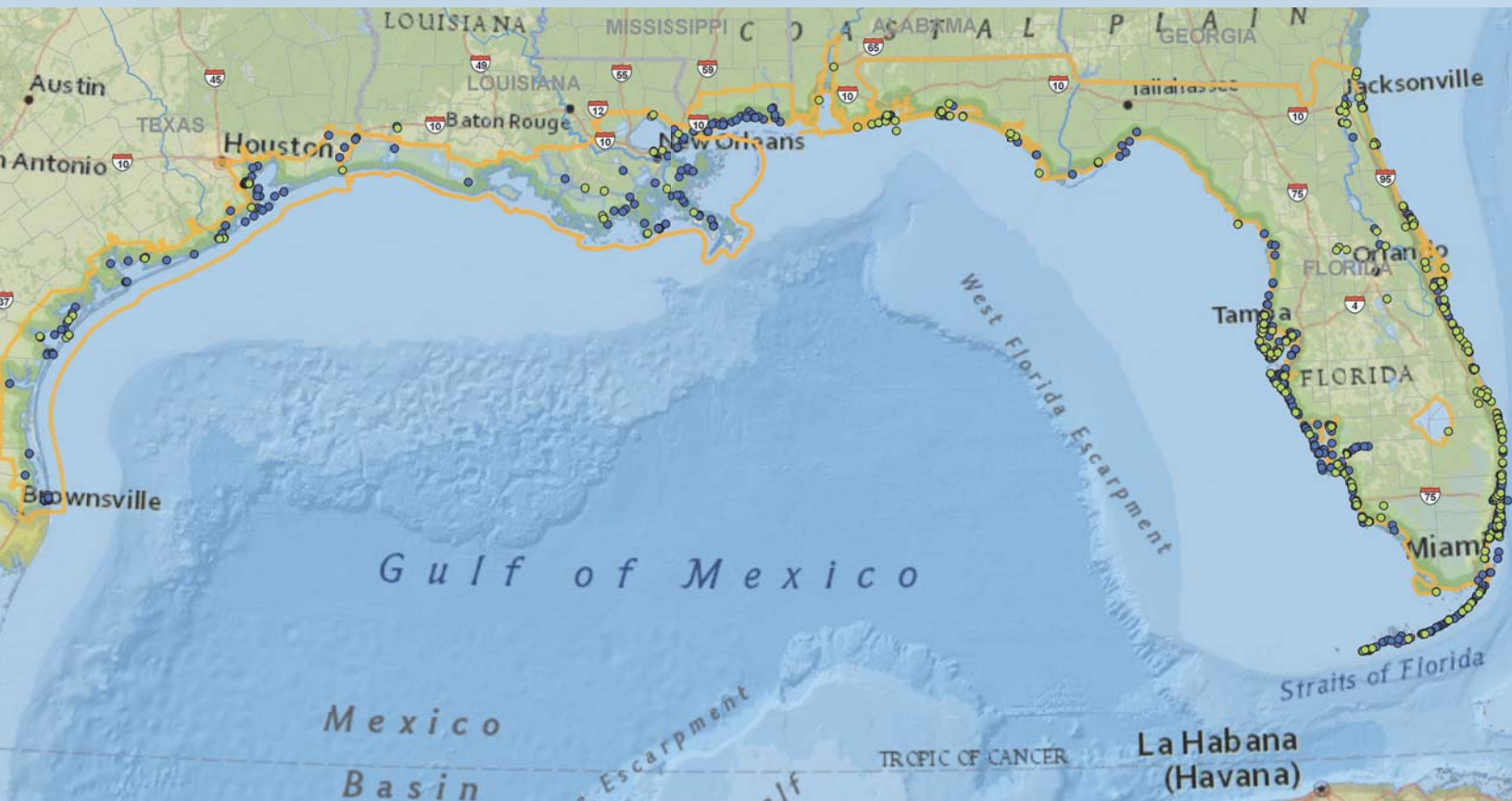


CLEAN & RESILIENT MARINA GUIDEBOOK AT A GLANCE



Eco-Systems, Inc. 
Consultants, Engineers, and Scientists

*Mississippi
Louisiana
Alabama
Florida
Texas*

Introduction



“Resilience is the capacity of human and natural/physical systems to adapt to and recover from change.”

**Gulf of Mexico Alliance (GOMA)
Coastal Community Resiliency
Priority Issue Team**

The volunteering marine industry owners and boaters who participate in Clean Marina Programs in Florida, Alabama, Mississippi, Louisiana and Texas are helping protect clean water and control pollution that can harm fish, wildlife and the families enjoying recreation on the

Gulf of Mexico. The Gulf of Mexico Alliance (GOMA), a five-State partnership to promote regional collaboration on the ecological and economic health of the Gulf of Mexico, has made supporting Clean Marinas and promoting their resilience to natural and man-made disasters a top priority. GOMA’s Coastal Community Resilience Team and its representatives from all five Gulf States were charged with responding to this challenge.

The Clean and Resilient Marina Program calls for the “promotion and expansion of resilient and environmentally responsible operations and best management practices at marinas.” It builds on the Gulf of Mexico States’ proven Clean Marina Certification Programs. This improved program complements Clean Marina practices already in place and provides additional recommendations to strengthen local marinas’ ability to withstand natural and man-made disasters. GOMA’s *Clean and Resilient Marina Guidebook* provides marina owners and operators useful information, tools, and recommended practices on the following categories:

- (1) Marina Design and Siting;
- (2) Emergency Preparedness;
- (3) Evacuation Procedures;
- (4) Stormwater Management and Erosion Controls;
- (5) Climate Adaptation and Sea Level Rise; and
- (6) Outreach and Education for Marina Operators and Boaters.

The guidebook also provides a helpful example of a *Hurricane Preparedness Plan for your Marina* that can be used to plan ahead for natural disasters.



Introduction Reference Materials

GOMA Overview:

www.gulfofmexicoalliance.org

Alabama Clean Marina Program:

<http://d276864.h39.zee-hosting.com/pdf/cleanmarinas/Clean%20Marina%20Guide.pdf>

Florida Clean Marina Program:

<http://www.dep.state.fl.us/cleanmarina>

Louisiana Clean Marina Program:

<http://dnr.louisiana.gov>

Mississippi Clean Marina Program:

<http://d276864.h39.zee-hosting.com/pdf/cleanmarinas/Clean%20Marina%20Guide.pdf>

Texas Clean Marina Program:

<http://cleanmarinas.org/program.htm>

National Oceanic and Atmospheric Administration (NOAA)

<http://coastalmanagement.noaa.gov/welcome.html>

Environmental Protection Agency (EPA)

<http://www.epa.gov/owow/NPS/marinashdbk2003.pdf>



Marina Design and Siting



Because of their location on the water, marinas are especially vulnerable to the forces of nature. The high winds of hurricanes, tropical storms, and tornados, along with strong waves and storm surge can damage structures on water and land. Shoreline erosion may undermine the strength of a marina's anchoring and mooring facilities and reduce the area available

for business.

For both existing and new marinas, there are many ways to work with the environment to improve a marina's long-term survival and resilience to both natural and man-made disasters. The goals of a Clean and Resilient Marina should be to:

- (1) Protect Human Life and Safety;
- (2) Reduce the Exposure of Structures on Water and Land to Damage;
- (3) Reduce the Exposure of Boats to Damage;
- (4) Minimize Damage to Property that Cannot be Relocated; and
- (5) Resume Business Operations as Quickly as Possible.

You can promote confidence among your boaters and employees by using the best available management practices to strengthen your marina. For more guidance on pre-design or upgrade considerations, berthing facilities, landside facilities, boat storage, mooring and tie-down strategies, and natural shoreline erosion control measures, consult *GOMA's Clean and Resilient Marina Guidebook*.



Marina Design and Siting Reference Materials

Developing Resilience through Marina Design and Siting:

- (1) Select Location and Siting that Minimize Exposure to the Elements;
- (2) Design Land & Water Facilities to Resist High Winds and Water;
- (3) Select Materials that Survive Prolonged Exposure to High Water and Heavy Winds;
- (4) Provide Secure Wet & Dry Boat Storage When Possible; and
- (5) Protect the Sensitive Environmental Areas that Offer Protection from the Elements.

FEMA Technical Bulletin 1-08 - Opening in Foundation Walls and Walls of Enclosures
<http://www.fema.gov/library/viewRecord.do?id=1579>

FEMA Technical Bulletin 2-08 - Flood Damage Resistant Materials Requirements
<http://www.fema.gov/library/viewRecord.do?id=1580>

Whole Building Design Guide. Design: Small Craft Berthing Facilities UFC-4-152-07
http://www.wbdg.org/ccb/DOD/UFC/ufc_4_152_07.pdf

TEXAS Clean Marina Guidebook - Siting, Design, & Maintenance Section
www.cleanmarinas.org/pdfs/guidebook.pdf



Emergency Preparedness



Natural and human-caused disasters are unpredictable, but your marina can head off a major catastrophe by defining the steps employees and tenants should take in advance. For example, tools like Comprehensive Emergency Management Plans and Hurricane Preparedness Plans can protect life and property and can minimize disruption to business. When practiced and put into place, these plans may allow for your Marina to

resume normal operations soon after a storm. An example Hurricane Preparedness Plan is provided in the complete GOMA's *Clean and Resilient Marina Guidebook*.

The goals of an Emergency Preparedness Strategy should be to:

1. Protect Human Life and Safety;
2. Reduce Exposure to Property Damage;
3. Minimize Damage to Property that Cannot be Relocated; and
4. Restore Normal Business Operations as Quickly as Possible.

Emergency preparedness is a year-round effort that involves regular facility maintenance, employee training, and the identification of clear expectations for boat owners and tenants. Marinas participating in the Clean Marina Program already require emergency training and drills. Most states require a written Emergency Response Plan, too. Taking the extra step toward resiliency means getting the people who work and play at the marina aware of your expectations and more involved in emergency planning and preparation. This early investment in planning will pay off in business continuity due to reduced losses and injuries.



Emergency Preparedness Reference Materials

Developing Resilience through Emergency Preparedness:

- (1) Establishment of a Disaster Response Team;
- (2) Spell Out Evacuation Procedures;
- (3) Promote Employee Safety;
- (4) Ensure Property Protection;
- (5) Identify Emergency Assistance;
- (6) Develop a Communications Plan;
- (7) Establish Procedures to Secure Boats in Wet and Dry Slips;
- (8) Practice Damage Control for Neighboring Properties; and
- (9) Determine Post-Disaster Clean-up Procedures.

Florida Department of Environmental Protection - Sample Hurricane Preparedness Plan and Guidelines

http://www.dep.state.fl.us/cleanmarina/files/Sample_Hurricane_Plan.pdf

BoatUS Hurricane Resource Center "*Hurricane Preparation Starts with Three Considerations: Location, Location, Location*"

<http://www.boatus.com/hurricanes/preparation.asp>

Hurricane Preparedness Planning for Marinas and Marine Operations

http://www.agcs.allianz.com/assets/1673_ARC_RB_35_en_Hurricane_Preparedness_final.pdf

Southwinds Magazine - Hurricane Pages

<http://www.southwindssailing.com/hurricane-information-for-boaters.php>



Marina Evacuations



Marina Evacuation Plans protect lives, minimize personal injury, and reduce property damage. Each marina's evacuation procedures will be unique. The best plans consider location and elevation, as well as the natural protective barriers that can make the marina a snug harbor. The construction methods and materials for your marina's wet docks, pilings and dry docks will determine how resistant they are to storm surge

and high winds. The size and number of boats at the marina will determine how long evacuation will take, and whether designated safe harbors for the boats are appropriate.

The goals of a Marina Evacuation Strategy are similar to Emergency Preparedness:

1. Protect Human Life and Safety;
2. Prevent or Minimize Personal Injury;
3. Reduce Exposure to Property Damage;
4. Minimize Damage to Property that Cannot be Relocated; and
5. Restore Normal Operations as Quickly as Possible.

Getting boats moved when a natural disaster is approaching is a monumental task that involves practice and advance preparation. It improves resiliency of the marina because removing boats from the water is the surest strategy to protect them in a severe storm. According to Boat US, even boats in fallen jackstands suffer less damage than vessels in the water. Boats should only remain in sheltered areas with a soft water bottom. GOMA's *Clean and Resilient Marina Guidebook* offers potential tie down and anchoring ideas to improve resiliency. Regardless of your marina's evacuation policy, however, it's never advisable for anyone to ride out the storm in their boat.



Marina Evacuations Reference Materials

Developing Resilience through Marina Evacuation Plans:

- (1) Have a Workable Emergency Management or Hurricane Plan;
- (2) Know What to do Before the Storm Arrives;
- (3) Address Logistics of Mobilizing Many Boats Quickly;
- (4) Ensure Customers Know Marina Policies and Procedures;
- (5) Ensure the Boat Owners Understand their Responsibility;
- (6) Have Procedures in Place to Move to Safe Harbor;
- (7) Know Tie-Down Procedures;
- (8) Ensure Emergency Management Team is Trained;
- (9) Keep Insurance Current;
- (10) Identify Both Wet Slips and Dry Dock Evacuation Procedures;
- (11) Have Evacuation Routes Clearly Identified; and
- (12) Locate and Map Nearby Safe Harbors.

BoatUS. *“What Works: A guide to preparing marinas, yacht clubs and boats for hurricanes”*

http://www.boatus.com/hurricanes/assets/pdf/hurr_prep_guide.pdf

BoatUS. *“The Boater’s Guide to Preparing Boats & Marinas for Hurricanes.”*

www.boatus.com/hurricanes/HurricaneWarning.pdf

Rhode Island Sea Grant Fact Sheet - Hurricane Plan for Boaters

seagrant.gso.uri.edu/factsheets/hurricane.html



Stormwater Management and Erosion Control



Polluted and contaminated water runoff from coastal storms affects streams, rivers and even the waters of our beautiful Gulf Coast. Managing this contamination has been a Clean Water Act priority at the local, state and federal levels for over 20 years. A Stormwater Management and Erosion Control Plan for your marina should focus on two goals:

(1) Slowing down stormwater runoff and

capturing pollutants, and

(2) Controlling erosion and preventing sediment from reaching the water.

If you participate in the Clean Marina Program, chances are your marina has already implemented many of the recommended ways to manage stormwater runoff and control erosion and sediment. GOMA's Clean and Resilient Marinas Program encourages marinas to employ these practices to better stand up to heavy storms and other environmental forces. Good stormwater management can make a marina more resilient by extending the effective life of the facility.

There are many tactics to improve stormwater management at your marina. Your state's Coastal Non-Point Source Pollution Control Program may give helpful guidance. Keeping paved areas to a minimum will ease flooding by allowing natural areas of your marina to slow and absorb water. The natural environment can also filter out pollution that can kill the vegetation and wildlife in surrounding marshes and wetlands. Proper controls in place during and post construction can reduce erosion and sediment transport, thus protecting your marina and improving resiliency. Over time, mismanagement of stormwater can weaken marina and dock foundations. Planning ahead will yield economic and environmental benefits for your marina. For more guidance on coastal stormwater management, consult *GOMA's Clean and Resilient Marina Guidebook*.



Stormwater Management and Erosion Control Reference Materials

Developing Resilience through Stormwater Management & Erosion Control:

- (1) Pollution Prevention;
- (2) Stormwater Volume Control and Flooding Protection; and
- (3) Control of Erosion and Sediment.

WATER POLLUTION

Florida Department of Environmental Protection
<http://www.dep.state.fl.us/water/monitoring/index.htm>

Alabama Department of Environmental Management
<http://adem.alabama.gov/programs/water/waterquality.cnt>

Mississippi Department of Environmental Quality
http://www.deq.state.ms.us/mdeq.nsf/page/FS_SurfaceWaterQualityAssessments

Louisiana Department of Environmental Quality
<http://www.deq.louisiana.gov/portal/tabid/69/default.aspx>

Texas Commission on Environmental Quality
http://www.tceq.texas.gov/waterquality/assessment/305_303.html

REDUCTION IN IMPERVIOUS SURFACES

The Prince George's County, Maryland. "Bioretention Manual." December, 2007.
http://www.princegeorgescountymd.gov/Government/AgencyIndex/DER/ESG/Bioretention/pdf/Bioretention%20Manual_2009%20Version.pdf

EPA, "Stormwater Technology Fact Sheet: Vegetated Swales." September, 1999.
http://water.epa.gov/scitech/wastetech/upload/2002_06_28_mtb_vegswale.pdf

Low Impact Development - Urban Design Tools. "Permeable Pavers."
http://www.lid-stormwater.net/permpavers_benefits.htm

EROSION CONTROL AND STABILIZATION TECHNIQUES

U.S. Army Corps of Engineers (USACE)
<http://chl.erc.usace.army.mil/chl.aspx?p=s&a=Articles;199>

NOAA "NOAA Habitat Conservation - Living Shoreline Planning and Implementation"
<http://www.habitat.noaa.gov/restoration/techniques/limplementation.html>

Florida Department of Environmental Protection
http://www.dep.state.fl.us/northwest/ecosys/section/living_shorelines.htm

Gulf of Mexico Alliance
<http://www.gulfalliancetraining.org/dbfiles/Homeowner%E2%80%99s%20Guide%20to%20Permitting%20Living%20Shorelines%20in%20Texas.pdf>



Climate and Sea Level Rise Adaptation



Photo Credit: NOAA

Changes in weather and climate patterns and shifting shorelines can potentially affect marinas. Whether you are concerned about strong hurricanes, a large tidal range or disappearing shorelines, there are a variety of tools at your disposal to determine if there is a cause for concern and to help you make a long-range plan.

When planning for potential Climate Change and Sea Level Rise, marinas

should take two factors into account:

- (1) Short Term Risks: Identify risk factors that might affect the marina immediately, and
- 2) Long-Term Risks: Identify and plan for risks that might occur over the next 25 to 30 years.

State and Federal programs that track the history of weather patterns, wave heights and sea levels can be used to flag immediate risks. The National Oceanic and Atmospheric Administration (NOAA) and your state's Sea Grant program are two of the best sources for this information. For long-term planning, marinas can use resources like the Coastal Vulnerability Study (United States Geologic Survey (USGS)) and the Hazard Mitigation Planning Model (Federal Emergency Management Agency (FEMA)) to predict and plan for long-term risks identified related to climate and coastline changes.

To balance long and short-term considerations, GOMA's *Clean and Resilient Marina Guidebook* provides a list of practices to be considered at your marina for the potential impacts associated with climate change and or sea level rise.



Climate and Sea Level Rise Adaptation Reference Materials

Developing Resilience Through Climate Adaptation & Sea Level Rise:

- (1) Prepare for Flooding caused by Heavy Rain;
- (2) Be Aware of Frequency & Severity of Natural Disasters;
- (3) Track Wave Height and Frequency;
- (4) Identify Infrastructure Exposed to Natural Disasters;
- (5) Understand Shoreline Erosion and Land Subsidence; and
- (6) Identify Potential Impacts to Naturally Protective Marshes, Barrier Islands, and Wetlands.

National Oceanic and Atmospheric Administration: Sea Level Rise Viewer
<http://www.csc.noaa.gov/slr/viewer/#>

Gulf of Mexico Alliance - Coastal Resilience Index
http://gulfofmexicoalliance.org/projects/files/56Coastal_Resilience_Index_training_tool.pdf

NOAA Tides and Currents
<http://tidesandcurrents.noaa.gov/sltrends/index.shtml>

USGS National Assessment of Coastal Vulnerability to Sea Level Rise.
<http://pubs.usgs.gov/of/2000/of00-179/>

J.T. Lockman, "Coastal Hazard Resiliency Tools Project: Background on Possible Policy & Regulatory Responses to Sea-Level Rise". Southern Maine Regional Planning Commission
<http://www.smrpc.org/CoastalHazardResiliencyToolsProject/PresentationYorkKennebunkJan2010.pdf>

Assessing the Potential Impact of Sea-Level Rise and Climatic Hazards on Ecological and Human Communities within the Northern Gulf of Mexico
http://www.gulfmex.org/wp-content/uploads/2011/04/Gulfwide_Conservation_Analysis_Feb2012_final_w_logos.pdf



Outreach and Education



The best plans are only effective when a qualified team can execute them. Marina employees and tenants require regular training, up-to-date information, and materials when new practices are introduced. Boaters have to know what a marina expects from them, too. A Clean and Resilient Marina Outreach and Education Program has two target audiences:

- 1) Marina owners, operators and employees, and
- 2) Boaters and customers of the marina.

A good outreach and education program offers many ways to learn about Clean and Resilient Marina practices. Everyone has a different learning style. While face-to-face annual training is frequently used to keep employees and operators up to date, employees may also benefit from an education program that allows for more questions and answers. They may also enjoy being rewarded for making your marina a cleaner and safer place to do business. Boaters can learn about your marina's mission and practices in a welcome packet or berthing agreement, as well as through brochures, signage, newsletters and even social media. Video clips on social media can be used to demonstrate best practices to staff and tenants alike.

Details about these outreach and education practices can be found with your state Clean and Resilient Marina contact or in GOMA's *Clean and Resilient Marina Guidebook*.



Outreach and Education Reference Materials

Developing Resilience through Outreach and Education:

- (1) Ensure Staff and Boaters Understand Evacuation & Emergency Preparedness Procedures;
- (2) Educate Staff and Boaters on Preventing Shoreline Erosion;
- (3) Communicate Strategy for Managing Gas/Oil and Hazardous Material Spills to Staff & Boaters;
- (4) Familiarize Staff with Policies and Procedures Outlined in the Stormwater Management Plan;
- (5) Educate Staff and Boaters on Proper Sewage and Wastewater Handling; and
- (6) Ensure Staff and Boaters Follow Proper Fire and Safety Management Practices.

NOAA Coastal Services Center
<http://www.csc.noaa.gov/>

EPA Gulf of Mexico Program
<http://www.epa.gov/gmpo/index.html>

StormSmart Connect
<http://stormsmart.org/>

NOAA's Clean Marina Initiative
<http://coastalmanagement.noaa.gov/marinas.html>

The Gulf of Mexico at a Glance.
http://www.gulfofmexicoalliance.org/pdfs/gulf_glance_1008.pdf#view=Fit&toolbar=1

TEXAS Sea Grant College Program - Protecting Your Boat Against Severe Weather
<http://texas-sea-grant.tamu.edu/WhatWeDo/online%20publications/protectyourboat2012.html>



Clean & Resilient Marina Checklist

I.0 MARINA DESIGN & MAINTENANCE

1.1 CLEAN MARINA CHECKLIST QUESTIONS

- Yes [] No [] New Construction - Use Environmentally neutral materials?
- Yes [] No [] New Construction - Employ shore erosion control measures?
- Yes [] No [] Maintain property using Clean Marina/Best Management Practices (BMPs)?
- Yes [] No [] Practice water conservation?
- Yes [] No [] Use upland and inland areas for storage & maintenance?
- Yes [] No [] Have a vegetated area or conservation easement on your property?
- Yes [] No [] Avoid toxic lawn & garden chemicals to the greatest extent possible?
- Yes [] No [] Practice waterwise landscaping?

1.2 RESILIENT MARINA CHECKLIST QUESTIONS

Marina Siting

- Yes [] No [] Conduct soils stability, or geotechnical testing before construction or expansion?
- Yes [] No [] Determine maximum potential wind speeds at site?
- Yes [] No [] Estimate potential wave height by determining distance wind travels over open water (or fetch)?
- Yes [] No [] Determine potential heights of elevated tidal and storm surge?
- Yes [] No [] Determine prevailing currents?
- Yes [] No [] Location provides shelter from water impact and storm surge?
- Yes [] No [] Harbor entrance channel is aligned to account for prevailing winds, waves, and currents?
- Yes [] No [] Located in area requiring a minimum of excavating, filling, and dredging?
- Yes [] No [] Improvements made to maximize circulation and minimize need for dredging?
- Yes [] No [] Water-calming measures employed as appropriate?

Waterside Facilities

- Yes [] No [] Piers and docks extend into naturally deep waters?
- Yes [] No [] Slips for deep draft boats located in naturally deep waters?
- Yes [] No [] Dock system designed to allow for free exchange of water between harbor and surrounding water?
- Yes [] No [] Launch ramps can accommodate high volume traffic in the event of an evacuation?
- Yes [] No [] Fuel tanks are located on-shore?
- Yes [] No [] Channels are of adequate width to promote safe movement of boats?



Clean & Resilient Marina Checklist

- Yes [] No [] Dock anchoring systems are designed to resist storm surge, high winds, floating debris?
- Yes [] No [] Docks and piers can bear the load of daily traffic as well as the increased stress of storm surge, high winds and floating debris?
- Yes [] No [] Provide an adequate size and number of cleats or other tie-down and mooring tools for tenants?

Landside Facilities

- Yes [] No [] Site facilities on high ground where available?
- Yes [] No [] Buildings constructed to withstand hurricane force winds?
- Yes [] No [] Buildings constructed with flood resistant materials?
- Yes [] No [] Minimize paved surfaces for parking?
- Yes [] No [] Ensure safe pedestrian access?
- Yes [] No [] Provide for emergency access?
- Yes [] No [] Meet accessibility standards?
- Yes [] No [] Sanitary systems designed to withstand hurricanes and tropical storms?
- Yes [] No [] Fueling systems designed to withstand hurricane and tropical storms?
- Yes [] No [] Electrical and communication systems designed to withstand hurricane and tropical storms?
- Yes [] No [] Dry storage areas available for evacuation in inclement weather?
- Yes [] No [] Dry storage racks are adequately anchored to bear hurricane force wind loads?
- Yes [] No [] Covered storage structures are built to withstand hurricane force wind loads?

2.0 MARINA MANAGEMENT

2.1 CLEAN MARINAS

- Yes [] No [] Train employees 2/year about the contents of your Stormwater Pollution Prevention Plan (SWPPP)?
- Yes [] No [] Train employees to use equipment & chemicals according to established standards?
- Yes [] No [] Regularly review emergency response procedures with staff?
- Yes [] No [] Train employees to watch for inappropriate discharges?
- Yes [] No [] Have a predetermined procedure for handling pollutants?
- Yes [] No [] Maintain training records?
- Yes [] No [] Incorporate best management practices into all contracts?
- Yes [] No [] Post signs detailing Best Management Practices (BMPs)?
- Yes [] No [] Distribute environmental education materials to patrons?
- Yes [] No [] Host workshops to highlight and demonstrate BMPs?
- Yes [] No [] Encourage and recognize boaters who try to prevent pollution?
- Yes [] No [] Publicize your own environmental efforts?



Clean & Resilient Marina Checklist

3.0 EMERGENCY PLANNING

3.1 CLEAN MARINA CHECKLIST QUESTIONS

- Yes [] No [] Do you have a Spill Prevention Control and Countermeasure (SPCC) plan?
- Yes [] No [] Have accessible, current, written emergency response plans for likely threats?
- Yes [] No [] Have regular emergency training and drills for staff?
- Yes [] No [] Store oil spill response equipment in a convenient, readily accessible location?
- Yes [] No [] Maintain files of Material Safety Data Sheets as required by Occupational Safety and Health Administration (OSHA)?

3.2 RESILIENT MARINA CHECKLIST QUESTIONS

- Yes [] No [] Have an active Emergency Preparedness Leadership Team?
- Yes [] No [] Boat owner requirements defined in the case of an emergency?
- Yes [] No [] Employee Instruction Program for emergency preparedness?
- Yes [] No [] Evacuation procedures clearly communicated to staff including wet slip procedures, dry stack procedures, and staff evacuation?
- Yes [] No [] Support boat owners as they develop their own emergency plans?
- Yes [] No [] Posted signs describing emergency preparedness requirements and procedures?
- Yes [] No [] Require boaters to carry insurance?

4.0 EVACUATION PROCEDURES

4.1 RESILIENT MARINA CHECKLIST QUESTIONS

- Yes [] No [] Have an active evacuation plan for hurricanes or other disasters?
- Yes [] No [] Action plan for the countdown to a major storm?
- Yes [] No [] Ability to mobilize large number of boats in a short time span?
- Yes [] No [] Boaters are familiar with the marina's evacuation policies and procedures?
- Yes [] No [] Boaters file a clear plan of their intentions in the event of a storm?
- Yes [] No [] Active Hurricane Response Team (HRT) of marina employees, boat owners & other volunteers?
- Yes [] No [] Established Wet slip evacuation procedures?
- Yes [] No [] Established Dry dock evacuation procedures?
- Yes [] No [] For boats that do not evacuate, storm resistant tie-down procedures and responsibilities clearly defined?
- Yes [] No [] Boat preparedness steps defined in berthing agreement?



Clean & Resilient Marina Checklist

- Yes [] No [] Clearly identified hurricane evacuation routes?
Yes [] No [] Safe Harbors identified?

5.0 PETROLEUM CONTROL

5.1 CLEAN MARINA CHECKLIST QUESTIONS

- Yes [] No [] Are you in compliance with petroleum (fuel & oil) storage requirements?
Yes [] No [] Do you regularly inspect/repair fuel transfer equipment?
Yes [] No [] Have environmental control at the pump?
Yes [] No [] Train staff to promote environmental precautions while fueling?
Yes [] No [] Maintain for available use oil absorbent materials at your fuel dock?
Yes [] No [] Take precautions to minimize spills and leaks from machinery?
Yes [] No [] Have signs posted explaining proper fueling procedures?
Yes [] No [] Personnel are supervising when customers are fueling?
Yes [] No [] Have customers avoid fuel discharges to the water by not allowing topping off?

6.0 SEWAGE HANDLING

6.1 CLEAN MARINA CHECKLIST QUESTIONS

- Yes [] No [] Have a well-maintained pumpout system?
Yes [] No [] Have a dump station or a wand attachment to empty portable toilets?
Yes [] No [] Discourage discharge from Type 1 and Type 11 Marine Sanitation Devices (MSD's) at the slip or mooring?
Yes [] No [] Have clean, functional restrooms available 24 hours a day?
Yes [] No [] Address the special sewage handling needs of live-aboards?
Yes [] No [] Septic or private sewage treatment system regularly maintained and functional?
Yes [] No [] Record or log of use and maintenance of your pumpout system?
Yes [] No [] Address Marine Sanitation Device (MSD) laws in your contracts for slips, transients and liveaboards?
Yes [] No [] Address gray water concerns via encouraging the use of shore side facilities (i.e. laundry)
Yes [] No [] Provide visible signage?
Yes [] No [] Encourage boaters to conserve water usage?
Yes [] No [] Educate boaters on impact of effluent on waterways?



Clean & Resilient Marina Checklist

7.0 WASTE CONTAINMENT & DISPOSAL

7.1 CLEAN MARINA CHECKLIST QUESTIONS

- Yes [] No [] Store, use, and dispose hazardous waste, including solvents, in accordance with federal & state regulations?
- Yes [] No [] Reduce waste in your daily operations?
- Yes [] No [] Control the disposal of fish scraps to areas/methods which will not impair water quality?
- Yes [] No [] Provide trash cans, bins, dumpsters, etc. that are covered, well-marked and convenient?
- Yes [] No [] Conduct daily trash pick-up within your marina and along shoreline?
- Yes [] No [] Provide or promote solid waste (oil, solvents, etc.) recycling?
- Yes [] No [] Provide or promote liquid waste recycling?
- Yes [] No [] Minimize use of hazardous products?
- Yes [] No [] Follow recommended waste disposal methods?
- Yes [] No [] Track pollution incidents?
- Yes [] No [] Provide materials needed for spill-proof oil changes?
- Yes [] No [] Organized shoreline cleanup along the surface body water at marina?
- Yes [] No [] Train marina staff in proper waste management?

8.0 VESSEL MAINTENANCE AND REPAIR

8.1 CLEAN MARINA CHECKLIST QUESTIONS

- Yes [] No [] Restrict maintenance activities to designated work areas?
- Yes [] No [] Contain dust from sanding?
- Yes [] No [] Contain debris from blasting?
- Yes [] No [] Minimize impacts of pressure washing?
- Yes [] No [] Recommend bottom coatings w/ minimal environmental impacts?
- Yes [] No [] Minimize impacts of painting operations?
- Yes [] No [] Handle solvents appropriately?
- Yes [] No [] Offer spill-proof oil changes?
- Yes [] No [] Provide an oil/water separation service to filter bilge water?
- Yes [] No [] Offer Marine Sanitation Devices I (MSD) inspections and maintenance?
- Yes [] No [] Recommend/offer environmental audits or retrofits for vessel sanitation systems?
- Yes [] No [] Minimize environmental impacts from engine repair and maintenance?
- Yes [] No [] Minimize environmental impacts from winterization work?



Clean & Resilient Marina Checklist

- Yes No Minimize environmental impacts from in-water maintenance?
- Yes No Minimize environmental impacts from underwater hull cleaning in marina waters?
- Yes No Discourage in-water maintenance and cleaning?

9.0 STORMWATER MANAGEMENT

9.1 CLEAN MARINA CHECKLIST QUESTIONS

- Yes No Does marina have a current Stormwater Pollution Prevention Plan (SWPPP)?
- Yes No Have a stormwater management system?
- Yes No Cultivate vegetated areas?
- Yes No Limit the paved surfaces at the marina?
- Yes No Stencil or mark storm drains?
- Yes No Practice good housekeeping methods to reduce stormwater pollution?
- Yes No Inspect your stormwater system regularly?
- Yes No Use oil and grit separators in storm drains?
- Yes No Marina has a National Pollutant Discharge Elimination System (NPDES) stormwater permit?
- Yes No Stormwater sampling and records keeping is on schedule?
- Yes No Use stormwater management procedures to reduce the concentration of pollutants entering surface waters (ex. Brick pavers, vegetation, buffers, sloped areas)?

9.2 RESILIENT MARINA CHECKLIST QUESTIONS

- Yes No Stormwater is treated for pollutant removal (including sediment) onsite?
- Yes No Stormwater is treated for pollutant removal (including sediment) offsite?
- Yes No Areas of potential stormwater pollution have been identified (including fueling areas, chemical storage areas, and maintenance locations)?
- Yes No Erosion control measures employ Best Management Practices (BMPs) that work with existing soils?
- Yes No Facility housekeeping is completed on a regular basis?
- Yes No Erosion and sediment control plans are required for construction and landscape projects?
- Yes No Natural erosion protection is used where possible to limit damage to shoreline?
- Yes No “Living shoreline”, or natural control and stabilization procedures are employed?



Clean & Resilient Marina Checklist

10.0 OUTREACH & BOATER EDUCATION

10.1 CLEAN MARINA CHECKLIST QUESTIONS

- Yes [] No [] Provide clean boating sheets to boaters?
- Yes [] No [] Provide clear signage regarding Clean practices around the marina?
- Yes [] No [] Post environmental information in clearly marked places (bulletin board)?
- Yes [] No [] Encourage and recognize boaters who try to prevent pollution?
- Yes [] No [] Encourage patrons to review contracts?
- Yes [] No [] Post signs detailing Best Management Practices (BMPs)?
- Yes [] No [] Distribute environmental education materials to patrons?

10.2 RESILIENT MARINA CHECKLIST QUESTIONS

- Yes [] No [] Signage and storm drain stenciling educate boaters on stormwater pollution prevention?
- Yes [] No [] No-wake zones are clearly defined using signage?
- Yes [] No [] No-wake zones are described in contracts and rental agreements?
- Yes [] No [] Provide boaters educational materials on proper boat cleaning and maintenance techniques?
- Yes [] No [] Provide boaters with handbook for potential emergency situations?
- Yes [] No [] Use social media to communicate Clean & Resilient practices with boaters?
- Yes [] No [] Provide video clips for employee and boater training that demonstrate Clean & Resilient marina practices?
- Yes [] No [] Post phone numbers at marina for emergency situations?
- Yes [] No [] Post clearly labeled facility and vicinity maps with evacuation routes and shelter areas?
- Yes [] No [] Provide training for boaters and owners about safe boat storage for storm events?
- Yes [] No [] Include information on all emergency preparedness and evacuation policies and procedures in berthing agreements?



Additional Information

FOR ADDITIONAL INFORMATION PLEASE VISIT
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