



Korogoro Creek Estuary Management Study

*Report prepared for
Kempsey Shire Council*

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March 2009

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Cover Photo: Korogoro Creek entrance

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INTRODUCTION

The many estuaries of NSW are of great environmental, social and economic importance. Estuaries are calculated to contribute about \$400 million to the NSW economy through ecosystem services, food chain contributions and tourism and development (DWE, 2008).

The Northern Rivers Region is experiencing one of the greatest population growths in Australia, with increasing demand for development and a demographic shift from predominantly rural to increasingly semi-rural and urban communities (NRCMA, 2006). Coastal shires are among the fastest developing areas in NSW with around 80% of the NSW population now living in coastal areas, including the shores of estuaries (DWE, 2008). The increase in use and population pressure is having an impact on the estuaries of NSW and their environmental, social and economic values.

Estuary Management has developed in line with the increasing pressures on estuaries and coastal areas in general. Habitat degradation, water quality issues, loss of amenity and access restrictions are some of the issues confronting coastal communities and their councils.

Estuary Management Planning Processes

In 1992, the NSW State Government introduced an Estuary Management Policy aimed at managing the growing pressures on estuarine systems. Under the policy the then Department of Natural Resources (now Department of Environment and Climate Change, DECC) is responsible for coordinating, in cooperation with local Councils, the preparation of Estuary Management Plans (EMP). The procedure for developing an EMP is set out in the Estuary Management Manual (NSW Government, 1992). The current revision of the procedure follows an 8 step process;

1. Form an Estuary Management Committee
2. Identify issues and set goals
3. Assemble existing data
4. Carry out an Estuary Process Study
- 5. Carry out an Estuary Management Study**
- 6. Prepare and review the Estuary Management Plan**
7. Adopt and implement the Estuary Management Plan
8. Monitor and review the management process

In accordance with this process, Kempsey Shire Council has met the requirements of steps 1 through 4. This study, the *Korogoro Creek Estuary Management Study* addresses step 5 on the above list. It will precede the development of an Estuary Management Plan. The final Estuary Management Study document will be released together with the Estuary Management Plan document and is expected to remain current for a 5 year planning timeframe before requiring review.

Aims of the Korogoro Creek Estuary Management Study

The main aims of the Korogoro Creek Estuary Management Study are to;

- Describe the current and potential uses of Korogoro Creek estuary, current and future threats to the estuary, and the local institutional arrangements and policy frameworks for estuary management.
- Review the findings of the 2007 Korogoro Creek Data Compilation and Processes Study and summarise the critical processes driving estuary function and health
- Outline the objectives for management of the Korogoro Creek estuary giving consideration to the management guidelines outlined in the 2002 Healthy Rivers Commission 2002 Inquiry into Coastal Lakes for estuaries in *Healthy Modified Condition* and the objectives of the NSW State Estuary Management Policy 1992.
- Identify and describe the management issues affecting Korogoro Creek including those identified through the Processes Study review and through community and other stakeholder consultations (ie. Community surveys, Korogoro Creek Working Group, Kempsey Shire Council and State Agencies such as NSW DPI Fisheries, DECC, Dept Lands)
- Develop a prioritised list of the estuary management issues including the identification of potential management strategies for consideration and further refinement during the formulation of the Korogoro Creek Estuary Management Plan.

Report Format

The Estuary Management Study is presented in seven parts;

Part 1 Estuary Management Planning Context

Describes the statutory framework for estuary management in NSW including the various legislative, policy, and planning instruments that apply to Korogoro Creek.

Part 2 Community Consultation and Stakeholder Liaison

Presents a summary of the outcomes of community and stakeholder consultations undertaken for the study including an analysis of the 2008 community survey.

Part 3 Review of Estuary Processes

Provides a summary of the findings of the 2007 Korogoro Creek Data Compilation and Processes Study and describes the critical processes that drive the estuary's healthy functioning.

Part 4 Updated Information Addressing Identified Knowledge Gaps

Details new information collected for this study that addresses information and knowledge gaps identified in the 2007 Korogoro Creek Data Compilation and Processes Study including Stormwater Impacts, Groundwater Condition, and affects of Climate Change on the estuary.

Part 5 Regional Significance and Values

Describes the significance and values of the Korogoro Creek estuary in both regional and local terms.

Part 6 Estuary Management Objectives and Key Management Issues

Defines a set of objectives for management of the estuary based upon guiding principles from NSW Government policies and the results of community and

stakeholder consultations, and identifies and ranks the key management issues in terms of priority for management.

Part 7 ***Estuary Management Priorities and Potential Management Strategies***
Provides a tabulated summary of the Key Estuary Management Issues ranked according to their priority for management with potential strategies for addressing each issue.

PART 1 NSW ESTUARY MANAGEMENT FRAMEWORK

1.1 Korogoro Creek Estuary Study Area

Korogoro Creek is a small coastal creek with no significant tributaries that runs through Hat Head, located within the Kempsey Shire Council on the mid-north coast of New South Wales. Korogoro Creek can be considered estuarine for its entire length, the upstream marker being the floodgates that separate it from a large wetland known as ‘Swan Pool’. The entrance of the creek is untrained and believed to be permanently open. The estuary is approximately 5.4km long and has a water surface area of approximately 0.2 km². The catchment area is approximately 18 km² which includes Swan Pool to the west, low sand hills and swamps to the south west, the village of Hat Head to the east and south, and a proportion of the headland to the south east of Hat Head (*Figure 1-A*).

The catchment area is mostly undeveloped except for the small village of Hat Head which occupies approximately 4% of the catchment. 63% of the catchment is protected in the Hat Head National Park (*Figure 1-B*). The catchment vegetation is predominantly swamp sclerophyll and shrubby dry forests on the low sand hills; heathland, arid and semi arid shrublands on sand and peat plains and parts of the headland; freshwater and saline wetlands in low swamp areas; and with small occurrences of littoral rainforest and wet sclerophyll forests in protected headland and back dune locations (*Figure 1-C*).

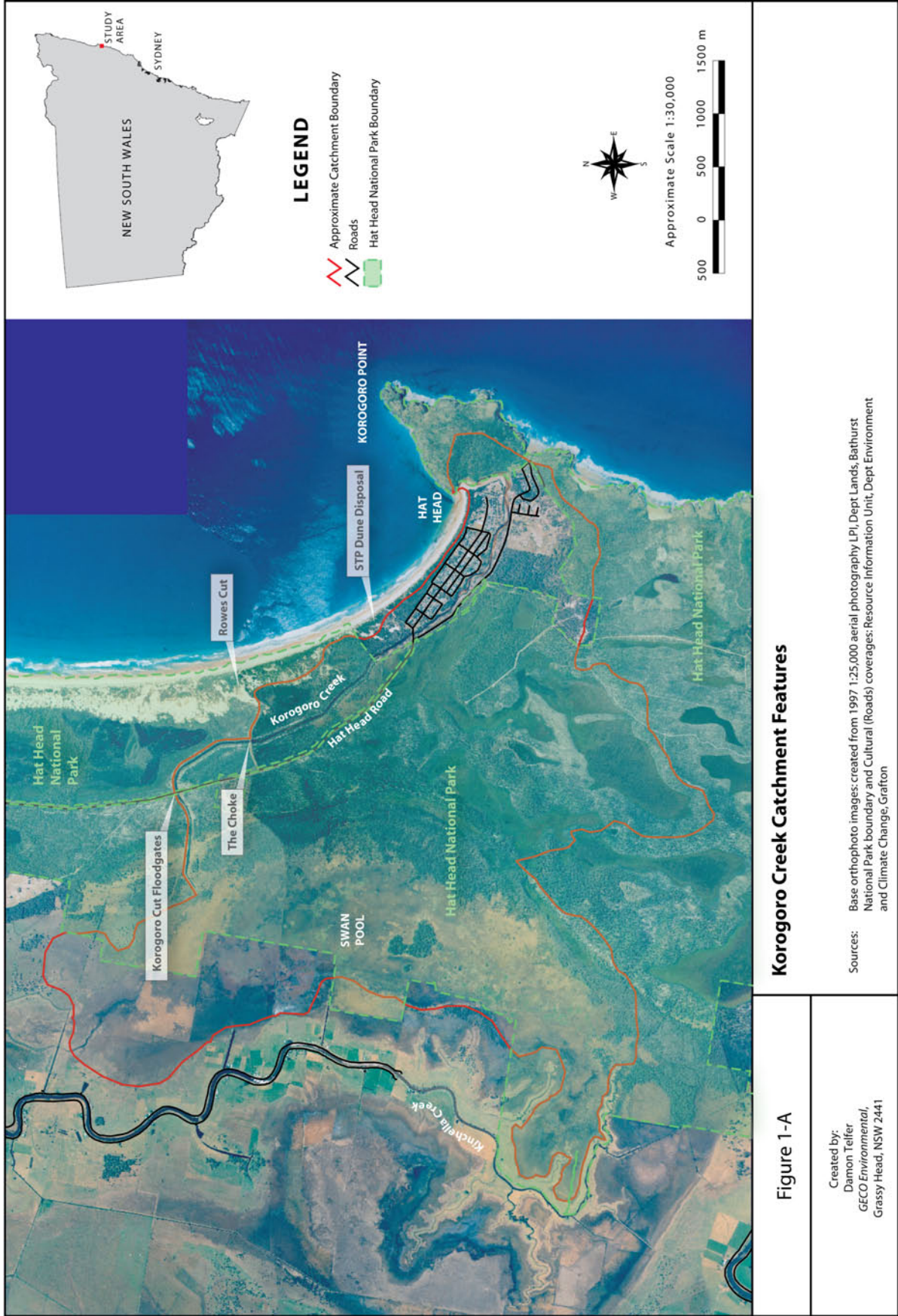
Korogoro Creek was extensively modified by flood mitigation works in the late 1960s. Before this time the creek was approximately 3.2km long and culminated in an extensive series of swamps located behind the coastal dune fringe. The construction of drains, floodgates and levees has significantly altered the form and function of the creek.

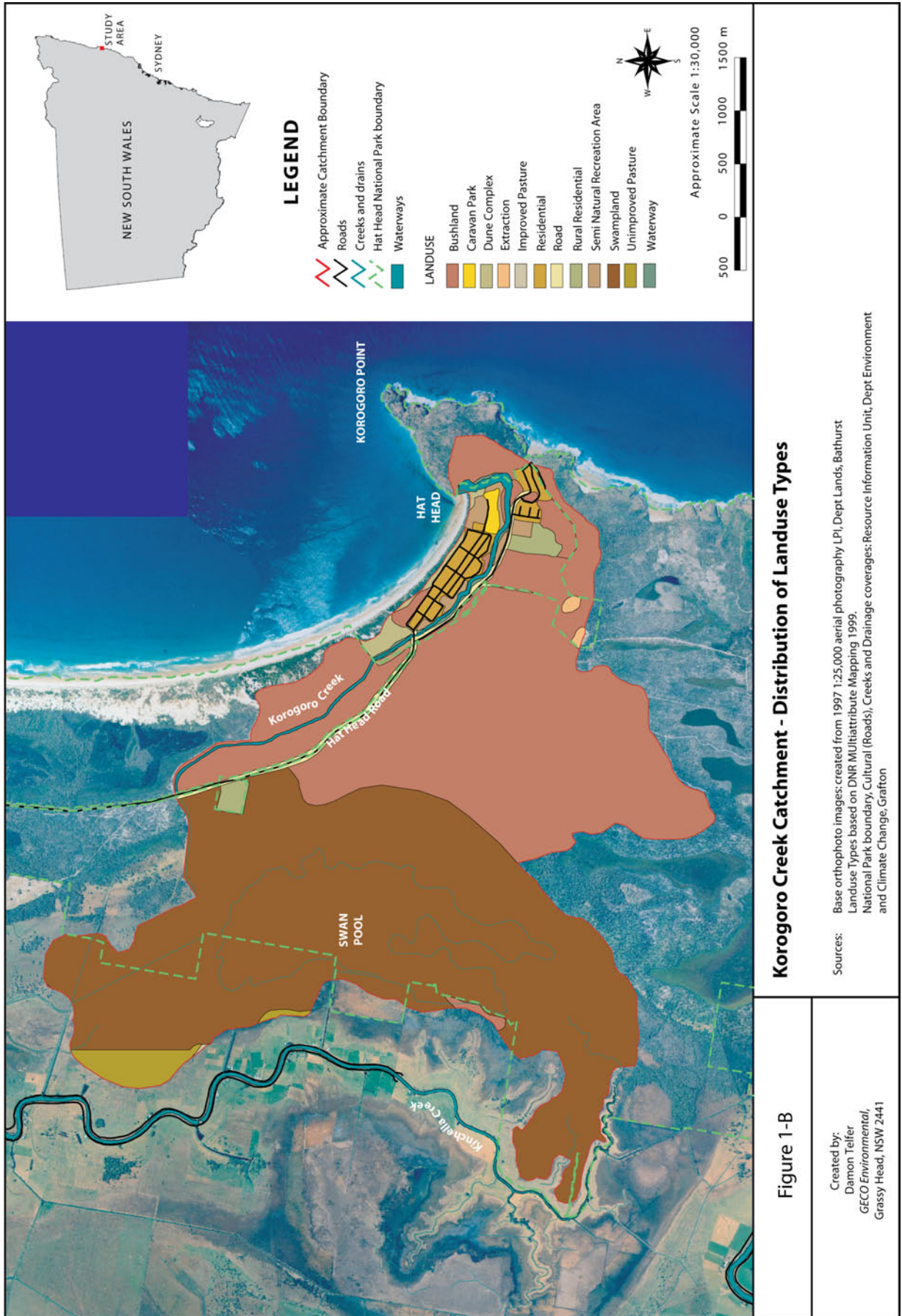
Although considered part of the Macleay River catchment it is mostly only linked to the broader catchment during periods of significant flooding when the creek is used as an ocean release for floodwaters accumulated in Swan Pool. In order to protect the village from flooding during such releases levees have been constructed along the length of the creek and a “Choke” installed to moderate flood heights in the creek. The “Choke” is a control structure which moderates flow down the channel to below the constructed levee height and diverts excess flood waters through Rowe’s Cut to the ocean (see *Figure 1-A*).

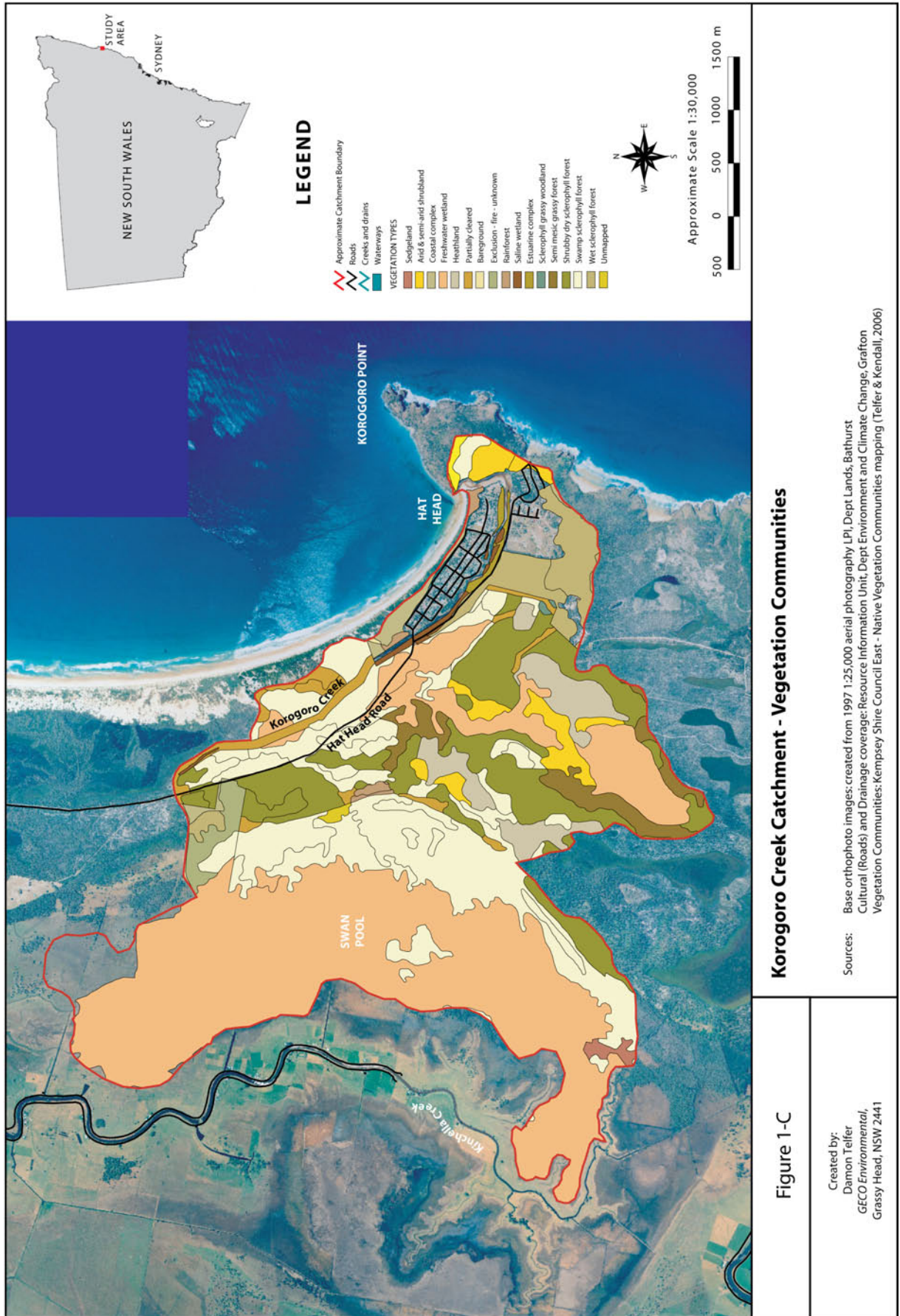
Hat Head has a resident population of approximately 350 but the population swells during the peak holiday seasons due to the areas popularity as a holiday destination. Swimming, surfing, camping, fishing and boating are popular recreational pursuits of residents and visitors alike. The town has been seweraged since 2001 with the treated effluent piped to a dune disposal site north of the village (see *Figure 1-A*).

1.2 The NSW Estuary Management Planning Process

The Estuary Management Planning process operates within a larger framework of local and state governmental planning and policy. Central to the planning process are the NSW Estuary Management Policy 1992 and NSW Coastal Policy 1997. A wide range of other state and local government planning policies and initiatives are also relevant and will be discussed in later sections.







1.2.1 NSW Estuary Management Policy 1992

In 1992, the NSW State Government introduced an Estuary Management Policy aimed at managing the growing pressures on estuarine systems. Under the policy the then Department of Natural Resources (now Department of Environment and Climate Change, DECC) is responsible for coordinating, in cooperation with local Councils, the preparation of Estuary Management Plans (EMP). The general goal set out in the Estuary Management Policy is;

'to achieve the integrated, balanced, responsible and ecologically sustainable use of the state's estuaries'

To assist in the development of EMPs the NSW government released an Estuary Management Manual (NSW Government, 1992). The current revision of the procedure contained within follows an 8 step process;

- Form an Estuary Management Committee
- Identify issues and set goals
- Assemble existing data
- Carry out an Estuary Process Study
- Carry out an Estuary Management Study
- Prepare and review the Estuary Management Plan
- Adopt and implement the Estuary Management Plan
- Monitor and review the management process

1.2.2 NSW Coastal Policy 1997

The 1997 NSW Coastal Policy aims to assist coastal managers to provide for population growth and economic development whilst concurrently protecting the natural, cultural, spiritual and heritage values of the coastal environment. The policy is strongly based on the principles of ecologically sustainable development (ESD), which are;

- The precautionary principle: that is, where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
- Intergenerational equity: that is each generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for future generations.
- Conservation of biological diversity and ecological integrity.
- Improved valuation and pricing of environmental resources.

The management of the coastal zone is the responsibility of a range of government agencies, local councils and the community. The Policy provides a framework for the balanced and coordinated management of the coast's unique physical, ecological, cultural and economic attributes through Integrated Coastal Zone Management (ICZM).

ICZM aims to maintain, restore or improve the quality of coastal zone ecosystems and the societies they support. More specifically the framework mentions the protection of coastal and estuarine water quality, coastal biodiversity and the economic base of coastal areas around Australia.

The framework identifies the major pressures on the coastal zone as:

- Population growth and demographic shift;
- Industry Trends;
- Protection of the coastal resource base; and
- Climate Change

The framework sets out strategies and actions for relieving and mitigating these pressures and sets the scene for national cooperation in managing coastal issues and ensuring effective and complementary arrangements within and across jurisdictions, and to better reflect the interests of coastal stakeholders.

1.3 Other Important Legislative and Policy Frameworks for Estuary Management in NSW

1.3.1 Coastal Protection Act 1979

The Coastal Protection Act 1979 provides for the protection of the coastal environment of NSW for present and future generations. This includes ecological processes, biological diversity and water quality as well as the significant economic benefits that result from a sustainable coastal environment. Under the act the responsibility for granting final approval for any developments within the coastal zone falls with the Minister for Planning. The act allows the minister to reject any development not consistent with the principles of ecologically sustainable development or which has the potential for adversely affecting or being affected by a body of water.

The coastal zone protected by the act includes estuaries, coastal lakes and lagoons and rivers. The Korogoro Creek estuary falls entirely within the coastal zone.

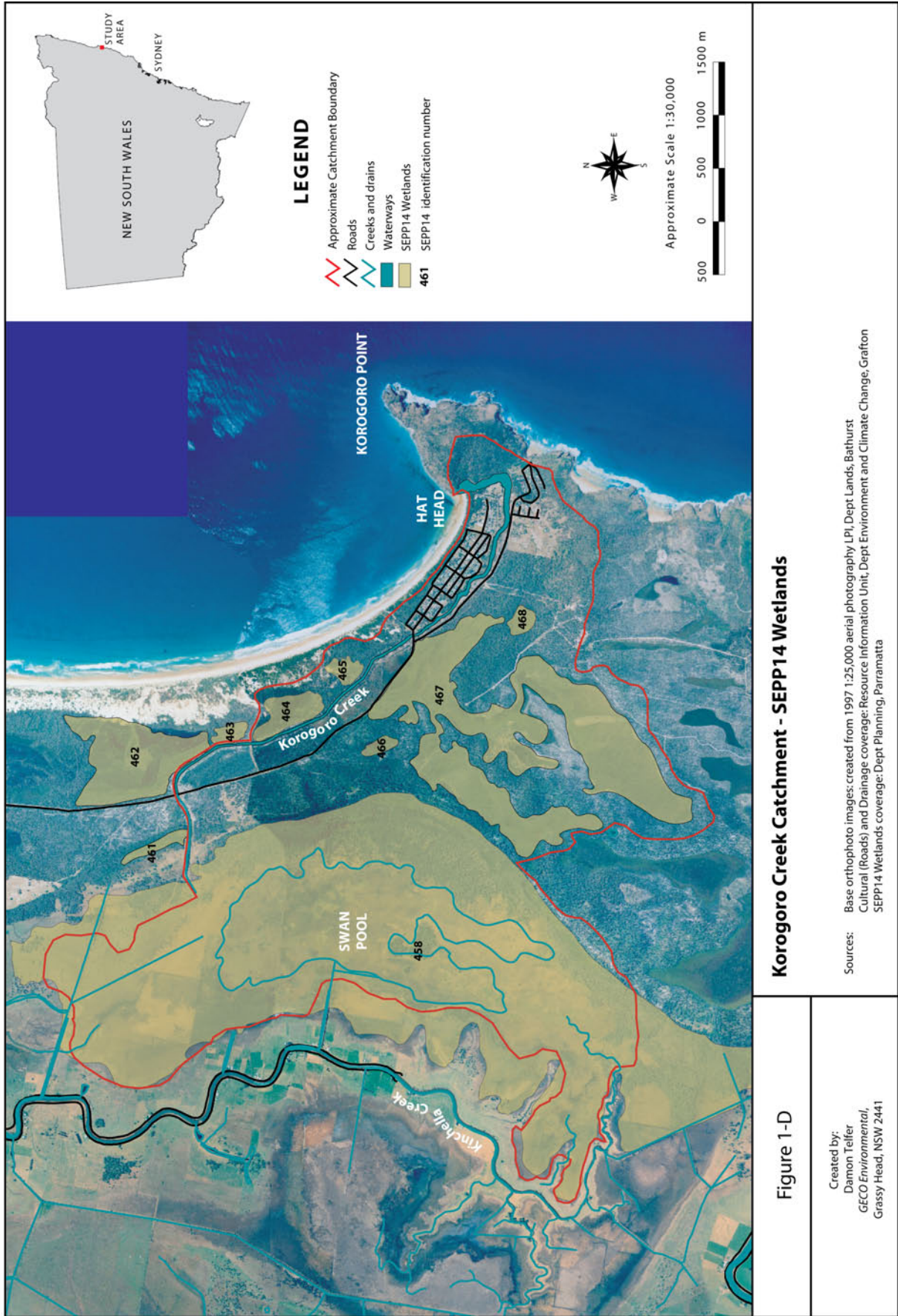
1.3.2 Environmental Planning and Assessment Act 1979

The Environmental Planning and Assessment Act 1979 authorises the creation of Local and Regional Environment Plans and State Environmental Planning Policies (SEPPs). It also provides for members of the public to participate in the planning decisions that shape the future of their communities.

The relevant plans created under this act are the Kempsey Local Environment Plan 1987 (discussed in *Section 1.4.1*), the North Coast Regional Environment Plan and the various SEPPs discussed in detail below

SEPP 14 – Coastal Wetlands

This policy aims to protect coastal wetlands, recognising them as areas of significant environmental and economic interest. The policy prohibits clearing, levee construction, drainage and filling on lands zoned SEPP 14 except with express permission from the council of the local government area. Copies of development applications on land zoned SEPP 14 also need to be sent to the Director of the NSW National Parks and Wildlife Service. The Korogoro Creek catchment contains a number of SEPP 14 wetlands. These are shown in *Figure 1-D*.



SEPP (Infrastructure) 2007

This SEPP policy aims to streamline planning for infrastructure by public authorities within NSW. It came into effect in January 2008 and replaces a number of existing SEPPs. Of particular relevance, SEPP 35 – Maintenance dredging of tidal waterways was repealed by SEPP (Infrastructure) 2007. Maintenance dredging refers to dredging undertaken for the purposes of restoring or maintaining environmental or tidal flows or for rehabilitating aquatic ecosystems. The infrastructure SEPP also regulates new flood mitigation works, sewage treatment works and stormwater management works.

Maintenance dredging has never been undertaken in Korogoro Creek. However, the open entrance has been identified as a key process in maintenance of water quality and estuary health in general. In the case that the Korogoro Creek entrance should close, dredging could be considered as a potential management strategy.

SEPP 71 – Coastal Protection

The SEPP 71 Coastal Protection policy aims to protect and manage natural, cultural, recreational and economic attributes of the NSW coast whilst maintaining and improving access and protecting visual amenity, beach environments, native coastal vegetation, rock platforms and marine environments.

The Korogoro Creek estuary falls entirely into the coastal zone. Under the policy, all lands within 100m of the estuary or the SEPP 14 wetlands and national park boundary would be considered sensitive coastal locations. Generally, proposed development applications within sensitive coastal locations need to be referred to the Director General of Planning for comment.

Other SEPPS

Other relevant SEPPs include;

- SEPP – Rural Lands 2008,
- SEPP 1 – Development Standards, and
- SEPP 21 – Caravan Parks.

1.3.3 Threatened Species Conservation Act 1995

The Threatened Species Conservation (TSC) Act 1995 aims to identify threatened species, populations, ecological communities and key threatening processes. Species, populations and ecological communities can be listed as vulnerable, endangered or critically endangered depending on the severity of the threat.

Other sections of the act are concerned with;

- the identification of critical habitat for listed species, populations and ecological communities,
- the preparation and implementation of recovery plans for listed species, populations and ecological communities,
- the preparation and implementation of threat abatement plans to manage key threatening processes,
- the threatened species priorities statement, and
- associated licensing, other conservation methods and bio-banking.

Other consolidated acts concerned with threatened species conservation are the National Parks and Wildlife Act 1974 and the Fisheries Management Act 1994.

In 2002, 2004 and 2006 amendments were made to the original TSC Act

The Korogoro Creek estuary has been identified as habitat for threatened species and ecological communities (Telfer, 2007). The Korogoro Creek Processes Study identified the Loggerhead turtle (*Caretta caretta*) and the Osprey (*Pandion haliaetus*) as two threatened species known to inhabit the Korogoro Creek estuary. The Korogoro Creek estuary also contains a significant area of the Endangered Ecological Community – Coastal Saltmarsh on the NSW North Coast. Of the key threatening processes listed under the TSC Act the most relevant to the Korogoro Creek estuary are the entanglement or ingestion of anthropogenic debris in marine and estuarine environments and the alteration to the natural flow regimes of rivers, streams, floodplains and wetlands.

1.3.4 National Parks and Wildlife Act 1974

The National Parks and Wildlife Act 1974 is responsible for the reservation of land by the National Parks and Wildlife Service (NPWS). The NPWS is now part of the Department of Environment and Climate Change (DECC). The National Parks and Wildlife Act lists its objectives as;

- The conservation of nature
- The conservation of objects, places or features of cultural value within the landscape
- Fostering public appreciation, understanding and enjoyment of nature, cultural heritage and their conservation
- Providing for the management of land reserved under the Act.

Sections of the act of particular relevance to the management of the Korogoro Creek estuary deal with;

- The reservation of land under the act
- Plans of Management
- Aboriginal objects and Aboriginal places
- Fauna
- Marine Mammals
- Native Plants
- Threatened species, populations and ecological communities and their habitats and critical habitat

The majority of the catchment of Korogoro Creek lies within the boundaries of the Hat Head National Park (*Figure 1-E*). The Plan of Management for the Hat Head National Park is discussed in *Section 1.5.7*.

1.3.5 Fisheries Management Act 1994

The Fisheries Management Act 1994 is the primary legislative tool for the protection of aquatic flora, fauna and habitat. The aims of the Fisheries Management Act 1994 are the conservation, development and sharing of the fishery resources of the NSW for the benefit of present and future generations. NSW Fisheries, now part of the Department of Primary

Industries (DPI) are the body responsible for the administration of the Fisheries Management Act 1994.

To achieve the stated aims, the act mentions the conservation of fish stocks and habitats, the conservation of threatened species and populations of fish and marine vegetation and the promotion of ecologically sustainable development including the conservation of biological diversity. In addition to these objects the act includes the promotion of viable commercial fishing and aquaculture, the promotion of quality recreational fishing opportunities, the sharing of fisheries resources between users and the social and economic benefit of the wider community.

Of particular relevance to the management of the Korogoro Creek estuary are the sections of the act that deal with the protection of aquatic habitat and threatened species conservation.

1.3.6 The Protection of the Environment Operations Act 1997

The Protection of the Environment Operations Act aims to, protect and enhance the environment in NSW, simplify the legislative framework for, and administration of, environmental protection in NSW, further involve the community in environmental protection and reduce environmental risks to human health. Under the act the former EPA, now DECC (and local councils under limited circumstances) are empowered to enforce the protection of the environment. This includes pollution of the air, water, land and noise pollution.

The monitoring of the Hat Head sewerage works and dune disposal outfall is conducted under an environment protection license issued under the Protection of the Environment Operations Act 1997.

1.3.7 Other Relevant Acts

Catchment Management Authorities Act 2003

The Catchment Management Authorities Act 2003 allowed for the creation of 13 Catchment Management Authorities in NSW. The CMA act provides authority for natural resource management at the more appropriate level of catchment. It also aims to more fully involve landholders, community, state-wide standards and scientific knowledge in natural resource management and to provide a framework for funding associated projects.

The Korogoro Creek Estuary falls inside the Northern Rivers CMA. The act provided the NRCMA with the responsibility for creating the Northern Rivers Catchment Action Plan (CAP) which is a 10 year plan for natural resource management across the Northern Rivers region. The CAP was released in 2006 and sets a number of Management Targets for NRM designed to capture the community's priorities and aspirations for the protection and enhancement of the unique local natural resource values.

The CAP is a statutory, non regulatory plan that improves and builds upon the Catchment Management Blueprint. Specifically, the plan sets management targets under a number of themes, community, land use, biodiversity, water, coastal management, marine and soil/land resource.

Among the Management Targets relevant to this Estuary Management Study and Plan are:

- Community capacity targets. These include targets with respect to the awareness, knowledge and skills of the community in relation to Natural Resource Management, and the levels of engagement of the community;
- Land use planning targets. The relevant land use planning targets relate to aboriginal cultural integration in the planning process, environmental assets and significant farmland protection, landuse conflict within and adjacent to key environmental and farming assets and the integration of natural resource assets into planning;
- Biodiversity targets. These targets relate to the area of land under secure conservation management, habitat connectivity, the mitigation of threats to biodiversity, threatened species management, sustainable management of terrestrial and aquatic ecosystems and habitat rehabilitation and revegetation;
- Water targets. These targets relate to the integrated management of urban water cycles and community education about and monitoring of water resources;
- Coastal targets. The relevant coastal targets relate to the management and assessment of coastal lakes and estuaries;
- Marine targets. The relevant marine targets relate to management practices that reduce threats to and impacts on the marine environment; and
- Soil and land resource targets. The most relevant of the soil and land targets relates to the area of high risk acid sulfate soils under active management.

Natural Resources Commission Act 2003

The Natural Resources Commission Act 2003 contains provisions for the creation of a Natural Resources Commission (NRC). The NRC is responsible for achieving the aims of the act, which are stated as;

- establishing a sound scientific basis for the properly informed management of natural resources in the social, economic and environmental interests of the State, and
- enabling the adoption of State-wide standards and targets for natural resource management issues, and
- advising on the circumstances in which broadscale clearing is to be regarded as improving or maintaining environmental outcomes for the purposes of the Native Vegetation Act 2003.

The NRC has developed the Standard for Quality Natural Resource Management to provide a framework for quality assurance. The NRC also developed 13 state-wide targets for NRM that have been adopted by the state government as a priority in the new State Plan. The Standard and the 13 targets will be a source of guidance and reference points for the creation of this Estuary Management Plan.

In addition to the above roles, the NRC also has an advisory role in certain areas of threatened species management and the Planning Minister is required to consult with the NRC on proposed coastal developments.

Local Government Act 1993

The Local Government Act 1993 creates local governments and empowers them to, among other things, take some responsibility for managing, improving and developing the resources within their areas.

Crown Lands Act 1989

The Crown Lands Act 1989 provides for the administration and management of crown lands. Crown Lands include most beaches, coastlines and estuaries. This includes Korogoro Creek up to the high water mark. The Department of Lands, as the designated authority are responsible for the administration and management of, for example, the dredging of entrances and the construction of boat ramps (see *Figure 1-E*).

Environment Protection and Biodiversity Conservation Act (Commonwealth) 1999

The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) is the Australian federal governments central piece of environmental legislation. The EPBC act empowers the Department of Environment and Heritage to manage matters of National Environmental Significance, including:

- Wetlands of international importance;
- Nationally threatened species and ecological communities;
- Migratory Species, including several migratory birds protected under JAMBA and CAMBA treaties; and
- National Heritage matters.

Protection of the Environment Administration Act 1991

The Protection of the Environment Administration Act 1991, now administered by the Department of Environment and Climate Change (DECC), establishes the Environment Protection Authority (EPA) and outlines the scope of their works and duties. The basic objective of the EPA is to protect, restore and enhance the quality of the environment in a way that integrates economic and environmental considerations.

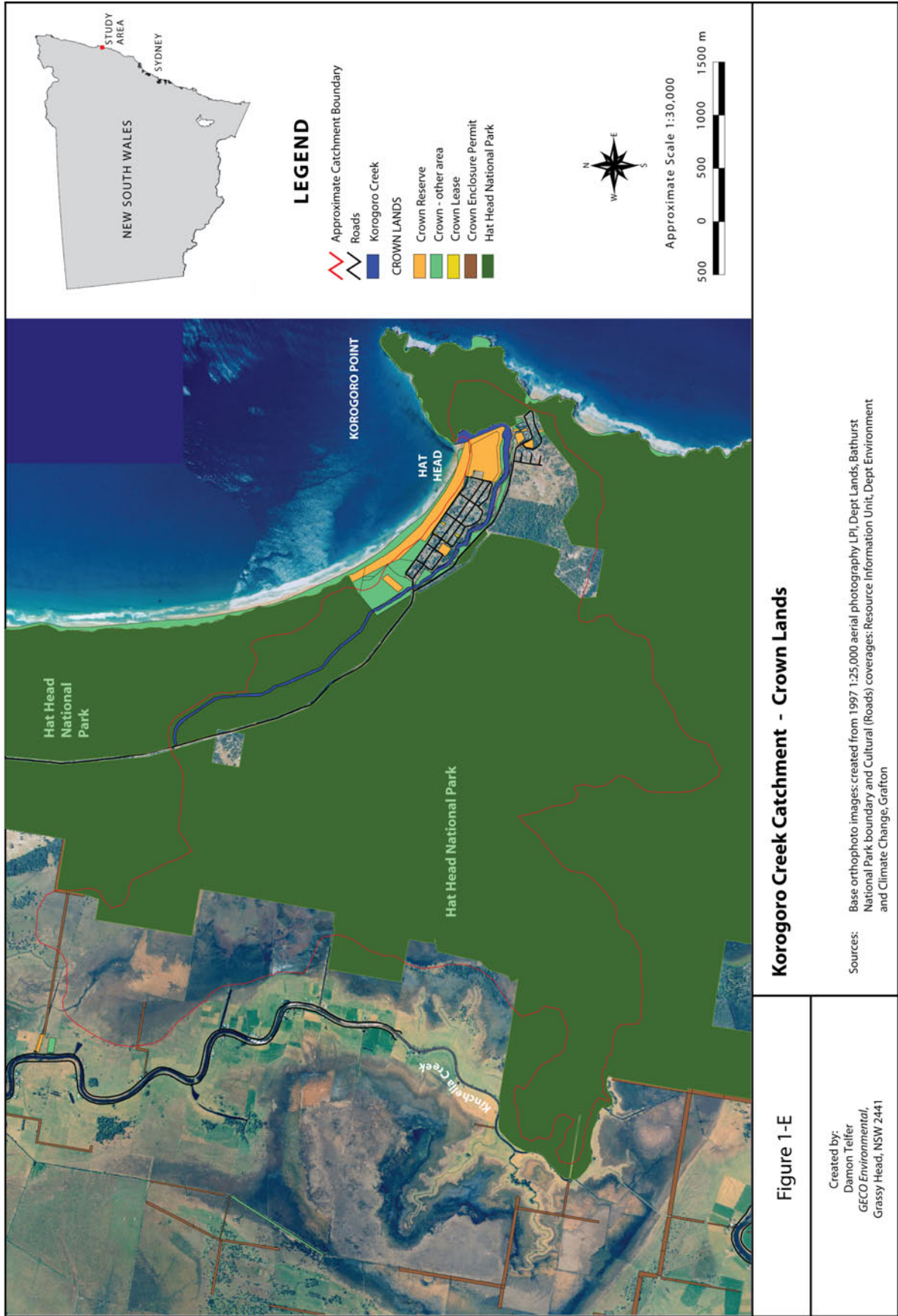
1.4 Kempsey Shire Council Planning Framework

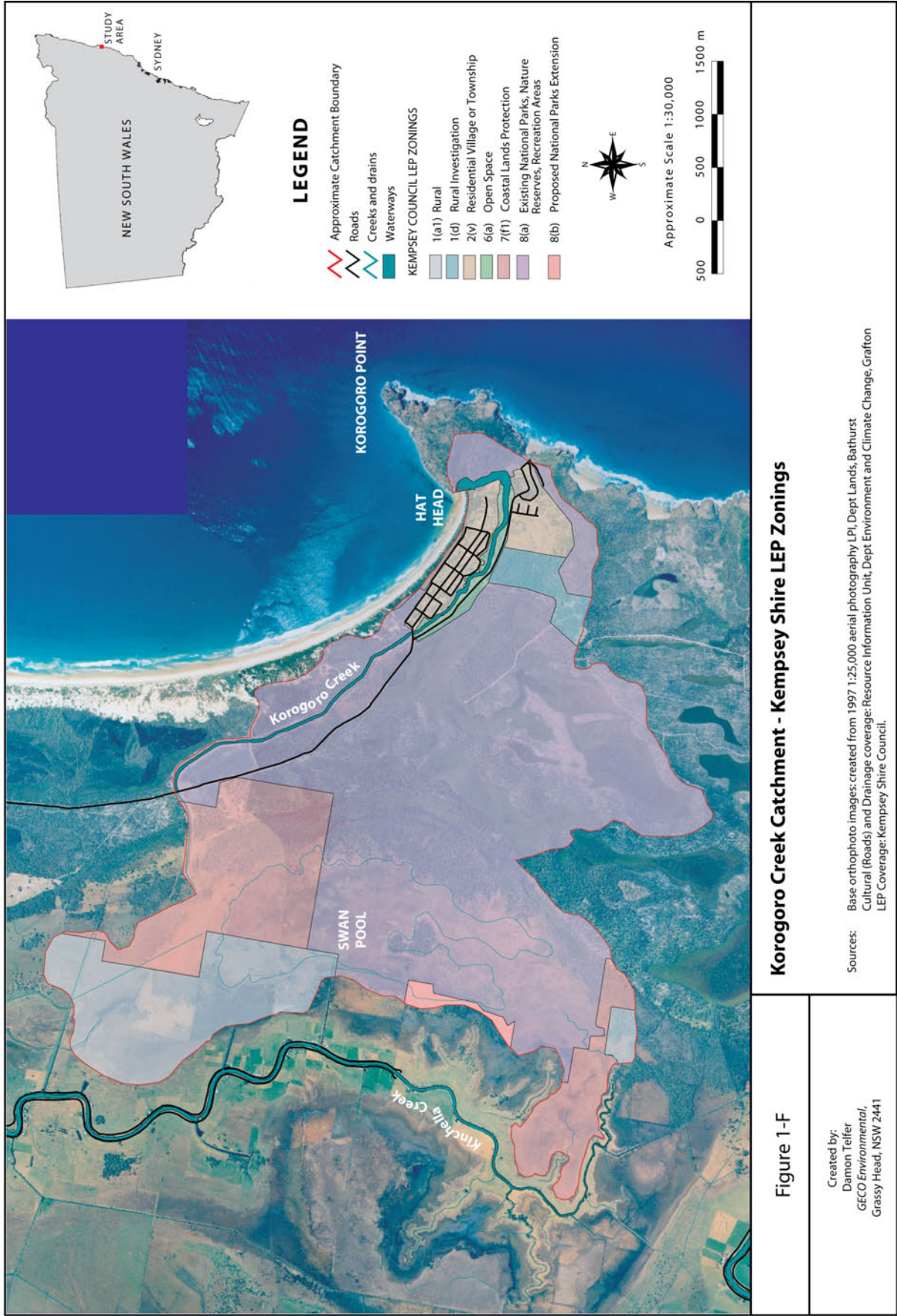
1.4.1 Kempsey Local Environmental Plan 1987

The Kempsey Local Environment Plan (LEP) 1987 is the guiding document for all Kempsey Local Government Area. The LEP describes land use zones with specific controls and permissible types of developments for each. It also states the basic philosophy for land management in the Kempsey LGA. *Figure 1-F* shows the land use zoning for the Korogoro Creek Catchment Area. The Kempsey LGA is due for review in the near future.

1.4.2 Kempsey Local Government Development Control Plans

Development Control Plans (DCPs) in the Kempsey Local Government Area are used to denote special requirements for specific aspects of developments such as location, access and environmental factors. DCP 37 is the plan for the Hat Head Village. It offers a servicing strategy and identifies controls to protect the unique character and environment of the village. Other DCPs that relate to this Estuary Management Plan include DCP 11 – Aboriginal Heritage, DCP 13 – Manufactured Home Estates and Caravan Parks and DCP 27 – Acid Sulfate Soils.





1.4.3 Kempsey Shire Ecologically Sustainable Development Strategy

In order to comply with their statutory obligations to comply with Ecologically Sustainable Development (ESD) strategies and to establish goals and strategies in the combination of environmental, social and economic management Kempsey Shire Council undertook the development of an ESD strategy. An ESD committee was established in 2005 and after extensive community and stakeholder consultation the plan was adopted mid way through 2007.

With specific regard to this EMS, the Kempsey Shire ESD strategy gives specific objectives in the areas of Total Catchment Management, Acid Sulfate Soils, Biodiversity Conservation and community education.

1.4.4 Kempsey Integrated Water Cycle Management Study

To ensure best practice management of sewage, water supply and stormwater, the Kempsey Integrated Water Cycle Management Study was undertaken. The study identified issues facing management of local water supplies and proposed a list of management tools and actions. Relevant priority areas identified for action included demand management and groundwater monitoring.

1.4.5 Kempsey Shire Urban Stormwater Management Plan

This document reviews the stormwater scenario for all the urban subcatchment areas in the Kempsey Local Government Area. With specific respect to Hat Head and Korogoro Creek it suggests that previous development on the southern bank of the creek has been problematic because of a lack of sediment control. It suggests that no formalised stormwater management is required for Hat Head village because the sandy soil has excellent drainage and filtration qualities and also because pollution sources are negligible.

1.4.6 Stormwater Management Strategy for Hat Head

This non-regulatory document briefly reviews the current stormwater scenario of the Hat Head village. It contains a number of recommendations for further treatment and management of stormwater from Hat Head village, all of which reaches Korogoro Creek.

1.5 Other Government Initiatives affecting the Management of Korogoro Creek Estuary

1.5.1 NSW Government Sea Level Rise Policy Statement (DRAFT)

This document outlines the support the NSW government is going to provide to coastal councils and the objectives and commitments with respect to sea level rise. The policy states that the NSW government, in relation to sea level rise, will;

- Promote an adaptive risk based management approach, to accommodate for further refinements in sea level rise predictions. In doing so, NSW government has adopted a sea level rise benchmark of 40cm by 2050 and 90cm by 2100 to guide planning decisions;

- Support local councils by providing funding to investigate the risk of coastal and flooding hazards and to assist in risk reduction works;
- Support appropriate coastal development by integrating the benchmark into local planning documents. The Department of Planning will develop guidelines into how this should be done,
- Provide emergency assistance through the SES; and
- Continue to provide updated information about the extent, severity and likely effects of sea level rise.

1.5.2 NSW State Plan 2006

The NSW government created The State Plan to set a general direction for their activities across NSW. The plan is made up of priorities and targets to meet under a number of categories including the environment, prosperity, safety and security and rights. Each priority is set out in terms of actions currently being undertaken and new directions to be considered.

With respect to the creation of an Estuary Management Plan, the most relevant priorities to consider are under the Environment for Living component. They are;

- *Priority E1.* A secure and sustainable water supply for all users. Under this priority the state government aims, among other things, to secure regional water sources for the environment, community and industry.
- *Priority E4.* Better outcomes for native vegetation, biodiversity, land, rivers and coastal waterways. Under tis priority the State Government sets targets for improvements in biodiversity conservation, for the management of estuaries and coastal wetlands and also for the inclusion of social and economic wellbeing considerations in Natural Resource management decisions.
- *Priority E8.* More people using parks, sporting and recreational facilities, and participating in the arts and cultural activity. This priority includes a target to increase the number of people visiting state reserves.

1.5.3 Healthy Rivers Commission – Independent Inquiry into Coastal Lakes 2002

This Healthy Rivers Commission inquiry (HRC 2002) revealed a number of problems with the (then) current management of coastal lakes. These included a lack of understanding of ecological processes and a lack of an agreed system for management.

The inquiry included a recommended strategy for the management of coastal lakes that drew upon submissions from stakeholders and acknowledged experts. Some of the submissions received addressed the applicability of the strategy to all NSW estuaries. The strategy incorporates;

- principles for management;
- a framework for management of major classes of coastal lake;
- a classification of coastal lakes
- requirements for preparing and implementing Sustainability Assessment and Management Plans;
- implementation arrangements; and
- a range of supporting initiatives.

Four categories were defined for the classification of coastal lakes. With regard to the management of the Korogoro Creek estuary, the classification of 'Healthy Modified Conditions' has been adopted and the framework for management of coastal lakes of this category will be used as a guideline for the preparation of the Korogoro Creek Estuary Management Plan. The relevant objectives will be elaborated upon in *Part 6* of this report.

1.5.4 North Coast Regional Environmental Plan 1988

The North Coast Regional Environmental Plan 1988 (NCREP) is a planning document for the North Coast region that sets the tone for individual Local Environmental Plans. The NCREP aims to develop policies that protect the natural environment and regulate the built environment for aesthetic and practical ideals. It also aims to make existing policies more appropriate to regional needs and to place them in the context of other local policies.

1.5.5 Hat Head National Park Plan of Management 1998

The Hat Head National Park Plan of Management outlines general management objectives for National Parks in general and specific objectives for the 7220ha of land protected within Hat Head National Park. The plan revolves around the general themes of conservation of important geological features, conservation of diverse habitats and ecosystems, conservation of threatened biota, conservation of biodiversity in general, protection of cultural heritage and appropriate use of park resources.

Within the plan, emphasis is given to the restoration of modified lands and the minimisation of any unacceptable impacts of public use. Additionally, the plan calls for a reduction in the incidence of fire, weeds and of feral animals.

The majority of the land within the Korogoro Creek catchment is reserved within the Hat Head National Park and a significant proportion of the upstream estuary is bordered by National Park. None of the management tools identified in the plan relate directly to the Korogoro Creek estuary. Despite this, the broader park management provides for the protection of wildlife, ecosystems and cultural heritage in the Korogoro Creek catchment area.

1.5.6 Swan Pool Drainage Management Project

The Swan Pool Drainage Management Project was prepared by Wetland Care Australia and funded by the NSW Wetlands Action Group. It delivers a comprehensive plan for the future management of the drainage works surrounding the 'swan pool'.

The drainage of the Swanpool is a significant planning consideration for Korogoro Creek as its waters are diverted to the ocean via Korogoro Creek during heavy floods. These floodwaters are a source of low quality, deoxygenated acidic 'brown water' that has the capacity to significantly alter estuary ecology over the short to medium term. A significant feature of the plan is a management plan for the 'Korogoro Cut' and the Korogoro Creek floodgates. The specific suggestions are as follows;

- Manage flow restrictions by recommissioning the lifting devices on the floodgates, backfilling the backswamp part of the drain and maintaining the intake backswamp by slashing
- Control aquatic vegetation growth in the cut by allowing occasional short term tidal incursion and occasional spot spraying of problem weeds.

- Manage overdrainage, discharge of blackwater and saltwater incursion by backfilling the backswamp part of the drain.
- Raise the invert of the cut to provide a uniform fall from the cut intake to the floodgates.
- Establish a management group made up of landholders, residents and Kempsey Local Government area representatives