

THE PARLIAMENT OF THE
COMMONWEALTH OF AUSTRALIA

RELOCATION OF NAVAL FACILITIES
TO JERVIS BAY

Report of the House of Representatives
Standing Committee on Environment and Conservation

September 1986

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Terms of Reference of the Committee

That a Standing Committee be appointed to inquire into and report on:

- (a) environmental aspects of legislative and administrative measures which ought to be taken in order to ensure the wise and effective management of the Australian environment and of Australia's natural resources; and
- (b) such other matters relating to the environment and conservation and the management of Australia's natural resources as are referred to it by -
 - (i) the Minister responsible for those matters; or
 - (ii) resolution of the House.

Members of the Committee

Chairman	Mr P. Milton, MP
Deputy Chairman	Mr A.P. Webster, MP
Members	Mr R.L. Chynoweth, MP Mr R.F. Edwards, MP Mr P.S. Fisher, MP Mr G. Gear, MP Ms J. McHugh, MP Mr C.G. Miles, MP
Secretary to the Committee	Mr J.R. Cummins
Research Staff	Mr I.A. Dundas Mr R.I. Kropp

WITNESSES: _____

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RECOMMENDATIONS

The Committee recommends that:

the proposed Environmental Impact Study for naval development at Jervis Bay should be undertaken only when a comprehensive planning study and public review of naval facility requirements and alternative sites demonstrates that relocation to Jervis Bay is necessary; and

the proposed development at Jervis Bay be considered and planned in the context of the overall proposal for Fleet facilities and bases around Australia.

(paragraph 67)

1. INTRODUCTION

1. The Minister for Defence announced on 3 October 1985 that the New South Wales Government would be approached to co-operate in a study of a proposal to relocate some naval fleet facilities from Sydney. The proposal did not include the removal of the Garden Island Dockyard.

2. As a consequence of the small areas of the foreshores of Sydney Harbour available to the Navy and the imposition of constraints by the future growth of Sydney it was proposed that the bases for the Fleet at Garden Island, submarines at HMAS Platypus (Neutral Bay) and mine countermeasures vessels and patrol boats at HMAS Waterhen (Waverton) be re-established at Jervis Bay.

3. On 17 November 1985 the Prime Minister and the Premier of New South Wales announced that the Armament Depot at Newington, covering 260 hectares, would be moved to the Jervis Bay area. The present site would be redeveloped under arrangements jointly agreed by both Governments. Possible uses included a riverfront park and residential and commercial development. At present it is used for storing gun and small arms ammunition and as a staging point for other munitions being moved to and from ships in Sydney Harbour.

4. The Prime Minister stated that the Federal Government had decided that the depot must be moved because of the increasing environmental and safety problems associated with it such as civilian development in the surrounding areas and increased traffic on the roads and harbour. The new depot was estimated to cost more than \$100 million and should be operational by 1992. The Prime Minister confirmed that the Government was considering the relocation of other naval bases away from Sydney.

5. On 24 October 1974 the Committee in the 29th Parliament resolved to inquire into development pressures on the Jervis Bay area and reported on 14 October 1975. The Committee found that although Jervis Bay has the potential for development as a deep water port, its use for such purposes could not be justified in the light of the development potential of the existing major ports in New South Wales and the environmental degradation which would result in the Bay.

6. The Committee also found that the Jervis Bay area's primary value as a national resource lies in its development potential for recreation and scientific reference purposes and large-scale expansion of naval facilities at Jervis Bay would not be compatible with this objective.

7. The Committee recommended that any proposal to develop naval facilities at Jervis Bay be subjected to an environmental impact study in accordance with the terms of the Environment Protection (Impact of Proposals) Act 1974-1975 and if it could be demonstrated that a more suitable alternative site for such development exists the Australian Government should not agree to the proposal.

8. A further recommendation was that a long-term comprehensive Jervis Bay Area Management plan be developed and implemented in consultation with the Government of New South Wales and the Shoalhaven Shire Council.

9. The present Committee agreed to carry out preliminary inquiries and on 16 October 1985 wrote to both the Minister for Defence and the Minister for Territories in relation to the Committee's 1975 report and the 1985 proposals.

10. The Committee was briefed by the Department of Defence on 29 May 1986 and inspections were conducted by the Committee on 10 - 12 June 1986 at Jervis Bay, Sydney and HMAS Stirling on Cockburn Sound. Discussions were held with Defence personnel at all the establishments visited, with officers of the Department of Territories, representatives of the Jerringa Aboriginals, the Jervis Bay Protection Committee and the Shoalhaven City Council at Jervis Bay and with representatives of local government, Government departments and local interest groups at HMAS Stirling.

2. JERVIS BAY

Natural Features

11. Jervis Bay is located in the northern area of the City of Shoalhaven, approximately 200 kilometres from Sydney and is a natural bay of 15 kilometres by 8 kilometres with a 3 kilometre wide entrance between the Beecroft and Bherwerre Peninsulas. Nowra is 20 kilometres north west.

12. The Bay is a major recreation and tourism area and contains significant nature conservation areas and Aboriginal sites. It is a high quality marine environment of considerable conservation value and scientific interest and is of great scenic beauty with white sandy beaches, very clear water, rocky headlands, diverse undisturbed plant life, varied animal and marine life and extensive seagrass beds.

13. Two thirds or 4500 hectares of the Jervis Bay Territory has been established as a Nature Reserve with the aim of protecting the flora and fauna, landscapes and significant sites and of providing recreational, educational and scientific uses. The calmness of the waters and the undisturbed natural bush areas attract large numbers of visitors to enjoy the recreational and leisure activities available in the area.

Development

14. Jervis Bay is relatively free of development with villages and the naval facilities at HMAS Creswell being the only major intrusions into the natural environment. Campsites and picnic areas have been developed for the benefit of visitors to the area but are not of significant size to create any major degradation.

15. Development of a steel works and associated industries, a nuclear power station, an oil refinery and other industrial facilities have been proposed on various occasions however for a variety of reasons, mainly economic, none of the projects proceeded.

16. A resolution by the Shoalhaven City Council in 1976 stated that industrialisation of the Bay would not be sought by the Council as it was believed the Bay would best be used as a recreational resource.

17. Naval facilities presently in the Jervis Bay region are the Naval Air Station at Nowra (HMAS Albatross), which provides base facilities for disembarked aircraft of the Fleet Air Arm, principally the helicopter squadrons and flights, the Naval College (HMAS Creswell), which provides a wide range of initial training for officers, the Bombardment Range on Beecroft Peninsula, other small ranges and target facilities.

18. In response to the Committee's letter of 16 October 1985 the Minister for Defence stated that the recommendation from the Committee's 1975 report that a Jervis Bay Area Management Plan be developed has not yet been implemented nor would his Department be expected to take the lead in developing such a plan. He also said that Jervis Bay has consistently been found to have major advantages over any other possible location in the south east Australian area for the establishment of a Fleet Base. Commonwealth land ownership was seen as an advantage but was not a major consideration in this conclusion. He is very aware of the need for careful consideration of the impact of development proposals on the sensitive natural environment of the Bay and on the social and economic fabric of the local community.

19. The Minister for Territories replied to the Committee that in 1979 the Jervis Bay Nature Reserve Draft Development and Management Plan was released for public comment. Only minor amendments were required and the Plan was to be published in 1986.

20. The Minister for Territories commented that lack of development around Jervis Bay and the absence of large silt carrying streams are two important factors affecting the waters of the Bay. The waters are exceptionally clear, contain diverse and prolific marine life and are highly regarded by conservationists and amateur divers throughout Australia. The National Trust of New South Wales has identified the waters for special conservation measures. He mentioned that the particular impact of naval expansion on the status of Jervis Bay as a natural area is difficult to assess at this stage, in the absence of details of the nature, extent and location of the facilities. Although the upgrading of military facilities at Jervis Bay could have a significant impact, consideration of environmental protection is just one of many issues requiring resolution in the planning process.

21. The Department of Territories advised that Jervis Bay provides important coastal land forms, contains diverse and relatively undisturbed plant communities and supports an equally varied indigenous animal fauna. It also has outstanding resource value as a recreational facility.

3. NAVAL PROPOSALS

Current Facilities

22. The Garden Island Dockyard and Fleet Base area on Sydney Harbour has been used by the Navy since 1788 and is presently being modernised to improve performance. The Fleet Base is to be developed as a separate entity from the Dockyard to avoid mutual interference. HMAS Platypus, the operational headquarters and base for the Submarine Squadron, provides workshop facilities and stores support, as well as containing the Submarine School, in an area of only 1.2 hectares. HMAS Waterhen is the home base for the Patrol Boat force operating from Sydney and the Mine Countermeasures Vessels force, with the Clearance Diving Team and the Sydney Division of the RAN Reserve also based on the 3.75 hectares of land.

23. The Armament Depots at Newington and Spectacle Island are key elements in the ammunition pipeline for the Navy in Sydney. Newington is a major armament depot and is the point of transshipment for missiles and torpedoes stored at Kingswood.

24. HMAS Stirling at Cockburn Sound is the naval base in Western Australia and provides maintenance support to four destroyers and three submarines and assistance to visiting vessels. The Minister for Defence announced that it is to be developed as a major base for submarines.

Relocation Proposals

25. It is expected that the Armament Depot proposed for relocation to Jervis Bay will be for conventional weapons and would consist of a complex of approximately 10 hectares consisting of engineering, storage and administrative facilities. The area proposed is inland from Hare Bay in the Currumbene State Forest and approximately 1500 hectares would be required to cover safety distances.

26. The Wharf facility proposed for Green Point, would consist of the wharf and at least one large crane, permanent berthing or mooring for support craft, services and oil and liquid holding tanks. The project would require both dredging and the construction of a breakwater. Public access would be restricted by security fences around the Depot and the site in the vicinity of the Wharf.

27. A study was set up by the Minister for Defence to examine the possible re-establishment to Jervis Bay of the Fleet Base facilities at Garden Island and Woolloomooloo, the submarine base HMAS Platypus and the patrol boat and minewarfare base HMAS Waterhen.

28. The Fleet Base development is proposed to be located on the south eastern shore in an area bounded by Murray's Beach and Scottish Rocks. It would require a large breakwater to protect ships lying at "finger" wharves constructed at right angles to the shoreline.

29. The study was also to examine strategic, operational, cost and social environmental and other public implications of the relocation options, including implications for the Jervis Bay region, and potential offsets to relocation costs from the disposal of land.

30. The presentation of a report of the study to the Minister was expected in mid 1986. It is expected that the study will receive Government consideration after which a decision is expected as to whether relocation should be pursued further. If further investigations are required they would not be finalised until late 1988 and it would be unlikely that any significant move from Sydney to Jervis Bay would occur within 15-20 years.

31. The Minister for Defence stated that present planning provides for the Beecroft Bombardment Range to continue as an operational training requirement of the Army, Navy and Air Force well into the next century.

Environmental Impact Studies

32. The Minister for Arts, Heritage and Environment has directed that an environmental impact statement (EIS) be prepared on the proposal to relocate the Armament Depot.

33. The Department of Defence has held initial discussions with environmental authorities on the preparation of an EIS on the cumulative effects on the Jervis Bay region of the total relocation proposal and have also discussed a more detailed EIS on the specific implications of relocating the Armament Depot. It is expected that by the end of October 1986 the Department of Defence will have let a contract for the preparation of the statements.

34. The statements will take about two years to complete including a three month period of public review and a period for assessment by Commonwealth and State environmental authorities. Only when these assessments are complete will a Public Works Committee hearing be possible.

35. The areas to be studied will be substantially larger than the sites required for the facilities. The consultant will be required to map all environmental constraints within the areas and advise the relative importance of these constraints. The optimum locations of sites for the relocated facilities will be determined using this advice in conjunction with engineering, operational and cost studies conducted by the Commonwealth. The consultant will then be required to conduct very detailed environmental studies of these sites and to work closely with the Commonwealth in developing zone plans and master plans. The plans will show locations of facilities, roads and services within these sites while recognising environmental constraints. Environmentally sensitive areas will be avoided and protected wherever possible. The consultant will also be required to consult with residents of the region, naval personnel and Aboriginal communities and examine the economic impact and demographic changes involved.

36. The identification of possible harmful effects, such as foreshore damage and dredging of areas of seagrass, and the conducting of risk analyses of naval activities such as handling and storage of ammunition would also need to be carried out.

37. In 1979 a Garden Island Modernisation environmental impact statement was released and reference was made to Jervis Bay as an alternative site for the Fleet Base and other naval facilities. After an examination of 60 sites 3 locations were placed on the short list for the location of a Fleet Base in south east Australia. These were Port Jackson (Sydney Harbour), Jervis Bay and Western Port. Of these sites Port Jackson had distinct advantages in relation to water conditions, infrastructure and support from other naval establishments but was thought too small to accommodate all the facilities ideally required for an integrated Fleet Base. The EIS found it the most suitable location for a Fleet Base if there are no requirements for any major fleet expansion and berthing of nuclear powered warships.

38. Limited dredging and breakwater development would be required at Jervis Bay but it was considered the most suitable location for a Fleet Base with expansion potential and with nuclear powered warship berthing capability.

39. Most of the responses to the draft EIS objected to any plan to establish further facilities at Jervis Bay and criticised the EIS's inadequate consideration of the impact on the marine ecology, flora and fauna, aesthetic and visual beauty, land, pollution, recreation use, educational and scientific endeavour, tourism and commercial fishing. (See appendix 1 for possible impact on Jervis Bay).

Comments on Proposals

40. In March 1986 a report by Mr Paul Dibb entitled "Review of Australia's Defence Capabilities" made reference to the relocation proposal. The report found that while there are some

potential operational benefits for the Navy in the use of Jervis Bay the substantial expenditures and dislocation involved in an accelerated move out of Sydney Harbour would not be justified by any pressing strategic imperative.

41. The Review proposed that the main base for the submarine fleet should move to the west coast and that the mine warfare base should continue in Sydney Harbour. The Review also stated that while major surface fleet elements and the Fleet Headquarters are probably best relocated to Jervis Bay, other locations are appropriate for some naval elements.

42. In August 1986 the Department of Defence provided a draft discussion paper on the proposed relocation suggesting that subject to the completion of a modernisation program the Fleet Base in Port Jackson would be capable of adequately accommodating a fleet of the present size into the twenty-first century.

43. The Minister for Defence made it clear in the House of Representatives in February and March 1986 that the Government supports a two ocean navy strategy. The Committee understands from its discussions and inspections that if any elements of the Fleet were relocated to Western Australia it seems likely that the redeveloped fleet facility at Woolloomooloo would be adequate for that part of the Fleet left operating in eastern Australia; the relocation to Jervis Bay may therefore be unnecessary. The discussion paper stated that major expansion of the Fleet or the acquisition of nuclear-powered warships could make it necessary to develop a fleet base outside Port Jackson, but with present financial constraints and operational requirements Garden Island is the preferred and indeed the only feasible option.

44. Officers of the Department of Territories expressed concern at the proposal to locate the Fleet Base at Murray's Beach in the south east corner of the Bay. It was suggested that this area remain as it is because of the many and varied life forms, the types of flora and the archaeological sites in the region and the fact it is one of the main beaches in the area for family relaxation and recreation.

45. The Jerringa people produced to the Committee a map of the Beecroft Peninsula showing various sites which were either confirmed as, or thought to be, areas of significant Aboriginal heritage. These areas included archaeological sites, such as shell middens, burial grounds, caves and shelters, camp sites and meeting places or other sites of significance about which Dreamtime stories were passed down through the community over generations. The Jerringa people fear that any further development of the area will destroy the cultural heritage that has been part of their lives for centuries.

46. There also appeared to be some conflict between the Aboriginal people and the Navy on the matter of restricted access to sections of the Peninsula. The Aboriginals recognise the protection provided by the Navy but would like to have more freedom of movement over the areas which are significant to them, however the Navy has barriers in place, with limited times of entry to the public. The Navy believes that as well as providing a safety factor these measures are probably protecting the sites to a larger degree than would otherwise be the case.

47. A matter of particular concern to the Committee and residents of the area was the use, by the Navy and Air Force, of a natural rock formation as an aerial target. The formation, known as the Drum and Drumsticks, is a scenic feature located off the eastern side of the Beecroft Peninsula. The Committee referred these concerns to the Minister for Defence who replied that the continued use of the formation is being examined and its use as a target for bombing practice has been suspended.

48. The Jervis Bay Protection Committee and other conservation groups in the area are completely opposed to any development occurring in the Jervis Bay region. They point out that the area is of considerable scenic beauty, is exceptional for recreation pursuits and contains a complete family

environment in a natural atmosphere. They believe that this would be destroyed with any increase in development, not only because of the serious pollution threat posed as a result of the increase in traffic and persons the area would have to support but also the damage to the ecological system and the change to the visual environment.

49. Concern was expressed on the possible adverse impacts on the circulation of water in the Bay, wave and tide patterns and the environmentally important seagrass beds, particularly in Hare Bay. Most of these concerns revolve around the design and location of the Armaments Wharf.

50. As the Fleet Base would require a larger area of shoreline and the present proposal involves an area which contains important conservation and recreation sites the conservation groups are extremely worried over the extreme consequences which would evolve if the plan proceeds beyond the proposal stage.

51. The Jervis Bay Protection Committee recognises the Bay as one of the more outstanding natural embayments on the Australian coast. The seagrass beds of the Bay are the most extensive and healthiest on the New South Wales coast and the major component of these beds, strap grass, form the most extensive occurrence of this species on the east coast of Australia. Seagrass is an exceptionally important fish habitat and any adverse affect on it would have a serious impact on the fishing industry. It also plays a vital role in absorbing wave energy during storms, thus reducing shore erosion. Sand dunes, mangroves, saltmarshes and other plants would also be under threat if development proceeded.

52. A Jervis Bay Coalition has been established to oppose the plan to move naval facilities to Jervis Bay and has stated that a Parliamentary inquiry should be instigated. The Coalition comprises ten organisations, including unions, with concerns relating to the proposed relocation and the natural environment of the Bay.

53. The Shoalhaven City Council's Planning Department produced a Jervis Bay Situation Paper in November 1985 to be used as a study for strategic planning purposes only. In the paper the Defence plan is discussed and mention is made of the various proposals and information that has been outlined in other sections of this report.

54. It was mentioned in the paper that one of the main impediments to any large scale move is the cost component. While the cost of developing a new Fleet Base at Jervis Bay would probably be less than at other locations it would, for example, be greater than the cost of modernising the facilities in the Garden Island area. Also, operating costs at Jervis Bay would be greater and additional manpower would be required.

55. It was stated to the Committee that most of the Councillors were in agreement that the Defence proposal would be acceptable if stringent environmental conditions were met. It would be of tremendous financial benefit to the region if the development proceeded as it would bring in new settlers therefore creating new employment in the building, hospitality and services industries.

56. The Shoalhaven Council has not discussed or approved the proposal formally because it has not been fully briefed by the Department of Defence on the extent of the proposal and it is not clear on what involvement it will have. Some Councillors indicated that they were not in agreement and would oppose the proposal.

57. The Rockingham Shire Council reported at the meeting held at HMAS Stirling that they had no major problems with the Navy being located in their area and assimilation had occurred easily. Any minor problems that arose were usually resolved after consultation between the Council and the Navy Officers in charge. A good working relationship had been developed and contact was encouraged by both parties.

58. Conservation groups were relatively pleased with the environmental procedures adopted by the Navy and referred to the abundance of flora and fauna that was thriving since the development, especially the seagrass in the Bay and the Tammars on the Island.

4. CONCLUSION

59. The Committee is concerned that the Department of Defence is proceeding with the EIS (at a possible cost in excess of \$1 million) before it has demonstrated that all of the proposals are either necessary or that Jervis Bay is the best site. The Committee understands that the Department has carried out some site selection studies but no evidence has been presented to the Committee to convince it that the relocation proposals are the result of a comprehensive planning study of national facility requirements or a stringent study of alternative locations.

60. The Committee considers that the Department should not commit resources to an EIS until it has sought public comment or until the report of its study examining the relocation options has been published and reviewed. The EIS should not be commenced until the Government has considered the Dibb report and the final decisions have been made about the relocation of the submarine base and the mine countermeasures support facility. Finally, an EIS should only be prepared when the Department has publicly presented its case for relocation and the reasons for selecting the preferred sites, and has undertaken preliminary site planning.

61. Given that there appears to be no urgent need to relocate Fleet elements from Sydney (other than those proposed for transfer to Western Australia) the Department should concentrate its efforts on developing a comprehensive and integrated facility requirements master plan rather than proceed with an EIS which is based on the assumption that relocation is necessary and must occur at Jervis Bay.

62. It should also be noted that the Committee was advised during its inspections in Sydney that it is operationally preferable for the mine countermeasures ships to be based in Sydney and that HMAS Waterhen is also to be upgraded. Given a decision to make HMAS Stirling the major submarine base this might leave only the Sydney based patrol boats to be relocated.

63. The Royal Australian Navy Armament Depot at Newington is an old inefficient facility that is an inappropriate land use for central suburban Sydney. New armament storage safety standards and urban/industrial/infrastructure encroachment have severely reduced the facility's operations. Munitions are currently loaded onto barges, transported down the Parramatta River, stored near Spectacle Island and loaded onto ships tied up to buoys in Sydney Harbour. This involves risk to the public and property in several locations.

64. Relocation of the Armament Depot from Newington is essential and a good case can probably be made for relocating some other facilities away from Sydney Harbour but it does not necessarily follow that the relocation should be to Jervis Bay. The Committee considers that a more extensive study must be carried out into the various other sites which were originally selected for investigation.

65. The proposed armament loading facility at Jervis Bay involves a storage depot, which could be easily located away from the shoreline in a non environmentally sensitive area, and a wharf. Major concern involves the design and location of the wharf which could have adverse impacts on the circulation of water in the Bay, wave patterns and the environmentally important seagrass beds in Hare Bay. However it might be possible to find a design and a site in the Bay where these impacts could be reduced to acceptable levels.

66. The Committee is not convinced that the selection of Jervis Bay as the site for the Armament Wharf and Munitions Depot was based on studies which properly took account of likely technological developments of munitions and munition handling techniques. There may be a need for a study of the Navy's overall future stores and ordinance storage and handling facilities. This study might result in other options and other sites being identified for integrated facilities.

67. The Committee recommends that:

- . the proposed Environmental Impact Study for naval development at Jervis Bay should be undertaken only when a comprehensive planning study and public review of naval facility requirements and alternative sites demonstrates that relocation to Jervis Bay is necessary; and
- . the proposed development at Jervis Bay be considered and planned in the context of the overall proposal for Fleet facilities and bases around Australia.

68. The need to protect the environment in and around Jervis Bay is of prime importance. The Committee would only support further development by the Navy if it was shown to be completely necessary, that there were no other alternative sites and only if the environmental impacts were kept to an absolute minimum.

69. The Committee also believes that the Navy needs to consult more openly and take more account of local community needs and views, particularly Aboriginal communities at Jervis Bay.

70. Experience at Cockburn Sound suggests that the Navy is capable of establishing a new facility with due regard to environmental impacts. The extent to which environment protection measures and social factors have been incorporated into the development of HMAS Stirling is impressive but the situation at Cockburn Sound is not comparable to Jervis Bay. Cockburn Sound is a reasonably open area while Jervis Bay is a more enclosed embayment and is relatively unaffected by adverse environmental effects. Cockburn Sound was partly developed, industrialised, polluted and the natural environment was degraded. In addition the geology, drainage, sedimentation and marine flora and fauna are different.

71. Whilst it might prove possible to reasonably accommodate an armaments facility at Jervis Bay the impact of the Fleet Base will be much more difficult to minimise because of the large area of shoreline involved and its proposed location in an area which contains important conservation and recreation sites.

72. The Committee is of the opinion that the recommendations in the 1975 report are still applicable, particularly that large scale expansion of naval facilities would not be compatible with the management of Jervis Bay as a natural area and that naval development should not be supported unless there is no other alternative. (See Appendix 2).

PETER MILTON
Chairman

September 1986

POSSIBLE IMPACT OF CONSTRUCTION AND OPERATION OF A FLEET BASE AT JERVIS BAY

Physical Features of the Possible Fleet Base

1. Only limited fleet base facilities would be constructed. It would be uneconomical and disruptive to move all the fleet base facilities described in Appendix A.
2. A possible way in which fleet facilities could be provided at Jervis Bay is shown on Figure C1. The development area would be located on the south-eastern shore in an area bounded by Murray's Beach and Scottish Rocks, near to the Australian Atomic Energy Commission site.
3. A large breakwater would be needed to protect ships lying at 'finger' wharves constructed at right angles to the shoreline.
4. Accommodation for single naval personnel would be near to the site, but married accommodation would be located in adjacent townships.

Physical and Chemical Conditions

5. *Climate.* The Jervis Bay Territory (the Territory) has warm summers, mild winters and rainfall, on average, evenly distributed through the year. Table C.1 gives some climatic data for Jervis Bay and Sydney.

TABLE C.1

Climatic Data		
Factor	Jervis Bay	Sydney
<i>Temperature (°C)</i>		
Summer max/min	24/17.9	25/18
Winter max/min	15.1/9	16,9
<i>Rainfall</i>		
Amount (mm/year)	1218	1213
Frequency (days/year)	133	148
<i>Sunshine</i>		
Amount (hours/day)	7.5	6.6
<i>Humidity (%)</i>		
0900	71	67
1500	65	57

6. *Geology and Hydrology.* The Territory consists of a gently undulating sandstone mass covered to varying depths by sand with high cliffs to the seaward in the east and a broad sand spit, the Bherwerre Barrier, in the west. There are no major mineral deposits of commercial significance. Also there is very little rock or gravel suitable for road base or other pavement construction and no material suitable for aggregate required in building construction. Small streams in the Territory have an irregular drainage pattern. Small lakes have been formed when south-westerly flowing streams were dammed by sand.

7. *Impact on Geology and Hydrology.* Construction of a fleet base would require excavation of the low cliff areas in the vicinity of what was the 'Hole-in-the-Wall'. The excavated rock would be used to form bunding for dredged sand fill. The 'Hole-in-the-Wall' was a natural rock arch which collapsed in 1975 from natural weathering and erosion; the geology of the fleet base site is not unique and with the demise of the 'Hole-in-the-Wall' a possible area of geological interest and preservation no longer exists.

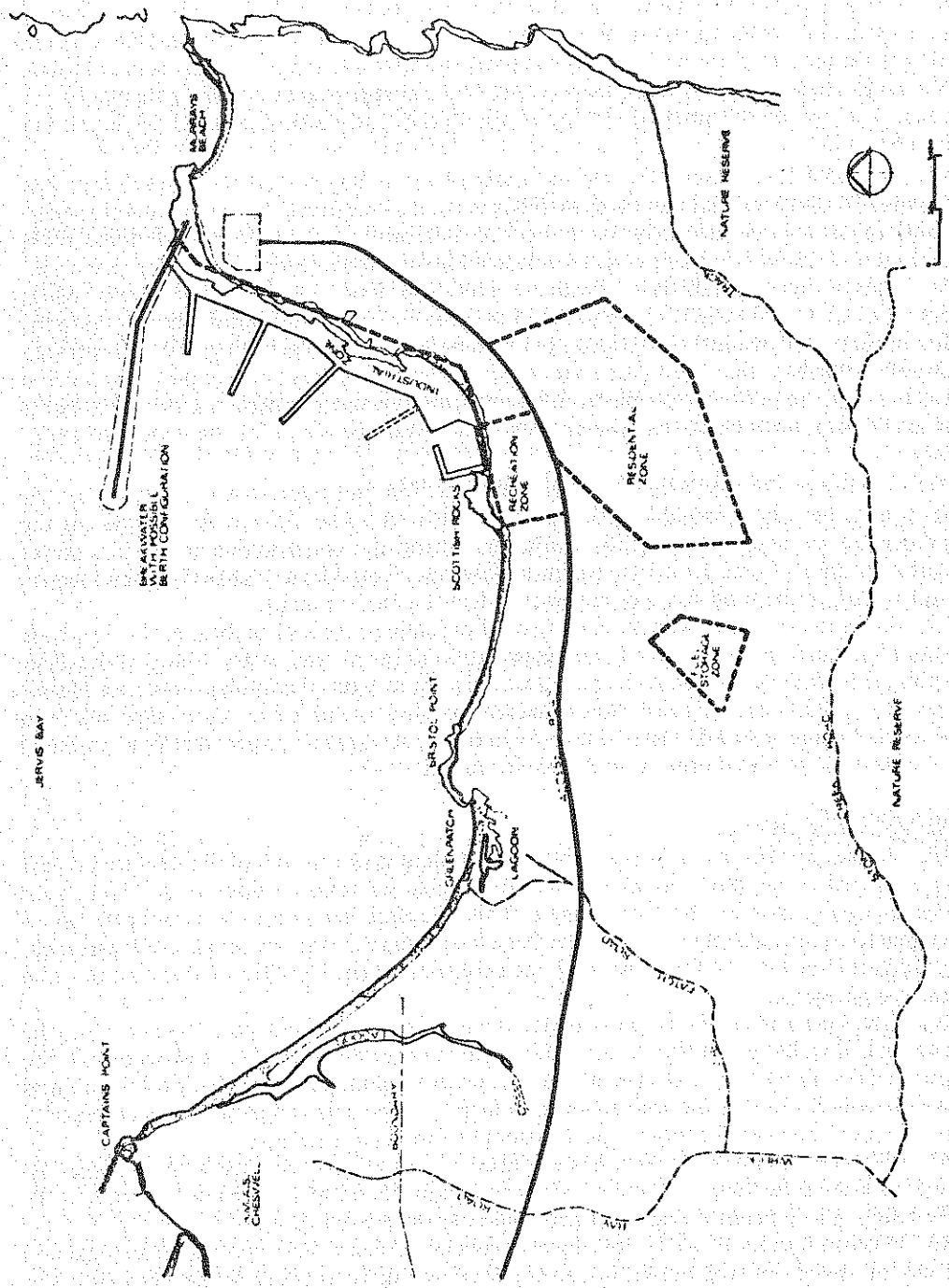


Figure C1 Jervis Bay Area

8. Minor streams are within the fleet base site but no hydrological or associated environmental problems should result. The construction of a breakwater and piers would disturb the present pattern of water movement and with it the deposition/erosion of sand. No model studies have been carried out, but it would appear that the fleet base would not cause a major or detrimental change in the deposition/erosion of sand on adjoining beaches.

9. *Air and Water Quality.* The air and water of Jervis Bay is relatively unpolluted. The absence of industrial plant and the small population of the Jervis Bay area is conducive to good air quality; occasionally, under certain meteorological conditions, polluted air is carried down to Jervis Bay from the industrial areas of Wollongong and Port Kembla.

10. Intermittent, small-scale, localised pollution from smoke occurs from naval activities such as fire-fighting exercises at the naval airfield and bombardment induced fires at Beecroft. Studies have shown, perhaps because there are few significant inflowing streams to the bay, that the replacement of water within the bay is slow and thus could be easily subject to pollution problems. Effluent from bay-side populations, ships and boats is insufficient, at present, to cause an overall pollution problem for the waters of Jervis Bay.

11. *Impact on Air and Water Quality.* Construction and operation of a major facility such as a fleet base could not be achieved without some detrimental effects on the immediate air and water quality. Pollution during the construction phase e.g. water turbidity, diesel fumes from construction plant, etc. would be a temporary phenomenon and would, in the long run, not adversely affect the environment.

12. Once in operation with strict control of possible sources of pollution, the fleet base should be the source of relatively minor pollution to the air and water. Many of the older ships of the R.A.N., which in the past have been the subject of complaint because of soot blowing, will not be in service. New standards for disposal of wastes from ships will be in force and shore sourced wastes will be treated (e.g. sewage) or disposed of (e.g. garbage) so as to have minimal impact on the environment.

Biological Conditions

13. *Fauna.* The diverse, relatively undisturbed plant communities of the Territory could be expected to support an equally varied indigenous animal population. From brief studies carried out by the Department of the Capital Territory, the vertebrate fauna known to occur or likely to occur have been listed; most of the mammals are reasonably abundant elsewhere on the coast, with the exception of the New Holland mouse and the eastern native cat.

14. The larger macropods, particularly the grey kangaroo and, to a lesser extent, the red-necked wallaby and the swamp wallaby, are commonly seen. One species of bat, the grey headed flying fox, is of special interest; predominantly confined to Queensland and northern N.S.W., this bat moves south in large numbers each spring and is commonly seen in the Territory feeding on the blossom of flowering eucalypts.

15. The bird fauna of the area has not been accurately documented and, of some 260 species known to occur in the Illawarra area, more than 147 have been recorded in the Territory. Little penguins have formed rookeries on Bowen Island.

16. Fifteen species of snake, twenty-two species of lizard, one species of tortoise and fourteen species of frog are known to occur or are likely to occur in the Territory. The diamond python, which is known to occur in the area, and the broadheaded snake are on the N.S.W. rare species list. The giant burrowing frog, previously reported only in the vicinity of Sydney, has been found in the Territory.

17. Domestic dogs are known to harass and prey on mammals and birds within the Territory. Rabbits are common near Steamers Beach, the Naval College and on Bowen Island although rare elsewhere. Pheasants were introduced to Bowen Island and have

been sighted on the mainland. Other introduced fauna includes cats, rats, mice, hares and foxes.

18. *Impact on Fauna.* The construction and operation of a fleet base at Jervis Bay, probably, is expected to have an insignificant long term impact on the fauna of the area. The majority of fauna might on commencement of construction, move to the undisturbed parts of the Territory. No known unique breeding area or habitat is included within the likely fleet base boundaries and thus should not present a threat to the viable population of any species of native fauna.

19. *Marine Ecosystems.* Sub-littoral rocky reefs occur off most of the rocky shore-lines around the Bay. The vegetation includes forests of kelp which provides habitat and shelter for a rich and diverse fish population. Out from the beaches and shallower rocky reefs are large areas of strap weed down to depths of over 10m; these are interspersed in places (such as Murrays Basin) with an admixture of other sea grasses. Below about 10m the bottom is mainly bare sand with mud oysters, scallops, branching tube worms, sea worms and other invertebrates.

20. The surface waters of the bay are inhabited during certain seasons by a number of pelagic fishes including small schooling 'bait fish'. Small inflowing streams support, inter alia, large populations of juvenile fish species. Over 180 species of fish have been recorded in Jervis Bay.

21. *Impact on Marine Ecosystems.* Considerable localised impact would be experienced by the marine flora and fauna in the immediate area of the construction of breakwaters, piers and littoral fill. Some sea-grass areas would be destroyed (and thus marine fauna habitat) although the amount would be insignificant when viewed against the total area within the Bay.

22. Construction activity would be likely to temporarily scare fish away, but, when construction was complete, fish would probably return to the area, perhaps in greater numbers because of the artificial shelter provided by a break-water and piers.

23. *Flora.* Within the Territory there is a wide diversity of plant communities. Eucalypt forest with blackbutt and southern mahogany is found in deep sandy soils mainly sheltered from salt-laden winds. On some moist sheltered sites vegetation is typical of rainforest.

24. There are three main woodland communities—bloodwood/silvertop ash woodland, bloodwood/scrubby gum woodland and Sydney bloodwood/peppermint woodland. A treeless, shrub-dominated heath vegetation has developed on the thin sandy soils mainly in exposed locations; four basic types exist—banksia/casuarina heath, mallee heath, dry heath, and wet heath. On coastal dunes exposed to sea winds, a dense scrub exists with banksia and coastal titree as co-dominants.

25. Scattered throughout the Territory are low areas which may be flooded for varying periods; paperbacks are dominant in some swamps and lagoons. Some small areas of mangroves occur.

26. *Impact on Flora.* Should a fleet base be constructed in the area approximately between Scottish Rocks and Murrays Beach, the impact on flora is expected to be relatively small. The main impact could be on the forest area east of Scottish Rocks; this area represents about 2% of the total forest area within the Territory. Some of this forest, including a small relic rainforest area, could be preserved as a 'green belt' within the fleet base boundaries.

27. The accommodation blocks would be best sited within the former pine plantation, much of which has been destroyed by fire, and represents an insignificant impact on native flora (and fauna). (See Figure C.2)

Aesthetic Values

28. *Historical Sites.* Sites of historical interest within the Territory (see Figure C.3) that may be worthy of preservation or further investigation include:

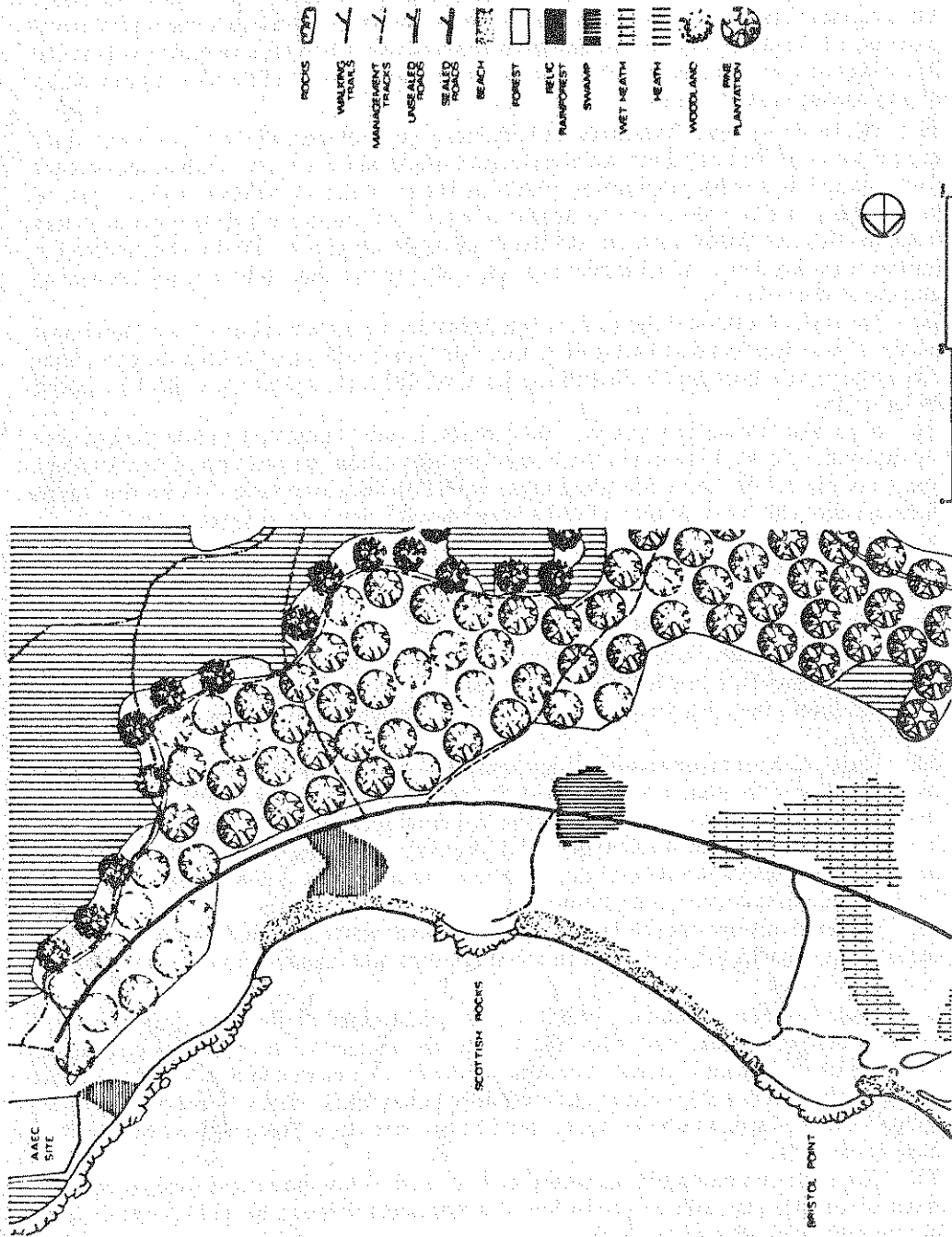


Figure C2 Jervis Bay Flora



- OPEN SHELL MIDDEN
- CONTINUOUS
- ◐ DISCONTINUOUS
- △ ROCK SHELTER
- ◻ NON-ABORIGINAL HISTORIC SITE
- * FLAKING SITE
- # SEPARATE FROM SHELL MIDDEN
- ✕ AXE SHARPENING GROOVES



Figure C3 Jervis Bay Historical Sites

- a. Aboriginal open shell middens,
- b. Aboriginal rock shelters,
- c. Aboriginal flaking and axe-sharpening sites,
- d. European grave sites, and
- e. Cape St. George Lighthouse ruin.

29. *Impact on Historic Sites.* Five sites of archaeological interest could be destroyed in the construction of a fleet base. All five sites are aboriginal stratified open middens some of which are little disturbed and probably worth excavating in a study of resource use. No historic sites of non-aboriginal origin are within the likely fleet base boundaries.

30. *Visual Quality.* Of five reasons for listing the Jervis Bay area as 'classified', the National Trust (N.S.W.) gave precedence to the area's 'High scenic quality and variety of relatively undisturbed coastal landscapes'. The probable site of a fleet base, as viewed by the public from boats in the Bay and from the road entering the Territory, appears to be undisturbed bush and beach; the Naval College, airfield and towers at Bherwerre Trig. are the most conspicuous man-made structures within the Territory. However, the Territory is but a small part of the Jervis Bay littoral which, in the north and west, is dotted with small communities all readily visible from boats in the bay and from many bay-side vantage points.

31. *Visual Impact.* There would be a visual change if a fleet base is constructed at Jervis Bay. Base facilities would impinge on an apparently undisturbed part of the Jervis Bay littoral. The major impact could be on the view from the road as it enters the Territory; ships and some of the fleet base facilities would be in full view. However, facilities would not intrude above the skyline and, except for the water front facilities, many of the buildings would be masked by vegetation.

Community Aspects

32. *Past Land Use.* In 1909, Canberra was chosen as the site for the Federal Capital and on 14 September 1915 the New South Wales Government ceded some 73km² of land and water at Jervis Bay to the Commonwealth in accordance with the terms of Section 4 of the *Seat of Government Acceptance Act, 1908.*

33. Prior to 1915, the land use had been primarily range land grazing of domestic stock with some cultivation. Two farms had been established in the area and some land had been cleared. In 1912, construction of the Royal Australian Naval College was commenced and completed in 1915, and operated as a college from then until 1930. The advent of the College has had insignificant discernable effect upon the general land use of the Territory from the pre-acquisition time until 1930.

34. From 1915-30, farming, centred on Sussex Inlet, continued as the main land use in this section of the Territory. The farm headquartered at Lake McKenzie phased out and Lake Windermere became a protected catchment area for water supply, but cattle and other domestic stock still ranged over the whole area.

35. In 1928, the N.S.W. Board for the Protection of the Aboriginal agreed to a request by the Federal Capital Commission to assume control of the Wreck Bay Aboriginal Settlement. In 1931 the Board opened a primary school, appointed a teacher/manager and had taken action to protect the fishing grounds off the Settlement as these provided the sole means of livelihood for the residents. In the early 1930s about fifty people lived at the Settlement in houses built by themselves.

36. Land use commenced to change quite markedly in 1930 when the Royal Australian Naval College was transferred to H.M.A.S. *Cerberus*, Western Port, Victoria, and the buildings and facilities were managed through the Department of the Interior for holiday accommodation.

37. Farmers found guest houses and other holiday accommodation profitable occupations and farms in the area were allowed to run down. The change towards a recreation land use forced the development of more tracks through the area to various

fishing spots; Jervis Bay became the most popular holiday resort along the south coast of N.S.W.

38. During World War II the Navy returned, and improvements for the Territory included sealing the access road from Nowra and constructing an airstrip. After the war, holiday makers returned in large numbers to Jervis Bay and their circulation was assisted by the improved access brought about by these wartime activities.

39. Private mining was prohibited in the Territory from 1950 although continued exploitation of one small deposit of clay was permitted.

40. In 1951, a 2ha annexe to the Canberra Botanic Gardens was established near Lake McKenzie. Selective logging of hardwood forest was carried out and coniferous plantations established. Work was also commenced on sand-dune stabilisation at Bherwerre Beach. The Gardens' annexe has since been extended to its present size of about 78ha.

41. The R.A.N. College reopened in 1957 as H.M.A.S. *Creswell*. In the late 1960s the navy, in conjunction with the Department of Supply, began improving facilities at the airfield and the construction of facilities at Bherwerre Trig. for the Jindivik firing programme.

42. In 1965, the restrictive provisions in the legislation relating to aborigines were removed and the Department of the Interior took over the administration of Wreck Bay housing.

43. In 1969, the Government decided to construct a nuclear power station in the Territory and a site at Murrays Beach was excavated. Also a high-quality access road was constructed, but the project has since been 'shelved'.

44. In 1970, some 60% of the Territory was declared the Jervis Bay Nature Reserve. A proposal for a marine reserve has not been pursued.

45. All commercial primary production activities and minor gravel and clay extraction which took place in the 1950s and 1960s have ceased. Apart from Defence controlled areas, the Territory is administered by the Department of the Capital Territory which is mainly concerned with conservation, recreation, education and scientific study together with assistance to the Wreck Bay aboriginal community in its programme of community improvement. Forestry activity is restricted to maintaining small experimental pine forests; these are not now regarded as commercial.

46. *Present Land Use.* Much of the Jervis Bay Territory is a nature reserve (see Figure C.4). Land outside the reserve is used for Defence (Navy), recreational and residential purposes. There are a few small areas of land leased for holiday camps.

47. *Impact on Land Use.* The construction of a fleet base would constitute a significant but not unexpected, change in land use within the Territory. Annex I of the Department of Defence submission (March 1975) to the House of Representatives Standing Committee on Environment and Conservation Inquiry into Industrial and Urban Development of Jervis Bay contained, in some considerable detail, possible future naval requirements at Jervis Bay. The area thought to be most suitable for a fleet base is outside the nature reserve within an area little used by the general public and managed by the Department of the Capital Territory for passive recreation.

48. *Recreation.* Recreation areas have been developed by the Department of the Capital Territory at Iluka, Green Patch and Bristol Point on the northern bay front and Summercloud Bay and Caves Beach on the southern coast. The recreation areas are in excellent settings where there has been minimal disturbance to the native vegetation. Facilities provided include boat ramps, water, parking areas, toilets, showers, fireplaces, tables and garbage bins. Camping grounds are supervised by periodic ranger visits and a nominal charge is made per site per night.

49. Activities on the more sheltered beaches adjoining Iluka, Green Patch and Bristol Point include swimming, beach walking and picnicking. Power boating and sailing are

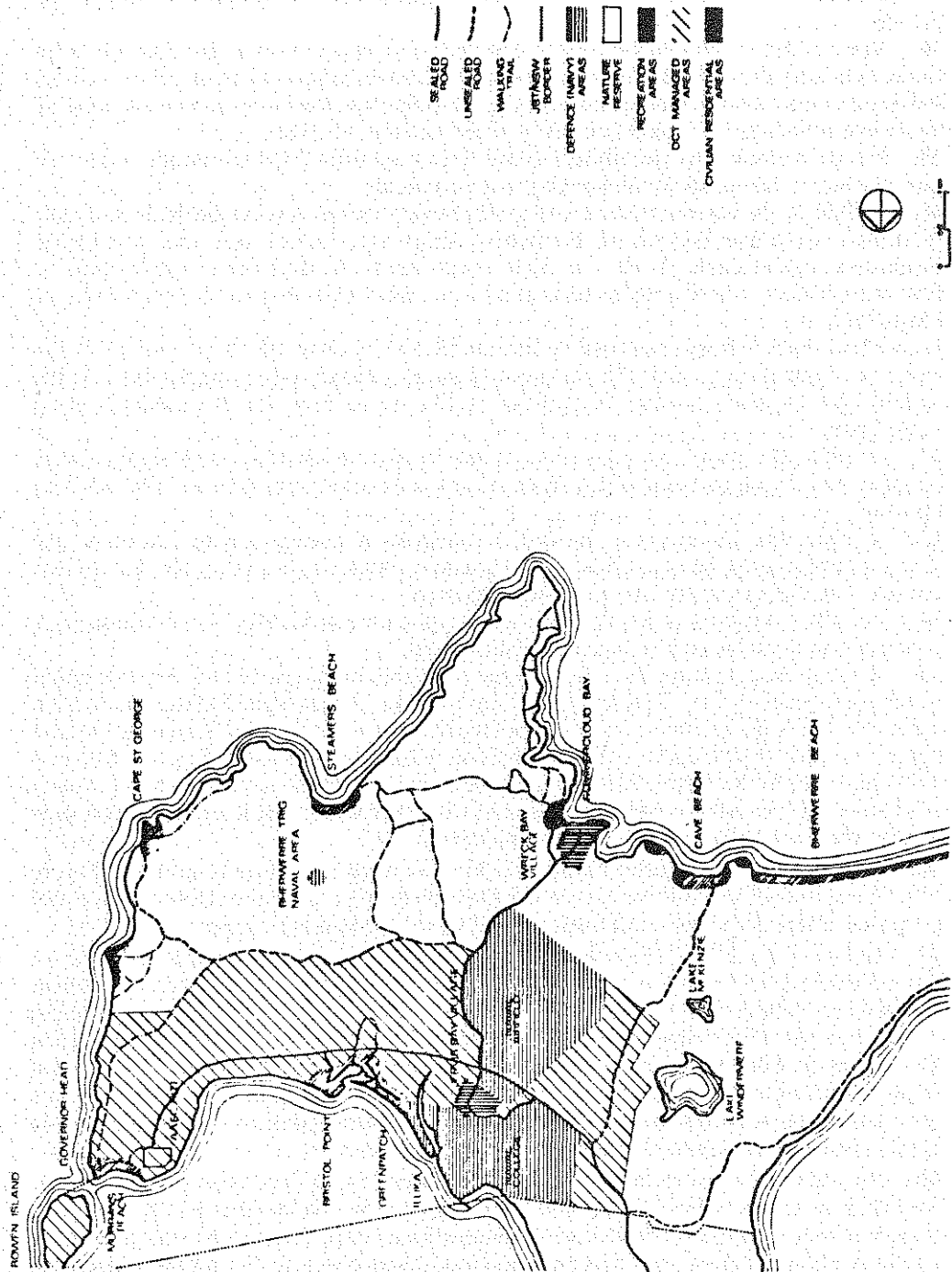


Figure C4 Jervis Bay Land Use

popular at Jervis Bay as well as fishing, scuba diving and spear fishing. On calm days some people water ski at Green Patch.

50. Vehicles are now excluded from the St. George's Head and Steamers Beach areas but people can use bushwalking trails to them. Pleasure drivers and sightseers use most of the better roads in the Territory. Recreational use of the Territory is concentrated at accessible spots near the sea, particularly where facilities have been provided.

51. Jervis Bay is known for good fishing, Murrays Beach and Bherwerre Beach are popular beach fishing spots. Steamers Beach used to be popular when vehicular access was possible. Rock fishermen favour areas near Stoney Creek, the old lighthouse and rock platforms near Caves Beach and Shellies Point. Spear fishermen dive from most reefs inside and outside the Bay.

52. Peak holiday times are Christmas and Easter and to a lesser extent September and May during the school holidays. It has been conservatively estimated that over 250 000 people visit the Territory each year for recreational purposes.

53. *Impact on Recreational Areas.* The construction of a fleet base at Jervis Bay would deprive the general public of the use of approximately 2 km of beach and rocks. Fortunately this 2 km waterfront is one of the least used for recreational purposes by the public. The main recreational area is situated at Iluka, Green Patch, Bristol Point and physically should be little disturbed by the presence of a fleet base.

54. Should the access road to the A.A.E.C. site be barred to the public, the popular fishing area at Murrays Beach would be extremely difficult to reach by land. There would be a major impact on all recreational areas within the Territory from increased usage by personnel from the fleet base. This impact would be especially noticeable in the Green Patch area. The general public could find the Territory less attractive for recreational purposes if there is a marked increase in the usage of recreational facilities.

55. *Holiday Camps.* The Territory has a few private leases used for holiday accommodation situated at Christians Minde, Sussex Inlet, Lumeah and Bowen Island.

56. *Impact on Holiday Camps.* The construction and operation of a fleet base would not affect private leases/holiday camps.

57. *Educational and Research Aspects.* The Territory is becoming popular as a 'natural laboratory'. Canberra College of Advanced Education, N.S.W. Institute of Technology and Australian National University Centre for Continuing Education hold field classes in the area. The Canberra Botanic Gardens annexe at Jervis Bay occupies about 78ha including Lake McKenzie. Its prime function is cultivation and research on species of Australian plants which are intolerant of the cold conditions of Canberra.

58. *Impact on Educational and Research Aspects.* The construction and operation of a fleet base would not affect the Canberra Botanic Gardens annexe and should not affect, to any appreciable extent, the use of the Territory as a 'natural laboratory'.

59. *Forestry.* Most of the 321ha of pine trees planted in 1956 were destroyed by fire in 1972. Only 164ha remain, in the St. Georges Basin area.

60. *Impact on Forestry.* The construction of facilities in the former pine plantation would not affect forestry operations as this area is now considered non-commercial. The Department of the Capital Territory plans to eventually revegetate it with native flora.

61. *Territorial Population.* The total permanent population of the Territory is approximately 800; about 560 naval personnel and their families live at H.M.A.S. *Creswell*, about 60 government employees and families at Jervis Bay village, about 160 people of aboriginal descent at Wreck Bay village and about 20 people at residential leases and holiday camps.

62. *Impact on Territorial Population.* Because of the lack of suitable space within the Territory, married fleet base personnel would need to be housed in New South Wales; single naval personnel housed in the fleet base accommodation blocks would more than

double the present Territorial population. The influx of personnel would necessarily interact with the present population and so increase the possibility of social problems.

63. During the construction of a fleet base, site noise should not be a problem to the general public as the nearest habitation is over 2km distant, although people using the recreational area at Iluka-Green Patch-Bristol Point may experience some minor inconvenience.

64. *Water Supply.* Since 1916, water from Lake Windermere has provided the domestic water supply. At present it supplies approximately 160 000m³ of water per year for residents at H.M.A.S. Creswell, Jervis Bay Village, Wreck Bay Village and for visitors to Green Patch and other recreational sites. Despite fluctuations in the water level, the Lake appears to provide adequate water to meet current demand. Investigations of ground water supplies indicate that about 200 000m³/year of good quality water could be extracted from sands southwest of Lake Windermere to provide additional domestic water supplies.

65. *Impact on Water Supply.* The present and potential domestic water supply from Lake Windermere will be inadequate for a fleet base; the Shoalhaven Shire Council is at present extending a Shoalhaven River sourced reticulated water supply to Vincentia and St. George's Basin and upgrading and extending this system is possible. The Shoalhaven River is more than adequate for the supply of water requirements for a fleet base and expected increased population of the Shoalhaven Shire.

66. *Sewage and Garbage Disposal.* The main centres of population are sewered. Effluent from H.M.A.S. Creswell and Jervis Bay Village passes through a treatment works before discharge to Jervis Bay, while effluent from Wreck Bay Village is absorbed in two transpiration beds. Recreational areas and leases have septic tank systems. Garbage was previously burned in tips inside the Territory but these have now been filled and revegetated. Garbage is collected from Wreck Bay Village, Jervis Bay Village and H.M.A.S. Creswell and transported to Nowra for disposal.

67. *Impact on Sewage and Garbage Disposal.* The present sewage system within the Territory would be totally inadequate for a fleet base. A sewage treatment plant would be needed for the fleet base with discharge to ocean waters rather than the bay. With the expected increased population of the townships around the bay, there may be a need for a common ocean outfall crossing the Territory. The enlarged population of the Territory would place an increased, but no unmanageable, burden on the garbage disposal facilities of the Shoalhaven Shire.

68. *Electricity and Telephone Services.* One electrical power source from N.S.W. supplies the villages at Wreck Bay and Jervis Bay and H.M.A.S. Creswell. The leases opposite Sussex Inlet are supplied from Sussex Inlet. Manual telephone exchanges within the Territory link it with the Nowra-Moruya telephone district, N-16 (STD area code 044).

69. *Impact on Electricity and Telephone Services.* The construction of a fleet base would require the extension and upgrading of electricity and telephone services to the Territory; no difficulties in achieving this are foreseen.

70. *Roads.* The main sealed access through the Territory is the Jervis Bay Road which terminates at the Australian Atomic Energy Commission (A.A.E.C.) site. Crossing this road is a sealed road linking the villages of Jervis Bay and Wreck Bay. Access to the leases at Sussex Inlet is by low-quality gravel road. Similarly roads to Stoney Creek and Caves Beach are gravel surfaced although of slightly higher quality. All other roads are four-wheel-drive tracks designed for management purposes.

71. *Impact on Roads.* Part of the Jervis Bay Road within the Territory as well as the main section between the Territory and the Princess Highway would need to be upgraded. The construction and operation of a fleet base would entail increased use of the Jervis Bay

Road which, fortunately, does not impinge on any townships or other concentrations of population and thus should be of minor direct impact on the present population of the district.

72. Although the upgrading of the Jervis Bay Road would be of direct benefit to the fleet base, H.M.A.S. *Creswell* and local civilian population, it would also have the effect, by improving access to the Territory, of increasing tourist pressure on the area—indeed the fleet base could itself attract additional tourists and thus increase road usage in the area.

73. *Power Station Project.* In 1969, the Commonwealth Government decided that a 500 megawatt nuclear power station would be built at Jervis Bay. The cost figures based on tenders received by the Government in 1970, were higher than had been expected; the project was delayed for twelve months. In 1977, the Government again decided to delay construction. The site at Murrays Beach has been extensively excavated and a high quality road has been constructed.

74. *Impact on Power Station Project.* The construction and operation of a fleet base at Jervis Bay could have important ramifications for the nuclear power station project at Murrays Beach.

75. *Commercial Fishing.* For the last sixty years, fishermen from Wreck Bay Village have netted schools of migrating fish off beaches on the southern side of the Territory in N.S.W. waters; mostly fished from Mary's Bay.

76. Some distance off the eastern coast of the Bay in N.S.W. waters, boats catch surface swimming southern bluefin tuna from September to December. In the Territorial waters of the bay itself, tuna boats net yellowtail and pilchard bait. The tuna fishermen claim that Jervis Bay and Twofold Bay are the only reliable sources of tuna bait on the N.S.W. south coast. In addition to the tuna boats, some boats from Huskisson and Ulladulla use meshnets to fish the bay for shark, skate and jewfish during summer.

77. Trawling grounds, just off Governor Head, yield demersal fish including john dory, flathead and snapper. Abalone, scallops, dredge oysters, mussels and lobsters are fished commercially on an irregular basis in all waters surrounding the Territory.

78. Under the provisions of the *A.C.T. Fishing Ordinance, 1967*, trawling is not permitted in the territorial waters of the bay, and under the *Seaweed Protection Ordinance, 1974*, no seaweed can be harvested in the same waters. This latter ordinance was gazetted to prevent the threatened destruction of the benthic habitat posed by the commercial harvesting of seaweed near Bowen Island.

79. *Impact on Commercial Fishing.* The construction and operation of a fleet base at Jervis Bay should have a minimal effect on commercial fishing.

80. *The Region.* The Territory is geographically part of the Illawarra region (the Region); influences and interests also spill over from surrounding regions such as the Sydney/Wollongong Metropolitan region and the Canberra region. Contiguous to the Territory is the Shoalhaven Shire administered from Nowra.

81. At present the Region has large uncleared areas providing opportunities for residential/recreational, primary and secondary industry development. Natural resources include timber, minerals and land and sea suited to outdoor recreation. Economic resources are milk, timber, vegetable and beef production, commercial fishing, tourism and minor industries.

82. Some 80% of the population of the Region live within 25km of the major town of Nowra and Bomaderry with most of the remainder living in the Milton-Ulladulla area. Nowra, a relatively prosperous centre with a population of over 10 000 is the largest town.

83. The Shire of Shoalhaven population has grown by 29.6% over a five year census period, 1971-1976. The long established tendency for population to flow from the country to the cities is partly countered by a reverse flow from the metropolitan areas to a number of country areas in the coastal belt. This has been happening for some considerable time but the process appears to have accelerated over the last census period.

84. The main urban centre of Nowra/Bomaderry grew by 20.4% over the five years, 1971-1976. This remains high but steady when related to previous years. The main change in the population pattern has occurred in the smaller towns on the coast or major lakes; some of these have more than doubled in population during the period 1971-76 (see Table C.2).

TABLE C.2
POPULATION DATA—SHOALHAVEN SHIRE

	Population		Increase in Population 1971-76
	1971	1976	
Nowra	8335	9504	14
North Nowra	1246	1728	39
South Nowra	378	355	-6
Bomaderry	2914	3909	34
Shoalhaven Heads	488	718	47
Greenwell Point	607	768	27
Culburra/Orient Point	696	1416	103
Currarong	324	466	44
Callala Bay	95	201	112
Callala Beach/Wollomia	410	588	43
Huskisson	759	776	2
Vincentia	289	726	151
Hyams Beach	212	325	53
Browal Bay	162	209	29
Sanctuary Point	272	600	121
St. Georges Basin	251	529	111
Sussex Inlet	535	933	74

Impact on the Region

85. With proper planning, the resources of the Region would not be depleted or overstrained by the presence of a fleet base at Jervis Bay. Indeed, the small increase in the overall population of the Region brought about by the presence of the fleet base personnel and their families would tend to be beneficial in that it could boost small businesses by stimulating extra demand for housing, food and other services.

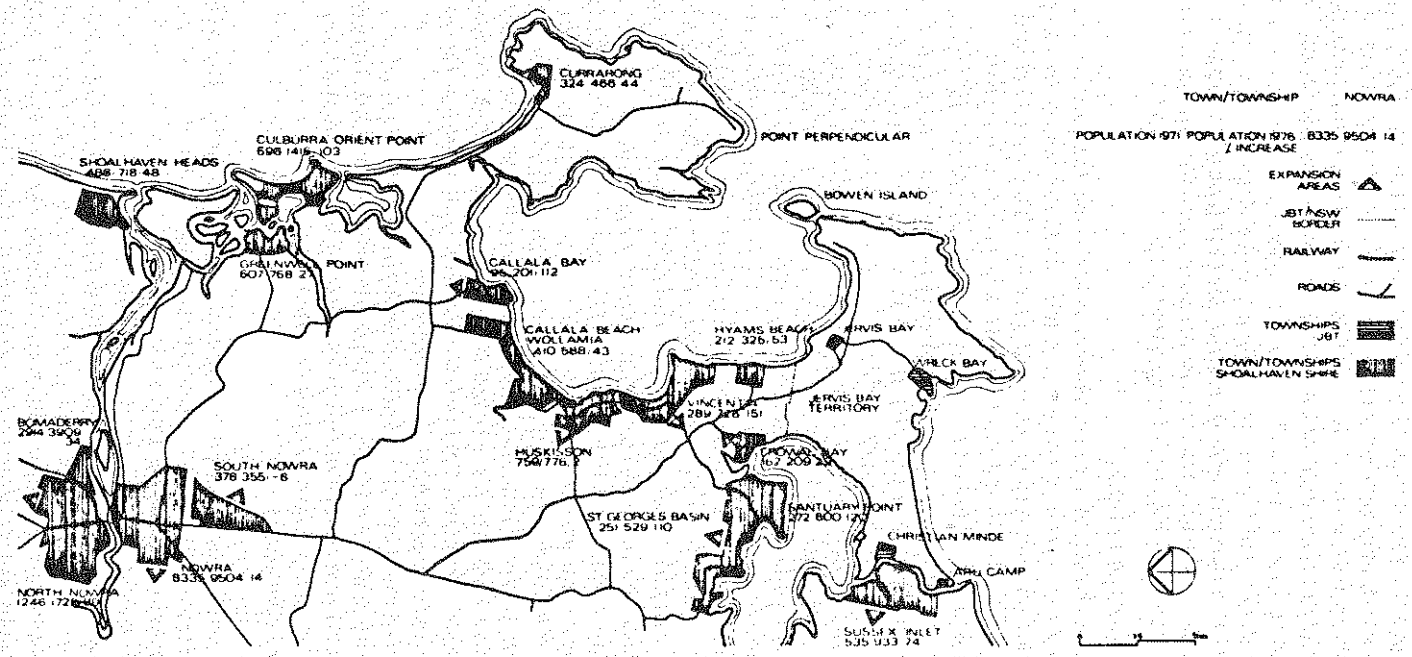
86. Although single personnel would be housed within the fleet base boundaries, married personnel and their families would need to be housed elsewhere. The nearby towns/townships in the Shoalhaven Shire have sufficient space within their present boundaries to cope with the housing requirements of the married service personnel from the fleet base.

87. In 1972, the Shoalhaven Shire made contingency plans for the influx of about 6000 workers to the proposed ARMCO steelworks near Huskisson, with an estimated build-up to approximately 80 000 in the population of the Shire over a 5 to 6 year period. Considerable expansion in population could be contained within the present town/township boundaries and areas of township expansion have been delineated. See Figure C.5.

88. The Shoalhaven Shire Council was confident that it could handle, with financial assistance from the State, the then expected radical changes to the numbers and structure of its population. The population increase in the Shire from 1971 to 1976 has been nearly 8500 (30%) without any apparent strain being placed on the services or resources of the area.

89. Based on the 'natural' increase in the Shoalhaven Shire population and the planning for the ARMCO project, it could be assumed that, with phasing in of the fleet base over a

Figure C5 Jervis Bay Regional Development



number of years, the Shire could successfully absorb the extra population. Nevertheless, careful planning should be undertaken with the Shire Council and State to eliminate detrimental effects such as housing cost inflation, inadequate schooling, excessive female unemployment, etc. that could be attendant on the population influx.

90. The need to quarry and convey rock to construct a breakwater for the fleet base would have a major, but temporary, impact on the Region and its population. Suitable rock is thought to exist some 30-40km from the fleet base site. A quarry would be opened and considerable road traffic would exist between it and the fleet base site; the route trucks take would, where possible, avoid populated areas.

Service Personnel and Families

91. The vast majority of service personnel and their families live in, or very near to, Sydney/Melbourne which provides a wide range of social services and amenities, especially entertainment and educational facilities. The personnel and their families are used to the benefits that living in or near to a large city can provide.

92. *Impact on Service Personnel and Families.* The problems of relocating families from a city environment to an essentially rural environment are many and varied. Close co-operation with State authorities, the Shoalhaven Shire Council and the building industry could obviate many of the undesirable aspects associated with a possible shortage of housing, however, the problem of the location of the individual family home would remain. If a family opted for being near the amenities, of Nowra/Bomaderry then travel of 50-60km a day to and from the fleet base would be involved. If the family desired to be nearer the fleet base with the advantages of living adjacent to Jervis Bay (and/or St. Georges Basin) and its recreational facilities, then high school children might have a long daily journey to and from school, the opportunities for female employment might be virtually non-existent, shopping facilities would be poorer and more expensive, etc.

93. Compared with metropolitan areas, educational facilities in rural areas are limited. In the Shoalhaven Shire the existing facilities for pre-school and handicapped children are very limited and some improvements would need to be made if the fleet base were moved to Jervis Bay. This might also apply to primary school facilities. The situation regarding secondary and tertiary education would be unsatisfactory and would be difficult to remedy. The two high schools, at Nowra/Bomaderry, have only a small range of subject options available to students. There is a small technical college at Nowra but there are no tertiary educational establishments in the Shire.

94. The total number of married personnel who might be required to serve in a fleet base at Jervis Bay, or in attached ships, is estimated to be about 2300. In the extreme case, the number of naval personnel that might be affected by the situation regarding secondary and tertiary education for their children would be:

secondary education: 207

tertiary education: 92

95. Similarly, the numbers of naval personnel who might be affected by the limited job opportunities for children leaving school would be:

first child leaves school at 15 years: 138

first child leaves school at 18 years: 92

96. Although one member of a family would be employed at the fleet base, wives would find job opportunities within the Shoalhaven Shire minimal. Financial commitments or standards of living, when more than one member of the family had been employed previously, might not be able to be maintained. The advantages of living in a more relaxed, pollution free, rural atmosphere with excellent beaches and other outdoor recreational areas might not, in the minds of many city families, be sufficient to counter-balance the increased cost of living, the limited entertainment facilities, and a number of other domestic problems associated with living in a rural area.

97. The influx of a large number of single men, although accommodated within the fleet

base boundaries, might be a source of some social problems for the area. In addition to the sporting and recreational facilities which would be provided for fleet base personnel, there would be a need for social interaction and entertainment which could result in greater pressure on the area's clubs, hotels and other facilities.

98. Many single fleet base personnel would probably seek much of their entertainment outside the region and would travel to and from metropolitan Sydney, especially at weekends. Past experience of the interaction of personnel from H.M.A.S. *Albatross* with the general public of Nowra indicates, however, that the present amicable co-existence could be maintained.

99. *Nuclear Aspects.* If nuclear submarines of the current design were to be based and maintained at a Jervis Bay fleet base, certain safety standards would need to be employed. If a standard such as used by the U.S.N. were to be employed, the fleet base nuclear pier would need to be at least 8435ft (2573m) from the nearest civilian habitation. The nearest civilian habitation is at Jervis Bay Village at a distance of over 9000ft (2700m) from Scottish Rocks.

Conclusion

100. After investigating proposed developments at Jervis Bay in 1975, the House of Representatives Standing Committee on Environment and Conservation concluded that Jervis Bay's primary value was as a recreational area and scientific reference area and that heavy industry should be located elsewhere. The Standing Committee recommended, inter alia, that any proposal to develop naval facilities at Jervis Bay be subjected to an E.I.S. and, if it could be demonstrated that a more suitable site for such a development existed, the Commonwealth Government not agree to the proposal.

101. The Illawarra Regional Advisory Council submitted to the Standing Committee that the navy was an asset to the area in that it broadened the economic base of the Shire, provided scope for the development of technical support industries and has served to protect Jervis Bay against undesirable commercial development. Further, the Advisory Council stated that Defence facilities at Jervis Bay should be increased through the transfer of personnel from Sydney and other capital cities, that the establishment of naval docking facilities within the bay, for ship repair and maintenance, would relieve congestion at Garden Island Dockyard and, with strict pollution controls, this activity was compatible with the bay environment.

102. Inevitably, any proposal to construct and operate a fleet base at Jervis Bay would be scrutinised for its environmental impact, especially for possible detrimental impact on recreational use of the area, native flora and fauna as well as the visual and physical pollution aspects. However, it should be noted that a fleet base at Jervis Bay would:

- a. not impinge on the Nature Reserve,
- b. have minimal impact on native fauna,
- c. affect very little of the native flora,
- d. have mainly temporary effects on a small part of the marine ecosystem,
- e. be subject to strict pollution controls,
- f. have minimal impact on recreational areas,
- g. be designed to minimise visual impact, and
- h. benefit the local population by broadening the economic base of the area.

APPENDIX 2

DEVELOPMENT PRESSURES ON JERVIS BAY

FINDINGS

The Committee finds that:

1. Although Jervis Bay has the potential for development as a deep water port, its use for such purposes cannot be justified in the light of the development potential of the existing major ports in New South Wales and the environmental degradation which would result in the Bay. (para 41)
2. A decision to develop Jervis Bay as a heavy industrial port would be essentially pre-emptive of other options for land-use in the area considered in this Inquiry. (para 51)
3. Substantial environmental degradation would necessarily result from the establishment of heavy industry at Jervis Bay and that such industry would not contribute meaningfully to the development of the Shoalhaven Shire. (para 52)
4. The effective management and preservation of Australian coast-line resources is hampered by the lack of co-ordinated national coastal land-use policy developed by the Australian and State Governments in consultation with local government. (para 55)
5. The Jervis Bay area's primary value as a national resource lies in its development potential for recreation and scientific reference purposes with sound management planning to safeguard the environment and retain the natural landscape and atmosphere. (para 75)
6. The discharge of treated sewerage into Jervis Bay is not in accordance with sound management principles of the Bay as a centre for tourism, recreation and preservation of the natural environment. (para 96)

7. The continued usage of the leases at Sussex Inlet North for the letting of holiday accommodation and caravan park facilities is incompatible with the management of the area as a restricted access nature reserve. (para 103)
8. A natural sciences research and study centre would be a most desirable asset at Jervis Bay, but considers that such a facility should be accessible to any tertiary institution. (para 115)
9. Large-scale expansion of naval facilities at Jervis Bay would not be compatible with the management of the Jervis Bay area as a natural recreation area and would pose a threat to the viability of the Jervis Bay Nature Reserve. (para 123)
10. The environmental quality of Australian Government land on Beecroft Peninsula has been degraded through lack of appropriate management measures. (para 134)
11. The Jervis Bay area is a valuable ecological reference area and considers that substantial areas of its land and waters should be reserved for both controlled recreation and sporting uses, while appropriate sections of the reserved areas should be zoned and strictly controlled as nature conservation reserves. (para 153)
12. The Jervis Bay area is an important part of the national estate and that its effective protection and preservation as such will be dependent on its management as an integrated unit. (para 172)
13. The co-ordination of development and management programs in the Jervis Bay national estate area and the involvement of the public in these programs would be facilitated by the provision of a regional environmental extension officer. (para 177)

RECOMMENDATIONS

The Committee recommends that:

1. Funds be provided by the Australian Government to finance study by all levels of government of national coastal resources and to develop a policy for the future management of these resources. (para 55)

2. Australian Government involvement in any proposal to establish port or heavy industrial facilities at Jervis Bay be subjected to an environmental impact study under the terms of the Environment Protection (Impact of Proposals) Act 1974-1975; and

If it can be conclusively demonstrated that a more suitable alternative site exists elsewhere in Australia the Australian Government not support the proposal. (para 55)

3. The Australian Government revoke plans to establish a nuclear power station at Jervis Bay, and the agreement to reserve land at Murrays Beach for use by the Australian Atomic Energy Commission be terminated. (para 58)

4. The Australian Government provide funds for the development of a long-term comprehensive Jervis Bay Area Management Plan to be developed and implemented in consultation with the Government of New South Wales and the Shoalhaven Shire Council. (para 75)

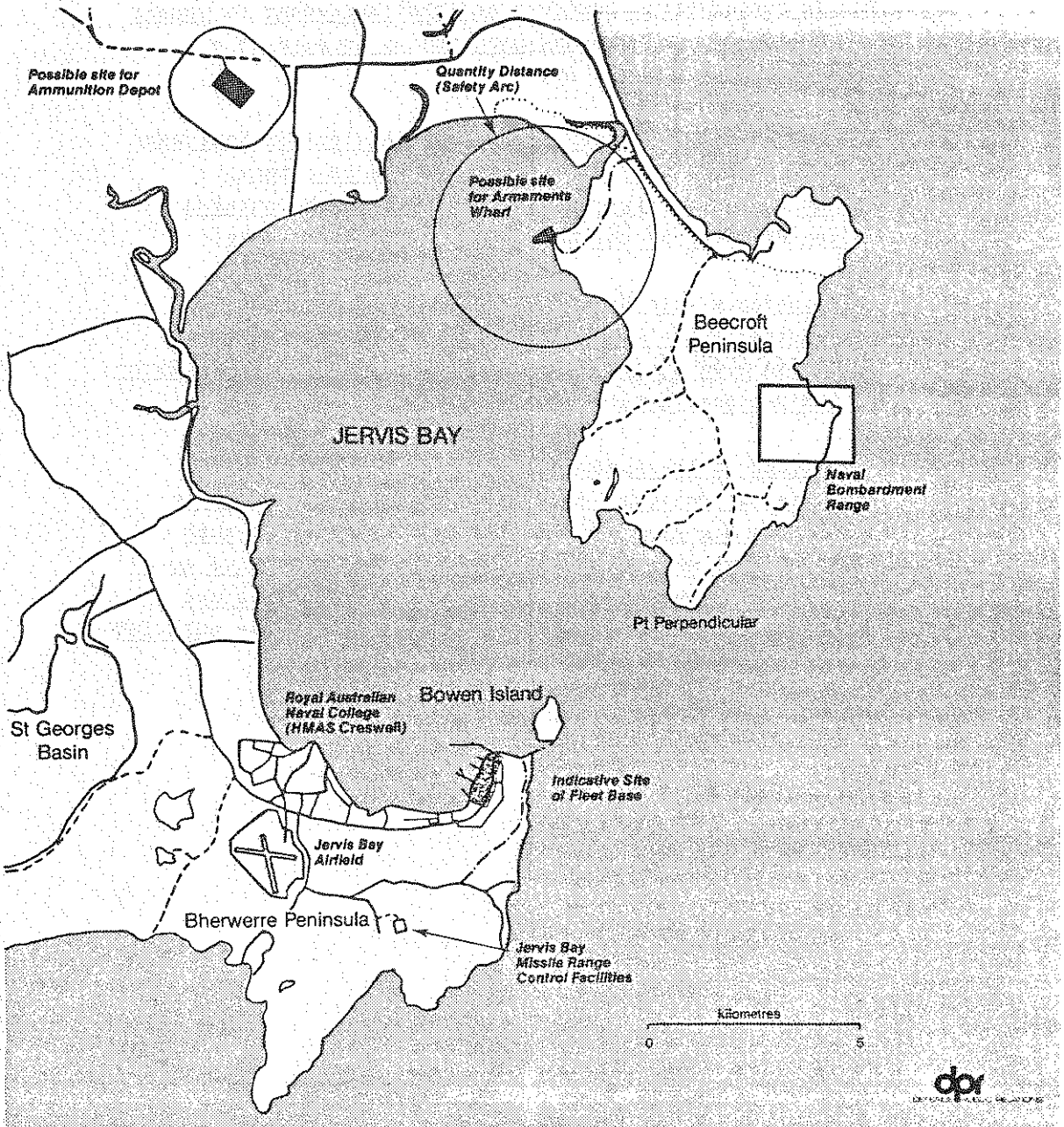
5. The Australian Department of Environment fund the detailed assessment of alternative sewerage disposal methods for the Huskisson-Vincentia sewerage scheme and that the Australian Government subsidise (if necessary) any such scheme which is found to be economically viable and environmentally preferable to the current scheme. (para 96)

6. Leases currently being negotiated by Mr Thurbon and the Australian Railways Union be renewed for a period of 10 years only in each case and that the conditions of such leases specify that no enlargement of the capacity of the leases will be permitted. (para 103)
7. On the expiry of these leases the land be restored to its natural state and the leaseholders compensated for loss of assets. (para 103)
8. On the expiry of the leases on Blocks 9 and 11 held by Mrs J.P. Ellmoos and Mrs A. Junk respectively, the leaseholders be permitted to remain on the lease sites as private residents only, during their lifetimes. (para 103)
9. On the death of the leaseholders, the Christians Minde area be set aside as a day visitor area and site of historical interest and be managed accordingly. (para 103)
10. All other current leases at Sussex Inlet North not be renewed on expiry, the sites restored to their natural state and the leaseholders compensated for loss of effects. (para 103)
11. The leases on Blocks 51 and 53 be terminated no later than 12 months from the date of this Report. (para 108)
12. Green Patch camping area be extended away from the beach towards Jervis Bay Road, and the existing camping area between the access road and Telegraph Creek be revegetated.
(para 111)
13. To avoid the further alienation of natural bushland the site excavated for the proposed atomic power station at Murrays Beach be utilised for the establishment of a Natural Sciences Research and Study Centre, with facilities being provided on a leasehold basis to interested institutions. (para 115)

14. Any proposal to develop naval facilities at Jervis Bay be subjected to an environmental impact study in accordance with the terms of the Environment Protection (Impact of Proposals) Act 1974-1975; and
If it can be demonstrated that a more suitable alternative site for such development exists the Australian Government not agree to the proposal. (para 123)
15. The research study recommended in paragraph 96 in relation to the Huskisson-Vincentia sewerage scheme be extended to include the desirability of upgrading the sewerage treatment system at H.M.A.S. Creswell and investigate the feasibility of connecting this system to the Huskisson-Vincentia scheme. (para 126)
16. The Australian Government land at Beecroft Peninsula be managed as a recreation and nature reserve on an agency basis by the Department of the Capital Territory on behalf of the Department of Defence and in accordance with the requirements of that Department. (para 134)
17. Until the results of relevant marine biology research programs are available, the current management approach to seaweed collection and bait-fishing in the proposed marine reserve areas should continue. (para 144)
18. The Jervis Bay Nature Reserve be extended to include all areas of the Jervis Bay Territory not presently reserved for use by the Department of Defence. (para 163)
19. The Australian Government waters of Jervis Bay be dedicated as a marine reserve and that the waters indicated on Map No. 6 be considered for dedication as a marine conservation reserve. (para 163)

20. The Australian Government propose to the Government of New South Wales that the areas indicated on Map No. 6 be considered for dedication as marine reserves and marine conservation reserves and that agreement be sought as to a co-ordinated management policy in respect to these reserves. (para 163)
21. In accordance with Section 25 of the Australian Heritage Commission Act 1975 the Jervis Bay area be entered forthwith on the list of places that might be entered in the Register of the National Estate. (para 172)
22. In accordance with Sections 22 and 24 of the same Act, the Australian Heritage Commission take appropriate action to have the Jervis Bay area entered on the Register of the National Estate. (para 172)
23. An officer of the Australian Heritage Commission be appointed as regional environment extension officer in the Jervis Bay area and that he be provided with such facilities as are required to ensure the effective co-ordination of development and management policies and the dissemination of information related to these policies. (para 177)

APPENDIX 3



Jervis Bay, showing present and proposed naval facilities.

Source: Department of Defence.