



CONSIDERATIONS FOR HCTF STEWARDSHIP PROPOSALS

By Liz Stanlake

Part 1. Background

Broadly speaking, stewardship is the act of taking responsibility for the well-being of the environment and doing something to restore or protect that well-being. In its strategic plan, the Habitat Conservation Trust Foundation (HCTF) recognizes the importance of environmental stewardship and states that it will invest in: effective conservation information, education, and demonstration programs and activities; and, community-based stewardship projects that identify tangible conservation results for fish, wildlife, habitat, or the environment and that increase stewardship capacity.

Some HCTF projects are primarily on-the-ground technical fish and wildlife enhancement and others are primarily stewardship-focused, i.e., they are designed to effect changes in:

- environmental or resource conservation knowledge, awareness, or skills;
- policies, practices, and behaviours;
- environmental ethics, attitudes, and literacy; and,
- improved social, economic or environmental conditions.

More often now, HCTF projects are a combination of both technical and stewardship components, recognizing that many environmental problems need to be solved in cooperation with human communities. Proposals for stewardship projects or projects with stewardship components have always been more difficult to review than the technical fish and wildlife enhancement proposals. Outcomes for stewardship projects are often less tangible than enhancement projects. As a result, clear measures of success are often lacking, making it difficult for HCTF reviewers, board members and staff to determine the effectiveness of stewardship projects.

The following sections will help to clarify what reviewers expect to see in applications for stewardship projects and stewardship components of projects. These sections also provide information on how to evaluate and measure success. **NOTE: this document does NOT describe all information that is required for HCTF applications. Please check online for additional application instructions at: <http://www.hctf.ca/application-guide>**

Part 2. Some Guidelines for the HCTF Stewardship Proposals

2.1 Project Cycles

Developing a project or program is cyclical and generally has five phases (Figure 1).¹ Following are points that reviewers consider for each phase and the applicable sections of the HCTF project proposal form where this information should be included.

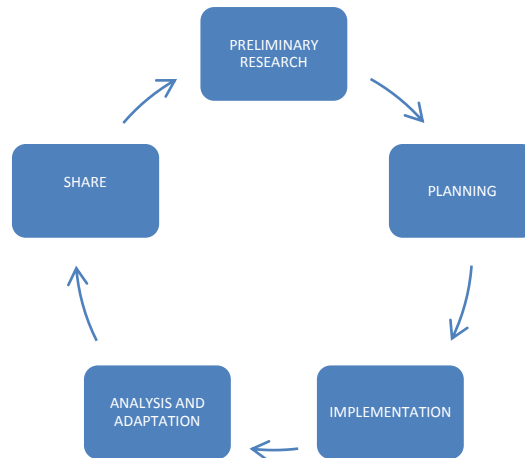


Figure 1. Iterative / cyclical phases of a project.

	Applicable Section of HCTF Application
Preliminary Research	
<ul style="list-style-type: none"> describe the current situation, i.e., the nature and scope of the problem. What is the baseline, the starting point for the project? 	<i>Issue</i>
<ul style="list-style-type: none"> provide context for the area chosen to study - how was the priority for the project and for the location determined? 	<i>Issue</i>
<ul style="list-style-type: none"> provide characteristics of stakeholders and describe the target audience - who will be involved? 	<i>Issue</i>
<ul style="list-style-type: none"> develop outcomes that will result from the project - what is the desired future state? 	<i>Issue</i>
Planning	
<ul style="list-style-type: none"> develop measurable objectives - what do you want to achieve in the next year and in the long term? (see Part 2.2) 	<i>Project Objectives</i>
<ul style="list-style-type: none"> develop measures of success for each phase of the project - how will you know if you are on track and ultimately have been successful? (see Part 2.2) 	<i>Measures of Success</i>
<ul style="list-style-type: none"> detail the inputs (staff, partners, money, materials) 	<i>Budget Details</i>

¹ adapted from Blanchard 2012 and WWF 2012

	<u>Applicable Section of HCTF Application</u>
Implementation	
<ul style="list-style-type: none"> describe the methods and activities that will be undertaken - how will the objectives be achieved? 	<i>Summary of Activities, Activities by Objective</i>
<ul style="list-style-type: none"> describe the engagement strategy - what methods will be used to reach / involve the target audience and /or critical stakeholders? 	<i>Summary of Activities, Activities by Objective</i>
<ul style="list-style-type: none"> if applicable, describe information products that will be produced. Why are they needed? What gap will they fill? Are printed materials the most cost effective way to get your message across? 	<i>Summary of Activities, Activities by Objective, Communication / Outreach</i>
Analysis and Adaptation	
<ul style="list-style-type: none"> describe how data will be collected and analyzed 	<i>Summary of Activities, Activities by Objective</i>
<ul style="list-style-type: none"> based on data results and monitoring, describe any changes or adaptations that may be required (for multi-year projects 	<i>Project Objectives and/or Summary of Activities , Activities by Objective</i>
Share	
<ul style="list-style-type: none"> describe your communication plan - how will you share lessons learned and formal products with key internal and external stakeholders? 	<i>Communications / Outreach</i>

Applicants, however, should pay particular attention to clearly defining objectives and outlining measures in detail to assist reviewers in determining the effectiveness of the project (See following sections for more detail). A useful tool when developing stewardship projects is **Bennett's Hierarchy** (Appendix B)². It helps to visualize the chain of events needed to effect change. Each level in the hierarchy is critical to reaching the top end results. Objectives and measures of success could be developed around each of these levels.

² Bennett 1975

2.2 Developing Objectives and Outcomes

Step 1. Develop the Objectives

Objectives:

- generally describe what you want to accomplish;
- are a formal statement detailing a desired future state as a result of the project;
- describe the steps that you need to take to reach the project results;
- focus on what you want to achieve NOT on what you have to do;
- are NOT a list of activities you will be doing.
- are S.M.A.R.T. - specific, measurable, achievable, relevant and time-bound (Table 1).

Objectives should not just focus on outputs (what you do and who you reach). There should also be objectives that describe the desired changes that come about as a result of the project. See Table 2 for some examples of good and poor objectives.

Developing objectives first should help frame the outcomes expected as a result of the project.

Table 1. Writing SMART Objectives for the Project

A SMART objective should be:	
Specific:	It describes a specific action, behaviour, outcome, or achievement that is observable
Measurable:	It is quantifiable and has indicators (measures of success) associated with it so it can be measured
Achievable:	It is realistic and attainable within constraints such as: availability of human resources and money; knowledge and skills of key participants; and, timeframe.
Relevant:	It is tied to priorities and mandate of organization, agency and/or funder and contributes to bringing about desired conservation outcomes.
Time-bound:	It states the time-frame within which the objective will be achieved

Table 2. Examples of poor and good objectives³

Poor objectives	Good objectives
Install 1,000 plants	Create a 1,000m ² riparian corridor and link two ecologically significant habitats for local native fauna transit in Kalamalka Lake Park by the end of 2015.
Remove weeds	Within 5 years, reduce woody weed cover to less than 5% in 2,000m ² of degraded vegetation in Kalamalka Lake Park
Run a workshop	By the end of summer 2014, educate 100 local residents in the Okanagan region on how to prevent and restore degraded vegetation in Kalamalka Lake Park
Install a sign	In the summer of 2014, increase the awareness of an estimated 500 people visiting Kalamalka Lake Park on the environmental and cultural significance of the Park by posting an interpretive sign at the entrance (average 1000 visitors per year).
Create a website that is appealing for all age groups	By the end of 2014, educate 100 families in the Vernon area on ways to reduce carbon emissions through an interactive website with an option to post a personal pledge which can lead to behavior change.
Improve environmental education with tools and strategies	By the end of summer 2014, increase participation of 100 Vernon residents in outdoor activity and conservation stewardship at Kalamalka Lake Park through 10 community workshops.
Educate local farmers about best farming practices	By 2015, develop Environmental Farm Management Plan with 80% of the farmers in the Comox Valley
Increase boat motor oil recycling	After boater education workshops, 75% of participants will be able to explain how and where oil can be recycled.

Step 2. Develop Project Outcomes

Develop the project outcomes / results expected when the project / program is completed. Address questions on the desired changes, benefits of the project, and future state. Outcomes can be short-, medium- or long-term. Outcomes are about change and end results. Table 3 shows examples of desired types of outcomes for stewardship projects.

³ Adapted from: <http://www.environment.nsw.gov.au/resources/grants/11846MEgoodob.pdf>; and from Foundations of Success 2009

Table 3. Types of desired project outcomes

Short-term	Medium-term	Long-term
<ul style="list-style-type: none"> Changes in knowledge, awareness, skills and /or attitude (KASA) 	<ul style="list-style-type: none"> Changes in practice / behaviour 	<ul style="list-style-type: none"> Ultimate conservation impact of the project or program
<ul style="list-style-type: none"> Changes in target species or habitats 	<ul style="list-style-type: none"> Changes in target species or habitats / threat reduction 	<ul style="list-style-type: none"> Environmental ethic and literacy incorporated into daily life, e.g., recycling
<ul style="list-style-type: none"> Threat reduction 	<ul style="list-style-type: none"> Informed decision-making / policy changes 	<ul style="list-style-type: none"> Improved social, economic or environmental conditions

2.3 Measuring Outcomes

Measures of success are the specific items of data that are tracked to measure how well your program is achieving the objectives and ultimately conservation outcomes. It is common to monitor and report on inputs, activities and outputs but assessing conservation success depends on evaluating outcomes. Many applicants only develop low level indicators, or measures that track goods and services delivered, or number of workshops held, products produced, etc. These types of indicators help track annual progress and activities but do not provide an adequate measure of how the project is bringing about change.

Not only will well defined measures help you to determine project success, they also help provide accountability, credibility and transparency to funders who want to know that their money is making a difference.

Higher level measures of success can be objective (data collected through direct observations - records, tests, field work) or subjective (self-reporting, surveys, feedback) or both.

Measures can be separated into two components:

- Process or implementation component**
 This component is comprised of reaction, participation, activities, resources levels as shown in Levels 4 to 7 of Bennett's Hierarchy (Appendix B). Measures for this component focus on project/ program implementation. Measures of success are used to identify specific programming objectives, identify specific data collection needs and document how the program is carried out. Data for measures of success at these levels are the easiest and least expensive to collect, such as number of meetings / workshops held, number of people reached, level of satisfaction of participants, number of unique website visits.
- Outcome component**
 This component is comprised of end results, practice and knowledge, awareness, skills and / or attitudes (KASA) levels of Bennett's Hierarchy (Levels 1 to 3; Appendix B); measures of success are used to identify any changes relative to the objectives. Measures of success at the top level of the hierarchy, however, are difficult to develop, difficult to measure, may take years to change and usually are expensive to track. Data for these measures are frequently before and

after numbers gathered through surveys and extensive interviews.

Sometimes it is not possible to measure a project's ultimate outcome or end result directly because:

1. There may be a time lag between the end of the HCTF funding window and the apparent results of the project, or
2. The cost of measuring some outcomes may be very expensive and thus may not have been included in the HCTF project proposal.

For point 1 above, identifying intermediate outcomes, measurable over a shorter period of time, may help indicate whether your activities are likely to be effective. An example might be:

- in a riparian forest planting project, data on tree survivorship could indicate whether the overall reforestation effort would have an impact on forest bird populations in the longer term (from The Heinz Center, 2009).

Applicants could also consider submitting a proposal after the original HCTF project is completed to determine the actual end results of that original project, e.g., Five years after developing and posting BMPs on the government website, how many people are actually using them?

For point 2, you might consider using proxy or indirect measures of success that could provide information on the outcomes of your actions. Some examples of proxy indicators are:

- one outcome of the Young Naturalists Club (YNC) is "ongoing participation in nature activities". A proxy measure of success for that outcome could be " # of past YNC members who join an adult nature club"⁴.
- an outcome of a grassland project is increased grassland bird populations. If for some reason, the bird population could not be measured directly, a proxy measure could be to measure the percentage of open grassland created by the vegetation management activities.⁵

Table 4 provides some examples of measures of success for process and for short-, medium- and long-term Outcome components of projects.

⁴ K. Webber. 2014. Pers.comm.

⁵ from The Heinz Center (2009)

Table 4. Some measures of success for Stewardship projects.

Process or Implementation Measures	Desired Outcome Measures		
	Short-term	Medium-term	Long-term
<ul style="list-style-type: none"> • # brochures / newsletters completed • # workshops held • # participants / volunteers • Website developed / # of hits • # meetings attended • # manuals/guidelines/BMPs completed • Hectares secured • # landowners contacts • # one-on-one contacts in community • Level of participants' satisfaction 	<ul style="list-style-type: none"> • Indications of behaviour change, e.g., # of participants who adopted BMPs to reduce their footprint on the land. • Indications of increased knowledge and awareness of issue, e.g., percent or number change in target audience able to explain the problem and identify a possible solution • Skills acquired, e.g., # of participants who use the knowledge and skills gained through the project to modify their actions, teach others or volunteer in their community. • Changes in attitudes and aspirations, e.g., # of participants who indicate they would modify their actions as a result of the project 	<ul style="list-style-type: none"> • Changes in decisions, policies, social actions, e.g., fish population large enough to support recreational angling; use of documents produced by project in developing public policy. • Levels of knowledge, e.g., Percent or number change in the target audience that demonstrates support for the specific initiative, or regulation • Changes in practice, e.g., # of farmers who have implemented or continue using Environmental Farm Plans • Degree of implementation, e.g., Area of habitat in which management or restoration actions have been implemented through project activities • Changes in attitudes and aspirations 	<ul style="list-style-type: none"> • Overall impact of the project - the end result, e.g., mortality of badgers from highway traffic reduced by 75%; 80% of critical caribou habitat protected through acquisition or secured through conservation covenants or improved stewardship practices;

2.4 Further Considerations

Citizen Science

Another aspect of stewardship is the use of citizen science where volunteers partner with scientists to answer real-world questions. There are increasing degrees of public participation in scientific projects (Figure 2)⁶:

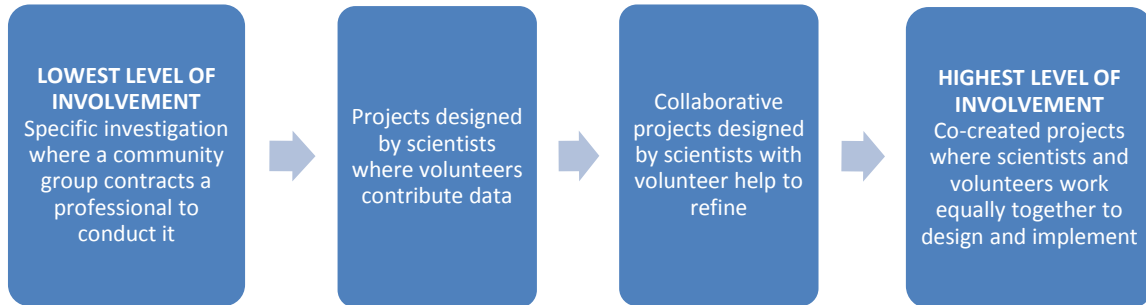


Figure 2. Degrees of public participation in scientific research

To whatever degree volunteers are involved in the citizen science aspect of a stewardship project, HCTF expects applicants to describe:

- under the **Activities** section
 - the methods used to collect data,
 - methods for quality assurance of the data, and
 - methods and rigor of data analysis , and,
- under the **Communications / Outreach** section,
 - methods for communicating results to participants, the local community, resource managers and the greater scientific community, as applicable.

Multi-Partnered Projects

For larger projects with many funding partners, applicants should clearly describe in the proposal the subcomponents/ objectives where HCTF funds will be applied and develop clear measures of success for those subcomponents. Reviewers like to see the "big picture" but need to know where HCTF funds are going and that effectiveness of the activities funded by HCTF can be measured.

Reporting on Projects

HCTF requires that successful applicants report on the results of their projects annually and, for multi-year projects, at the completion of the project for all years. Clear objectives, outcomes and measures of success developed at the proposal stage will help applicants report out their results and help HCTF gauge the effectiveness of their conservation funding.

⁶ adapted from Shirk et al. 2012; see also Pocock et al. 2014

2.5. Checklist for the HCTF Application Form

(NOTE: this list will help reviewers determine the effectiveness of your project. It is **NOT** a complete list of requirements for the HCTF application. Please check online for additional application instructions at: <http://www.hctf.ca/application-guide>)

	Have you:	<i>Applicable Section of HCTF Application</i>
<input type="checkbox"/>	Clearly described the current situation and why this project is needed?	<i>Issue</i>
<input type="checkbox"/>	Described the baseline, the starting point for the project?	<i>Issue</i>
<input type="checkbox"/>	Provided context for the area chosen to study - how was priority determined?	<i>Issue</i>
<input type="checkbox"/>	Described the target audience?	<i>Issue</i>
<input type="checkbox"/>	Developed project outcomes (desired future state)?	<i>Issue</i>
<input type="checkbox"/>	Developed measurable objectives for both the implementation component and the outcomes?	<i>Project Objectives</i>
<input type="checkbox"/>	Explained any changes or adaptations to the original proposal (for multi-year projects)?	<i>Project Objectives, and/or Summary of Activities, Activities by Objectives</i>
<input type="checkbox"/>	Developed measures of success for both the implementation component and the outcomes?	<i>Measures of Success</i>
<input type="checkbox"/>	Described methods used to measure success?	<i>Summary of Activities, Activities by Objective</i>
<input type="checkbox"/>	Described activities and methods to achieve the objectives?	<i>Summary of Activities, Activities by Objective</i>
<input type="checkbox"/>	Developed and described an engagement strategy for key stakeholders and target audience?	<i>Summary of Activities, Activities by Objective</i>
<input type="checkbox"/>	Described any information products that will be developed and provided details on why they are needed and the gaps they will fill?	<i>Summary of Activities, Activities by Objective, Communication / Outreach</i>
<input type="checkbox"/>	Described your communications plan on how you intend to distribute any information products and / or extend the results of the project to the community?	<i>Communication / Outreach</i>

Appendix A. Glossary

Inputs:

What goes into the program: the resources and contributions that are invested, e.g., staff, money, time, equipment, partnerships, facilities and base research

Outputs:

What you do and whom you reach; direct *products* of program activities and are an indication of project *effort*. Outputs can be: activities that you do, people you are trying to reach, products or services you provide.

Outcomes:

Measurable changes or benefits that result from program activities. The desired future state of a threat or opportunity factor. Outcomes measure how people and the environment are impacted by your project.

Objective:

A formal statement of an outcome.

Measures of Success:

Specific items of data that are tracked to measure how well the project is achieving the outcomes. Can also be called indicators or performance measures.

Impact:

The desired future state of the ecosystem/habitat/species/population (biological change) or of human behaviour towards the environment as a result of the project

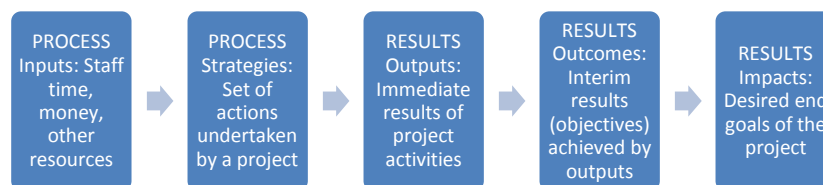
Result:

A generic term used to describe the desired future state of a target or factor. Includes impacts, outcomes and outputs.

Strategies:

The actions that a project implements

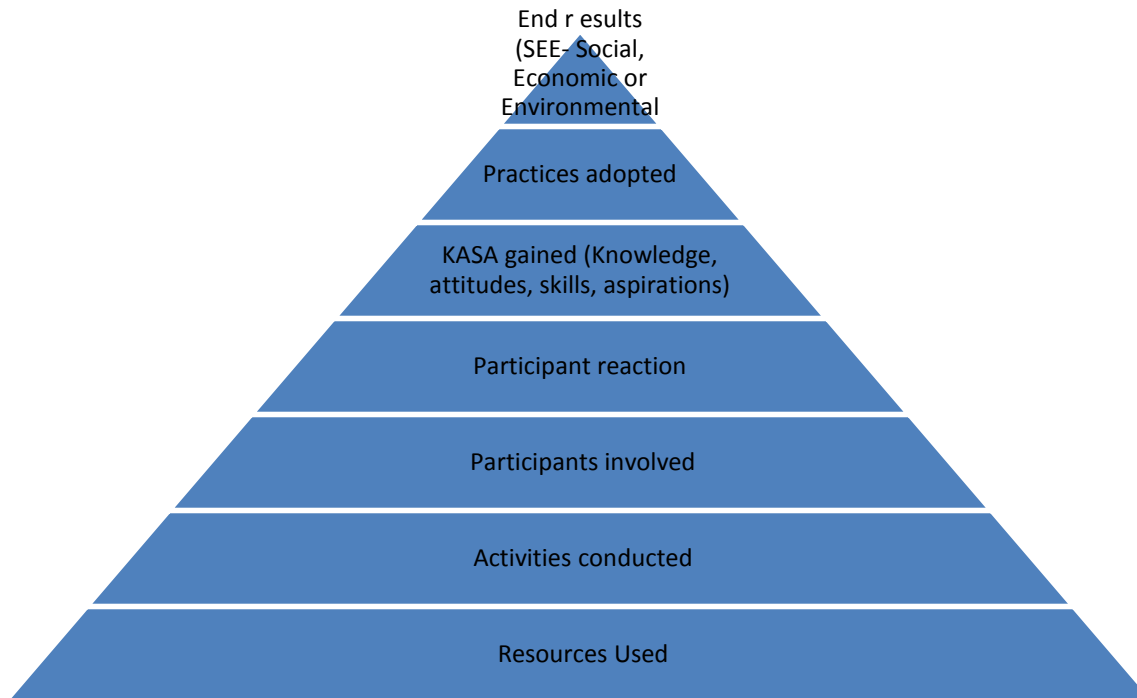
Note: There is frequently confusion over the different terms used to describe the results of a project. They can be “outcomes,” “results,” or “impacts.” The following figure shows the terms as they are most commonly used by evaluation experts in different fields such as development and public health, as well as in the conservation sector ⁷.



⁷ from WWF 2012

Appendix B. Characteristics of the Bennett Hierarchy Seven Levels⁸

FORREX⁹ in BC has been promoting Bennett's hierarchy for resource management projects and species at risk recovery planning and implementation for many years. The ultimate outcome is to improve social, economic or environmental conditions (top of the pyramid).



Description of the Levels

Level 1: SEE represents Social, Economic and Environmental conditions (or situations) that may need improvement. SEE outcomes are the end results.

Level 2: Practices are patterns of behaviours, procedures, or actions that influence SEE conditions. Through educational / stewardship programs, individuals, groups, organizations and communities adopt practices and technologies that achieve needed SEE outcomes. These practices are adopted as program participants apply relevant knowledge, attitudes, skills and aspirations (KASA).

Level 3: KASA refers to Knowledge, Attitude, Skills and Aspirations that influence the adoption of selected practices and technologies to help achieve targeted SEE outcomes. Knowledge gain pertains to learned information or accepted advice; it also includes comprehending SEE principles, and comprehending individual and group decision-making processes. Attitude focuses on individuals' beliefs, opinions, feelings, or perspectives. Skills refer to individuals' mental and physical abilities to use new or alternative practices. And, Aspirations refer to ambitions, hopes, objectives or desires. Changes in KASA can occur when people react positively to their involvement in program activities.

⁸ from Rockwell and Bennett 2004

⁹ Suvedj, M. and S. Morford. 2003

Level 4: Reactions reflect participants' degree of positive or negative interest in topics addressed, their acceptance of activity leaders, and their attraction to the educational methods. Delivering relevant, research-based subject matter can help hold clientele interest.

Level 5: Program participants include individuals, families, groups, organizations, or communities. Participants must be sufficiently involved in program activities to acquire KASA and adopt practices needed to improve SEE conditions. Duration, continuity, frequency and intensity of program participation all contribute to amount of KASA change.

Level 6: Activities are the various educational strategies and events used to inform, educate or train target audiences. They range from direct personal contacts to indirect technological or mass media approaches. Program activities are determined by requirements to obtain positive reactions from participants as well as other factors needed to achieve desired changes in KASA and practices. Program activities are supported by program resources.

Level 7: Resources are time, money, and staff (including volunteers) used to plan, promote, implement and evaluate programs. Resources also include research-based educational materials, organizational maintenance, communication technologies and transportation.

Appendix C. Resources for improved Stewardship proposals:

- Backstrom, Lars, D. Huttenlocher, et al., 2006. Group Formation in Large Social Networks: Membership, Growth and Evolution. Retrieved from:
<http://wiki.cs.columbia.edu/download/attachments/1979/Group+Formation+in+Large+Social+Networks-backstrom.pdf> (Journal of Social Science Research, Vol. 3, 25, 322. August 2006. Philadelphia, PA)
- Bennett, Claude. 1975. Up the Hierarchy. *Journal of Extension* (March/April): 7-12.
- Blanchard, K. 2012. Improving the practice of stewardship: an introduction to evaluation. A handbook for stewardship practitioners. Intervale Assoc. Gov of Canada.
- Brossard, Dominique, B. Lewenstein, and R. Bonney. 2005. Scientific knowledge and attitude change: The impact of a citizen science project. *International Journal of Science Education* 27(9): 1099–1121
- Conservation Measures Partnership. 2012. Addressing Social Results and Human Wellbeing Targets in Conservation Projects. Guidance Version: 2012-06-27. Retrieved from:
<http://www.fosonline.org/wordpress/wp-content/uploads/2014/05/Guidance-on-HWT-and-Social-Results-in-Conservation-Projects-v2012-06-27.pdf>
- Coyne, K. and P. Cox. Splash and Ripple: A Canadian Heritage Guide to Using Outcomes to Design and Manage Community Activities. Calgary: Calgary and Strathcona Research Group, 2004. Available from the Department of Canadian Heritage.
- Day-Miller, E.A. and J.O. Easton. 2009. Designing education projects. A comprehensive approach to needs assessment, project planning and implementation, and evaluation. National Oceanic and Atmospheric Administration, Dept of Commerce. 2nd ed. Retrieved from:
http://www.oesd.noaa.gov/leadership/DEP_Manual_2ndEdt_Final.pdf
- Dovetail Consulting. 1995. Community stewardship: A guide to establishing your own group. Stewardship Series. Fraser Basin Management Program, Environment Canada, Province of BC. 80pp.
- Environment Canada webpage: Home>Funding>Helpful Tools>Writing SMART objectives.
<https://www.ec.gc.ca/financement-funding/>
- Environmental Resources Center. Changing Public Behavior. Increasing Citizen Involvement Using Target Audience Information. University of Wisconsin. Bibliography:
<http://wateroutreach.uwex.edu/documents/CPBAAllReferences.pdf>
- Foundations of Success. 2007. Using results chains to improve strategy effectiveness: An FOS How-To Guide Retrieved from: http://www.fosonline.org/wordpress/wp-content/uploads/2010/09/FOS_Results_Chain_Guide_2007-05.pdf

- Foundations of Success. 2009. Conceptualizing and Planning Conservation Projects and Programs: A Training Manual. Foundations of Success, Bethesda, Maryland, USA
- Fullan, Michael. 2001. The New Meaning of Educational Change. Teachers College Press, Columbia University, NY and Routledge Falmer, London.
- Harder, A. 2009. Using the TOP model to measure program performance: A pocket reference. University of Florida, Institute of Food and Agricultural Sciences. WC092. Retrieved from: <https://edis.ifas.ufl.edu/pdffiles/WC/WC09200.pdf>
- Industrial Economics, Inc. 2007. Measuring and Evaluating Stewardship and Innovation Programs. Prepared for: U.S. Environmental Protection Agency's (EPA) National Center for Environmental Innovation. Retrieved from: <http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100706U.PDF>
- Irwin, Allan. 2002. Citizen Science. A Study of People, Expertise and Sustainable Development. Routledge Press
- Jayaratne, K.S.U. 2010. Practical Application of Aspiration as an Outcome Indicator in Extension Evaluation. Journal of Extension 48(2). Retrieved from: <http://www.joe.org/joe/2010april/tt1.php>
- Kapos, V. et al. 2009. Outcomes, not implementation, predict conservation success. Oryx 43: 336-342.
- McKenzie-Mohr, D. and W. Smith. 1999. Fostering Sustainable Behaviour: An Introduction to Community Based Social Marketing. Available from: <http://www.cbsm.com/pages/guide/fostering-sustainable-behavior>
- NSW Environmental Trust. 2011. What makes a good objective? Retrieved from: <http://www.environment.nsw.gov.au/resources/grants/11846MEgoodob.pdf>
- Office of Education and Sustainable Development. Designing Evaluation for Education Projects. NOAA, Appendix B. Developing Logic Models: <http://wateroutreach.uwex.edu/use/documents/NOAAEvalmanualFINAL.pdf>
- Pocock, M.J.O., D.S. Chapman, L.J. Sheppard, and H.E. Roy. 2014. A Strategic Framework to Support the Implementation of Citizen Science for Environmental Monitoring. Final Report to the Scottish Environment Protection Agency, Centre for Ecology & Hydrology, Wallingford, Oxfordshire. Available at: <http://www.ceh.ac.uk/products/publications/understandng-citizen-science.html>
- Pocock, M.J.O., D.S. Chapman, L.J. Sheppard, and H.E. Roy. 2014. Choosing and Using Citizen Science: a guide to when and how to use citizen science to monitor biodiversity and environment. Scottish Environment Protection Agency, Centre for Ecology & Hydrology, Wallingford, Oxfordshire. Available at: <http://www.ceh.ac.uk/products/publications/understandng-citizen-science.html>
- Recreation Boating and Fishing Foundation. 2010. Best Practices Workbook for Boating, Fishing and Aquatic Resources Stewardship Education. Retrieved from: http://takemefishing.org/downloads/About_section/Best-Practices-Workbook-FINAL_2010.pdf

- Recreation Boating and Fishing Foundation. 2011. Best Practices Guide to Program Evaluation for Aquatic Educators. Retrieved from: http://takemefishing.org/downloads/About_section/BP-Evaluation-guide_3-2011.pdf
- Rockwell, K. and C. Bennett. 2004. Targeting Outcomes of Programs: A Hierarchy for Targeting Outcomes and Evaluating Their Achievement. *Faculty Publications: Agricultural Leadership, Education & Communication Department*. Paper 48. Retrieved from: <http://digitalcommons.unl.edu/aglecfacpub/48>
- Russ, A., ed. 2014. Measuring Environmental Education Outcomes. Washington, DC: North American Association for Environmental Education. Available at: <http://www.naaee.net/sites/default/files/publications/MEEO-2014.pdf>
- Shirk, J.L., H.L. Ballard, et al. 2012. Public participation in scientific research: a framework for deliberate design. *Ecology and Society* 17(2): 29-48. Downloaded from: <http://www.ecologyandsociety.org/vol17/iss2/art29/>
- Suvedi, M., and S. Moreford. 2003. Conducting program and project evaluations: A Primer for Natural Resource Program Managers in British Columbia. FORREX Series 6. Available from: http://www.forrex.org/forrex_series/forrex-series-6
- Suvedi, M., K. Heinze, and D. Ruonavaara. 1999. How to Conduct Evaluation of Extension Programs. Michigan State University Extension. Retrieved from: https://www.msu.edu/~suvedi/Resources/Documents/4_1_Evaluation%20manual%202000.pdf
- Taylor-Powell, E. Water Quality Program Logic Model. University of Wisconsin - Extension: <http://www.uwex.edu/ces/pdande/evaluation/pdf/WaterQualityProgram.pdf>
- Taylor-Powell, E. and E. Henert. 2008. Developing a logic model: teaching and training guide. University of Wisconsin - Extension: <http://www.uwex.edu/ces/pdande/evaluation/pdf/lmguidecomplete.pdf>
- The Heinz Center. 2009. Measuring the Results of Wildlife Conservation Activities. The H. John Heinz III Center for Science, Economics and the Environment, Washington, DC, 122pp. Available at: <http://www.heinzctrinfo.net/wildlife/wordpress/wp-content/uploads/2010/10/FINAL-Measuring-Wildlife-Cover+-Text.pdf>
- The Nature Conservancy. 2007. Conservation Action Planning Handbook: Developing Strategies, Taking Action and Measuring Success at Any Scale. The Nature Conservancy, Arlington, VA. Retrieved from: <http://www.conservationgateway.org/Files/Pages/action-planning-cap-handb.aspx>
- Thomson, G., J. Hoffmann, and S. Staniforth. 2005. Measuring the Success of Environmental Education Programs. Canadian Parks and Wilderness Society and Sierra Club of Canada, BC Chapter. 72pp. Revised 2010 version available at: http://abcee.org/cms/wp-content/uploads/2010/10/Measuring_the_Success_Sept_7_2010-1.pdf
- WWF. 2012. WWF Standards of Conservation. Project and Program Management. Overview retrieved from: http://awsassets.panda.org/downloads/0_0_wwf_standards_overview_2012_10_19.pdf