

FAQs – Autonomous Dredging Technologies

Last updated May 26, 2026

We have created drawings and are working on the construction of a totally nontraditional dredge concept, and also a sediment control device, as not currently envisioned, that meets much of the broad criteria as described for autonomous dredging. I am not familiar with your collaboration or NDA process as relates to intellectual property. Please advise as to the steps we need to take to potentially determine our interest in participating in this project, and how, and thank you in advance for any assistance you may be able to provide.

All government reviewers are required to sign NDAs prior to receiving submissions. However, no classified or proprietary information should be submitted as part of the initial solution submission as stated on page 2 of the Commercial Solution Opening.

Should proposed solutions assume integration into existing USACE dredging assets, or can solutions include modifications and future platform concepts?

Solutions should be commercially available or at the prototype stage.

Is ERDC targeting technologies at a specific Technology Readiness Level range?

Technologies should be TRL 6 or higher.

Does ERDC envision laboratory demonstration, simulator validation, field pilot testing, or operational deployment as the preferred outcome?

Operational deployment is the preferred outcome. However, field pilot testing is potentially acceptable.

Is the intended operational concept fully autonomous, supervised autonomy, or human-in-the-loop decision support?

Supervised autonomy or full autonomy are preferred.

Which performance metrics are considered most important?

The following performance metrics per category may be considered. Due to the nature of the dredging process, a multi-category evaluation criterion will be necessary. Ultimately, successful integration into a future operational posture will require that the proposed solution offer a comparable or better value proposition than current operations.

Category	Key Metrics/Thresholds
Production/Efficiency	Production rate ($\geq 90\%$ baseline), cost per cubic yard ($\leq 110\%$ baseline), crew hours, fuel per cubic yard
Accuracy/Control	Positioning accuracy (± 0.25 m), task completion variance
Safety/Risk	Incident rate (0), collision/grounding probability, emergency stop (≤ 1 boat length)
Environmental	Turbidity ($\pm 10\%$ baseline), noise (< 160 dB), spill contingency, contamination leachate
Reliability/Technical	Sensor calibration ($\pm 2\sigma$), control latency (< 100 ms), power response
Data/Analytics	Time-synced logs, GNSS/IMU, 5+ year storage, hash-chain integrity
Regulatory/Stakeholder	Compliance (SOLAS, COLREGS, USCG), public acceptance
Economic/Lifecycle	Life-cycle cost, NPV, ROI (≤ 5 years)
Scalability/Integration	Fleet API (ISO 19848), multi-unit conflict avoidance