

**AVAILABLE SCIENTIFIC INFORMATION
ON INDIVIDUAL SOUTH AFRICAN
ESTUARINE SYSTEMS**

**Compiled by
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WATER RESEARCH COMMISSION**

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Note: This bibliographic database will be updated on an annual basis and is available from Dr Alan Whitfield, J.L.B. Smith Institute of Ichthyology, Private Bag 1015, Grahamstown 6140, South Africa. The document can be forwarded as a WordPerfect file by e-mail (send request to ihaw@guppy.ru.ac.za) or on a high density stiffy or floppy diskette. Scientists and managers are encouraged to submit references to be included in the database, as this will improve its usefulness to everyone.

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 (DSS) were to be structured around certain key issues, with currently available information and wisdom providing the basis for individual decision support modules (DSM). 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.

This document, which forms part of the DSM for establishing the importance and present status of South African estuaries, has been prepared to provide researchers, planners and managers with an easily accessible source of scientific information on the various systems. In addition to providing valuable data sources for individual estuaries, this document also highlights those systems for which little or no information is available. Most of the former Ciskei and Transkei estuaries fall into the latter category, and systems within these regions should therefore be targeted as priorities in future information gathering exercises. A section dealing with references having wider relevance to estuaries of a particular region or even to the subcontinent 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 document, a number of documents were excluded on the basis that the information is not available to either scientists or managers (e.g. unpublished undergraduate or honours projects). Unpublished 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. Papers dealing with the descriptions of species and published abstracts of conference presentations 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. Readers are also referred to the water resources bibliography, currently being compiled by Dr Peter Alcock of the University of Natal, Pietermaritzburg, for references on river catchment studies.

In the past, overview information on southern African estuaries has tended to focus on specific regions, e.g. the Estuaries of the Cape reports under the auspices of the CSIR and the Estuaries of Natal reports under the auspices of the Oceanographic Research Institute. A bringing together of references quoted in the above two publication series, together with bibliographic information provided by Whitfield (1991), in a single document is therefore long overdue. In addition, the reincorporation of Ciskei and Transkei into South Africa during 1994 has necessitated the inclusion of estuaries within these two states in the analysis. 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. Almost half of the nil returns are from the former Transkei, where 45 (75%) of the 60 estuaries have no published information. A similar situation pertains to the former Ciskei, where 10 (83%) of the 12 estuaries have no published information and the remaining two are poorly known.

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 Mengu estuary in the Eastern Cape to the Silwermyl estuary in False Bay, and cool temperate from the Krom (Wes) 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.

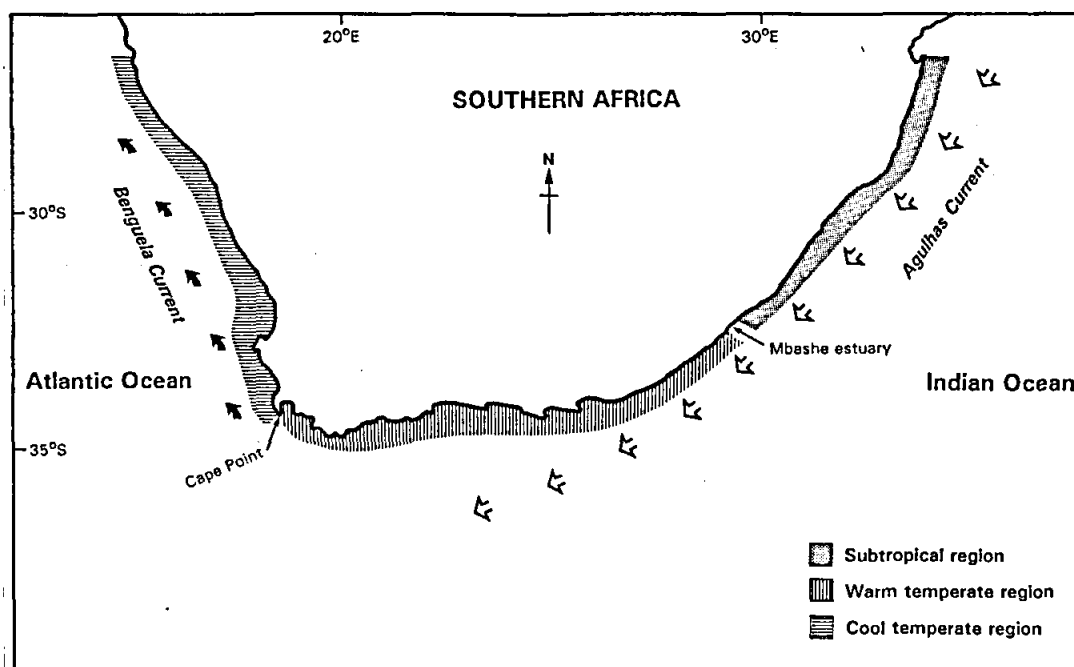


Figure 1. Map of southern Africa showing the three major biogeographic regions used in this document (after Whitfield 1994d).

| INFORMATION | REGION | | | | | | | |
|-------------|----------------|-----|----------------|-----|-------------|-----|--------------|-----|
| | Cool Temperate | | Warm Temperate | | Subtropical | | South Africa | |
| | No. | % | No. | % | No. | % | No. | % |
| Nil | - | - | 61 | 50 | 31 | 26 | 92 | 37 |
| Poor | 5 | 50 | 21 | 17 | 52 | 44 | 78 | 31 |
| Moderate | 3 | 30 | 23 | 19 | 28 | 24 | 54 | 22 |
| Good | 2 | 20 | 10 | 8 | 5 | 4 | 17 | 7 |
| Excellent | - | - | 7 | 6 | 2 | 2 | 9 | 3 |
| TOTAL | 10 | 100 | 122 | 100 | 118 | 100 | 250 | 100 |

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

The numbering system for individual estuaries follows that used by Heydorn (1986) and Morant (pers. comm.). Systems which do not function as estuaries, using the widely accepted definition of Day (1980), include Langebaan (CW 16), Papkuils (CW 21), Buffels Wes (CSW 1) Elsie (CSW 2), Mossel (CSW 15), Rooi (CMS 4), Skaapkop (CMS 7), Meul (CMS 8), Grooteiland (CMS 15), Kranshoek (CMS 16), Crooks (CMS 17), Brak

(CMS 21), Witels (CMS 27), Geelhoutbos (CMS 30), Kleinbos (CMS 31), Bruglaagte (CMS 33), Langbos (CMS 34), Sanddrif (CMS 35), Eerste (CMS 38), Klipdrif (CMS 39), Boskloof (CMS 40), Slang (CMS 44), Bakens (CSE 1), Mfihlelo (TN 19), Mlambomkulu (TN 20) and Mlazi (NS 52). The following Northern and Western Cape systems were recently classified by Harrison et al. (1994a) as being coastal pans rather than estuaries; Holgat (CW2), Buffels (CW3), Swartlintjies (CW4), Spoeg (CW5), Bitter (CW6), Groen (CW7), Brak (CW8), Sout (Noord) (CW9), Jakkals (CW 11), Wadrif (CW 12), Verlore (CW 13), Papkuils (CW 14), Dwars (Noord) (CW 17), Dwars (Suid) (CW 17a), Modder (CW 18), Jacobsbaai (CW 19), Lëerbaai (CW 20), Bok (CW 21), Silwerstroom (CW 22) and Sout (Suid) (CW 23). Verlorelei (CW 13) 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). A rise in sea level of 1-3 m would change the present coastal lake into an estuarine lake, a situation which probably prevailed during the Flandrian Transgression (4 000 years B.P.).

The following are extremely small systems which have catchments arising within the immediate coastal environment, are normally seldom linked to the sea, and make a minimal contribution to the overall estuarine biota of southern Africa; Sewejaarskop (CW 8a), Booiskraal (CW 32), Helpmekaars (CMS 24), Klip (CMS 25), Kaapsedrif (CMS 41), Freshwater Poort (CSE 23), Blue Krans (CSE 24), Timba (TS 5), Mbokotwana (TS 6), Nebelele (TS 13), Ngadla (TS 16), Kwa-Goqo (TS 18), Ku-Nocekedwa (TS 19), Ngomane (TS 21), Mendwana (TS 24), Ku-Mpenzu (TS 26), Dakana (TS 28), Kwa-Suku (TS 29), Sundwana (TS 32), Nqakanqa (TS 36), Lubanzi (TS 38), Mhlalane (TS 39), Mtonjane (TS 41), Ku-Bomvu (TS 42), Mpande (TS 53), Nduluzula (TS 55), Tyityane (TS 58), Ntloloba (TS 59), Gxwaleni (TS 60), Mnenga (TN 1), Manzana (TN 3), Gugu (TN 5), Ingo (TN 7), Ntyivini (TN 8), Dakane (TN 9), Mguga (TN 11), Kwa-Nyambalala (TN 13), Sikatsha (TN 17), Cutweni (TN 18), Maviti (TN 23), Tezana (TN 24), Magogo (TN 25), Mbaxeni (TN 26), Kwa-Nondindwa (TN 28), Daza (TN 29), Mgwegwe (TN 30), Mkambati (TN 31), Mgwetyana (TN 32) and Mtolane (TN 36). 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 (CW 26), Papkuils (CSE 2) and Sipingo (NS 51), which have been drastically altered as a result of canalization 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 estuarine 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. Richard's Bay (NN 16b) has been transformed from an estuarine lake into an estuarine bay through harbour developments. It should be noted that an estuarine water body must have a water surface area exceeding 1200 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).

Vertical and oblique aerial photographs/slides are a useful tool in documenting changes to estuarine systems and are therefore of value to both scientists and managers. Contact individuals and organizations possessing substantial photographic records are provided to facilitate access to this database. Finally, a list of project leaders, together with the individual estuaries they are studying, is presented. The objective here is to highlight, both to the scientists and managers, those systems that are currently being investigated in South Africa.

ORANGE RIVER ESTUARY (CW 1)

LOCALITY: 28°38'S;16°27'E

REGION: Cool temperate

CLASSIFICATION: River mouth

INFORMATION: Good

CONDITION: Fair (Remarks: Reduced riverine input will lead to 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), Williams (1986)
- (c) SYNTHESSES/REVIEWS: Day (1981h)
- (d) REPORTS/DOCUMENTS: Council for Scientific and Industrial Research (1985a), Harrison et al. (1994a), Harrison et al. (1994b), Prins (1990), van der Merwe (1988a), van der Merwe (1988b)

OLIFANTS ESTUARY (CW 10)

LOCALITY: 31°42'S;18°11'E

REGION: Cool temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Most important permanently open estuary on the west coast)

AVAILABLE LITERATURE

- (a) PHYSICAL/CHEMICAL:
- (b) BIOLOGICAL/ECOLOGICAL:
- (c) SYNTHESSES/REVIEWS: Day (1981h), Morant (1984)
- (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 (CW 15)

| | |
|---|------------------------|
| LOCALITY: 32°46'S;18°09'E | REGION: Cool temperate |
| CLASSIFICATION: Permanently open estuary | INFORMATION: Moderate |
| CONDITION: Fair (Remarks: Human impacts on freshwater supply likely to increase dramatically) | |

AVAILABLE LITERATURE

- (a) PHYSICAL/CHEMICAL:
- (b) BIOLOGICAL/ECOLOGICAL: Bennett (1994), Kalejta (1992), Kalejta & Hockey (1991)
- (c) SYNTHESSES/REVIEWS: Day (1981h)
- (d) REPORTS/DOCUMENTS: Harrison et al. (1994a), Harrison et al. (1994b), van der Merwe (1988b), van Wyk (1983)

RIETVLEI/DIEP ESTUARY (CW 24/25)

| | |
|--|------------------------|
| LOCALITY: 33°53'S;18°28'E | REGION: Cool temperate |
| CLASSIFICATION: Temporarily open/closed estuary | INFORMATION: Good |
| CONDITION: Poor (Remarks: Encroaching urbanization and disposal of industrial effluents) | |

AVAILABLE LITERATURE

- (a) PHYSICAL/CHEMICAL: Hughes et al. (1993)
- (b) BIOLOGICAL/ECOLOGICAL: Scott (1954)
- (c) SYNTHESSES/REVIEWS: Day (1981h), Millard & Scott (1954)
- (d) REPORTS/DOCUMENTS: Barwell (1989), Beaumont & Heydenrych (1980), Harrison et al. (1994a), Harrison et al. (1994b), van der Merwe (1988b), Yeld (1994)

SOUT (WES) ESTUARY (CW 26)

LOCALITY: 33°55'S;18°28'E

REGION: Cool temperate

CLASSIFICATION: Canalized estuary

INFORMATION: Poor

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

AVAILABLE LITERATURE

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

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Day (1981h)

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

HOUTBAAI ESTUARY (CW 27)

LOCALITY: 34°03'S;18°21'E

REGION: Cool temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Poor (Remarks: Has potential for rehabilitation)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Grindley (1988)

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

WILDEVOËLVLEI ESTUARY (CW 28)

LOCALITY: 34°08'S;18°20'E

REGION: Cool temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Part of the Cape peninsular nature area)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

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

BOKRAMSPRUIT ESTUARY (CW 29)

LOCALITY: 34°08'S;18°21'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:

(c) SYNTHESSES/REVIEWS:

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

SCHUSTER ESTUARY (CW 30)

| | |
|---|------------------------|
| LOCALITY: 34°12'S;18°22'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:
- (c) SYNTHESSES/REVIEWS:
- (d) REPORTS/DOCUMENTS: Harrison et al. (1994a), Harrison et al. (1994b)

KROM (WES) ESTUARY (CW 31)

| | |
|--|------------------------|
| LOCALITY: 34°15'S;18°23'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:
- (c) SYNTHESSES/REVIEWS:
- (d) REPORTS/DOCUMENTS: Harrison et al. (1994a), Harrison et al. (1994b)

SILWERMYN ESTUARY (CSW 3)

LOCALITY: 34°07'S;18°27'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:

(c) SYNTHESSES/REVIEWS: Heineken (1982b)

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

SAND ESTUARY (CSW 4)

LOCALITY: 34°06'S;18°29'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), Stewart & Davies (1986)

(c) SYNTHESSES/REVIEWS: Day (1981h), Morant & Grindley (1982), Quick & Harding (1994)

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

EERSTE ESTUARY (CSW 6)

LOCALITY: 34°05'S;18°46'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)

(c) SYNTHESSES/REVIEWS: Grindley (1982), Wiseman & Sowman (1992)

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

LOURENS ESTUARY (CSW 7)

LOCALITY: 34°06'S;18°49'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:

(c) SYNTHESSES/REVIEWS: Cliff & Grindley (1982)

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

SIR LOWRY'S PASS ESTUARY (CSW 8)

LOCALITY: 34°05'S;18°49'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:

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

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

STEENBRAS ESTUARY (CSW 9)

LOCALITY: 34°12'S;18°49'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:

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

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

ROOIELS ESTUARY (CSW 10)

LOCALITY: 34°18'S;18°49'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:

(c) SYNTHESSES/REVIEWS: Heineken (1982a)

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

BUFFELS (OOS) ESTUARY (CSW 11)

LOCALITY: 34°20'S;18°50'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:

(c) SYNTHESSES/REVIEWS: Heineken et al. (1982)

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

PALMIET ESTUARY (CSW 12)

LOCALITY: 34°21'S;19°00'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)
- (c) SYNTHESSES/REVIEWS: Clarke (1989)
- (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 (CSW 13)

LOCALITY: 34°21'S;19°04'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), Heyl & Currie (1985), 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)
- (d) REPORTS/DOCUMENTS: Bally & Branch (1986), Barwell (1988b), De Decker (1986), Fromme (1986c), Harrison et al. (1995a), Harrison et al. (1995b)

ONRUS ESTUARY (CSW 14)

LOCALITY: 34°25'S;19°11'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:

(c) SYNTHESSES/REVIEWS: Heineken & Damstra (1983)

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

KLEIN ESTUARINE SYSTEM (CSW 16)

LOCALITY: 34°25'S;19°18'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: Scott et al. (1952), Talbot (1955)

(c) SYNTHESSES/REVIEWS: De Decker (1989), Day (1981h)

(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)

UILKRAALS ESTUARY (CSW 17)

LOCALITY: 34°36'S;19°25'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed 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)

(c) SYNTHESSES/REVIEWS: Heydorn & Bickerton (1982)

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

RATEL ESTUARY (CSW 18)

LOCALITY: 34°46'S;19°45'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:

(c) SYNTHESSES/REVIEWS:

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

HEUNINGNES ESTUARY (CSW 19)

LOCALITY: 34°43'S;20°07'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)

(c) SYNTHESSES/REVIEWS: Bickerton (1984), Day (1981h)

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

KLIPDRIFSFONTEIN (CSW 20)

LOCALITY: 34°27'S;20°44'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:

(c) SYNTHESSES/REVIEWS:

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

BREË ESTUARY (CSW 22)

LOCALITY: 34°24'S;20°51'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)

(c) SYNTHESSES/REVIEWS: Carter (1983), Day (1981h)

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

DUIWENHOKS ESTUARY (CSW 23)

LOCALITY: 34°22'S;20°00'E

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:

(c) SYNTHESSES/REVIEWS: Carter & Brownlie (1990)

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

KAFFERKUILS ESTUARY (CSW 24)

LOCALITY: 34°23'S;21°25'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:

(c) SYNTHESSES/REVIEWS: Carter & Brownlie (1990)

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

GOURITS ESTUARY (CSW 25)

LOCALITY: 34°21'S;22°33'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:

(c) SYNTHESSES/REVIEWS: Day (1981h), Heydorn (1989)

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

BLINDE ESTUARY (CSW 26)

LOCALITY: 34°13'S;22°01'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

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

HARTENBOS ESTUARY (CMS 1)

LOCALITY: 34°07'S;22°08'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), Day (1981h)

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

KLEIN BRAK ESTUARY (CMS 2)

LOCALITY: 34°06'S;22°09'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)

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

GROOT BRAK ESTUARY (CMS 3)

LOCALITY: 34°03'S;22°14'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: Watling & Watling (1982c)

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Day (1981h), Morant (1983)

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

MAALGATE ESTUARY (CMS 5)

LOCALITY: 34°03'S;22°20'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

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

GWAING ESTUARY (CMS 6)

LOCALITY: 34°03'S;22°25'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

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

KAAIMANS ESTUARY (CMS 9)

LOCALITY: 34°00'S;22°34'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:

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

WILDERNESS ESTUARINE SYSTEM (CMS 10)

LOCALITY: 34°00'S;22°35'E

REGION: Warm temperate

CLASSIFICATION: Estuarine lake system

INFORMATION: Excellent

CONDITION: Good (Remarks: Under the jurisdiction of the National Parks Board)

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 Guillardmod (1982), Weisser & Howard-Williams (1982), Weisser et al. (1992)

(c) SYNTHESSES/REVIEWS: Allanson & Whitfield (1983)

(d) REPORTS/DOCUMENTS: Chunnet (1972), Council for Scientific and Industrial Research (1981a), Council for Scientific and Industrial Research (1982a), Department of Planning (1970), Hall (1985), Hughes (1982b), Harrison et al. (1995a), Harrison et al. (1995b), Hughes (1983a), Hughes (1983b), Hughes (1983c), Hughes & Görgens (1983), Jacot Guillardmod & Allanson (1981a), Jacot Guillardmod & Allanson (1981b), Jacot Guillardmod & Allanson (1981c), Manley (1976)

SWARTVLEI ESTUARINE SYSTEM (CMS 11)

LOCALITY: 34°00'S;22°48'E

REGION: Warm temperate

CLASSIFICATION: Estuarine lake system

INFORMATION: Excellent

CONDITION: Good (Remarks: Under the jurisdiction of the National Parks Board)

AVAILABLE LITERATURE

- (a) PHYSICAL/CHEMICAL: Allanson & Howard-Williams (1984), Howard-Williams (1977), Huizinga (1987), Robarts & 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), Robarts (1976a), Robarts (1976b), Robarts (1979), Robb et al. (1979), 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)
- (d) REPORTS/DOCUMENTS: Allanson & Whitfield (1982), Barker (1985), Council for Scientific and Industrial Research (1975), Harrison et al. (1995a), Harrison et al. (1995b), Liptrot (1978), Liptrot & Allanson (1978), Taylor (1981), Whitfield (1982)

KNYSNA ESTUARINE SYSTEM (CMS 13)

LOCALITY: 34°03'S;23°04'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: Huizinga (1985b), Huizinga & Haw (1986), Marker & Miller (1993), Reddering & Esterhuysen (1984c), Reddering & Esterhuysen (1987a), Watling & Watling (1975), Watling & Watling (1976), Watling & Watling (1977), Watling & Watling (1982b), Watling et al. (1980)
- (b) BIOLOGICAL/ECOLOGICAL: Angelino & della Croce (1975), Davies (1987), Day (1967), Day et al. (1952), Genade & Hirst (1986), Hill (1977), Millard (1950), Smale & Kok (1983), Smith (1981)
- (c) SYNTHESSES/REVIEWS: Day (1981h), Grindley (1985), Yssel (1986)
- (d) REPORTS/DOCUMENTS: Allanson (1991), Benson & Maddocks (1961), Burns & Heydorn (1988), Chunnet (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)

GOUKAMMA ESTUARY (CMS 12)

LOCALITY: 34°05'S;22°57'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:

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

NOETSIE ESTUARY (CMS 14)

LOCALITY: 34°05'S;23°08'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:

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

PIESANG ESTUARY (CMS 18)

LOCALITY: 34°03'S;23°23'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: Duvenhage & Morant (1984)

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

KEURBOOMS ESTUARY (CMS 19)

LOCALITY: 34°02'S;23°23'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: Day (1981h), Duvenhage & Morant (1984)

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

MATJIES ESTUARY (CMS 20)

LOCALITY: 34°00'S;23°28'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:

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

SOUT (OOS) ESTUARY (CMS 22)

LOCALITY: 33°59'S;23°32'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: Morant & Bickerton (1983)

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

GROOT (WES) ESTUARY (CMS 23)

LOCALITY: 33°59'S;23°34'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) **SYNTHESES/REVIEWS:** Morant & Bickerton (1983)

(d) **REPORTS/DOCUMENTS:**

BLOUKRANS ESTUARY (CMS 26)

LOCALITY: 33°59'S;23°39'E

REGION: Warm temperate

CLASSIFICATION: River mouth

INFORMATION: Nil

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

AVAILABLE LITERATURE

(a) **PHYSICAL/CHEMICAL:**

(b) **BIOLOGICAL/ECOLOGICAL:**

(c) **SYNTHESES/REVIEWS:**

(d) **REPORTS/DOCUMENTS:**

LOTTERING ESTUARY (CMS 28)

LOCALITY: 33°59'S;23°44'E

REGION: Warm temperate

CLASSIFICATION: River mouth

INFORMATION: Nil

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

ELANDBOS ESTUARY (CMS 29)

LOCALITY: 34°00'S;23°46'E

REGION: Warm temperate

CLASSIFICATION: River mouth

INFORMATION: Nil

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

STORMS ESTUARY (CMS 32)

LOCALITY: 34°01'S;23°54'E

REGION: Warm temperate

CLASSIFICATION: River mouth

INFORMATION: Nil

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

ELANDS ESTUARY (CMS 36)

LOCALITY: 34°03'S;24°05'E

REGION: Warm temperate

CLASSIFICATION: River mouth

INFORMATION: Poor

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS: Department of Water Affairs & Forestry (1994b)

GROOT (OOS) ESTUARY (CMS 37)

LOCALITY: 34°04'S;24°12'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:

(d) REPORTS/DOCUMENTS: Department of Water Affairs & Forestry (1994b)

TSITSIKAMMA ESTUARY (CMS 42)

LOCALITY: 34°08'S;24°26'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS: Lee (1993), Department of Water Affairs & Forestry (1994b)

KLIPDRIF ESTUARY (CMS 43)

LOCALITY: 34°10'S;24°38'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

KROM (OOS) ESTUARY (CMS 45)

LOCALITY: 34°09'S;24°51'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 et al. (1981), Cloete (1993), Cloete (1994), Hanekom & Baird (1984), Hanekom (1982), Hanekom & Baird (1988), Hecht (1973), Marais (1983a), Melville-Smith (1981), Newman (1993), Seagrief (1976)

(c) SYNTHESSES/REVIEWS: Bickerton & Pierce (1988), Day (1981h)

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

SEEKOEI ESTUARY (CMS 46)

| | |
|---|------------------------|
| LOCALITY: 34°05'S;24°55'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), Whitfield (1989e)
- (c) SYNTHESSES/REVIEWS: Bickerton & Pierce (1988), Whitfield (1989f)
- (d) REPORTS/DOCUMENTS: Bickerton & Badenhorst (1987), Bickerton & Zoutendyk (1990), Esterhuysen (1982), Fromme & Badenhorst (1987), Wooldridge & Wallace (1977)

KABELJOUS ESTUARY (CMS 47)

| | |
|---|------------------------|
| LOCALITY: 34°00'S;24°56'E | REGION: Warm temperate |
| CLASSIFICATION: Temporarily open/closed estuary | INFORMATION: Moderate |
| CONDITION: Good (Remarks: Threatened with increased freshwater demand for catchment irrigation schemes) | |

AVAILABLE LITERATURE

- (a) PHYSICAL/CHEMICAL:
- (b) BIOLOGICAL/ECOLOGICAL: Adams (1991), Adams et al. (1992)
- (c) SYNTHESSES/REVIEWS: Bickerton & Pierce (1988)
- (d) REPORTS/DOCUMENTS: Fromme & Badenhorst (1987), Reddering & Esterhuysen (1984b)

GAMTOOS ESTUARY (CMS 48)

LOCALITY: 33°58'S;25°04'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: Watling & Watling (1982e)

(b) BIOLOGICAL/ECOLOGICAL: Adams (1991), Adams et al. (1992), Skelton (1993), Loubser (1992), Marais (1983b), Newman (1993), Shewell (1950)

(c) SYNTHESSES/REVIEWS: Day (1981h), Heineken (1981)

(d) REPORTS/DOCUMENTS: Lee (1993), Reddering & Esterhuysen (1984a), Reddering & Scarr (1990a),

VAN STADENS ESTUARY (CMS 49)

LOCALITY: 33°58'S;25°13'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MAITLAND ESTUARY (CMS 50)

LOCALITY: 33°59'S;25°18'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

PAPKUILS ESTUARY (CSE 2)

LOCALITY: 33°55'S;25°37'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:

(d) REPORTS/DOCUMENTS: Hops (1990)

SWARTKOPS ESTUARY (CSE 3)

LOCALITY: 33°57'S;25°38'E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Excellent

CONDITION: Fair (Remarks: Ecologically viable despite intensive recreational usage)

AVAILABLE LITERATURE

- (a) PHYSICAL/CHEMICAL: Baird & Winter (1990), Baird & Winter (1992), Baird et al. (1987), Branch (1986), Dye (1978a), Emmerson (1985a), Esterhuysen & Rust (1987), Hilmer & Bate (1987), Huizinga (1984), Talbot (1982a), Watling & Watling (1982a), Winter (1990), Winter & Baird (1991)
- (b) BIOLOGICAL/ECOLOGICAL: Baird (1978), Beckley (1983), Beckley (1984a), Beckley (1985a), Bok (1979), Daniel (1992), Daniel (1994), 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), Forbes (1977), 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 (1991a), Martin (1991b), Martin & Baird (1987), Masson & Marais (1975), McLachlan (1972), McLachlan & Grindley (1974), Melville-Smith (1978), Melville-Smith & Baird (1980), Perissinotto & Wooldridge (1989), Pereyra Lago (1986), Pereyra Lago (1993a), Pierce (1983), Pocock (1955), Talbot & Bate (1987), Talbot (1982b), Talbot et al. (1988), van der Horst & Erasmus (1978), van der Westhuizen & Marais (1977), 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), Day (1981h)
- (d) REPORTS/DOCUMENTS: Badenhorst (1985), Emmerson et al. (1982), Fromme (1988), Glen (1980), Hill et al. (1984), Lee (1993), MacKay (1993), Martin & Baird (1988), Reddering & Esterhuysen (1981a), Wooldridge (1992)

KOEGA ESTUARY (CSE 4)

LOCALITY: 33°48'S;25°42'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:

(d) REPORTS/DOCUMENTS:

SUNDAYS ESTUARY (CSE 5)

LOCALITY: 33°43'S;25°51'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 (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), Hilmer & Bate (1991), Illenberger (1992), Jerling (1988), Jerling (1994), Jerling & Wooldridge (1991), Jerling & Wooldridge (1992), Jerling & Wooldridge (1994), MacKay (1989), Marais (1981), Whitfield (1994a), Wooldridge (1979), Wooldridge (1986a), Wooldridge & Bailey (1982), Wooldridge & Erasmus (1980), Wooldridge & Melville-Smith (1979), Wooldridge & Webb (1988)

(c) SYNTHESSES/REVIEWS: Beckley & Wooldridge (1988), Day (1981h)

(d) REPORTS/DOCUMENTS: Council for Scientific and Industrial Research (1983), Reddering & Esterhuysen (1981c), Swart (1986)

BOKNES ESTUARY (CSE 6)

LOCALITY: 33°44'S;26°35'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:

(d) REPORTS/DOCUMENTS: Fromme (1986b)

BUSHMANS ESTUARY (CSE 7)

LOCALITY: 33°42'S;26°40'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: Jubb (1972), Palmer (1980a), Robertson (1984)

(c) SYNTHESSES/REVIEWS: Day (1981h)

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

KARIEGA ESTUARY (CSE 8)

LOCALITY: 33°41'S;26°44'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), Watling & Watling (1983)
- (b) BIOLOGICAL/ECOLOGICAL: de Villiers (1990), Grange (1992), Hodgson (1987), Neethling & Jubb (1973), Ter Morshuizen & Whitfield (1994), Whitfield (1994a), Whitfield (1994b)
- (c) SYNTHESSES/REVIEWS:
- (d) REPORTS/DOCUMENTS: Fromme (1986b), Gaillard & Huizinga (1988), Taylor (1987), Whitfield & Ter Morshuizen (1992)

KASUKA ESTUARY (CSE 9)

LOCALITY: 33°39'S;26°44'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: Jubb (1979)
- (c) SYNTHESSES/REVIEWS:
- (d) REPORTS/DOCUMENTS: Fromme (1986b), Whitfield & Ter Morshuizen (1992)

KOWIE ESTUARY (CSE 10)

LOCALITY: 33°36'S;26°54'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), Watling & Watling (1983)
- (b) BIOLOGICAL/ECOLOGICAL: Bok (1979), Davies (1980), Hill (1975b), Hill (1978), Whitfield et al. (1994)
- (c) SYNTHESSES/REVIEWS: Day (1981h), Heinecken & Grindley (1982)
- (d) REPORTS/DOCUMENTS: Grange et al. (1992), PLAN Associates (1986)

RUFANE ESTUARY (CSE 11)

LOCALITY: 33°35'S;26°57'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

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

AVAILABLE LITERATURE

- (a) PHYSICAL/CHEMICAL:
- (b) BIOLOGICAL/ECOLOGICAL:
- (c) SYNTHESSES/REVIEWS:
- (d) REPORTS/DOCUMENTS:

RIET ESTUARY (CSE 12)

LOCALITY: 33°34'S;27°01'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

KLEINEMOND (WES) ESTUARY (CSE 13)

LOCALITY: 33°33'S;27°02'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: Blaber (1973a), Blaber (1973c), Blaber (1974a)

(c) SYNTHESSES/REVIEWS: Day (1981h)

(d) REPORTS/DOCUMENTS: Badenhorst (1988a)

KLEINEMOND (OOS) ESTUARY (CSE 14)

LOCALITY: 33°32'S;27°03'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS: Badenhorst (1988a)

GREAT FISH ESTUARY (CSE 15)

LOCALITY: 33°30'S;27°08'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: Bok (1979), Grange (1992), Whitfield (1994a), Whitfield et al. (1994)

(c) SYNTHESSES/REVIEWS: Day (1981h)

(d) REPORTS/DOCUMENTS: Lucas (1986), Reddering & Esterhuysen (1982)

OLD WOMAN'S ESTUARY (CSE 16)

LOCALITY: 33°30'S;27°09'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MPEKWENI ESTUARY (CSE 17)

LOCALITY: 33°26'S;27°14'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MTATI ESTUARY (CSE 18)

LOCALITY: 33°25'S;27°16'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS: Grobblers et al. (1987)

MGWALANA ESTUARY (CSE 19)

LOCALITY: 33°25'S;27°17'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

BIRA ESTUARY (CSE 20)

LOCALITY: 33°23'S;27°20'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

GQUTYWA ESTUARY (CSE 21)

LOCALITY: 33°22'S;27°22'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

NGCULURA ESTUARY (CSE 22)

LOCALITY: 33°22'S;27°22'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MTANA ESTUARY (CSE 25)

LOCALITY: 33°19'S;27°26'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

KEISKAMMA ESTUARY (CSE 26)

LOCALITY: 33°17'S;27°29'E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

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)

(c) SYNTHESSES/REVIEWS: Cowling & McKenzie (1979), Day (1981h)

(d) REPORTS/DOCUMENTS:

SHWELE-SHWELE ESTUARY (CSE 27)

LOCALITY: 33°16'S;27°31'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

NGQINISA ESTUARY (CSE 28)

LOCALITY: 33°15'S;27°32'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

KIWANE ESTUARY (CSE 29)

LOCALITY: 33°15'S;27°33'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

TYOLOMNQA ESTUARY (CSE 30)

LOCALITY: 33°14'S;27°35'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

LILYVALE ESTUARY (CSE 31)

LOCALITY: 33°12'S;27°38'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Fair

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

NCERA ESTUARY (CSE 32)

LOCALITY: 33°10'S;27°40'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MLELE ESTUARY (CSE 33)

LOCALITY: 33°10'S;27°41'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MCANTSI ESTUARY (CSE 34)

LOCALITY: 33°09'S;27°42'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Fair

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

GXULU ESTUARY (CSE 35)

LOCALITY: 33°07'S;27°44'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Fair

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

GODA ESTUARY (CSE 36)

LOCALITY: 33°06'S;27°47'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

HLOZI ESTUARY (CSE 37)

LOCALITY: 33°05'S;27°49'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

HICKMANS ESTUARY (CSE 38)

LOCALITY: 33°04'S;27°50'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Fair

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MVUBUKAZI ESTUARY (CSE 39)

LOCALITY: 33°04'S;27°51'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Fair

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

NGQENGA ESTUARY (CSE 40)

LOCALITY: 33°03'S;27°52'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

BUFFALO ESTUARY (CSE 41)

LOCALITY: 33°02'S;27°55'E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

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

AVAILABLE LITERATURE

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

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS: Connell et al. (1981)

BLIND ESTUARY (CSE 42)

LOCALITY: 33°00'S;27°56'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

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

AVAILABLE LITERATURE

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

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

HLAZE ESTUARY (CSE 43)

LOCALITY: 32°59'S;27°57'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

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

AVAILABLE LITERATURE

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

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

NAHOON ESTUARY (CSE 44)

LOCALITY: 32°59'S;27°57'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: Campbell et al. (1991)

(c) SYNTHESSES/REVIEWS: Wiseman et al. (1993)

(d) REPORTS/DOCUMENTS: Council for Scientific and Industrial Research (1985b), Reddering & Esterhuysen (1985), Wooldridge (1986b)

QINIRA ESTUARY (CSE 45)

LOCALITY: 32°59'S;27°58'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: Wiseman et al. (1993)

(d) REPORTS/DOCUMENTS:

GQUNUBE ESTUARY (CSE 46)

LOCALITY: 32°56'S;28°02'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)

(c) SYNTHESSES/REVIEWS: Wiseman et al. (1993)

(d) REPORTS/DOCUMENTS:

KWELERA ESTUARY (CSE 47)

LOCALITY: 32°55'S;28°05'E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Campbell et al. (1991)

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS: Wooldridge (1986b)

BULURA ESTUARY (CSE 48)

LOCALITY: 32°54'S;28°06'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

CUNGE ESTUARY (CSE 49)

LOCALITY: 32°52'S;28°07'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

CINTSA ESTUARY (CSE 50)

LOCALITY: 32°50'S;28°07'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

CEFANE ESTUARY (CSE 51)

LOCALITY: 32°49'S;28°08'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

KWENXURA ESTUARY (CSE 52)

LOCALITY: 32°48'S;28°09'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

NYARA ESTUARY (CSE 53)

LOCALITY: 32°47'S;28°11'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

HAGA-HAGA ESTUARY (CSE 54)

LOCALITY: 32°46'S;28°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:

(d) REPORTS/DOCUMENTS: Whitfield (1993b)

MTENDWE ESTUARY (CSE 55)

LOCALITY: 32°44'S;28°17'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

QUKO ESTUARY (CSE 56)

LOCALITY: 32°43'S;28°19'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: One of the most pristine of all Eastern Cape estuaries)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Burns et al. (1988)

(d) REPORTS/DOCUMENTS:

MORGAN ESTUARY (CSE 57)

LOCALITY: 32°43'S;28°21'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

CWILI ESTUARY (CSE 58)

LOCALITY: 32°41'S;28°23'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

GREAT KEI ESTUARY (CSE 59)

LOCALITY: 32°41'S;28°23'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)

(c) SYNTHESSES/REVIEWS: Day (1981h)

(d) REPORTS/DOCUMENTS: Marais & Prinsloo (1980)

GXARA ESTUARY (TS 1)

LOCALITY: 32°40'S;28°24'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

NGOGWANE ESTUARY (TS 2)

LOCALITY: 32°39'S;28°25'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

QOLORA ESTUARY (TS 3)

LOCALITY: 32°38'S;28°25'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

NCIZELE ESTUARY (TS 4)

LOCALITY: 32°38'S;28°26'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

KOBONQABA ESTUARY (TS 7)

LOCALITY: 32°36'S;28°29'E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

NXAXO ESTUARY (TS 8)

LOCALITY: 32°35'S;28°31'E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

CEBE ESTUARY (TS 9)

LOCALITY: 32°31'S;28°35'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

GQUNQE ESTUARY (TS 10)

LOCALITY: 32°31'S;28°35'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

NGQWARA ESTUARY (TS 11)

LOCALITY: 32°30'S;28°37'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

SIHLONTLWENI ESTUARY (TS 12)

LOCALITY: 32°29'S;28°39'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

QORA ESTUARY (TS 14)

LOCALITY: 32°27'S;28°40'E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

JUJURA ESTUARY (TS 15)

LOCALITY: 32°26'S;28°42'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

SHIXINI ESTUARY (TS 17)

LOCALITY: 32°24'S;28°43'E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

NQABARA ESTUARY (TS 20)

LOCALITY: 32°20'S;28°47'E

REGION: Warm temperate

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS: Marais & Prinsloo (1980)

NGOMA ESTUARY (TS 22)

LOCALITY: 32°18'S;28°50'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

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

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MENDU ESTUARY (TS 23)

LOCALITY: 32°17'S;28°53'E

REGION: Warm temperate

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MBASHE ESTUARY (TS 25)

LOCALITY: 32°15'S;28°54'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)

(c) SYNTHESSES/REVIEWS: Day (1981h)

(d) REPORTS/DOCUMENTS: Marais & Prinsloo (1980)

MBHANYANA ESTUARY (TS 27)

LOCALITY: 32°14'S;28°56'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Day (1981h)

(d) REPORTS/DOCUMENTS:

NTLONYANE ESTUARY (TS 30)

LOCALITY: 32°12'S;28°57'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

NKANYA ESTUARY (TS 31)

LOCALITY: 32°11'S;28°58'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

XORA ESTUARY (TS 33)

LOCALITY: 32°10'S;29°00'E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) **PHYSICAL/CHEMICAL:**

(b) **BIOLOGICAL/ECOLOGICAL:**

(c) **SYNTHESES/REVIEWS:**

(d) **REPORTS/DOCUMENTS:**

BULUNGULU ESTUARY (TS 34)

LOCALITY: 32°08'S;29°01'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) **PHYSICAL/CHEMICAL:**

(b) **BIOLOGICAL/ECOLOGICAL:**

(c) **SYNTHESES/REVIEWS:**

(d) **REPORTS/DOCUMENTS:**

KU-AMANZIMUZAMA ESTUARY (TS 35)

LOCALITY: 32°07'S;29°02'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MNCWASA ESTUARY (TS 37)

LOCALITY: 32°05'S;29°04'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MPAKO ESTUARY (TS 40)

LOCALITY: 32°03'S;29°07'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

NENGA ESTUARY (TS 43)

LOCALITY: 31°59'S;29°09'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MAPUZI ESTUARY (TS 44)

LOCALITY: 31°58'S;29°10'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MTATA ESTUARY (TS 45)

LOCALITY: 31°57'S;29°10'E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Fair (Remarks: Poor catchment management has led to excessive siltation)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

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

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS: Marais & Prinsloo (1980)

MDUMBI ESTUARY (TS 46)

LOCALITY: 31°56'S;29°13'E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

LWANDILANA ESTUARY (TS 47)

LOCALITY: 31°54'S;29°14'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

LWANDILE ESTUARY (TS 48)

LOCALITY: 31°54'S;29°14'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MTAKATYE ESTUARY (TS 49)

LOCALITY: 31°51'S;29°16'E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

HLULEKA ESTUARY (TS 50)

LOCALITY: 31°50'S;29°18'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MNENU ESTUARY (TS 51)

LOCALITY: 31°48'S;29°20'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MTONGA ESTUARY (TS 52)

LOCALITY: 31°40'S;29°28'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

SINANGWANA ESTUARY (TS 54)

LOCALITY: 31°45'S;29°21'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MNGAZANA ESTUARY (TS 56)

LOCALITY: 31°42'S;29°25'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), Wooldridge (1977)

(c) SYNTHESSES/REVIEWS: Branch (1976), Day (1981h)

(d) REPORTS/DOCUMENTS:

MNGAZI ESTUARY (TS 57)

LOCALITY: 31°41'S;29°27'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Good?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

BULOLO ESTUARY (TS 61)

LOCALITY: 31°39'S;29°30'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Whitfield (1979)

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MTAMBANE ESTUARY (TS 62)

LOCALITY: 31°39'S;29°30'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Whitfield (1979)

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MZIMVUBU ESTUARY (TS 63)

LOCALITY: 31°38'S;29°33'E

REGION: Subtropical

CLASSIFICATION: River mouth

INFORMATION: Poor

CONDITION: Poor (Remarks: System has suffered from excessive siltation due to poor catchment management)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Day (1981h)

(d) REPORTS/DOCUMENTS:

NTLUPENI ESTUARY (TN 2)

LOCALITY: 31°37'S;29°34'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

NKODUSWENI ESTUARY (TN 4)

LOCALITY: 31°36'S;29°35'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MNTAFUFU ESTUARY (TN 6)

LOCALITY: 31°34'S;29°38'E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

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

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MZINTLAVA ESTUARY (TN 10)

LOCALITY: 31°32'S;29°41'E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MZIMPUNZI ESTUARY (TN 12)

LOCALITY: 31°29'S;29°42'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MBOTYI ESTUARY (TN 14)

LOCALITY: 31°28'S;29°43'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Wooldridge (1974)

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MKOZI ESTUARY (TN 15)

LOCALITY: 31°27'S;29°44'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MYEKANE ESTUARY (TN 16)

LOCALITY: 31°27'S;29°45'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

LUPATANA ESTUARY (TN 21)

LOCALITY: 31°26'S;29°50'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MKWENI ESTUARY (TN 22)

LOCALITY: 31°24'S;29°52'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) **PHYSICAL/CHEMICAL:**

(b) **BIOLOGICAL/ECOLOGICAL:**

(c) **SYNTHESES/REVIEWS:**

(d) **REPORTS/DOCUMENTS:**

MSIKABA ESTUARY (TN 27)

LOCALITY: 31°18'S;29°58'E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Excellent (Remarks: Has conservation and recreational significance)

AVAILABLE LITERATURE

(a) **PHYSICAL/CHEMICAL:**

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

(c) **SYNTHESES/REVIEWS:** Day (1981h)

(d) **REPORTS/DOCUMENTS:**

MTENTU ESTUARY (TN 33)

LOCALITY: 31°15'S;30°03'E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Poor

CONDITION: Excellent (Remarks: Wide variety of mangrove and other habits contained in one system)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Connell (1974)

(c) SYNTHESSES/REVIEWS: Day (1981h)

(d) REPORTS/DOCUMENTS:

SIKOMBE ESTUARY (TN 34)

LOCALITY: 31°11'S;30°04'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

KWANYANA ESTUARY (TN 35)

LOCALITY: 31°11'S;30°06'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MNYAMENI ESTUARY (TN 37)

LOCALITY: 31°10'S;30°08'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MPAHLANYANA ESTUARY (TN 38)

LOCALITY: 31°08'S;30°09'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MPAHLANE ESTUARY (TN 39)

LOCALITY: 31°07'S;30°09'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Nil

CONDITION: Excellent?

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MZAMBA ESTUARY (TN 40)

LOCALITY: 31°06'S;30°10'E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Excellent?

AVAILABLE LITERATURE

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

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

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS: Begg (1986a)

MTENTWANA ESTUARY (TN 41)

LOCALITY: 31°05'S;30°10'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Excellent?

AVAILABLE LITERATURE

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

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS:

(d) REPORTS/DOCUMENTS:

MTAMVUNA ESTUARY (NS 1)

LOCALITY: 31°04'S;30°11'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

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

AVAILABLE LITERATURE

- (a) PHYSICAL/CHEMICAL: Cooper (1993b), Hemens et al. (1986), National Research Institute for Oceanology (1981a)
- (b) BIOLOGICAL/ECOLOGICAL: Begg (1984a)
- (c) SYNTHESSES/REVIEWS: Begg (1978)
- (d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

ZOLWANE ESTUARY (NS 2)

LOCALITY: 31°04'S;30°12'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)
- (d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

SANDLUNDLU ESTUARY (NS 3)

LOCALITY: 31°02'S;30°13'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)

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

KU-BOBOYI ESTUARY (NS 4)

LOCALITY: 31°02'S;30°14'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)

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

TONGAZI ESTUARY (NS 5)

LOCALITY: 31°00'S;30°15'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)

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

KANDANDHLOVU ESTUARY (NS 6)

LOCALITY: 30°59'S;30°16'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)

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

MPENJATI ESTUARY (NS 7)

LOCALITY: 30°58'S;30°17'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)

(c) SYNTHESSES/REVIEWS: Begg (1978)

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

UMHLANGANKULU ESTUARY (NS 8)

LOCALITY: 30°56'S;30°18'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)

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

KABA ESTUARY (NS 9)

| | |
|--|---------------------|
| LOCALITY: 30°56'S;30°18'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)
- (d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MBIZANA ESTUARY (NS 10)

| | |
|--|---------------------|
| LOCALITY: 30°5'S;30°20'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)
- (d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b)

MVUTSHINI ESTUARY (NS 11)

LOCALITY: 30°53'S;30°20'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)

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

BILANHILOLO ESTUARY (NS 12)

LOCALITY: 30°53'S;30°21'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)

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

UVUZANA ESTUARY (NS 13)

LOCALITY: 30°52'S;30°21'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)

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

KONGWENI ESTUARY (NS 14)

LOCALITY: 30°51'S;30°22'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)

(c) SYNTHESSES/REVIEWS: Begg (1978)

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

VUNGU ESTUARY (NS 15)

LOCALITY: 30°50'S;30°23'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

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

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

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

(c) SYNTHESSES/REVIEWS: Begg (1978)

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

MHLANGENI ESTUARY (NS 16)

LOCALITY: 30°49'S;30°23'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)

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

ZOTSHA ESTUARY (NS 17)

LOCALITY: 30°47'S;30°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)

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

BOBOYI ESTUARY (NS 18)

LOCALITY: 30°46'S;30°26'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)

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

MBANGO ESTUARY (NS 19)

LOCALITY: 30°45'S;30°27'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)

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

MZIMKULU ESTUARY (NS 20)

LOCALITY: 30°44'S;30°27'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), Day (1981h)

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

MTENTWENI ESTUARY (NS 21)

LOCALITY: 30°42'S;30°28'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)

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

MHLANGAMKULU ESTUARY (NS 22)

LOCALITY: 30°41'S;30°29'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)

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

DAMBA ESTUARY (NS 23)

LOCALITY: 30°40'S;30°30'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) **SYNTHESES/REVIEWS:** Begg (1978)

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

KOSHWANA ESTUARY (NS 24)

LOCALITY: 30°39'S;30°31'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) **SYNTHESES/REVIEWS:** Begg (1978)

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

INTSHAMBILI ESTUARY (NS 25)

LOCALITY: 30°38'S;30°32'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)

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

MZUMBE ESTUARY (NS 26)

LOCALITY: 30°36'S;30°33'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)

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

MHLABATSHANE ESTUARY (NS 27)

LOCALITY: 30°35'S;30°34'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)

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

MHLUNGWA ESTUARY (NS 28)

LOCALITY: 30°33'S;30°35'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)

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

MFAZAZANA ESTUARY (NS 29)

LOCALITY: 30°31'S;30°36'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)

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

KWA-MAKOSI ESTUARY (NS 30)

LOCALITY: 30°31'S;30°36'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)

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

MNAMFU ESTUARY (NS 31)

LOCALITY: 30°30'S;30°37'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)

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

MTWALUME ESTUARY (NS 32)

LOCALITY: 30°29'S;30°38'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)

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

MVUZI ESTUARY (NS 33)

LOCALITY: 30°28'S;30°38'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) **SYNTHESES/REVIEWS:** Begg (1978)

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

FAFA ESTUARY (NS 34)

LOCALITY: 30°27'S;30°39'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) **SYNTHESES/REVIEWS:** Begg (1978), Day (1981h)

(d) **REPORTS/DOCUMENTS:** Cooper et al. (1993a), Cooper et al. (1993b), Hemens et al. (1971a)

MDESINGANE ESTUARY (NS 35)

LOCALITY: 30°25'S;30°40'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)

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

SEZELA ESTUARY (NS 36)

LOCALITY: 30°25'S;30°41'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)

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

MKUMBANE ESTUARY (NS 37)

LOCALITY: 30°24'S;30°41'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)

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

MZINTO ESTUARY (NS 38)

LOCALITY: 30°22'S;30°42'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)

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

MZIMAYI ESTUARY (NS 39)

LOCALITY: 30°20'S;30°43'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)

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

MPAMBANYONI ESTUARY (NS 40)

LOCALITY: 30°16'S;30°45'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)

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

MAHLONGWA ESTUARY (NS 41)

LOCALITY: 30°15'S;30°46'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)

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

MAHLONGWANA ESTUARY (NS 42)

LOCALITY: 30°14'S;30°48'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Poor

CONDITION: Good (Remarks: Sugar cane encroachment on the floodplain)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

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

(c) SYNTHESSES/REVIEWS: Begg (1978)

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

MKOMAZI ESTUARY (NS 43)

LOCALITY: 30°12'S;30°49'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) **SYNTHESES/REVIEWS:** Begg (1978), Day (1981h)

(d) **REPORTS/DOCUMENTS:** Burton (1960), Cooper et al. (1993a), Cooper et al. (1993b)

NGANE ESTUARY (NS 44)

LOCALITY: 30°10'S;30°49'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) **SYNTHESES/REVIEWS:** Begg (1978)

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

UMGABABA ESTUARY (NS 45)

LOCALITY: 30°09'S;30°50'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Moderate

CONDITION: Good (Remarks: Has considerable conservation potential)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

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

(c) SYNTHESSES/REVIEWS: Begg (1978), Day (1981h)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b), Council for Scientific and Industrial Research (1982b), Grobblers et al. (1988)

MSIMBAZI ESTUARY (NS 46)

LOCALITY: 30°08'S;30°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)

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

LOVU ESTUARY (NS 47)

LOCALITY: 30°07'S;30°51'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: National Research Institute for Oceanology (1982b)

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

(c) SYNTHESSES/REVIEWS: Begg (1978)

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

LITTLE MANZIMTOTI ESTUARY (NS 48)

LOCALITY: 30°05'S;30°52'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:

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

(c) SYNTHESSES/REVIEWS: Begg (1978)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b), Environmental Advisory Services (1992b), Ramm et al. (1992)

MANZIMTOTI ESTUARY (NS 49)

LOCALITY: 30°04'S;30°53'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)

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

MBOKODWENI ESTUARY (NS 50)

LOCALITY: 30°01'S;30°56'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)

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

SIPINGO ESTUARY (NS 51)

LOCALITY: 30°00'S;30°57'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)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b), Kallicharran (1990), Natal Town and Regional Planning Commission (1987)

DURBAN BAY ESTUARINE SYSTEM (NS 53)

LOCALITY: 29°52'S;31°04'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: Begg (1984a), Cockcroft & Forbes (1981b), Day & Morgans (1956), Guastella (1994), Joubert (1964)

(c) SYNTHESSES/REVIEWS: Begg (1978)

(d) REPORTS/DOCUMENTS: Anon. (1974a), Environmental Advisory Services (1990b), Institute of Natural Resources (1993a), Institute of Natural Resources (1993c)

MGENI ESTUARY (NN 1)

LOCALITY: 29°48'S;30°02'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), Naidoo (1980), Naidoo & Raiman (1982), Schoonbee (1963), Swart (1987), National Research Institute for Oceanology (1982c)
- (b) BIOLOGICAL/ECOLOGICAL: Begg (1984a), Harrison (1991), Moll (1972), Steinke et al. (1983), Steinke et al. (1990)
- (c) SYNTHESSES/REVIEWS: Begg (1978)
- (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), National Research Institute for Oceanology (1975a), National Research Institute for Oceanology (1975b)

MHLANGA ESTUARY (NN 2)

LOCALITY: 29°42'S;31°06'E

REGION: Subtropical

CLASSIFICATION: Temporarily open/closed estuary

INFORMATION: Good

CONDITION: Good (Remarks: Estuary forms part of a Natal Parks Board 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), Day (1981h)
- (d) REPORTS/DOCUMENTS: Cooper (1987b), Cooper et al. (1993a), Cooper et al. (1993b), Environmental Advisory Services (1992a)

MDLOTI ESTUARY (NN 3)

LOCALITY: 29°38'S;31°08'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: National Research Institute for Oceanology (1982d)

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

(c) SYNTHESSES/REVIEWS: Begg (1978)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b), Council for Scientific and Industrial Research (1985c)

TONGATI ESTUARY (NN 4)

LOCALITY: 29°33'S;31°11'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)

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

MHLALI ESTUARY (NN 5)

LOCALITY: 29°27'S;31°16'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)

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

SETENI ESTUARY (NN 6)

LOCALITY: 29°25'S;31°18'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)

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

MVOTI ESTUARY (NN 7)

LOCALITY: 29°24'S;31°21'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)

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

(c) SYNTHESSES/REVIEWS: Begg (1978)

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

MDLOTANE ESTUARY (NN 8)

LOCALITY: 29°21'S;31°22'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)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b), Environmental Advisory Services (1991a)

NONOTI ESTUARY (NN 9)

LOCALITY: 29°17'S;31°25'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)

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

ZINKWASI ESTUARY (NN 10)

LOCALITY: 29°16'S;31°27'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)

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

TUGELA ESTUARY (NN 11)

LOCALITY: 29°13'S;30°30'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:

(c) SYNTHESSES/REVIEWS: Begg (1978), Day (1981h)

(d) REPORTS/DOCUMENTS: Cooper et al. (1993a), Cooper et al. (1993b), Council for Scientific and Industrial Research (1983)

MATIGULU/NYONI ESTUARY (NN 12/13)

LOCALITY: 29°04'S;31°38'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)

(d) REPORTS/DOCUMENTS:

SIYAYA ESTUARY (NN 14)

LOCALITY: 28°58'S;31°45'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)

(d) REPORTS/DOCUMENTS: Schleyer (1986a)

MLALAZI ESTUARY (NN 15)

LOCALITY: 28°57'S;31°48'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)

(c) SYNTHESSES/REVIEWS: Begg (1978), Day (1981h)

(d) REPORTS/DOCUMENTS: Hemens et al. (1971b), Ward (1960)

RICHARD'S BAY SANCTUARY (NN 16a)

LOCALITY: 28°49'S;32°05'E

REGION: Subtropical

CLASSIFICATION: Permanently open estuary

INFORMATION: Moderate

CONDITION: Fair (Remarks: Excessive siltation has led to loss of certain estuarine habitats)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL:

(b) BIOLOGICAL/ECOLOGICAL: Grindley & Wooldridge (1974), Millard & Harrison (1954), Steinke & Ward (1988), van der Elst (1977)

(c) SYNTHESSES/REVIEWS: Begg (1978), Day (1981h), Leverton (1975)

(d) REPORTS/DOCUMENTS: Institute of Natural Resources (1993e), Venter (1972)

RICHARD'S BAY (NN 16b)

LOCALITY: 28°49'S;32°05'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: Demetriades (1990), Grindley & Wooldridge (1974), Millard & Harrison (1954), Steinke & Ward (1988), McClurg (1979)

(c) SYNTHESSES/REVIEWS: Begg (1978), Day (1981h)

(d) REPORTS/DOCUMENTS: Anon. (1972a), Anon. (1974b), Anon. (1978), Council for Scientific and Industrial Research (1972), Environmental Advisory Services (1993), Institute of Natural Resources (1993b), Institute of Natural Resources (1993d), Institute of Natural Resources (1993e)

NHLABANE ESTUARINE SYSTEM (NN 17)

LOCALITY: 28°40'S;32°16'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:

(c) SYNTHESSES/REVIEWS: Begg (1978)

(d) REPORTS/DOCUMENTS: Environmental Advisory Services (1990a), Walmsley Environmental Consultants (1993)

MFOLOZI ESTUARY (NN 18)

LOCALITY: 28°24'S;32°25'E

REGION: Subtropical

CLASSIFICATION: River mouth

INFORMATION: Poor

CONDITION: Fair (Remarks: Swamp destruction and siltation have been major problems)

AVAILABLE LITERATURE

(a) PHYSICAL/CHEMICAL: van Heerden (1993)

(b) BIOLOGICAL/ECOLOGICAL:

(c) SYNTHESSES/REVIEWS: Begg (1978)

(d) REPORTS/DOCUMENTS:

ST LUCIA ESTUARINE SYSTEM (NN 19)

LOCALITY: 28°18'S;32°26'E

REGION: Subtropical

CLASSIFICATION: Estuarine lake system

INFORMATION: Excellent

CONDITION: Good (Remarks: The most important estuarine system in KwaZulu-Natal due to its size)

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 & Mason (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), Chiazari (1952), Chelnoky (1968), Chubb (1943), Cyrus (1984), Cyrus (1988a), Cyrus (1991a), Cyrus (1991b), Cyrus & Blaber (1987b), 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), Harris & Cyrus (1994), Hay (1985), Hill (1979b), Johnson (1977), Joubert (1967), Joubert & Davies (1966), Kennedy (1983), Martin et al. (1992), Millard & Broekhuysen (1970), Moll (1970), Owen (1992), 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 (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), Forbes et al. (1987), Forbes & Cyrus (1993), Forrest (1969b), Harty (1952), Kokot (1952), Orme (1975a), Robertson (1971), Robertson (1977), Starfield et al. (1989), Taylor (1982), Taylor (1987), Taylor (1991), Taylor et al. (1987), Tinley (1971), van der Merwe (1967), Vincent (1980), Whitfield (1980d), Taylor (1993), Whitfield (1977c)
- (d) REPORTS/DOCUMENTS: Anon. (1951), Anon. (1960), Anon. (1962), Anon. (1969), Anon. (1970d), Anon. (1972b), Berruti (1982), Cameron-Dow (1974), 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), 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 (NN 20)

LOCALITY: 27°32'S;32°40'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)

(d) REPORTS/DOCUMENTS: Bruton (1975), Bruton (1976)

KOSI ESTUARINE SYSTEM (NN 21)

LOCALITY: 26°54'S;32°48'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), Jackson (1984), Kyle (1980), Kyle (1989a), Kyle (1989b), Ward et al. (1986), Whitfield (1978c), Wallace et al. (1971)

(c) SYNTHESSES/REVIEWS: Begg (1978), Begg (1980a), Day (1981h), Kyle (1993a), Moll (1978)

(d) REPORTS/DOCUMENTS: Anon. (1971a), Anon. (1971b), Begg (1982), Campbell & Allanson (1952), Hemens et al. (1971c), Kyle (1993b), Munnik (1993), Tinley (1976), Wager (1972)

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- (a) PHYSICAL/CHEMICAL: Anderson (1991), Branch (1987), Butzer & Helgren (1972), Chew & Bowen (1971), Cooper (1990), Cooper (1991), Comrie-Grieg (1984), Cyrus (1988b), Cyrus (1988c), Day (1981b), Day (1981c), Day (1981d), Day (1981e), de Kock & Lord (1988), Eagle & Bartlett (1984), Gardner et al. (1983), Gardner et al. (1985), Hemens et al. (1975), Hill (1975a), Hill et al. (1975), Hobday (1979), Huizinga (1985a), Huizinga & Gaillard (1985), Huizinga & Luger (1988), Kovács (1988), Kovács et al. (1985), Largier (1992), Largier & Slinger (1991), Lusher (1984), Martin (1987), McCormick et al. (1992), Meineke (1960), Miller (1990), National Research Institute for Oceanology (1986), Orme (1973), Orme (1974), Orme (1975b), Reddering (1987), Reddering (1988a), Reddering (1988b), Reddering & Rust (1990), Rogers (1986), SANCOR Secretariat (1989), Schulze et al. (1988), Shannon & Stander (1977), Watling et al. (1983), Watling & Watling (1982), Willis et al. (1977)
- (b) BIOLOGICAL/ECOLOGICAL: Achituv & Cook (1984), Adams & Bate (1994a), Adams & Bate (1994b), Adams & Bate (1994c), Adams et al. (1992), Adams & Talbot (1992), Alexander & Ewer (1969), Allanson et al. (1966), Allanson et al. (1992), Avis (1988), Barnabas et al. (1977), Barnabas et al. (1980), Barnabas et al. (1982), Barnabas & Guillard (1979), Barnabas & Naidoo (1981), Barnabas & Naiker (1980), Beckley (1986), Beckley (1988), Beckley (1989), Beckley (1990), Begg (1981c), Begg (1984b), Benfield (1984), Bennett (1989c), Bennett (1989d), Bennett (1993), Bernard (1988), Blaber (1973b), Blaber (1974b), Blaber (1974c), Blaber (1975a), Blaber (1975b), Blaber (1977), Blaber (1984), Blaber (1985), Blaber & Cyrus (1983), Blaber et al. (1981), Blaber & Whitfield (1977a), Blaber & Whitfield (1977b), Bok (1984a), Bok (1984b), Bok (1989), Bok & Jongbloed (1987), Bolt & Heeg (1975), Branch & Pringle (1987), Breen et al. (1976), Broekhuysen (1955), Bruton (1993), Buxton & Kok (1983), Cambray & Bok (1989), Cerff (1986), Champion (1988), Christie (1981), Christie & Moldan (1977), Cockcroft & du Preez (1989), Cockcroft & Tomalin (1987), Cockcroft (1978), Cockcroft & Forbes (1981b), Cockcroft & Forbes (1981c), Coetzee (1986), Coetzee (1988), Coetzee (1989), Connell & Airey (1979), Connell & Robertson (1986), Cooper et al. (1992), Cyrus (1980), Cyrus (1984), Cyrus & Blaber (1982a), Cyrus & Blaber (1982b), Cyrus & Blaber (1983b), Cyrus & Blaber (1984a), Cyrus & Blaber (1987a), Cyrus & Blaber (1987c), Cyrus & Martin (1988), Cyrus et al. (1993), Day (1958), de Freitas (1986), de Villiers & Allanson (1988), de Villiers & Allanson (1989), de Villiers & Hodgson (1993), de Villiers et al. (1989), du Preez (1987), du Preez & Cockcroft (1988a), du Preez & Cockcroft (1988b), du Preez et al. (1986a), du Preez et al. (1986b), Edgcumbe (1980), Emmerson (1985b), Emmerson (1985c), Emmerson & Alexander (1986), Farrant (1986), Farrant et al. (1987), Fearnhead & Fabian (1971), Fielding et al. (1988), Forbes (1973), Forbes (1974), Forbes (1977), Forbes (1978), Forbes & Benfield (1985), Forbes & Hill (1966), Fowles & Archibald (1987), Grindley (1964), Grindley (1972), Grindley (1977), Guillet & Furness (1985), Gundry (1985), Haigh & Whitfield (1993), Hanekom & Baird (1987), Harris et al. (1988), Harrison et al. (1986), Hart (1981), Hecht & van der Lingen (1992), Henry et al. (1977), Hill (1971), Hill (1974), Hill (1975b), Hill (1976), Hill (1977), Hill (1978), Hill (1979a), Hill (1980), Hill (1981a), Hill & Allanson (1971), Hill & Koopowitz (1975), Hilmer & Bate (1983), Hodgson & de Villiers (1986), Hodgson et al. (1987), Hughes (1970), Jerling & Wooldridge (1989), Lambert et al. (1987), Lambert et al. (1989), Lasiak (1981), Lasiak (1983a), Lasiak (1983b), Lasiak (1984), Lucas & Newell (1984), Lucas et al. (1987), Malan (1986), Malan et al. (1988), Mann & Steinke (1988), Marais (1978), Marais (1980), Marais (1982), Marais (1984), Marais (1988), Marais (1990), Marais & Venter (1991), Martin (1983), Martin (1988), Martin (1989), Martin (1990), Martin & Blaber (1983), Martin & Blaber (1984), Martin & Heemstra (1988), Masson (1975), McLachlan (1974), McLachlan & Erasmus (1974), Mehl (1973), Melville-Smith et al. (1981), Naidoo (1983), Naidoo (1985), Naidoo (1986), Naidoo (1987), Naidoo (1988), Naidoo (1990), Naidoo & Mundree (1993), Naidoo & Naidoo (1981), Naidoo & Naidoo (1992), Naidoo & Naicker (1992), Naidoo & Rughunanan (1992), Naidoo et al. (1991), Naidoo et al. (1992), Neira et al. (1988), Palmer (1980b), Pereyra Lago (1987), Pereyra Lago (1988), Pereyra Lago (1989), Pereyra Lago (1993b), Pierce (1982), Pooley (1975), Puttick (1977), Puttick (1980), Read (1983b), Read (1984), Read (1986), Read & Whitfield (1989), Reavell & Cyrus (1989), Roberts (1992), Robertson (1981), Robertson (1987), Robertson (1989), Robertson & Kruger (1994), Romer (1990), Romer & McLachlan (1986), Ryan et al. (1986), Ryan et al. (1988), Schleyer

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(c) SYNTHESSES/REVIEWS: Adams (1992), Allanson (1981), Allanson (1982), Allanson (1992), Badenhorst (1986), Baird et al. (1985), Begg (1978), Begg (1984a), Begg (1986b), Berjak et al. (1977), Blaber (1980a), Blaber (1981b), Blaber (1987), Blaber (1991), Bok (1980), Bok (1988), Branch & Branch (1981), Branch et al. (1994), Bruton (1985), Bruton et al. (1987), Cloete (1992), Cooper & Summers (1976), Council for the Environment (1989), Council for the Environment (1991), Cyrus (1991c), Cyrus & Martin (1991), Davies & Day (1986), Day (1951), Day (1952), Day (1964), Day (1974), Day (1980), Day (1981a), Day (1981f), Day (1981g), Day (1981h), Day et al. (1981), Day & Grindley (1981a), Day & Grindley (1981b), Donnelly et al. (1984), Dye & Furstenberg (1981), Emmerson (1988), Forbes & Cyrus (1993), Giffen (1963), Grindley (1974), Grindley (1980), Grindley (1981), Grindley & Heydorn (1979), Grindley & von Schirnding (1983), Heineken et al. (1983), Heydorn (1972a), Heydorn (1972b), Heydorn (1973), Heydorn (1976), Heydorn (1979), Heydorn (1981a), Heydorn (1981b), Heydorn (1982), Heydorn (1986), Heydorn & Tinley (1980), Hill (1981b), Hilmer (1991), Hilmer (1992), Howard-Williams (1980), Jackson et al. (1984), Jezewski & Roberts (1986), Lubke (1985), Lubke (1988), Lubke & van Wijk (1988), Macnae (1956), Macnae (1963), Marais (1985), Marais & Winter (1988), Moll et al. (1971), Moll & Werger (1978), Morant (1981), Morant (1983), Morant (1991), O'Callaghan (1990a), O'Callaghan (1990b), Perry (1989), Potter et al. (1990), Ramm (1988), Ramm (1990), Reddering (1980), SANCOR (1983), SANCOR (1984), SANCOR (1985), SANCOR (1988), Schleyer (1986b), Siegfried (1978), Siegfried (1981), Smith & Heemstra (1990), Sowman (1990b), Sowman & Glazewski (1987), Taylor & Cunningham (1983), van der Elst (1988), Wallace (1977), Wallace et al. (1984b), Ward & Steinke (1982), Whitfield (1980e), Whitfield (1983), Whitfield (1988d), Whitfield (1989g), Whitfield (1990a), Whitfield (1990b), Whitfield (1990c), Whitfield (1991), Whitfield (1992b), Whitfield (1993c), Whitfield (1994c), Whitfield (1994d), Whitfield (1994e), Whitfield & Bruton (1989), Whitfield & Swart (1990), Whitfield & Wooldridge (1994), Wooldridge (1975)

(d) REPORTS/DOCUMENTS: Allanson (1980), Adams (1994), Beckley (1985b), Begg (1980c), Begg (1984c), Begg (1985), Blaber (1980b), Blaber (1982b), Blaber (1983), Brownlie (1988), Chmelik et al. (1975), Cooper et al. (1992), Cooper (1968), Council for Scientific and Industrial Research (1984-1986), Coward (1981), Crowther (1988b), de Freitas (1980), de Kock (1985), Department of Constitutional Development & Planning (1983), Department of Planning (1971), Donnelly (1981), Duvenhage (1983), Environmental Advisory Services (1991b), Gaigher (1985), Grindley & Cooper (1979), Hamman & Gaigher (1979), Grindley (1973), Hemens & Warwick (1972), Heydorn (1977), Moes (1979), Noble & Hemens (1978), Perry (1981-1988), Ramm et al. (1986), Reddering (1985), Robinson & de Graaff (1994), Rodriguez (1993), Rowlands (1983), Shackleton (1993), Underhill & Cooper (1982-1984), Underhill et al. (1980), Wallace et al. (1983), Watling (1982), Watling et al. (1982), Whitfield (1992c), Whitfield (1992d), Whitfield (1994f), Zwamborn (1980)

SUMMARY INDEX OF SOUTH AFRICAN ESTUARIES

| Estuary | Code | Page | Classification | Information |
|---------------|--------|------|--------------------------|-------------|
| Berg (Groot) | CW 15 | 2 | Permanently open estuary | Moderate |
| Bilanzhlolo | NS 12 | 96 | Temporarily open/closed | Poor |
| Bira | CSE 20 | 42 | Temporarily open/closed | Nil |
| Blind | CSE 42 | 52 | Temporarily open/closed | Poor |
| Blinde | CSW 26 | 16 | Temporarily open/closed | Nil |
| Bloukrans | CMS 26 | 25 | River mouth | Nil |
| Boboyi | NS 18 | 99 | Temporarily open/closed | Poor |
| Boknes | CSE 6 | 35 | Temporarily open/closed | Poor |
| Bokramspruit | CW 29 | 4 | Temporarily open/closed | Poor |
| Bot/Kleinmond | CSW 13 | 10 | Estuarine lake | Excellent |
| Breë | CSW 22 | 14 | Permanently open estuary | Moderate |
| Buffalo | CSE 41 | 51 | Permanently open estuary | Poor |
| Buffels (Oos) | CSW 11 | 9 | Temporarily open/closed | Moderate |
| Bululo | TS 61 | 80 | Temporarily open/closed | Poor |
| Bulungulu | TS 34 | 71 | Temporarily open/closed | Nil |
| Bulura | CSE 48 | 55 | Temporarily open/closed | Nil |
| Bushmans | CSE 7 | 35 | Permanently open estuary | Moderate |
| Cebe | TS 9 | 64 | Temporarily open/closed | Nil |
| Cefane | CSE 51 | 56 | Temporarily open/closed | Nil |
| Cintsa | CSE 50 | 56 | Temporarily open/closed | Nil |
| Cunge | CSE 49 | 55 | Temporarily open/closed | Nil |
| Cwili | CSE 58 | 60 | Temporarily open/closed | Nil |
| Damba | NS 23 | 102 | Temporarily open/closed | Moderate |
| Duiwenhoks | CSW 23 | 14 | Permanently open estuary | Moderate |
| Durban Bay | NS 53 | 115 | Estuarine bay | Good |
| Eerste | CSW 6 | 7 | Temporarily open/closed | Moderate |
| Elands | CMS 36 | 27 | River mouth | Poor |
| Elandsbos | CMS 29 | 26 | River mouth | Nil |
| Fafa | NS 34 | 107 | Temporarily open/closed | Moderate |
| Gamtoos | CMS 48 | 31 | Permanently open estuary | Good |
| Goda | CSE 36 | 49 | Temporarily open/closed | Nil |
| Goukamma | CMS 12 | 22 | Temporarily open/closed | Nil |
| Gourits | CSW 25 | 15 | Permanently open estuary | Moderate |
| Gqunube | CSE 46 | 54 | Temporarily open/closed | Poor |
| Gqunqe | TS 10 | 64 | Temporarily open/closed | Nil |
| Gqutywa | CSE 21 | 42 | Temporarily open/closed | Nil |
| Great Fish | CSE 15 | 39 | Permanently open estuary | Good |
| Great Kei | CSE 59 | 60 | Permanently open estuary | Moderate |
| Groot (Oos) | CMS 37 | 28 | River mouth | Poor |
| Groot (Wes) | CMS 23 | 25 | Temporarily open/closed | Moderate |
| Groot Brak | CMS 3 | 17 | Temporarily open/closed | Good |
| Gwaing | CMS 6 | 18 | Temporarily open/closed | Nil |
| Gxara | TS 1 | 61 | Temporarily open/closed | Nil |
| Gxulu | CSE 35 | 48 | Temporarily open/closed | Nil |
| Haga-Haga | CSE 54 | 58 | Temporarily open/closed | Poor |
| Hartenbos | CMS 1 | 16 | Temporarily open/closed | Moderate |
| Heuningnes | CSW 19 | 13 | Permanently open estuary | Moderate |
| Hickmans | CSE 38 | 50 | Temporarily open/closed | Nil |

| Estuary | Code | Page | Classification | Information |
|-------------------|--------|------|--------------------------|-------------|
| Hlaze | CSE 43 | 52 | Temporarily open/closed | Poor |
| Hlozi | CSE 37 | 49 | Temporarily open/closed | Nil |
| Hluleka | TS 50 | 77 | Temporarily open/closed | Nil |
| Houtbaai | CW 27 | 3 | Temporarily open/closed | Moderate |
| Intshambili | NS 25 | 103 | Temporarily open/closed | Moderate |
| Jujura | TS 15 | 66 | Temporarily open/closed | Nil |
| Kaaimans | CMS 9 | 19 | Permanently open estuary | Poor |
| Kaba | NS 9 | 95 | Temporarily open/closed | Poor |
| Kabeljous | CMS 47 | 30 | Temporarily open/closed | Moderate |
| Kafferkuils | CSW 24 | 15 | Permanently open estuary | Moderate |
| Kandandhlovu | NS 6 | 93 | Temporarily open/closed | Poor |
| Kariega | CSE 8 | 36 | Permanently open estuary | Good |
| Kasuka | CSE 9 | 36 | Temporarily open/closed | Poor |
| Keiskamma | CSE 26 | 44 | Permanently open estuary | Poor |
| Keurbooms | CMS 19 | 23 | Permanently open estuary | Good |
| Kiwane | CSE 28 | 45 | Temporarily open/closed | Nil |
| Klein | CSW 16 | 11 | Estuarine lake | Good |
| Klein Brak | CMS 2 | 17 | Temporarily open/closed | Poor |
| Kleinemonnd (Oos) | CSE 14 | 39 | Temporarily open/closed | Poor |
| Kleinemonnd (Wes) | CSE 13 | 38 | Temporarily open/closed | Moderate |
| Klipdrif | CMS 43 | 29 | Temporarily open/closed | Nil |
| Klipdrifsfontein | CSW 20 | 13 | Temporarily open/closed | Nil |
| Knysna | CMS 13 | 21 | Estuarine bay | Excellent |
| Kobonqaba | TS 7 | 63 | Permanently open estuary | Nil |
| Koega | CSE 4 | 34 | Temporarily open/closed | Poor |
| Kongweni | NS 14 | 97 | Temporarily open/closed | Poor |
| Koshwana | NS 24 | 102 | Temporarily open/closed | Poor |
| Kosi | NN 21 | 127 | Estuarine lake | Excellent |
| Kowie | CSE 10 | 37 | Permanently open estuary | Good |
| Krom (Oos) | CMS 45 | 29 | Permanently open estuary | Excellent |
| Krom (Wes) | CW 31 | 5 | Temporarily open/closed | Poor |
| Ku-Amanzimuzama | TS 35 | 72 | Temporarily open/closed | Nil |
| Ku-Boboyi | NS 4 | 92 | Temporarily open/closed | Poor |
| Kwa-Makosi | NS 30 | 105 | Temporarily open/closed | Poor |
| Kwanyana | TN 35 | 88 | Temporarily open/closed | Nil |
| Kwelera | CSE 47 | 54 | Temporarily open/closed | Poor |
| Kwenxura | CSE 52 | 57 | Temporarily open/closed | Nil |
| Lottering | CMS 28 | 26 | River mouth | Nil |
| Lilyvale | CSE 31 | 46 | Temporarily open/closed | Nil |
| Little Manzimtoti | NS 48 | 114 | Temporarily open/closed | Poor |
| Lourens | CSW 7 | 7 | Temporarily open/closed | Moderate |
| Lovu | NS 47 | 114 | Temporarily open/closed | Poor |
| Lupatana | TN 21 | 85 | Temporarily open/closed | Nil |
| Lwandilana | TS 47 | 75 | Temporarily open/closed | Nil |
| Lwandile | TS 48 | 76 | Temporarily open/closed | Nil |
| Maalgate | CMS 5 | 18 | Temporarily open/closed | Nil |
| Mahlongwa | NS 41 | 111 | Temporarily open/closed | Poor |
| Mahlongwana | NS 42 | 111 | Temporarily open/closed | Poor |
| Maitland | CMS 50 | 32 | Temporarily open/closed | Nil |
| Manzimtoti | NS 49 | 115 | Temporarily open/closed | Moderate |
| Mapuzi | TS 44 | 74 | Temporarily open/closed | Nil |

| Estuary | Code | Page | Classification | Information |
|----------------|----------|------|--------------------------|-------------|
| Matigulu/Nyoni | NN 12/13 | 122 | Permanently open estuary | Poor |
| Matjies | CMS 20 | 24 | Temporarily open/closed | Nil |
| Mbango | NS 19 | 100 | Temporarily open/closed | Poor |
| Mbashe | TS 25 | 69 | Permanently open estuary | Moderate |
| Mbhanyana | TS 27 | 69 | Temporarily open/closed | Poor |
| Mbizana | NS 10 | 95 | Temporarily open/closed | Poor |
| Mbokodweni | NS 50 | 115 | Temporarily open/closed | Moderate |
| Mbotyi | TN 14 | 84 | Temporarily open/closed | Poor |
| Mcantsi | CSE 34 | 48 | Temporarily open/closed | Nil |
| Mdesingane | NS 35 | 108 | Temporarily open/closed | Poor |
| Mdlotane | NN 8 | 120 | Temporarily open/closed | Poor |
| Mdloti | NN 3 | 118 | Temporarily open/closed | Moderate |
| Mdumbi | TS 46 | 75 | Permanently open estuary | Nil |
| Mendu | TS 23 | 68 | Temporarily open/closed | Nil |
| Mfazazana | NS 29 | 105 | Temporarily open/closed | Poor |
| Mfolozi | NN 18 | 125 | River mouth | Poor |
| Mgeni | NN 1 | 117 | Temporarily open/closed | Good |
| Mgobezeleni | NN 20 | 127 | Estuarine lake | Moderate |
| Mgwalana | CSE 19 | 41 | Temporarily open/closed | Nil |
| Mhlabatshane | NS 27 | 104 | Temporarily open/closed | Poor |
| Mhlali | NN 5 | 119 | Temporarily open/closed | Poor |
| Mhlanga | NN 2 | 116 | Temporarily open/closed | Good |
| Mhlangamkulu | NS 22 | 101 | Temporarily open/closed | Poor |
| Mhlangeni | NS 16 | 98 | Temporarily open/closed | Poor |
| Mhlungwa | NS 28 | 104 | Temporarily open/closed | Moderate |
| Mkomazi | NS 43 | 112 | Permanently open estuary | Moderate |
| Mkozi | TN 15 | 84 | Temporarily open/closed | Nil |
| Mkumbane | NS 37 | 109 | Temporarily open/closed | Poor |
| Mkweni | TN 22 | 86 | Temporarily open/closed | Nil |
| Mlalazi | NN 15 | 123 | Permanently open estuary | Moderate |
| Mlele | CSE 33 | 47 | Temporarily open/closed | Nil |
| Mnamfu | NS 31 | 106 | Temporarily open/closed | Poor |
| Mncwasa | TS 37 | 72 | Temporarily open/closed | Nil |
| Mnenu | TS 51 | 77 | Temporarily open/closed | Nil |
| Mngazana | TS 56 | 79 | Permanently open estuary | Good |
| Mngazi | TS 57 | 79 | Temporarily open/closed | Nil |
| Mntafufu | TN 6 | 82 | Permanently open estuary | Moderate |
| Mnyameni | TN 37 | 88 | Temporarily open/closed | Nil |
| Morgan | CSE 57 | 59 | Temporarily open/closed | Nil |
| Mpahlana | TN 39 | 89 | Temporarily open/closed | Nil |
| Mpahlanyana | TN 38 | 89 | Temporarily open/closed | Nil |
| Mpako | TS 40 | 73 | Temporarily open/closed | Nil |
| Mpambanyoni | NS 40 | 110 | Temporarily open/closed | Poor |
| Mpekweni | CSE 17 | 40 | Temporarily open/closed | Nil |
| Mpenjati | NS 7 | 94 | Temporarily open/closed | Poor |
| Msikaba | TN 27 | 86 | Permanently open estuary | Moderate |
| Msimbazi | NS 46 | 113 | Temporarily open/closed | Moderate |
| Mtakatye | TS 49 | 76 | Permanently open estuary | Nil |
| Mtambane | TS 62 | 80 | Temporarily open/closed | Poor |
| Mtamvuna | NS 1 | 91 | Temporarily open/closed | Moderate |
| Mtana | CSE 25 | 43 | Temporarily open/closed | Nil |

| Estuary | Code | Page | Classification | Information |
|-------------|--------|------|--------------------------|-------------|
| Mtata | TS 45 | 74 | Permanently open estuary | Moderate |
| Mtati | CSE 18 | 41 | Temporarily open/closed | Poor |
| Mtendwe | CSE 55 | 58 | Temporarily open/closed | Nil |
| Mtentu | TN 33 | 87 | Permanently open estuary | Poor |
| Mtentwana | TN 41 | 90 | Temporarily open/closed | Poor |
| Mtentweni | NS 21 | 101 | Temporarily open/closed | Moderate |
| Mtonga | TS 52 | 78 | Temporarily open/closed | Nil |
| Mtwalume | NS 32 | 106 | Temporarily open/closed | Moderate |
| Mvoti | NN 7 | 120 | River mouth | Poor |
| Mvubukazi | CSE 39 | 50 | Temporarily open/closed | Nil |
| Mvusi | NS 33 | 107 | Temporarily open/closed | Poor |
| Mvutshini | NS 11 | 96 | Temporarily open/closed | Poor |
| Myekane | TN 16 | 85 | Temporarily open/closed | Nil |
| Mzamba | TN 40 | 90 | Permanently open estuary | Moderate |
| Mzimayi | NS 39 | 110 | Temporarily open/closed | Poor |
| Mzimkulu | NS 20 | 100 | Permanently open estuary | Moderate |
| Mzimpunzi | TN 12 | 83 | Temporarily open/closed | Nil |
| Mzimvubu | TS 63 | 81 | River mouth | Poor |
| Mzintlava | TN 10 | 83 | Permanently open estuary | Nil |
| Mzinto | NS 38 | 109 | Temporarily open/closed | Poor |
| Mzumbe | NS 26 | 103 | Temporarily open/closed | Poor |
| Nahoon | CSE 44 | 53 | Temporarily open/closed | Moderate |
| Ncera | CSE 32 | 47 | Temporarily open/closed | Nil |
| Ncizele | TS 4 | 62 | Temporarily open/closed | Nil |
| Nenga | TS 43 | 73 | Temporarily open/closed | Nil |
| Ngane | NS 44 | 112 | Temporarily open/closed | Poor |
| Ngculura | CSE 22 | 43 | Temporarily open/closed | Nil |
| Ngogwane | TS 2 | 61 | Temporarily open/closed | Nil |
| Ngoma | TS 22 | 68 | Temporarily open/closed | Poor |
| Ngqenga | CSE 40 | 51 | Temporarily open/closed | Nil |
| Ngqinisa | CSE 28 | 45 | Temporarily open/closed | Nil |
| Ngqwara | TS 11 | 65 | Temporarily open/closed | Nil |
| Nhlabane | NN 17 | 125 | Estuarine lake | Poor |
| Nkanya | TS 31 | 70 | Temporarily open/closed | Nil |
| Nkodusweni | TN 4 | 82 | Temporarily open/closed | Nil |
| Noetsie | CMS 14 | 22 | Temporarily open/closed | Nil |
| Nonoti | NN 9 | 121 | Temporarily open/closed | Poor |
| Nqabara | TS 20 | 67 | Permanently open estuary | Poor |
| Ntlonyane | TS 30 | 70 | Temporarily open/closed | Nil |
| Ntlupeni | TN 2 | 81 | Temporarily open/closed | Nil |
| Nxaxo | TS 8 | 63 | Permanently open estuary | Nil |
| Nyara | CSE 53 | 57 | Temporarily open/closed | Nil |
| Old Woman's | CSE 16 | 40 | Temporarily open/closed | Nil |
| Olifants | CW 10 | 1 | Permanently open estuary | Moderate |
| Onrus | CSW 14 | 11 | Temporarily open/closed | Moderate |
| Orange | CW 1 | 1 | River mouth | Good |
| Palmiet | CSW 12 | 10 | Permanently open estuary | Good |
| Papkuils | CSE 2 | 32 | Canalized estuary | Poor |
| Piesang | CMS 18 | 23 | Temporarily open/closed | Moderate |
| Qinira | CSE 45 | 53 | Temporarily open/closed | Poor |
| Qolora | TS 3 | 62 | Temporarily open/closed | Nil |

| Estuary | Code | Page | Classification | Information |
|-------------------------|----------|------|--------------------------|-------------|
| Qora | TS 14 | 66 | Permanently open estuary | Nil |
| Quko | CSE 56 | 59 | Temporarily open/closed | Poor |
| Ratel | CSW 18 | 12 | Temporarily open/closed | Nil |
| Richard's Bay | NN 16b | 124 | Estuarine bay | Good |
| Richard's Bay Sanctuary | NN 16a | 124 | Permanently open estuary | Moderate |
| Riet | CSE 12 | 38 | Temporarily open/closed | Nil |
| Rietvlei/Diep | CW 24/25 | 2 | Temporarily open/closed | Good |
| Rooiels | CSW 10 | 9 | Temporarily open/closed | Moderate |
| Rufane | CSE 11 | 37 | Temporarily open/closed | Nil |
| Sand | CSW 4 | 6 | Temporarily open/closed | Good |
| Sandlundlu | NS 3 | 92 | Temporarily open/closed | Poor |
| Schuster | CW 30 | 5 | Temporarily open/closed | Poor |
| Seekoei | CMS 46 | 30 | Temporarily open/closed | Good |
| Seteni | NN 6 | 119 | Temporarily open/closed | Poor |
| Sezela | NS 36 | 108 | Temporarily open/closed | Moderate |
| Shixini | TS 17 | 67 | Permanently open estuary | Nil |
| Shwele-Shwele | CSE 27 | 44 | Temporarily open/closed | Nil |
| Sihlontweni | TS 12 | 65 | Temporarily open/closed | Nil |
| Sikombe | TN 34 | 87 | Temporarily open/closed | Nil |
| Silwermyr | CSW 3 | 6 | Temporarily open/closed | Moderate |
| Sinangwana | TS 54 | 78 | Temporarily open/closed | Nil |
| Sipingo | NS 51 | 116 | Modified open estuary | Moderate |
| Sir Lowry's Pass | CSW 8 | 8 | Temporarily open/closed | Moderate |
| Siyaya | NN 14 | 123 | Temporarily open/closed | Poor |
| Sout (Oos) | CMS 22 | 24 | Permanently open estuary | Moderate |
| Sout (Wes) | CW 26 | 3 | Canalized estuary | Poor |
| St Lucia | NN 19 | 126 | Estuarine lake | Excellent |
| Steenbras | CSW 9 | 8 | Permanently open estuary | Moderate |
| Storms | CMS 32 | 27 | River mouth | Nil |
| Sundays | CSE 5 | 34 | Permanently open estuary | Excellent |
| Swartkops | CSE 3 | 33 | Permanently open estuary | Excellent |
| Swartvlei | CMS 11 | 20 | Estuarine lake | Excellent |
| Tongati | NN 4 | 118 | Temporarily open/closed | Moderate |
| Tongazi | NS 5 | 93 | Temporarily open/closed | Poor |
| Tsitsikamma | CMS 42 | 28 | Temporarily open/closed | Poor |
| Tugela | NN 11 | 122 | River mouth | Poor |
| Tyolomnqa | CSE 30 | 46 | Temporarily open/closed | Nil |
| Uilkraals | CSW 17 | 12 | Temporarily open/closed | Moderate |
| Umgababa | NS 45 | 113 | Temporarily open/closed | Moderate |
| Umhlankankulu | NS 8 | 94 | Temporarily open/closed | Moderate |
| Uvuzana | NS 13 | 97 | Temporarily open/closed | Poor |
| van Stadens | CMS 49 | 31 | Temporarily open/closed | Nil |
| Vungu | NS 15 | 98 | Temporarily open/closed | Moderate |
| Wilderness | CMS 10 | 19 | Estuarine lake | Excellent |
| Wildevöel | CW 28 | 4 | Temporarily open/closed | Poor |
| Xora | TS 33 | 71 | Permanently open estuary | Nil |
| Zinkwasi | NN 10 | 121 | Temporarily open/closed | Poor |
| Zolwane | NS 2 | 91 | Temporarily open/closed | Poor |
| Zotsha | NS 17 | 99 | Temporarily open/closed | Moderate |

AERIAL PHOTOGRAPHS OF SOUTH AFRICAN ESTUARIES

- Air Survey of Africa, Durban:** Vertical photographs of selected KwaZulu-Natal estuaries.
- Bate, G. Prof., University of Port Elizabeth:** Vertical and oblique photographs of selected South African estuaries, with particular emphasis on Eastern Cape systems.
- Biology Department, University of Natal, Durban:** Aerial photographs of selected KwaZulu-Natal estuaries.
- Cambray, J. Dr, Albany Museum, Grahamstown:** Oblique photographs of selected Eastern Cape estuaries.
- Cape Nature Conservation, Cape Town:** Oblique photographs of selected Eastern and Western Cape estuaries.
- Department of Environment Affairs, Cape Town:** Vertical photographs of South African estuaries.
- Department of Survey & Mapping, Cape Town:** Vertical photographs of South African estuaries.
- Department of Survey & Mapping, University of Natal, Durban:** Vertical photographs of South African estuaries, with particular emphasis on KwaZulu-Natal systems.
- Department of Transport, Pretoria:** Vertical photographs of selected South African estuaries.
- Dye, A. Prof., University of Transkei:** Vertical photographs of Eastern Cape (Transkei) estuaries.
- Environmental Advisory Services, Overport, Durban:** Oblique photographs of selected estuaries on the Eastern Cape (Pondoland) and KwaZulu-Natal coast.
- Estuarine and Coastal Research Unit, CSIR, Stellenbosch:** Vertical and oblique photographs of southern African estuaries, with particular emphasis on Eastern and Western Cape systems.
- Illenberger, W. Dr, University of Port Elizabeth:** Vertical and oblique photographs of selected Eastern Cape estuaries.
- Oceanographic Research Institute, Durban:** Oblique photographs of selected KwaZulu-Natal estuaries.
- Taylor, R. Mr, Natal Parks Board, Durban:** Vertical and oblique photographs of KwaZulu-Natal estuaries.
- Trig. Survey, Mowbray:** Vertical photographs of all South African estuaries.
- Ward, R. Mr, Durban:** Vertical and oblique photographs of selected KwaZulu-Natal estuaries.
- Whitfield, A. Dr, J.L.B. Smith Institute of Ichthyology, Grahamstown:** Vertical and oblique photographs of selected Eastern and Western Cape estuaries.
- Wooldridge, T. Prof., University of Port Elizabeth:** Vertical and oblique photographs of selected South African estuaries

CURRENT SOUTH AFRICAN ESTUARINE STUDY SITES

| Scientific leader | Affiliation | Estuarine systems |
|---|---|---|
| Professor Brian Allanson Professor Dan Baird Dr Rod Bally | Allanson & Associates University of Port Elizabeth University of Fort Hare | Knysna Swartkops, Krom (Oos) Keiskamma, Mpekweni, Old Woman's, Bira |
| Professor Guy Bate | University of Port Elizabeth | Sundays, Gamtoos, Krom, Swartkops, Groot Brak, Gouritz, Kafferkuils, Keurbooms, Berg, Palmiet |
| Professor Digby Cyrus | University of Zululand | St Lucia, Nhlabane, Richard's Bay, Mlalazi, Siyaya, Durban Bay |
| Dr Casper de Villiers Professor Ticky Forbes Mr Trevor Harrison Mr Piet Huizinga | University of the Western Cape University of Durban CCEP, CSIR EMATEK, CSIR | Berg, Diep St Lucia, Richard's Bay, Durban Bay Palmiet to Sout (Oos) Berg, Groot Brak, Tsitisikamma, Krom, Mgeni, Mfolosi, Little Amanzimtoti, St Lucia, Swartkops, Krom, Keurbooms, Knysna, Swartvlei, Wilderness, Hartenbos, Bot, Heuningnes, Klein, Palmiet, Diep, Berg, Olifants, Orange |
| Dr Scotty Kyle Professor Hannes Marais | KBNR University of Port Elizabeth | Kosi Swartkops, van Stadens, Kabeljous, Seekoei, Krom |
| Mr Emile Plumstead Mr Gavin Quibell Mr Ian Russell Ms Jill Slinger | University of Transkei Department of Water Affairs National Parks Board EMATEK, CSIR | Mntafufu St Lucia Wilderness, Swartvlei Berg, Palmiet, Groot Brak, Olifants, Krom, Mgeni |
| Dr Eckart Schumann Professor Trevor Steinke | University of Port Elizabeth University of Durban Westville | Gamtoos, Swartkops Kosi, St Lucia, Mgeni, Durban Bay, Mbashe, Nxaxo, Nahoon |
| Mr Ricky Taylor Dr Alan Whitfield | Natal Parks Board J.L.B. Smith Institute | St Lucia Great Fish, East Kleinemonnd, Kariega, Sundays, Keurbooms |
| Professor Tris Wooldridge | University of Port Elizabeth | Sundays, Gamtoos, Krom, Groot Brak |

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MEMO

TO : DS van der Merwe

FROM : SA Mitchell

SUBJECT : Publication of an Estuarine Bibliography recommended by the Steering Committee for the project "Decision support for the integrated management and conservation of estuaries" (K5/577)

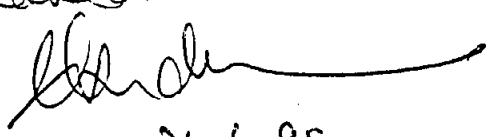
DATE : 25 May 1995

As a part of this project, Dr A Whitfield has compiled an extensive bibliography on South African Estuaries and estuarine literature. The Steering Committee thought that the best way to make this available would be for it to be published in bound form. They requested that the WRC consider publishing this as a separate document before the project is finalised.

I have seen the bibliography, and it contains a lot of useful information not only on literature but on the estuaries themselves. I recommend that his request be granted.

DETAILS

- 204 pages
- to be published in the green and white WRC cover
- 250 copies
- Estimated cost (from Mrs T vd Schyff) R4300.00

Approved.

21. 6. 95