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.

Business Continuity

Sea Grant programs conduct a wide range of activities to help businesses and communities plan for and establish procedures to recover faster from business disruptions and mitigate losses. This data needs document focuses on business disruptions and losses because many Sea Grant programs work to reduce the time businesses are "out of commission" following a hazard event, and because the speed of recovery indicates overall economic health. Furthermore, assessing Sea Grant's effect on business disruption and downtime requires a relatively lower level of effort, and it is relatively easier to access data on businesses than it is to assess shortened downtime or improved recovery for areas like housing, the environment, transportation, etc. Examples of Sea Grant activities that promote business continuity include making waterfronts less prone to interruption by flood damage, diversifying marine industries to prevent future job loss from climate change, and ensuring businesses can continue to sell their products when supply chains break during major hazards.

The value of the Sea Grant activity can be calculated by comparing what the lost revenue or wages might be in the absence of Sea Grant intervention (i.e., the baseline loss) to those after Sea Grant intervention (i.e., some reduction in that baseline loss). In some cases, this method can be relatively straightforward to calculate, though some foresight is needed to capture baseline data prior to a hazard event. In other cases, these valuations can require a variety of expertise and a high level of resources.

This guide serves two primary purposes:

1. **Identify business continuity activities that are easier to value.** Easier-to-value activities include business continuity activities for past hazards that have reliable, available, and historical data to clearly define baseline impacts. These historical events will often but not always fall under the easier-to-value category and can be valued using the methodology outlined in the "Recommended Methodology and Best Practices" section below. For these activities, the "Examples" section of this guide provides guidance on how to use existing resources on the Inside Sea Grant webpage to characterize and communicate the economic impacts and benefits of Sea Grant program activities, such as the General Revenue and Cost Savings, Jobs and Businesses, Workshops and Trainings, and Aquaculture Revenue and Cost Savings guides.
2. **Identify business continuity activities that are harder to value.** With harder-to-value business continuity activities, we do not necessarily have a strong understanding of the baseline impacts of various future hazard events on businesses, nor do we necessarily have a strong understanding of how those impacts would decrease as a result of Sea Grant intervention. Additionally, these impacts vary based on the size of the hazard, adding complexity regarding the probability of hazard events of a given size; it is very difficult to estimate these impacts for forward-looking business continuity projects. For harder-to-value activities, see the "Data Needs to Support Future Valuation Efforts"section to learn more about the types of data (e.g., data to help define a baseline) that you might need to support future valuation efforts.

Examples

This section presents four hypothetical examples of Sea Grant activities that would promote business continuity and prevent losses. Each example includes a path forward that outlines how to potentially capture impacts, as well as how to qualitatively communicate these impacts using a value chain.

In addition to valuing the reduced business downtime and mitigated losses, if any Sea Grant activities also reduce damage to buildings or infrastructure, use the Damage Reduction from Flooding guide to **also** quantify that benefit (these are different benefits and would not be double counting).

Business Continuity and Loss Prevention

1. Sea Grant taught lobstermen about how rising ocean temperatures and increased ocean acidification can impact lobster migration and helped them plan and prepare for the impact these changing ocean conditions can have on their businesses. Sea Grant also trained the lobstermen in other job skills (e.g., fishing for other species, using equipment to process other fisherman's catch, holding chartered boat tours) to help them diversify their income. As a result of Sea Grant's efforts, lobstermen should have fewer days out of commission because Sea Grant's actions have helped them understand the need for income diversification and increased their economic resiliency to the impact of these ocean changes on the lobster industry.

   Additionally, lobstermen had a higher likelihood for continuity of work and income because Sea Grant helped them diversify their skills and income opportunities. In the past year, 10 lobstermen each earned $25,000 less in lobstering income due to ocean conditions and fishery impacts. However, Sea Grant provided skills to help them diversify their income, and they each earned $30,000 from non-lobstering activities on days that they could not go lobstering. Without Sea Grant's help to diversify their skills and income, these 10 lobstermen would have each earned $25,000 less due to fewer days lobstering and would not have been able to recoup their lost income.

   - **Easier- or harder-to-value activity?** In this case, we have data that allowed us to estimate the **baseline** income of these 10 lobstermen impacted by ocean conditions/warming waters (i.e., $25,000 of lost lobstering income) on days that they could not go lobstering. We can compare that baseline to the revenue gained from Sea Grant's intervention, which resulted in diversified skills and income opportunities on days that they could not go lobstering ($30,000). This is an **easier-to-value** activity because we can credibly estimate the baseline case and resulting new income related to Sea Grant intervention. Use the methodology in the "Recommended Methodology and Best Practices" section of this guide to estimate impacts like this.

2. Sea Grant funded research that led to an engineering solution to stabilize and make beach access more consistent for a local beach community. Before Sea Grant intervention, access to beach-area businesses closed for about 14 days per year due to "sunny day" flooding. In the year since Sea Grant intervened, this access was only cut off for four days due to "sunny day" flooding, as the engineering solution enabled access during flood events. As a result of Sea Grant's investment, three beach-based businesses (two sporting goods/rental businesses and one restaurant) gained 10 (14-4) days of additional revenue.

   - **Easier- or harder-to-value activity?** In this case, we established a baseline using historical data and saw a clear improvement after the project. We can use the 10-day benefit period (baseline closure days minus closure days after Sea Grant intervention) to estimate the increase in revenue for the three businesses after Sea Grant's intervention. This is an **easier-to-value** activity because we can easily and clearly establish a baseline from the historical data. Use the methodology in the "Recommended Methodology and Best Practices" section of this guide to estimate impacts like this.

3. Sea Grant helped support an aquaculture operation that lost buyers due to a hazard and whose revenue fell to $10,000 in the month immediately after the hazard. Sea Grant intervened and facilitated aquaculture sales by connecting the operation directly to vendors in need of supply. As a result of Sea Grant's efforts, the aquaculture operation returned to its pre-disruption level of revenue, earning approximately $400,000 during the remaining eight-month recovery period or $50,000 per month.

   - **Easier- or harder-to-value activity?** In this case, we have developed an understanding of the potential baseline losses that occurred as a result of the hazard. We project that this recovery period would have lasted about nine months (based on the time it took for the rest of the community to recover from this hazard). Sea Grant ensured only one month of lost revenue and helped these companies earn $400,000, or $50,000 per month, over the remaining eight months of the recovery period. This is an **easier-to-value** activity because we can credibly identify baseline losses by using disrupted supply chain information based on the time it took the community to recover. Use the "Recommended Methodology and Best Practices" section of this guide to estimate impacts like this.

4 Sea Grant helped working waterfront businesses plan and prepare for increased disruption from coastal and climate hazards. These activities are intended to increase the resilience of these working waterfront businesses, thus minimizing their downtime as a result of a coastal or climate hazard event. However, we are not quite sure to what degree Sea Grant activities changed the recovery period and how long businesses could be out of work.

- **Easier- or harder-to-value activity?** In this case, we do not know how the Sea Grant activity reduced the recovery period. The best path forward here may be to use the Jobs and Businesses Support and Creation guide to describe the number and value of jobs and businesses that the activity supported. Alternatively, the Workshops and Trainings guide may be more applicable if Sea Grant's activity also generated impacts via trainings or workshops. If neither of these apply, craft a compelling impact statement to qualitatively communicate how Sea Grant reduced the recovery period for businesses using the value chain framework below. This is a **harder-to-value** activity because we cannot defensibly determine the baseline and thus the reduction in recovery time as a result of the Sea Grant activity. See the "Data Needs to Support Future Valuation Efforts" section of this guide to better understand the types of data you can collect to support future valuation efforts.

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.

Even if you cannot value the impacts and benefits that your program's activities generated, it is still a best practice to use a value chain to help craft your story to qualitatively describe the impacts and benefits. Let's use an example to illustrate how to create a value chain.

*Sea Grant **[the program/product/service]** funded research **[what was done to get the impact]** that led to an engineering solution to stabilize and make beach access more consistent for a local beach community. Before Sea Grant intervention, access to beach-area businesses closed for about 14 days per year due to "sunny day" flooding. During these sunny day flood events, three beach-based businesses were closed and each lost $20,000 in revenue **[what was affected]** per day. In total, the 14 days of business closures cost businesses $840,000 [$20,000 (lost revenue per day) x 14 (closure days) x 3 (number of businesses affected) = $840,000]. Sea Grant intervention identified an engineering solution that reduced the number of days closed due to sunny day flooding from 14 days per year to four days per year **[measurable change]**. After Sea Grant intervention, the three beach-based businesses each lost $240,000 per year to sunny day flooding [$20,000 (lost revenue per day) x 4 (closure days) x 3 (number of businesses affected)]. Sea Grant intervention resulted in a $600,000 impact, or $200,000 per business **[societal impact]**.*

Recommended Methodology and Best Practices

When a Sea Grant program can defensibly estimate the difference between baseline impacts to businesses (i.e., what would have happened without Sea Grant intervention) and impacts because of Sea Grant intervention, we propose that the Sea Grant program perform the following steps to estimate the impact for these easier-to-value activities. The first three examples in the "Examples" section of this guide shared a common theme of a past hazard with baseline impacts that were grounded in historical data. These hazard events with associated historical data will often but not always fall under the easier-to-value category and can be valued using the methodology below.

Sea Grant activities intended to promote business continuity in preparation for, or to increase economic resilience to, future hazards are just as important but often much more challenging to value. As was the case in example 4, we do not necessarily have a strong understanding of the baseline impacts of various hazard events on businesses, nor do we necessarily have a strong understanding of how those impacts would decrease as a result of Sea Grant intervention. Additionally, these impacts vary based on the size of the hazard, thus adding complexity regarding the hazard event's probability; it is difficult to estimate these impacts for forward-looking business continuity projects. For these projects, we have outlined a data needs section later in this guide to highlight how you could collect data for future valuation with additional economic expertise and better information about anticipated impacts.

To value the impact of Sea Grant activities that promote business continuity during future hazard events, follow steps 1a–4a or 1b–4b, in order, below:

1. **Determine baseline losses (Example A) or revenue (Example B) without Sea Grant intervention.** You can estimate the impact of a hazard using lost revenue or lost employee wages. Additionally, there are two ways to establish the baseline. In **Example A below**, we present this baseline as a loss relative to what is normal. In **Example B below**, we present this baseline as the total revenue during the period of Sea Grant intervention. Both approaches can work to value program activities.

   Example A: Lost revenue is the preferred option but is often hard to estimate because of data confidentiality. The estimate of lost revenue without Sea Grant intervention will be a total over a time period. For example, three businesses regularly lose a total of $840,000 each year due to 14 days of nuisance flooding or about $280,000 per business per year (i.e., $20,000 per day).

   Example B: You can use lost wages if revenue data are not available. You can estimate losses using employee data, which are often easier to obtain. For example, 10 lobstermen each had their lobstering income fall to $25,000 due to changing ocean conditions and fishery impacts. To determine the approximate median hourly wage of any number of employees, follow the steps in the "Tools for Implementation" section of this guide

2 **Determine new losses (Example A) or revenue (Example B) after Sea Grant intervention.**

Example A: For lost revenue, recalculate the losses. For example, because of Sea Grant intervention, access to the businesses was only cut off four times due to nuisance flooding. After Sea Grant intervention, the three businesses lost a total of $240,000 ($80,000 per business) each year due to four days of nuisance flooding (i.e., $20,000 per day).

Example B: For lost wages, similarly recalculate the employee wages. For example, though lobstermen income decreased to $25,000 due to changing ocean conditions and fishery impacts, Sea Grant trained 10 lobstermen in other job skills to help them diversify their income and earn $30,000 of new income from non-lobstering activities on days that they could not go lobstering. In this case, we know the new wages from these non-lobstering activities, but you can see the "Tools for Implementation" section if you need to look up hourly wage rates.

3 **Determine a change in the baseline as a result of Sea Grant intervention. For both examples, this is step 2a/b minus step 1a/b.**

Example A: [-$240,000 in revenue after Sea Grant intervention] - [-$840,000 in revenue before Sea Grant intervention] = $600,000 impact total, or $200,000 per business.

Example B: [$30,000 (new, non-lobster wages after Sea Grant intervention) + $25,000 (post-disaster lobstering wages)] - [$25,000 (post-disaster lobstering wages)] = $30,000 impact per lobsterman, or $300,000 total. As shown in the calculation, new wages from non-lobster activities is the only information you need to estimate this economic impact.

4 Use a value chain to craft a meaningful story to communicate how Sea Grant promoted business continuity.

Example A: Sea Grant *[the program/product/service]* funded research *[what was done to get the impact]* that led to an engineering solution to stabilize and make beach access more consistent for a local beach community. Before Sea Grant intervention, access to beach-area businesses closed for about 14 days per year due to "sunny day" flooding. During these sunny day flood events, three beach-based businesses were closed and each lost $20,000 in revenue *[what was affected]* per day . In total, the 14 days of business closures cost businesses $840,000 [$20,000 (lost revenue per day) x 14 (closure days) x 3 (number of businesses affected) = $840,000]. Sea Grant intervention reduced the number of closures due to sunny day flooding from 14 days per year to four days per year *[measurable change]*. After Sea Grant intervention, the three beach-based businesses each lost $240,000 per year to sunny day flooding [$20,000 (lost revenue per day) x 4 (closure days) x 3 (number of businesses affected)]. Sea Grant intervention resulted in a $600,000 impact, or $200,000 per business *[societal impact]*.

Example B: Sea Grant *[the program/product/service]* taught 10 lobstermen *[what was affected]* about how rising ocean temperatures and increased ocean acidification can impact lobster migration, and helped lobstermen plan and prepare for the impact these changing ocean conditions can have on their businesses *[what was done to get the impact]*. Prior to Sea Grant's intervention, these 10 lobstermen's lobstering income had decreased to $25,000 each. Sea Grant also trained the lobstermen in other job skills to help diversify their income and increase their economic resiliency [what was done to get the impact]. As a result of Sea Grant's efforts, lobstermen earned $30,000 in new, non-lobstering income on days they could not go lobstering *[measurable change]*. Thus, the economic impact of Sea grant's efforts is approximately [$30,000 (new, non-lobster wages after Sea Grant intervention) + $25,000 (post-disaster lobstering wages)] - [$25,000 (post-disaster lobstering wages)] = $30,000 per lobsterman, or $300,000 total *[societal impact]*.

Data Needs to Support Future Valuation Efforts

For the harder-to-value Sea Grant activities related to business continuity—often those that are projecting impacts for future events—we have outlined the following data needs for programs to incorporate into their project planning:

- **Establish a baseline.** How long and to what degree would a hazard event affect businesses in the absence of Sea Grant intervention? (I.e., would they be 100 percent closed for four weeks, at half capacity for six weeks?) Some appropriate ways to establish a baseline could come from historical events in your community or publications from other communities that experienced a similar situation (e.g., a community similar to yours experienced business closures lasting nine months after a major hurricane).

- **Determine the change from the baseline.** How long would a hazard event affect vulnerable businesses with Sea Grant intervention? Defensibility of your valuation is primarily based on this estimate and your baseline—that is, can you defensibly say that Sea Grant intervention will decrease business downtime by X number of days, weeks, or months? A lack of studies currently project how much certain resiliency actions will speed up recovery in the future. Thus, this is an area to monitor in the literature for additional data or information that you can apply from other communities that may have had similar assistance.
- **Determine the best way to measure the businesses contribution.** Revenue is one possible route but may be challenging to capture due to confidentiality. A more feasible route would be the number of employees and their wages using the Bureau of Labor Statistics (BLS) State or National Occupational Employment and Wage Estimates. Use the BLS Employer Costs for Employee Compensation Summary, Table 1, to determine the total benefits (dollars) to add to the wage rate in order to estimate the loaded wage rate.
- **Determine the probability certain events would occur.** Although we could outline a Sea Grant activity's impact if a 1-in-100-year flood occurred, this is not the expected impact because that event may never happen. This is where economic and/or statistical expertise would be needed to look at the impacts across a few events and estimate an average expected impact based on these different hazard types. Finally, though probability-based planning is an important element of helping coastal communities increase their resilience, Sea Grant's performance measures reporting is based on economic impacts that are realized.

Tools for Implementation

BLS provides the following databases on median annual income:

- State Occupational Employment and Wage Estimates
- National Occupational Employment and Wage Estimates
- Economic News Release: Employer Costs for Employee Compensation Summary, Table1. By Ownership

How to Determine Median Hourly Wage

1. Go to the BLS State Occupational Employment and Wage Estimates webpage and click on your state.
2. Find the appropriate occupation in the table and select the associated median hourly wage. See the figure below.

Occupation code	Occupation title (click on the occupation title to view its profile)	Level	Employment	Employment RSE	Employment per 1,000 jobs	Location quotient	Median hourly wage	Mean hourly wage	Annual mean wage	Mean wage RSE
00-0000	**All Occupations**	total	3,619,640	0.6%	1000.000	1.00	$24.14	$31.58	$65,680	0.6%
11-0000	**Management Occupations**	major	306,380	1.0%	84.643	1.54	$56.96	$65.02	$135,250	0.7%
11-1011	Chief Executives	detail	7,810	3.3%	2.159	1.54	(5)	$105.56	$219,550	1.3%
11-1021	General and Operations Managers	detail	82,190	1.5%	22.706	1.39	$55.89	$66.28	$137,870	1.0%
11-1031	Legislators	detail	730	5.4%	0.201	0.56	(8)	(8)	(8)	(8)

3. Go to the BLS Employer Costs for Employee Compensation News Release webpage, scroll down, and select "Table 1. By Ownership."
4. Determine whether employees are primarily civilian workers, private industry workers, or state and local government workers. Once you make this determination, select the corresponding "Cost($)" and take the value for "Total benefits." See figure below.

Economic News Release

ECT PRINT:

Table 1. By ownership

Table 1. Employer Costs for Employee Compensation by ownership
[Mar. 2020]

Compensation component	Civilian workers(1)		Private industry workers		State and local government workers	
	Cost ($)	Percent of compensation	Cost ($)	Percent of compensation	Cost ($)	Percent of compensation
Total compensation(2)	37.73	100.0	35.34	100.0	52.45	100.0
Wages and salaries	25.91	68.7	24.82	70.2	32.62	62.2
Total benefits	11.82	31.3	10.53	29.8	19.82	37.8
Paid leave	2.76	7.3	2.58	7.3	3.89	7.4
Vacation	1.34	3.6	1.32	3.7	1.46	2.8
Holiday	0.82	2.2	0.77	2.2	1.11	2.1

5. Add the total benefits figure to the median hourly wage identified in step 2. This is now a **loaded hourly** wage (reflects total compensation, including benefits, not just hourly rate).

6. Multiply the loaded hourly wage by the number of employees impacted.

7. Multiple the value calculated above (step 6) by the benefit period (time) that was a result of Sea Grant intervention. If multiplying for many weeks or months, assume only eight-hour work days and five business days per week.