



Key Considerations from Primer

The program must play an essential role to report on this measure. An essential role is one that would be described by stakeholders and partners as essential for the project's ultimate success.

When a program has a non-essential role, describe the project's impacts or accomplishments in narrative form for the annual report but do not include these the performance measures and metrics.

- ▶ Not everything needs a number
- ▶ Count what you can count
- ▶ Sometimes a story is best
- ▶ If it's too complicated, report it as an Impact or Accomplishment
- ▶ Do not seek out nor shy away from large numbers. Larger benefits are ok but should be reviewed with added rigor
- ▶ Do not use multipliers
- ▶ Include citations in reporting to enhance clarity, defensibility, and transparency.

Increased Human Health and Safety

Sea Grant programs across the country conduct a range of activities that increase the safety of the communities they serve. Some examples of these activities include riptide outreach; hazard monitoring, forecasting, and warning systems (e.g., tsunami, sea level rise, storm surge); and harmful algal bloom (HAB) monitoring, mitigation, and outreach. This guide is a bit different from the standard Sea Grant methodology guides and takes a different approach with valuation options for these activities. Human health and safety are complex to value, so this guide focuses on helping programs understand the types of data they can collect now to better position their programs to work with experts on valuation efforts in the future, and it discusses some alternative strategies for these activities. This guide does present a scenario in which programs can conduct valuation if they have sufficient data, but the primary focus of this document is to help programs prepare for future valuation efforts involving experts (e.g., economists, social scientists).

This guide serves three primary purposes:

- 1 Help programs identify certain types of increased safety projects that also generate other easier-to-value benefits.** Some program activities might be intended to increase safety but also generate other economic benefits that are easier to value, including increased revenues or cost savings for businesses or aquaculture operations, job support, or support to help a community earn Federal Emergency Management Agency (FEMA) Community Rating System (CRS) points toward reducing insurance premiums. Programs can use existing valuation resources available on the [Inside Sea Grant webpage](#) to capture a portion of the other economic benefits their project generated and can qualitatively describe how their program's activity also increased safety.
- 2 Help programs communicate benefits qualitatively.** Programs can use a value chain (described in the value chain section) to tell a clear, compelling, and well-crafted story about how they increased safety and submit the story as an impact statement. While crafting impact statements, programs should follow the guiding principle, "count what you can count," to quantify (not monetize) parts of their story if possible.
- 3 Inform data and expertise needs to support future valuation of increased safety and whether conducting valuation is feasible without experts.** If valuation is not feasible at this time (i.e., cannot access expertise or do not have sufficient data), this document provides insight on data collection to support future valuation efforts. Data must be collected at the front end of a project and/or program for valuation to be possible. Note, there is a scenario in Method 2 in which programs can conduct valuation, without an economist, if they have sufficient data.

Examples

Here are some modified examples of increased safety activities reported to Sea Grant's Planning, Implementation, and Evaluation Resources (PIER)¹ database. For each example, we provide our thoughts on what the Sea Grant program did well, what could be improved, what data would be needed for valuation, and—when appropriate—which valuation methodology guide to use to capture a portion of the value. For each example, we also provide information on the data needed to implement Methods 1 and 2, which are detailed in the "Recommended Methodology and Best Practices" section of this document.

Planning, Policy, Coordination, Building Codes, and Regulatory Activities

- 1 HABs pose substantial threats to aquatic environments and humans who swim in or consume fish from contaminated waters. Sea Grant supported research and provided technical assistance that helped a municipality develop regulations and monitoring protocols to protect human health and safety from HABs and reopen a previously contaminated body of water that the community relied on for food and recreation.
- ✓ Sea Grant clearly states its role and the measurable change, the reopening of the body of water.
 - ✗ This story would be more compelling if Sea Grant included the number of people that use the water for recreation and the approximate amount of fish they catch and/or consume from the body of water each year.

The above example illustrates the use of qualitative information to describe Sea Grant's value. Below, we present two methods for monetizing this benefit along with the data and expertise needed to do so.

Method 1: Implement Willingness-to-Pay Survey — Data Needs

The survey results, combined with the other data below, would allow programs and economists to apply consumers'/ users' willingness-to-pay values for healthier fish and safer swimming conditions to the impacted population. **The survey's development and implementation should include the input of an economist.**

Other data needs include the:

- Number of people who consume fish from the body of water.
- Number of people who swim in the body of water.

Method 2: Model Change to Baseline — Data Needs

Collect baseline data before the Sea Grant activity by:

- Determining the number of people who became ill or were injured because of contaminated water.
- Determining the approximate cost of each illness or injury (e.g., the cost of a hospital visit).
- Multiplying these values to sum up the overall losses.

Collect data after the Sea Grant activity by:

- Determining the number of people who became ill or were injured because of contaminated water after Sea Grant intervention.
- Determining the approximate cost of each illness or injury (e.g., the cost of a hospital visit) after Sea Grant intervention.
- Multiplying these values to sum up the overall losses after Sea Grant intervention, and comparing this to the baseline to estimate the benefit (i.e., change from baseline).

Sea Grant could also capture other, easier-to-value, revenue and cost-savings benefits from this activity by using the [Aquaculture Revenue and Cost Savings](#) guide.

Project Implementation

- 2 Through Sea Grant's collaboration with the local Water Safety Consortium, a municipality freely obtained eight "dangerous current" warning signs to inform the public of the hazard at four community beaches. These signs would have cost the city \$83.26 each if Sea Grant was not involved. Total savings: 8 signs x \$83.26 = \$666.08.
- ✓ Sea Grant told a clear story and presented a straightforward cost-savings calculation.
- ✗ This story would have been more compelling if Sea Grant explicitly stated how its collaboration with the local Water Safety Consortium resulted in the municipality getting current warning signs for free. For example, did Sea Grant make these signs or help to identify the beaches where they were posted?

The above example illustrates an easier-to-value benefit approach by highlighting Sea Grant's value in terms of cost savings to the municipality. Below, we present two methods for monetizing the increase in human safety along with the data and expertise needed to do so.

Method 1: Implement Willingness-to-Pay Survey — Data Needs

These results, combined with the other data, would allow programs and economists to apply beachgoer willingness-to-pay values for the information that the eight dangerous current signs convey to the impacted population. **The survey's development and implementation should include the input of an economist.**

Other data needs include the number of beachgoers across the four community beaches.

Method 2: Model Change to Baseline — Data Needs

Collect baseline data before the Sea Grant activity by:

- Determining the number of people who were injured or died because of water hazards (perhaps an average over several years).
- Determining the approximate cost of each injury (e.g., the cost of a hospital visit). We do not recommend valuing deaths.
- Multiplying these values to estimate the overall losses from injuries.

Collect data after the Sea Grant activity by:

- Determining the number of people who were injured or died because of water hazards after Sea Grant intervention.
- Determining the approximate cost of each injury (e.g., the cost of a hospital visit) after Sea Grant intervention. We do not recommend valuing deaths.
- Multiplying these values to estimate the overall losses after Sea Grant intervention, and comparing this to the baseline to estimate the benefit (i.e., the change from baseline).

Outreach and Education

- 3 Sea Grant created a hazard safety page on its website to help people better understand the risks of coastal hazards. The webpage also provides best practices to stay safe during a variety of hazard events, as well as maps to elevated or high-land safe spots and evacuation routes. On average, 164 people per day visit the webpage.
- ✓ Sea Grant's role is well documented, and Sea Grant followed the National Sea Grant Office's guiding principle, "count what you can count," by incorporating the webpage visitors per day to tell a compelling story.
- ✗ It would have been even more compelling if Sea Grant explained how it developed the best practices (e.g., did Sea Grant develop the webpage alone or work collaboratively with other entities, stakeholders, communities?). Additionally, including a calculation of total annual webpage visitors would illustrate an estimate of the resource's annual reach.

The above example illustrates an approach for using qualitative and quantitative information (count what you can count) to describe Sea Grant's value without monetizing the benefit. Below, we present two methods with considerations for programs to weigh before pursuing each.

Method 1: Implement Willingness-to-Pay Survey — Data Needs

These results, combined with the other data, would allow programs and economists to apply website visitors' willingness-to-pay values for the safety information on the Sea Grant webpage to the impacted population. The survey's development and its implementation should include the input of an economist.

Other data needs include the number of website visitors to the coastal hazard safety and risk webpage.

Method 2: Model Change to Baseline — Data Needs

Unlike the two examples above, where this was a more feasible method, it would be very challenging to model any baseline difference here because there are so many confounding factors in how people in a general population stay safe. Because users are dispersed in the general public, and the general public gets a lot more information about safety that might not be related to the Sea Grant activity, it would be difficult to measure a baseline and change.

Sea Grant could also capture other, easier-to-value, capacity-building benefits from this activity by using Method 2 in the [Capacity Building](#) guide.

Present Your Story as a Value Chain

Value chains illustrate the sequence of events or activities that result in an economic impact or benefit. Consider developing a value chain diagram to help you tell a compelling and defensible story about how your Sea Grant program, product, or service generated a measurable result.



Let's use some examples to illustrate how to create and use a value chain. In the example below, we qualitatively describe the increased human health and safety benefit and quantitatively value what we can using the [General Revenue and Cost Savings](#) guide.

Sea Grant [*the program/product/service*] established a HAB monitoring program [*what was done to get benefit*] for an aquaculture operation to ensure the fish were safe for humans to eat [*what was affected*]. A secondary benefit of this effort was that the aquaculture operation was able to reduce the number of closure days [*measurable change 1*] due to HABs per year, increasing the revenue of the business by approximately \$40,000, with almost 5,000 pounds of fish sold. Additionally, by establishing the HAB monitoring program, Sea Grant eliminated the business' need to make this monitoring investment on its own [*measurable change 2*], saving the business \$10,000. Though the purpose of this program was to increase human health and safety, its secondary revenue and cost-savings benefits are approximately \$50,000 [*societal benefit*].



Recommended Methodology and Best Practices



Importantly, you should first determine what resources are available to your program to conduct these analyses. Do you have access to an economist? Can you conduct defensible modeling to estimate the reduction in injuries, illnesses, and deaths? If you do not have the resources to invest in either of these methods, we recommend using Sea Grant's [suite of valuation resources](#) to try to parse out other, easier-to-value benefits or qualitatively describing your benefits in a well-crafted impact statement using a value chain.

Programs can use two primary methods to value increased safety: 1) With an economist, design and implement a willingness-to-pay survey. **We do not recommend designing or implementing a willingness-to-pay survey without the help of an economist.** 2) Model the reduction in injuries, illnesses, and deaths; put a dollar value on the reduced injuries and illnesses; and state the number of reduced deaths. **We do not recommend putting a dollar value on human life or reduced deaths.** Modeling the reduction in injuries, illnesses, and deaths can be very resource-intensive and requires a range of modeling expertise that might not be feasible. If this is the case, programs can qualitatively tell their story in a meaningful, well-crafted impact statement. The methods described in this section expand on the briefer, more tailored methods provided in the "Examples" section above.

Method 1: Willingness-to-Pay Survey for Increased Human Health and Safety Study

One strategy to value increased safety is to implement a willingness-to-pay survey for the modeled increase in safety or protection. Willingness-to-pay surveys and increased safety studies are complex, requiring an experienced team of social scientists and economists to develop a detailed survey mechanism and to model/determine the population for which a Sea Grant activity increased safety and health. We have added more context about willingness-to-pay surveys in the Sea Grant Econ 101 guide.

Data needs:

- Modeling of the baseline safety and the measurable change (i.e., the increase in safety as a result of Sea Grant's actions). This likely requires a team of social scientists, economists, and other experts depending on the activity conducted to increase human health and/or safety.
- Estimate of the number of people that Sea Grant's increased human health and/or safety activity affects. A team of social scientists, economists, and other experts would have to model or estimate this number depending on the activity
- A willingness-to-pay survey designed and implemented by an economist. Example questions include:
 - Are members of this population (sample) willing to pay \$X per year for this increased safety?
 - Are members of this population (sample) willing to pay \$Y (different dollar amount than above) per year for increased safety?

- What is the maximum dollar amount per year that members of this population are willing to spend for increased safety?
- What is the minimum dollar amount per year that members of this population are willing to spend for increased safety?

Method 2: Modeling Reduction in Injuries, Illnesses, and Deaths

Another strategy to value increased safety is to model the reduction in injuries, illnesses, and deaths as a result of Sea Grant's activity. Programs can then apply dollar values to the reduction of injuries and illnesses, but we recommend simply stating the number of reduced deaths without applying a dollar value to human life. Monetizing the value of human life invites scrutiny, as some do not find it appropriate to put a dollar value on human life.

Valuing Increased Human Health and/or Safety

Programs can move forward and conduct valuation using the data needs and processes below if they can credibly and defensibly estimate the change to the baseline after Sea Grant intervention, and the necessary data are available. To do this, estimate the change to the baseline (change in number of illnesses or injuries) caused by Sea Grant intervention and multiply by the value of healthcare for the illness or injury. Using this method, the value of Sea Grant's intervention is the avoided healthcare costs of reduced illnesses and/or injuries.

Data needs:

- Baseline estimate of the number of illnesses, injuries, and/or fatalities expected without Sea Grant intervention. A team of social scientists, economists, and other experts would have to model or estimate this number depending on the activity conducted to increase human health and/or safety and based on the population of the modeled affected area.
- Estimate of the decreased number of illnesses, injuries, and/or fatalities expected with Sea Grant intervention. A team of social scientists, economists, and other experts would have to model or estimate this number depending on the activity conducted to increase human health and/or safety and based on the population of the modeled affected area.
- The loss associated with an illness or injury (**we do not recommend that you monetize the reduced number of fatalities**). We can sometimes calculate the benefit of avoided illnesses and injuries by determining avoided costs from hospital visits or other illness-related costs, or by conducting other studies that would value the associated disease or injury. You should research and identify literature containing data that will best represent the illness or injury most relevant to you. Some examples of what these data might look like include:
 - The average emergency room trip cost \$1,389 per visit in 2017.²
 - The annual costs associated with asthma are estimated to be \$3,000 per patient.³

Tools for Implementation

The Inside Sea Grant: Resources for the Sea Grant Network webpage contains Sea Grant's existing suite of valuation methodology guides. These guides can be used to parse out other, easier-to-value benefits to capture a portion of Sea Grant's increased safety activities.

For the Method 2 data needs, consider the following starting points when trying to identify data:

- Data on the number of illnesses, injuries, and/or fatalities might be available through local or state health-related databases or through departments/boards of health.
- Data on hospital costs per visit and/or recurring illness-specific costs might be available in literature or via state agencies.

² <https://www.debt.org/medical/emergency-room-urgent-care-costs/>

³ <http://www.globalasthma-report.org/burden/economic.php>