



JellyResponse:

JellyStorm, Storm Prep Starts Below the Surface

Inspired by the Texas Gulf Coast, Project JellyClean, and real stories from people who know what storms can do to marinas and coastal communities

Background & Motivation

We live on the Texas Gulf Coast, where storms are not just something we read about. We have seen the damage they can bring, and we know recovery can cost billions and leave small communities struggling for years. Last year our Project JellyClean ROV helped remove debris from local waterways. This year we asked a new question: could an ROV also help marinas prepare before a storm and inspect damage after one?

Why it matters to us:

We heard firsthand how storms damaged docks, businesses, and whole families. Some fishing crews even told us how Hurricane Katrina pushed them from Louisiana to Texas. Those conversations reminded us that what happens below the surface can affect an entire community above it.

Abstract

JellyStorm is our student-built marina inspection ROV project. We chose it because underwater storm risk is hard to see from the dock, especially in murky Galveston water. Our hypothesis was that better lighting, better visibility, and real marina testing could turn our SeaPerch ROV into a useful storm preparation and assessment tool.



Figure 1. Project JellyClean helped inspire JellyStorm, our move from cleanup to marina inspection.



Dock deployment



Conclusion

JellyStorm showed us that a student built ROV can do more than complete pool tasks. It can support inspection, planning, and smarter storm preparation. This project changed how we see engineering. It is not just building something cool, it is solving problems that matter where we live.

Results & Discussion

- Surface views miss important underwater conditions around docks, pilings, and marina structures.
- Better lighting made the biggest difference in what we could actually inspect.
- Marina testing showed we needed calmer movement, cleaner tether management, and wider viewing angles than JellyClean required.
- Stories from Gulf Coast workers, including families affected by Hurricane Katrina, made the project feel urgent and real.
- Biggest lesson: storm response starts long before the storm hits.

Next Steps

Next, we want to improve camera clarity, build a better lighting system, and refine tether control in stronger current and lower visibility. We also want to create a simple marina inspection checklist and keep exploring how student built ROVs can support both storm preparation and post storm assessment.