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The Wild and Scenic Rivers Act at 50: Managers' views of actions, barriers and partnerships

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ABSTRACT

The Wild and Scenic Rivers Act (WSRA) provides a high level of protection for free flowing rivers in the United States. Yet more than 50 years after its passage, there is little research exploring management of resources under the Act, including across agencies or private partners managing protected rivers. The research presented here used a mixed-method approach consisting of quantitative rankings and interviews to explore river manager and partner perspectives about the most pressing management actions and barriers for continued river management under the WSRA in concert with the 50th anniversary of the Act. We also explore the role of public-private partnerships in continued management of protected rivers. Our approach consisted of a national sample and replicates a similar effort conducted in concert with the 30th anniversary of the WSRA, providing a unique longitudinal perspective. Results indicate that a continued lack of public understanding or support for Wild and Scenic Rivers (WSRs), a need for dedicated agency funds to manage rivers once designated, and additional guidance about flexibly interpreting WSRA provisions as highly prioritized barriers or future actions. Qualitative results illuminate the importance of public partnerships in garnering political support for additional WSR management resources, key needs for manager exchanges or mentorship programs given the retirement of experienced WSR professionals, and the importance of organized, but varied private partnerships in planning or management of rivers across different regions of the United States. We conclude by discussing next steps for systematically gauging appreciation for WSRs among segments of the public, expanding understandings of the unique benefits associated with WSR designation, and further development of agency-public partnership templates surrounding designated river management.

Management implications: Our results suggest the following management opportunities associated with the Wild and Scenic Rivers Act (WSRA):

- Needs for research surrounding expanded support for Wild and Scenic Rivers (WSRs), including unique resource protections.
- Distinguishing WSRs from other protected areas by highlighting flexibility and breadth under the WSRA.
- Development of intra- and interagency mentorships or exchanges to improve professional literacy related with WSRA management.
- Expanded development of partnership templates or guides that stakeholders can adapt to partner around WSR management.

1. Introduction

The Wild and Scenic Rivers Act (WSRA, or Act) became United States law in 1968 to protect free-flowing rivers from continued development pressure, preserve their essential ecosystem services and encourage recreational use. Yet nearly a generation after its passage, the WSRA remains relatively unstudied in terms of how managers interpret and implement its provisions as part of larger resource management, especially in comparison to other preservation-era legislation such as the Wilderness Act (Chesterton & Watson, 2017; Perry, 2017a; Bowker &

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Bergstrom, 2017). Much has changed in the management of public lands since 1968, including reductions in budgets for agencies managing public lands, shifts in societal values or public infrastructure needs, expansion or new roles for public involvement in collaborative management of protected areas, and a focus on landscape-level management priorities, including the impact of climate change (Clarke & McCool, 1996; Feldman et al., 2005; Daniels & Walker, 2001; Lurie & Hibbard, 2008; Hamlet, 2011; Archie et al., 2012; Weber & Stevenson, 2017). Understanding how the influences above continue to affect resource management surrounding Wild and Scenic Rivers (WSRs), and how agency professionals are responding to such challenges, are important mechanisms for adapting management to new realities while meeting the policy requirements of the WSRA. This research effort provides insights on those goals by exploring agency managers' perceptions about the evolution and needs for Wild and Scenic River management under the Act.

One overarching shift in the natural resource field includes a movement away from traditional top-down "command and control" styles of management characterized by hierarchical decision making and inflexible rules towards more collaborative, participatory management styles that are co-designed by a diverse set of interested parties affected by public lands management (Koontz & Newig, 2014; Prokopy et al., 2014; Margerum & Robinson, 2015). Successive waves of management "eras" illuminate enduring challenges in designing adaptive management that integrates consistent policy direction or flexible management practices in ways that reflect the physical and social conditions influencing protected area management. Such efforts have increasingly included agency-public partnerships to help inform the myriad of tradeoffs that arise when making decisions about natural resources or protected areas affecting a variety of users (e.g. Watershed Councils, National Fish Habitat Partnership, Big Bend Conservancy) (Yaffee and Wondelleck 2003; Abrams, 2019; Orth and Cheng, 2019; van Rees et al., 2021; National Fish Habitat Partnership, 2021). Partnerships have the potential to help overcome controversy about the level of protection afforded by key legislation and design management standards or benchmarks that foster agreed upon targets for ongoing resource management. They can also increase the time needed for planning or management actions, or result in further conflict if partners do not feel they are meaningfully integrated into the process of management (Hermans et al., 2008; Flitcroft et al., 2009; McGrath, 2009; McPadden & Margerum, 2014).

Designing participatory management approaches that engage a diverse set of private citizens, agencies, and organizations requires ongoing negotiation about the values, attitudes and priorities that influence ongoing management or decision-making. As such, it often requires input from a variety of scientific disciplines, individuals and groups who could influence river management across a landscape (Jennings, 2008; Weber & Stevenson, 2017; Horndeski & Koontz, 2020). Such processes are not always easy to accomplish while remaining true to the overarching policy guiding how and whether river management decisions are made in relevance to the WSRA. For instance, protection of rivers under the WSRA often needs to balance complex issues of habitat management, water quality, water quantity, recreational use and cultural values that are uniquely tailored to the values that warranted the river for protection, as we outline below (Diedrich & Thomas, 2014; Palmer, 2017a).

The research described in this effort responds to the challenging and variable influences on protected area management described above by exploring professionals' experiences and recommendations surrounding future WSR management in concert with the 50th anniversary of the Act. We partially replicate and extend a ranking approach that was employed during the 30th anniversary forum (hereafter the 30th forum) of the WSRA by pairing it with semi-structured interviews of WSRA managers. We compare our quantitative ranking results of perceived barriers and actions surrounding WSRs with the 30th forum dataset to explore how managers are reacting and adapting to complexities and opportunities under the WSRA. Pairing qualitative and quantitative results from this effort also provides specific policy and management recommendations regarding improved management, support or partnerships regarding Wild and Scenic Rivers and similar international initiatives.

2. Literature review

2.1. Finding context for Wild and Scenic Rivers

The WSRA is somewhat unique among the many mechanisms that influence United States water resources in that it places a high level of protection on free-flowing rivers and the restriction of man-made impoundments in perpetuity (Haubert, 2019; Palmer, 1993). It was the first national legislation of its kind worldwide, though other countries have now instituted a variety of similar conservation systems or frameworks that help protect larger watersheds, including free-flowing rivers (see Perry et al., 2021 for a review of international efforts). The WSRA was partially the result of increasing public awareness about the ecological costs of large (and small) infrastructure projects on free flowing rivers, including impacts to water quality, biodiversity and loss of wildlife habitat or recreation opportunities (Palmer, 2017a). It instituted the National Wild and Scenic Rivers System, designated initial rivers, and prescribed the methods and standards for adding subsequent rivers (see Interagency Wild and Scenic Rivers Coordinating Council, 2021a for example rivers and maps/pictures of designations). Rivers included in the system must possess at least one outstandingly remarkable value (ORV) under broad categories in need of protection, including: scenic, recreational, geologic, fish and wildlife habitat, historic, cultural, or other similar values. ORVs must be located within approximately one-quarter mile from either side of the river, contribute to the functioning of the river ecosystem, and be a "rare, unique or exemplary" for the region or nation (The Wild and Scenic Rivers Act of 1968; Bureau of Land Management, 2012).

Designation of Wild and Scenic Rivers can occur in two ways: (1) congressional legislation; or (2) action by the United States Secretary of Interior at the request of a state governor. Designation may (and often does) occur on distinct segments of a larger river or tributary stream and adjacent lands. Inclusion of adjacent lands proximate to the designated segment for federal lands generally average about one-quarter mile on either bank or 320 acres per river mile in the lower 48 United States and one-half mile or 640 acres per river mile for rivers located outside of National Parks in Alaska. The act also limits purchase of lands for additional WSR protection to 100 acres per mile on both sides of the river, however it does not necessarily limit partnership agreements with private landowners or acquisition of additional lands for protection through other federal laws (see Interagency Wild and Scenic Rivers Coordinating Council, 2021a or The Wild and Scenic Rivers Act of 1968 for additional detail).

The WSR designation process includes the evaluation or study of rivers for suitability of inclusion to the system, the particular values that justify potential designation, and sets forth a process for establishing a baseline of desired conditions that should be maintained, if not improved, through future management actions (The Wild and Scenic Rivers Act of 1968; Diedrich & Thomas, 2014). Rivers segments and adjacent lands are designated in one of three categories (i.e. Wild, Scenic or Recreational) that predominantly reflect the level of development and human infrastructure that exist along the river. A state agency, a river council, one of four federal land management agencies, or a mix of the preceding takes responsibility for managing a designated WSR depending upon the method of designation (Interagency Wild and Scenic Rivers Coordinating Council, 2021a). A relevant state agency manages rivers designated through the Secretary of Interior (what are referred to as 2 [a][ii] rivers) at no cost to the federal government (Interagency Wild and Scenic Rivers Coordinating Council, 2007; Burse, 2008; Koshare, 2008).

Although the WSRA was initially a reaction to the dam building of

the 1960s, use of the Act as a tool for preservation, conservation or improvement of river conditions and development of recreation opportunities has broadened its potential influence on resource management (Bonham, 2000; Van Laack, 2005; Cathcart-Rake, 2009; Diedrich & Thomas, 2014; Palmer, 2017a). For instance, federal agencies are increasingly focusing on section 5(d)(1) of the WSRA, which directs federal land management agencies in the United States to analyze rivers and streams for potential designation. Requirements under section 5(d)(1) are increasingly intersecting with comprehensive planning processes periodically required by federal agencies managing public lands because the latter requires planners to identify protected areas that might require unique management standards, and because of the increasing focus on landscape-level management that includes watersheds. As such, some authors have suggested that additional WSRs are likely to be recommended in the future (Bureau of Land Management, 2012; Marsh, 2018; Haubert, 2019; Interagency Wild and ScenicRivers Coordinating Council (IWSRCC), 2007; American Whitewater, 2020). Meanwhile, additional court challenges to agency protection under the Act increasingly focus on the regulation of human activities (e.g. grazing or recreation) that do not maintain river or riparian corridor health and/or improve values that originally led to WSR designation (see for instance Bonham, 2000 or Perry et al., 2021. Results of those court cases and subsequent interpretation of various WSRA sections (for instance sections 7, 10 and 12) by legal scholars have led to arguments that the WSRA can further expand capacity to protect the free-flowing nature of rivers, river system water quality, and activities in the riparian corridor (Blumm & Yoklic, 2020; Interagency Wild and Scenic Rivers Coordinating Council (IWSRCC), 2004; Van Laack, 2005).

2.2. Protected area management in the era of public participation

Expanded consideration of the WSRA as a means for protecting river resources corresponds with a broader trend of managing resources at larger geographic scales and in ways that consider human influences (including management systems) as integral parts of larger landscapes (Gerlak & Heikkila, 2006; Prato & Paveglio, 2018; Jenkins & Brown, 2020). This includes international efforts such as the European Union Water Framework Directive, which focuses on catchment scale management of water quality and quantity through participatory establishment of social-ecological benchmarks for water management that can be monitored (Carvalho et al., 2019; van Rees et al., 2021; European Commission, 2021). Key to the management of broader watersheds or landscapes has been the integration of diverse stakeholders into planning or management processes, with a wealth of research outlining associated benefits of creating equitable, well-informed decision processes that decrease conflict (Daniels & Walker, 2001; Orr, 2014; Orth & Cheng, 2019; Yaffee & Wondolleck, 2003; Koontz et al., 2004; Mattor et al., 2019). Perhaps more importantly, effective public involvement encompasses an important need to weigh the tradeoffs that characterize complex resource management decisions with ecological, social and economic consequences (Margerum and Robinson; 2015; Clarke & Peterson, 2016; Weber & Stevenson, 2017). Of special note in discussions about public involvement in management of public lands concerns the rise of formal resource collaboratives or protected-area specific groups (e.g. Friends of the White Salmon River) that can help improve protected area management through the incorporation of public resources and perspectives that help respond to management pressures (Fosburgh et al., 2008; Davis et al., 2017; Fredrickson & Lacroix, 2017).

Management and policy surrounding the WSRA reflect trends of greater public involvement in resource management and collaborative decision making. To begin, the IWSRCC and section 11(b)(1) of the WSRA both encourage public participation in the WSR study river process (The Wild and Scenic Rivers Act of 1968; Palmer, 2017b). Existing case studies also note how support or opposition of neighboring landowners, including nearby community support, can influence agency recommendations about addition of river segments to the WSR system (Marsh, 2018). Other authors use their personal management experience or valuation research to demonstrate how coordinated stakeholder support can help maintain ORVs in river segments bordered by private landownerships, the importance of diverse coalitions of private citizens in promoting WSR designation or establishment, and in the establishment of river values under Comprehensive River Management Plans (CRMPs) required for each river designated under the Act (McGrath, 2009; Bowker & Bergstrom, 2017; Cooke, 2018; Fredrickson & Lacroix, 2017). Finally, the National Park Service has developed and funded partnership rivers that are managed by locally elected river councils. Partnership rivers are primarily clustered along the east coast and feature significant private land interests along riverbanks that might influence management processes. In contrast, the U.S. West includes a greater proportion of public lands and scattered private lands along WSR segments (Fosburgh et al., 2008; Burse, 2008).

Despite the findings described above, there is less research that focuses specifically on the contributions that public participation, interest or collaboration might have for continued WSR management, and particularly the views of agency managers about such influences (Jennings, 2008; McGrath, 2009; Perry, 2017a). Private stakeholder influence on or compromise surrounding the ultimate range of management actions and alternatives employed by professionals may be more constrained following initial designation given the requirements of the WSRA (Burse, 2008; McGrath, 2014; Palmer, 1993).

2.3. Opportunities and challenges for managing WSRs

The relatively small body of literature concerning administration of the WSRA illuminates some potential influences characterizing the reality of managing WSR river segments under a flexible system of preservation and conservation. It also indicates a slight tendency for WSRs to be overshadowed or associated with other preservation-oriented protected area designations such as Wilderness or National Parks, both of which contain many designated WSR rivers (Palmer 1993, 2017a; Chesterton & Watson, 2017; Blumm & Yoklic, 2020). For instance, Gray (1988) argued for the importance of the WSRA in further protecting National Parks by focusing on preservation of natural resources. Likewise, WSR management has often been compared to or conflated with wilderness management, with some authors indicating confusion over the specific advantages associated with WSRs where the two intersect and others advocating adaptation of lessons from wilderness management to advance the WSR system (Farnham et al., 1995; Smith & Moore, 2011; Bowker & Bergstrom, 2017; Cooke, 2018). Other periodic reviews of case study law, manager perceptions of WSR management, and efforts to update CRMPs focus on the challenge of increasing recreational use of WSRs and the application of recreation management concepts across relatively small or linear protected areas (Burns et al., 2018; Feldman et al., 2005; Fredrickson & Lacroix, 2017; Verbos et al., 2017). However, research documenting the ways that such dynamics influence managers' efforts to uphold WSR protections or advance management under the Act are relatively underdeveloped, or based on broad observations.

Synthesis of the existing literature specific to WSR management indicates historical inconsistencies in awareness or understanding among members of the public and inconsistency in WSR river management across agencies. For instance, some authors note how the management of WSRs by various state or federal agencies resulted in inconsistent conception of or standards for monitoring ORVs across designated segments, and the need for coordinated guidance or training associated with ways to apply provisions flexibly across the WSR system (Krumpe & McLaughlin, 1998; Feldman et al., 2005; McGrath, 2014; Perry, 2017b).

Exacerbating the above trends is the well-documented contraction of resources, personnel time, and budgets of state and federal agencies managing public lands facing accelerating ecological changes and increasing human pressures (Cerveny et al., 2020; Jenkins & Brown, 2020; Koontz et al., 2004; McKinley et al., 2017). Others link diminishing resources and personnel capacity with an absence of CRMPs for

designated rivers or the presence of outdated plans that challenge the continued management of such resources (Feldman et al., 2005; McGrath, 2014; Perry, 2017a).

Perhaps more elusive is a sporadically noted, but less substantiated claim that WSRs are not as well recognized, understood or valued by the "general public," especially in comparison with designations such the wilderness areas and national parks described above. For instance, Krumpe & McLaughlin (1998) and Perry (2017b) both note a lack of WSRA awareness among stakeholders and link it with ongoing challenges in completing CMRPs, obtaining congressional funding for continued management, and consistent management of ORVs. Meanwhile, Feldman et al. (2005) outline how increasing recreation pressure on WSRs or a tendency to manage them as part of a broader system of public lands may actually result in a reduction of focus or understanding regarding the unique tradeoffs inherent in managing WSRs for their intended purposes, including ORVs (see also Bonham, 2000; Perry, 2017a).

Efforts have been made to improve inconsistencies in understanding, management standards, and coordination associated with the WSRA. For instance, the Interagency Wild and Scenic Rivers Coordinating Council (IWSRCC) was created in 1993 (the 25th anniversary of the Act) in part to address the complexities of managing WSRs among federal agencies and spurred by a challenge from conservation organizations to foster interagency consistency (Interagency Wild and Scenic Rivers Coordinating Council, 2021bInteragency Wild and Scenic Rivers Coordinating Council, 2021b; The Wild and Scenic Rivers Act of 1968,; Jennings, 2008). The Council has representatives from the four federal agencies that manage WSRs and provides technical support or guidance documents to managing agencies and interested parties. Likewise, the River Management Society (RMS)—a non-profit organizational network for river researchers, managers, and advocates of river protection—helps develop standards and skill requirements for river management across the United States, including trainings on WSRs for river professionals.

Of particular interest to the current research is a 1998 IWSRCC and RMS national forum of WSR managers and their partners coinciding with the 30th anniversary of the WSRA (Krumpe & McLaughlin, 1998). The goal of the 30th forum was to investigate key barriers to WSR management, outline common goals or visions for WSR management, and advance key actions to advance administration of the WSRA. Findings from the 30th forum presaged many of the lessons synthesized in the preceding literature review (a list of top barriers and actions from the 30th forum are replicated later in the manuscript). The report outlined specific actions for achieving each of these goals, yet it spent less time exploring details, justifications, or connections between barriers and recommendations as described by participants.

This study partially replicates and extends the work conducted during the WSRA 30th forum by exploring how experts' perceptions of the WSRA and WSRs have evolved during the past 20 years, and what challenges or opportunities face future WSR management. It provided a unique opportunity for longitudinal study of the somewhat inconsistent, small and scattered body of research exploring WSR manager and partner experiences attempting to manage under the Act. To that end, the design of this research utilized key processes and revisited key findings from the 30th forum report to explore the perceived influences and connections that have, and which may continue to drive management of protected rivers. Accordingly, this research explores the following research questions:

1. What do WSR managers and partners consider the key barriers to and opportunities for effective management under the Wild and Scenic Rivers Act?
2. How have managers' and partners' perspectives about key barriers and opportunities surrounding WSR management changed since the 30th forum study?
3. What roles do WSR managers and partners conceive of for agency-public relationships or collaborations under the Act?

3. Methods

One key purpose of the 30th WRSA forum was a workshop process during which participants identified and ranked barriers and actions for implementation of the WSRA (Krumpe & McLaughlin, 1998). Participants brainstormed past barriers and future possible barriers that impede river conservation under the WSRA. They subsequently combined all lists and ranked priority barriers by allocating each participant with three votes (in the form of sticker dots) that they used to identify what they perceived as the priority barriers generated (see Creighton, 2005 or Orr, 2014 for background on that approach). The same process was repeated for important actions that could advance river conservation under the WSRA.

This study partially replicates and extends the work conducted during the WSRA 30th forum. Researchers employed a mixed-method approach among a national sample of WSR managers and non-governmental organization (NGO) actors to gather in-depth, qualitative data and updated rankings of barriers or management actions (Creswell & Plano Clark, 2018). More specifically, (1) researchers elicited quantitative rankings of the barriers and actions developed during the 30th forum research from 66 key informants associated with WSR management and; (2) conducted semi-structured interviews discussing the reasons behind key informant rankings and more open-ended questions about WSR management or the WSRA.

Key informants are typically individuals with specialized knowledge, experience or insight surrounding the topic of interest, who can speak to the perspectives of a broader sample population, and who can provide in-depth information (Bryman, 2012). Selection of key informants initially followed the logic of theoretical sampling in that researchers sought out managers who have responsibility for or expertise managing under the WSRA, including employees from the four federal agencies or state agencies who have experience managing WSRs, local agencies that help manage or are familiar with the influence of WSRs on communities, and NGOs or partner organizations who help manage or advocate on behalf of WSRs (Linlof & Taylor, 2010; Creswell & Plano Clark, 2018). Researchers obtained an initial list of potential study contacts from the IWSRCC (i.e. an initial sample frame). These contacts ranged from river managers and NGO partners to national WSR leadership across all regions in the United States.

Researchers began the recruitment process by contacting all potential participants from the sample frame via email, and continued to invite participants who did not respond to initial contact via email at regular intervals. Participants who agreed to participate in the research were encouraged to recommend additional interviewees with relevant knowledge or expertise relative to the study focus, a process outlined in methodological practice as snowball sampling (Linlof & Taylor, 2010; Silverman & Marvasti, 2008). Special care was made to collect data from variety of potential participants representing the diversity of agency, NGO and partner organizations managing WSRs, and in a manner that is proportional to agency management, both of which incorporates the logic of stratified sampling (Bryman, 2012). See Table 1 for a breakdown of respondents from the 30th forum and the 50th forum study outlined in this manuscript. Respondents had on average worked in their current position for 8.97 years at the time of response (SD = 8.09). The average amount of time respondents had spent working on WSRs was 12.80 years (SD = 8.02).

Researchers contacted a total of 99 key informants through email. They received 79 initial responses from potential participants and no response from an additional 20 individuals. Sixty-six individuals agreed to be interviewed, resulting in an 83% response rate. Respondents who agreed to be interviewed were sent the 30th forum report and a worksheet asking them to re-rank the top 10 barriers and actions emerging from the 30th forum report given their current experience with WSR

Table 1
Stakeholder participation.

30th Anniversary Participants		50th Anniversary Participants	
Agency/Organization	N	Agency/Organzation	N
BLM	4	**BLM**	9
USFS	5	**USFS**	24
NPS	6	**NPS**	16
USFWS	2	**USFWS**	3
NGO/Partner	11	**NGO/Partner**	12
State	5	**Outfitter**	1
Congress	2	**Local**	1
Other (academia, outfitter, etc.)	5		
Total	40	**Total**	66

management. Researchers asked each participant to provide a numerical rank for each barrier in the list, with 1 being the most important barrier facing managers and 10 being the least important barrier facing managers. Respondent completed a similar process for the top 10 actions that emerged from the 30th forum report.

Interviews followed a semi-structured protocol. A semi-structured approach to interviews allows researchers to ensure that consistent questions are asked of respondents while providing the flexibility to ask additional questions or provide depth surrounding experiences of the research subjects (Marshall & Rossman, 1989; Miles & Huberman, 1994; Patton, 2002). Researchers determined that semi-structured interviewing complemented the quantitative ranking described above because it allows for elaboration of additional barriers and actions, or allows respondents to describe emergent dynamics surrounding WSR management. All interviews were recorded with the permission of interviewees and later transcribed word-for-word. Interviews were conducted until the researchers agreed that they had reached theoretical saturation, the point at which no new major themes or ideas became apparent across or within broad strata of respondents (i.e. across or within agency representatives) and no new ideas were being introduced in the later interviews.

Questions in the protocol were chosen to illuminate complexities interviewees confronted when managing WSRs and how they addressed those challenges. The interview guide was divided into four broad categories that extend questions used during the 30th forum (Krumpe & McLaughlin, 1998) and that progressively narrowed to explore details (see Table 2 for categories and sample questions).

Table 2
Categories and example questions comprising the semi-structured interview protocol used in the research.

Category of open ended questions	Example questions and prompts
1. Accomplishments for Wild and Scenic Rivers (WSRs)	1. 1. How has the Wild and Scenic Rivers Act (WSRA) influenced the way you manage rivers? o How about for rivers not covered by the act? o What benefits have you seen from the WSRA? 2. What accomplishments has your unit/area/region achieved since the 30th anniversary?
2. Description of barriers (complexities) to effective WSR management	1. What barriers, if any, restrict implementation of the WSRA in your area? 2. What resources do you need to overcome/confront these barriers?
3. Actions to confront the complexities or challenges of WSR management	1. Would you add any additional actions to the list we provided? 2. What actions might be necessary to manage WSRs in the future? o What are those future actions responding to?
4. Public interaction and partnerships	1. How do your interactions with the public/non-governmental agencies/tribes influence your management of WSRs? o Which groups do you work with the most on WSR management? 2. What would you like to see from the public regarding WSR management?

3.1. Analysis

Researchers initially recorded data from the quantitative rankings in Qualtrics survey software (Qualtrics, Provo, UT), with each participants' rankings and written comments aggregated. These responses were later exported into the quantitative software package SPSS 25 (IBM, Armonk, NY) for data cleaning and consistency. Barriers or opportunities not ranked by participants were treated as missing data and thus not included in the rankings to avoid bias. Researchers recoded the top three ranked barriers and opportunities provided be each participant as equal top priorities and then aggregated the total priority votes associated with each category (i.e. barriers or opportunities). Researchers chose this approach instead of average rankings in order to most closely match the process conducted during the 30th forum research and to provide the most comparable data for indicating change in WSR management context across time.

Qualitative analysis focused on word-for-word transcriptions of the interviews conducted with participants and used the qualitative data analysis software NVivo 12 (QSR International, Burlington, MA). It utilized processes of analytic induction and thematic analysis. Analytic induction is a systematic coding process for uncovering and evaluating the meanings shared by participants for a particular topic, or to help uncover reasons for respondents' answers to quantitative evaluations. Thematic analysis complements analytic induction by uncovering shared experiences, ideas or meanings underlying participants perspectives. The combination of analytic induction and thematic analysis are commonly used for qualitative data, especially when the purpose is to elaborate on previously unknown or emergent ideas that change over time (Boyatzis, 1998; Ryan & Bernard, 2000). Researchers utilized both analytic induction and thematic analysis in creating a multiple-stage, increasingly restrictive process of coding that could uncover and articulate themes by evaluating their presence across data sources. More specifically, researchers conducted the following coding stages, which each constituted a separate reading of the data: (1) "topic coding" that identified broad topics identified by individual participants (e.g. partnerships); (2) descriptive coding, which summarized participant perspectives surrounding each topic discussed (e.g. partnerships build trust and support for management); and (3) analytic coding, which focuses on articulating consistent relationships between topics, meanings or experiences articulated by participants, existing research findings and initial themes developed during the interview process (e.g. building partnerships with a broader range of stakeholders will increase support for WSRs) (Gibbs, 2007; Richards, 2005; Saldaña, 2016).

The primary coder engaged other members of the research team during the initial coding process to discuss initial codes. The researchers discussed any refinements to codes or inconsistencies in the coding process. A second member of the research team also conducted an independent coding process of the data to ensure similar reliability of findings (Bryman, 2012). Finally, researchers selected representative quotes for each theme stemming from the final stage of analytic coding for presentation in the results.

4. Results

4.1. Comparison of quantitative rankings for actions and barriers

Table 3 provides the results of barrier rankings associated with quantitative research conducted during the 30th forum and the 50th forum (hereafter 50th forum or 50th) of the WSRA. The table also outlines the change in rank for a given barrier when comparing the 30th

Table 3
Ranking of barriers from 30th and 50th anniversary research efforts.

30th Anniversary Rankings			50th Anniversary Rankings				
Rank	Barrier	Priority Votes (of 40 possible)	Rank	Barrier	Priority Votes	N (number of rankings)	Rank change
1	Lack of political support and lack of public support	14	**1**	Lack of dollars and staff after a river is designated	43	60	+3
2	Mistrust misinformation and paranoia	12	**2**	Lack of political support and lack of public support	35	62	−1
3	Private property issues	11	**3**	Mistrust misinformation and paranoia	30	60	−1
4	Lack of dollars and staff after a river is designated	10	**4**	Lack of information and knowledge about Wild and Scenic Rivers	28	60	+1
5	Lack of information and knowledge about Wild and Scenic Rivers	9	**5**	Private property issues	17	58	−2
6	Lack of regulations (changing guidelines to regulations)	6	**6**	Lack of coordination among agencies, inconsistent, unclear interpretation of the Wild and Scenic Rivers Act	10	56	+2
7	Lack of coordination among agencies, inconsistent, unclear interpretation of the Wild & Scenic Rivers Act	6	7	Lack of national strategy for Wild and Scenic Rivers Among NGOs	8	57	+2
8	Locals see themselves as bearing the costs and outsiders as reaping the benefits	5	8	Locals see themselves as bearing the costs and outsiders as reaping the benefits	6	54	0
9	Lack of national strategy for Wild and Scenic Rivers among NGO	5	8	Agencies are not protecting the values	6	53	+1
10	Agencies are not protecting the values	5	9	Lack of regulations (changing guidelines to regulations)	2	53	−4

forum results to the 50th forum results.

"A lack of dollars and staff after a river is designated" was the highest ranked barrier among respondents associated with the 50th forum, and it increased three ranks when compared to results from the 30th forum. "Lack of political support and lack of public support" and "mistrust, misinformation and paranoia" remained as highly ranked barriers to WSR management during the 50th forum, though both decreased one rank when compared to the 30th forum results. "Lack of information and knowledge about WSRs" increased by one priority rank among 50th forum participants, while "private property issues" decreased two ranks when comparing the 50th forum results to the 30th forum results. Change in rankings was relatively moderate across the barriers included in the study, with a "lack of regulations" decreasing the most as a perceived barrier. "Private property issues" decreased two priority ranks in the 50th forum results, while collaborative indicators such as "Lack of coordination among agencies, inconsistent, unclear interpretation of the Wild and Scenic Rivers Act" and "Lack of national strategy for Wild and Scenic Rivers Among NGOs" both increased in rank as perceived barriers to WSR management.

Table 4 outlines the priority rankings associated with important actions that could advance river conservation under the WSRA among participants in both the 30th and 50th research. "Educate the public to

Table 4
Ranking of actions that could advance river conservation as prioritized by participants in the 30th and 50th Anniversary research efforts.

30th Anniversary Rankings			50th Anniversary Rankings				
Rank	Barrier	Priority Votes (of 40 possible)	Rank	Barrier	Priority Votes	N (number of rankings)	Rank change
1	Educate the public to broaden the demographic of support for Wild and Scenic Rivers	15	**1**	Educate the public to broaden the demographic of support for Wild and Scenic Rivers	43	60	0
2	Increase funding for land acquisition via the Land and Conservation Fund Program or other mechanisms	12	**2**	Obtain a line item budget in each agency for the Wild and Scenic River Program	25	57	+5
3	Address in-stream flow, water rights and public trust responsibility	10	**3**	Increase funding for federal agencies so they can complete river study and management plans	23	55	+6
4	National NGOs coordinate Wild and Scenic River strategies and visions with local input, support and partnerships	9	**4**	Address in-stream flow, water rights and public trust responsibility	17	58	−1
5	Develop interagency regulations dealing with Wild and Scenic Rivers—move from guidelines to regulations ASAP	8	**4**	Educate politicians	17	59	+3
6	Increase funding for community based management of river resources	7	**5**	Increase funding for community based management of river resources	16	57	+1
7	Develop a group of planners skilled at working with locals and states on river planning	6	**6**	National NGOs coordinate Wild and Scenic River strategies and visions with local input, support and partnerships	15	56	−2
7	Obtain a line item budget in each agency for the Wild and Scenic river Program	6	7	Develop a group of planners skilled at working with locals and states on river planning	12	56	0
8	Educate politicians	5	8	Increase funding for land acquisition via the Land and Conservation Fund Program or other mechanisms	11	55	−6
9	Increase funding for federal agencies so they can complete river study and management plans	5	9	Develop interagency regulations dealing with Wild and Scenic Rivers—move from guidelines to regulations ASAP	7	55	−4

broaden the demographic of support for Wild and Scenic Rivers" remained the top ranked priority when comparing the two ranking processes, while "obtaining a line item budget in each agency for the Wild and Scenic River Program" increased five ranks in the 50th forum research to emerge as the second highest perceived priority. Rank order associated with actions for WSR management changed more dramatically and consistently than perceived barriers when comparing to 30th and 50th forum results. For instance, "Increase funding for federal agencies so they can complete river study and management plans" increased six ranks in the 50th forum research while "Increase funding for land acquisition via the Land and Conservation Fund program or other mechanisms" and "Develop interagency regulations dealing with Wild and Scenic Rivers" both decreased relatively dramatically (six ranks and four ranks, respectively) in terms of priority rank.

4.2. Qualitative results: identifying contemporary WSR challenges and associated influences

The following sections outline themes that emerged during analysis of interview data. Themes reflect common understandings and positions articulated by managers and partners associated with the 50th anniversary research, and not a comparison with the 30th anniversary report, which did not include interviews.

4.3. Fostering an appreciation for the Wild and Scenic Rivers Act

Respondents were quick to point out that a pervasive lack of understanding about the WSRA and its implications for the management of river-related resources were an influence on many challenges associated with advancement under the Act. They indicated that large segments of the public, and even those who might be supportive of protected area establishment, often did not recognize how WSR designation provided additional benefits for rivers intersecting or contained within existing public lands such as national forests, national parks or wilderness areas. Others indicated how members of the public and land managers who did not actively manage WSRs often failed to understand how designation and management under the act could include river- or watershed-specific protections and monitoring associated with clean water or outstandingly remarkable values such as fish species, geological character, or recreation values. As one respondent articulated:

> I think sometimes the biggest hurdles we have is letting folks know you're on a wild and scenic river and here's why it's different, or this could become a wild and scenic river, and this is what that means.

Participants described how a lack of understanding about WSR management or purposes influenced critical views of candidate rivers or designated WSR rivers. That is, those without a complete understanding of the Act tended to display more concern about high levels of resource regulation or restrictions associated with river use. Other participants indicated how existing distrust of federal or state agencies tasked with managing WSRs became a more pronounced influence on WSR support in instances where populations had less information about the processes, flexibility or requirements associated with the management of each designated river. As one participant described:

> But I think sort of what goes with that paranoia and that sort of concern about the federal government taking over their land, and perhaps it doesn't relate directly to this, but I also think that there's a deficiency in support within the federal government to implement the Wild and Scenic Rivers Act. I see the connection between the two and I don't know which direction it's going, but I imagine that there are certain locals who may not support wild and scenic programs so that's what they tell their politicians and then in turn the programs don't get funded as much or vice versa.

Participants indicated how WSRs had never enjoyed the same level of support, reverence or understanding as other protected are designations such as wilderness areas or national parks. Yet WSRs were often compared to wilderness, and that association conferred both advantages and disadvantages associated with management of protected rivers. Participants described how opponents of WSRs often associated them with high levels of preservation that limited resource use or access by linking them to wilderness or parks, which could perpetuate local opposition described above. They also described how association with wilderness could serve to stifle lobbying for WSR management, development of non-governmental organizations, and establishment of grassroot campaigns that could aid in the development of management processes because participants were more focused on other protected area designations or felt that WSRs could be protected through those other means. Lack of support for WSRs, in turn, often meant less pressure on agencies or politicians to push for funding needed to designate and manage designated rivers. This included agency professional time, associated creation of CRMPs, monitoring of river-specific ORVs, and development of recreational opportunities. As one participant summarized:

> So what people don't understand, and even what the land managers often don't understand is how do these different designations interact. If you have a designated river, wild river that's already in designated wilderness, what does that do for us? That's the answer that I think we need to be able to give to managers because there is a very distinct answer, but you don't really get at what that answer is for each river until you do a Comprehensive River Management Plan [CRMP].

Improving awareness and affinity for the WSRA by carefully distinguishing its features from wilderness and celebrating their shared purposes (preservation of natural conditions) among key constituents was viewed by participants as a way to obtain the political support necessary to improve the funding and focus placed on WSR management in the future.

4.4. Addressing the institutional structure of WSRs

Participants described how a decrease in specialized WSR knowledge within agencies and needs for expanded or centralized training for management practices associated with the WSRA were the result of historical and ongoing trends in federal agency organization. To begin, respondents outlined a steady wave of retirements among knowledgeable and experienced WSR professionals across agencies. These 'river people' had been champions of WSR management—they embodied the institutional memory, skills, and passion that helped guide management of river resources and develop public-private partnerships that were often unique to the regions, units or populations who cared about WSRs. Retirement of such individuals has precipitated a loss of institutional capacity, best practices, and knowledge surrounding ways to interpret, plan or manage river resources under the WSRA. As one participant summarized:

> One of my big concerns is that over time, over the last 50 years we've lost a lot of wild and scenic culture in the agencies, so people that were around when the act was passed and built the first river management plans, those folks were solely committed to wild and scenic. Over the years it seems like that commitment has slipped …"

Participants described how the loss of experienced WSR managers exacerbated longstanding needs for additional training and capacity surrounding administration of the WSRA. They sought additional knowledge sharing about river suitability studies under the Act, planning processes for completing CRMPs and management of ORVs among units within agencies. For instance, participants cited a lack of accessible frameworks, best practices or repositories of methods for measuring ORVs across units. Likewise, respondents described how the historical

lack of coordinated training associated with WSRs as one factor influencing the lack of understanding, support and resources for continued WSR management independent of other protected area mandates. As one participant described:

> We have limited experience and or knowledge about wild and scenic river management and they (an incoming manager) find themselves responsible for a wild and scenic river and then there's not formal way for them to quickly bone up on those responsibilities.

Managers viewed efforts to centralize guidance and knowledge sharing through the establishment of the IWSRCC as a positive step in coordinating best practices among managers. They described how the diverse agency representation on the Council helped to address challenges in interpreting the ways that WSRA provisions interacted with other agency planning requirements, practices or mandates. Growing partnerships with the River Management Society or internal agency efforts to offer specific trainings associated with WSR management, river suitability studies, updated competencies for agency river managers and ORV selection also were seen as promising ways to increase the skills and guidance needed to rebuild capacity associated with WSR management. However, participants also described an added need to utilize IWSRCC guidance as a way to open up dialogue about standardization and adaptation of the WSRA within each agency. One participant summarized efforts to increase capacity as such:

> I'd like to see a functional system where we are training more. We're broader in our training targets. We're getting to the local level and we're getting a broader audience. Changing our focus to not just the river manager is an important thing. Because I'm dead in the water if the line officer doesn't want to listen to me or thinks he or she knows more or whatever.

Participants described how responsibility for WSRs was increasingly one of many interrelated duties allocated to early- or mid-career professionals who might not have specialized training or knowledge of the WSRA. These managers, even if they were knowledgeable and passionate about WSR management and designation, often had little time to devote to the significant relationship building, planning or monitoring required to manage the river-specific ORVs and protections associated with WSRs. Furthermore, participants described how WSR management was often associated with recreational budgets and divisions within each federal agency despite recreation being only one possible component of river management spanning site-specific ORVs, protection of free-flowing character, and restriction of energy development, among others.

The above factors often meant diminished human capacity, funding and expertise associated with river management, which influenced the increasing need for additional competencies and training. As one participant described:

> And then as management has evolved and staffing has evolved and people have retired, we've just lost some of that initial knowledge, but we've also seen job creep, where you might have had someone who was the Wild and Scenic River program manager or river ranger, now that's only part of their job.

4.5. Building trust through partnerships

Participants described how creating and maintaining working relationships with a variety of non-governmental organizations, collaboratives or agencies were essential to building the capacity necessary to manage WSRs given the challenges described above. They noted how public participation surrounding WSRA planning (e.g., comment or collaboration surrounding CRMPs, monitoring or feedback on management strategies) created the type of momentum necessary to push for resources that make effective WSR management possible. Fostering public participation in various components of river management also could improve awareness and understanding of the unique protections the WSRA provides. As one respondent articulated:

> Essentially when there's public and stakeholder support for managing suitable corridors it (i.e., efforts to manage WSRs) is much more effective. We're able to appropriately identify suitable rivers in our land use plans, make management decisions that are going to protect those outstandingly remarkable values, and the tentative classification. When there's not public support, or there's major opposition from cooperating agencies like the state, it makes it much more difficult and unlikely that (agency) will do that.

Participants described how working relationships with NGOs, organized groups or representatives of local stakeholders were of particular importance for addressing capacities currently lacking in agencies, designating new rivers under the Act, and completion of CMRPs. For one, NGOs or organized groups could apply for external grants to help bolster agency resources for river management or planning efforts. Others acknowledged how the push for suitability studies of candidate river segments often required a strong, organized effort from public constituents to area politicians or agency administrators. Outside groups also could communicate with a broader set of audiences who could support continued river management through citizen science initiatives or development of recreation management access while lobbying higher levels of government for more agency resources. As one participant described:

> The sustainable recreation emphasis or movement coming down from our Washington office, that's why we're doing that right now because we know we don't have the capacity to do everything on our plate. And so, what's the most important thing to do, and how do we put our energy towards that and work with partners, etc., to make it happen. Because we can't do it on our own anymore.

Agency partnerships were not uniform across WSRs or participants included in the study. A segment of respondents indicated that they struggled to establish such groups, or link WSR management with existing groups such as watershed councils, wilderness associations, or park foundations. Participants attributed these challenges in part to the lack of personnel hours, coordinator time or funding resources required to foster relationships with outside groups, which could take a significant amount of time or trust building.

Analysis of participants across the country did reveal regional and even intra-region differences in the types or importance of partnerships between agencies and external constituents. These differences were a function of the values that local constituents placed on the river, their trust in federal or state agencies, and the historical legacy of river management in the area. For instance, participants described how east coast and northeast rivers often required engagement with homeowners' associations and property owners' associations or the engagement of individual landowners across river segments due to the high level of private land abutting designated rivers. Managers in these areas noted how critical it was to promote the ways that WSR management benefitted property values or local water resources, while also engaging with local governments about these issues. Many organized groups had been critical in pushing for suitability studies or completion of CMRPs in those regions.

Meanwhile, managers in the West noted how recreation associations or outfitters associations were often critical partners on river segments located largely on public lands and who were willing to help with visitor use management or push for sustainable access. Engaging local communities tied to outdoor amenities or whose economics revolved around river recreation could help engage or even foster development of "Friends of" groups that might organize around particular river resources. As one participant described:

> Some of our suitable rivers in (state), they're fairly major components of the recreation and tourism sector of a county … There are outfitters and guides or rental companies that rely on the experiences that we're managing for on those river corridors. I think in those types of scenario, there tends to be a little bit more support. Rivers are like the lifeblood of (state).

Participants described how better promoting relationships with outside organizations, and thus developing more understanding or appreciation for WSRs, would require careful consideration of new tools, authorities or institutional arrangements associated with agency management. For instance, participants described the need to develop template agreements and memorandums of understanding that could help establish the roles, duties and benefits of partnerships between agencies and various stakeholder groups. They also discussed how expanded or explicit partnership grants for WSR planning, including funds for completion of CRMPs or monitoring of their effectiveness could advance agency management and engender ownership over specific rivers. Finally, participants described the need for specialized agency or partner help in facilitating planning processes, including data collection or monitoring and subsequent decision-making surrounding WSR management. As one participant described:

> And I think our council's gonna' have to get much more creative about thinking beyond its own boundaries and partnering in a broader way, and really working on some bigger issues in a way that they haven't in the past.

5. Discussion

The purpose of this article is to better understand agency professionals' and NGO partners' perspectives about the challenges and opportunities for managing river resources under the Wild and Scenic Rivers Act. We employed a mixed-method approach that replicated a portion of research from 20 years prior (Krumpe & McLaughlin, 1998) as a unique opportunity to understand how such perspectives have changed or persisted between the 30th and 50th anniversaries of the WSRA.

Comparing results from this research with the 30th anniversary effort demonstrates both enduring challenges and key changes in perceived influences surrounding continued management under the WSRA. For instance, respondents during the 50th effort continued to perceive a lack of public support or understanding of WSRs, lack of funds and staff to actually manage in accordance with the Act, and unclear interpretations or guidance about flexibly applying the Act as key challenges 20 years later. Respondent rankings of key actions for advancing WSR management largely reflect efforts to make progress on highly ranked challenges, with 50th anniversary respondents placing high priority on certain mechanisms for institutionalizing WSR funding needed to complete CRMPs or manage designated ORVs and development of agency-specific budgets for WSR management. Respondents also identified a persistent need to broaden public support for WSRs and engage politicians in support of the protected area designation. Results from the qualitative interviews accompanying respondent rankings help illuminate the underlying nuances, linkages, and additional dynamics that help transform the ranking exercises into tangible influences that might be addressed through specific actions. For instance, respondents noted how a continued lack of understanding or appreciation for the benefits associated with the WSRA led to less action surrounding river designation, plan development, or politician support that could help facilitate more resources for management. We expand on the ways that findings from our results extend existing literature in the following section and then conclude with a directed section outlining considerations for future management under the WSRA.

5.1. Contributions to and extensions of existing literature

Results from the current effort help substantiate existing work on public support for WSRs by demonstrating that a representative cross-section of WSR managers and partners continue to struggle with a protected area designation that they feel is not as well understood—or supported—as other designations in the U.S. portfolio of public lands (Krumpe & McLaughlin, 1998; Feldman et al., 2005; Perry, 2017b). More specifically, both our quantitative and qualitative findings help substantiate literature hinting at public misunderstanding or confusion about the unique roles and benefits of river management under the WSRA. That is, our respondents indicated how segments of the public, and even other agency professionals, had trouble identifying the ways that designation under the WSRA provide benefits beyond existing public land designations (see Palmer, 1993; Perry, 2017a). This may be particularly true with regards to the establishment of river-specific ORVs that help establish targeted monitoring strategies and avenues for improving a variety of natural resource values (e.g. water quality, fish habitat, recreational values, etc.), and which have the potential to intersect with other policies (e.g. Clean Water Act, state best practices for riparian area management) supporting broader resource conservation (e.g. water quality monitoring, upstream actions) (see Rothlisberger et al., 2017 or Blumm & Yoklic, 2020).

Our results also bolster somewhat anecdotal assertions that both non-WSRA managers and members of the public can conflate WSRs and wilderness, often assuming they achieve the same purposes, enjoy the same base of public support, or can share lessons about management practice (see Gray, 1988; Bowker & Bergstrom, 2017; Perry, 2017a; Cooke, 2018). Without knowledge of the specific benefits associated with WSR management, our respondents indicated that citizens' perspectives about WSR could default to their broader trust (or distrust) in agencies managing protected areas and associated fears that further designations may restrict public use or access. Some of these concerns stemmed from what respondents observed as a continued association of WSRs with wilderness areas or national parks, including ideological conflicts over land use designations that restrict certain resource use, access or recreational opportunities (see also Farnham et al., 1995; Palmer, 2017a; Smith & Moore, 2011).

A perceived lack of public understanding about the WSRA or similar international initiatives might serve as an important barrier to the political support and subsequent allocation of legislative resources that are seen as necessary for perpetuating sound management. Thus, it is not surprising that broadening the demographic of support for Wild and Scenic Rivers through outreach and education continued to be the highest ranked actions during both the 30th forum study of WSRs and our current research 20 years later. However, the persistent need to engender more public support for WSRs does illuminate the need to evaluate past, ongoing, or future outreach efforts to improve understanding and appreciation of the WSRA. Agency professional and partners' perspectives about what the public knows are an important data point, but they are not necessarily empirical evidence that their perceptions about public understanding or reasons for support are entirely accurate. For that reason it is important to understand whether and to what extent the perceived barrier of public support for WSRs exists among both populations.

Some of the institutional and funding challenges participants associated with WSR management, including reduced funding for management actions, increased responsibilities assigned to a small pool of qualified managers, and inconsistency in policy interpretation across agencies reflect enduring hardships long identified in the broader U.S. and international resource management literature that we implicated in our literature review (McKinley et al., 2017; Jenkins & Brown, 2020; Cerveny et al., 2020). However, it is also important to recognize the unique ways in which these challenges manifest in the context of the WSRA, especially given that the Act is less well known, understood, and potentially prioritized when compared with other protected area

designations. For instance, the ongoing loss of 'river people'—specialists who both championed and advanced sound WSR management principles is both indicative of generational changes in public lands professionals but also unique given the well-documented development of distinct "river cultures" celebrating river recreation or passion for particular watersheds, both in the United States and internationally (Palmer, 1993; 2017a,b; European Rivers Network, 2021). The loss of key manager champions, and what appears to be less written or documented guidance for the unique skills they developed surrounding WSR management, break the continuity that is necessary for managing in accordance with legislative intent established with the WSRA. Likewise, younger professionals who may be assigned WSR management as one of many responsibilities may also find it difficult to advance management under the WSRA without guidance or mentorship provided by key champions of the past (Feldman et al., 2005; McGrath, 2014; Perry, 2017a).

Our final research question concerned the role that agency-public relationships might play in future management under the WSRA. Clearly, our results suggest that public involvement in WSR management is viewed by both WSR professionals and partners as critical during various stages of WSR development, planning, management and monitoring. These results reflect broader discourses about the increasingly collaborative nature of protected area management, and the potential for those efforts to stall or be under-resourced if there is not public interest in fulfilling policy requirements for public input (Daniels & Walker, 2001; Jennings, 2008; Davis et al., 2017; Jenkins & Brown, 2020). Our efforts extend these existing recognitions and demonstrate how—at least to our participants—public-private partnerships are seen as one critical way to compensate for the longitudinal barriers facing WSRs, including the increasingly difficult task of finding conceptual space for WSRA in an era focused on broader landscape-level management, including international foci on watersheds (Gerlak & Heikkila, 2006; Carvalho et al., 2019). Participants in this research viewed formal organizations (e.g., American Rivers and the River Management Society) or representative groups of local stakeholders as key avenues for augmenting professional capacity to perform planning tasks (e.g., CRMPs, monitoring of ORV benchmarks, data collection for designation) or management actions that agency managers found difficult due to their workload (see also Caine, 2016; Feldman et al., 2005). Perhaps more implicitly, public partners had more agency to step outside agency bureaucratic limitations and advocate for increased resources, focus or priority for WSRA management provisions. Private partners could help champion the importance of WSRs among a broader set of audiences by speaking to them as other private citizens who might benefit from or care about WSRs, or in ways that did not need to overcome longstanding distrust of federal and state land management agencies (see also Fredrickson & Lacroix, 2017; Palmer, 2017a). While our findings are specific to WSRs, they likely also hold associated lessons regarding the implementation of international water frameworks. This is because public-private partnerships are also likely to hold the potential for expanded resources or funding surrounding coordinated efforts of freshwater protection. Such partnerships can also help develop participatory monitoring or management objectives that maximize the multiple benefits that may accrue by protecting river systems (see Carvalho et al., 2019; van Rees et al., 2021; European Commission, 2021).

5.2. Potential avenues for future wild and scenic river management

Addressing challenges of public understanding and appreciation for the WSRA likely begins with concerted research efforts to better understand how various segments of the American public conceive of WSRs. This would include inquiry into whether various members of nearby communities, broader landscapes, and distant populations understand: (1) the purposes and protections afforded by the act; (2) the flexible mechanisms and planning processes that establish management of individual river segments through ORVs; and (3) how WSRA protections differentiate use or management when compared to other protected area designations (e.g. wilderness, national parks). Much less of this work has been done, and such inquiry is often key for efforts to increase appreciation—and ultimately support—for resource management designations such as WSRs (see for instance Orr, 2014; Clarke & Peterson, 2016; Lundgren & McMakin, 2018).

One strategy for distinguishing WSRs from other protected area designations may be to provide explicit examples of the ways that WSRA provisions continue to protect or improve specific ORVs, and the ways those protections extend beyond other public land designations (see Bonham, 2000; Van Laack, 2005; Cathcart-Rake, 2009; Blumm & Yoklic, 2020 for links to existing literature). We would suggest constructing extended stories around specific WSR rivers—stratified across a range of regions and social-ecological conditions—to demonstrate the potential flexibility and regulatory power associated with WSR designation. Those stories should also serve as actionable templates for adapting WSRA mechanisms (e.g., proposal of candidate rivers, CRMP collaboration, ORV determination, etc.) for public influence or private-public partnerships that both our research and past efforts indicate are a key need for advancing protection of specific rivers under the WRSA, or through international mechanisms (see Fosburgh et al., 2008; Koshare, 2008; Diedrich & Thomas, 2014; Perry et al., 2021). Demonstration of flexible and participatory resource management outcomes such as those described above provides additional avenues for protection or promotion of water resources that both encompass and may extend beyond a designated river segment, and thus expand upon high levels of river protection in the context of broader watershed management or freshwater biodiversity, both of which are increasing foci of international water management (Tickner et al., 2020; Perry et al., 2021; van Rees et al., 2021). Outcomes could help accentuate how the WSRA can contribute meaningfully to landscape-level management, including complementary benefits such as protections of water quality outlined in the Clean Water Act and international water quality frameworks or requirements that upstream development on rivers be evaluated for their impact to WSRs, including ORVs (see Van Laack, 2005; Blumm & Yoklic, 2020 and European Commission, 2021). Other potential avenues to demonstrate complimentary benefit associated with WSRs may include the protection of habitat for imperiled species listed under federal or state endangered species acts, and recreational opportunities or community benefits associated with proximity of human populations to designated rivers (Bowker & Bergstrom, 2017; Leahy 2005; Smith & Moore, 2011), thus broadening the constituency of support for continued management.

Addressing challenges associated with the need for WSR manger training or accelerated pace of retirement among senior WSR managers might begin with mentorship programs—whereby more senior, experienced or retired WSR managers engage with junior professionals who now manage a variety of WSR segments. Such efforts could help illuminate the need to interpret and manage designated river systems adaptively, and with a key understanding of the unique circumstances surrounding each designated river segment. Similar outcomes might also be created through periodic "exchanges" or visits by professionals with responsibilities for managing rivers featuring very different social (e.g., amount of private land in the river corridor, recreational values, organized groups interested in use of or preservation of river systems), political and ecological conditions. Both efforts could help provide tangible examples for how the development, revision and monitoring surrounding ORVs and associated development of CRMPs provide additional opportunity for management of water-related resources.

Regardless of the mechanisms undertaken, lessons from our results suggest that periodic assessment of ongoing efforts to provide more concrete guidance on WSR management are critical for advancement of professional or partner skills and for documenting influence on future resource management decisions or outcomes (Krumpe & McLaughlin, 1998; Bonham, 2000; Verbos et al., 2017). Immediate efforts may include: (1) exit interviews or utility evaluations of upcoming RMS

trainings associated with updated WSR skill competencies (e.g., Interagency Wild and Scenic Rivers Coordinating Council (IWSRCC), 2018); (2) extension of existing CRMP content analyses to expand best practices or templates for ORV monitoring protocols, management actions, and collaboratively designated desired conditions; and (3) augmentation of repositories outlining key measures for benchmarking or advancing ORV management across conditions (see McGrath, 2009; 2014; Perry, 2017a for arguments related to point 3). While some of these resources are currently developed or shared internally across WSR managers and agencies, our results suggest they have not yet permeated the field, nor are they readily accessed by those who might benefit from them most.

Despite their perceived importance, organized or informal agency-public partnerships are not readily forming to the extent that some WSR advocates and professionals would like. It is here where some lessons from other protected areas or organizations might be derived. For instance, WSR specialists could adapt partnership models, best practices or collaboration lessons from organizations dedicated to individual wilderness areas and use them to provide practical, step-by-step considerations that augment existing reviews of partnerships possible under the Act (for instance partnerships rivers or 2(a) (ii) rivers). However, they should be careful to recognize the important need to adapt those lessons to the particular interests, values and ORVs that made each WSR worthy of such designation in the first place, and which are part of a larger social fabric characterizing the people who benefit from their presence. Likewise, lessons from existing organizations and their application to the unique context of rivers may provide fruitful lessons to international groups working to protect wild rivers, regardless of specific legislation.

Key regional differences articulated by our participants suggest there are some patterns, lessons or best practices that WSR partners and professionals could use to promote more consistent management across the WSR system while respecting the flexible nature of management for each designated river. Given the above, we would suggest that one critical avenue for advancing efforts to build agency-public partnerships in support of the WSRA would be in-depth case studies of successful and unsuccessful partnerships related to management of specific WSR segments—that is, examples of public partnerships that have augmented capacity or resources—and those places where such support failed to materialize. Examining the practices, personalities, influences, and circumstances surrounding such outcomes in specific river segments could eventually form the basis for systematic practices, tools and framings that might increase public understanding or appreciation for WSRs while helping to overcome ongoing institutional deficiencies. In any case, it is clear that WSR managers and partners could benefit from a readily accessible set of processes, workshop materials, memorandums of understanding and partnership contracts that might help provide initial structure in their determination of the ways that agency-public partnerships might benefit their particular management situation while upholding the legal requirements of the WSRA. Developing such materials will require focused inquiry among a stratified sample of experienced WSR managers, partnerships organizations and NGO members spanning federal and state agencies across the country. It will eventually require testing the utility of such materials across a range of social and ecological conditions.

CRediT authorship contribution statement

Travis B. Paveglio: Conceptualization, Methodology, Data collection, Validation, Formal analysis, Data curation, Writing – original draft, Writing – review & editing, Supervision, Project administration, Funding acquisition. **Brenna McGown:** Conceptualization, Methodology, Data Collection, Formal analysis, Data Collection, Writing – original draft, Writing – review & editing. **Patrick I. Wilson:** Conceptualization, Methodology, Data collection, Validation, Writing – review & editing, Supervision, Project administration, Funding acquisition. **Edwin E. Krumpe:** Conceptualization, Methodology, Validation, Writing – review & editing, Supervision, Funding acquisition.

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References

Abrams, J. (2019). *The emergence of network governance in the U.S.* National Forest.

American Whitewater. (2020). *American whitewater and the wild and scenic river act.* Available at: https://www.americanwhitewater.org/content/Wiki/stewardship:wsra. Last assessed June 26, 2020.

Archie, K. M., Dilling, L., Milford, J. B., & Pampel, F. C. (2012). Climate change and western public lands: A survey of U.S. Federal land managers on the status of adaptation efforts. *Ecology and Society, 17*(4), 20.

Blumm, M. C., & Yoklic, M. M. (2020). The wild and scenic rivers act at 50: Overlooked watershed protection. *Michigan Journal of Environmental and Administrative Law, 9*(1), 1–60.

Bonham, C. H. (2000). The wild and scenic rivers act and the Oregon trilogy. *Public Land & Resources Law Review, 21*(109), 110–143.

Bowker, J. M., & Bergstrom, J. C. (2017). Wild and scenic rivers: An economic perspective. *International Journal of Wilderness, 23*(2), 22–33.

Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development.* Thousand Oaks, CA: Sage.

Bryman, A. (2012). *Social research methods* (4th ed.). New York, NY: Oxford University Press.

Bureau of Land Management. (2012). *Wild and Scenic Rivers—policy and program direction for identification, evaluation, planning and management.* Manual 6400 https://www.blm.gov/sites/blm.gov/files/uploads/mediacenter_blmpolicymanual6400.pdf. Last assessed June 24, 2020.

Burns, R. C., Popham, A. R., & Smaldone, D. (2018). Examining satisfaction and crowding in a remote, low use wilderness setting: The Wenha Wild and Scenic River Case Study. *International Journal of Wilderness, 24*(3), 40–51.

Burse, S. (2008). Wild rivers and the boundaries of cooperative federalism: The wild and scenic rivers act and the allagash wilderness waterway. *Boston College Environmental Affairs Law Review, 35*(1), 77–110.

Caine, K. (2016). Blurring the boundaries of environmentalism: The role of Canadian Park and Wilderness Society as a boundary organization in northern conservation planning. *Rural Sociology, 81*(2), 194–223.

Carvalho, L., Mackay, E. B., Cardoso, A. C., Battrup-Pedersen, A., Birk, S., Blackstock, K. L., Borics, G., & Solhiem, A. L. (2019). Protecting and restoring Europe's waters: An analysis of the future development needs of the Water Divide Framework. *The Science of the Total Environment, 658*(25), 1228–1238.

Cathcart-Rake, J. (2009). The friends of Yosemite valley saga: The challenge of addressing the Merced River's User Capacities. *Environmental Law, 39*(3), 833–866.

Cerveny, Selin, L. K. S., Blahna, D. J., Meier, N., Barborak, J. R., & McCool, S. F. (2020). Agency capacity for effective outdoor recreation and tourism management. In S. Selin, L. K. Cerveny, D. J. Blahna, & A. B. Miller (Eds.), *Igniting research for outdoor recreation: Linking science, policy and action. Gen. Tech. Rep. PNW-GTR-987* (pp. 23–40). Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station.

Chesterton, S., & Watson, A. (2017). A watershed moment for river conservation and science. *International Journal of Wilderness, 23*(2), 3,9.

Clarke, J., & McCool, D. (1996). Staking out the terrain: Power and performance among natural resource agencies. In *SUNY series in environmental politics and policy* (2nd ed.). Albany: State University of New York Press.

Clarke, T., & Peterson, T. R. (2016). *Environmental conflict management.* Thousand Oaks, California: Sage.

Cooke, B. (2018). Research runs through it: A fresh look at wild and scenic rivers. Rocky mountain research station. *Science you can Use Bulletin, 32*, 1–11.

Creighton, J. L. (2005). *The Public participation handbook: Making better decisions through citizen involvement.* San Francisco, CA: Jossey-Bass.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). Thousand Oaks, CA: Sage.

Daniels, S. E., & Walker, G. B. (2001). *Working through environmental conflict: The collaborative learning approach.* Westport, Connecticut: Prager Publishers.

Davis, E. J., White, E. M., Cerveny, L. K., Seesholtz, D., Nuss, M. L., & Ulrich, D. R. (2017). Comparison of USDA Forest Service and stakeholder motivations and experiences in collaborative federal forest governance in the western United States. *Environmental Management, 60*, 908–921.

Diedrich, J., & Thomas, C. (2014). *Evolution of the wild and scenic rivers act: A history of substantive amendments 1968-2013. Interagency wild and scenic rivers coordinating council.* Available at: https://www.rivers.gov/documents/wsr-act-evolution.pdf. Last assessed June 27, 2020.

European Commission. (2021). *The EU water framework directive - integrated river basin management for Europe.* Available at: https://ec.europa.eu/environment/water/water-framework/index_en.html. (Accessed 10 August 2021).

European Rivers Network. (2021). *The wild rivers Europe project: From conquering the Alps and the Balkans.* Available at: https://www.ern.org/en/wild-rivers/. Last accessed August 28, 2021.

Farnham, T., Taylor, C. P., & Callaway, W. (1995). A shift in values: Non-commodity resource management and the forest service. *Policy Studies Journal, 23*(2), 281–295.
Feldman, M., Mclaughlin, W., & Hill, J. (2005). Learning to manage our wild and scenic rivers system. *Natural Resources and Environment, 20*(2), 10–16.
Flitcroft, R. L., Dedrick, D. C., Smith, C. L., Thieman, C. A., & Bolte, J. P. (2009). Social infrastructure to integrate science and practice: The experience of the long tom watershed council. *Ecology and Society, 14*(2), 36.
Fosburgh, J., DiBello, J., & Akers, F. (2008). Partnership wild and scenic rivers. *George Wright Forum, 25*(2), 37–44.
Fredrickson, B., & Lacroix, K. M. (2017). Wild and scenic rivers into the next 50 years: Lessons from the re-watering and restoration of fossil creek. *International Journal of Wilderness, 23*(3), 16–21.
Gerlak, A., & Heikkila, T. (2006). Comparing collaborative mechanisms in large-scale ecosystem governance. *Natural Resources Journal, 46*(3), 657–707.
Gibbs, G. R. (2007). *Analyzing qualitative data*. London: Sage.
Gray, B. (1988). No holier temples: Protecting the national parks through wild and scenic designation. *University of Colorado Law Review, 58*(4), 551–598.
Hamlet, A. (2011). Assessing water resources adaptive capacity to climate change impacts in the Pacific Northwest Region of North America. *Hydrology and. Earth System Sciences, 15*, 1427–1443.
Haubert, J. (2019). *An introduction to wild and scenic rivers. Interagency wild and scenic rivers coordinating council*. Available at: https://www.rivers.govdocuments/wsr-primer.pdf. Last accessed June 25, 2020.
Hermans, C., Erickson, J., Noordewier, T., Sheldon, A., & Kline, M. (2008). Collaborative environmental planning in river management: An application of multicriteria decision analysis in the White River Watershed in Vermont. *Journal of Environmental Management, 84*(4), 534–546.
Horndeski, K. A., & Koontz, T. M. (2020). Deciding how to decide: Cultural Theory and rule making in collaborative watershed organizations. *Policy Studies Journal, 48*(2), 425–449.
Interagency Wild and Scenic Rivers Coordinating Council. (2021a). *Explore designated rivers*. Available at: rivers/gov/map.php . (Accessed 25 August 2021).
Interagency Wild and Scenic Rivers Coordinating Council. (2021b). *National wild and scenic rivers system*. Available at: Rivers.gov . (Accessed 27 June 2020).
Interagency Wild and Scenic Rivers Coordinating Council (IWSRCC). (2004). *Wild & Scenic Rivers act: Section 7*. Available at: https://www.rivers.gov/documents/section-7.pdf. (Accessed 26 June 2020).
Interagency Wild and Scenic Rivers Coordinating Council (IWSRCC). (2007). *Designating Rivers through the Section 2(a)(ii) of the Wild & Scenic Rivers Act*. Available at: https://www.rivers.gov/documents/2aii.pdf Accessed 28 June, 2021.
Interagency Wild and Scenic Rivers Coordinating Council (IWSRCC). (2018). *Technical core competencies river management specialists and nonspecialists*. Available at: https://www.rivers.gov/documents/river-manager-core-competencies.pdf. Assessed 27 June 2021.
Jenkins, J., & Brown, M. (2020). Giant sequoia—forest, monument, or park? Political-legal mandates and socio-ecological complexity shaping landscape-level management. *Society & Natural Resources, 33*(6), 721–737.
Jennings, S. (2008). Celebrating forty years of the wild and scenic rivers act. *George Wright Forum, 25*(2), 15–26.
Koontz, T. M., & Newig, J. (2014). From planning to implementation: Top-down and bottom-up approaches for collaborative watershed management. *Policy Studies Journal, 42*(3), 416–442.
Koontz, T., Steelman, T. A., Carmin, J., Korfmacher, K. S., Moseley, C., & Thomas, C. W. (2004). *Collaborative environmental management: What roles for government?* Washington, DC: Resources for the Future.
Koshare, L. (2008). 2(a)(ii)-Designated National Wild and Scenic Rivers: The confluence of local management and federal protection. *George Wright Forum, 25*(2), 45–51.
Krumpe, E., & McLaughlin, W. (1998). *Wild and Scenic Rivers Act 30th Anniversary Forum – Moving to Action*.
Linlof, T. R., & Taylor, B. C. (2010). *Qualitative communication research methods* (3rd ed.). Thousand Oaks, CA: Sage.
Lundgren, R. E., & McMakin, A. H. (2018). *Risk communication: A handbook for communicating environmental, safety, and health risks* (6th ed.). Hoboken, New Jersey: John Wiley and Sons.
Lurie, S., & Hibbard, M. (2008). Community-based natural resource management: Ideals and realities for Oregon watershed councils. *Society & Natural Resources, 21*(5), 430–440.
Margerum, R. D., & Robinson, C. J. (2015). Collaborative partnerships and the challenges for sustatinable water management. *Current Opinion in Environmental Sustainability, 12*, 53–58.
Marsh, G. (2018). *A compendium of questions and answers relating to Wild and Scenic Rivers*. https://www.rivers.gov/documents/q-a.pdf. (Accessed 5 February 2020).
Marshall, C., & Rossman, G. (1989). *Designing qualitative research*. Thousand Oaks, Calif: Sage Publications.
Mattor, K. M., Cheng, A. S., Kittler, B., & McDonough, M. (2019). Assessing collaborative governance outcomes and indicators across spatial and temporal scales: Stewardship contract implementation by the United States Forest Service. *Society & Natural Resources, 33*(4), 484–503.
McGrath, A. (2009). Beyond banning dams: Benefits of the Wild and Scenic River designation for northwest and national river systems. *American Rivers*, 21p.
McGrath, A. (2014). *Land of the free-flowing rivers: Administration of the 1968 Wild and Scenic Rivers Act on designated rivers in Oregon and Washington State. Unpublished master's thesis*. University of Washington.
McKinley, D. C., Miller-Rushing, A. J., Ballard, H. L., Bonney, R., Brown, H., Cook-Patton, S. C., Evans, D. M., et al. (2017). Citizen science can improve conservation science, natural resource management, and environmental protection. *Biological Conservation, 208*, 15–28.
McPadden, R., & Margerum, R. D. (2014). Improving national park service and nonprofit partnerships—lessons from the national trails system. *Society & Natural Resources, 27*, 1321–1330.
Miles, M., & Huberman, A. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Thousand Oaks: Sage Publications.
National fish habitat partnership. (2021). Available at: https://www.fishhabitat.org/. Last accessed September 2, 202.
Orr, S. K. (2014). *Environmental policy and stakeholder collaboration*. Boca Raton, FL: Taylor and Francis Group.
Orth, P., & Cheng, A. (2019). Organizational change in the US forest service: Negotiating organizational boundaries in the collaborative process. *Environmental Management, 64*(1), 64–78.
Palmer, T. (1993). *The Wild and Scenic Rivers of America*. Washington, D.C: Island Press.
Palmer, T. (2017a). *Wild and Scenic Rivers: An American legacy*. Corvallis, Oregon: Oregon State University.
Palmer, T. (2017b). A legacy of rivers. *International Journal of Wilderness, 23*(2), 4–8.
Patton, M. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage Publications.
Perry, D. (2017a). *The Uneven Geography of River Conservation in the US: Insights from the Application of the Wild and Scenic Rivers Act*. Eugene. Oregon: Doctoral dissertation. University of Oregon. Available at: https://scholarsbank.uoregon.edu/xmlui/handle/1794/22700.
Perry, D. (2017b). Reframing the wild and scenic rivers act: Ecosystem-based resilience and adaptation. *International Journal of Wilderness, 23*(2), 41–48.
Perry, D., Harrison, Ian, Fernandes, Stephannie, Burnham, Sarah, & Nichols, Alana (2021). Global analysis of durable policies for free-flowing river protections. *Sustainability, 13*, 2347.
Prato, T., & Paveglio, T. B. (2018). Multi-objective prioritization of preselected fuel treatment strategies for public forestland: A case study in flathead county, Montana. *Forest Science, 64*(1), 41–49.
Prokopy, L. S., Mullendore, N., Brasier, K., & Floress, K. (2014). A typology of catalyst events for collaborative watershed management in the United States. *Society & Natural Resources, 27*(11), 1177–1191.
Richards, L. (2005). *Handling qualitative data: A practical guide*. Thousand Oaks, CA: Sage.
Rothlisberger, J. D., Scalley, T. H., & Thurow, R. F. (2017). The role of Wild and Scenic Rivers in conservation of aquatic biodiversity. *International Journal of Wilderness, 23*(2), 49–63.
Ryan, G. W., & Bernard, H. R. (2000). Data management and analysis methods. In N. K. Denzin, & Y. S. Lincoln (Eds.) (2nd ed.)*769–802Handbook of qualitative research*. Thousand Oaks, CA: Sage.
Saldaña, J. (2016). *The coding manual for qualitative researchers* (3rd ed.). London; Thousand Oaks, Calif: Sage.
Silverman, D., & Marvasti, A. (2008). *Doing qualitative research: A comprehensive guide*. Thousand Oaks, CA: Sage.
Smith, J., & Moore, R. (2011). Perceptions of community benefits from two Wild and Scenic rivers. *Environmental Management, 47*(5), 814–827.
The Wild and Scenic Rivers Act of 1968. 16 U.S.C. §1271-1287.
Tickner, D., Opperman, J. J., Abell, R., Acreman, M., Arthington, A. H., Bunn, S. E., Cooke, S. J., & Lucy Young. (2020). Bending the curve of global freshwater biodiversity loss: An emergency recovery plan. *BioScience, 70*(4), 330–342.
Van Laack, R. (2005). Protection of a Wild and Scenic River against nonfederally funded, nonpower water projects reducing the volume of water feeding into that river. *Tennessee Law Review, 72*(3), 875–904.
van Rees, C. B., Waylen, K. A., Schmidt-Kloiber, A., Thackeray, S. J., Kalinkat, G., Martens, K., & Domisch…, S. S. C. Jähning. (2021). Safeguarding freshwater life beyond 2020: Recommendations for the new global biodiversity framework from the European experience. *Conservation Letters, 14*(1), Article e12771.
Verbos, R., Vadala, C., Mali, P., & Cahill, K. (2017). The visitor use management framework: Application to wild and scenic rivers. *International Journal of Wilderness, 23*(2), 10–21.
Weber, E. P., & Stevenson, A. P. (2017). Collaborative governance, science and policy outcomes. *New strategies for wicked problems: Science and solutions in the 21st Century* (pp. 185–206). Corvallis, Oregon: Oregon State University Press.
Yaffee, S. L., & Wondolleck, J. M. (2003). Collaborative ecosystem planning processes in the United States: Evolution and Challenges. *Environments, 31*(2), 59–72.