MCP SERVER | NO CODE | CLOUD HOSTED

NOAA Marine — Tides, Currents MCP

Monitor US coastlines for water levels and currents.

NOAA Marine — Tides, Currents & Coastal Data pulls real-time oceanographic information from over 200 US coastal stations. Access current water levels (tides), predicted high and low tide times, observed currents, water temperature readings, air pressure, and long-term sea level rise trends in one place. This MCP provides the core data needed for maritime planning, climate modeling, and immediate coastal monitoring.

A+ Quality Score 100/100

tides | oceanography | marine-data | real-time-sensors | meteorology | sea-level

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vinkius.com/mcp/noaa-marine-tides-currents-coastal-data

SCAN TO VIEW

The connectivity layer between AI and the world's software.

Vinkius sits between AI and every application. All communication passes through Vinkius Cloud via the Model Context Protocol (MCP) — with governance, observability, and security at every layer.

Your AI Connections Run Through Vinkius Cloud

The world's largest managed MCP catalog

Vinkius is the connectivity layer where AI connects to the software your business already runs. We handle the hosting, the security, the credentials, the uptime — you get agents that actually do things.

We operate the world's largest managed MCP catalog. Major SaaS platforms, CRMs, databases, and cloud providers — running, monitored, production-ready. This MCP server is hosted and maintained by the Vinkius Cloud for AI Agents.

> *The agent doesn't manage credentials, doesn't manage uptime, doesn't manage security. Vinkius does.*
>
> — Architecture principle

Four Pillars of the Vinkius Runtime

01 — Security by design

Credentials stay encrypted at rest via AES-256. The AI agent never touches raw keys — they're injected into a sandboxed V8 isolate at runtime. Actions are logged, and connections have an emergency kill switch.

02 — Built on MCP Fusion

This MCP server was built with **MCP Fusion**, the open-source framework (Apache 2.0) that powers the entire Vinkius catalog. Schema-as-firewall strips undeclared fields, compiled PII redaction runs at zero overhead, and cryptographic lockfiles produce git-diffable audit trails.

03 — Deterministic observability

Eight immutable metrics per endpoint: request volume, p95 latency, error rate, active connections, cost attribution. A live payload feed logs every tool call with mutation detection.

04 — Autonomous operations

Servers are deployed, monitored, and patched autonomously. New capabilities and security patches ship weekly. Zero-downtime deployments ensure continuous availability across all managed MCP servers.

AES-256	Ed25519	24h TTL	V8 Isolate
Encryption at rest	PKI vault signatures	Ephemeral session keys	Sandboxed execution

One Token. Instant Access.

Every MCP server on Vinkius is accessed through a **Connection Token**. Tokens are generated in the cloud dashboard and produce a unique MCP endpoint URL. Paste this URL into any MCP-compatible client — no SDK required.

A single token can serve **multiple AI clients simultaneously**, or you can issue separate tokens per client for granular access control. Each token tracks its own request count, last activity timestamp, and can be individually enabled or revoked.

MCP ENDPOINT

```
https://edge.vinkius.com/{token}/mcp
```

Claude · Cursor · VS Code · Windsurf · Grok · Gemini

Security Is the Architecture

Security in Vinkius is not a feature — it's the foundation of the runtime. The gateway enforces multiple independent protection layers between AI agents and third-party APIs.

01 — Ed25519 PKI Vault

Every workspace has an Ed25519 Master Key. Session keys are generated ephemerally (24h TTL) and signed by the Master Key. Credentials never leave the vault boundary.

02 — V8 Isolate Sandboxing

Tool code runs inside isolated-vm V8 isolates with 64 MB memory caps and per-request timeouts. No filesystem access, no network access except through the SSRF-guarded fetch bridge.

03 — SSRF Guard

All outbound HTTP requests are DNS-resolved and validated before execution. Private IP ranges (10.x, 172.16-31.x, 192.168.x, AWS metadata 169.254.x) are blocked at the network layer.

04 — DLP & PII Redaction

A ResponseGuard pipeline intercepts every tool response. Configurable redaction patterns strip sensitive fields (emails, SSNs, card numbers) before data reaches the AI agent.

05 — Cryptographic Audit Trail

Every request is signed into a SHA-256 hash chain with Ed25519 signatures. Events form a tamper-proof, SIEM-exportable forensic record.

06 — Honeytoken Trap System

Phantom credentials are injected into isolated environments. If a honeytoken is used outside Vinkius infrastructure, the server is quarantined instantly.

Emergency Kill Switch

EU AI Act Art. 14(1) Compliant

The kill switch is an **emergency halt** mechanism — not a simple toggle. When triggered, it executes three actions atomically:

01 — Server deactivated

The MCP server is immediately taken offline across the entire cluster.

02 — All tokens revoked

Every connection token is invalidated. Total lockout — reconnection blocked until new tokens are issued.

03 — WebSocket connections killed

Active connections terminated via Redis pubsub broadcast. Propagates to every runtime node in the cluster.

Full Visibility. Zero Guesswork.

The Vinkius cloud dashboard includes a full MCP Governance suite — real-time analytics and security controls for production AI operations.

Control Plane

KPI dashboard with request volume, latency, success rate, token consumption, and AI-generated operational briefings.

Agent Activity

Which AI clients are connecting, how often, and what they're doing — real-time session tracking.

FinOps

Cost tracking per tool, payload compression savings, budget optimization signals, and consumption trends.

Tool Health

Slowest and most error-prone tools, with actionable root-cause insights and performance baselines.

Firewall & DLP

PII redaction activity, sensitive data protection counters, and security event timeline.

Incident Log

Error trends, failure rates, status-code breakdowns, and forensic audit trail access.

> Get started at **cloud.vinkius.com** — connect your AI agent in under 60 seconds.

NOAA Marine — Tides, Currents & Coastal Data MCP

6 tools available
Cloud-hosted on Vinkius

Need to know what's happening on the coast? This MCP connects your agent directly to NOAA's Center for Operational Oceanographic Products and Services. You can get live water level readings from dozens of US ports, or forecast when the next high or low tide hits—perfect for planning a boating trip. Beyond just tides, you pull in observed ocean currents (speed and direction), current water temperature, and even local meteorological data like wind speed and air pressure. It's also critical for research: track decades of relative sea level changes to understand long-term coastal risk. When this MCP is hosted on Vinkius, your agent can access all these complex layers of sensor data without you needing to jump between multiple government dashboards.

Core Capabilities

01 — Get real-time water levels

Retrieves the current observed tide height (water level) for any specified US coastal station.

02 — Forecast high and low tides

Calculates predicted times and heights for upcoming high and low tides at a specific location, useful for scheduling marine activities.

03 — Track ocean current flow

Provides the observed speed and direction of ocean currents at stations equipped with current meters.

04 — Monitor water temperature

Retrieves the measured water temperature, vital for marine biology or recreational activities like surfing.

05 — Check local weather conditions

Gathers complementary meteorological data, including air temperature, wind speed, and barometric pressure from the station.

06 — Analyze sea level trends

Accesses long-term historical data to determine relative sea level rise rates for climate research.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/noaa-marine-tides-currents-coastal-data** — connect your AI agent in three steps.

01 Tell your agent the specific US coastal location and station ID you need data for.

02 The MCP executes the necessary tool call, querying NOAA's massive database for the requested sensor readings (tides, currents, etc.).

03 Your agent receives a structured JSON payload containing the current or predicted measurements, which it then delivers in plain language.

The bottom line is that you tell your agent what coastal data you need, and it fetches the exact, real-time measurement from NOAA's source.

Built For

This MCP serves those who work with physical geography and require precise environmental data. It's for the marine engineer struggling to calculate safe boat drafts against tide charts, or the climate scientist needing long-term sea level rise rates that standard weather APIs can't provide.

Marine Logistics Planner

Determines optimal loading and unloading times by comparing cargo draft requirements with predicted high/low tide predictions.

Coastal Engineer

Assesses infrastructure vulnerability by combining real-time water levels, currents, and multi-decade sea level trends for risk reports.

Environmental Consultant

Reports on local ecosystem health by correlating current water temperature readings with observed ocean current flow.

What Changes When You Connect

01 Predict your timing perfectly. Use `get_tide_predictions` to forecast high and low tides, ensuring you never miss a narrow window for docking or fishing.

02 Analyze complex environmental data streams. Combining `get_water_levels`, `get_currents`, and `get_meteorological` gives you a complete picture of the coastal conditions at any moment.

03 Understand long-term risk factors. The `get_sea_level_trends` tool allows researchers to model future impacts using decades of relative sea level data, not just today's weather report.

04 Know what's happening under the surface. Get accurate water temperatures and observed current speeds using `get_water_temperature` or `get_currents` for marine biology studies.

05 Get a full context view. By running `get_meteorological` alongside water level data, you account for air temperature, wind, and pressure changes affecting operations.

Real-World Applications

Planning a commercial fishing trip

A boat captain needs to know the safest time to navigate through shallow waters. They prompt their agent: 'What are the tides and currents for San Francisco tomorrow?' The agent uses `get_tide_predictions` and `get_currents`, advising the captain that the slack tide window between low and high is optimal for safe passage.

Assessing waterfront construction risk

A civil engineer needs to know if a pier can withstand storm surge. They ask their agent to compile `get_water_levels` data alongside `get_sea_level_trends`, immediately quantifying the difference between current sea level and historical maximums.

Monitoring sensitive marine life

A researcher needs to track coral health. They request water temperature readings using `get_water_temperature` at multiple stations, allowing them to map areas that are experiencing thermal stress over time.

Emergency response coordination

First responders need immediate data during a storm warning. They check `get_meteorological` data for wind direction and air pressure while simultaneously confirming the current water level using `get_water_levels` to determine safe access points.

Patterns to Avoid

Asking for global ocean data

✗ AVOID

Querying NOAA Marine for deep-sea temperatures off the coast of Africa. The agent will fail because this MCP is restricted to US coastal stations.

✓ INSTEAD

This MCP only covers US coastal data. For international or deep-ocean information, you need a specialized global oceanography tool instead.

Ignoring station IDs

✗ AVOID

Prompting: 'What are the tides at Miami?' The agent needs a specific CO-OPS ID (e.g., 8723214) to run `get_tide_predictions`. Without it, the data call fails.

✓ INSTEAD

Always provide the station's specific NOAA CO-OPS identifier when calling tide or water level tools.

Mixing up sensor types

✗ AVOID

Asking for 'air temperature and current speed.' The agent cannot combine these because they come from different measurement APIs. You must run `get_meteorological` and `get_currents` separately.

✓ INSTEAD

Run the specific tools you need (`get_meteorological`, `get_currents`) to gather distinct data points, then synthesize the report in one go.

The Right Fit

Use this MCP if your project centers on US coastal environments—anything from boat traffic planning to climate change modeling requires NOAA-grade water levels, tides, or current speeds. It's ideal when you need a combination of real-time sensor data and historical trends (like comparing `get_water_levels` now against `get_sea_level_trends`). Don't use this if your needs are purely global (e.g., tracking Pacific Island currents) or if you only need simple, generalized weather forecasts that don't reference specific water activity; in those cases, a general meteorological API might suffice.

But remember: if the core of your problem involves knowing *when* the tide turns or how fast the water is flowing right now at a numbered US port, this MCP is non-negotiable.

Dealing with fragmented coastal data feeds today

Right now, if you need to plan anything that touches the coast—whether it's docking a boat or assessing infrastructure damage—you spend hours clicking across three different government websites. You pull up one dashboard for tide charts, another for local weather conditions, and then maybe a third portal just for current speed data. It's copy-pasting sensor readings from multiple tabs into a single spreadsheet, all while hoping the time stamps actually align.

With this MCP, you let your agent handle the complexity. You ask one question—for instance, 'What are the conditions at The Battery?' and it automatically gathers real-time water levels, current flow, air pressure, and even long-term sea level context. You get a single, cohesive answer without ever leaving your workflow.

Get immediate insight with NOAA Marine — Tides, Currents & Coastal Data

The manual steps that disappear are the cross-platform data mapping and reconciliation. You no longer have to manually look up a station ID for tide predictions, then open another tab to check the corresponding water temperature, and finally run a separate search for long-term sea level rise rates. It’s all integrated.

The difference is that you move from gathering raw data points to receiving actionable intelligence. You don't just get numbers; you get an answer that helps you make decisions.

NOAA Marine — Tides, Currents & Coastal Data: 6 Tools

These tools allow your agent to access specific oceanographic measurements, including water levels, currents, temperatures, and historical sea level data from US coastlines.

#	TOOL	DESCRIPTION
01	`get_water_levels`	Gets the currently observed tide height at a specific US coastal station ID.
02	`get_tide_predictions`	Provides forecasts for upcoming high and low tide times and heights near a specified station.
03	`get_currents`	Retrieves the observed speed and direction of ocean currents at stations with current meters.
04	`get_water_temperature`	Gathers the measured water temperature from a designated US coastal station.
05	`get_meteorological`	Pulls air temperature, wind speed, and atmospheric pressure data for a complete coastal picture.
06	`get_sea_level_trends`	Calculates the long-term relative sea level rise trends based on historical tide gauge measurements.

See It in Action

Real prompts you can use once this MCP is connected to your AI agent through Vinkius Cloud.

U What are the tide predictions for today at The Battery, NYC?

🌊 **The Battery (8518750) — Tide Predictions**

TIME	TYPE	HEIGHT
5:42 AM	Low	0.12 m
11:58 AM	High	1.52 m
6:15 PM	Low	0.08 m
12:22 AM	High	1.48 m

Tidal range: 1.44 m. Semi-diurnal pattern.

U What is the current water temperature in San Francisco Bay?

At the San Francisco station (9414290), the current water temperature is 57.2°F (14.0°C). Air temperature is 59°F, with winds blowing from the WNW at 15 knots.

U Show me the sea level rise trend for Miami over the last 50 years.

At the Virginia Key station in Miami (8723214), relative sea level has been rising at an average rate of 3.01 millimeters per year based on data from 1931 to present.

Frequently Asked Questions

01 **How do I use the NOAA Marine — Tides, Currents & Coastal Data MCP for a specific location?**

You need to provide the CO-OPS station ID. For example, if you want tides at The Battery in NYC, you must include the ID 8518750 when calling `get_tide_predictions`.

02 **Does NOAA Marine — Tides, Currents & Coastal Data have global coverage?**

No. This MCP is limited to US coastal stations managed by NOAA CO-OPS. For international data, you must use a different service type.

03 **Can I track historical water levels with the NOAA Marine — Tides, Currents & Coastal Data MCP?**

Yes, for long-term climate research, you can get relative sea level rise trends using `get_sea_level_trends`, which analyzes decades of data.

04 **What is the difference between water levels and tide predictions in this MCP?**

Water levels (`get_water_levels`) give you what's happening right now. Tide predictions (`get_tide_predictions`) give you a forecast of when the next high or low tide will occur.

05 **Does NOAA Marine — Tides, Currents & Coastal Data include wind data?**

Yes. You can combine `get_meteorological` with water level tools to get air temperature, wind speed, and pressure alongside the water readings.

Go Live in 60 Seconds

Get your connection token from **cloud.vinkius.com**, then paste the endpoint URL into any MCP-compatible client.

YOUR MCP ENDPOINT

```
https://edge.vinkius.com/[TOKEN]/mcp
```

CLIENT	WHERE TO CONFIGURE
Claude AI	Profile → Customize → Connectors → "+" → Add custom connector → Paste endpoint
Cursor	Settings → Features → MCP Servers → "+ Add New MCP Server" → Type: SSE → Paste endpoint
VS Code	Ctrl/Cmd+Shift+P → "MCP: Add Server" → add `"noaa-marine-tides-currents-coastal-data": { "url": "…" }`
Windsurf	MCP Settings → `mcp_settings.json` → Add endpoint URL
ChatGPT	Settings → Tools & plugins → Add MCP server → Paste endpoint
Gemini	Extensions → Add MCP Server → Paste endpoint URL

ASK AN AI ABOUT THIS

Let your preferred AI explain this MCP server

- Ask ChatGPT
- Ask Claude
- Ask Perplexity
- Ask Gemini
- Ask Grok

READY TO CONNECT

NOAA Marine — Tides, Currents & Coastal Data is live on Vinkius Cloud.

Get your connection token, paste it into your AI agent, and start building. No SDK. No deployment. Just results.

Start at cloud.vinkius.com →

vinkius.com · support@vinkius.com

INDEPENDENT PLATFORM DISCLAIMER

DOCUMENT INFORMATION

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MCP Server	NOAA Marine — Tides, Currents & Coastal Data MCP
Server ID	`019d75de-dfa5-72b1-8c2b-0cdcbc4e1b59`
Platform	Vinkius Cloud for AI Agents
Endpoint	`https://edge.vinkius.com/{token}/mcp`

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