

Article: Auditing marine survey evidence for submerged prehistoric landscapes on the Spanish Gulf of Cádiz shelf
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Online Resource 1. Bounded UPDATE/DECIDE crosswalk

From controlled marine-survey outcomes to evidence-state revision and institutional review

Purpose. This crosswalk operationalizes the sequence INVESTIGATE → OBSERVE → UPDATE → DECIDE. UPDATE means a traceable change to the bounded observation register, permitted inference or next information requirement. It is not a Bayesian posterior-probability or expected-value-of-sample-information calculation.

Controlled outcome	Minimum qualification	Bounded UPDATE to the evidence state	Institutional review implication	Prohibited inference
Target detected	Target-appropriate observation with documented geometry, achieved configuration, environmental conditions, processing and archaeological review.	Advance the evidenced target level or revise the interpreted object class only within the documented support. Record confidence, validation and unresolved extent or chronology.	Consider characterization, avoidance, mitigation, preservation, monitoring or targeted validation in proportion to the evidenced target. The observation does not determine the legal or management action by itself.	Do not extrapolate the detection beyond its support, infer regional prevalence, or treat a natural or modern non-target detection as prehistoric evidence.
Target not detected under adequate conditions	Every applicable target, geometry, configuration, environment, processing, repeatability, archaeological-review and reuse gate passes; the minimum observable target is explicit.	Reduce support for the defined target only within the completed footprint, line, swath, horizon, core interval, searched radius or monitored work volume. Retain residual uncertainty and the detection limit.	A competent authority may reduce, redirect or close a proportionate information requirement within that support while retaining requirements outside it or for other target classes.	Do not report archaeological absence, transfer the negative to unsuitable target classes, or generalize it to adjacent or unsurveyed areas.
Target not resolved or inconclusive	An observation exists, but interpretation, repeatability, target fit, resolution, penetration, validation or environmental performance remains insufficient.	Preserve archaeological uncertainty. Update the decisive gap, confidence and the specific reason the observation cannot support detection or adequate non-detection.	Consider reprocessing, repeat acquisition, infill lines, an alternative sensor, coring or direct verification where the unresolved outcome remains decision-relevant.	Do not recode the result as negative, positive, zero, surveyed, or evidence of absence.
Source target not relocated	A previously recorded target was revisited, but burial, movement, positioning, visibility, search geometry or effort cannot be excluded as an explanation.	Update the relocation state and its uncertainty; do not lower archaeological belief by default. Record the missing search-effort and environmental denominator.	Consider targeted reacquisition, positional reconciliation or a documented expanded search if relocation would change the planning response.	Do not treat failure to relocate as adequate non-detection, disappearance, false-negative-rate evidence or archaeological absence.
Data unavailable or unusable	Primary data are inaccessible, missing, corrupted, unsuitable for review, or lack the configuration, geometry, processing or quality information needed for interpretation.	Make no archaeological-state update. Update only access status, observation readiness, the decisive documentation gap and the recovery route.	Seek a focused archive request, principal-investigator authorization, technical clarification, reprocessing or new acquisition where the information need remains material.	Do not convert non-access, missing files or failed quality control into non-detection, zero coverage or absence.
Observation not designed for the target	The method, depth domain, scale, burial sensitivity, line geometry or commissioning purpose does not provide a realistic opportunity to observe the defined target.	Retain any legitimate contextual or non-target result, but make no directional update to the primary archaeological target state.	Use the source for morphology, formation context, logistics or hypothesis refinement and obtain a target-capable observation if the planning question persists.	Do not infer primary-target coverage, non-detection or absence from method presence, survey extent or contextual data quality.

Note. A bounded update is confined to the target, geometry, horizon and achieved conditions supported by the observation. The competent authority retains responsibility for legal significance, proportionality and the final management action.

Source: *Controlled-outcome vocabulary, evidence-readiness gates and detection-envelope protocol; inventory freeze 21 August 2026.*