Natural Hazards Research Australia

Call for Expressions of Interest

T9-A5: Floodwater contaminants and effective mitigation techniques

Expressions of Interest due 5PM AEDT, 20 FEBRUARY 2026
to research@naturalhazards.com.au

Australian Government

naturalhazards.com.au
Australia's leading research centre for natural hazard resilience and disaster risk reduction

Overview

Natural Hazards Research Australia (hereafter the Centre) is seeking Expressions of Interest from project teams for the following project:

T9-A5 Floodwater contaminants and effective mitigation techniques

Project description	Floodwaters may carry a wide range of contaminants, including hazardous chemicals, potential carcinogens and biological hazards. These pose a significant health risk to both State Emergency Service (SES) operational personnel and members of the general community who may be exposed during these flood events. This project aims to: → Identify key hazards, biological and chemical, present in the flood water → Assess the associated health risks for SES personnel, including long-term health impacts → Propose effective mitigation strategies to reduce risk from exposure to flood waters. Note: elimination of the risk by not entering flood water is not possible in all instances → Review current literature to gather insights on floodwater contamination, identify and analyse existing water quality datasets that may reveal patterns or risks. A standardised survey protocol will be developed for sampling floodwaters across a variety of environments, including: ▪ riverine ▪ urban flash floods ▪ stagnant inland waters. Critical component of the research will be to estimate the potential health impacts or exposure to SES members using a human health risk assessment methodology and to identify mitigation strategies to reduce risk. The outcomes will support SESs in enhancing protective measures for their personnel and the broader community. Supporting organisations will provide relevant data on reported incidents and facilitate access to members for research participation and feedback.
Estimated duration	One year
Budget	The upper limiting budget for this project is $150,000 (ex GST) The research team should note that this is a competitive process. Expression of Interest submissions will be assessed on value for money and justification for any funds requested.
Related national research priorities[1]	→ Learning from disasters → Evidence-informed policy, strategy and foresight → Situational awareness

1 Natural Hazards Research Australia (2022) National research priorities for disaster risk reduction and community resilience to the impacts of natural hazards, accessible at www.naturalhazards.com.au/sites/default/files/2022-05/NatHazResAus ResearchPriorities FA02.pdf

Related Centre research priorities for 2024–26[2]	→ Next generation capability → Understanding and mitigating risk → Future workforce → Data management and science
Supporting organisations	→ New South Wales State Emergency Service (NSW SES) → South Australia State Emergency Service (SA SES)
Centre contact	For any questions regarding this Call for EOIs, please email research@naturalhazards.com.au
Online project briefing	For more information or questions, an online project briefing webinar will be held at **2:00 pm AEDT on 19 January 2026**
Submission of EOI	EOIs must be prepared using the Centre's EOI submission form and Budget Template. EOIs are to be submitted to research@naturalhazards.com.au by **5:00pm AEDT on 20 February 2026**

2 Natural Hazards Research Australia (2024) *Biennial Research Plan 2024–26*, accessible at https://www.naturalhazards.com.au/sites/default/files/2024-07/NHRA%20ResearchPlan24%E2%80%9326%2004.pdf

Statement of requirements

Background and context

Under legislation, State Emergency Services (SESs) hold a primary duty of care to ensure, as far as reasonably practicable, the health and safety of their workers while they are performing duties for the organisation. This responsibility is especially critical during flood response operations, where SES members are routinely exposed to floodwaters containing unknown and potentially hazardous contaminants.

Floodwaters are widely reported to carry a range of harmful substances, including hazardous chemicals, potential carcinogens, and biological hazards. Routine testing of floodwater contaminants is not currently undertaken. As a result, SES personnel often operate without a clear understanding of the risks associated with entering floodwaters, making it difficult to assess or manage the health risks effectively.

Floods in Victoria in October and November 2022 were studied as part of the Centre's responsive research to better understand and characterise possible floodwater contamination during flooding (Flood contamination sampling and analysis - regional Victoria | Natural Hazards Research Australia).

Safety reporting within SESs has documented short-term impacts and illnesses linked to floodwater exposure, such as skin irritations, gastrointestinal infections and diarrhoea. However, these incidents are likely underreported due to limited data and unclear connections between specific exposures and health outcomes. Additionally, no longitudinal studies have been conducted to investigate the long-term health effects of repeated or prolonged exposure among SES members.

Currently, SESs employ general risk management strategies rather than targeted controls tailored to the unique hazards of floodwaters. While the organisations have begun researching and implementing mitigation techniques – such as decontamination procedures and personal protective clothing and equipment – these approaches are largely adapted from firefighting practices. Their effectiveness in flood environments remains uncertain and under-evaluated, yet they are used across the emergency services sector.

To better protect their members, SESs must advance toward evidence-based, flood-specific risk mitigation strategies that include environmental monitoring, targeted protective measures, and research into both short- and long-term health impacts.

Project description

Floodwaters may carry a wide range of contaminants, including hazardous chemicals, potential carcinogens and biological hazards. These pose a significant health risk to both SES operational personnel and members of the general community who may be exposed during these flood events.

This project aims to

- Identify key hazards, biological and chemical, present in the flood water
- Assess the associated health risks for SES personnel including long-term health impacts
- Propose effective mitigation strategies to reduce risk from exposure to flood waters. Note: elimination of the risk by not entering flood water is not possible in all instances
- Review current literature to gather insights on floodwater contamination, identify and analyse existing water quality datasets that may reveal patterns or risks. A standardised survey protocol will be developed for sampling floodwaters across a variety of environments, including:
  - riverine
  - urban flash floods
  - stagnant inland waters.

A critical component of the research will be to estimate the potential health impacts or exposure to SES members using a human health risk assessment methodology and to identify mitigation strategies to reduce risk.

The outcomes will support SESs in enhancing protective measures for their personnel and the broader community.

Supporting organisations will provide relevant data on reported incidents and facilitate access to members for research participation and feedback.

Expected outputs

Outputs are the products that are expected to be delivered by this project.

Core outputs

- A research report covering:
  - review of existing knowledge (including literature review) regarding floodwater contamination and human health
  - identification of likely extent of health issues arising from contaminant exposure i.e. members and/or community member records regarding adverse impacts (analysis of health records, WHS incident reporting etc.)
  - identification of any environmental risks and corresponding contaminants
  - lists of contaminants, impacts, known mitigation solutions, knowledge gaps and evidence source
  - establishment of a water testing survey plan/protocol for a future flood event (or multiple events) to address knowledge gaps and increase current evidence
  - development and application of a human health risk assessment of SES members in a variety of flood environments
  - identification of potential mitigation strategies such as PPE/PPC, decontamination strategies, vaccination protocols, prophylactic medication regimes, long-term health screening, etc.
  - future research opportunities
- A short guideline on potential mitigation strategies for SESs in relation to flood contaminants
- Stakeholder presentation(s).
- Academic publication(s) in high-ranking international journals.
- Please detail other innovative outputs that your team can deliver to address the outcomes below.

Additional outputs

- Project plan and plain language statement
- Quarterly progress reports
- Project evaluation report
- Relevant communications outputs including but not limited to a presentation and a poster

Collaborative approach

Researchers are expected to undertake the research using a collaborative approach to assist in the translation and transfer of knowledge to end-users and to ensure the project meets their needs. Researchers are encouraged to outline their approach to ensuring effective collaboration which could include embedding researchers within end-user organisations for a period of time.

Supporting organisations will provide suitable data on reported incidents as well as access to members to inform research.

Anticipated outcomes

- Information on what hazards are within floodwater and associated risks.
- Understanding of contaminant trends and risk profile by location in floodwater (eg infrastructure failure, long term flooding, fast coastal riverine, flash flooding, stagnant inland waters) to increase operational safety of SES members.
- Increased understanding of risk profiles linked to exposure to floodwater, leading to opportunities to further explore the short- and long-term health impacts of exposure to contaminated flood water.
- Improved mitigation strategies for flood contaminant avoidance and decontamination post exposure to flood waters.

Quality control and reporting

The project will be overseen and supported by a Project Management Committee (PMC) comprising the Principal Researcher, a Centre representative, and at least one stakeholder representative. Composition of the PMC will be determined in consultation with the Principal Researcher.

Reports

The Centre expects that the outputs delivered by this project will meet the highest scientific standards and will be suitable for publication on the Centre website and in industry newsletters, as well as in high-quality scientific journals.

The successful research organisation/s must co-develop with end-users a project plan and project summary using the Centre's templates. The project summary should explain in plain language what the project is about, what questions it intends to answer and describe the expected practical outputs that will make use of the research findings. The project plan must be approved by the PMC and will become an attachment to the contract.

Reports (and any supporting material) must be submitted to the PMC's satisfaction and will be subject to review by PMC members. The project team will be required to ensure an internal peer review process is undertaken prior to the final report being submitted.

Milestone reporting

The project team must report all milestone deliverables and engagement activities into the Centre's Project Management System. This will include sufficient justification for the completion of milestones to the satisfaction of the PMC and the Centre.

Communication

To further assist with quality assurance, it is expected that:

- regular PMC meetings will be held
- the project team will use a consultative approach, documented in quarterly reports
- the Principal Researcher will give periodic presentations to key stakeholder groups to gain critical feedback on project milestones.

Additional quality control processes may be agreed as part of the project planning process.

Contractual arrangements

A copy of the Research Services Agreement, the proposed form of contract for the purposes of this project, can be found here.

The Centre reserves its rights to make amendments to the form of contract.

This agreement should be reviewed by applicants as part of the EOI submission.

If you would like to request amendments to any of the terms and conditions set out in the proposed form of contract, details of the proposed changes and the reason the changes are requested must be included in the EOI submission form. Requests for any changes will be at the sole discretion of the Centre.

Selection as a shortlisted or preferred provider does not give rise to a contract (express or implied) between the shortlisted or preferred provider and the Centre for the supply of goods or services. No legal relationship will exist between the Centre and the shortlisted or preferred provider until such time as a binding contract in writing is executed by both parties.

In the case of consortiums, the Centre requests that one consortium member be nominated as Lead Research Provider and take responsibility for subcontracting other parties.

Submitting an Expression of Interest

Application and review process

The Centre will conduct an independent assessment process for the selection of a research provider to deliver the Research Project. An Assessment Panel will conduct evaluation of the EOIs that are received. Where required, the Panel may conduct interviews, request presentation or referee checks as part of the assessment process.

Following the assessment process the Centre may appoint one or more successful Applicants on NHRA contract terms. Under the NHRA contract, the preferred provider will co-develop a detailed Research Plan with input from key stakeholders.

Key dates

22 December 2025	Call for EOIs opens
19 January 2026	Online project briefing
20 February 2026	Due date for EOIs

Submission requirements for this EOI

Project teams responding to this EOI are required to submit their response using the Centre's EOI submission form and Budget Template. Submissions must include:

- a statement of capability (max 600 words), including the proposed contributions of each research team member to the project
- a statement (max 400 words) about the diversity of the project team
- a statement (max 400 words) about the project's inclusion and respect of First Nations peoples, philosophies, cultures, rights and/or knowledges
- an outline (max 1000 words) describing how the project team intends to approach the project, strategies for effective collaboration and an indicative methodology
- an indicative schedule of work and interim milestones/project outputs as described in this document
- a proposed project budget in line with the budget envelope provided, including details of any in kind contribution from research organisation/s – a detailed budget to be provided using the downloadable Budget Template provided on the Centre's website
- a clear statement (max 400 words) describing the outcomes that will be delivered for this project and how they will be used by stakeholders
- a clear statement (max 400 words) describing the outputs that the proposed approach to this project will deliver and how the findings could translate into practice
- a statement (max 500 words) demonstrating the project team's relevant industry and stakeholder engagement
- a risk management statement (max 500 words)
- any requested changes to the Centre's proposed form of contract
- up to two-page CVs for each proposed project team member.

Additional information

In responding to this Call for Expressions of Interest, advice should be provided on any known or anticipated impacts of COVID or other pandemic restrictions or human resource risks on the timely delivery of the project. Where appropriate, risk management for the impacts of pandemic restrictions should be incorporated into the EOI.

Frequently asked questions

Additional information provided to individual respondents will also be published on the Centre's website to ensure access to all interested parties. Respondents are encouraged to check the website for any additional information via these published FAQs, prior to the closing date.

Online project briefing

An online webinar scheduled for **2:00 pm AEDT, 19 January 2026** will provide a more detailed briefing of the project and the opportunity for interested parties to pose specific questions.

Registrations for this webinar can be made via the project page on the Centre's website. Once completed, a recording of this webinar will be posted to the website to ensure all interested respondents have access to this information.

Evaluation criteria

After the closing date, the Centre will review submitted EOIs against the evaluation criteria below. The evaluation criteria provide an indication of those matters that should be included in the EOI and supporting material – details are provided in the table below.

The Centre reserves the right not to offer the work, or only allocate a proportion of the available funding, if a proposal does not meet the Centre's needs. The Centre reserves the right to invite any other specific researchers as it sees fit to submit proposals before or after the closing date.

Mandatory evaluation criteria

- Registered Australian Business: The Respondent holds a valid Australian Business Number (ABN) or Australian Company Number (ACN)
- Public Liability Insurance: The respondent has or will obtain appropriate insurance
- Specific research capability: Demonstrated research expertise and/or experience in the field of flood contaminants and mitigation. Submissions to Expressions of Interest must clearly explain how this expertise addresses the project requirements outlined here.

Evaluation criteria	% weighting
Research capability: the capacity and capability to deliver an excellent research project in an Australian environment	25
Project approach: a demonstrated understanding of the project requirements and a proposed project approach and methodology that is appropriate, feasible and robust Relevant outline of a collaborative approach to assist in the translation and transfer of knowledge to end-users and to ensure the project meets their needs	20
Project outcomes and outputs: demonstrate a high-level understanding of the intentions of the project and how outputs/outcomes translate to practice	20
Industry engagement: strong track record of industry engagement with the ability to support and influence Australian disaster management at a national or state/territory level through interaction with key stakeholders	15
Value for money: value with money refers to an application representing an efficient, effective, economical and ethical use of NHRA resources. Consideration of the relevant financial and non-financial costs and benefits of each application including, but not limited to: → the quality of the application and activities represented by the technical assessment → fitness for purpose of the application in contributing to NHRA objectives → the potential Research Provider's relevant experience and performance history → whole of life costs (in- kind, other costs, risks, legal risks).	20