

Implementing a National Strategy to Manage Acid Sulfate Soils the Australian Experience



Bernie Powell, John Williams & Rob Moreton
(NatCASS members past and present)



Australian Government

Presentation Aims

- Demonstrate the benefits of a National Strategy.
- Indicate how Australia chose to oversee and guide the implementation of this strategy.
- Share some of the successes

HISTORY- (pre 1996)

- extensive fish kills and disease
- accelerating canal estates, marinas and tourist development along the coast
- agricultural drainage of coastal wetlands
- water quality concerns about World Heritage Areas e.g. Great Barrier Reef

Link to red spot disease in fish

By JULIE PETERING
LOWERING the acid tent of rivers and estuarie help protect fish and against outbreaks of the tating red spot disease.

Watch on fish kills

CANAL estate dev forced to meet tou tal regulations in massive fish kills developments.
The population east corner is p developments on wetlands, causing of acid sulphate Logan City h having a numb and the city h tions for futu
Scientists been given t caused by iron and into water
The Q' Solls In working

in vacant lowlands

Fisheries Authority.
It says fragmentat rohnmental managen

In a newly relea paper on the mana coastal inshore f Rockhampton "ou

6 - THE WEEKEND AUSTRALIAN April 9-10 1994 - 6

Acid rivers slaughter fish stocks

By environment writer NATASHA BITA
...ing and corroding build- and pipes, scientists warned erday.
...ers from the CSIRO, the Fisheries

bad news

By KERRI-ANN HOBBS
PROFESSIONAL and recreational anglers would feel the effects of logham's fish kill within a year, commercial fishermen warned yesterday.
Queensland Commercial Fishermen's Organisation Townsville branch chairman Greg Bradley said the hundreds of fish found dead this week in Victoria Creek were species

were taking water quality samples and fish tests yesterday so determine the cause of the kill.
There had also been unconfirmed reports of a large number of dead water birds floating among the fish.
Mr Bradley said although the dead fish were small, they would have reached legal size within a year.
"This has the potential to have a larger detrimental impact on commer-

human interaction with this sort of result to continue. The environmental degradation plays a much larger part than any pressure any fisherman could put on the area."
The Environment Department's environment program regional manager, Maurice Mathews, said officers should know the kill cause by this afternoon.
Mr Mathews said there was no

PASTIME anglers blame net fishermen for diminishing fish stocks, netters blame commercial fishers, and everyone blames trawlermen.
But now scientists have identified an insidious unseen enemy of the marine environment
phate soil run-off
tutes local
move

By KEN BLANCH

presence of iron, produces sulphuric acid that runs off into waterways during heavy rain.
Rob Smith is convening a national conference at Coffs Harbour in September at which an expected 300 delegates

crete and steel shore installations such as piers and bridges.
All low-lying coastal areas of south-east Queensland that were once time wetland estuaries present problem, Mr Smith said.
Most of the shore areas of

Experts puzzled

Mystery deaths deplete fish stocks

SUNSHINE COAST
ed by
water.
Fish and other animals needed oxygen to survive then dying, Mr Kerlin said.
"There have been problems with oxygen content in Petrie Creek recently. Mr Kerlin said the creek was thriving on a popular species which has become a mass tal headache.
He said the laurels, which was h to Coast cr were there the oxygen Ms Per formatic the Coc 5483 77

Affected land uses in Australia



Sugarcane



Aquaculture



Beef – ponded pastures



Sand extraction



Urban development



Dredging



Subdivision

WATERFRONT
HOUSE AND
LAND FROM
\$460,000

\$460,000
(AUD1996)



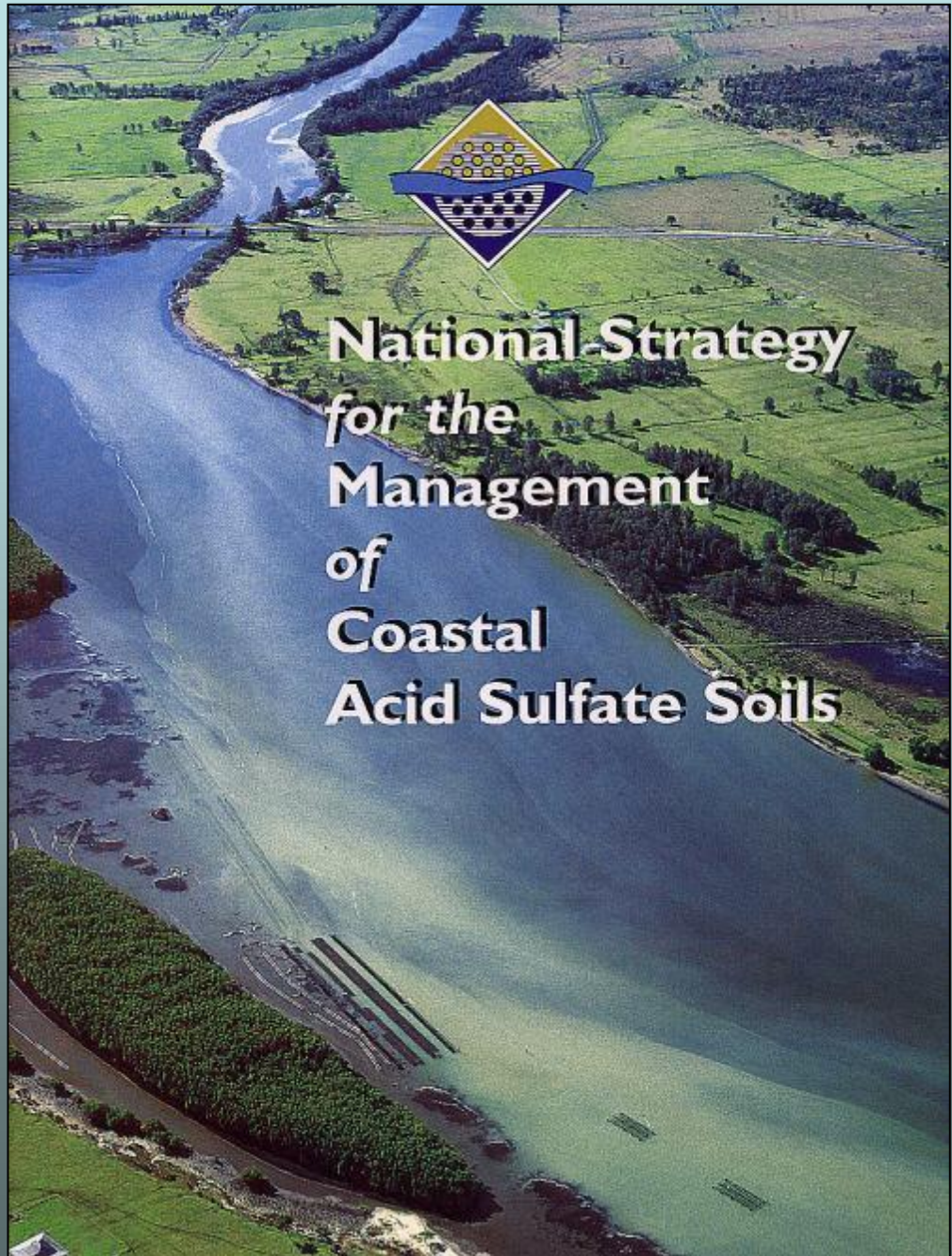
Canal estates

1996 - National Working Party formed

Its Role:

- To gather together key stakeholders
- Prepare a national strategy on the management and use of acid sulfate soil (ASS)
- Consult closely with industry and community interests.

January 2000
The National
Strategy was
Produced



The National Strategy - Key Objectives

1. Identify and define coastal ASS in Australia
2. Avoid disturbance of coastal ASS
3. Mitigate impacts when ASS disturbance is unavoidable
4. Rehabilitate disturbed ASS and acid drainage

National Strategy raised national questions

- How to facilitate activities nationally ?
- How to implement nationally ?
- How to coordinate State/regional activities ?



Answer: establish the National Committee for the Management of Coastal Acid Sulfate Soils (NatCASS)

- Established in 2000 (initially based on the ASS working group membership)
- Supported by industry and Australian, State and Territory governments
- Reports to peak government committees
- Meets twice a year (Rotates around States)
- Format - 1 day field trip (show and tell) / 1 day meeting- (to report on jurisdiction activities)

Aim– to facilitate & oversee implementation of activities that support the National Strategy objectives.

NatCASS membership (self funded)

- Aust. & state Government agencies
- Research institutions (CSIRO, universities)
- Fisheries industry
- Urban development industries
- Agricultural industry



Change of role in 2008

- Due to severe drought impacting upon wetlands and inland lakes NatCASS Expanded its role to include inland acid sulfate soils



Coorong SA 2006

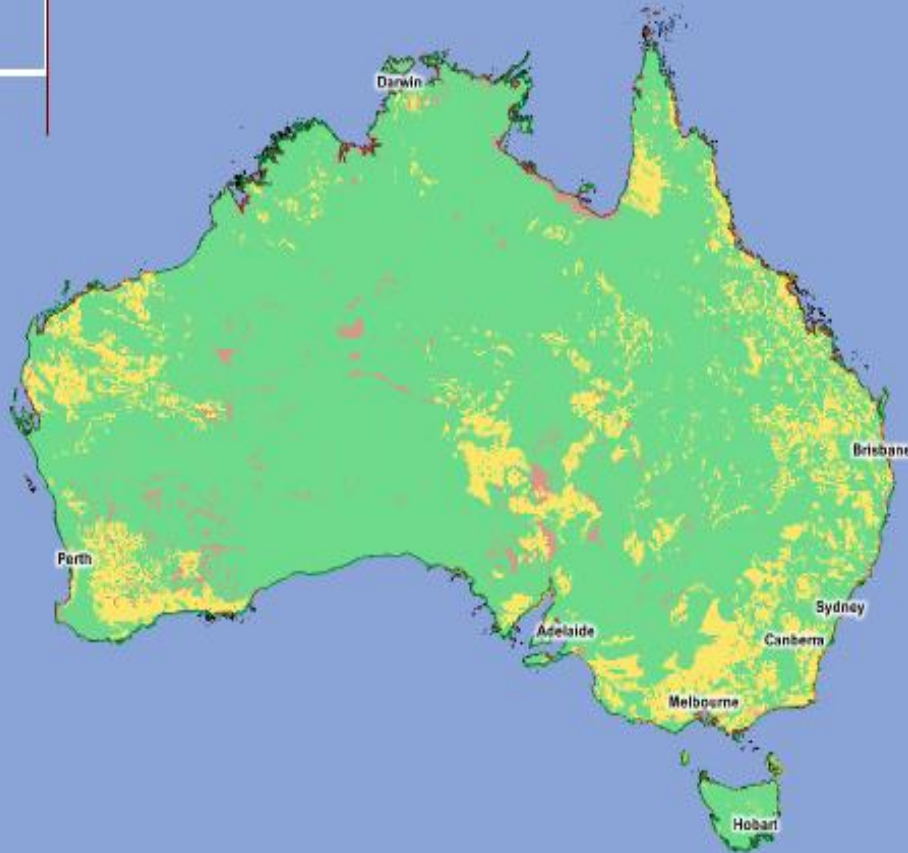
What impact has NatCASS had ?

Examples of NatCASS **Supported** Achievements

Objective 1. Identify and define coastal ASS

- Web accessible National Atlas of Acid Sulfate Soils (Fitzpatrick et al., 2010)
- Extended State and Local scale mapping of ASS
 - Mapping - Northern Territory – (Hill et al., 2007)
 - Lower lakes of the River Murray (Fitzpatrick et al., 2008)
 - Tasmania - Predictive mapping (Moreton et al., 2009)
 - Inland ASS in the Murray- Darling Basin (Kingham et al., 2012)

ASRIS- National Scale Map- National ASS Atlas



- Capitals
National Acid Sulfate Soils
(NatASS) Group
- A High Probability of Occurrence
 - B Low Probability of Occurrence
 - C Extremely Low Probability of Occurrence
 - No Data
 - Base-Map

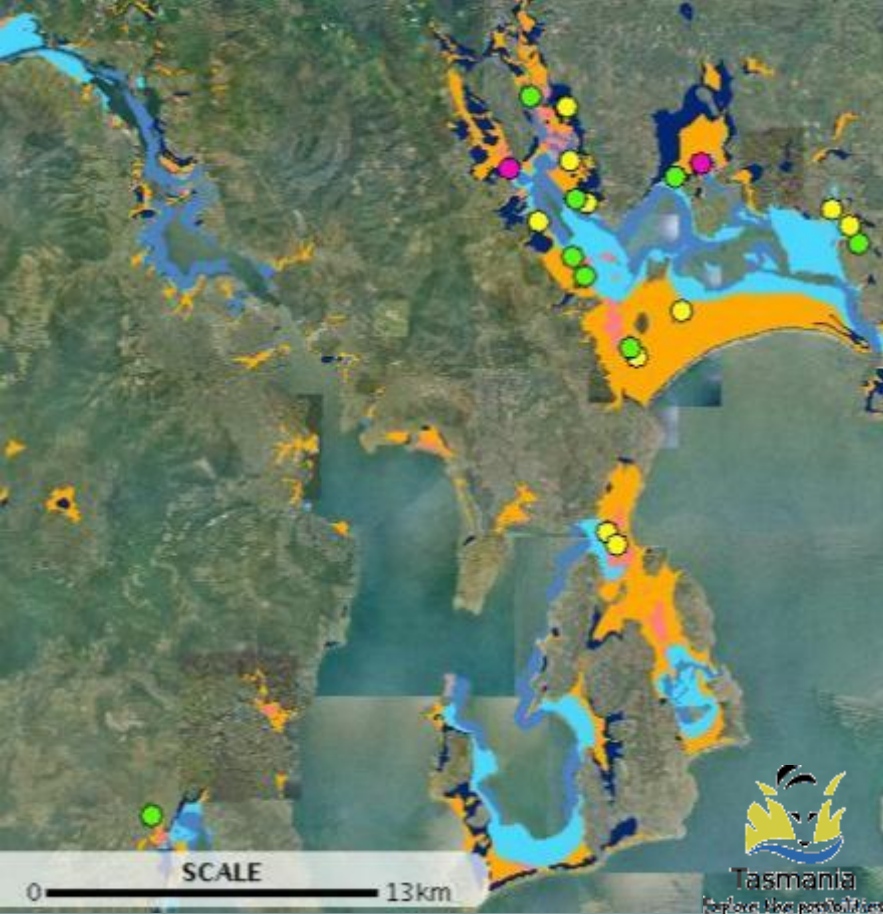
http://www.asris.csiro.au/index_ie.html



0 1161km

State and local scale mapping

Extent of Acid Sulfate Soils
in the Cairns area



Tasmania – Predictive Mapping of
land with potential to contain Acid
Sulfate Soils





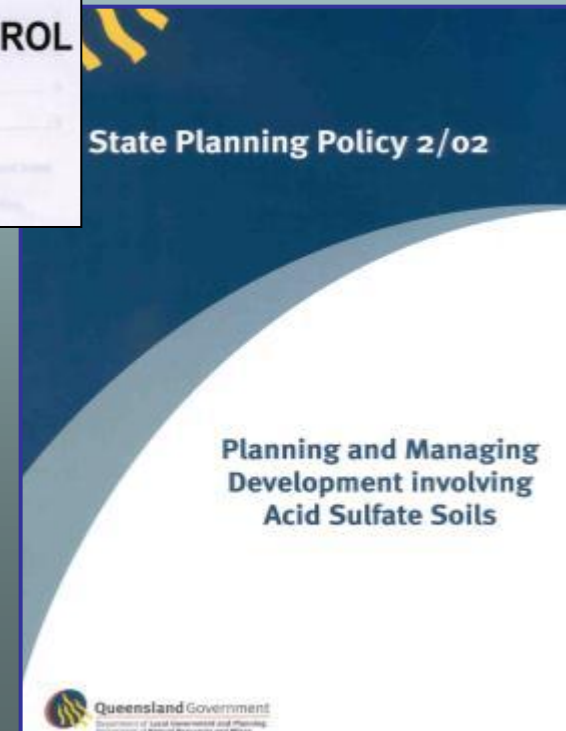
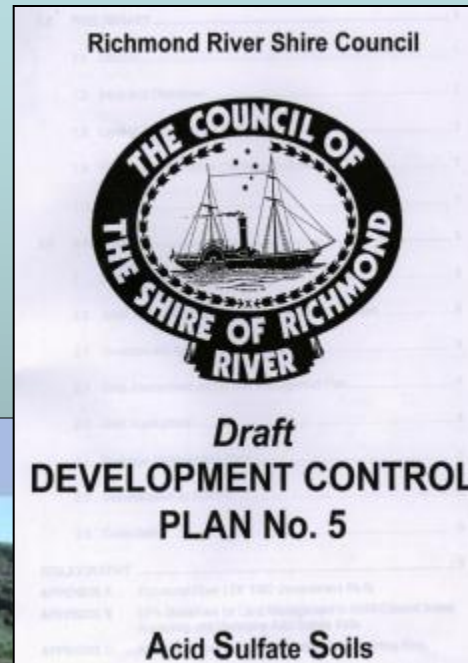
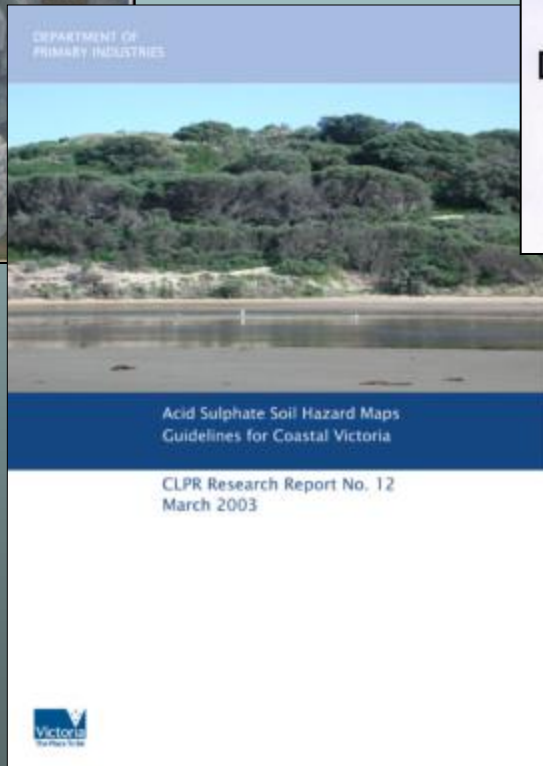
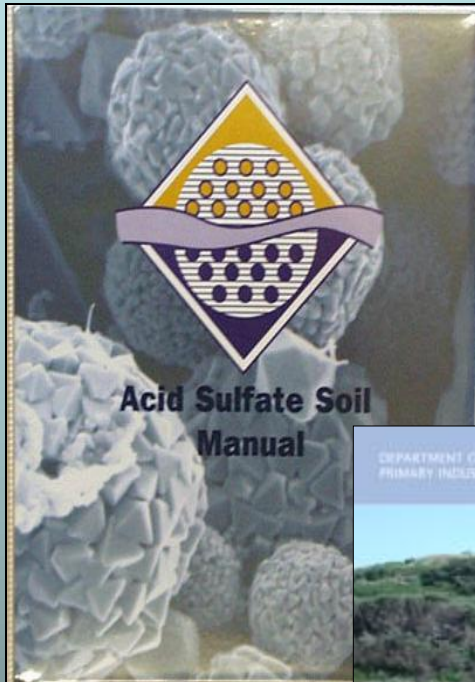
NatCASS Inspection - mapping Darwin NT 2007

NatCASS **Supported** Achievements (Cont.)

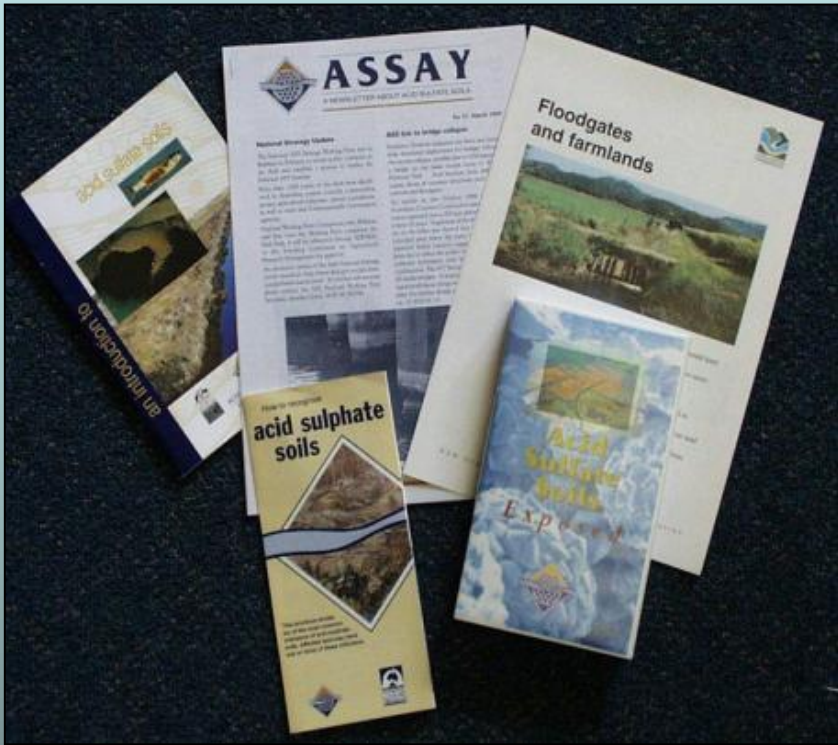
Objective 2. Avoid disturbance of coastal ASS

- Planning policies and regulations established in all states and the Northern Territory.
- Increased awareness of ASS issues across the nation.
- Facilitated the recently upgraded national ASS website www.environment.gov.au/water/topics/acid-sulfate-soils/index.html

Examples - Policy, Planning and Development Control Documents



Awareness, Extension and Education



Supports activities such as :

- Funding for ASSAY- the national ASS newsletter
- Professional short courses established nationally by Southern Cross University
- Field days



NatCASS **Supported** Achievements (cont.)

Objective 3. Mitigate impacts when ASS disturbance is unavoidable

- Establishes steering committees of experts to help guide projects undertaking risk assessment activities and the production of management guidelines. (“save reinventing the wheel” and “learning from experiences of others”)
- Expert members on NatCASS freely give advice to local ASS managers especially at meeting field trips – this helps inspire further local action

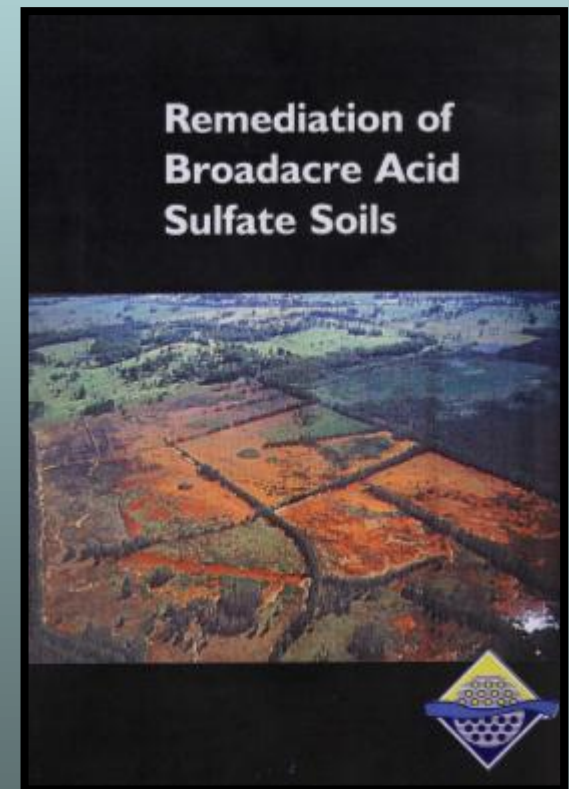
Industrial Development - acid neutralisation of soil with lime (NatCASS inspection - Perth WA)



NatCASS **Supported** Achievements (cont.)

4. Rehabilitate disturbed ASS and acid drainage

- Facilitates R&D partnerships between research institutions and state governments to understand biogeochemical processes and assess the effectiveness of rehabilitation strategies



Acid water treatment at a construction site - NatCASS inspection Perth WA



Implementing a National Strategy in Australia

Conclusions:

- NatCASS has proved to be an effective instrument of national facilitation and coordination of the national strategy
- Regular NatCASS meetings have created a supportive environment and a sense of community, cooperation and encouragement amongst committee members and State/territory organizations
- Consequently the objectives of the national strategy have been more effectively met in all states and territories

Looking forward and toward the future

- Not be complacent & continue with existing (NatCASS) model
- Facilitate the establishment of national management guidelines
- Expand NatCASS membership to include local government and planning institutions



Acid claim fuels row

"If a tri
sulphuric
classified
appears
than th
inbrook
disast
He
start
dee
ple
fat
c.
into sea
Brendan O'Malley

Acid horror story in Cairns

vised by a former Goss government officer that all was in order. "If he (Tager) thinks I've breached I'll tell him to say so in the... delighted to sue... released government... the backing of Port... 'k's chief environ... phate at all," he said. "There are built on lat... ent on the site t... phosphate soils. "All the r... tial precincts at Port H... h is totally inert. There... second... WORK has been... on the \$350

Soil concerns stop Earl Hill site work

By Ruth Evans
to sulphuric acid on exposure to air, as would occur during excavation, and posed a risk to the... Department of Environ... ment on the developer's proposed methods of deal... ing with the soil.
TNN corporate affairs... White said

Developer fails acid test: EPA

GEOFFREY NEWMAN

OTHERWISE, HISTORY MAY REPEAT ITSELF

Environment experts called in to examine fish kill

"But it won't b... simple sol... to b... to fix. One... 've been... 'alls and... 's back... 'en sw not b... 'e excavated... 'Earl Hill South... 'e acid sulphate soils... 'Earl Hill South were... 'rbed some years ago... 'currently there is a... 'nital hazard to the... 'ine environment... 'TNN Cairns Pty Ltd... 'it excavate this material... 'd remove it for safe... 'nial at Earl Hill North... 'ep below the water... 'de, where it will be... 'ated from the atmos... 'here and where it can do... 'harm... 'Cairns and Far North... 'nvironment Centre... 'Wesman Chris Nielsen... 'the Earl Hill project... 'A greater threat to... 'Great Barrier Reef... 'other coastal

Claim over acid fuels resort row

By BRENDAN O'MALLEY
THOUSANDS of litres of acidic water had poured off Port Hinchinbrook...



Hinchinbrook cover-up alleged

GEOFFREY NEWMAN
THE Wilderness Society has accused the Queensland and Federal governments of hiding a damaging report on acid-sulphate soils at the Port Hinchinbrook development in north Queensland. Wilderness Society spokesperson Melicity Wade said the failure to release the... "It just seems to us that since there's so much passing the buck and desperation to try and withhold it, it must say something pretty bad," Ms Wade said. "The Beattie Government promised the people of Queensland that the Port Hinchinbrook development... waterways. Recreation... ing watchdog Sunfish ha... acid-sulphate soils hav... potential to devastate Qu... land's fisheries. A spokesperson for Fe... Hill said he...