

Find the right starting point

TLDR

Choose pond sealing around the owner's goals, the water balance, and the actual leak pathway. Soil conductivity matters, but so do layering, construction, inflow reliability, and water quality. A full pond can still have significant seepage, while a low pond can reflect inadequate supply. Compare suitable repair methods and their complete installed and operating costs. Verify the result with observations and a water balance that distinguishes measurements, estimates, and unresolved losses.

The pond never held its intended level

Investigate soil profiles, the constructed basin and embankment, compaction records, and whether the available water supply can support the intended level. A soil map starts the investigation; it does not verify the constructed seal.

The pond held water, then began losing it

Compare the timing with weather, inflow, pumping, and land-use changes. Inspect for outlet defects, burrows, root voids, or other changes. Reduced supply can also expose longstanding seepage.

The pond stays full but requires substantial replacement water

Investigate both water loss and replacement-water quality. Test relevant sources before assuming a well is cleaner than surface water. Compare pumping and treatment costs with suitable seepage-reduction options.

A dam or outlet shows a localized warning sign

Sediment-laden discharge, settlement, expanding holes, or rapidly increasing seepage warrant prompt qualified assessment. Address the structural issue; do not treat it as ordinary bottom seepage.

These are investigation pathways, not automatic diagnoses. The owner's goals and the consequences of failure determine the required depth of review.

Compare suitable methods

Choose after diagnosis. No universal application rate or guaranteed result is implied.

Compacted native soil

Consider where investigated material can meet the intended performance. Confirm moisture, preparation, lift procedure, and acceptance testing; availability of clay alone is not proof.

Bentonite-amended soil, including PondLock

Consider where preparation, uniform mixing, and compaction are feasible. Base the amendment and construction specification on actual soil and project requirements. Address interfaces and any bypass paths.

Through-water treatment, including Soilfloc

Consider for appropriate soil-seepage conditions when water remains in place. Verify site suitability and current product application instructions. A basin treatment does not substitute for repair of a damaged structure.

Imported suitable soil

Compare tested material performance with hauling, placement, compaction, access, and quality-control costs. Confirm that the complete installed layer and its connections meet the design.

Manufactured liner system

Evaluate the complete installation: subgrade, protective layers, seams, anchorage, penetrations, and site-specific drainage. Include installation and maintenance in the comparison.

Structural repair

For a damaged outlet, embankment, or localized flow path, investigate the defect and use a repair designed for that condition. Existing-dam excavation requires its own review.

Soilfloc product information and current application guidance

Balance quality, cost, and results

Water-balance review

Compare changes in storage with precipitation, evaporation, surface inflow, supplemental water, withdrawals, and outflow over the same period. State what is measured, modeled, or unknown. Do not automatically assign an unexplained residual entirely to seepage.

Source-water and inflow controls

Assess the quality and reliability of each source. A suitable design may retain useful base flow while diverting undesirable storm runoff, or control a well by water level. Include dry-period requirements and maintenance of forebays, gates, orifices, and other inlet structures. Groundwater quality must not be assumed.

Reservoir operations

Use available inflow, withdrawal, outflow, storage, and drain-flow records to constrain losses. Evaluate the uncertainty and unmonitored pathways before attributing losses to the bottom. Describe potential operating savings separately from verified retained water.

Compare complete costs

Include investigation, materials, freight, preparation, access, installation, drawdown or replacement water, monitoring, maintenance, pumping, and water-quality treatment. Consider the owner's desired outcome alongside cost.

Verify after treatment

Keep a pre-treatment baseline where feasible, document the intervention, and continue observations afterward. Compare water levels and operating records with weather and modeled runoff. Changes in head, surface area, inflow, and groundwater exchange can limit a direct comparison.

Tools and source notes

Start a Natural Waterscapes soil and leak evaluation

MyPond

NRCS Pond Standard 378

Prepared from the Natural Waterscapes technical interview. NRCS is a supporting engineering reference; site criteria and product instructions require project-specific review. This guide supports decisions and does not provide a dam design or a treatment prescription.