



MARINE ESTATE MANAGEMENT AUTHORITY

Working together to manage our marine estate





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NSW marine estate management strategy

REBUILDING REEFS AND THEIR CONNECTION TO COMMUNITY



- Introducing NSW oyster reefs
- The loss of an ecosystem
- Oyster reef restoration the NSW story... so far!
- (Re)connecting community Oyster Industry Survey
- Where to from here?





Image: David Harasti

Oyster reefs (or beds) – what are they?

Complex, 3D living structures

Aggregations of living and dead oysters

4 reef-forming species NSW:

- Sydney Rock Oyster (Saccostrea glomerata)
- Leaf Oyster (Isognomon ephippium)
- Flat or Angasi Oyster (Ostrea angasi)
- Pearl Oyster (*Pinctada albina sugillata*)











Why are they important?

Little creature **BIG** impact







Protect shorelines



Store carbon



Clean and filter water



Absorb nutrients



Provide food and shelter

Where have our oyster reefs gone?

HISTORICAL LOSSES







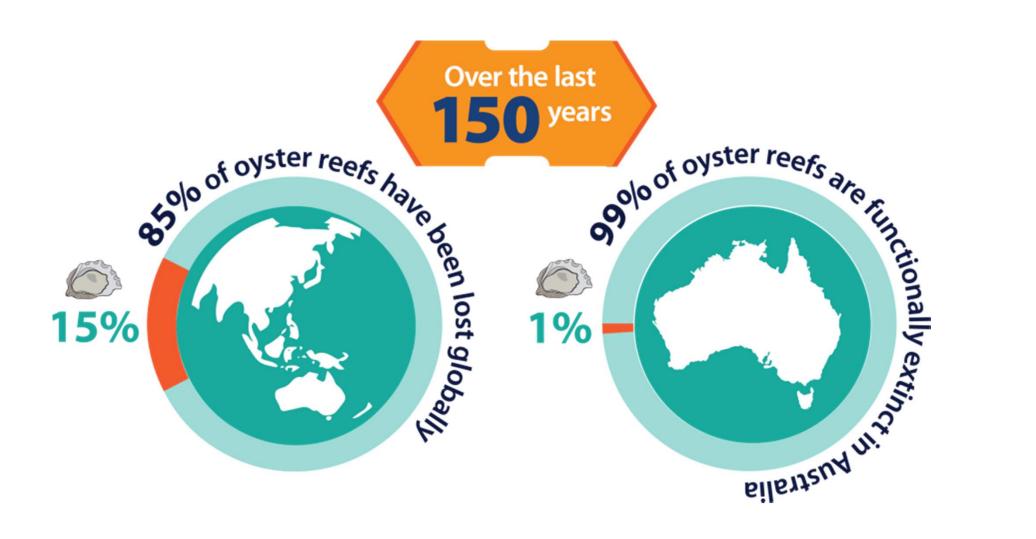












What is oyster reef restoration?



- Reintroduction of hard substrate
- Known good levels of natural spat-fall (usually)
- Formation of a self-sustaining complex ecosystem (& ecological function)





- Large-scale pilot in Port Stephens
- Monitoring and Research
- Planning for next locations (incl mapping)
- Lay ground work for others to follow
- Increase awareness and engagement



The challenge – reconnecting coastal communities

Conservation Biology



Contributed Paper

Loss of an ecological baseline through the eradication of oyster reefs from coastal ecosystems and human memory

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(Re)connecting community



Oyster Reef Restoration Project - NSW Oyster Industry Survey

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WELCOME TO THE OYSTER REEF RESTORATION PROJECT - NSW OYSTER INDUSTRY SURVEY

This survey is an important activity under the NSW DPI (Fisheries) Oyster Reef Restoration project. The project is a key action under the NSW Marine Estate Management Strategy. This 10 year Strategy aims to assist the NSW Government in achieving its broad vision for the NSW marine estate: A healthy coast and sea, managed for the greatest wellheing of the community, now and into the future.

Oyster reefs (or oyster beds) are complex, intertidal or subtidal three-dimensional structures which are formed largely from aggregations of living oysters and old shell (cultch). Oyster reefs occur in two main forms on soft sediments or rocky areas; as low-profile beds or as high-profile reefs. Native reef-forming oyster species in NSW include Sydney Rock Oyster (Saccostrea glomerata), Angasi Oyster (Ostrea angasi), Leaf Oyster (Isognomon ephippium) and Pearl Oyster (Pinctada albina sugillata).

Oyster reefs are a distinct ecological community which provides a wide range of free benefits to coastal communities including supporting many other marine creatures such as other molluscs, crustaceans and recreational and commercial fish species. Oyster reefs protect shorelines by buffering wave energy; promoting the growth of other marine habitats such as seagrass beds and saltmarshes. Oyster reefs also provide critical water filtration services; improving water clarity which supports the growth of aquatic vegetation such as seagrass. However, studies have shown that up to 98% of historical (pre-European) oyster reefs have been lost and in most places oyster reef is considered functionally extinct as a habitat type, meaning those free benefits are also lost.

Please see examples of different oyster reefs which still occur in NSW waters today on the next page.

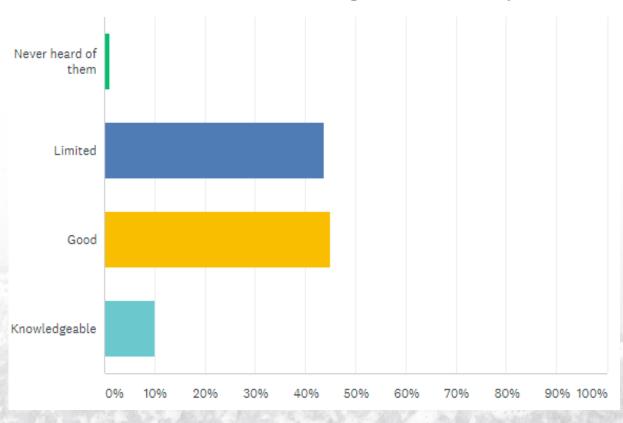
Over 100 responses

30 of the 32 oyster-producing estuaries represented



The Results: Knowledge of oyster reefs

10% considered themselves knowledgeable about oyster reefs

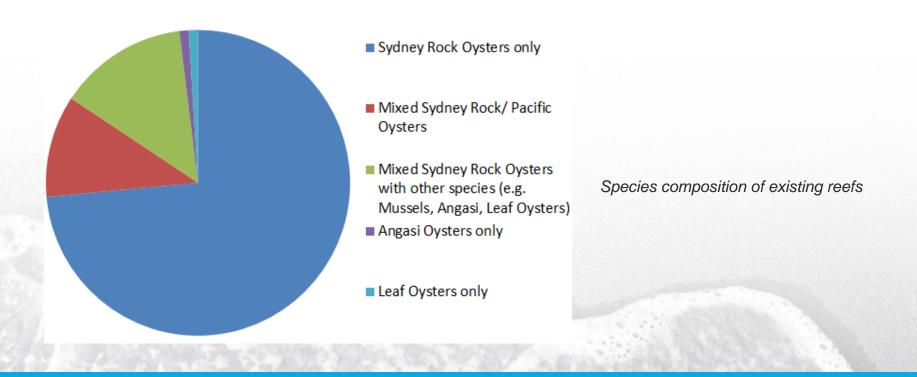


Farmers rated their knowledge of oyster reefs



Location of current reefs

102 descriptions of oyster reefs (41% 'historic cultivation' type) 98% offered further assistance to locate reefs





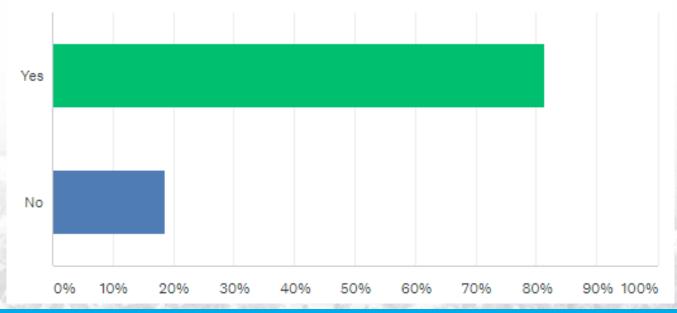
Knowledge of oyster reef restoration

69% limited or no knowledge of oyster reef restoration

81% keen to learn more about oyster reef restoration (see graph)

Electronic sources preferred method

71% keen to participate





Concerns raised about oyster reef restoration

- potential shelter for disease and pest species (52%)
- competition with cultivated oysters (11%)
- impacts (e.g. reduction) on current leases (11%)
- effects on farming infrastructure and stock (7%)
- lack of knowledge (7%)
- whether the restored reefs will be self-sustaining (7%)



Where to from here?

Bridging the knowledge gap - community



Targeted resources

Community talks

20th International Shellfish Restoration Conference 17-20 March

Citizen Science (Stage 2)













Bridging the knowledge gap (AND paving the way) - Government

Councils Guide "How to embed ORR in a CMP" – future opportunities

Inter and intra agency education & collaboration (Is a simpler legislative pathway feasible?)



Oyster Reef Restoration

A guide to help local government embed Cyster Roof Restorator lating Constal Management Reports.

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Oyeter seef restoration – improves water quality, enhances habital and helps to support healthy, elerant cossial communities.

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Oyster mets also provide ordinal water filtration services, improving water stantly which further encountries the growth of matter plants such as sengrides.



Image 1. A triging System real system med WHERE HAVE OVETER RESPIE GOINET

Auditation control environments have changed considerably since European artiset. The counsalistic effects of microoling unbarried to coupled effects of microoling unbarried coupled with calculation and landace interestication coupled with reader and contrasted cyster reads.

to Australia, it is estimated that 99% of natural opinior neeks are flucturally widor. The loss of this significant ecopydemic and confined to Australian widors. Gloosily over 85% of neeks Trave been tool or severely degraded natural opinior neeks the excitate stool degraded natural ecopydemic neeks the excitate stool degraded natural ecopydemic.

In NSW, small cycler populations still exist in most boys and estuares but at very loss denotics compared to the pre-European period.

As identified in the state-leide Threat and Plas Assessment (TAPA)* natural outlier reets (see subtidat today neet environmental asset?) still face considerable pressure from a number of contemporary threats. These include consider



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Questions? Thank you for your time





