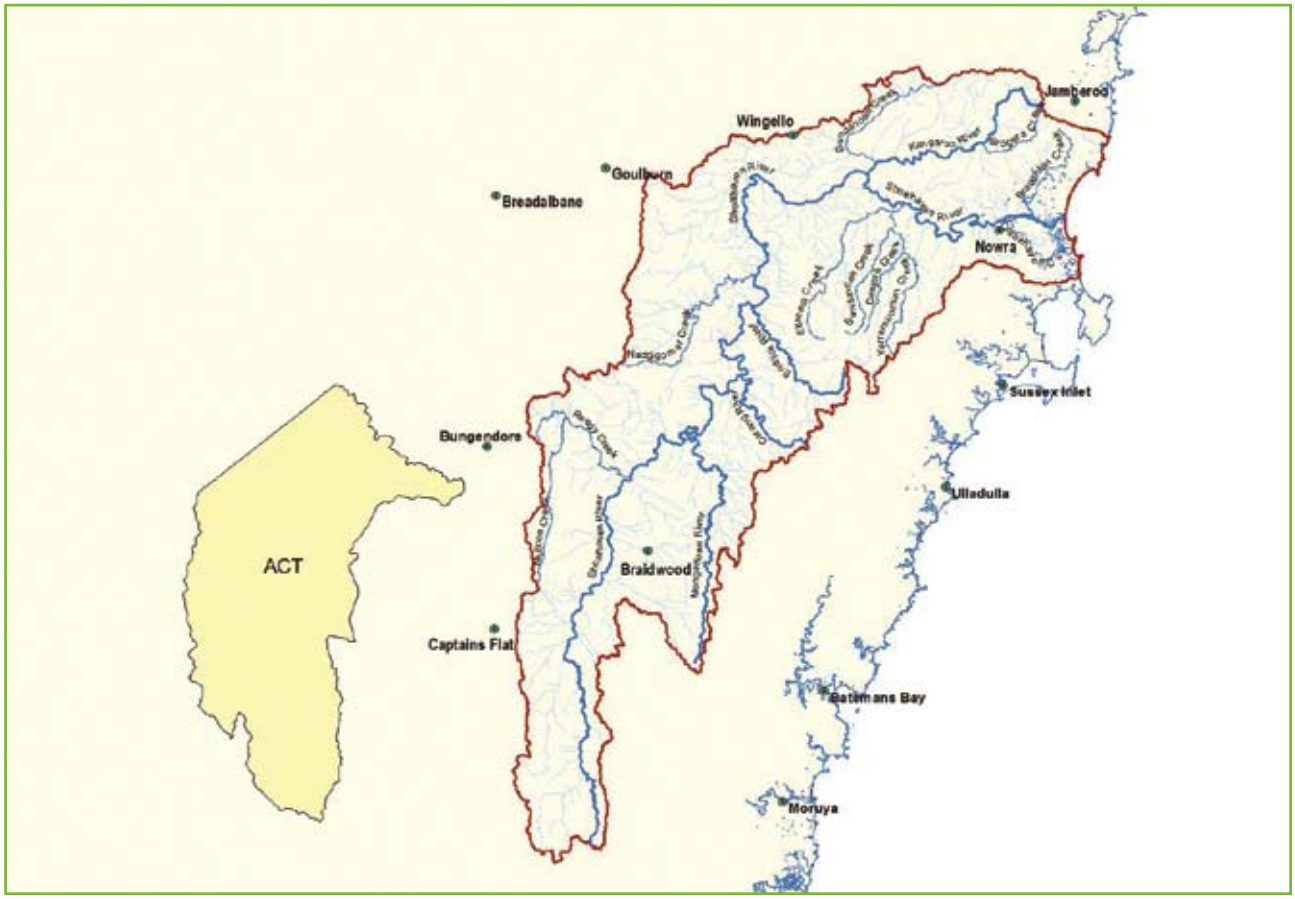
Case Study: 1. The Shoalhaven River Catchment

The NSW coastline is a great natural asset, making an enormous contribution to the economy. The resources of coastal catchments such as the Shoalhaven River Catchment, especially their estuaries and floodplains, collectively support around 90% of the NSW population.

Human activities are placing unprecedented pressure on these coastal resources. There are conflicts over the competing needs of urban development, business, agriculture, tourism, recreation and conservation.

The coast must be managed effectively to ensure sustainability of these resources. A healthy coast is particularly important for tourism, agriculture, aquaculture, recreational and commercial fisheries, as well as biodiversity.



Shoalhaven Catchment, source: Molino Stewart

Important Features of the Shoalhaven River Catchment

The Shoalhaven River Catchment is located on the south coast of NSW and has an area of approximately 7,250 sq km, making it the sixth largest coastal catchment in NSW. The Shoalhaven River has its source in rugged terrain south of Braidwood, and after flowing for 300 kilometres generally in a north easterly direction, enters the Pacific Ocean east of Nowra. The Shoalhaven River has two mouths – one permanently open at Crookhaven Heads; the other intermittently open at Shoalhaven Heads, approximately five kilometres further north.

Shoalhaven estuary, source: courtesy of DECC

Approximately half of the Shoalhaven River Catchment has had minimal disturbance to its native vegetation. About 35% of the Catchment is used for agriculture and a further 11% for forestry. Only about 4% of

the Catchment is urbanised – Nowra being by far its largest urban centre with a population of 31,000 (2006 Census).

The Shoalhaven River **floodplain** covers approximately 5% of the Catchment. The Shoalhaven floodplain is one of the richest dairy areas in NSW. Other significant primary industries are commercial fishing, oyster growing and vegetable farming.

There is a growing tourist industry in the area focussed on water activities such as recreational fishing, surfing, boating. In peak tourist seasons the population of the floodplain can swell four-fold.

The floodplain is also experiencing considerable urban and industrial growth, particularly in and around Nowra and Bomaderry. The Nowra/Bomaderry district is identified as a growth area with the population expected to increase by up to 50% in the next 25 years.

There are several significant industries in the area including the Australian Paper mill and the Manildra Group starch and gluten plant, the largest in Australia. The HMAS Albatross Naval Base is also located close to Nowra. Numerous defence personnel and affiliated industries have located in the vicinity of the Base and it provides a major input to the region's economy, being the largest employer.

Crookhaven estuary with the Shoalhaven estuary to the north, source: courtesy of DECC

Dairying in the Lower Shoalhaven Catchment, source: OceanWatch Australia

Oyster farming in the Shoalhaven, source: Lyn DeSoto, Shoalhaven oyster farmer

Australian Paper Mill, source: OceanWatch Australia

The majority of the **upper catchment** is in national park, with other land uses being beef cattle and wool production. There are an increasing number of hobby farms and agribusiness enterprises (e.g. olive production, farm forestry) in this part of the Catchment.

The Sydney Catchment Authority manages the Tallowa Dam, and Fitzroy Falls and Wingecarribee reservoirs in the upper catchment. Water from these storages is used to supply local communities and supplement other SCA storages during drought. Power is also generated through the regular exchange of stored waters between Lake Yarrunga, Bendeela Pondage and Fitzroy Falls Reservoir.

Tallowa Dam, source: Sydney Catchment Management Authority

Many important Aboriginal places throughout the Catchment reflect the long history of indigenous use of the area and a cultural attachment to its natural resources extending over thousands of years.

Snapshot on Important Aquatic Habitats of the Lower Shoalhaven River

The Shoalhaven River estuary extends 50 kilometres upstream from the ocean. The estuary has large areas of highly significant wetland that are amongst the most extensive on the NSW coast. There are also significant areas of seagrass (1km^2), mangroves (3.5km^2) and saltmarsh (1.5km^2) within the estuary.

The Shoalhaven estuary has considerable ecological value. A total of eight Endangered Ecological Communities are represented in the estuary. The estuarine environments are the home of many wetland and migratory bird species. These environments in the Shoalhaven have been recognised as internationally significant sites for the Eastern Curlew and nationally significant site for the Pacific Golden Plover, Lesser Sand Plover and Ruddy Turnstone. They are also important habitat areas for marine life such as fish, prawns and other seafood species.

Mangroves and oysters in the Shoalhaven River, source: Lyn DeSoto

Saltmarsh, Shoalhaven River, source: SRCMA (Lyall Bogie)

Three particularly important habitats in the Shoalhaven River estuary are:

- Coomonderry Swamp. This provides drought refuge and habitat for a broad range of species including the endangered Green and Golden Bell Frog. According to a National Parks and Wildlife Report, it is the only large semi-permanent freshwater wetland on the south coast and protects approximately one third of this type of habitat within NSW.
- Comerong Island. Has the largest remaining area of littoral (coastal) rainforest on the south coast.
- Lake Wollumboola. Is the NSW south coast's largest shallow, saline coastal lagoon and home to many key bird species.

Many of the habitats of the Shoalhaven estuary are at risk or have declined in area. For example, although a few of the wetlands have increased in size, most have decreased during the past 20 years e.g. Broughton Creek wetland decreased in area by 20% and Greenwell Point wetland by 50%.

Cleared vegetation on the banks of the Shoalhaven River, source: NSW DPI (Allan Lugg)

The main causes of the decline of these aquatic environments are:

- clearing of vegetation from the banks of the Shoalhaven River and its tributaries;
- floodplain drainage and flood mitigation schemes that can cause changes to the flow of streams;
- acid water caused by the disturbance of acid sulfate soils;
- barriers to fish passages including floodgates, roads and culverts; and
- extraction of water from the River for irrigation and other purposes that changes the water flow through the estuary.

It is therefore important to understand that all activities within a catchment cumulatively impact on land and water resources downstream – particularly on aquatic habitats such as saltmarsh, seagrass and mangroves and the fisheries they support – and thus must be managed to minimise such negative impacts that result in declines in these habitats (see fact sheets on *Estuaries and Land and Water Management Issues in the Lower Shoalhaven River Catchment*).

What are some of the Natural Resource Management Issues of the Lower Shoalhaven River Catchment?

Some of the issues related to the management of natural resources in the Lower Shoalhaven River Catchment include:

- the possible impacts of climate change (e.g. changes in salinity levels, migration of mangroves and saltmarsh habitats) that could cause the reduction in breeding habitats for fish and other species;
- increased urban and industrial development that could impact on water quality in the estuary;
- spread of noxious and environmental weeds in the Lower Catchment;
- further floodplain drainage that can cause the disturbance of acid sulfate soils;
- reduced sustainability of farming practices as a consequence of climate change impacts;
- bank erosion that can cause the sedimentation of streams;
- specific pollution sources such as sewerage spills and dairy farm effluent;
- lack of connectivity (corridors) between important habitats for native plants and animal species;
- upstream dams and water extractions that can elevate salinity levels in the lower catchment;
- instream structures such as Burrier Weir that can impede fish migration;
- wildfires and poorly planned hazard reduction fires that can degrade sensitive habitat such as swamp forest and floodplain wetlands;
- feral animals such as foxes, cats, pigs and Indian Mynas, that can have an impact on native animals, such as displacing the native birds from their nesting and feeding areas; and
- possible spread of noxious marine algae from nearby St Georges Basin.

These issues are being addressed through the implementation of plans such as the Shoalhaven River Estuary Management Plan, Southern Rivers Catchment Management Authority's (SRCMA) Catchment Action Plan, SRCMA's Lower Shoalhaven Subregional Plan and encouraging sustainable practices by those living and working in the catchment. For more details about local natural resource management see the fact sheets on Land and Water Management Issues in the Lower Shoalhaven River Catchment, *Waste Management in the Lower Shoalhaven River Catchment* and *The Lower Shoalhaven River Catchment Fishing Industry*.

Street near the urban centre of Nowra, source: OceanWatch Australia