

Be brave: Enforcing compliance to protect our water

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Key points

- Unauthorised dams reduce streamflow, affect downstream users and undermine water equity.
- Remote sensing has made unauthorised dam construction easier to detect and act on.
- Education helps prevent future breaches; enforcement is needed where impacts are significant.
- Risk-based prioritisation ensures compliance effort is focused where it matters most.
- Proportionate action builds confidence that water rules are being applied fairly.

Abstract

Farm dams are common across South Australia, but in prescribed water resource areas they affect more than the property on which they are built. Dams that capture surface water can reduce streamflow, affect downstream users and place pressure on water-dependent ecosystems. In the Mount Lofty Ranges, high-resolution aerial imagery identified many new and enlarged dams constructed without approval, creating cumulative risks to water security, environmental flows and confidence in water allocation rules.

This paper outlines a coordinated compliance response led by the Hills and Fleurieu Landscape Board. Reflecting the session theme of compliance as both encouragement and consequence, the program combines landholder education, remote sensing, risk-based prioritisation, legal support and proportionate enforcement. It aims to prevent future breaches through clearer communication, while taking formal action where unlawful dams have significant impacts.

From January 2025 to April 2026, the program completed 70 investigations, assessed 117 dams and achieved the removal or modification of 24 unlawful dams. Three enforcement notices were appealed to the Environment, Resources and Development Court; all were withdrawn during the initial conference phase. A targeted communications campaign increased visits to Water Affecting Activities information from an average of 66 visits per month to 312 visits in February 2026.

The early results show that effective compliance depends on clear rules, early detection, fair prioritisation and credible follow-through. As climate variability increases pressure on catchments, active compliance will be essential to protect shared water resources.

Keywords

compliance, farm dams, water affecting activities, education, remote sensing, streamflow, water equity, South Australia

Introduction

Farm dams support agriculture, rural living and local water security. They also intercept runoff that would otherwise move through streams and catchments, supporting local biodiversity and environmental values. In an increasingly dry and variable climate, it is important to manage the number and volume of dams in a catchment.

In South Australia's Mount Lofty Ranges, water demand is high and closely regulated. Unauthorised dams and dam enlargements can reduce downstream flows, affect water-dependent ecosystems and

disadvantage landholders who follow the rules. One small dam may have limited impact; many unauthorised dams across a catchment can have a serious cumulative effect.

Dam compliance is therefore a practical stream management tool which turns water policy into real outcomes on the ground. This paper describes South Australia's response to widespread unauthorised dam development, using education, remote sensing, risk-based decision-making and enforcement to encourage compliance and respond to serious impacts.



Figure 1 Change detection imagery showing the appearance of unauthorised dams between 2021 (top) and 2024 (bottom) (Source: ImageMapSA)

Context and detection

Dam construction in South Australia is regulated through approval and permitting systems. Dams exceeding 5 ML or 3 metres in wall height require development approval under the *Planning, Development and Infrastructure Act 2016*. Smaller dams generally require a Water Affecting Activity permit from the relevant Landscape Board under the *Landscapes South Australia Act 2019*.

The Eastern and Western Mount Lofty Ranges are prescribed water resource areas. Since 2013, new dams have not been permitted in these areas under a Ministerial reservation on the allocation of new water, building on earlier moratoria introduced in 2003 and 2005. The region contains more than 22,000 legitimate existing dams.

In December 2023, high-resolution aerial imagery identified numerous new and enlarged dams across the Mount Lofty Ranges that appeared to have been constructed without approval. Further statewide analysis indicated that between 2013 and 2023 approximately 1,200 dams were constructed without approval and 300 were enlarged. Approximately 800 of these dams were located on Kangaroo Island, where local water allocation settings differ and some of these dams may have been capable of approval with the appropriate assessments. The lack of these assessments points to a broader awareness and compliance issue.

The analysis of the imagery shifted the dam compliance issue from isolated complaints to a visible pattern of unauthorised development, enabling a more systematic response.

Compliance response

On 27 December 2024, the South Australian Government committed \$4.4 million from the Landscape Priorities Fund to implement a 48-month statewide compliance response. The program is led by the Hills and Fleurieu Landscape Board, supported by participating Landscape Boards, the Department for Environment and Water, the Crown Solicitor's Office and other government partners.

The program focuses on four actions: investigating potentially unlawful dams, prioritising high-risk cases, improving landholder understanding, and building better detection systems.

Initial investigations showed that many landholders did not understand dam development rules, particularly new rural lifestyle landholders. A targeted campaign used print, radio and social media to direct people to Water Affecting Activity information and encourage them to check requirements before building, enlarging or repairing dams.



Figure 2 Example of a print advertisement used to raise awareness of landholder responsibilities

Because the number of identified potential breaches was high, the program used a risk-based triage framework. Priority is given to dams based on size, catchment stress, position on watercourses, affected free-to-flow catchment, downstream water-dependent ecosystems, the number of unauthorised dams on one property and time since construction.

Compliance responses range from education, warning and voluntary action through to formal notices requiring removal or modification (see Figure 3). Remote sensing identifies possible change, but field validation remains essential. Some detected features using remote sensing were subsequently identified through validation techniques as turkey nest dams, natural waterbodies or historic structures that do not warrant enforcement.

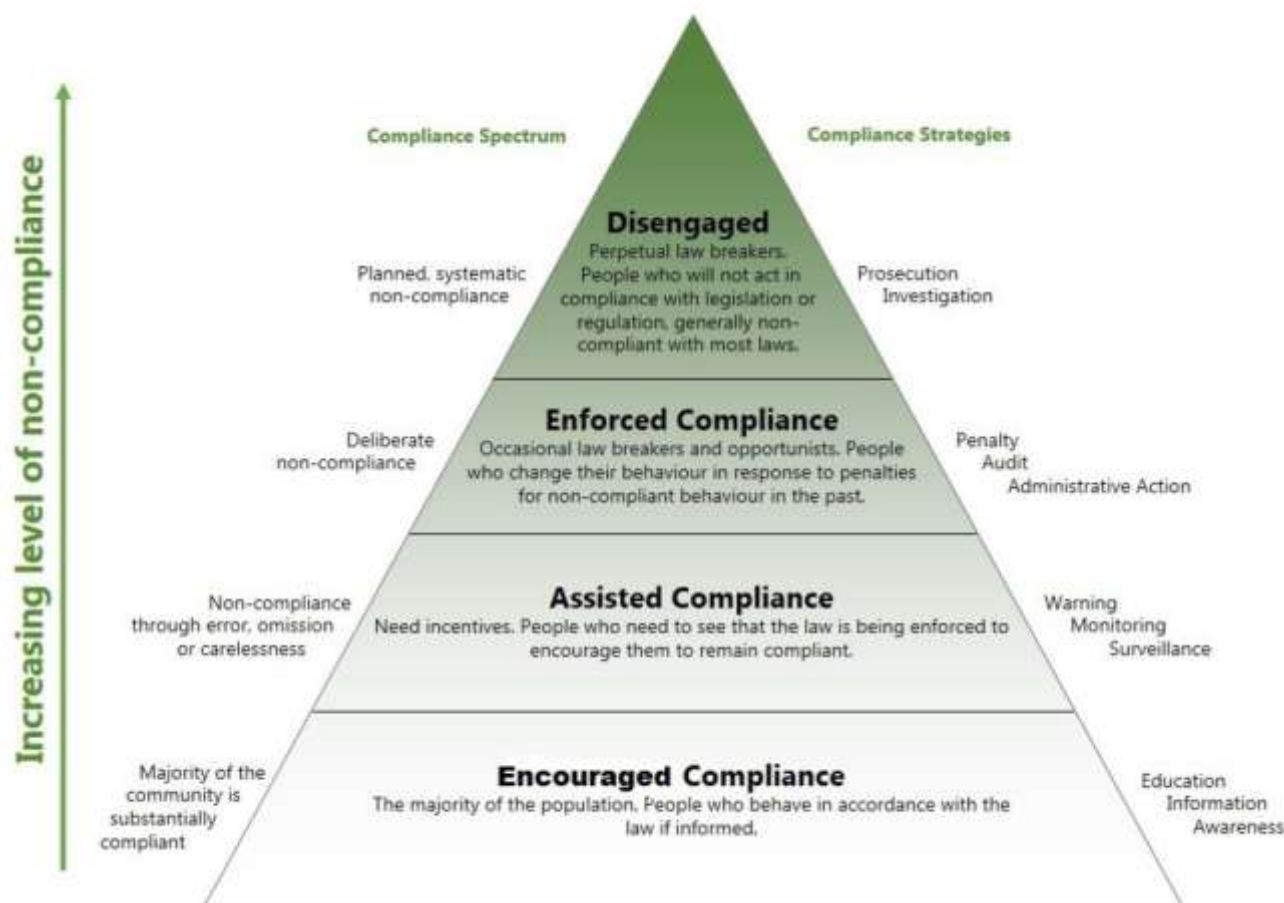


Figure 3 Compliance model based on the Ayres and Braithwaite compliance pyramid, showing escalation from education and voluntary compliance to formal enforcement (Ayres & Braithwaite, 1992)

A remote sensing change-detection system is also being developed to identify new and enlarged dams across South Australia. Pilots are underway on Kangaroo Island, in the Tod catchment on Eyre Peninsula and in the South Australia Arid Lands, testing methods from traditional classification to machine learning and artificial intelligence.

Results

The February 2026 communications campaign generated 312 visits to the Water Affecting Activities webpage for Landscapes Hills and Fleurieu, compared with an average of 66 visits per month during the previous year. This suggests that local, practical messaging can improve landholder engagement.

From January 2025 to April 2026, three compliance officers completed 70 investigations and assessed 117 dams. This resulted in the removal or modification of 24 unlawful dams, reducing impacts on downstream users and environmental flows.

Not every investigation led to enforcement. Some sites were found to be non-impacting, natural waterbodies or turkey nest dams. Others were resolved through education or warning, consistent with the compliance model shown in Figure 3.

Three notices requiring removal or modification were appealed to the Environment, Resources and Development Court. All three appeals were withdrawn during the initial conference phase, allowing the compliance directions to proceed. This reinforced the value of strong evidence, sound process and early legal advice. The results of the Dam Education and Compliance Program from January 2025 to April 2026 are summarised in Table 1.

Table 1 Summary of results from the Dam Education and Compliance Program from January 2025 to April 2026

Measure	Result
Investigations completed	70
Dams assessed	117
Unlawful dams removed or modified	24
ERD Court appeals lodged	3
ERD Court appeals withdrawn	3
Average monthly WAA webpage visits before campaign	66
WAA webpage visits during February 2026 campaign	312



Figure 4 Unlawful dam before and after compliance action: 2024 (left) and following removal in 2025 (right)

Discussion

The program shows that compliance can directly support stream management when it is targeted, evidence-based and proportionate.

Remote sensing has improved detection and reduced reliance on complaints or chance discovery. It makes unauthorised development more visible and allows earlier intervention. However, a desktop assessment of imagery is only a starting point. Field assessment and professional judgement remain vital for determining legality, impact and the right response.

The work has highlighted several practical challenges: rural property turnover, limited awareness among new landholders, historic landscape modification, large geographic areas and finite compliance resources. These challenges make clear communication and risk-based prioritisation essential.

The key lesson is that enforcement must be firm enough to protect water resources, but fair enough to maintain trust. Serious impacts require action. Low-risk or non-impacting matters may be better resolved through education, warning or no further action. A transparent risk framework helps explain those decisions.

For stream managers, the message is simple: compliance is part of catchment protection. Removing or modifying unlawful dams can restore flow paths, protect downstream users and support water-dependent ecosystems. Early detection and clear communication can prevent future impacts.

Conclusion

Unauthorised dam development is a stream management issue, not just a permitting issue. In prescribed water resource areas, it affects water security, environmental flows and fairness between users.

South Australia's dam compliance program shows the value of combining education, remote sensing, risk-based prioritisation, legal support and proportionate enforcement. Early results include 70 investigations, 117 dam assessments, the removal or modification of 24 unlawful dams, and increased landholder engagement with Water Affecting Activity information.

As climate variability places more pressure on catchments, active compliance will become increasingly important. Strong rules matter, but their value depends on being upheld fairly, consistently and with clear evidence.

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References

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