise needed to tackle regular tasks as well as to collaboratively address issues, and adopt communication approaches that ease flow of information laterally and vertically among collaborators

    c. they listen to people explain multiple sides of a topic and ensure that collaborators' voices will be considered, but additionally encourage others to have a stake in an issue, not just a say; adapt approach/process to improve potential for consensus

    d. they provide a clear articulation of team's purpose, expectations of members, deliverables and timeframe and let team work through problem; adapt approach/process to improve potential for consensus; overrule only if necessary

24. **Humble/respectful:** Shows politeness, deference and humility when working with others, thereby avoiding appearing self-important or better than others.

    a. they are not self-promoting, which allows them to incorporate others' ideas; they listen first and create space for other voices to be heard; they listen and reflect on a variety of outside inputs; they are genuine in their interactions with stakeholders

    b. they avoid being judgmental about others; they expect to hear something from others that you don't already know (to learn something new), rather than automatically and unthinkingly putting it in a stereotypic box; they show respect for those who bring different ideas or skills to the table

    c. they know their shortcomings and are willing to seek knowledge and expertise from others; they reflect on personal limits of knowledge, skill and abilities, and seek advice from others

    d. they recognize that their job title or organizational rank does not necessarily mean they know more about a topic than others, especially younger, less experienced employees; they show constraint to avoid dominating conversations when individuals with less experience are present, allowing them a chance to bring ideas forward

    e. they show respect and consideration to those involved who want to protect our resources, even if that viewpoint is different from theirs; they approach tough, controversial issues with civility

25. **Transparent/truthful/honest:** Is truthful and candid, lacks obfuscation or deceit, and behaves in a way that demonstrates honesty.

    a. they present what they know, clearly and fully; they openly discuss causes and effects considered in proposals

    b. they do not make decisions in a vacuum - they include input of staff and stakeholders

    c. they realize that not only the decision but how the decision was arrived at needs to be communicated to those who are affected by the decision

    d. they honor commitments

26. **Compassionate/empathetic:** Readily comprehends and genuinely identifies with other people's feelings, attitudes and circumstances.

    a. they try to understand how others (teammates, staff, partners, stakeholders, etc.) view a situation, and then voice their interpretation of others' concerns to prompt reaction, thereby testing whether they perceive those concerns correctly

    b. they are able to put themselves in the shoes of others, even in confrontational situations, and by doing this they are able to re-frame their responses using language and examples that allow them to more accurately communicate others' concerns, interests and viewpoints

    c. they listen carefully, quickly "read" the immediate mood or climate, and interact with stakeholders and colleagues, while making an effort to understand on an emotional level the information provided

    d. they balance resource protection with compassion for the needs of resource users

e. they think about how a decision or event will be perceived by each stakeholder involved in a collaborative process so that those people can report back to their faction/interest group in a way that conveys competence in making their case or negotiating points, regardless of outcome

27. **Appreciative/supportive:** Readily shows gratitude for contributions to conservation made by others.

    a. they routinely convey appreciation of the value that staff, partners and stakeholders bring to conservation and management

    b. they place a priority on providing staff, teams, partners, etc. the resources (expertise, personnel, money, technology, etc.) to accomplish goals

28. **Passionate:** Openly convey strong feelings, emotions or beliefs without intimidating others.

    a. they have genuine passion for the well-being of the resource being managed

    b. they have genuine passion for the people involved and people affected

29. **Optimistic/positive:** Take a favorable view of events or conditions and work in a way that expresses hope and confidence about the future.

    a. they don't view difficult situations as impossible, but rather as challenges that can be addressed using the right approach

    b. they are persistent, even if occasionally frustrated by a situation, because they have the mindset that improvements, whether small or big, can be made

    c. they are oriented toward doing work and achieving, rather than being oriented toward finding fault and dismissing

    d. they are oriented toward contributing toward a better future, rather than oriented toward avoiding failures; they see conservation as a journey, not an easily reached outcome

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