SkyWind Solutions

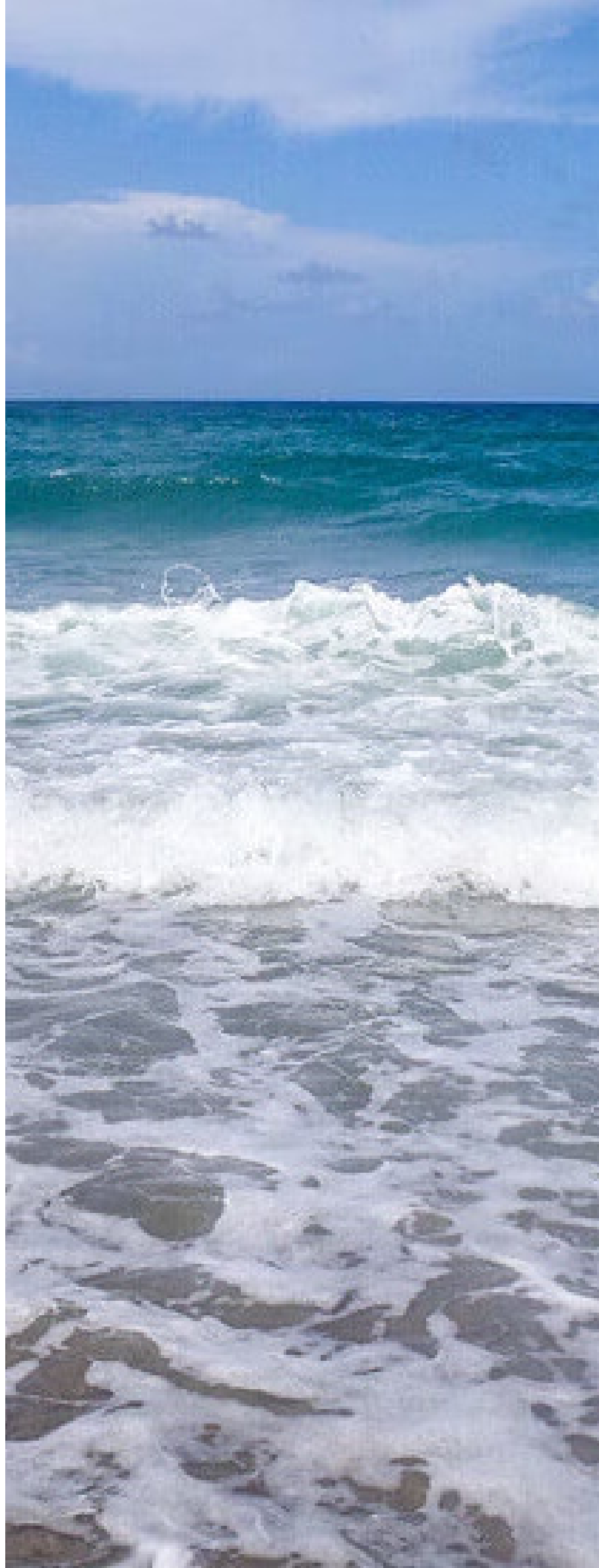
Actionable Water Intelligence for Palm Beach County Municipalities

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Recognition & Partnerships:

Featured in the Tampa Bay Regional Planning Council's newsletter for its role in advancing AI-powered flood forecasting for local governments.

Selected for Seaworthy Collective's sixth Ocean Enterprise Studio & Incubator cohort, part of a $14M NOAA partnership accelerating BlueTech startups to market.



The Data Gap Undermining Coastal Decision-Making

Florida’s $1 trillion coastal economy operates with insufficient data.

- Water levels along Florida’s 1,350-mile coastline are measured by just 22 tidal stations—roughly one every 60 miles
- Most operators rely on the closest available gauge, even when it's miles away and fails to reflect actual on-site conditions
- The 47-mile coast from Juno Beach to Boca Raton has just three tidal stations, all on the Intracoastal Waterway.
- Palm Beach County’s most popular Atlantic beaches, like Lake Worth, Boca Raton, Boynton Beach, and Delray Beach, often see tidal variation 0.5–1ft greater than nearby Intracoastal Waterway locations.
- Astronomical tide forecasts follow sun–moon cycles but ignore local wind, weather, and geography
- Small changes in shoreline, seabed, or river flow can shift water height by feet — and timing by hours

The result: critical blind spots in flood planning, adaptation projects, and community safety.

Source: NOAA Office for Coastal Management, 2022.



Why It Matters Now

Rising flood risk calls for next-generation forecasting

Traditional estimates from tide gauge data underestimate storm surge extremes by at least 80%

By 2050, parts of Palm Beach County could see today’s 100-year floods happening every year as sea level rises 1–1.5ft under medium to high projections.

Over half of Florida’s 410 municipalities will be affected by 6.6 feet of sea-level rise

Florida will see a 400–1,100% increase in tidal flood days per year by 2050; barrier island communities are among the most impacted

In Boca Raton, "sunny day flooding"—caused by high tides, not rain—now occurs several times per year in low-lying areas, with frequency expected to rise as sea levels increase

64 Florida municipalities get 50% of their revenues from properties at chronic flood risk

Florida's Big Bend region, spanning 150 miles between Apalachicola and Cedar Key, has no tide gauges at all

⏳ Legacy models ignore real-time climate volatility — and that's costly.



Our Solution

SkyWind Solutions, based in Boca Raton, Florida, delivers hyperlocal, AI-powered, total water level forecasts.

Hyperlocal, Site-Specific

Customized to your location, not just the nearest tidal gauge

Proprietary ML Models

Custom-trained with site-specific bias correction, learning from historical forecast errors

95% Confidence Intervals

Expected levels *plus* projected range of likely outcomes for better decision making

API-First Architecture

Easy plug-in for enterprise users

- Designed to support critical ops and under-served coastal regions
- Designed to ingest IoT sensor feeds where available



Scientific Firepower

Built by experts in numerical modeling, weather science, and coastal risk.



Bonnie Schneider

Former national TV meteorologist (NBC News, CNN, Bloomberg, Weather Channel). Author: *Extreme Weather* (Macmillan) and *Taking the Heat* (Simon & Schuster) and the *EcoTech Report*, advancing sustainability in technology. Graduate of Boston University.



Dr. Greg Rainwater

Applied mathematician and atmospheric scientist with a research focus on numerical methods and parallel computing for weather and climate models. A Native American researcher, Dr. Rainwater developed advanced time integration techniques during his Ph.D. at UC Merced and holds an M.S. in Mathematics from Portland State University.



Dr. Kevin Viner

Meteorologist specializing in numerical methods and dynamical systems for global atmospheric prediction. Dr. Viner spent over a decade at the U.S. Naval Research Laboratory advancing large-scale forecasting systems. Ph.D. in Atmospheric Sciences from Texas A&M University and an M.S. from Purdue University.

Extended Team:

The extended executive team includes senior-level scientists with doctoral degrees in meteorology, mathematics, and engineering.

Collectively, they lead initiatives in numerical weather prediction, high-performance computing, and advanced software architecture — bringing decades of specialized experience at the forefront of their fields.



3-Month Pilot Program

Risk-free onboarding. Real-world validation.

What We Offer:

✓ Site-specific forecasts calibrated to your exact location
✓ Continuous model improvement based on your operational feedback
✓ Performance evaluation and measurable value demonstration

> Our company provides daily, hyper-local water level forecasts tailored specifically for coastal communities. Using a proprietary AI/ML model, we generate accurate 7-day forecasts for individual locations.

Forecasts That Fit Your Workflow

- **Online Dashboard**: A user-friendly web interface that displays the full 7-day forecast and associated confidence ranges for your location.
- **API Access**: Forecasts and confidence data are also available via an API, enabling automated downloads.

Our Process:

1 **Discovery**

Understand your operational needs

2 **Customization**

Calibrate forecasts to your environment

3 **Delivery**

Provide hyperlocal tide predictions, up to 7 days in advance, with probability bands that show the range of likely outcomes, updated twice daily

Success Metrics:

Improved decision-making accuracy

Enhanced safety and flood response

Demonstrated value in reducing risk and cost

Let's Talk

Ready to replace guesswork with precision?

Book a short call to discuss your use case.



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