Arase Dam Removal — Japan's First Full Concrete Dam Demolition on the Kuma River, With Measured Channel Recovery but Mixed Ecological Evidence (Kumamoto, Japan)

PES & Nature-Based Solutions · Good practice · Japan

Quality score: 33/100

Evidence strength: Cautionary / limited

Summary

Kumamoto Prefecture removed the 25 m Arase hydropower dam (2012-2018), Japan's first full concrete dam removal. Studies found channel changes within about 4 km of the site, new gravel-bar habitat and more fast-water invertebrates, but no significant effect on estuary benthos.

Key dimensions

Dimension	Score
Carbon — sequestration / storage, evidenced	0/3
Biodiversity — conservation / improvement, evidenced	1/3
Water & soil — retention, infiltration, erosion control	2/3
Fire resilience — risk reduction, evidenced	0/3
Governance, certification & transferability	2/3

Evaluated by C-NAPSE

Data sources

C-NAPSE web research — accessed 2026-11-21

Kumamoto Prefecture (Enterprise Bureau) — accessed 2026-11-21

Morii et al. (2020) — Changes in river geomorphology due to the Arase Dam removal, Advances in River Engineering — accessed 2026-11-21

Kobayashi et al. (2016) — Habitat function of a gravel bar formed after a dam removal — accessed 2026-11-21

Koyama et al. (2022) — Temporal changes in estuarine benthos in the Kuma River system, Ecology and Civil Engineering — accessed 2026-11-21

Japan Federation of Construction Contractors — Civil Engineering Award: Arase Dam removal — accessed 2026-11-21

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