

Next steps

Further investigation

During the course of the investigation some gaps were identified in the data collected.

Defence will undertake further sampling and analysis to address these data gaps, including:

- Further biota (plants, animals), surface water and sediment sampling from the lower reaches of Currumbene Creek, where more regular recreational fishing is likely to occur
- Further soil and biota sampling from the Endangered Lowland Rainforest present at HMAS Albatross

Strategic Management Plan

Defence is currently developing a Strategic Management Plan for HMAS Albatross.

The aim of the Strategic Management Plan is to manage potential risks to human health and the environment posed by the legacy PFAS contamination both on-base and off-base.

The plan will identify and prioritise management actions to address human health, environmental and community issues, and will be implemented in the short, medium and long term following the completion of site investigations.

Keeping the community informed

Defence will continue to keep the community informed on the outcomes of further sampling and the implementation of management plans.

As well as community information sessions, updates will be provided through the project website, direct mail and information sheets as new information becomes available.

Contact Information

HMAS Albatross Investigation Hotline

- Phone 1800 856 491
- Email HMAS.Albatross@arecongroup.com
- Website www.defence.gov.au/environment/pfas/albatross/
- Post HMAS Albatross Environmental Investigation Project, c/o Aurecon PO Box 538 Neutral Bay NSW 2089

Media enquiries should be directed to Defence Media Operations on (02) 6127 1999 or media@defence.gov.au

Contact Commonwealth Department of Health

- Phone 1800 941 180
- Email health.PFAS@health.gov.au
- Website www.health.gov.au/PFAS

Useful Links

NSW Environment Protection Authority:
<http://www.epa.nsw.gov.au/MediaInformation/pfasinvestigation.htm>

Food Standards Australia New Zealand's (FSANZ):
<http://www.health.gov.au/internet/main/publishing.nsf/content/ohp-pfas-hbgv.htm>

About the Investigation

In May 2016, Defence commenced a detailed environmental investigation to identify the nature and extent of per- and poly-fluoroalkyl substances (PFAS) on, and in the vicinity of, HMAS Albatross as a result of the historical use of legacy firefighting foams at the Base.

The investigation will identify whether the use of these foams has resulted in risks to human health or ecosystems, and will help develop strategies to minimise exposure, should these be required.

Preliminary Site Investigation

The first stage of the investigation, the Preliminary Site Investigation (PSI), was completed in September 2016. The PSI involved a historical review of the use, storage, disposal and management of legacy firefighting foam to identify the key sources, pathways and receptors (people, plants and animals) of PFAS contamination.

Detailed Site Investigation

The second stage of the investigation, the Detailed Site Investigation (DSI), commenced in September 2016 and involved sampling of soil, sediment, surface and ground water to collect information and better understand how PFAS moves through the environment.

The DSI has now been completed with the report, including the sampling results, provided to relevant government agencies and regulatory bodies. The report is available on the HMAS Albatross investigation website.

The table below outlines the sampling conducted on- and off-base as part of the DSI:

DSI Sampling		
Sample Type	On-Base	Off-Base
Soil	216	65
Sediment	9	42
Groundwater	102	68
Surface water	28	105

Summary of the DSI findings

- Surface water and groundwater containing PFAS is not being consumed by residents or base personnel.
- Combined concentrations of perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA) and perfluorohexane sulfonate (PFHxS) are higher in the soil at firefighting training areas than in other areas.
- Analysis of soils, sediment, surface water and groundwater detected PFAS across the majority of the Base. In off-base surface water, the drinking water criteria was exceeded in Braidwood Road drain/ Calymea Creek and Yerryong Gully/ Currumbene Creek
- The primary pathway for PFAS to migrate off-base is overland transport through surface run-off, with secondary off-base migration occurring through groundwater.
- The majority of water samples from surface water bodies being used for stock water and food production collected from residential properties contained PFAS concentrations below the screening criteria for recreational water.

DSI recommendations

- A Human Health and Ecological Risk Assessment (HHERA) be undertaken to identify and assess the risk associated with any complete source-pathway-receptor linkages. This has been completed – refer to the next page for a summary of findings.
- A Strategic Management Plan be developed to identify and prioritise management response including development of an ongoing groundwater and surface water monitoring plan. The Plan is in progress.
- Conduct additional surface water sampling downstream of sample locations where PFAS has been identified above screening criteria.



Human Health and Ecological Risk Assessment

Based on the findings of the DSI, Defence commenced a Human Health and Ecological Risk Assessment (HHERA) in November 2016. The aim of the HHERA was to better understand the risks posed by PFAS to people and the aquatic and terrestrial environment.

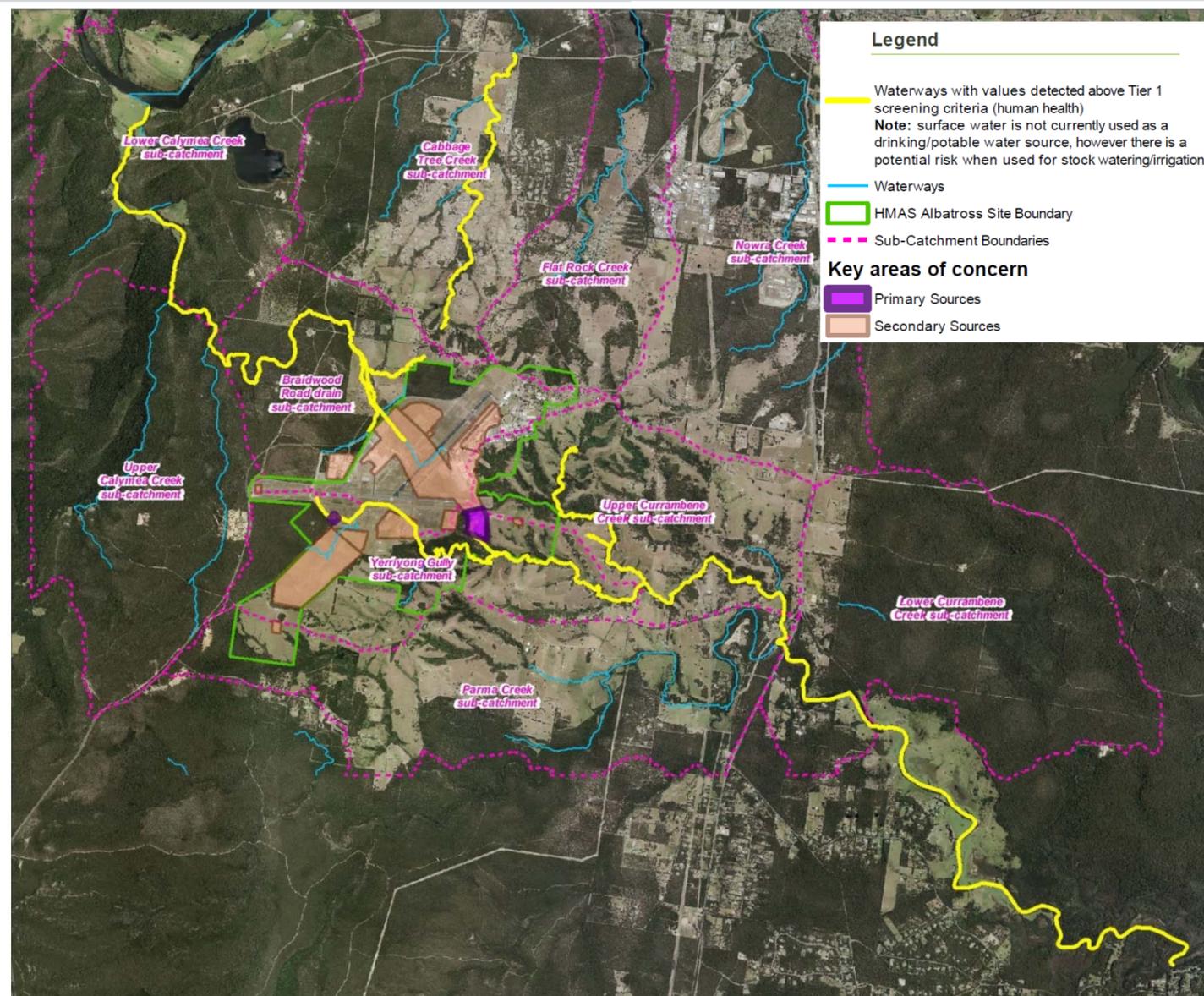
The HHERA involved a detailed scientific process to analyse the results of sampling conducted during the PSI and DSI.

This assessment included sampling from edible produce including honey, fish, pasture, livestock and fruit and vegetables in areas where PFAS may be present.

The HHERA also included a risk characterisation to summarise risks and uncertainties and assess the likelihood of effects occurring.

It is noted that surface water and groundwater are not currently used as a drinking/potable water source by residents or on base.

The HHERA report has been provided to relevant government agencies and regulatory bodies and is available on the HMAS Albatross investigation website.



On-Base Risk Assessment	
Risks	Risk assessment
Human health	
Health of Defence personnel, contractors or visitors on-base	No risk identified
Terrestrial and Aquatic Environments	
Toxicity levels in terrestrial environments	No direct toxicity levels
Endangered lowland rainforest	Potential for bioaccumulation
Aquatic environment	No aquatic environments on-base

Off-Base Risk Assessment	
Risks	Risk assessment
Terrestrial and Aquatic Environments	
Livestock health	Low and acceptable
Direct toxicity to the ecology	No risk identified
Ecological bioaccumulation	Risks are low, with the exception of Braidwood Road drain sub-catchment, where effects to higher order consumers cannot be excluded

Off-Base Risk Assessment	
Risks	Risk assessment
Human health - Consumption of fish caught from local waterways	
Shoalhaven River Basin (north)	Low and acceptable
Clyde River Basin (south)	Low and acceptable where fish and crustaceans are caught and consumed a few times a year. Risks may be more elevated for regular consumption.

Off-Base Risk Assessment	
Risks	Risk assessment
Human health - Use of surface water for stock and irrigation	
Use of surface water for stock and irrigation	Generally low and acceptable risk
Consumption of honey	Low and acceptable risk
Braidwood Road drain sub-catchment	Potential for elevated risk where 100% of meat intake is property sourced (not currently the case)
Braidwood Road drain and upper Currumbene sub-catchments	Potential for elevated risks where 100% of milk intake is from home production (not currently the case)
Consumption of eggs and fruit/vegetables	Potential for elevated risks where agricultural water exceeds drinking water HBGVs and is used for stock water and irrigation (not currently the case)
Human health – Contact with PFAS-impacted soils and water	
Direct contact with soil and sediment	Low and acceptable
Recreational use	Low and acceptable
Ingestion of fruit and vegetables	Low and acceptable, except for one property in Braidwood Road drain sub-catchment and three locations on public land.
Use of groundwater for drinking/potable water	Not currently used. However, should groundwater be used in the future for drinking water/potable purposes, the potential exposures are elevated in the Braidwood Road drain and upper Currumbene Creek sub-catchment.