

AVAILABLE SCIENTIFIC INFORMATION ON INDIVIDUAL SOUTH AFRICAN ESTUARINE SYSTEMS

Compiled by

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BACKGROUND INFORMATION

In March 1993 a co-ordinated research programme on Decision Support for the Conservation and Management of Estuaries was launched under the auspices of the Consortium for Estuarine Research & Management (CERM) and funded by the Water Research Commission (WRC). A procedure was developed whereby decision support systems were to be structured around certain key issues, with currently available information and wisdom providing the basis for individual decision support modules. A collation of available scientific information on individual southern African estuaries was identified as a high priority in order to facilitate subsequent components of the CERM contract with the WRC. The WRC Report No. 577/1/95 entitled *Available Scientific Information on Individual South African Estuarine Systems* was published in 1995 and has been widely used over the past few years.

As part of Phase 2 of the Decision Support for the Management and Conservation of Estuarine Systems it was suggested that an internet version of the above WRC Report be prepared for installation on the CERM web page. This task was completed in December 1999 and now provides researchers, planners and managers with an easily accessible source of scientific information on the various South African estuaries. At the June 2000 WRC Steering Committee Meeting for the above project it was recommended that an updated hard copy of this report be produced as part of the Phase 2 programme. This recommendation was implemented and in July 2000 the updated WRC Report No. 577/3/00 was produced.

In addition to providing valuable data sources for individual systems, the latest version of this document also highlights those estuaries for which limited information is available. A section dealing with references having wider relevance to estuaries of a particular region, or even to the subcontinent as a whole, has also been included. The categories chosen for this review of information are, of necessity, very broad and the contents of a number of papers cover more than one category. Although published works in scientific journals and books have received the most attention, numerous reports synthesizing both published and unpublished information on South African estuaries are also given. Although much of the 'grey' literature which is readily accessible has been included in this report, a number of documents were excluded on the basis that this type of information is not available to either scientists or managers (e.g. unpublished honours projects). Abstracts from conference proceedings are also excluded from the data base since these often cover preliminary findings of studies which are published in detail at a later date.

Reference to the proceedings of estuarine workshops is linked to the editor(s) of such workshops and not to the individual scientists who may have contributed to the proceedings. Where an unpublished report or progress report duplicates information provided by the same author in a published article, the former document is excluded from this analysis. Likewise, if preliminary reports are followed by final reports which include the information given previously, then only the final document is indexed. Taxonomic papers dealing with the descriptions of species have not been included in this database. Selected references from both the marine and freshwater environment have been included where they contain considerable information directly relevant to estuaries or typical estuarine organisms. It is important to note that references listed in the section "References applicable to a number of South African estuaries" are not repeated under the individual estuary headings.

Information availability on each estuarine system is categorized as nil, poor, moderate, good or excellent, based on the scope and depth of available scientific publications and reports. A preliminary analysis of the estuarine information database in the different biogeographic regions is shown in Table 1. Indications are that the status of information on 68% of the South African estuaries was classified as nil or poor, with 22% having moderate information and only 10% having good or excellent information. One third of the poor returns are from the former Transkei, where 59 estuaries have little published information. A similar situation pertains to the former Ciskei, where 11 of the 13 estuaries have limited published information.

For the purposes of this literature review, South African estuarine systems have been divided into three major biogeographic regions, viz. subtropical from the Kosi Estuary in KwaZulu-Natal to the Mbashe Estuary in the Eastern Cape, warm temperate from the Mendu Estuary in the Eastern Cape to the Silwermyl Estuary in False Bay, and cool temperate from the Krom Estuary on the Cape Peninsula to the Orange River mouth on the Northern Cape coast. Each estuary has been placed in one of the three biogeographic categories described above, a map of which is shown in Figure 1.

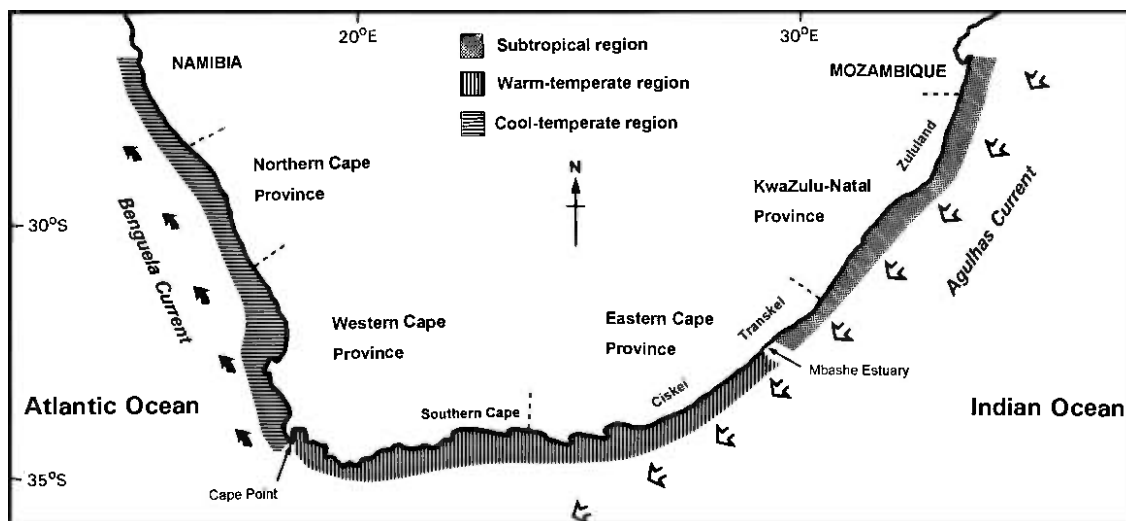


Figure 1. Map of southern Africa showing the three major biogeographic regions used in this document.

In recent years the names of certain estuaries and spelling of others have been changed. In this document the alternative names (where extensively used) or spellings are given in brackets above the text for each system. Where two estuaries have an identical name, the two systems are distinguished by an east/oos or west/wes in brackets, depending upon the longitude of each system.

Systems that do not function as estuaries using the widely accepted definition of Day (1980) were not included in this review, viz. Langebaan, Papkuils, Buffels Wes, Elsies, Mossel, Rooi, Skaapkop, Meul, Grooteiland, Kranshoek, Crooks, Brak, Witels, Geelhoutbos, Kleinbos, Bruglaagte, Langbos, Sanddrif, Eerste, Klipdrif, Boskloof, Mjihelo, Mlambomkulu, Mkambati and Mlazi. According to Harrison et al. (1994a) the following Northern and Western Cape systems do not perform the functions normally attributed to estuaries; Holgat, Buffels, Swartlintjies, Spoeg, Bitter, Groen, Brak, Sout (Noord), Jakkals, Wadrif, Verlore, Papkuils, Dwars (Noord), Dwars (Suid), Modder, Jacobsbaai, Lêerbaai, Bok, Silwerstroom and Sout (Suid). Verlorenvlei may have functioned as an estuarine lake system before the creation of artificial restrictions to water exchange with the marine environment but definitive evidence is lacking (Fromme 1985a, Sinclair et al. 1986).

ESTUARINE INFORMATION	REGION							
	Cool Temperate		Warm Temperate		Subtropical		South Africa	
	No.	%	No.	%	No.	%	No.	%
Nil	-	-	1	1	-	-	1	1
Poor	5	50	83	65	86	71	174	67
Moderate	2	20	26	20	28	23	56	22
Good	3	30	10	8	5	4	18	7
Excellent	-	-	7	6	2	2	9	3
TOTAL	10	100	127	100	121	100	258	100

Table 1. Synthesis of available information categories from individual estuaries in each biogeographical region.

The following extremely small systems have catchments arising within the immediate coastal environment, are seldom linked to the sea, and make a minimal contribution (in some instances a zero contribution) to the overall estuarine biota of southern Africa: Sewejaarskop, Booiskraal, Helpmekears, Klip, Kaapsedrif, Freshwater Poort, Blue Krans, Shwele-Shwele, Mvubukazi, Ngqenga, Imtwendwe, Timba, Mbokotwana, Nebelele, Kwa-Goqo, Ku-Nocekedwa, Nqabarana, Ngomane, Mendwana, Dakana, Kwa-Suku, Sundwana, Ku-Amanzimnyana, Nqakanqa, Lubanzi, Mhlahlane, Mtonjane, Ku-Bomvu, Thsani, Mtonga, Ndluzula, Tyityane, Ntloboba, Gxwaleni, Mnenga, Manzana, Gugu, Ingo, Ntyivini, Dakane, Mguga, Kwa-Nyambalala, Sikatsha, Cutweni, Maviti, Tezana, Magogo, Mbaxeni, Butsha, Kwa-Nondindwa, Daza and Mtolane. All the systems listed above are excluded from this review because of their limited estuarine functions but this does not imply that they are unimportant ecosystems. Previously functional estuaries such as the Sout, Bakens, Papkuils, Ngcura and Sipingo, which have been drastically altered as a result of canalization, industrialization, etc. are included in this analysis because of the potential for rehabilitation.

The estuarine classification system used in this review follows that of Whitfield (1992), viz. permanently open estuaries, temporarily open/closed estuaries, estuarine lake systems, estuarine bays and river mouths. Individual systems may change from one type of estuary to another under the influence of natural events or anthropogenic influences. Human induced changes have resulted in rapid and dramatic alterations to a number of systems, e.g. Richards Bay has been transformed from an estuarine lake into two estuarine bays through harbour development. It should be noted that a water body must have a surface area exceeding 1000 ha to be considered as an estuarine lake or estuarine bay system. It should also be noted that permanently open estuaries and river mouths do sometimes close during prolonged drought periods but under normal seasonal river flow conditions they remain open. Increasing freshwater abstraction from perennial river systems for agricultural, domestic and industrial use will inevitably lead to changes in sediment scouring patterns and mouth dynamics, with concomitant changes in the future classification of these estuaries.

The condition of each estuary, which is based on the degree to which human activities have changed the functioning or viability of a particular system, is broadly classified as poor, fair, good or excellent. These assessments are based on the opinions of scientists from the different regions as well as use of the literature data base presented in this document. The following criteria acted as guidelines in the designation of the condition of a particular estuary:

Excellent - estuary in a near pristine condition (negligible human impact).

Good - no major negative anthropogenic influences on either the estuary or catchment (low impact).

Fair - noticeable degree of ecological degradation in the catchment and/or estuary (moderate impact).

Poor - major ecological degradation arising from a combination of anthropogenic influences (high impact).

A biogeographical analysis of the current situation is given below (Table 2).

REGION								
ESTUARINE CONDITION	Cool Temperate		Warm Temperate		Subtropical		South Africa	
	No.	%	No.	%	No.	%	No.	%
Poor	5	50	14	11	19	16	38	15
Fair	3	30	20	16	37	31	60	23
Good	1	10	53	42	27	22	81	31
Excellent	1	10	40	31	36	31	79	31
TOTAL	10	100	127	100	121	100	258	100

Table 2. A subjective assessment of the condition of South African estuaries in each biogeographical region.

ORANGE (GARIEP) ESTUARY

LOCALITY: 28°38'01"S;16°27'28"E

REGION: Cool temperate

CLASSIFICATION: River mouth

INFORMATION: Good

CONDITION: Fair (Remarks: Reduced riverine input will lead to increased mouth closure in the future)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Morant & O'Callaghan (1990), Swart et al. (1988), Swart et al. (1990), van Heerden (1986)

(b) BIOLOGICAL/ECOLOGICAL: Brown (1958), Grindley (1959), Harrison (1997a), Seaman & van As (1998), Williams (1986)

(c) SYNTHESSES/REVIEWS: Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Council for Scientific and Industrial Research (1985a), Cowan (1995), Harrison et al. (1994a), Harrison et al. (1994b), Prins (1990), van der Merwe (1988a), van der Merwe (1988b)

OLIFANTS ESTUARY

LOCALITY: 31°42'03"S;18°11'19"E

REGION: Cool temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: One of the most important estuaries on the west coast)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Bornman et al. (2002), Harrison (1998a)

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1997), Day (1981h), Morant (1984), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Council for Scientific and Industrial Research (1990), Harrison et al. (1994a), Harrison et al. (1994b), Slinger (1990), van der Merwe (1988b)

GROOT BERG ESTUARY

LOCALITY: 32°46'10"S;18°08'44"E

REGION: Cool temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Good

CONDITION: Fair (Remarks: Human impacts on freshwater supply likely to increase dramatically)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Slinger & Taljaard (1994)

(b) BIOLOGICAL/ECOLOGICAL: Bennett (1994), Harrison (1997a), Kalejta (1991), Kalejta (1992a), Kalejta (1992b), Kaletja (1993a), Kaletja (1993b), Kalejta & Hockey (1991), Kalejta & Hockey (1994), Velásquez & Hockey (1992), Velásquez et al. (1990), Velásquez et al. (1991)

(c) SYNTHESSES/REVIEWS: Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Davies & Day (1995), Harrison et al. (1994a), Harrison et al. (1994b), Slinger et al. (1998), van der Merwe (1988b), van Wyk (1983)

RIETVLEI/DIEP ESTUARY

LOCALITY: 33°53'25"S;18°29'00"E

REGION: Cool temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Good

CONDITION: Poor (Remarks: Encroaching urbanization and canalization has altered this system)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Hughes et al. (1993)

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1997b), Scott (1954)

(c) SYNTHESSES/REVIEWS: Day (1981h), Millard & Scott (1954), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Barwell (1989), Beaumont & Heydenrych (1980), Harrison et al. (1994a), Harrison et al. (1994b), van der Merwe (1988b), Yeld (1994)

SOUT ESTUARY (WES)

LOCALITY: 33°54'28"S;18°28'22"E

REGION: Cool temperate

CLASSIFICATION: Canalized estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: Urbanization and canalization of the estuary has largely destroyed this system)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Orren et al. (1981)

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1997b)

(c) SYNTHESSES/REVIEWS: Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1994a), Harrison et al. (1994b)

HOUTBAAI ESTUARY

LOCALITY: 34°02'44"S;18°21'20"E

REGION: Cool temperate

CLASSIFICATION: River mouth

INFORMATION: Moderate

CONDITION: Poor (Remarks: Has potential for rehabilitation)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1996), Grindley (1988), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Fromme (1985b), Harrison et al. (1994a), Harrison et al. (1994b)

WILDEVOËLVLEI ESTUARY

LOCALITY: 34°07'40"S;18°20'43"E

REGION: Cool temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Discharge of treated effluent into the upper vlei has modified the system)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1997b)

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1996), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1994a), Harrison et al. (1994b)

BOKRAMSPRUIT ESTUARY

LOCALITY: 34°08'00"S;18°20'02"E

REGION: Cool temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: Stormwater input from township development)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1997b)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1994a), Harrison et al. (1994b)

SCHUSTER ESTUARY

LOCALITY: 34°12'07"S;18°22'20"E

REGION: Cool temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: Stormwater input from township development)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1997b)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1994a), Harrison et al. (1994b)

KROM ESTUARY

LOCALITY: 34°13'52"S;18°22'47"E

REGION: Cool temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Part of the Cape of Good Hope Nature Reserve)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1997b)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1994a), Harrison et al. (1994b)

SILWERMYN ESTUARY

LOCALITY: 34°07'58"S;18°26'20"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Poor (Remarks: Could be considered for rehabilitation)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1998)

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1996), Heineken (1982b), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1994a), Harrison et al. (1994b)

SAND ESTUARY

LOCALITY: 34°06'21"S;18°28'36"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Good

CONDITION: Poor (Remarks: High intensity residential development and industrial activity in catchment)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Harding (1993), Harding (1994)

(b) BIOLOGICAL/ECOLOGICAL: Begg (1976), Byren & Davies (1986), Clark et al. (1994), Davies & Stewart (1984), Davies et al. (1989), Gaigher & Thorne (1979), Harrison (1998), Stewart & Davies (1986)

(c) SYNTHESSES/REVIEWS: Day (1981h), Morant & Grindley (1982), Quick & Harding (1994), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Begg (1981a), Benkenstein (1981), Benkenstein (1982), Davies (1982a), Harrison et al. (1994a), Harrison et al. (1994b)

EERSTE ESTUARY

LOCALITY: 34°04'51"S;18°45'51"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Poor (Remarks: Pollution control by sewage works needs to be improved)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Clark et al. (1994), Harrison (1998)

(c) SYNTHESSES/REVIEWS: Grindley (1982), Turpie et al. (2002), Wiseman & Sowman (1992)

(d) REPORTS/DOCUMENTS: Bartlett & Henning (1982), Harrison et al. (1994a), Harrison et al. (1994b)

LOURENS ESTUARY

LOCALITY: 34°05'58"S;18°48'40"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Poor (Remarks: System could be considered for rehabilitation)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1998)

(c) SYNTHESSES/REVIEWS: Cliff & Grindley (1982), Coetzee et al. (1996), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1994a), Harrison et al. (1994b)

SIR LOWRY'S PASS ESTUARY

LOCALITY: 34°09'20"S;18°52'00"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Poor (Remarks: Water quality needs to be improved to facilitate recreational use)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1998)

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1996), Heinecken et al. (1982), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1994a), Harrison et al. (1994b)

STEENBRAS ESTUARY

LOCALITY: 34°11'41"S;18°49'11"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Fair (Remarks: Has the characteristics of a small fjord rather than a typical estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1998)

(c) SYNTHESSES/REVIEWS: Heinecken et al. (1982), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1994a), Harrison et al. (1994b)

ROOIELS ESTUARY

LOCALITY: 34°17'50"S;18°49'12"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Within the proposed Rooiels/Betty's Bay nature area)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1998)

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1996), Heinecken (1982a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1994a), Harrison et al. (1994b)

BUFFELS ESTUARY (OOS)

LOCALITY: 34°20'21"S;18°49'52"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Within the proposed Rooiels/Betty's Bay nature area)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1998)

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1996), Heinecken et al. (1982), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1994a), Harrison et al. (1994b)

PALMIET ESTUARY

LOCALITY: 34°20'37"S;18°59'45"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Good

CONDITION: Excellent (Remarks: Estuary mouth closure more likely due to increase in catchment dams)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Largier (1986), Largier & Taljaard (1991), Largier et al. (1991), Slinger & Largier (1990), Taljaard (1987), Taljaard et al. (1986), Taljaard & Largier (1989)

(b) BIOLOGICAL/ECOLOGICAL: Bennett (1989a), Bennett (1989b), Branch & Day (1984), Coetzee (1991), Harrison (1999a)

(c) SYNTHESSES/REVIEWS: Clarke (1989), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Barwell (1988a), Council for Scientific and Industrial Research (1980), Harrison et al. (1995a), Harrison et al. (1995b), Nel (1980), Rothmann (1992), Taljaard (1987), van der Merwe (1988b)

BOT/KLEINMOND ESTUARINE SYSTEM

LOCALITY: 34°22'06"S;19°05'56"E

REGION: Warm temperate

CLASSIFICATION: Estuarine lake system

INFORMATION: Excellent

CONDITION: Good (Remarks: Mouth manipulation a major issue in the management of this system)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Bally & McQuaid (1985), Fromme (1985c), Rogers (1985), van Foreest (1985), van Heerden (1985), Willis (1985)

(b) BIOLOGICAL/ECOLOGICAL: Bally et al. (1985), Bennett (1985), Bennett (1989a), Bennett (1989b), Bennett & Branch (1990), Bennett et al. (1985), De Decker (1987), De Decker & Bally (1985), De Decker & Bennett (1985), Harrison (1999a), Hejl & Currie (1985), O'Callaghan (1994b), Roberts (1985), Roberts et al. (1985a), Roberts et al. (1985b), Stewart & Bally (1985)

(c) SYNTHESSES/REVIEWS: Bally (1985), Bally (1987), Branch et al. (1985), Claassen (1985), Coetzee (1985), Koop (1982), Koop et al. (1983), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Bally & Branch (1986), Barwell (1988b), De Decker (1986), Fromme (1986c), Harrison et al. (1995a), Harrison et al. (1995b)

ONRUS ESTUARY

LOCALITY: 34°25'07"S;19°10'47"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Poor (Remarks: Siltation and reed encroachment but suitable for rehabilitation)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1999a)

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1996), Heineken & Damstra (1983), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Damstra (1980), Harrison et al. (1995a), Harrison et al. (1995b)

KLEIN ESTUARY

LOCALITY: 34°25'24"S;19°18'13"E

REGION: Warm temperate

CLASSIFICATION: Estuarine lake system

INFORMATION: Good

CONDITION: Good (Remarks: Farming in catchment and on the floodplain)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Barwell (1987), Coetzee & Pool (1986), Waldron (1986)

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1999a), Scott et al. (1952), Talbot (1955)

(c) SYNTHESSES/REVIEWS: De Decker (1989), Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Council for Scientific and Industrial Research (1988), Harrison et al. (1995a), Harrison et al. (1995b), King et al. (1989), van der Merwe (1988b)

UULKRAALS ESTUARY

LOCALITY: 34°36'23"S;19°24'33"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Fair (Remarks: Bridge and embankment constrict river and tidal flow)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Gaigher (1984), Morant (1987), Harrison (1999a)

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1996), Heydorn & Bickerton (1982), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Crowther (1988a), Harrison et al. (1995a), Harrison et al. (1995b)

RATEL ESTUARY

LOCALITY: 34°46'13"S;19°44'47"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Within a private coastal nature reserve but mouth has been diverted)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1999a)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1995a), Harrison et al. (1995b)

HEUNINGNES ESTUARY

LOCALITY: 34°42'50"S;20°07'13"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Under natural conditions the mouth of this estuary used to close)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Barham (1979), Harrison (1999b)

(c) SYNTHESSES/REVIEWS: Bickerton (1984), Coetzee et al. (1996), Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cowan (1995), Harrison et al. (1995a), Harrison et al. (1995b)

KLIPDRIFSFONTEIN ESTUARY

LOCALITY: 34°27'05"S;20°43'53"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: State owned property)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1999b)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1995a), Harrison et al. (1995b)

BREË (BREDE) ESTUARY

LOCALITY: 34°24'26"S;20°50'53"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Riverine input declining due to irrigation demands in the catchment)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Coetzee & Pool (1991), Ratte (1982), Harrison (1999b)

(c) SYNTHESSES/REVIEWS: Carter (1983), Coetzee et al. (1997), Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: de Villiers (1988), Harrison et al. (1995a), Harrison et al. (1995b)

DUIWENHOKS ESTUARY

LOCALITY: 34°21'53"S;21°00'05"S

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Excellent (Remarks: Freshwater supply to the estuary is being progressively curtailed)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1999b)

(c) SYNTHESSES/REVIEWS: Carter & Brownlie (1990), Coetzee et al. (1997), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Fromme (1989), Harrison et al. (1995a), Harrison et al. (1995b)

GOUKOU (KAFFERKUILS) ESTUARY

LOCALITY: 34°22'38"S;21°25'22"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Freshwater supply to the estuary is being progressively curtailed)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1999b)

(c) SYNTHESSES/REVIEWS: Carter & Brownlie (1990), Coetzee et al. (1997), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Fromme (1989), Harrison et al. (1995a), Harrison et al. (1995b), Sowman (1988)

GOURITS ESTUARY

LOCALITY: 34°20'37"S;21°53'16"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Freshwater supply to the estuary is being progressively curtailed)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1999b)

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1997), Day (1981h), Heydorn (1989), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1995a), Harrison et al. (1995b)

BLINDE ESTUARY

LOCALITY: 34°12'34"S;22°00'47"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Dense stands of exotic vegetation surround the estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Harrison (1999b)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1995a), Harrison et al. (1995b)

HARTENBOS ESTUARY

LOCALITY: 34°07'07"S;22°07'27"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Poor (Remarks: Water quality important for recreation)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Watling & Watling (1982c)

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Bickerton (1982), Coetzee et al. (1997), Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Bruwer (1989), Harrison et al. (1995a), Harrison et al. (1995b)

KLEIN BRAK ESTUARY

LOCALITY: 34°05'31"S;22°08'59"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Water quality important for recreation)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Watling & Watling (1982c)

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1995a), Harrison et al. (1995b)

GROOT BRAK ESTUARY

LOCALITY: 34°03'23"S;22°14'25"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Good

CONDITION: Fair (Remarks: Management of the mouth necessary following major dam construction)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Slinger et al. (1994), Watling & Watling (1982c)

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1997), Day (1981h), Morant (1983a), Slinger & Breen (1995), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: EMATEK (1990), EMATEK (1992), Harrison et al. (1995a), Harrison et al. (1995b)

MAALGATE ESTUARY

LOCALITY: 34°03'14"S;22°21'18"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Dense stands of exotic vegetation in the catchment)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1995a), Harrison et al. (1995b)

GWAING ESTUARY

LOCALITY: 34°03'21"S;22°26'07"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Dense stands of exotic vegetation in the catchment)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1995a), Harrison et al. (1995b)

KAAIMANS ESTUARY

LOCALITY: 34°59'50"S;22°33'26"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Estuary has been subjected to narrowing through road construction)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Council for Scientific and Industrial Research (1984a), Harrison et al. (1995a), Harrison et al. (1995b)

WILDERNESS ESTUARINE SYSTEM

LOCALITY: 34°59'51"S;22°34'51"E

REGION: Warm temperate

CLASSIFICATION: Estuarine lake system

INFORMATION: Excellent

CONDITION: Good (Remarks: Located within the Wilderness Lakes National Park)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Birch et al. (1978), Coetzee & Palmer (1982), Görgens & Hughes (1982), Hughes (1982a), Martin (1962)

(b) BIOLOGICAL/ECOLOGICAL: Boshoff & Palmer (1983), Boshoff & Palmer (1988), Boshoff & Palmer (1991), Boshoff et al. (1991a), Boshoff et al. (1991b), Boshoff et al. (1991c), Boshoff & Piper (1992), Boshoff & Piper (1993), Coetzee (1981a), Coetzee (1983), Davies (1984), Hall et al. (1987), Howard-Williams (1980), Jacot Guillarmod (1982), Russell (1994), Russell (1996a), Russell (2003), Weisser & Howard-Williams (1982), Weisser et al. (1992)

(c) SYNTHESSES/REVIEWS: Allanson & Whitfield (1983), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Chunnnet (1972), Council for Scientific and Industrial Research (1981a), Council for Scientific and Industrial Research (1982a), Cowan (1995), Department of Planning (1970), Fijen (1995a), Fijen (1995b), Fijn & Kapp (1995a), Fijn & Kapp (1995b), Fijn & Kapp (1995d), Fijn & van Zyl (1995a), Hall (1985), Hughes (1982b), Harrison et al. (1995a), Harrison et al. (1995b), Hughes (1983a), Hughes (1983b), Hughes (1983c), Hughes & Görgens (1983), Jacot Guillarmod & Allanson (1981a), Jacot Guillarmod & Allanson (1981b), Jacot Guillarmod & Allanson (1981c), Manley (1976)

SWARTVLEI ESTUARINE SYSTEM

LOCALITY: 34°01'51"S;22°47'49"E

REGION: Warm temperate

CLASSIFICATION: Estuarine lake system

INFORMATION: Excellent

CONDITION: Good (Remarks: Controlled by South African National Parks)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Allanson & Howard-Williams (1984), Howard-Williams (1977), Huizinga (1987), Roberts & Allanson (1977), Silberbauer (1981), Silberbauer (1982)

(b) BIOLOGICAL/ECOLOGICAL: Boshoff & Palmer (1988), Boshoff & Palmer (1991), Boshoff et al. (1991a), Boshoff et al. (1991b), Boshoff et al. (1991c), Boshoff & Piper (1992), Boshoff & Piper (1993), Coetzee (1981b), Coetzee (1982a), Coetzee (1982b), Coetzee & Pool (1985), Davies (1982b), Fairall (1981), Forbes (1978), Howard-Williams (1978), Howard-Williams (1981), Howard-Williams & Allanson (1981a), Howard-Williams & Allanson (1981b), Howard-Williams & Davies (1979), Howard-Williams & Liptrot (1980), Kok & Whitfield (1986), Ratte (1989), Roberts (1976a), Roberts (1976b), Roberts (1979), Robb et al. (1979), Russell (1994), Russell (1996a), Smale & Kok (1983), Taylor (1983), Whitfield (1984), Whitfield (1986a), Whitfield (1986b), Whitfield (1988a), Whitfield (1988b), Whitfield (1989a), Whitfield (1989b), Whitfield (1989d), Whitfield (1993a), Whitfield & Kok (1992), Wooldridge (1991)

(c) SYNTHESSES/REVIEWS: Howard-Williams & Allanson (1979), Whitfield et al. (1983), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Allanson & Whitfield (1982), Barker (1985), Council for Scientific and Industrial Research (1975), Fijen (1995c), Fijen (1995d), Fijen & Kapp (1995c), Fijen & Kapp (1995d), Fijen & van Zyl (1995d), Harrison et al. (1995a), Harrison et al. (1995b), Liptrot (1978), Liptrot & Allanson (1978), Taylor (1981), Whitfield (1982)

GOUKAMMA ESTUARY

LOCALITY: 34°04'35"S;22°57'01"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Within the Goukamma Provincial Nature Reserve)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1995a), Harrison et al. (1995b)

KNYSNA ESTUARINE SYSTEM

LOCALITY: 34°04'38"S;23°03'33"E

REGION: Warm temperate

CLASSIFICATION: Estuarine bay

INFORMATION: Excellent

CONDITION: Good (Remarks: The only estuarine bay in the warm temperate region)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Allanson et al. (2000a, Huizinga (1985b), Huizinga & Haw (1986), Largier et al. (2000), Marker (2000), Marker & Miller (1993), Reddering & Esterhuysen (1984c), Reddering & Esterhuysen (1987a), Russell (1996b), Schumann (2000), Watling & Watling (1975), Watling & Watling (1976), Watling & Watling (1977), Watling & Watling (1982b), Watling et al. (1980)

(b) BIOLOGICAL/ECOLOGICAL: Allanson et al. (2000b), Angelino & della Croce (1975), Barnes (2002), Barnes (2004), Bell et al. (2003), Cretchley (1996), Davies (1987), Day (1967), Day et al. (1952), Genade & Hirst (1986), Hill (1977), Hodgson et al. (2000a), Hodgson et al. (2000b), Le Quesne (2000), Maree (2000), Martin et al. (2000), Millard (1950), Smale & Kok (1983), Smith (1981)

(c) SYNTHESSES/REVIEWS: Allanson (2000a), Allanson (2000c), Day (1981h), Grindley (1985), Turpie et al. (2002), Yssel (1986)

(d) REPORTS/DOCUMENTS: Allanson (1991), Allanson & Grange (1996), Benson & Maddocks (1961), Burns & Heydorn (1988), Chunnnet (1965), Council for Scientific and Industrial Research (1974), Council for Scientific and Industrial Research (1976), Crowther & Grange (1994), CSIR Environmental Services (1994), Department of Planning (1970), Geldenhuys (1979), Grange & Allanson (1994), Grindley (1976), Grindley (1986), Grindley & Eagle (1978), Grindley & Snow (1983), Hanekom & Russell (1991), Harrison et al. (1995a), Harrison et al. (1995b), Haw (1984), Huizinga & Barwell (1989), Koringa (1956), Manley (1976), National Research Institute for Oceanology & VISKOR (1980), Reddering (1993), Reddering (1994), Watling & Watling (1980)

NOETSIE ESTUARY

LOCALITY: 34°04'43"S;23°07'46"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Situated within a State forestry area)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1995a), Harrison et al. (1995b)

PIESANG ESTUARY

LOCALITY: 34°03'37"S;23°22'46"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Fair (Remarks: Estuary important from an aesthetics and recreational viewpoint)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1997), Duvenage & Morant (1984), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Davies (1987), Department of Water Affairs & Forestry (1994a), Fromme (1985d), Harrison et al. (1995a), Harrison et al. (1995b)

KEURBOOMS ESTUARY

LOCALITY: 34°02'17"S;23°23'12"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Good

CONDITION: Good (Remarks: Threat of a major dam on the Keurbooms River)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Reddering (1981), Reddering (1983), Reddering (1988c), Reddering & Esterhuysen (1983a), Rust & Reddering (1983), Watling & Watling (1982d)

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1997), Day (1981h), Duvenage & Morant (1984), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Department of Water Affairs & Forestry (1994a), Fromme (1985e), Harrison et al. (1995a), Harrison et al. (1995b), Huizinga & Gaillard (1987)

MATJIES ESTUARY

LOCALITY: 34°00'06"S;23°28'14"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Small system which supplies freshwater to Keurboomstrand development)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1995a), Harrison et al. (1995b)

SOUT ESTUARY (OOS)

LOCALITY: 33°59'20"S;23°32'12"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Excellent (Remarks: Within the De Vasselot State Forestry Reserve)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1997), Morant & Bickerton (1983), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1995a), Harrison et al. (1995b)

GROOT ESTUARY (WES)

LOCALITY: 33°58'52"S;23°34'17"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Forms western boundary of the Tsitsikamma National Park)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1997), Morant & Bickerton (1983), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1996a), Harrison et al. (1996b)

BLOUKRANS ESTUARY

LOCALITY: 33°58'45"S;23°38'52"E

REGION: Warm temperate

CLASSIFICATION: River mouth

INFORMATION: Poor

CONDITION: Excellent (Remarks: Located within the Tsitsikamma National Park)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1996a), Harrison et al. (1996b)

LOTTERING ESTUARY

LOCALITY: 33°59'41"S;23°44'10"E

REGION: Warm temperate

CLASSIFICATION: River mouth

INFORMATION: Poor

CONDITION: Excellent (Remarks: Located within the Tsitsikamma National Park)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1996a), Harrison et al. (1996b)

ELANDBOS ESTUARY

LOCALITY: 34°00'04"S;23°46'04"E

REGION: Warm temperate

CLASSIFICATION: River mouth

INFORMATION: Poor

CONDITION: Excellent (Remarks: Located within the Tsitsikamma National Park)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1996a), Harrison et al. (1996b)

STORMS ESTUARY

LOCALITY: 34°01'08"S;23°54'15"E

REGION: Warm temperate

CLASSIFICATION: River mouth

INFORMATION: Poor

CONDITION: Excellent (Remarks: Located within the Tsitsikamma National Park)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1996a), Harrison et al. (1996b)

ELANDS ESTUARY

LOCALITY: 34°02'38"S;24°04'43"E

REGION: Warm temperate

CLASSIFICATION: River mouth

INFORMATION: Poor

CONDITION: Excellent (Remarks: Located within the Tsitsikamma National Park)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Department of Water Affairs & Forestry (1994b), Harrison et al. (1996a), Harrison et al. (1996b)

GROOT ESTUARY (OOS)

LOCALITY: 34°03'34"S;24°11'42"E

REGION: Warm temperate

CLASSIFICATION: River mouth

INFORMATION: Poor

CONDITION: Excellent (Remarks: Eastern boundary of the Tsitsikamma National Park)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Department of Water Affairs & Forestry (1994b), Harrison et al. (1996a), Harrison et al. (1996b)

TSITSIKAMMA ESTUARY

LOCALITY: 34°08'06"S;24°26'18"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: A major impoundment may be built on the Tsitsikamma River)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Bate et al. (1994), Department of Water Affairs & Forestry (1994b), Lee (1993), Harrison et al. (1996a), Harrison et al. (1996b)

KLIPDRIF ESTUARY

LOCALITY: 34°10'13"S;24°38'01"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Dense stands of exotic vegetation in the catchment)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1996a), Harrison et al. (1996b)

SLANG ESTUARY

LOCALITY: 34°10'23"S;24°39'01"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Coastal resort of Oyster Bay situated on the west bank)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1996a), Harrison et al. (1996b)

KROMME ESTUARY

LOCALITY: 34°08'27"S;24°50'36"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Excellent

CONDITION: Fair (Remarks: This system has a catchment which is severely impounded)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Crosby (1993), Emmerson & Erasmus (1987), Schumann & de Meillon (1993), Watling & Watling (1982e)

(b) BIOLOGICAL/ECOLOGICAL: Adams (1991), Adams et al. (1992), Adams & Talbot (1992), Baird (1979), Baird et al. (1981), Cloete (1993), Cloete (1994), Hanekom & Baird (1984), Hanekom (1982), Hanekom & Baird (1988), Hecht (1973), Heymans & Baird (1995), Jerling & Wooldridge (1994a), Marais (1983a), Melville-Smith (1981), Newman (1993), Quinn et al. (1998), Scharler & Baird (2000), Seagrief (1976), Snow et al. (2000b), Strydom (2002), Strydom & Whitfield (2000), Strydom et al. (2003), Teske & Wooldridge (2001), Teske & Wooldridge (2003), Wooldridge & Callahan (2000)

(c) SYNTHESSES/REVIEWS: Baird & Heymans (1996), Bate & Adams (2000), Bickerton & Pierce (1988), Coetzee et al. (1997), Day (1981h), Scharler et al. (1997), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Baird et al. (1992), Bickerton (1986), Council for Scientific and Industrial Research (1984b), Emmerson et al. (1982), Fromme & Badenhorst (1987), Harrison et al. (1996a), Harrison et al. (1996b), Heymans (1992), Huizinga (1991), Lee (1993), Reddering & Esterhuysen (1983b), Sowman (1990a), Sowman & Fuggle (1985), Sowman & Fuggle (1989)

SEEKOEI ESTUARY

LOCALITY: 34°05'11"S;24°54'30"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Good

CONDITION: Poor (Remarks: A poorly designed causeway has been built across the lower reaches)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Esterhuysen (1983)

(b) BIOLOGICAL/ECOLOGICAL: Adams (1991), Adams et al. (1992), Dundas (1993), Whitfield (1989e)

(c) SYNTHESSES/REVIEWS: Bickerton & Pierce (1988), Coetzee et al. (1997), Turpie et al. (2002), Whitfield (1989f)

(d) REPORTS/DOCUMENTS: Bickerton & Badenhorst (1987), Bickerton & Zoutendyk (1990), Esterhuysen (1982), Fromme & Badenhorst (1987), Harrison et al. (1996a), Harrison et al. (1996b), Wooldridge & Wallace (1977)

KABELJOUS ESTUARY

LOCALITY: 34°00'17"S;24°56'13"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Threatened with increased freshwater demand for catchment irrigation)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Adams (1991), Adams et al. (1992), Dundas (1993), Strydom (2002), Strydom (2003a), Strydom et al. (2003), Teske & Wooldridge (2001), Teske & Wooldridge (2003)

(c) SYNTHESSES/REVIEWS: Bickerton & Pierce (1988), Coetzee et al. (1997), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Fromme & Badenhorst (1987), Harrison et al. (1996a), Harrison et al. (1996b), Reddering & Esterhuysen (1984b)

GAMTOOS ESTUARY

LOCALITY: 33°58'10"S;25°01'55"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Good

CONDITION: Fair (Remarks: Quantity and quality of river water declining)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Pearce & Schumann (1997), Schumann & Pearce (1997), Watling & Watling (1982e), Zhang et al. (1995)

(b) BIOLOGICAL/ECOLOGICAL: Adams (1991), Adams et al. (1992), Bate et al. (2002), Skelton (1993), Loubser (1992), Marais (1983b), Newman (1993), Schlacher & Wooldridge (1994), Schlacher & Wooldridge (1995), Schlacher & Wooldridge (1996a), Schlacher & Wooldridge (1996b), Shewell (1950), Snow (1999), Snow et al. (2000a), Strydom (1998), Strydom (2002), Strydom et al. (2003), Teske & Wooldridge (2001), Whitfield & Wood (2003)

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1997), Day (1981h), Heinecken (1981), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1996a), Harrison et al. (1996b), Lee (1993), Reddering & Esterhuysen (1984a), Reddering & Scarr (1990a)

VAN STADENS ESTUARY

LOCALITY: 33°58'10"S;25°13'17"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Water quality important for recreational purposes)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Dundas (1993), Strydom (2002), Strydom (2003a), Strydom et al. (2003), Teske & Wooldridge (2001), Teske & Wooldridge (2003)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1996a), Harrison et al. (1996b)

MAITLAND ESTUARY

LOCALITY: 33°59'17"S;25°17'27"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Important recreational area on the outskirts of Port Elizabeth)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1996a), Harrison et al. (1996b)

BAKENS (BAAKENS) ESTUARY

LOCALITY: 33°57'50"S;25°37'46"E

REGION: Warm temperate

CLASSIFICATION: Canalized estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: Completely transformed due to harbour and urban developments)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1996a), Harrison et al. (1996b), Hops (1990)

PAPKUILS ESTUARY

LOCALITY: 33°55'02"S;25°36'50"E

REGION: Warm temperate

CLASSIFICATION: Canalized estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: Functions as an industrial canal)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1996a), Harrison et al. (1996b)

SWARTKOPS ESTUARY

LOCALITY: 33°51'54"S;25°38'00"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Excellent

CONDITION: Fair (Remarks: Ecologically viable despite urban developments and floodplain modification)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Baird & Winter (1990a), Baird & Winter (1990b), Baird & Winter (1992), Baird et al. (1987), Binning & Baird (2001), Branch (1986), Dye (1978a), Emmerson (1985a), Esterhuysen & Rust (1987), Hilmer & Bate (1987), Huizinga (1984), MacKay (1994), Talbot (1982a), Watling & Watling (1982a), Winter (1990), Winter & Baird (1991), Winter et al. (1996)

(b) BIOLOGICAL/ECOLOGICAL: Addo-Bediako (1998), Baird (1978), Beckley (1983), Beckley (1984a), Beckley (1985a), Bok (1979), Bok (1983), Daniel (1992), Daniel (1994a), Daniel (1994b), de Keyser (1987), de Wet (1988), de Wet & Marais (1990), Dye (1977), Dye (1978b), Dye (1978c), Dye et al. (1978), Dye & Furstenberg (1981), Els (1982), Emmerson (1983), Emmerson (1986), Emmerson (1987), Every (1973), Forbes (1977), Gilchrist (1918), Hanekom (1980), Hanekom (1986), Hanekom (1989), Hanekom & Baird (1992), Hanekom et al. (1988), Hanekom & Erasmus (1988), Hanekom & Erasmus (1989), Hilmer (1984), Macnae (1957a), Macnae (1957b), Malan (1982), Marais (1976), Marais (1977-79), Marais & Baird (1980a), Marais & Baird (1980b), Marais & Erasmus (1977a), Marais & Erasmus (1977b), Martin (1984), Martin (1991a), Martin (1991b), Martin & Baird (1987), Masson & Marais (1975), McLachlan (1972), McLachlan & Grindley (1974), Melville-Smith (1978), Melville-Smith & Baird (1980), Nixon (1975), Painter (1966), Perissinotto & Wooldridge (1989), Pereyra Lago (1986), Pereyra Lago (1993a), Pierce (1979), Pierce (1983), Pocock (1955), Strydom (2002), Strydom (2003a), Strydom et al. (2003), Talbot & Bate (1987), Talbot (1982b), Talbot et al. (1988), Teske & Wooldridge (2001), Teske & Wooldridge (2003), van der Horst & Erasmus (1978), van der Westhuizen & Marais (1977), van Staden (2001), Whitfield (1978a), Winter (1979), Wooldridge (1979), Wooldridge & Melville-Smith (1979)

(c) SYNTHESSES/REVIEWS: Baird (1992), Baird et al. (1986), Baird et al. (1988), Baird et al. (1991), Baird et al. (1996), Coetzee et al. (1997), Day (1981h), Edwards (1969), McLachlan (1975), Tyson (1988), van der Merwe (1975), Scharler et al. (1997), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Anon (1974a), Badenhorst (1985), Colloty et al. (2000), Connell et al. (1976a), Connell et al. (1976d), Emmerson et al. (1982), Fromme (1988), Glen (1980), Harrison et al. (1996a), Harrison et al. (1996b), Hill et al. (1984), Lee (1993), MacKay (1993), Martin & Baird (1988), Reddering & Esterhuysen (1981a), Slinger et al. (1998), van der Merwe (1974), Wooldridge (1992)

COEGA (NGCURA) ESTUARY

LOCALITY: 33°47'49"S;25°41'43"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: Estuary has been converted into a salt works)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Every (1970)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1996a), Harrison et al. (1996b)

SUNDAYS ESTUARY

LOCALITY: 33°43'19"S;25°50'57"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Excellent

CONDITION: Good (Remarks: Important recreational area, especially for anglers)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Emmerson (1989), Forbes & Allanson (1970), Illenberger (1988), Illenberger (1991), MacKay & Schumann (1990), MacKay (1988), MacKay & Schumann (1991), Watling & Watling (1982f)

(b) BIOLOGICAL/ECOLOGICAL: Beckley (1984b), Harrison & Whitfield (1990), Hilmer (1990), Hilmer & Bate (1990), Daniel (1994b), Hilmer & Bate (1991), Illenberger (1992), Jerling (1988), Jerling (1994), Jerling & Wooldridge (1991), Jerling & Wooldridge (1992), Jerling & Wooldridge (1994b), Jerling & Wooldridge (1995a), Jerling & Wooldridge (1995b), Jerling & Wooldridge (1995c), MacKay (1989), Marais (1981), Strydom (2002), Strydom et al. (2003), Teske & Wooldridge (2001), Teske & Wooldridge (2003), Whitfield (1994a), Whitfield & Harrison (1996), Whitfield & Paterson (1995), Wooldridge (1979), Wooldridge (1986a), Wooldridge & Bailey (1982), Wooldridge & Erasmus (1980), Wooldridge & Melville-Smith (1979), Wooldridge & Webb (1988)

(c) SYNTHESSES/REVIEWS: Baird et al. (1996), Beckley & Wooldridge (1988), Day (1981h), Scharler et al. (1997), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Council for Scientific and Industrial Research (1983a), Harrison et al. (1996a), Harrison et al. (1996b), Reddering & Esterhuysen (1981c), Swart (1986)

BOKNES ESTUARY

LOCALITY: 33°43'36"S;26°35'13"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Extensive aquatic plant beds a feature of this system)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Fromme (1986b), Harrison et al. (1996a), Harrison et al. (1996b)

BUSHMANS (BOESMANS) ESTUARY

LOCALITY: 33°41'41"S;26°39'48"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Fair (Remarks: Reduced riverine input due to high agricultural demands)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Baird et al. (1983), Watling & Watling (1983), Uncles et al. (1990)

(b) BIOLOGICAL/ECOLOGICAL: Gerber (1992), Jubb (1972), Palmer (1980a), Robertson (1984), Robertson (1996)

(c) SYNTHESSES/REVIEWS: Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Baird et al. (1981), Fromme (1986b), Harrison et al. (1996a), Harrison et al. (1996b), Reddering & Esterhuysen (1981b), Whitfield & Ter Morshuizen (1992)

KARIEGA ESTUARY

LOCALITY: 33°40'55"S;26°41'15"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Good

CONDITION: Fair (Remarks: Reduced freshwater input due to urban and agricultural demands)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Allanson & Read (1987), Taylor (1992), Ter Morshuizen (1995), Watling & Watling (1983)

(b) BIOLOGICAL/ECOLOGICAL: Bate et al. (2002), de Villiers (1990), Froneman (2000), Froneman (2001a), Froneman (2001b), Froneman (2001c), Froneman (2002a), Froneman & McQuaid (1997), Froneman & Vorwerk (2003), Grange (1992), Grange & Allanson (1995), Hodgson (1987), Neethling & Jubb (1973), Paterson (1995a), Paterson (1998), Paterson & Whitfield (1996), Paterson & Whitfield (1997), Paterson & Whitfield (2000a), Robertson (1996), Strydom (2002), Strydom et al. (2002), Strydom et al. (2003), Taylor & Allanson (1993), Taylor & Allanson (1995), Ter Morshuizen & Whitfield (1994), Teske & Wooldridge (2001), Teske & Wooldridge (2003), Whitfield (1994a), Whitfield (1994b), Whitfield & Paterson (2003), Whitfield & Wood (2003)

(c) SYNTHESSES/REVIEWS: Allanson & Read (1995), Grange et al. (2000), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Fromme (1986b), Gaillard & Huizinga (1988), Harrison et al. (1996a), Harrison et al. (1996b), Taylor (1987), Whitfield & Ter Morshuizen (1992)

KASUKA (KASOUGA) ESTUARY

LOCALITY: 33°39'17"S;26°44'08"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: A well conserved, recreationally important Eastern Cape estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Froneman (2002a), Froneman (2002b), Froneman (2004a), Froneman (2004b), Jubb (1979)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Fromme (1986b), Harrison et al. (1996a), Harrison et al. (1996b), Whitfield & Ter Morshuizen (1992)

KOWIE ESTUARY

LOCALITY: 33°36'11"S;26°54'10"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Good

CONDITION: Fair (Remarks: Lower reaches highly impacted by human activities)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Crosby (1993), Kokkinn & Allanson (1985), Schumann et al. (2001), Watling & Watling (1983)

(b) BIOLOGICAL/ECOLOGICAL: Bok (1979), Bok (1983), Davies (1980), Hill (1975b), Hill (1978), Robertson (1996), Whitfield et al. (1994)

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1997), Day (1981h), Heinecken & Grindley (1982), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Grange et al. (1992), Harrison et al. (1996a), Harrison et al. (1996b), PLAN Associates (1986)

RUFANE ESTUARY

LOCALITY: 33°34'51"S;26°56'15"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Water quality important for recreation)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1996a), Harrison et al. (1996b)

RIET ESTUARY

LOCALITY: 33°33'40"S;27°00'53"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Important from an aesthetic and recreational viewpoint)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1996a), Harrison et al. (1996b)

KLEINEMONDE (WES) ESTUARY

LOCALITY: 33°32'28"S;27°02'51"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Holiday resort development in mouth region)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Brown (1953), Blaber (1973a), Blaber (1973c), Blaber (1974a)

(c) SYNTHESSES/REVIEWS: Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Badenhorst (1988a), Harrison et al. (1996a), Harrison et al. (1996b)

KLEINEMONDE (OOS) ESTUARY

LOCALITY: 33°32'21"S;27°02'55"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Holiday resort development in mouth region)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Smakhtin (2004)

(b) BIOLOGICAL/ECOLOGICAL: Cowley (1998), Cowley & Whitfield (2001a), Cowley & Whitfield (2001b), Cowley & Whitfield (2002), Cowley et al. (2001), Strydom (2002), Strydom et al. (2003), Teske & Wooldridge (2001), Teske & Wooldridge (2003), Vorwerk et al. (2001), Vorwerk et al. (2003)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Badenhorst (1988a), Harrison et al. (1996a), Harrison et al. (1996b)

KLEIN PALMIET ESTUARY

LOCALITY: 33°30'29"S;27°07'32"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good (Remarks: Beach access road encroaches onto estuary margins)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Vorwerk et al. (2001), Vorwerk et al. (2003)

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

GREAT FISH ESTUARY

LOCALITY: 33°39'37"S;27°08'10"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Good

CONDITION: Good (Remarks: A very important recreational area, especially for anglers)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Allanson & Read (1987), Hiller & Stavrakis (1982), Watling & Watling (1983)

(b) BIOLOGICAL/ECOLOGICAL: Bate et al. (2002), Bok (1979), Bok (1983), Froneman (2000), Froneman (2002a), Grange (1992), Grange & Allanson (1995), Strydom (2002), Strydom et al. (2002), Strydom et al. (2003), Ter Morshuizen et al. (1996), Ter Morshuizen et al. (1997), Teske & Wooldridge (2001), Teske & Wooldridge (2003), Vorwerk et al. (2001), Vorwerk et al. (2003), Whitfield (1994a), Whitfield et al. (1994), Whitfield & Wood (2003)

(c) SYNTHESSES/REVIEWS: Allanson & Read (1995), Day (1981h), Grange et al. (2000), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1996a), Harrison et al. (1996b), Lucas (1986), Reddering & Esterhuysen (1982)

OLD WOMANS ESTUARY

LOCALITY: 33°28'58"S;27°08'53"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Estuary surrounded by the Fish River Sun golf course)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Strydom (2002), Strydom et al. (2003), Teske & Wooldridge (2001), Teske & Wooldridge (2003)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1997a), Harrison et al. (1997b)

MPEKWENI ESTUARY

LOCALITY: 33°26'17"S;27°13'51"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Estuary mouth is artificially manipulated by the Mpekweni Sun Hotel)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Teske & Wooldridge (2001), Teske & Wooldridge (2003), Vorwerk et al. (2001), Vorwerk et al. (2003)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1997a), Harrison et al. (1997b)

MTATI ESTUARY

LOCALITY: 33°25'20"S;27°15'36"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: New resort development near mouth)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Teske & Wooldridge (2001), Teske & Wooldridge (2003), Vorwerk et al. (2001), Vorwerk et al. (2003)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Grobblers et al. (1987), Harrison et al. (1997a), Harrison et al. (1997b)

MGWALANA ESTUARY

LOCALITY: 33°24'47"S;27°16'28"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Small holiday resort at the mouth)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Vorwerk et al. (2001), Vorwerk et al. (2003)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1997a), Harrison et al. (1997b)

BIRA ESTUARY

LOCALITY: 33°22'57"S;27°19'34"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Northern bank artificially stabilized near the mouth)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Vorwerk et al. (2001), Vorwerk et al. (2003)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1997a), Harrison et al. (1997b)

GQUTYWA ESTUARY

LOCALITY: 33°21'45"S;27°21'31"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: This estuary falls within a declared conservation area)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Strydom (2002), Strydom et al. (2003), Teske & Wooldridge (2001), Teske & Wooldridge (2003), Vorwerk et al. (2001), Vorwerk et al. (2003)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1997a), Harrison et al. (1997b)

NGCULURA ESTUARY

LOCALITY: 33°21'29"S;27°22'10"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Catchment degradation has occurred)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Vorwerk et al. (2001), Vorwerk et al. (2003)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1997a), Harrison et al. (1997b)

MTANA ESTUARY

LOCALITY: 33°19'06"S;27°25'58"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Vehicle access route to the beach encroaches onto the estuary bank)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1997a), Harrison et al. (1997b)

KEISKAMMA ESTUARY

LOCALITY: 33°16'56"S;27°29'33"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Fair (Remarks: Increasing freshwater abstraction and human impacts in the catchment)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Read (1983a)

(b) BIOLOGICAL/ECOLOGICAL: Read (1982), Read (1985a), Read (1985b), Robertson (1996), Strydom (2002), Strydom et al. (2003), Vorwerk et al. (2001), Vorwerk et al. (2003)

(c) SYNTHESSES/REVIEWS: Allanson & Read (1995), Cowling & McKenzie (1979), Day (1981h), Teske & Wooldridge (2001), Teske & Wooldridge (2003), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1997a), Harrison et al. (1997b)

NGQINISA ESTUARY

LOCALITY: 33°15'12"S;27°31'47"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Catchment and estuary undeveloped)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1997a), Harrison et al. (1997b)

KIWANE ESTUARY

LOCALITY: 33°14'57"S;27°32'38"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Catchment and estuary undeveloped)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1997a), Harrison et al. (1997b)

TYOLOMNQA ESTUARY

LOCALITY: 33°13'32"S;27°35'01"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Good (Remarks: State forestry reserve on the western side)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Robertson (1996)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1997a), Harrison et al. (1997b)

SHELBERTSSTROOM ESTUARY

LOCALITY: 33°12'22"S;27°36'58"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Floodplain disturbed following construction of car park and ablution facility)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

LILYVALE ESTUARY

LOCALITY: 33°11'36"S;27°38'15"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Resort development of Christmas Rock situated to the east of the estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

ROSS' CREEK ESTUARY

LOCALITY: 33°10'35"S;27°39'31"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Farmlands in the catchment and resort development to the east)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

NCERA ESTUARY

LOCALITY: 33°10'12"S;27°40'11"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Causeway/weir at head of estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

MLELE ESTUARY

LOCALITY: 33°09'35"S;27°40'51"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Weir at head of estuary and part of shoreline has been stabilized)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

MCANTSI ESTUARY

LOCALITY: 33°08'44"S;27°42'11"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Kidd's Beach holiday resort on southern bank of estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

GXULU ESTUARY

LOCALITY: 33°07'04"S;27°43'55"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Fair proportion of estuarine floodplain comprises holiday resort)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

GODA ESTUARY

LOCALITY: 33°06'00"S;27°46'30"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Small holiday resort on northern bank of estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

HLOZI ESTUARY

LOCALITY: 33°05'09"S;27°48'39"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Farmlands in catchment may impact on estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

HICKMANS ESTUARY

LOCALITY: 33°04'11"S;27°50'22"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Holiday resort development on the floodplain and causeway upstream of estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

BUFFALO ESTUARY

LOCALITY: 33°01'42"S;27°54'57"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: Urban and rural pollution of freshwater supply to estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Watling et al. (1985)

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Connell et al. (1978a), Connell et al. (1981a), Harrison et al. (1997a), Harrison et al. (1997b)

BLIND ESTUARY

LOCALITY: 33°00'25"S;27°55'38"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: There is an urgent need to improve estuarine water quality)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Talbot et al. (1985)

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

HLAZE ESTUARY

LOCALITY: 32°59'20"S;27°57'02"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: There is an urgent need to improve estuarine water quality)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Talbot et al. (1985)

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

NAHOON ESTUARY

LOCALITY: 32°59'10"S;27°57'08"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Fair (Remarks: Important environmental asset and recreational facility)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Reddering & Esterhuysen (1987b), Talbot et al. (1985)

(b) BIOLOGICAL/ECOLOGICAL: Burse & Wooldridge (2002), Burse & Wooldridge (2003), Campbell et al. (1991), Steinke (1986a)

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1997), Turpie et al. (2002), Wiseman et al. (1993)

(d) REPORTS/DOCUMENTS: Council for Scientific and Industrial Research (1985b), Esterhuysen & Reddering (1985), Harrison et al. (1997a), Harrison et al. (1997b), Wooldridge (1986b)

QINIRA ESTUARY

LOCALITY: 32°58'27"S;27°57'57"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Important environmental asset and recreational facility)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Talbot et al. (1985)

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1997), Turpie et al. (2002), Wiseman et al. (1993)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

GQUNUBE ESTUARY

LOCALITY: 32°55'59"S;28°01'59"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Important environmental asset and recreational facility)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Campbell et al. (1991), Steinke (1972a), Steinke (1986a)

(c) SYNTHESSES/REVIEWS: Coetzee et al. (1997), Turpie et al. (2002), Wiseman et al. (1993)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b), Wooldridge (1986b)

KWELERA ESTUARY

LOCALITY: 32°54'26"S;28°04'35"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Resort development in estuary mouth region)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Campbell et al. (1991), Steinke (1986a)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b), Wooldridge (1986b)

BULURA ESTUARY

LOCALITY: 32°53'28"S;28°05'38"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Resort development in the estuary mouth region)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

CUNGE ESTUARY

LOCALITY: 32°51'41"S;28°06'44"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Relatively low dissolved oxygen levels in bottom waters reported)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

CINTSA ESTUARY

LOCALITY: 32°49'51"S;28°06'59"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Extensive resort development in the vicinity of the lower reaches)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

CEFANE ESTUARY

LOCALITY: 32°48'30"S;28°08'11"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: May be considered for inclusion in a coastal reserve)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

KWENXURA ESTUARY

LOCALITY: 32°47'57"S;28°09'02"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: May be considered for inclusion in a coastal reserve)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

NYARA ESTUARY

LOCALITY: 32°47'02"S;28°10'56"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: May be considered for inclusion in a coastal reserve)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Perissinotto et al. (2000), Walker et al. (2001)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

HAGA-HAGA ESTUARY

LOCALITY: 32°45'42"S;28°15'15"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Increased pressure on freshwater supply for resort development)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Whitfield (1992a)

(c) SYNTHESSES/REVIEWS: Hill & Brown (1996), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b), Whitfield (1993b)

MTENDWE ESTUARY

LOCALITY: 32°44'24"S;28°17'13"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Both catchment and estuary in excellent condition)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

QUKO ESTUARY

LOCALITY: 32°43'34"S;28°18'32"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Most of the estuary is within a declared conservation area)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Burns et al. (1988), Coetzee et al. (1997), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

MORGAN ESTUARY

LOCALITY: 32°42'27"S;28°20'44"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Increasing demand for freshwater supply to holiday resort)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

CWILI ESTUARY

LOCALITY: 32°41'27"S;28°22'29"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Catchment in excellent condition but remnants of old road bridge in estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Harrison et al. (1997a), Harrison et al. (1997b)

GREAT KEI ESTUARY

LOCALITY: 32°40'43"S;28°23'15"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Fair (Remarks: Catchment degradation has resulted in heavy siltation of the estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Plumstead (1984), Plumstead et al. (1985), Robertson (1996)

(c) SYNTHESSES/REVIEWS: Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1997a), Harrison et al. (1997b), Marais & Prinsloo (1980)

GXARA ESTUARY

LOCALITY: 32°40'00"S;28°23'00"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Water quality measurements indicate bacterial contamination)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

NGOGWANE ESTUARY

LOCALITY: 32°38'56"S;28°25'18"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Poor water quality and floodplain disturbance by vehicle access routes)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

QOLORA ESTUARY

LOCALITY: 32°38'01"S;28°25'53"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: This system appears to be in a near natural state)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

NCIZELE ESTUARY

LOCALITY: 32°37'43"S;28°26'19"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: This system appears to be in a near natural state)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

KOBONQABA ESTUARY

LOCALITY: 32°36'25"S;28°29'25"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Reduced water quality due to high *E.coli* counts)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Steinke (1972a)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

NGQUSI/INXAXO ESTUARY

LOCALITY: 32°35'05"S;28°31'32"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Wavecrest holiday resort on southern shore near mouth)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Robertson (1996), Steinke (1972a), Steinke & Ward (1990)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

CEBE ESTUARY

LOCALITY: 32°31'22"S;28°34'56"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: The Cebe Nature Reserve camp site is situated near the estuary mouth)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

GQUNQE ESTUARY

LOCALITY: 32°31'08"S;28°35'23"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: There is in urgent need for ecological information on this estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

ZALU ESTUARY

LOCALITY: 32°29'59"S;28°36'17"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Small floodplain and surrounding area used for grazing cattle)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

NGQWARA ESTUARY

LOCALITY: 32°29'32"S;28°36'51"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Floodplain and surrounding area used for grazing cattle)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

SIHLONTLWENI (GCINI) ESTUARY

LOCALITY: 32°28'48"S;28°38'45"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Information needed on this system)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

QORA ESTUARY

LOCALITY: 32°26'50"S;28°40'21"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: System is regularly used for recreational boating and fishing)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Robertson (1996)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

JUJURA ESTUARY

LOCALITY: 32°25'49"S;28°41'40"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Poor water quality requires attention)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

NGADLA ESTUARY

LOCALITY: 32°25'03"S;28°42'33"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Poor water quality requires attention)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

SHIXINI ESTUARY

LOCALITY: 32°24'10"S;28°43'39"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Poor water quality requires attention)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

NQABARA ESTUARY

LOCALITY: 32°20'21"S;28°47'23"E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Mangroves stands present in estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Robertson (1996), Steinke (1972a)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Marais & Prinsloo (1980)

NGOMA (KOBULE) ESTUARY

LOCALITY: 32°18'05"S;28°50'18"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Situated in the Dwesa Nature Reserve)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: van der Elst (1978a)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

MENDU ESTUARY

LOCALITY: 32°16'51"S;28°52'42"E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Situated in the Dwesa Nature Reserve)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

MBASHE ESTUARY

LOCALITY: 32°14'55"S;28°54'03"E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Poor catchment management has led to siltation of the estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Dardis & Plumstead (1988)

(b) BIOLOGICAL/ECOLOGICAL: Plumstead (1984), Plumstead (1990), Plumstead et al. (1989a), Steinke (1972)

(c) SYNTHESSES/REVIEWS: Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Connell et al. (1976b), Connell et al. (1976d), Connell et al. (1978b), Connell et al. (1980a), Connell et al. (1981b), Harrison et al. (1998a), Harrison et al. (1998b), Marais & Prinsloo (1980)

KU-MPENZU ESTUARY

LOCALITY: 32°14'35"S;28°54'50"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Causeway crosses upper reaches of the system)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

MBHANYANA (KU-BHULA) ESTUARY

LOCALITY: 32°13'41"S;28°55'43"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: This system falls within the Cwebe Nature Reserve)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

NTLONYANE ESTUARY

LOCALITY: 32°11'39"S;28°57'25"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Much of the floodplain and surrounding area used for cattle grazing)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

NKANYA ESTUARY

LOCALITY: 32°10'39"S;28°58'34"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: This system is in near pristine condition)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

XORA (XHORA) ESTUARY

LOCALITY: 32°09'30"S;29°59'48"E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: An exceptionally important system in need of further study)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

BULUNGULA ESTUARY

LOCALITY: 32°08'19"S;29°00'39"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

KU-AMANZIMUZAMA ESTUARY

LOCALITY: 32°06'56"S;29°02'02"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

MNCWASA ESTUARY

LOCALITY: 32°04'55"S;29°04'34"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

MPAKO ESTUARY

LOCALITY: 32°02'25"S;29°06'27"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

NENGA ESTUARY

LOCALITY: 31°59'04"S;29°09'04"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Estuary floodplain impacted by road and other infrastructural developments)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

MAPUZI ESTUARY

LOCALITY: 31°58'08"S;29°10'07"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: This system is used by commercial fishermen as a ski boat launch site)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

MTATA ESTUARY

LOCALITY: 31°57'08"S;29°10'57"E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Water quality and catchment management issues need to be addressed)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Plumstead (1984), Plumstead et al. (1989b), Robertson (1996)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Marais & Prinsloo (1980), Harrison et al. (1998a), Harrison et al. (1998b)

MDUMBI ESTUARY

LOCALITY: 31°55'50"S;29°12'58"E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Portion of the floodplain is used for subsistence agriculture)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Robertson (1996)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

LWANDILANA ESTUARY

LOCALITY: 31°53'46"S;29°14'39"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

LWANDILE ESTUARY

LOCALITY: 31°53'25"S;29°14'48"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

MTAKATYE ESTUARY

LOCALITY: 31°51'30"S;29°16'19"E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

HLULEKA (MAJUSINI) ESTUARY

LOCALITY: 31°49'36"S;29°18'09"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

MNENU ESTUARY

LOCALITY: 31°48'27"S;29°19'41"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

MTONGA ESTUARY

LOCALITY: 31°47'31"S;29°20'54"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

MPANDE ESTUARY

LOCALITY: 31°45'42"S;29°21'27"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Some of the floodplain has been used for subsistence agriculture)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

SINANGWANA ESTUARY

LOCALITY: 31°44'58"S;29°22'16"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Some of the floodplain has been used for subsistence agriculture)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

MNGAZANA ESTUARY

LOCALITY: 31°41'29"S;29°25'24"E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Good

CONDITION: Good (Remarks: Diverse flora and fauna contribute to great conservation potential)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Dye (1983a)

(b) BIOLOGICAL/ECOLOGICAL: Branch & Grindley (1979), Dye (1979), Dye (1983b), Dye (1983c), Emmerson (1990), Emmerson & McGwynne (1992), Mbande (2003), Mbande et al. (2004), Rajkaran et al. (2004), Wooldridge (1977)

(c) SYNTHESSES/REVIEWS: Branch (1976), Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Connell et al. (1978e), Connell et al. (1980a), Harrison et al. (1998a), Harrison et al. (1998b)

MNGAZI ESTUARY

LOCALITY: 31°40'32"S;29°27'40"E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Coastal resort of Umngazi River Bungalows situated at the mouth)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Mbande (2003), Mbande et al. (2004)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

BULOLO ESTUARY

LOCALITY: 31°39'00"S;29°31'04"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Two traffic causeways traverse the system)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Robertson (1996), Whitfield (1979)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

MTAMBANE ESTUARY

LOCALITY: 31°38'52"S;29°31'14"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Camp site and caravan park situated on the estuary floodplain)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Whitfield (1979)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

MZIMVUBU ESTUARY

LOCALITY: 31°37'18"S;29°33'04"E

REGION: Subtropical

CLASSIFICATION: River mouth

INFORMATION: Poor

CONDITION: Fair (Remarks: System suffers from excessive siltation due to poor catchment management)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Robertson (1996)

(c) SYNTHESSES/REVIEWS: Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Connell et al. (1978d), Connell et al. (1980a), Harrison et al. (1998a), Harrison et al. (1998b)

NTLUPENI ESTUARY

LOCALITY: 31°36'30"S;29°34'51"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: This estuary is a popular recreational venue for the local community)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

NKODUSWENI ESTUARY

LOCALITY: 31°35'36"S;29°36'28"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

MNTAFUFU ESTUARY

LOCALITY: 31°33'49"S;29°38'10"E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Excellent (Remarks: Wide variety of natural habitats make this a very valuable estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Plumstead (1984), Plumstead et al. (1991)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

MZINTLAVA ESTUARY

LOCALITY: 31°31'19"S;29°41'23"E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baselines studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

UMZIMPUNZI ESTUARY

LOCALITY: 31°28'44"S;29°43'18"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

MBOTYI ESTUARY

LOCALITY: 31°27'57"S;29°44'06"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Wooldridge (1974)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

MKOZI ESTUARY

LOCALITY: 31°26'49"S;29°45'46"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

MYEKANE ESTUARY

LOCALITY: 31°26'44"S;29°45'58"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

LUPATANA ESTUARY

LOCALITY: 31°25'26"S;29°51'03"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

MKWENI ESTUARY

LOCALITY: 31°24'12"S;29°52'28"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Robertson (1996)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

MSIKABA ESTUARY

LOCALITY: 31°19'13"S;29°57'56"E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Excellent (Remarks: Forms the southern boundary of the Mkambati Nature Reserve)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Blaber et al. (1974), Robertson (1996), Wooldridge (1974), Wooldridge (1976)

(c) SYNTHESSES/REVIEWS: Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

MGWEGWE ESTUARY

LOCALITY: 31°17'13"S;30°00'42"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Situated within the Mkambati Nature Reserve)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

MGWETYANA ESTUARY

LOCALITY: 31°15'41"S;30°02'24"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Situated within the Mkambati Nature Reserve)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

MTENTU ESTUARY

LOCALITY: 31°14'53"S;30°02'49"E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Forms the northern boundary of the Mkambati Nature Reserve)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Connell (1974)

(c) SYNTHESSES/REVIEWS: Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Connell et al. (1980a), Harrison et al. (1998a), Harrison et al. (1998b)

SIKOMBE ESTUARY

LOCALITY: 31°13'12"S;30°04'09"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

KWANYANA ESTUARY

LOCALITY: 31°11'10"S;30°06'17"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

MNYAMENI ESTUARY

LOCALITY: 31°09'03"S;30°08'05"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

MPAHLANYANA ESTUARY

LOCALITY: 31°07'27"S;30°09'38"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

MPAHLANE ESTUARY

LOCALITY: 31°07'11"S;30°09'53"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent? (Remarks: Baseline studies urgently required)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001)

MZAMBA ESTUARY

LOCALITY: 31°06'30"S;30°10'31"E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Water quality issues need to be addressed)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Klinger & Kennedy (1980)

(b) BIOLOGICAL/ECOLOGICAL: Plumstead (1984), Plumstead et al. (1991), Robertson (1996)

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Begg (1986a), Harrison et al. (1998a), Harrison et al. (1998b)

MTENTWANA ESTUARY

LOCALITY: 31°05'21"S;30°11'08"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Infrastructural developments by Wild Coast Sun Hotel)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Klinger & Kennedy (1980)

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Colloty et al. (2001), Harrison et al. (1998a), Harrison et al. (1998b)

MTAMVUNA ESTUARY

LOCALITY: 31°04'56"S;30°11'39"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Excellent (Remarks: Northern bank forms part of the Mtamvuna Nature Reserve)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Cooper (1993a), Hemens et al. (1986), National Research Institute for Oceanology (1981a)

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a), Robertson (1996)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b), Hemens et al. (1975h)

ZOLWANE ESTUARY

LOCALITY: 31°04'31"S;30°12'18"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Private ownership with definite conservation potential)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

SANLUNDLU ESTUARY

LOCALITY: 31°02'32"S;30°13'43"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Private ownership with dune conservation potential)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

KU-BOBOYI ESTUARY

LOCALITY: 31°02'02"S;30°14'12"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: Impact of sugar cane cultivation on this estuary needs attention)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

TONGAZI ESTUARY

LOCALITY: 31°00'38"S;30°15'31"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Estuary surrounded by atypical lagoonal plant community)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

KANDANDHLOVU ESTUARY

LOCALITY: 30°59'48"S;30°16'07"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Siltation from banana plantations requires attention)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MPENJATI ESTUARY

LOCALITY: 30°58'21"S;30°17'02"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Has conservation potential)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a), Kibirige & Perissinotto (2003a), Kibirige & Perissinotto (2003b), Kibirige et al. (2002), Kibirige et al. (2003), Perissinotto et al. (2002)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

UMHLANGANKULU ESTUARY

LOCALITY: 30°56'40"S;30°18'10"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Fair (Remarks: Estuary forms part of the San Lameer holiday resort)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

KABA ESTUARY

LOCALITY: 30°56'07"S;30°18'30"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: The system is adversely affected by weir construction and siltation)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MBIZANA ESTUARY

LOCALITY: 30°54'34"S;30°20'02"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: Siltation of the estuary is a major problem)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MVUTSHINI ESTUARY

LOCALITY: 30°53'37"S;30°20'50"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Important recreational area)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

BILANHLOLO ESTUARY

LOCALITY: 30°53'21"S;30°20'58"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Important recreational area)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

UVUZANA ESTUARY

LOCALITY: 30°52'40"S;30°21'32"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Siltation of estuary a major problem)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

KONGWENI ESTUARY

LOCALITY: 30°51'39"S;30°22'19"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: Surrounded by urban area and highly disturbed)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a), Cooper et al. (1994a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

VUNGU ESTUARY

LOCALITY: 30°50'07"S;30°23'45"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Fair (Remarks: High aesthetic and recreational value)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Smakhtin (2004)

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MHLANGENI ESTUARY

LOCALITY: 30°49'06"S;30°24'22"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: Highly disturbed but important recreational value)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

ZOTSHA ESTUARY

LOCALITY: 30°47'17"S;30°25'25"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: An important estuarine system on the KwaZulu-Natal south coast)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a), Harrison (1993), Harrison & Cooper (1991), Harrison & Whitfield (1995)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

BOBOYI ESTUARY

LOCALITY: 30°46'13"S;30°26'22"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Catchment in poor condition)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MBANGO ESTUARY

LOCALITY: 30°45'24"S;30°26'54"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Catchment in poor condition)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MZIMKULU ESTUARY

LOCALITY: 30°44'23"S;30°27'32"E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Poor (Remarks: Water pollution and siltation are major problems)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Connell et al. (1975b), Cooper et al. (1993a), Cooper et al. (1993b), National Research Institute for Oceanology (1977)

MTENTWENI ESTUARY

LOCALITY: 30°42'33"S;30°28'54"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Fair (Remarks: Degradation linked to sand accumulation and urban encroachment)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MHLANGAMKULU ESTUARY

LOCALITY: 30°41'17"S;30°29'55"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Undisturbed plant communities in upper reaches)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

DAMBA ESTUARY

LOCALITY: 30°40'19"S;30°30'39"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Important swamp forest on south bank)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a), Harrison (1993), Harrison & Whitfield (1995)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

KOSHWANA ESTUARY

LOCALITY: 30°39'33"S;30°31'04"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: Siltation and sewage problems)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

INTSHAMBILI ESTUARY

LOCALITY: 30°38'12"S;30°32'13"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Valuable swamp forest community and well conserved catchment)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MZUMBE ESTUARY

LOCALITY: 30°36'48"S;30°32'52"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: Siltation problems arising from severe erosion in the catchment)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: National Research Institute for Oceanology (1981b)

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b), Council for Scientific and Industrial Research (1981c)

MHLABATSHANE ESTUARY

LOCALITY: 30°35'02"S;30°34'19"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Important for recreation)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MHLUNGWA ESTUARY

LOCALITY: 30°33'35"S;30°35'02"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Poor (Remarks: Siltation problems)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b), Environmental Advisory Services (1990c)

MFAZAZANA ESTUARY

LOCALITY: 30°31'51"S;30°36'28"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Road and rail communications across estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

KWA-MAKOSI ESTUARY

LOCALITY: 30°31'31"S;30°36'37"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Road and rail communications across estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MNAMFU ESTUARY

LOCALITY: 30°30'28"S;30°37'31"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Impacts of road and rail construction are apparent)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MTWALUME ESTUARY

LOCALITY: 30°29'07"S;30°38'02"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Poor (Remarks: Heavily silted but rehabilitation of this important system is possible)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MVUZI ESTUARY

LOCALITY: 30°28'08"S;30°38'49"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Mouth area has been modified by railway construction)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

FAFA ESTUARY

LOCALITY: 30°27'17"S;30°39'13"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Botanical and recreational value)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Archibald & Warwick (1975a), Archibald & Warwick (1975b), Archibald & Warwick (1975c), Cooper et al. (1993a), Cooper et al. (1993b), Hemens et al. (1975g)

MDESINGANE ESTUARY

LOCALITY: 30°25'31"S;30°40'18"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: A weir construction across the middle of the estuary should be removed)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

SEZELA ESTUARY

LOCALITY: 30°24'50"S;30°40'39"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Fair (Remarks: A marked improvement has occurred following rehabilitation actions)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a), Ramm et al. (1977)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MKUMBANE ESTUARY

LOCALITY: 30°24'17"S;30°40'59"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Siltation problems)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MZINTO ESTUARY

LOCALITY: 30°22'00"S;30°42'32"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Has considerable ecological value if human impacts can be reduced)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MZIMAYI ESTUARY

LOCALITY: 30°20'47"S;30°43'34"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: This small system has recreational potential)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MPAMBANYONI ESTUARY

LOCALITY: 30°16'44"S;30°45'39"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: One of the most degraded estuaries on the KwaZulu-Natal coast)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: National Research Institute for Oceanology (1983a)

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MAHLONGWA ESTUARY

LOCALITY: 30°16'06"S;30°45'54"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Wetland reclamation associated with sugar cane cultivation a problem)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: National Research Institute for Oceanology (1981b)

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MAHLONGWANA ESTUARY

LOCALITY: 30°13'29"S;30°47'38"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Sugar cane encroachment onto the floodplain)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MKOMAZI ESTUARY

LOCALITY: 30°12'03"S;30°48'11"E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Fair (Remarks: Siltation and localized industrial pollution need attention)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: National Research Institute for Oceanology (1982a)

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Burton (1960), Cooper et al. (1993a), Cooper et al. (1993b)

NGANE ESTUARY

LOCALITY: 30°10'44"S;30°49'01"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Faecal contamination and bilharzia infestation require investigation)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

UMGABABA ESTUARY

LOCALITY: 30°09'20"S;30°49'48"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Has considerable conservation potential)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Grobber (1987), Smakhtin (2004)

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Connell et al. (1976e), Connell et al. (1978c), Connell et al. (1981c), Cooper et al. (1993a), Cooper et al. (1993b), Council for Scientific and Industrial Research (1982b), Grobber et al. (1988)

MSIMBAZI ESTUARY

LOCALITY: 30°07'48"S;30°50'50"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Road and railway developments affect hydrodynamics within the system)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

LOVU ESTUARY

LOCALITY: 30°06'47"S;30°51'12"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Serious siltation and pollution problems need to be solved)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Grobler (1987), National Research Institute for Oceanology (1982b)

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

LITTLE MANZIMTOTI ESTUARY

LOCALITY: 30°04'38"S;30°52'21"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: An example of how to destroy a natural asset)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Smakhtin (2004)

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b), Environmental Advisory Services (1992b), Ramm et al. (1992)

MANZIMTOTI ESTUARY

LOCALITY: 30°03'34"S;30°53'00"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Poor (Remarks: Should be considered for rehabilitation as a recreational asset)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MBOKODWENI ESTUARY

LOCALITY: 30°00'29"S;30°56'12"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Poor (Remarks: Degraded due to siltation, pollution and mouth manipulation)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

SIPINGO ESTUARY

LOCALITY: 30°59'38"S;30°57'05"E

REGION: Subtropical

CLASSIFICATION: Modified permanently open estuary

INFORMATION: Moderate

CONDITION: Poor (Remarks: Mlazi canal diverts water previously entering the Sipingo estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Naidoo & Raiman (1982)

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a), Ward (1971)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b), Kallicharran (1990), Natal Town and Regional Planning Commission (1987)

DURBAN BAY ESTUARINE SYSTEM

LOCALITY: 29°52'16"S;31°03'29"E

REGION: Subtropical

CLASSIFICATION: Estuarine bay

INFORMATION: Good

CONDITION: Fair (Remarks: Remaining bayhead mangroves declared a Natural Heritage Site)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Cockcroft & Forbes (1981a)

(b) BIOLOGICAL/ECOLOGICAL: Beckley et al. (1995), Beckley & Naidoo (2003), Begg (1984a), Blackler (2002), Cockcroft & Forbes (1981b), Cyrus & Forbes 1996, Day & Morgans (1956), Graham (1994), Guastella (1994), Forbes et al. (1996), Harris & Cyrus (1999), Harris & Cyrus (2000), Joubert (1964), Steinke (1975), Weerts et al. (1997)

(c) SYNTHESSES/REVIEWS: Begg (1978), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Anon. (1974b), Connell et al. (1979a), Environmental Advisory Services (1990b), Institute of Natural Resources (1993a), Institute of Natural Resources (1993c)

MGENI ESTUARY

LOCALITY: 29°48'35"S;31°02'27"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Good

CONDITION: Fair (Remarks: Catchment dams have transformed this previously permanently open estuary)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Cooper (1987a), Cooper (1988), Cooper (1993a), Cooper & Mason (1985), Cooper & McMillan (1987), Cooper et al. (1990), Mann & Steinke (1989), Mann & Steinke (1992), Mann & Steinke (1993), Naidoo (1980), Naidoo & Raiman (1982), Oliff et al. (1975), Schoonbee (1963), Swart (1987), National Research Institute for Oceanology (1982c)

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a), Brown (1971), Harrison (1991), Moll (1972), Phillips et al. (1994), Phillips et al. (1996), Singh & Steinke (1992), Singh et al. (1991), Steinke (1988), Steinke et al. (1983), Steinke et al. (1990), Steinke & Charles (1984), Steinke & Charles (1986a), Steinke & Charles (1986b), Steinke & Rajh (1995), Steinke et al. (1993), Steinke et al. (1995)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper (1986), Cooper & Mason (1986), Cooper & Mason (1987), Cooper et al. (1993), Council for Scientific and Industrial Research (1984c), Edwards & Moll (1972), Hemens et al. (1975f), National Research Institute for Oceanology (1975a), National Research Institute for Oceanology (1975b)

MHLANGA ESTUARY

LOCALITY: 29°42'14"S;31°06'03"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Good

CONDITION: Good (Remarks: Estuary forms part of a nature reserve)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Cooper (1989)

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a), Cooper & Harrison (1992), Harrison (1993), Harrison & Whitfield (1995), Whitfield (1980a), Whitfield (1980b), Whitfield (1980c), Whitfield (1982)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper (1987b), Cooper et al. (1993a), Cooper et al. (1993b), Environmental Advisory Services (1992a)

MDLOTI ESTUARY

LOCALITY: 29°39'07"S;31°07'43"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Fair (Remarks: Siltation, pollution and sugar cane encroachment are problems)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Grobber (1987), National Research Institute for Oceanology (1982d)

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a), Blaber et al. (1984), Mundree et al. (2003), Nozias et al. (2001)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b), Council for Scientific and Industrial Research (1985c)

TONGATI ESTUARY

LOCALITY: 29°34'21"S;31°11'07"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Poor (Remarks: Degraded due to pollution and siltation but suitable for rehabilitation)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: National Research Institute for Oceanology (1982e)

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a), Blaber et al. (1984)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MHLALI ESTUARY

LOCALITY: 29°27'40"S;31°16'39"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Problems include siltation and sugar cane encroachment)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: National Research Institute for Oceanology (1983b), Schmidt (1985)

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

SETENI ESTUARY

LOCALITY: 29°25'45"S;31°18'12"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: The only apparent problem is siltation)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MVOTI ESTUARY

LOCALITY: 29°24'03"S;31°20'18"E

REGION: Subtropical

CLASSIFICATION: River mouth

INFORMATION: Poor

CONDITION: Fair (Remarks: Supports a wide variety of birdlife despite severe organic pollution)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: National Research Institute for Oceanology (1983c), Cooper (1993b), Cooper (1994a)

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS:

MDLOTANE ESTUARY

LOCALITY: 29°21'07"S;31°22'26"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: A good example of a well preserved system on the KwaZulu-Natal north coast)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b), Environmental Advisory Services (1991a)

NONOTI ESTUARY

LOCALITY: 29°19'01"S;31°24'29"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Poor (Remarks: Encouraging signs of recovery from a severely polluted condition)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

ZINKWASI ESTUARY

LOCALITY: 29°16'45"S;31°26'35"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Organic pollution gives rise to periods of anoxia in the water column)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: National Research Institute for Oceanology (1981d)

(b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

THUKELA (TUGELA) ESTUARY

LOCALITY: 29°13'26"S;31°29'57"E

REGION: Subtropical

CLASSIFICATION: River mouth

INFORMATION: Poor

CONDITION: Poor (Remarks: Excessive siltation and organic pollution are major problems)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Whitfield & Harrison (2003)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cooper et al. (1994a), Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b), Council for Scientific and Industrial Research (1983b)

MATIGULU/NYONI ESTUARY

LOCALITY: 29°06'36"S;31°37'09"E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Siltation from the catchment is of concern)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Begg (1978), Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Hemens et al. (1975e)

SIYAYA ESTUARY

LOCALITY: 28°58'01"S;31°45'44"E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Fair (Remarks: Restoration of this estuary and its catchment is far advanced)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Schleyer & Roberts (1987)

(c) SYNTHESSES/REVIEWS: Begg (1978), Begg (1980b), Begg (1981b), Turpie et al. (2002), van der Elst et al. (1999)

(d) REPORTS/DOCUMENTS: Schleyer (1986a), Connell et al. (1980b)

MLALAZI ESTUARY

LOCALITY: 28°56'42"S;31°48'58"E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: An important conservation and recreational area)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Hill (1966), Weerts et al. (1997)

(c) SYNTHESSES/REVIEWS: Begg (1978), Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Hemens et al. (1975d), Ward (1960)

MHLATHUZE ESTUARY

LOCALITY: 28°50'46"S;32°02'56"E

REGION: Subtropical

CLASSIFICATION: Estuarine bay

INFORMATION: Moderate

CONDITION: Fair (Remarks: Previously part of the Richards Bay system)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Grindley & Wooldridge (1974), Mackay & Cyrus (2001), Millard & Harrison (1954), Owen et al. (2000), Steinke & Ward (1988), van der Elst (1977), Viljoen & Cyrus (2002), Weerts & Cyrus (2001), Weerts & Cyrus (2002)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cyrus (1998/99a), Cyrus (1998/99b), Cyrus (2001), Day (1981h), Jerling (1998/99), Leverton (1975), Mackay & Cyrus (1998/99), Owen & Forbes (2002), Owen et al. (2000), Turpie et al. (2002), Weerts & Cyrus (1998/99), Wepener & Vermeulen (1998/99)

(d) REPORTS/DOCUMENTS: Connell et al. (1975a), Connell et al. (1976c), Hemens et al. (1975b), Hemens et al. (1975c), Institute of Natural Resources (1993e), McClurg et al. (1982), Venter (1972)

RICHARDS BAY ESTUARINE SYSTEM

LOCALITY: 28°48'40"S;32°05'17"E

REGION: Subtropical

CLASSIFICATION: Estuarine bay

INFORMATION: Good

CONDITION: Fair (Remarks: Expansion of the harbour berths will lead to further loss of habitat)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: van Tonder et al. (1986)

(b) BIOLOGICAL/ECOLOGICAL: Cyrus (2001), Cyrus & Forbes 1996, Demetriades (1990), Forbes et al. (1996), Forbes et al. (1999), Grindley & Wooldridge (1974), Harris & Cyrus (1997), Harris & Cyrus (2000), James (2001), Mackay & Cyrus (2001), Millard & Harrison (1954), Steinke & Ward (1988), McClurg (1979), Weerts et al. (1997), Weerts et al. (2003), Weerts & Cyrus (2001), Weerts & Cyrus (2002)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cyrus (2001), Day (1981h), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Anon. (1972a), Anon. (1974c), Anon. (1978), Connell et al. (1976g), Council for Scientific and Industrial Research (1972), Environmental Advisory Services (1993), Hemens et al. (1975b), Hemens et al. (1975c), Institute of Natural Resources (1993b), Institute of Natural Resources (1993d), Institute of Natural Resources (1993e), McClurg et al. (1982)

NHLABANE ESTUARINE SYSTEM

LOCALITY: 28°39'39"S;32°15'25"E

REGION: Subtropical

CLASSIFICATION: Estuarine lake system

INFORMATION: Poor

CONDITION: Fair (Remarks: Restoration of the system possible by removal of the RBM barrage)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Chater & van der Elst (1995), Cyrus & Wepener (1997), Mastenbroek (2002), Riddin (1999), Vivier & Cyrus (2001), Vivier & Cyrus (2002)

(c) SYNTHESSES/REVIEWS: Begg (1978), Cyrus (2001), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Environmental Advisory Services (1990a), Walmsley Environmental Consultants (1993)

MFOLOZI ESTUARY

LOCALITY: 28°23'33"S;32°25'28"E

REGION: Subtropical

CLASSIFICATION: River mouth

INFORMATION: Poor

CONDITION: Fair (Remarks: Swamp destruction and siltation have been major problems)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Lindsay et al. (1996a), Lindsay et al. (1996b), van Heerden (1993), Wright (1995)

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Begg (1978), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS:

ST LUCIA ESTUARINE SYSTEM

LOCALITY: 28°22'55"S;32°25'32"E

REGION: Subtropical

CLASSIFICATION: Estuarine lake system

INFORMATION: Excellent

CONDITION: Good (Remarks: Part of a World Heritage Site)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Anderson (1990), Anon. (1965), Anon. (1970a), Anon. (1975), Badenhorst (1988b), Brown (1969), Cyrus & Blaber (1988), Cyrus & Blaber (1992), Fielding et al. (1991), Hobday (1965), Hobday (1975), Hutchison & Midgley (1978), Hutchison & Pitman (1977), James & Horne (1969), Kokot (1959), McGill (1980), McGill (1982), Pitman (1980), Sauermann (1966), Sauermann (1967), van Heerden (1993), van Heerden & Swart (1986), Wright (1990), Wright (1993), Wright (1995), Wright & Mason (1990), Wright & Mason (1993), Wright et al. (1990)

(b) BIOLOGICAL/ECOLOGICAL: Anon. (1970b), Anon. (1979), Anon. (1981), Benfield et al. (1990), Berruti (1980a), Berruti (1980b), Berruti (1983), Beven (1944a), Beven (1944b), Bickerton (1989), Blaber (1976), Blaber (1979), Blaber (1981a), Blaber et al. (1983), Blaber & Raynor (1979), Blaber & Whitfield (1976), Bolt (1975), Chiazzari (1952), Cholnoky (1968), Chubb (1943), Connell (1996), Cyrus (1984), Cyrus (1988a), Cyrus (1991a), Cyrus (1991b), Cyrus & Blaber (1987b), Cyrus & McLean (1994), Cyrus & McLean (1996), Day et al. (1954), Demetriades (1990), Feely (1962), Fielding et al. (1990), Forbes (1982), Forbes (1989), Forbes & Benfield (1986a), Forbes & Benfield (1986b), Forbes & Cyrus (1991), Forbes & Cyrus (1992), Forbes & Hay (1988), Forrest (1969a), Garland (1944), Grindley & Heydorn (1970), Grobler et al. (2003), Harris & Cyrus (1994), Harris & Cyrus (1995), Harris & Cyrus (1996), Harris & Cyrus (2000), Hay (1985), Hill (1979b), James (2001), Johnson (1977), Joubert (1967), Joubert & Davies (1966), Kennedy (1983), Mann (1993a), Mann (1993b), Mann (1995), Martin et al. (1992), Millard & Broekhuysen (1970), Moll (1970), Olivier & van Niekerk (1995), Owen (1992), Owen & Forbes (1997), Owen et al. (2000), Owen & Forbes (2002), Pooley (1973), Pooley (1982), Porter & Forrest (1974), Skelton et al. (1989), Steinke & Naidoo (1990), Steinke & Ward (1987), Steinke & Ward (1988), Steinke & Ward (1989), Taylor (1980a), Taylor (1980b), Taylor (1981), Tooth (1946), van der Elst (1972), Whitfield (1977a), Whitfield (1978b), Whitfield (1988c), Whitfield & Blaber (1978a), Whitfield & Blaber (1978b), Whitfield & Blaber (1978c), Whitfield & Blaber (1978d), Whitfield & Blaber (1978e), Whitfield & Blaber (1979a), Whitfield & Blaber (1979b), Whitfield & Blaber (1979c), Whitfield & Blaber (1980), Whitfield & Cyrus (1978), Whitfield & Heeg (1977)

(c) SYNTHESSES/REVIEWS: Anon. (1970c), Anon. (1973), Begg (1978), Bond (1973), Cooper (1970), Crass (1970), Crass (1978), Cyrus (1989), Day (1981h), Draper (1965), Dutton (2004), Forbes et al. (1987), Forbes & Cyrus (1993), Forrest (1969b), Harty (1952), Kokot (1952), Mann (1996), Orme (1975a), Owen & Forbes (1997), Robertson (1971), Robertson (1977), Starfield et al. (1989), Taljaard & Slinger (1997), Taylor (1982), Taylor (1987), Taylor (1991), Taylor (1993), Taylor et al. (1987), Tinley (1971), Turpie et al. (2002), van der Merwe (1967), Vincent (1980), Whitfield (1977c), Whitfield (1980d), Whitfield (1999)

(d) REPORTS/DOCUMENTS: Anon. (1951), Anon. (1960), Anon. (1962), Anon. (1969), Anon. (1970d), Anon. (1972b), Berruti (1982), Cameron-Dow (1974), Connell et al. (1979b), Cowan (1995), CSIR Environmental Services (1993a), CSIR Environmental Services (1993b), CSIR Environmental Services (1993c), Davies (1964), Department of Water Affairs (1978), Department of Water Affairs (1984), Department of Water Affairs (1985), Dinkele (1977), Dutton (1964), Hutchison (1977), Jacobi (1971), Joubert (1953), Kriel (1966), Pooley & Forrest (1972), Lindley & Scott (1987), Mann-Lang (1997), Taylor (1983), Loudon (1984), Natal Parks Board (1976a), Natal Parks Board (1976b), Robson (1949), Teal (1962), van Bonde (1940), van der Elst (1978b), van Zyl (1973), Vogel & van Urk (1975), Wager (1960), Wallace (1969), Whitfield (1977b)

MGOBEZELENI ESTUARINE SYSTEM

LOCALITY: 27°32'10"S;32°40'17"E

REGION: Subtropical

CLASSIFICATION: Estuarine lake system

INFORMATION: Moderate

CONDITION: Good (Remarks: Estuary mouth area highly disturbed by human activities)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Bruton (1980), Bruton & Appleton (1975)

(c) SYNTHESSES/REVIEWS: Begg (1978), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Bruton (1975), Bruton (1976)

KOSI ESTUARINE SYSTEM

LOCALITY: 26°53'37"S;32°52'52"E

REGION: Subtropical

CLASSIFICATION: Estuarine lake system

INFORMATION: Excellent

CONDITION: Good (Remarks: Maintains a diverse flora and fauna)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: Ramm (1992), Butler et al. (1983)

(b) BIOLOGICAL/ECOLOGICAL: Blaber (1978), Blaber (1982a), Blaber & Cyrus (1981), Boltt & Allanson (1975), Breen & Hill (1969), Broekhuysen & Taylor (1959), Cyrus (1980), Cyrus & Blaber (1983a), Cyrus & Blaber (1984b), Cyrus & Blaber (1984c), Forbes (1979), Forbes & Cyrus (1991), Garratt (1993), Harman et al. (1982), Harris et al. (1995), Jackson (1984), James (2001), Kyle (1980), Kyle (1989a), Kyle (1989b), Kyle (1996), Kyle & Robertson (1997), Pederson et al. (2003), Steinke & Ward (1973), Ward et al. (1986), Whitfield (1978c), Wallace et al. (1971)

(c) SYNTHESSES/REVIEWS: Begg (1978), Begg (1980a), Day (1981h), James et al. (2001), Kyle (1993a), Kyle (1995), Moll (1978), Turpie et al. (2002)

(d) REPORTS/DOCUMENTS: Anon. (1971a), Anon. (1971b), Begg (1982), Campbell & Allanson (1952), Connell et al. (1976f), Cowan (1995), Hemens et al. (1975a), Kyle (1993b), Mann-Lang (1997), Munnik (1993), Tinley (1976), Wager (1972)

REFERENCES APPLICABLE TO A NUMBER OF SOUTH AFRICAN ESTUARIES

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ALPHABETICAL INDEX OF SOUTH AFRICAN ESTUARIES

Estuary	Page	Classification	Information
Bakens (Baakens)	32	Canalized estuary	Poor
Bilanhlolo	99	Temporarily open/closed	Poor
Bira	42	Temporarily open/closed	Poor
Blind	52	Temporarily open/closed	Poor
Blinde	16	Temporarily open/closed	Poor
Bloukrans	24	River mouth	Poor
Boboyi	102	Temporarily open/closed	Poor
Boknes	35	Temporarily open/closed	Poor
Bokramspruit	4	Temporarily open/closed	Poor
Bot/Kleinmond	10	Estuarine lake	Excellent
Breë (Breede)	14	Permanently open estuary	Moderate
Buffalo	51	Permanently open estuary	Poor
Buffels (Oos)	9	Temporarily open/closed	Moderate
Bulolo	82	Temporarily open/closed	Poor
Bulungula	73	Temporarily open/closed	Poor
Bulura	55	Temporarily open/closed	Poor
Bushmans (Boesmans)	35	Permanently open estuary	Moderate
Cebe	64	Temporarily open/closed	Poor
Cefane	56	Temporarily open/closed	Poor
Cintsa	56	Temporarily open/closed	Poor
Coega (Ngcura)	34	Temporarily open/closed	Poor
Cunge	55	Temporarily open/closed	Poor
Cwili	60	Temporarily open/closed	Poor
Damba	105	Temporarily open/closed	Moderate
Duiwenhoks	14	Permanently open estuary	Moderate
Durban Bay	119	Estuarine bay	Good
Eerste	7	Temporarily open/closed	Moderate
Elands	26	River mouth	Poor
Elandsbos	25	River mouth	Poor
Fafa	110	Temporarily open/closed	Moderate
Gamtoos	30	Permanently open estuary	Good
Goda	50	Temporarily open/closed	Poor
Goukamma	20	Temporarily open/closed	Poor
Goukou (Kafferkuils)	15	Permanently open estuary	Moderate
Gourits	15	Permanently open estuary	Moderate
Gqunube	54	Permanently open estuary	Poor
Gqunqe	64	Temporarily open/closed	Poor
Gqutywa	63	Temporarily open/closed	Poor
Great Fish	40	Permanently open estuary	Good
Great Kei	60	Permanently open estuary	Moderate
Groot (Oos)	27	River mouth	Poor
Groot (Wes)	24	Temporarily open/closed	Moderate
Groot Berg	2	Permanently open estuary	Good
Groot Brak	17	Temporarily open/closed	Good
Gwaing	18	Temporarily open/closed	Poor
Gxara	61	Temporarily open/closed	Poor
Gxulu	49	Temporarily open/closed	Poor
Haga-Haga	58	Temporarily open/closed	Poor
Hartenbos	16	Temporarily open/closed	Moderate

Estuary	Page	Classification	Information
Heuningnes	13	Permanently open estuary	Moderate
Hickmans	51	Temporarily open/closed	Poor
Hlaze	52	Temporarily open/closed	Poor
Hlozi	50	Temporarily open/closed	Poor
Hluleka (Majusini)	78	Temporarily open/closed	Poor
Houtbaai	3	River Mouth	Moderate
Intshambili	106	Temporarily open/closed	Moderate
Jujura	67	Temporarily open/closed	Poor
Kaaimans	19	Permanently open estuary	Poor
Kaba	98	Temporarily open/closed	Poor
Kabeljous	30	Temporarily open/closed	Moderate
Kandandhlovu	96	Temporarily open/closed	Poor
Kariega	36	Permanently open estuary	Good
Kasuka (Kasouga)	36	Temporarily open/closed	Poor
Keiskamma	44	Permanently open estuary	Moderate
Keurbooms	22	Permanently open estuary	Good
Kiwane	45	Temporarily open/closed	Poor
Klein	11	Estuarine lake	Good
Klein Brak	17	Temporarily open/closed	Poor
Kleinemonde (Oos)	39	Temporarily open/closed	Moderate
Kleinemonde (Wes)	38	Temporarily open/closed	Moderate
Klein Palmiet	39	Temporarily open/closed	Nil
Klipdrif	28	Temporarily open/closed	Poor
Klipdrifsfontein	13	Temporarily open/closed	Poor
Knysna	21	Estuarine bay	Excellent
Kobonqaba	63	Permanently open estuary	Poor
Kongweni	100	Temporarily open/closed	Poor
Koshwana	105	Temporarily open/closed	Poor
Kosi	130	Estuarine lake	Excellent
Kowie	37	Permanently open estuary	Good
Krom	5	Temporarily open/closed	Poor
Kromme	29	Permanently open estuary	Excellent
Ku-Amanzimuzama	73	Temporarily open/closed	Poor
Ku-Boboyi	95	Temporarily open/closed	Poor
Ku-Mpenzu	70	Temporarily open/closed	Poor
Kwa-Makosi	108	Temporarily open/closed	Poor
Kwanyana	91	Temporarily open/closed	Poor
Kwelera	54	Permanently open estuary	Poor
Kwenxura	57	Temporarily open/closed	Poor
Lilyvale	47	Temporarily open/closed	Poor
Little Manzimtoti	117	Temporarily open/closed	Poor
Lottering	25	River mouth	Poor
Lourens	7	Temporarily open/closed	Moderate
Lovu	117	Temporarily open/closed	Poor
Lupatana	87	Temporarily open/closed	Poor
Lwandilana	77	Temporarily open/closed	Poor
Lwandile	77	Temporarily open/closed	Poor
Maalgate	18	Temporarily open/closed	Poor
Mahlongwa	114	Temporarily open/closed	Poor
Mahlongwana	114	Temporarily open/closed	Poor
Maitland	31	Temporarily open/closed	Poor
Manzimtoti	118	Temporarily open/closed	Moderate
Mapuzi	75	Temporarily open/closed	Poor

Estuary	Page	Classification	Information
Matigulu/Nyoni	125	Permanently open estuary	Poor
Matjies	23	Temporarily open/closed	Poor
Mbango	103	Temporarily open/closed	Poor
Mbashe	70	Permanently open estuary	Moderate
Mbhanyana (Ku-Bhula)	71	Temporarily open/closed	Poor
Mbizana	98	Temporarily open/closed	Poor
Mbokodweni	118	Temporarily open/closed	Moderate
Mbotyi	86	Temporarily open/closed	Poor
Mcantsi	49	Temporarily open/closed	Poor
Mdesingane	111	Temporarily open/closed	Poor
Mdlotane	123	Temporarily open/closed	Poor
Mdloti	121	Temporarily open/closed	Moderate
Mdumbi	76	Permanently open estuary	Poor
Mendu	69	Temporarily open/closed	Poor
Mfazazana	108	Temporarily open/closed	Poor
Mfolozi	128	River mouth	Poor
Mgeni	120	Temporarily open/closed	Good
Mgobezeleni	130	Estuarine lake	Moderate
Mgwalana	42	Temporarily open/closed	Poor
Mgwegwe	89	Temporarily open/closed	Poor
Mgwegtyana	89	Temporarily open/closed	Poor
Mhlabatshane	107	Temporarily open/closed	Poor
Mhlali	122	Temporarily open/closed	Poor
Mhlanga	120	Temporarily open/closed	Good
Mhlangamkulu	104	Temporarily open/closed	Poor
Mhlangeni	101	Temporarily open/closed	Poor
Mhlathuze	127	Estuarine bay	Moderate
Mhlungwa	107	Temporarily open/closed	Moderate
Mkomazi	115	Permanently open estuary	Moderate
Mkozi	86	Temporarily open/closed	Poor
Mkumbane	112	Temporarily open/closed	Poor
Mkweni	88	Temporarily open/closed	Poor
Mlalazi	126	Permanently open estuary	Moderate
Mlele	48	Temporarily open/closed	Poor
Mnamfu	109	Temporarily open/closed	Poor
Mncwasa	74	Temporarily open/closed	Poor
Mnenu	79	Temporarily open/closed	Poor
Mngazana	81	Permanently open estuary	Good
Mngazi	81	Permanently open estuary	Poor
Mntafufu	84	Permanently open estuary	Moderate
Mnyameni	91	Temporarily open/closed	Poor
Morgan	59	Temporarily open/closed	Poor
Mpahlane	92	Temporarily open/closed	Poor
Mpahlanganyana	92	Temporarily open/closed	Poor
Mpako	74	Temporarily open/closed	Poor
Mpande	80	Temporarily open/closed	Poor
Mpambanyoni	113	Temporarily open/closed	Poor
Mpekweni	41	Temporarily open/closed	Poor
Mpenjati	97	Temporarily open/closed	Poor
Msikaba	88	Permanently open estuary	Moderate
Msimbazi	116	Temporarily open/closed	Moderate
Mtakatye	78	Permanently open estuary	Poor
Mtambane	82	Temporarily open/closed	Poor

Estuary	Page	Classification	Information
Mtamvuna	94	Temporarily open/closed	Moderate
Mtana	44	Temporarily open/closed	Poor
Mtata	76	Permanently open estuary	Moderate
Mtati	41	Temporarily open/closed	Poor
Mtendwe	58	Temporarily open/closed	Poor
Mtentu	90	Permanently open estuary	Poor
Mtentwana	93	Temporarily open/closed	Poor
Mtentweni	104	Temporarily open/closed	Moderate
Mtonga	79	Temporarily open/closed	Poor
Mtwalume	109	Temporarily open/closed	Moderate
Mvoti	123	River mouth	Poor
Mvusi	110	Temporarily open/closed	Poor
Mvutshini	99	Temporarily open/closed	Poor
Myekane	87	Temporarily open/closed	Poor
Mzamba	93	Permanently open estuary	Moderate
Mzimayi	113	Temporarily open/closed	Poor
Mzimkulu	103	Permanently open estuary	Moderate
Mzimvubu	83	River mouth	Poor
Mzintlava	85	Permanently open estuary	Poor
Mzinto	112	Temporarily open/closed	Poor
Mzumbe	106	Temporarily open/closed	Poor
Nahoon	53	Permanently open estuary	Moderate
Ncera	48	Temporarily open/closed	Poor
Ncizele	62	Temporarily open/closed	Poor
Nenga	75	Temporarily open/closed	Poor
Ngadla	67	Temporarily open/closed	Poor
Ngane	115	Temporarily open/closed	Poor
Ngculura	43	Temporarily open/closed	Poor
Ngogwane	61	Temporarily open/closed	Poor
Ngoma (Kubule)	69	Temporarily open/closed	Poor
Ngqinisa	45	Temporarily open/closed	Poor
Ngqusi/Inxaxo	63	Permanently open estuary	Poor
Ngqwara	65	Temporarily open/closed	Poor
Nhlabane	128	Estuarine lake system	Poor
Nkanya	72	Temporarily open/closed	Poor
Nkodusweni	84	Temporarily open/closed	Poor
Noetsie	21	Temporarily open/closed	Poor
Nonoti	124	Temporarily open/closed	Poor
Nqabara	68	Permanently open estuary	Poor
Ntlonyane	71	Temporarily open/closed	Poor
Ntlupeni	83	Temporarily open/closed	Poor
Nyara	57	Temporarily open/closed	Poor
Old Womans	40	Temporarily open/closed	Poor
Olifants	1	Permanently open estuary	Moderate
Onrus	11	Temporarily open/closed	Moderate
Orange (Gariep)	1	River mouth	Good
Palmiet	10	Permanently open estuary	Good
Papkuils	32	Canalized estuary	Poor
Piesang	22	Temporarily open/closed	Moderate
Qinira	53	Temporarily open/closed	Poor
Qolora	62	Temporarily open/closed	Poor
Qora	66	Permanently open estuary	Poor
Quko	59	Temporarily open/closed	Poor

Estuary	Page	Classification	Information
Ratel	12	Temporarily open/closed	Poor
Richards Bay	127	Estuarine bay	Good
Riet	38	Temporarily open/closed	Poor
Rietvlei/Diep	2	Temporarily open/closed	Good
Rooiels	9	Temporarily open/closed	Moderate
Ross' Creek	47	Temporarily open/closed	Poor
Rufane	37	Temporarily open/closed	Poor
Sand	6	Temporarily open/closed	Good
Sandlundlu	95	Temporarily open/closed	Poor
Schuster	5	Temporarily open/closed	Poor
Seekoei	29	Temporarily open/closed	Good
Seteni	112	Temporarily open/closed	Poor
Sezela	111	Temporarily open/closed	Moderate
Shelbertsstroom	46	Temporarily open/closed	Poor
Shixini	68	Permanently open estuary	Poor
Sihlontweni (Gcini)	66	Temporarily open/closed	Poor
Sikombe	90	Temporarily open/closed	Poor
Silwermyn	6	Temporarily open/closed	Moderate
Sinangwana	80	Temporarily open/closed	Poor
Sipingo	119	Modified estuary	Moderate
Sir Lowry's Pass	8	Temporarily open/closed	Moderate
Siyaya	126	Temporarily open/closed	Poor
Slang	28	Temporarily open/closed	Poor
Sout (Oos)	23	Permanently open estuary	Moderate
Sout (Wes)	3	Canalized estuary	Poor
St Lucia	129	Estuarine lake system	Excellent
Steenbras	8	Permanently open estuary	Moderate
Storms	26	River mouth	Poor
Sundays	34	Permanently open estuary	Excellent
Swartkops	33	Permanently open estuary	Excellent
Swartvlei	20	Estuarine lake system	Excellent
Tongati	121	Temporarily open/closed	Moderate
Tongazi	96	Temporarily open/closed	Poor
Tsitsikamma	27	Temporarily open/closed	Moderate
Thukela (Tugela)	125	River mouth	Poor
Tyolomnqa	46	Temporarily open/closed	Poor
Uilkraals	12	Permanently open estuary	Moderate
Umgababa	116	Temporarily open/closed	Moderate
Umhlangankulu	97	Temporarily open/closed	Moderate
Uvuzana	100	Temporarily open/closed	Poor
Umzimpunzi	85	Temporarily open/closed	Poor
van Stadens	31	Temporarily open/closed	Poor
Vungu	101	Temporarily open/closed	Moderate
Wilderness	19	Estuarine lake system	Excellent
Wildevöelvlei	4	Temporarily open/closed	Poor
Xora	72	Permanently open estuary	Poor
Zalu	65	Temporarily open/closed	Poor
Zinkwasi	124	Temporarily open/closed	Poor
Zolwane	94	Temporarily open/closed	Poor
Zotsha	102	Temporarily open/closed	Moderate

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