



A Community Self-Assessment

Understanding How Prepared
Your Community is For a Disaster

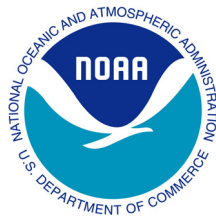


"On the road to coastal resilience"

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Supplemental information and additional resources are available on the Web at masgc.org/ri

MASGP-21-055

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Disclaimer: Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected using the Coastal Resilience Index for the purpose of evaluating the post-disaster adaptability of a community, and planning safety enhancements of that community, shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data. Information compiled using the Coastal Resilience Index is speculative, and is not presented to the community as a definitive statement of fact or prediction, but rather an assessment that may encourage a community to seek further consultation.



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COASTAL RESILIENCE INDEX TEAM

Community Name: _____

Date Completed: _____

Name	Title

Date proposed for next Index Assessment: _____

Additional information and resources can be found at [masgc.org/ri](https://www.masgc.org/ri)



INTRODUCTION

The purpose of this self-assessment is to provide community leaders with a simple and inexpensive method of predicting if their community will reach and maintain an acceptable level of functioning after a disaster. Experienced local planners, engineers, floodplain managers or administrators can complete this self-assessment using existing sources of information from their community. The goal is for every community to become highly resilient. The assessment may identify problems your community should address before the next disaster and where resources should be allocated.

Results of the assessment are presented as a Resilience Index that estimates the adaptability of your community to a disaster. This self-assessment was created to identify areas in which your community may become more resilient. Your community's unique Resilience Index is an internal evaluation tool and should not be used to compare your community with others.

The Resilience Index and methodology does not replace a detailed study just as a self-examination for skin cancer is not a substitute for a check-up and tests by a dermatologist. But, the Resilience Index resulting from this Community Self-Assessment may encourage your community to seek further consultation.

DISASTER RESILIENCE is the capacity of a community exposed to hazards to adapt, by resisting or changing, in order to reach and maintain an acceptable level of functioning and structure.

RESILIENCE is determined by the degree to which the community is capable of organizing itself to increase its capacity for learning from past disasters.

Definitions are from the Subcommittee on Disaster Reduction. 2005. Grand Challenges for Disaster Resilience. National Science Technology Council, Committee on Environment and Natural Resources. Washington, D.C.: National Science and Technology Council.

NOTE: This Community Self-Assessment is date-specific and should be periodically applied as the community grows and/or the landscape changes, such as when shoreline erosion accelerates. Your community officials should conduct new assessments on a regular basis (annual, biannual, etc.) because of this growth and/or change.

RESULTS OVERVIEW

After completing this self-assessment, you should complete the summary that will help you calculate your Resilience Index (see pages 11 and 12).

The Resilience Index used in this self-assessment will be defined as **LOW**, **MEDIUM** or **HIGH**.

The rating will give you an idea of how long it may take your community to provide basic services and reoccupy homes and businesses after a disaster.

For more details about interpreting Resilience Index results, go to page 13.

BUILD YOUR SCENARIOS

Use the definitions of Bad and Future Storm below to complete the table. Decide as a group what the best benchmarks would be based upon your past experience, historical records, and prior knowledge. You will then refer to these benchmark storms to complete the rest of the Index.

Bad Storm (benchmark): Select a benchmark storm you will use to answer questions on the Index. Look back at historical events to help you determine as a group which storm would be the best to use. Remember, this is a self-assessment, so try and select a benchmark you feel will give you the most information about where the community vulnerabilities may be.

Future Storm (greater intensity): Select a storm which would be 50 percent worse than the “bad storm” you selected. For example, what if the storm surge was higher? The rainfall greater? This is to assist you in preparing for a future event that has not been witnessed in the historical records.

Variables	Bad Storm (benchmark) Scenario 1	Future Storm (greater intensity) Scenario 2
Name		
Wind speed at landfall (mph)		
Rain (total/24hours)		
Storm Surge (height in feet)		
Direction		
Speed of Movement		
Duration		
Tidal Influence (high or low)		
Landfall Location		

Did you know? You can receive up to 1,000 points in the Community Rating System for flood control techniques such as for retrofitting or otherwise protecting repetitive loss properties. An additional maximum of 2,250 points can be earned for acquiring or relocating repetitive loss properties or those in the regulatory floodplain, including qualifying critical facilities .



CRITICAL INFRASTRUCTURE AND FACILITIES

The following are key indicators that will give a preliminary assessment of your community’s disaster resilience. A more detailed assessment process is available in the FEMA 386-2 publication (fema.gov).

- Place a check mark in the column where your community’s critical infrastructure and facilities are located.
- You may need to use flood maps to determine where the boundaries would be. If the facility is located in multiple areas, put a check in all that are applicable. Then put a check mark in the last column if the infrastructure or facility is functional after a disaster (assuming Scenario 1). Use the total check marks in the last column for Section A and Section B to complete page 11, “Determining Your Resilience Index.”

	Special Flood Hazard Area (SFHA)	Bad Storm Scenario 1	Future Storm Scenario 2	Infrastructure or facility functions after disaster
Example: Power grid		√		√
Section A: Critical Infrastructure				
Wastewater treatment system				
Power grid				
Water purification system				
Transportation/evacuation routes				
Total check marks for Section A:				
Section B: Critical Facilities*				
City Hall or other local government building(s)				
Police station or other law enforcement building(s)				
Fire station(s)				
Communications main office or substations				
Emergency operation center				
Evacuation shelter(s)				
Hospital(s)				
Critical record storage out of flood zone (hardcopy or digital backup)				
Total check marks for Section B:				

* Critical facilities may be defined a certain way in an ordinance. However, each community may identify other structures they consider critical. If you need assistance locating critical infrastructure and facilities, you can refer to the mapping tool that accompanies the Index.

TRANSPORTATION ISSUES

2. Assuming Scenario 1, if any of the following affect your transportation/evacuation route(s), will your community regain a pre-storm level of service within one week? Check Yes or No.

Transportation Issue*	Yes	No
Example: Will flood-prone areas (tunnels, roads in low-lying areas) be operational within one week?	√	
Will primary bridge(s) be out for less than one week?		
Will roads blocked by storm debris (trees, wrack) be cleared in less than one week?		
Will washouts (roads) be passable in less than one week?		
Will flood-prone areas (tunnels, roads in low-lying areas) be operational within one week?		
Is public transportation available to assist evacuation of residents unable to evacuate on their own?		
Is there more than one evacuation route?		
Is there a plan for post-storm traffic management?		
Do you have re-entry plans for healthcare and critical service providers?		
Has future flood risk been explored in transportation planning efforts?		
Total number of Yes answers and No answers:		

*Some communities use waterways as transportation infrastructure and/or evacuation routes (canals, docks, streams, marinas, and ferries).

ADDITIONAL NOTES

Did you know? Up to 395 CRS points can be earned for improved flood warning and response, including points for multi-level flood inundation mapping of Special Flood Hazard Areas, structures and evaluation routes.



COMMUNITY PLANS AND AGREEMENTS

3. Does your community have the following plans, personnel or agreements in place? Check Yes or No.

Does your community:	Yes	No
Example: Have a certified floodplain manager?		√
Participate in the FEMA Community Rating System? (Rating of 8 or lower)		
Use an early flood warning system?		
Have a certified floodplain manager?		
Have planning commissioner(s) with formal training in planning?		
Have a planning staff with credentials from the American Institute of Certified Planners (AICP)?		
Have a FEMA-approved and state EMS-approved mitigation plan?		
If you have an approved mitigation plan, has it been revised in the past two years?		
Have Memorandums of Understanding (MOUs) or Memorandums of Agreement (MOAs) with neighboring communities to help each other during times of disaster?		
Have a comprehensive plan or strategic plan that addresses natural disasters?		
Take future conditions into consideration during your planning (mapping future flood risk, sea level rise, future hydrological changes)?		
Participate in exercises or drills related to hazard impacts?		
Have a floodplain manager or planner who participates in the following organizations: Association of State Floodplain Managers or State Floodplain Management Association?		
American Planning Association (APA) or state APA chapter?		
American Society of Civil Engineers (ASCE) or state or local section of ASCE?		
American Public Works Association?		
Have first-hand experience with disaster recovery within the last 10 years?		
Have a communication system to use before, during and after a disaster?		
Have robust public communication and early warning system including alerts and messaging to residents?		
Have plans in place for how to shelter and preserve the health and welfare of animals?		
Have an emergency plan in place for vulnerable populations (elderly, children, homeless or displaced persons, etc.)?		
Have a community plan that includes health and behavioral health impacts?		
Total number of Yes answers and No answers:		

Did you know? Under the CRS, up to 622 points can be earned for floodplain management planning, repetitive loss area analysis, and adopting a plan to protect natural floodplain functions. Measures to adopt higher regulatory standards can earn up to 2,462 points, including regulations that protect natural areas or improve water quality during development (up to 1,330 points), or that mitigate coastal erosion risk (up to 370 points).

MITIGATION MEASURES

4. Has your community implemented the following ongoing mitigation measures or projects?
Check Yes or No.

Mitigation measures in place	Yes	No
Example: Relocation of buildings and infrastructure		√
Elevation of residential, nonresidential buildings, or infrastructure to National Flood Insurance Program standards for your community*		
Relocation of buildings and infrastructure from flood-prone areas		
Flood-proofing of nonresidential structures		
Education programs about mitigation options for your community		
Acquisition of repetitive loss structures, infrastructure, or property		
Incentives-based mitigation measures		
Adoption of the most recent International Building Codes		
Hiring certified building inspectors		
Staffing an adequate number of people to enforce building codes		
Have completed or planned natural or nature-based mitigation projects for critically eroding areas (shoreline restoration projects, dune revegetation, etc.)		
Have organizations (including the local government itself) that assist in implementing nature-based features?		
Require the protection and maintenance of sensitive coastal habitats, ecosystems, and natural features (dunes, barrier islands, salt marshes, mangroves)		
Have undeveloped public lands, such as parks, forests or preserves in the coastal high hazard areas (V-zone on FIRM map)		
Critical infrastructure assets are supplemented with or protected by hardened structures (sea walls, floodproofing) or natural or nature-based features? (living shorelines)		
Have adequate drainage capacity? (green or grey infrastructure)		
Have long-range plan to ensure adequate drinking water supply (by addressing drought conditions, salt water intrusion)?		
Total number of Yes answers and No answers:		

**Note that the Association of State Floodplain Managers recommends communities consider higher elevations than the minimum National Flood Insurance Program standard.*

Did you know? A total of 2,870 CRS points can be earned for preserving open space areas in their natural or restored state, or for preserving natural benefits and functions, including through natural shoreline protection, low-density zoning, and more.



BUSINESS PLANS

5. What assets do the large retail stores (The Home Depot, Wal-Mart, etc.), grocery stores and fuel distributors in your community have to reopen after a disaster? If more than 50 percent of the businesses in your community have the following equipment or plans, mark Yes. If fewer than 50 percent have the equipment or plans, check No.

Business equipment/plans*	Yes (50% or more)	No (Less than 50%)
Example: Generators		√
Generators		
Backup options for basic needs (water, sewer, food, and communications)		
Plans to bring in staff to help reopen the business (considering impacts to staff)		
Plans for prestocking and restocking critical recovery supplies		
Plans for ice distribution		
Established relationship with businesses, chambers, and/or main streets		
Pharmacies and medical supply businesses have a plan to be able to distribute prescriptions, medical services, and needed equipment following a disaster		
Daycares have a plan in place for reopening		
Assisted living facilities have a plan in place (shelter, plan, access to medical services)		
Total number of Yes and No answers:		

*Businesses may include functioning marinas or ports as important distribution points after a disaster. If so, consider the assets these businesses have to reopen after a disaster.

ADDITIONAL NOTES

Did you know? Businesses are highlighted in the CRS as a priority audience. Activities to conduct outreach to business on flood risk or to promote flood insurance can earn CRS points (up to 200 and 110 points, respectively).

SOCIAL SYSTEMS

6. Are there social systems that define your community or serve as the core of your community?
Check Yes or No.

Social system category	Yes	No	If Yes, describe relationship
Example: Strong faith-based networks	√		Church networks
Strong faith-based networks (counted on during a disaster)			
Cultural identity (unified Hispanic, Asian or other ethnic communities)			
Neighborhood associations support members in times of need			
Business cooperative or working relations (industries that employ many residents, Chamber of Commerce, other business-related networks, etc.)			
Strong civic organizations (Kiwanis Club, Rotary Club, etc.)			
Schools (informal networks such as communication apps and email lists that teachers and administrators use to reach parents and students)			
Informal support networks among education institutions, universities, community colleges and technical institutes			
Community plans for dealing with demographic transitions or transient communities			
Plans for social support networks and assistance for elderly and house-bound individuals			
Coordination within and between social service organizations and departments of health and environmental quality			
Organizations that provide workforce training and support for residents for natural disaster recovery (grief counseling, advisory network for economic support)			
Procedure for checking in and accommodating volunteers from outside the community			
Provision to provide/agreement with childcare facilities to provide care immediately post-storm			
Adopted a policy to allocate a certain funding level to recovery/ reserve fund (rainy day fund, etc.)			
Total number of Yes answers and No answers:			

Did you know? Several agencies, organizations, and programs provide information on floodplain functions. Communities can earn up to 350 points for implementing outreach projects that include descriptions of the natural functions of the community's floodplains.



DETERMINING YOUR RESILIENCE INDEX

To determine your Resilience Index for each section, use the following tables, which are based on the totals you entered for each section of the Index.

Section IA: Critical Infrastructure

Total number of infrastructure functioning after a disaster:

Number of check marks	Percentage of infrastructure and facilities functioning after a disaster	Resilience Index
0	0%	Low
1	25%	Low
2	50%	Medium
3	75%	Medium
4	100%	High

Your critical facilities Resilience Index is: _____

Find out what your Resilience Index means on page 13.

Section IB: Critical Facilities

Total number of critical facilities functioning after a disaster:

Number of check marks	Percentage of infrastructure and facilities functioning after a disaster	Resilience Index
1	13%	Low
2	25%	Low
3	38%	Low
4	50%	Medium
5	63%	Medium
6	75%	Medium
7	88%	High
8	100%	High

Your critical facilities Resilience Index is: _____

Find out what your Resilience Index means on page 13.

INTERPRETING CRI RESILIENCE INDEX RESULTS

RESILIENCE INDEX: A Resilience Index is an indicator of your community's ability to reach and maintain an acceptable level of functioning and structure after a disaster.

After completing the Summary section of this self-assessment, your Resilience Index was identified as **LOW**, **MEDIUM** or **HIGH** in different categories.

LOW Resilience Index. A low Resilience Index indicates that your community should pay specific attention to this category and should make efforts to address the areas of low rating. If the critical infrastructure category received this rating, then reoccupation of your community may take more than 18 months before basic services are restored.

MEDIUM Resilience Index. A medium Resilience Index indicates that more work could be done to improve your Resilience in this category. If the critical infrastructure category received this rating, reoccupation of your community may take less than 2 months before basic services are restored.

HIGH Resilience Index. A high Resilience Index indicates that your community is well prepared for a storm event. If the critical infrastructure category received this rating, then the community probably will not suffer or will have minimal damage (can be functional in less than two weeks) to basic services.

NEXT STEPS

Regardless if your city has a **HIGH**, **MEDIUM** or **LOW** Resilience Index, you should learn about and investigate the weaknesses you have identified during this process. Refer to the references page for additional information on resources, training, and support.

For more information, contact Dr. Tracie Sempier, Coastal Resilience Lead, Mississippi-Alabama Sea Grant Consortium, 703 East Beach Drive, Ocean Springs, MS, 39564, or (228) 818-8829.

ACKNOWLEDGMENTS

Appreciation is extended to the following communities for donating their time, sharing their expertise, and assisting us in strengthening the Index through their participation as pilot communities. In alphabetical order:

Bayou La Batre, AL	Dauphin Island, AL	Ocean Springs, MS	Port Arthur, TX
Biloxi, MS	Ft. Myers Beach, FL	Orange Beach, AL	Sarasota, FL
Cameron Parish, LA	Gulf Shores, AL	Pascagoula, MS	St. Tammany Parish, LA
Cedar Key, FL	Marco Island, FL	Pass Christian, MS	Steinhatchee, FL

A special thank you to members of the Gulf of Mexico Alliance Resilience Team and Gulf of Mexico Sea Grant Extension Specialists for their assistance in making suggested changes, pilot testing the draft versions, and promoting the use of the Index in local communities.

COASTAL RESILIENCE RESOURCES

Useful Definition

Critical facility (also called critical action) means facilities for which the effects of even a slight chance of flooding would be too great. The minimum floodplain of concern for critical facilities is the 0.2 percent chance flood level. Critical facilities include, but are not limited to facilities critical to the health and safety of the public such as: emergency operations centers, designated public shelters, schools, nursing homes, hospitals, police, fire and emergency response installations, vital data storage centers, power generation and water and other utilities (including related infrastructure such as principal points of utility systems) and installations which produce, use or store hazardous materials or hazardous waste (as defined under the Clean Water Act and other Federal statutes and regulations). Such facilities and access to such facilities will be constructed outside the one percent chance Special Flood Hazard Area or elevated/protected to or above the 0.2 percent chance flood level.

Additional Resources

Coastal Flood Exposure Mapper: <https://coast.noaa.gov/digitalcoast/tools/flood-exposure.html>

Risk and Vulnerability Assessment Tools: <https://coast.noaa.gov/digitalcoast/topics/vulnerability-assessments.html>

Community Rating System: www.fema.gov/business/nfip/crs.shtm

StormSmart Coasts Network: <http://stormsmart.org>

Gulf of Mexico Coastal Storms Program: <http://masgc.org/coastal-storms-program>

Gulf of Mexico Alliance Resilience Team: <https://gulfofmexicoalliance.org/our-priorities/priority-issue-teams/community-resilience-team/>

Training

Gulf of Mexico Sea Grant College Programs: <http://gulfseagrant.org>

Florida Sea Grant: www.flseagrant.org

Louisiana Sea Grant: www.laseagrant.org

Mississippi-Alabama Sea Grant: www.masgc.org

Texas Sea Grant: <http://texasseagrant.org/>

NOAA Office for Coastal Management Training: <https://coast.noaa.gov/digitalcoast/training/home.html>

National Estuarine Research Reserves Coastal Training Program: <https://coast.noaa.gov/nerrs/training/>

Federal Emergency Management Agency: training.fema.gov/

AL Emergency Management Agency Training: <https://portal.ema.alabama.gov/training/>

FL Division of Emergency Management Training: <https://www.floridadisaster.org/dem/preparedness/training-and-exercise/>

LA Homeland Security & Emergency Preparedness Training: <https://gohsep.la.gov/RESOURCES/TRAINING-EVENTS-SCHEDULE>

MS Emergency Management Agency Training: <https://www.msema.org/resources/training/>

TX Division of Emergency Management Training: <https://tdem.texas.gov/training/>

Networking

Climate and Resilience Community of Practice: <http://masgc.org/climate-resilience-community-of-practice>

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In Memoriam

DR. ROD EMMER

1944 – 2008

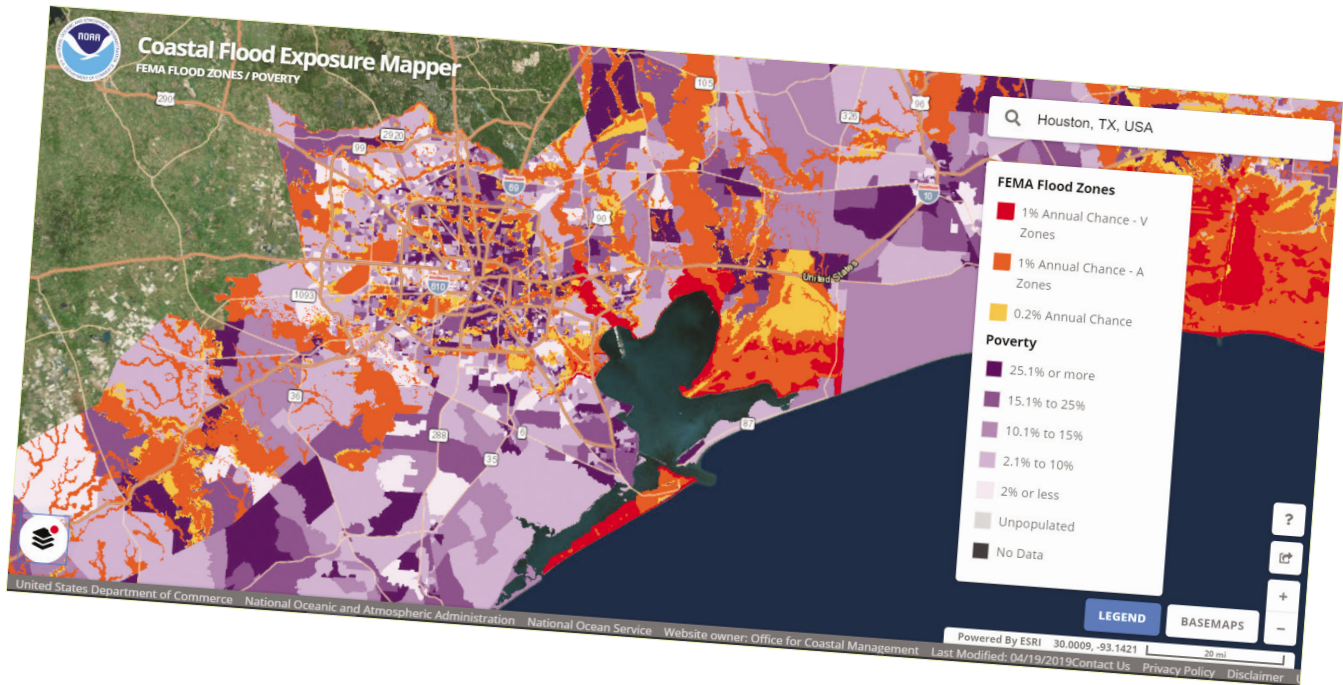
The original concept for the Resilience Index was born from the work Dr. Emmer conducted in local communities through Louisiana Sea Grant. With his passing, the Gulf region lost a great resource of knowledge and experience in the fields of floodplain management, hazard mitigation, geography, and culture. Although he was not able to see this final version of the Index, it is sincerely hoped he would approve of the transformation this tool has made and its potential to assist many communities across the Gulf and the nation.

(Photo courtesy of Louisiana Sea Grant)

Coastal Flood Exposure Mapper

<https://coast.noaa.gov/digitalcoast/tools/flood-exposure.html>

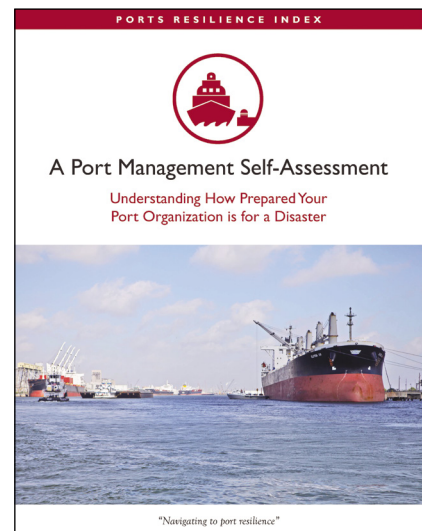
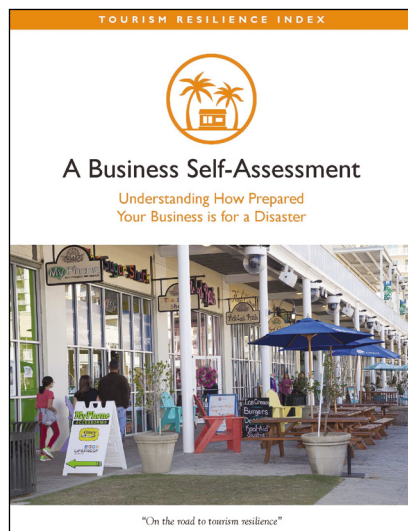
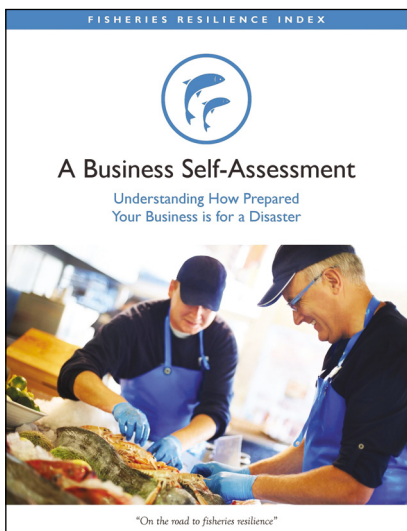
- assists communities in completing sections of the Index
- includes hazard layers for storm surge, sea level rise, and high tide flooding
- share online maps that visualize people, places, and natural resources exposed to coastal flood hazards



Sector Indices

<http://masgc.org/coastal-storms-program/resilience-index>

- Understand how prepared your business is for a disaster
- Now available for Tourism, Fisheries, and Ports





COASTAL RESILIENCE INDEX