
R3 Evaluation Metrics

WAFWA R3 Committee
R3 Evaluation Criteria Working Group



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Suggested Citation:

Western Association of Fish and Wildlife Agencies. 2024. R3 Evaluation Metrics. WAFWA R3 Committee R3 Evaluation Criteria Working Group. Phoenix, Arizona.

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Need and Purpose

The development of this document was initiated at the January 2023 Western Association of Fish and Wildlife Agencies R3 Committee meeting. Committee members expressed a strong need for R3 practitioners to have and follow evaluation guidance that could clearly articulate the distinctions between R3 effort outputs vs outcomes, participant behavioral actions vs behavioral intentions, and specific indicators that R3 practitioners could track to demonstrate the ultimate efficacy of individual R3 efforts or larger organizational R3 strategies. This need arose from the recognition that, within WAFWA states and the national R3 community, there exists a widespread misunderstanding or misrepresentation of the outcomes that R3 efforts are designed to achieve as well as the metrics needed to document them.

This document presents a synthesis of the core metrics that R3-vested agencies and organizations should consider in the construction of their R3 effort evaluation strategies. This guidance is not intended to dictate how agencies and organizations develop or implement their R3 evaluation systems; rather, its purpose is to identify the specific metrics that those systems should be designed to collect, track, and summarize in order to document effort effectiveness. By utilizing common standards for R3 outcome tracking, WAFWA state agencies and associated R3-vested organizations could begin synergizing their evaluation methods to improve and compare the effectiveness of R3 efforts across various state agencies and conservation organizations.

Introduction to R3 Evaluation

The purpose of a recruitment, retention, or reactivation (R3) effort is to influence or modify human behavior. That is, to incentivize a person to adopt, continue, or re-initiate a behavior at a certain frequency over time. Specific to outdoor recreation activities that have been monetized by state fish and wildlife agencies (hunting, trapping, recreational shooting, angling, boating, and sometimes camping and park visitation) the behaviors that R3 efforts are designed to influence can broadly be categorized by each of the three “R’s” listed below:

1. **Recruitment** – A behavioral influence (from an R3 effort or other external intervention) resulting in the initial choice to participate in a target activity.
2. **Retention** – A behavioral influence (from an R3 effort or other external intervention) resulting in continued year-to-year participation in a target activity.
3. **Reactivation** – A behavioral influence (from an R3 effort or other external intervention) resulting in renewed participation in an abandoned target activity.

R3 efforts should be viewed as interventions or actions needed to initiate, support, or re-establish an individual’s adoption of desired behaviors through the acquisition of knowledge, skills, social support, and personal experience (see Appendix A for a list of R3-related definitions). This is not a novel approach to influencing human behavioral change. As described by decades of social science and marketing literature, the processes needed to initiate a person’s adoption of new behaviors are relatively predictable, easily discovered, and readily adapted. These processes, specific to the adoption of outdoor recreation activities, are well described in the 2018 review by Byrne and Dunfee, “Evolution and Current Use of the Outdoor Recreation Adoption Model.” As noted in that review, an individual’s or group’s adoption of a new behavior

(or behaviors) is likely dependent upon 1) how well the behavior aligns with the individual's existing values, attitudes, or social norms and 2), how well an R3 effort addresses the unique barriers (real and perceived) restricting a particular audience from participating in the behavior. Ideally, R3 efforts should be designed and implemented to address the specific barriers and subjective learning needs of a particular group or demographic. If the effort is designed without an understanding of the audience's values, beliefs, and barriers to participation, it may fail to motivate individuals to participate in the future. Given the diversity of those likely to engage in an outdoor activity, it is imperative that R3 efforts be designed and implemented with outcome evaluation systems capable of providing R3 practitioners with data that illuminates how and when to modify their R3 efforts to increase effectiveness and efficiency.

This underscores the need for adaptive program design and implementation of R3 efforts that incorporate an evaluation system capable of documenting participants' behavioral change directly attributable to the R3 effort. Previous research has documented that 80-90% of R3 efforts implemented annually in the United States demonstrate a systematic lack of evaluation to document desired R3 outcomes (i.e., the number of new participants or the amount of increased participation by existing participants). Additionally, these studies reveal a broad absence of evaluation systems capable of gathering participant and staff feedback (i.e., outputs) essential to helping R3 practitioners improve the implementation of their effort over time. The aforementioned research also indicated that the majority of R3 efforts being implemented by state fish and wildlife agencies and conservation NGOs were not strategically designed to overcome documented and specific barriers to participation that impact a particular audience. Nor were they constructed with any understanding of the participant's cognitive hierarchy consisting of existing values, attitudes, or social norms (Vaske and Donnelly, 1999). Rather, these efforts appear to be designed according to the perceptions, expectations, or personal experiences of the administrators (or volunteer instructors), and not heavily informed by the target audience's needs, desires, or preferences.

Need for R3 Evaluation Standards

The number of R3 practitioners and R3-vested partner organizations (state fish and wildlife agencies WMI, CAHSS, RBFF, etc.) working to evaluate their current efforts and design new, data-driven R3 strategies has been steadily increasing since the publication of the *National Hunting and Shooting Sports Action Plan*. However, R3 practitioners, organizations and advocates continue to struggle with creating and implementing R3 outcome data collection procedures as well as data-driven R3 strategies. This is likely due, in part, to a lack of explicitly-stated, and community-adopted, metrics for R3 outputs and outcomes as well as a fundamental lack of knowledge of program evaluation, research design, and statistical analysis. Though R3 evaluation standards have existed within the R3 community since 2009 (as identified at the Western Association of Fish and Wildlife Agencies Hunter, Angler and Shooting Sports Participation Committee, November 2009), they were not well accepted or agreed upon by a majority of the organizations and agencies implementing R3 efforts. Consequently, R3 practitioners and agency leaders interviewed as part of several projects funded by the Association of Fish and Wildlife Agency's (AFWA) Multistate Conservation Grant (MSCG) Program have identified a consistent need for these evaluation metrics and standards to be

broadly accepted, simply and clearly articulated, and in accordance with the current state of available science.

The call for national R3 standards from within the professional R3 community is likely due to two main challenges identified at numerous R3-related workshops, symposia, and committee meetings in recent years. First, R3 professionals report they generally do not have the expertise, resources, and/or support needed to systematically evaluate and adapt their efforts using behavioral outcomes. Second, and more within the scope of this document, is that organizations who have historically engaged in R3 work have been inadvertently influenced by “measurability bias.” In his critique on the use of performance metrics, “The Tyranny of Metrics,” Jerry Z. Muller describes this bias as, “the tendency to prefer options simply because they can more easily be measured.” Even a cursory review of most R3 evaluation-related resources reveals how common this bias is and how it has created the lack of outcome data described above. Nearly all R3 evaluation best practices and recommendations that have emerged from academia, NGO think-tanks, and independent research have highlighted the chronic misuse of “easy metrics” in the assessment of R3 success at both program and organization levels. In Muller’s words, “measuring the simple when the desired outcome is complex.” This is the most elegant and concise way to describe the recurring flaws in R3 effort evaluation; displacing the difficult work of documenting complex human behavior outcomes in exchange for simple program output tallies. It takes little time or investment to document how many programs were delivered in a year, how many individuals attended them, or even how many participants indicated they were likely to engage in a program-focused activity in the future. However, none of these metrics reveal the quantity, durability, or frequency of desired behavior changes that occur specifically as a result of an R3 effort being delivered to a specific type of participant.

From extensive data collected from R3 practitioner and organization leader interviews, in addition to results from numerous assessments documenting the state of R3 efforts, there is a clear and present need for standardized evaluation metrics for R3 efforts. This document presents these standards for use by R3 practitioners and vested organizations as the framework for their R3 evaluation strategies. Methods used to develop this document are presented in Appendix C.

Outcomes vs Outputs

To provide context for the following sections on R3 outcomes and outputs, this report defines each of these terms in the following way:

1. Outcomes are the ultimate achievement of an R3 effort; the change in the world that necessitated the need for an R3 effort or intervention in the first place. Examples include the number of people that go fishing on their own as a result of an R3 effort or an increase in the number of species a trapper pursues as a result of an R3 effort.
2. Outputs are the immediate results, products, or deliverables produced by an R3 effort and are the short-term achievements that must occur before the outcome of the R3 effort can be realized. Examples of outputs include the number of individuals who view a marketing email, the number of learn-to-fish programs an organization hosts in a year, or the amount of satisfaction a program participant expresses about an event they attended.

Standard R3 Outcome

Both the *National Hunting and Shooting Sports Action Plan* (CAHSS, 2016) and the *Recommendations and Strategic Tools for Effective Angler Recruitment, Retention and Reactivation (R3) Efforts* (RBFF, 2016) provide clear and defensible guidance on the ultimate goal of outdoor recreation R3; to increase support for, and participation in, a target activity. This does not include pre-engagement or intermediary steps such as skills and knowledge learning, consideration, soliciting expertise, etc., or R3 supporting interventions like modifications to hunting season or access structures (see Appendix B for R3 effort delineations). While important, these intermediary steps are not the end point. If an R3 effort's facilitation of these steps does not ultimately result in an individual's post-event participation in the target activity, then the effort has not achieved its outcome. It should be noted that not all R3 efforts are designed to include an opportunity for a participant to engage in the target activity. However, if the implementors of these intermediary R3 efforts cannot link the impact of their endeavor to a participant's future behavior, the ultimate effectiveness of the effort will remain obscure, leaving staff vulnerable to measurability bias given that they will have only output data upon which to evaluate the merits of the effort.

The outcome of an R3 effort and its associated behavioral objectives can be stated as:

1. The number (or proportion) of participants who exhibit the behavioral objectives of an R3 effort following its completion and who would not have done so without the influence of the effort.
 - a. Behavioral Objective 1: The participant in an R3 effort participates in the target activity for the first time as a result of the R3 effort's influence.
 - b. Behavioral Objective 2. The participant in an R3 effort participates at an increased frequency or duration in the target activity over a period of time as a result of the R3 effort's influence.

Directly observing behavior change of the participants of an R3 program over time is neither reasonable nor realistic as a technique for documenting the above outcomes. Therefore, R3 practitioners should be prepared to rely on a proxy for direct observation, some indicator that can easily be tracked or measured and is highly correlated to the desired participant behaviors.

The most reliable of these indicators are listed below in order of reliability:

1. Privilege purchase (licenses, permits, tags, access passes) patterns of R3 effort participants. This indicator necessitates that participants of R3 efforts are identifiable by unique individual identifiers (ideally a customer or sportsperson number, state issued identification, or a combination of full name, zip code, and DOB).
2. Survey responses. Where license/privilege purchase databases are not available or accessible as participant behavior indicators, post-event surveys should be used, at appropriate time intervals, to document participant behavior (as defined by the R3 outcome listed above.) and the effort's impact on it. For example, hunting and fishing R3 effort evaluation should follow peak hunting and fishing seasons. For other outdoor activities such as hiking, boating, shooting sports, camping, etc., surveys designed to document R3 effort outcomes should be delivered no less than six months following the completion of the effort, and only after the seasonal peaks of the activities have passed

(thus providing participants reasonable opportunity to engage in the desired activity). This allows practitioners to more reasonably inquire if the participant exhibited the desired behavior (“Did you go target shooting?”) rather than the much less reliable behavioral intention (“Do you plan on going target shooting?”).

R3 Effort Outputs

As previously stated, past and current R3 effort evaluation processes have disproportionately relied on simple implementation outputs as endpoint indicators, rather than participant behavioral outcomes. This is not to say that R3 outputs have little or no value in an organization’s overall strategy to increase participation. On the contrary, outputs are critical to tracking the implementation effectiveness of short- or mid-term actions/tactics that are often required (typically in succession) to realize target behavioral outcomes. However, they should not be relied upon to indicate that participants have or will exhibit desired behaviors unless they have been reliably correlated to desired behavior change through rigorous analysis.

Examples of the most common outputs tracked in current R3 efforts by R3 professionals or their organizations include:

1. The number of participants that attend an effort, program, or event over the course of its delivery per annum.
2. The total number of efforts delivered per annum.
3. The number of views for online media content, open rates for emails, website visitations, and click-throughs.
4. The number of impressions generated in a digital marketing effort and other metrics of digital engagement (these include pay-per-click impressions, shares and forwards on social media, on-site views of calls-to-action, views of content through third-party sites, etc).
5. Post-event attitude data (increase in participant knowledge, skills, motivation, intention to participate in the target activity in the future, etc.)
6. Demographic data (age, gender, ethnicity, race, etc.)
7. Activity-related equipment purchases by R3 effort participants.

Effort delivery metrics like these are extremely useful in documenting how well a program or effort is being implemented in the short term but are inadequate, in and of themselves, at demonstrating how the effort’s implementation has impacted the participant’s future desired behaviors. Therefore, R3 effort metrics should rarely occur in isolation, and every effort should be made to link programmatic outputs with real-world behavioral outcomes.

Appendix A: R3-Related Definitions

R3 – An acronym for the words “recruitment, retention and reactivation”; it refers to a series of efforts intended to modify participant behaviors to cause increased or maintained participation in target activities (e.g., boating, fishing, hunting, recreational shooting, etc.).

Recruitment - A behavioral influence (from an R3 effort or other external influence) resulting in the initial choice to participate in a target activity.

Retention - A behavioral influence (from an R3 effort or other external influence) resulting in continued year-to-year participation in a target activity.

Reactivation - A behavioral influence (from an R3 effort or other external influence) resulting in the renewed participation in an abandoned target activity.

Churn rate - The proportion of a total participant population who do not participate in a target activity (as indicated by license purchase patterns or other participation metrics) in a given year or years.

Lapsed participant - An individual who does not participate in a target activity in the year (365 days), or years, after they previously participated.

Reactivated participant - A lapsed participant who did not participate in a target activity in the previous year (365 days) or years, and then resumes participation in the current year.

Reactivation rate - The proportion of lapsed participants who did not participate in a target activity in the previous year or years, but then resumed participation in the current year.

Recruited participant - An individual who participates in a target activity for the first time.

Recruitment rate - The proportion of the participant population who participates in the target activity for the first time.

Retained participant- An individual who participates in a target activity in both the previous year and the current year.

Retention rate - The proportion of individuals in a participant population who participated in a target activity in both the previous year and the current year.

Appendix B: R3 Effort/Intervention Delineation

As stated previously, the purpose of a recruitment, retention, or reactivation (R3) effort, in the broadest sense, is to influence or modify human behavior; specifically, recreation-related behaviors in the outdoors. That said, the behaviors associated with R3 efforts or interventions are typically limited to fishing, hunting (which can include trapping), boating, and recreational shooting due to the continued monetization of these activities for the purpose of funding state fish and wildlife agency operations. In most cases, these are only a small proportion of all the outdoor recreation-related behaviors an agency or organization likely wishes to influence within its constituent population, and if examined closely, the tactics often used in R3 efforts can be seen in many other outdoor recreation education efforts regardless of the recreation type being taught (e.g., in many midwestern states, camping and park visitation is highly monetized and a focus of ongoing agency R3 efforts.). Even the ultimate outcome-type recommended to gauge the success of both R3 and other outdoor recreation education programs is essentially identical; i.e., the influence the effort exerts on the participants' future behavior. Stated clearly, the ultimate standard of an R3 or outdoor recreation education effort's efficacy should be measured by the influence it exerts on the participants' future behaviors (not just behavioral intentions), whether those include going hunting, planting backyard pollinator plots, canoeing, birdwatching, making donations to conservation, or actively supporting conservation initiatives, legislation, or policies.

That said, it would be dismissive to ignore that the emergence of R3 as a professional field is primarily focused on fishing, hunting, boating, and recreational shooting, and that the outcome of participant behavioral influence has been predominantly relegated to these activity types. This partitioning of outdoor recreation education/R3 efforts has little to do with any tactical difference in how hunters, anglers, boaters, or recreational shooters need to learn or access resources as compared with other recreationists who want to engage in activities like mountain biking, hiking, or pollinator planting. Instead, the siloing of hunting, fishing, boating, and target shooting as the primary focus of R3 efforts is most likely due to the way in which conservation agencies have monetized the demand for these activities. That is, how they have monetized the nature and wildlife values held by individuals who wish to express those values by participating in fishing, hunting, boating, and recreational shooting. Since modern conservation funding models have not evolved to include the monetization of a more equitable suite of outdoor recreation pursuits, fish and wildlife management agencies are disproportionately dependent upon, and responsive to, populations of hunters, anglers, boaters, and target shooters. Thus, "R3" emerged as a re-energized movement in large part as a response to dwindling funding streams within state fish and wildlife agencies.

It is not the intention of this document to debate the merits of this division between R3 and other outdoor recreation education or training efforts. Rather, it is to acknowledge that this current division does exist, and thus necessitates defining the delineation between R3 and other outdoor recreation/conservation education efforts based upon how agencies and organizations currently view them and internally separate the jurisdiction of their programmatic implementation.

In view of this, the authors propose that three effort (i.e., intervention) types be defined for the purposes of efficacy evaluation as follows:

If the outcome of an intervention is a participant's behavior modification, but that behavior modification has not been monetized by state fish and wildlife agencies, it is primarily a **conservation education intervention**.

If the outcome of an intervention is a participant's behavior modification, but that behavior modification has been monetized by state fish and wildlife agencies, it is primarily an **R3 intervention**.

If the outcome of an intervention is not a participant's behavior modification but is the continuance or expansion of R3-supporting systems (e.g., seasons, regulations, external partnerships) or infrastructure (e.g., access opportunities, facilities), it is primarily an **R3-supporting intervention**.

Appendix C: Methods

The development of this document was initiated at the January 2023 Western Association of Fish and Wildlife Agencies R3 Committee meeting. Matt Dunfee of the Wildlife Management Institute, at the request of committee Chair Scott Lavin, led a discussion examining potential R3 (recruitment, retention, reactivation) effort outcome metric standards that could (or should) be applied to all hunter, angler, recreational shooter, trapper, and boater R3 efforts. This discussion illuminated the need for a distinction between R3 effort outputs vs outcomes, participant behavioral actions vs behavioral intentions, and specific indicators that R3 practitioners should track to demonstrate the ultimate efficacy of an individual R3 effort or organizational R3 strategy.

Following this discussion, the majority of meeting attendees recommended that a special workgroup be established to draft a guidance document on R3 evaluation metrics that WAFWA states could use to synergizing their evaluation methods and thus compare the effectiveness of R3 efforts across various state agencies and conservation organizations.

Between February and April 2023, the WAFWA R3 Committee leadership solicited volunteers wishing to serve on what would be formalized as the R3 Evaluation Criteria Working Group (members are listed on page 1 of this document). These individuals were selected based upon their expertise in R3 implementation at local, state, and regional levels; their knowledge of state agency-related R3 programmatic structures and constraints; and their training and experience with program outcome evaluation best practices.

Over the course of six months, the committee convened 5 times for 2-hour virtual work sessions to develop the content of this document. Committee members shared writing assignments between calls and collectively developed a first working draft. This first draft was sent to a selection of regional and national R3 experts and social scientists (specifically those working in, and conducting research on, R3 efforts) for critique of its theoretical framework, logic, and clarity. Committee members then addressed all submitted comments and edits to finalize a second draft. WAFWA R3 Committee leadership then selected a broad list of R3 experts representing regional state fish and wildlife agency association R3 committees, national R3-vested NGO's and trade organizations, and natural resource consultant groups. These experts served as a review panel for the second draft and were sent an electronic survey to capture their edits and comments in a systematic and consistent format. The committee met one final time in early 2024 to address the comments and edits collected in the second round of review and assign writing tasks that were needed to address review panel suggestions. The final draft of this document was approved by the committee in May 2024.



The Western Association of Fish and Wildlife Agencies represents 24 states and Canadian provinces, an area covering nearly 3.7 million square miles of some of North America's most wild and scenic country. WAFWA's reach encompasses more than 40 percent of North America, including two-thirds of the United States. WAFWA supports sound resource management and building partnerships at all levels to conserve wildlife for the use and benefit of all citizens, now and in the future.