

# **IALA Guideline No. 1074**

**On**

## **Branding and Marketing of Historic Lighthouses**

**Edition 1**

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## Document Revisions

Revisions to the IALA Document are to be noted in the table prior to the issue of a revised document.

Date	Page / Section Revised	Requirement for Revision

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# Branding and Marketing of Historic Lighthouses

## 1 INTRODUCTION

Historic lighthouses are iconic symbols for the area and surrounding communities within which they are located.

In many countries, heritage lighthouses located in close proximity of local communities generate strong public interest. In most cases, local communities and business organisations use the lighthouse symbol or its name to promote their businesses.

## 2 SCOPE

This document aims to provide general guidance on the branding and marketing of heritage lighthouses and offers some examples from lighthouse authorities around the world. Public access to lighthouses may not be within the remit of lighthouse authorities who are restricted by working, financial or legal constraints but this document would equally be appropriate for third parties undertaking business under licence on an authority's property.

## 3 WHY BRANDING AND MARKETING?

Many lighthouse authorities are still responsible for the management and maintenance of historic lighthouse structures and their associated aids to navigation equipment. With strong public interest from local communities, it is prudent and important for authorities to have a consistent approach to branding and/or marketing of their lighthouses.

A consistent approach will help maintain the authority's reputation as good maintainers and operators of their historic structures. It also offers the authority an opportunity to promote maritime safety, raise public awareness and increase visitor numbers, has the potential to improve security through awareness and may offer local community employment opportunities.

The following section outlines some of the reasons that some authorities choose to market their lighthouses.

### 3.1 Promote Maritime Safety

Most maritime authorities have responsibility for more than just the provision of aids to navigation. In promoting the role of the lighthouse in the authority's aids to navigation network, maritime authorities also have an opportunity to inform the public of their other responsibilities e.g. protection of the marine environment, search and rescue and ship inspections, pilotage etc.

### 3.2 Raise Public Awareness

Branding and marketing of a heritage lighthouse allows the authority to raise awareness in the local community regarding the history and cultural significance of the lighthouse. It allows the story to be told on how the lighthouse was established, its use in improving maritime safety and the people that have worked and tendered the light over the years.

### 3.3 Increase Visitor Numbers

An increase in visitor numbers will translate into increased revenues. This additional revenue can be used to maintain the light station and associated visitor facilities.

### 3.4 Improve Security through awareness

If the local community is aware of the significance and the role that the light station plays in improving safety for mariners, the level of interest from the local community about what is happening at the light station is generally higher. This can lead to higher levels of observation, reporting of vandalism and notification, if the light is not operating.

### **3.5 Provide Local Employment Opportunities**

Historic lighthouses that have other facilities for visitors such as museums and tours of the light station generally provide additional full time and part time employment for people in the local community.

## **4 BRANDING AND MARKETING STRATEGY**

There are many discrete activities that can be undertaken to promote a historic lighthouse. The extent of the activities should be linked to a business case based on the extent of use of the lighthouse for purposes other than an aid to navigation e.g. a lighthouse that is opened to the public on a regular basis may have a much more detailed marketing strategy than a lighthouse that is only opened on a periodic basis.

The following options could be considered by authorities when developing their marketing strategy for a particular lighthouse:

- Use Internal or external marketing consultants to develop a strategy:
  - Development of logos – effective designs;
  - Development of common themed publications;
  - Development of links with other lighthouses – local, regional, national or even internationally including common themes or logos.
- Solicit the support of local groups who have an interest in the lighthouse and their surroundings;
- Use of internet to advertise heritage lighthouses and visitor services offered at each site;
  - Internet 'page' to have a 'mud map', extract from the nautical chart and 'how to get there' type of instructions.
- Advertise availability for special events (e.g., anniversary's in local newspapers);
- The use of lighthouses for commercial advertising in the media and for television filming depends upon each authority's regulations which will differ from country to country.

If internal resources are not available, authorities should consider using suitably qualified external marketing consultants to assist with reviewing existing tourist operations and preparing a suitable strategy to enhance the experience.

In many cases, local community and volunteer groups have an interest in the lighthouse and its surroundings. They can provide assistance to the authority with minor maintenance tasks and security at remote sites.

The internet is a very useful tool in providing visitors and enthusiasts with information on the lighthouse, access to the site, hours of operation and visitor facilities available.

In addition to using the internet to advise the general public of what is happening at the lighthouse, the use of other medium such as local newspapers could be considered for special events at the lighthouse such as anniversaries of significant events.

Most maritime authorities have logos that identify their organisations and this could also be considered to promote historic lighthouses. The development of common themes for publications allows authorities to reduce the development time and costs for publications.

## **5 POSSIBLE VISITOR SERVICES**

There are a number of visitor services that could be offered to the public depending on the size of the site, available infrastructure and likely visitor numbers.

The following options could be considered.

### **5.1 Visitor Accommodation**

The use of redundant light keeper's quarters for possible hotel, bed & breakfast and holiday let accommodation offers the visitor a unique opportunity to stay close to the lighthouse and experience the local environment and changing conditions of the seascape.

### **5.2 Guided Tours**

Guided tours of the site allow the authority to ensure that all visitors are informed about the history and significance of the light and its development during the time that the lighthouse has been operational. It also ensures that access to the lighthouse is supervised and safety is maintained while the public are on the premises e.g. warning of low head room, steep stairs, rotating lenses, etc. This can also include related specialist tours on the ecology, geology, flora or fauna of the local area.

### **5.3 Museum, Visitor Centre and Exhibition Areas**

An onsite Museum and/or Visitor Centre and Exhibition Areas offers a number of advantages:

- Educates the public on the importance of the aids to navigation, including modern aids such as new light and power sources, DGPS, racons and AIS for the safety of mariners.
- Educates the public on the history and cultural significance of the lighthouse and light station.
- Allows the authority to store and display artefacts relevant to the lighthouse or local area. These artefacts may be currently stored at alternate locations at a cost to the authority.
- Provides an opportunity for the authority to inform the public of its other activities e.g. protection of the environment, search and rescue and response to maritime pollution.

### **5.4 Hosting Special Events**

- Weddings;
- Birthdays;
- Anniversaries.

### **5.5 Café**

A small cafe or restaurant could be considered depending on visitor numbers offering meals such as light snacks and beverages etc.

### **5.6 Gift Shop**

A gift shop allows visitors to take away a small memento of their visit to the light station. A range of promotional material could be considered for sale in the gift shop.

- Historic lighthouse prints;
- Books;
- Posters and postcards;
- DVD's – rare video footage of the area;
- Miniature replicas of the lighthouse;
- Christmas cards;
- Calendars;
- Key chains;
- Writing stationery (pens, pencils and printed paper).

## **6 CONCLUSION**

The authority can take advantage of the significant public image possibilities provided by their iconic lighthouses for their own publicity purposes or with a third party under licence to allow public access under controlled circumstances.

## **ANNEX 1    EXAMPLES OF PUBLICATIONS PRODUCED BY AUTHORITIES**

The following documents are examples of how lighthouse sites may be marketed:

- 1    Australian Maritime Safety Authority - Wilsons Promontory Anniversary Publication.
- 2    Australian Maritime Safety Authority - I & T Activities Information Banner.
- 3    Northern Lighthouse Board – Ardnamurchan Lighthouse Information Sheet.
- 4    Trinity House – Eddystone Lighthouse Fact Sheet.

**Example 1 – AMSA - Wilsons Promontory Anniversary Publication**

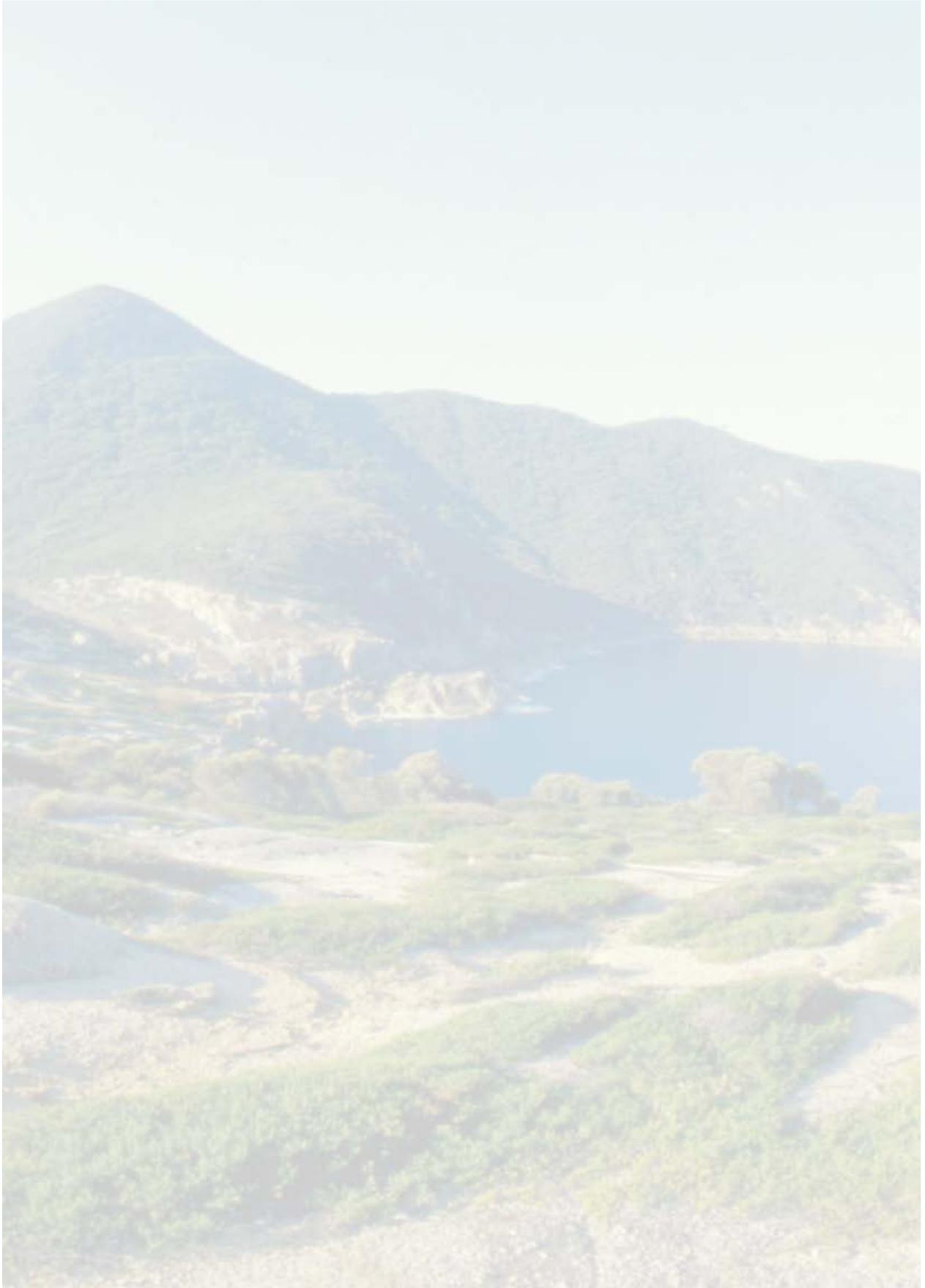


# Wilsons Promontory

## Lightstation

**150TH ANNIVERSARY**

**JULY 2009**



## ORIGINAL INHABITANTS

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Wilson's Promontory is the spiritual land of the Gunai / Kurnai and Boonerwung / Bunerong people.

To the Gunai / Kurnai people, who lived to the east, "the Prom" is Yiruk.

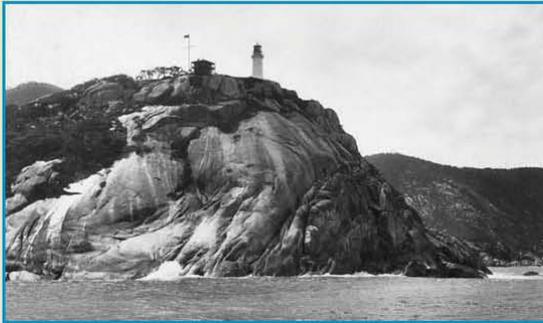
To the Boonerwung / Bunerong people, who lived to the west, it is Wamoon.

Yiruk / Wamoon is a living place of special meaning. The Gunai / Kurnai and Boonerwung / Bunerong still maintain a strong cultural and spiritual link with the country, and welcome all to Yiruk / Wamoon.



*Wilson's Promontory, 150th Anniversary*

# HISTORY



Wilsons Promontory is the southern most extremity of the Australian mainland and is located approximately 240 kilometres south-east of Melbourne. The Wilsons Promontory lightstation is situated at South East Point, within the Wilsons Promontory National Park.

The Promontory was sighted on 2<sup>nd</sup> January 1798 by Matthew Flinders and George Bass, who named it Furneaux land in the mistaken belief that it had first been seen by Captain Tobias Furneaux in 1773.

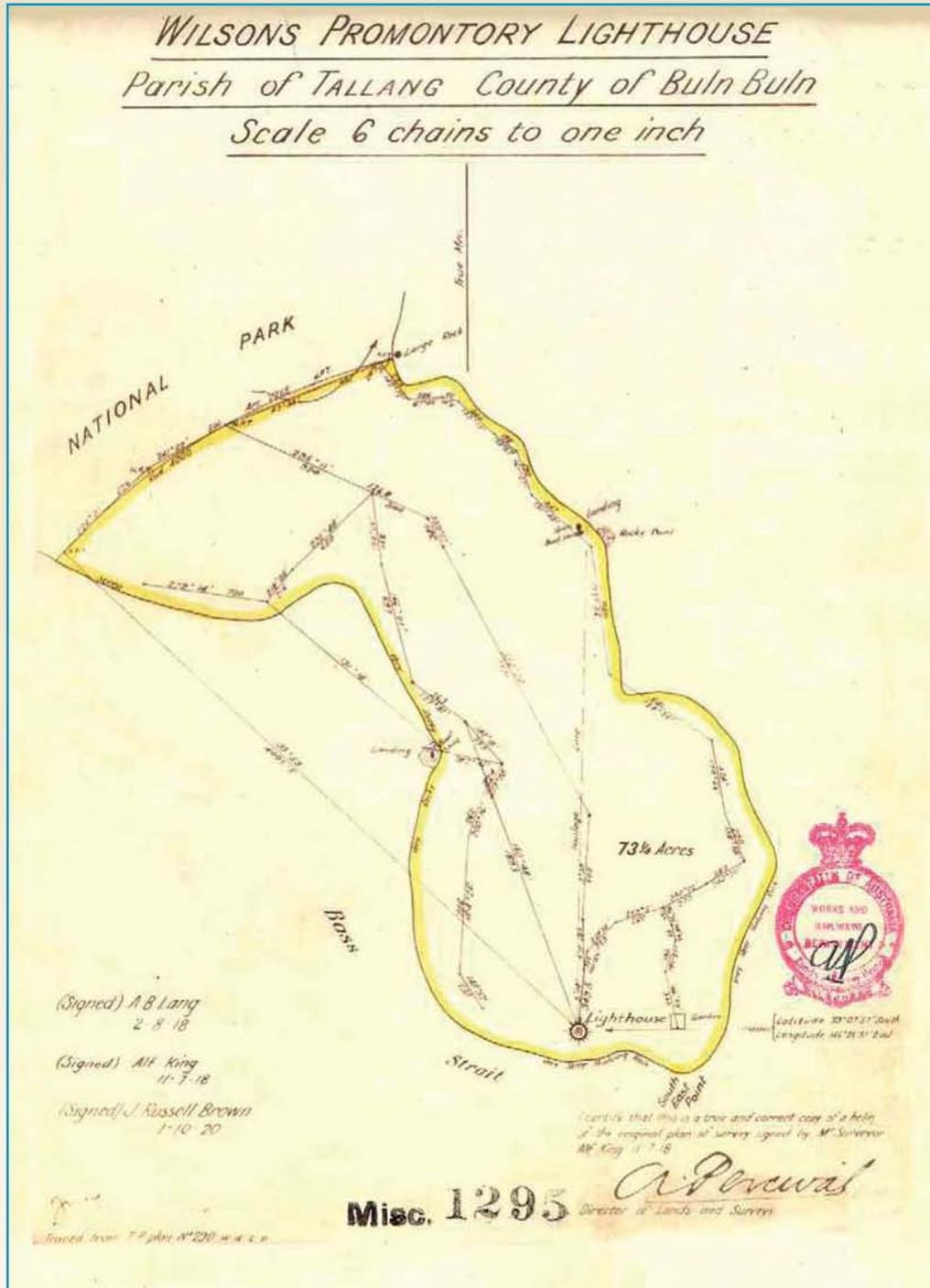


Following his return from the whaleboat voyage, Bass sailed with Matthew Flinders on the sloop *Norfolk* with the intention of circumnavigating Van Diemen's land thus proving the existence of a strait. This voyage was successfully accomplished and following his return to Port Jackson, Flinders recommended to Governor Hunter that the promontory marking the southernmost point of the mainland be named Wilsons Promontory after Thomas Wilson of London, a friend of Flinders and a merchant engaged in the Australia trade.



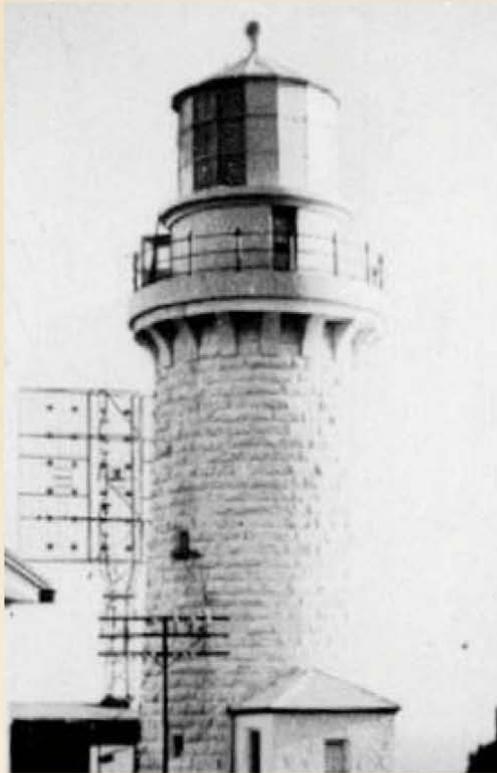
The Commonwealth acquired Wilsons Promontory lightstation from the state on the 1<sup>st</sup> July 1915 when the *Commonwealth Lighthouse Service* assumed responsibility for all Ocean lighthouses.





Wilson's Promontory, 150th Anniversary

## WARTIME OCCUPATION



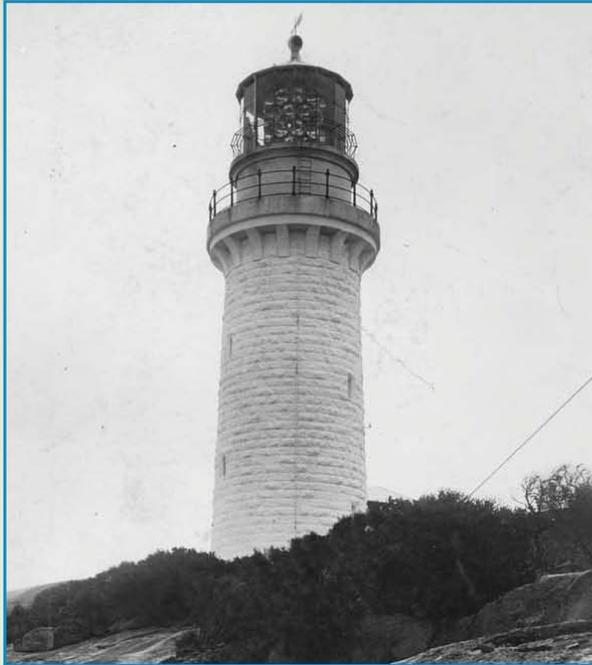
From about 1938 until the end of the Second World War the national park was closed to the public and a small naval contingent and commando units trained there. A radar station was constructed at the lightstation.



4

*Wilson's Promontory, 150th Anniversary*

## SIGNIFICANCE



The lighthouse and buildings are heritage listed.

The following statement of cultural significance from the Victorian Heritage Register explains why the Wilsons Promontory lightstation is significant:

*Historically it is important as one of the key navigational aides established to make Bass Strait safe following recommendation of the 1856 Intercolonial Conference and as a station that has continued to provide for the safety of shipping since it was constructed.*

*Architecturally it is important for its design. Designed by Maplestone, who was responsible for early lighthouses in Victoria, it retains much of its important early fabric.*

*Archaeologically it is important for its potential to reveal building remnants from the earlier light station, signal station and remnants of a military radar station.*



*Wilsons Promontory, 150th Anniversary*

## THE LIGHTSTATION



Dangers to shipping in this area soon became apparent and in 1856 an intercolonial conference recommended a lighthouse be built.

Later that year James Balmain, Colonial Architect of the Victorian Public Works Office, inspected the area for possible sites and selected South East Point.

Construction of the lighthouse commenced in 1857 and was completed in 1859.

In February 1951 fire destroyed the original number 2 and 3 lightkeeper's quarters which had been built in 1859 and these buildings were rebuilt in 1952 and 1953.

The tower is 19 metres high and was painted white until 1987 when it was returned to its original stonework. It will remain in that state. Colonial architect James Balmain concluded that the granite at the site was good enough for rubble work only, and that the whole of the tower should be faced in another stone for greater durability, probably Melbourne bluestone. However no bluestone was ever used and the building is constructed entirely of local granite quarried on site.



The total cost of constructing the tower and quarters was £19,500 and was funded jointly by the New South Wales and Victorian Governments.

This is approximately \$4 million in today's terms.



The tower is now surmounted by a 7' AMSA generic fibreglass lantern house.

## LIGHT SOURCE



The lighthouse was initially illuminated by 32 burning lamps individually fitted with parabolic reflectors. The reflectors were arranged on a circular frame in four tiers and the light was non revolving.

The apparatus was manufactured by Thomas Wilkins and Sons of London. Colza (or rape-seed) oil, a vegetable extract from the wild cabbage (genus *Brassica*) was used as an illuminant during the 1870's. Whale oil was also burnt. Captain C Brewis reported upon the lighting of the Australian Coast 1911-1913 and in his report states the Wilsons Promontory Light as being 'One, white, catoptric. Fixed. About 2,000 candle power illuminant, kerosene.' This indicates kerosene was in use before the conversion to the dioptric system.

In 1912 Commander Brewis was appointed to examine all lights on the coast and he recommended that the optic be replaced with vapourised kerosene and a rotating lens. This was done in 1913 when the original apparatus was replaced by a more efficient system comprising a group flashing third order Fresnel lens driven by a clockwork mechanism, and illuminated by a Chance vapourised kerosene 55 millimeter diameter incandescent mantle.

In 1922 the incandescent apparatus was replaced by auto form mantles.

In 1975 the lantern, lens and pedestal were removed, and a fibreglass lantern house and sealed beam lamp array installed.

In 1993 a solar powered, automatic PRB46 was installed.

Today a Vega VRB25 low voltage lantern is in use. This lantern utilises 12 volt 35 watt globes giving a range of 18 nautical miles. Adjacent to the tower base is the modern power source comprising of solar panels and a stainless steel cabinet holding a battery bank.

## LIGHTSTATION STAFF



The Wilsons Promontory light began operation in 1859 with a head keeper and two assistants and their families. The importance of the Wilsons Promontory lightstation was augmented by the provision of a signalling station which Brewis regarded of sufficient importance to recommend the appointment of an additional lightkeeper. In March 1884 tenders were called for the erection of the signallers' quarters.



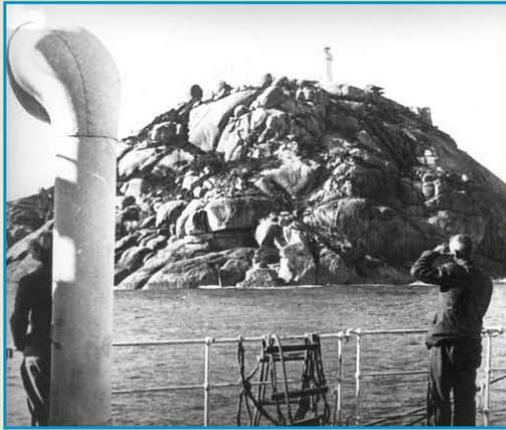
In November 1890 a contract was awarded to David Gorrie and Andrew Sharp for repairs, alteration and additions at the lightstations. The work involved the construction of some fencing and either the construction of, or an addition to, an assistant signaller's quarters. There are foundations of two houses to the north of the existing houses which indicate the location of these two signallers' quarters. (So this suggests there could have been three lightkeepers plus two signallers at the station – at least up until World War One when the Navy commandeered the signal station.)

Four keepers manned this station until 1951 when this was reduced to three.



Lightkeeper's wives and children stayed on station and in later years the children completed their primary and secondary schooling by utilising the services of the Distance Education Centre, Melbourne.

In April 1880, WM Fish, lighthouse keeper at Wilsons Promontory, reported that he and Messieurs Loudon and Kilby would contribute a total of 14 pounds per annum if a school were established. Chief harbourmaster Charles H Payne supported the request. The 14ft x 14ft general storeroom at the lighthouse was leased for a nominal sum and the school



opened on the 13<sup>th</sup> of September 1880. Head Teacher Mary Dwyer travelled down on the government steamer *Pharos*. Although 14 children initially enrolled, by November Ms Dwyer reported that, because of the dismissal of some of the parents, only six children remained. The Department then closed SS2278 Wilsons Promontory on 31<sup>st</sup> December 1880. A proposal to reopen Wilsons Promontory in 1910 half time with SS3657 Clifly Island (three months at each alternatively) was abandoned when normal transfers left no children at Clifly Island and only three at Wilsons Promontory.



*'I know from the experience of teaching our girls via Distance Education (Correspondence 'Corro' School, as it was called when our eldest daughter started school in 1982), that opening the mail bag on "stores day" (when the mail ketch / helicopter arrived) was a highlight of the fortnight. The previous completed lessons, being returned by the Corro teachers, would be nestled in the mail bag waiting for eager hands and eyes to open and absorb. The "corrected" pages would be adorned with stamps and stickers interspersed with numerous comments of encouragement. A letter from the teacher was usually attached describing some anecdote about themselves and their experiences, which helped to keep us in touch with the world outside lightstation life.'*

*Ailsa Richter  
Lightkeeper's wife*



*Wilsons Promontory, 150th Anniversary*

## SERVICING THE LIGHT



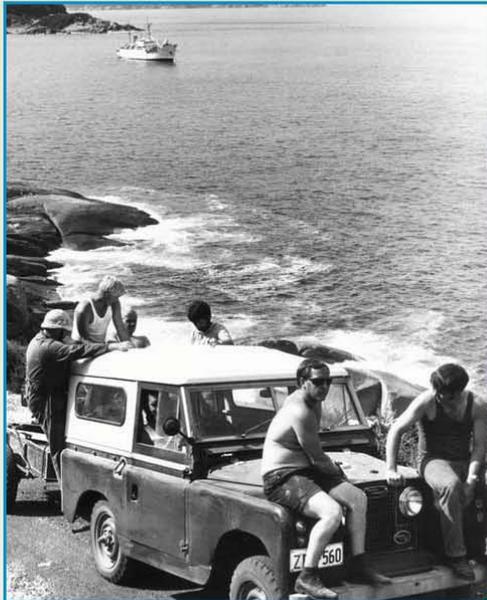
Lightships such as *Lady Loch* and *Cape Pillar* were used to service the lightstation from the 1850s to 1980s. Supplies were ferried from the ship to a landing platform on shore. Prior to 1951 a flying fox was in operation for transportation from the landing to the station. Once 4WD vehicles were introduced, the flying fox became obsolete. An amphibious LARC (Lighter, Amphibious, Resupply, Cargo vehicle) was utilised for a short period in the 1980s but due to the steep terrain proved to be unsuccessful. Helicopters were introduced for transporting personnel between lightstations in the 1970s and soon became the main method of providing supplies.

Goats were popular as a means of providing milk and meat as they were easy to feed and handle. Fresh vegetables were often in short supply.

*'We always tried to grow a vegie garden (weather and sandy soil permitting), to supplement food supplies and have discovered evidence of several vegie garden sites that have been cultivated by lightkeepers throughout the history of this station'.*

*Ailsa Richter*

The Light was automated in August 1993. After automation one lightkeeper maintained the lightstation from August 1974 until Dec 1995 when the land was transferred to Parks Victoria.



*Wilson's Promontory, 150th Anniversary*

## RECENT TIMES



The Australian Maritime Safety Authority (AMSA) was established in January 1991 as a statutory authority to enhance efficiency in the delivery of safety and other services to the Australian maritime industry.

Under legislation, AMSA coordinates Australia's national and international responsibilities in relation to ship safety, protection of the marine environment and maritime and aviation search and rescue.

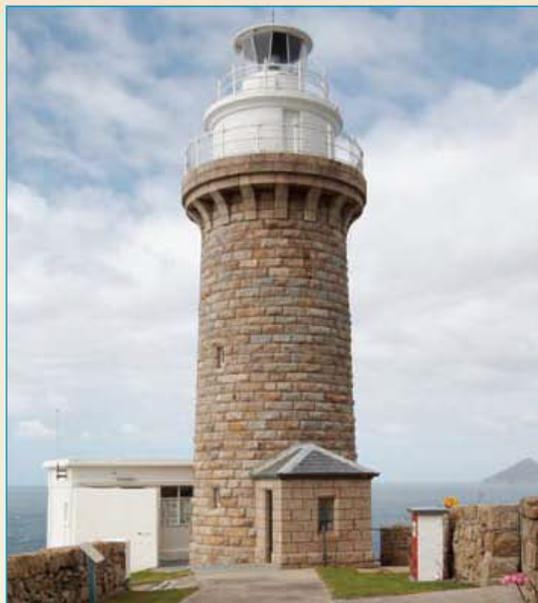
AMSA also coordinates Australia's involvement in world maritime forums.

Management of AMSA is the responsibility of a eight member Board of Directors, including the Chief Executive. Members are drawn from industry and Government and bring appropriate skills and expertise to the conduct of AMSA's important commercial and safety functions.

Wilson's Promontory Lightstation is one of a network of over 470 aids to navigation maintained by AMSA around the 37,600 kilometres of Australia's coastline.

These aids to navigation are funded by the commercial shipping industry through the Marine Navigation Levy.

Since the Commonwealth handover to the state in the 1990s the lightstation has been managed by Parks Victoria. The lightstation is within the Wilson's Promontory National Park. A Heritage Victoria grant enabled the restoration of the lightkeepers residences for accommodation use.

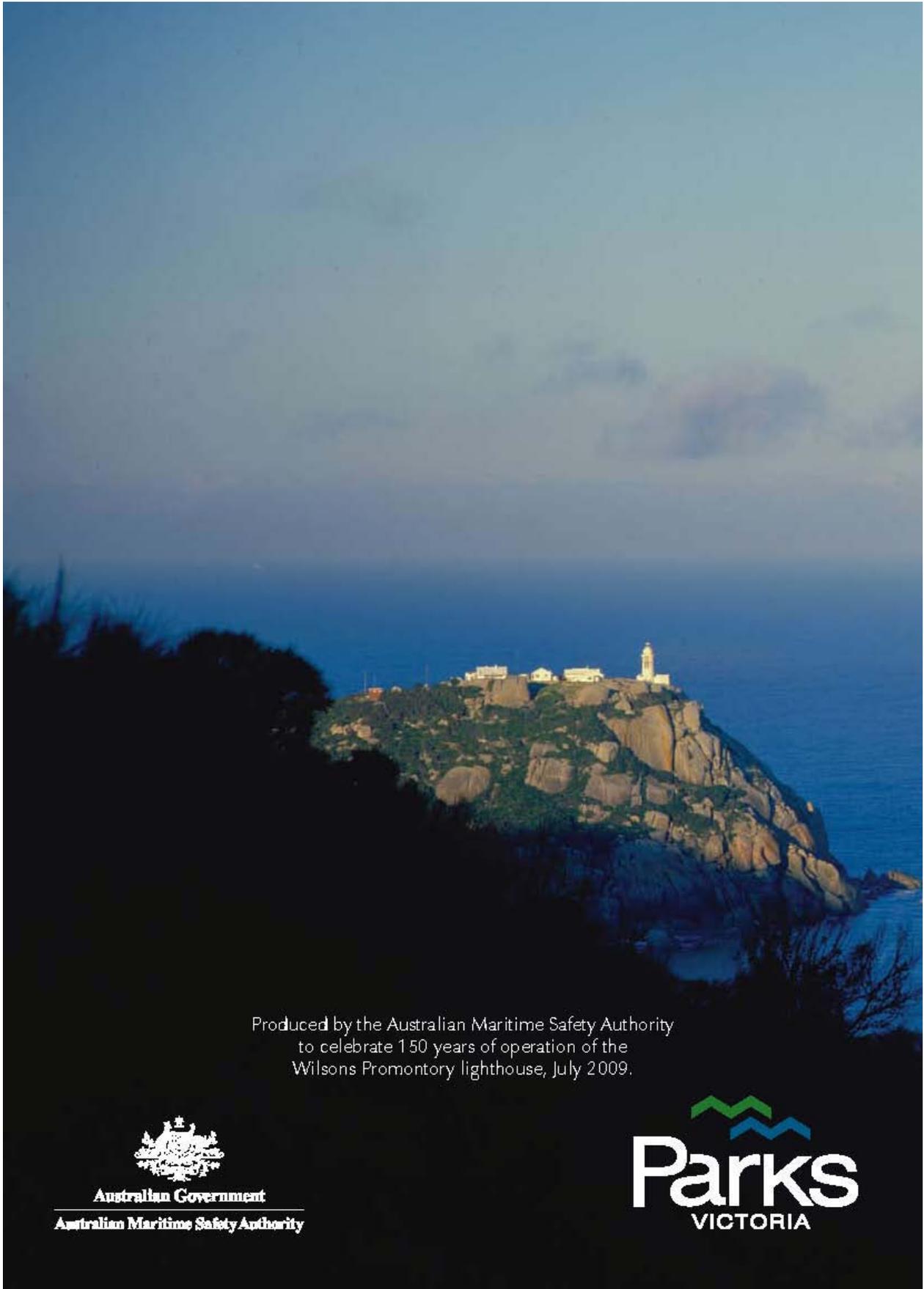


**AIDS TO NAVIGATION SCHEDULE AN388-01**

**WILSONS PROMONTORY LIGHT - VIC**

(Established: 1859)

<b>IALA AVAILABILITY CATEGORY:</b>	1
<b>POSITION:</b>	Latitude: 39° 07.7910' S Longitude: 146° 25.4630' E Datum: WGS84
<b>CHARTS:</b>	AUS 350, 801
<b>DAYMARK:</b>	Grey stone tower, white lantern and dwellings, 19 metres high
<b>CHARACTER:</b>	Flashing 7.50 sec Flash: 0.06 sec Eclipse: 7.46 sec
<b>COLOUR OF LIGHT:</b>	White
<b>ARC OF VISIBILITY:</b> TRUE BEARINGS FROM SEAWARD	201° - 082° (241°), except where obscured by adjacent islands.
<b>BEACON:</b>	Vega VRB-25 located inside lantern
<b>LENS SPEED:</b>	1.33 RPM
<b>LIGHT SOURCE:</b>	Lamp: 12V 35W C8 Halogen LP PR30s Lampchanger: VLC-153 Flasher: Calc-20 Daylight Control Switch: Vega
<b>POWER SOURCE:</b>	Solar Panels: 10 x Solarex MSX60 (Inclined 60° to horizontal) Solar Control Board; 2 consisting Regulator: 5 x Plasmatronics PL20 Diodes: Schottky barrier 5A, 30PRV 10 for battery modules Battery: 12V, 1000Ah (10 x 100Ah modules) 20 x Yuasa EN100-6, 6V, 100Ah
<b>REMOTE MONITOR:</b>	Autodialler: EDAC SMS85 CDMA Modem: MAXON MM-5100 Modem ESN: 3B012282 Telephone Number: 0427 899 414 Data Number: Power Supply: Common to Light
<b>STRUCTURE:</b>	Grey stone tower, 13 metres high to balcony.
<b>INTENSITY:</b>	48,430 cd
<b>ELEVATION:</b>	117 metres
<b>RANGE:</b>	Nominal: 18 nmiles Geographical: 17 nmiles



Produced by the Australian Maritime Safety Authority  
to celebrate 150 years of operation of the  
Wilson's Promontory lighthouse, July 2009.



## Example 2 - AMSA – Information & Technology Activities Information Banner

# Innovation and Technology

The Australian Maritime Safety Authority (AMSA) operates a network of aids to navigation that includes traditional lighthouses, beacons, buoys, radar transponder beacons (racons), Differential Global Positioning System (DGPS) stations, a vessel traffic service and ship reporting system (REEFVTS), automatic identification system (AIS) stations and broadcasting tide gauges and current meters.

AMSA has a rich history of being at the forefront of technology – from the early use of unmanned acetylene powered beacons in 1913, the establishment of DGPS stations in the early 1990's through to the establishment of AIS stations in 2004.

In 1996 AMSA, in partnership with Maritime Safety Queensland, established a ship reporting system for the Torres Strait and Great Barrier Reef (REEFREP). In 2004 REEFREP was upgraded to Australia's first Coastal Vessel Traffic Service (REEFVTS). REEFVTS will continue to be upgraded with the latest technologies to enhance situational awareness and the quality of shipping traffic information.

AMSA is committed to using new technologies to improve the availability and efficiency of its aids to navigation network, for example through the use of low maintenance modular fibreglass towers, LED lights and remote monitoring of critical sites.



Australian Government  
Australian Maritime Safety Authority

*AMSA is committed to using new technologies to improve the availability and efficiency of its aids to navigation network.*

## Example 3 - NLB - Ardnamurchan Lighthouse Information Sheet

**Why not climb to the top?**

In 1988 Ardnamurchan lighthouse was automated and the former keepers cottages and outbuildings were sold to The Ardnamurchan Lighthouse Trust. These are now operated as a Visitor Centre offering the chance to learn more about Scottish lighthouses and the flora and fauna of the Ardnamurchan peninsula you can also have a restful break in the coffee shop.

In a joint partnership between the Northern Lighthouse Board and The Ardnamurchan Lighthouse Trust you can now climb to the top of Ardnamurchan lighthouse. There is a small charge to help maintain this facility, tickets are available through the Visitor Centre, which is open between April and October.

On days when essential maintenance is taking place the lighthouse will be closed to visitors.

**How to get there**

From the Corran Ferry join the A861, for Salen, then join the B8007 and continue to Kilchoan, at the end of the village follow the sign to the lighthouse. Great care should be taken along this route.

**Beautiful Beaches and Views**

The panoramic views of the Hebrides are unsurpassed from Ardnamurchan and the surrounding area abounds in wildlife. Otters, seals, porpoises and minke whales are regularly seen in the seas below the light. While the skies overhead are frequented by a huge variety of birdlife. Both red and roe deer graze nearby and pine martens and wildcats have been spotted. Nearby, the beaches at Sanna and Portuairk offer beautiful white sands.

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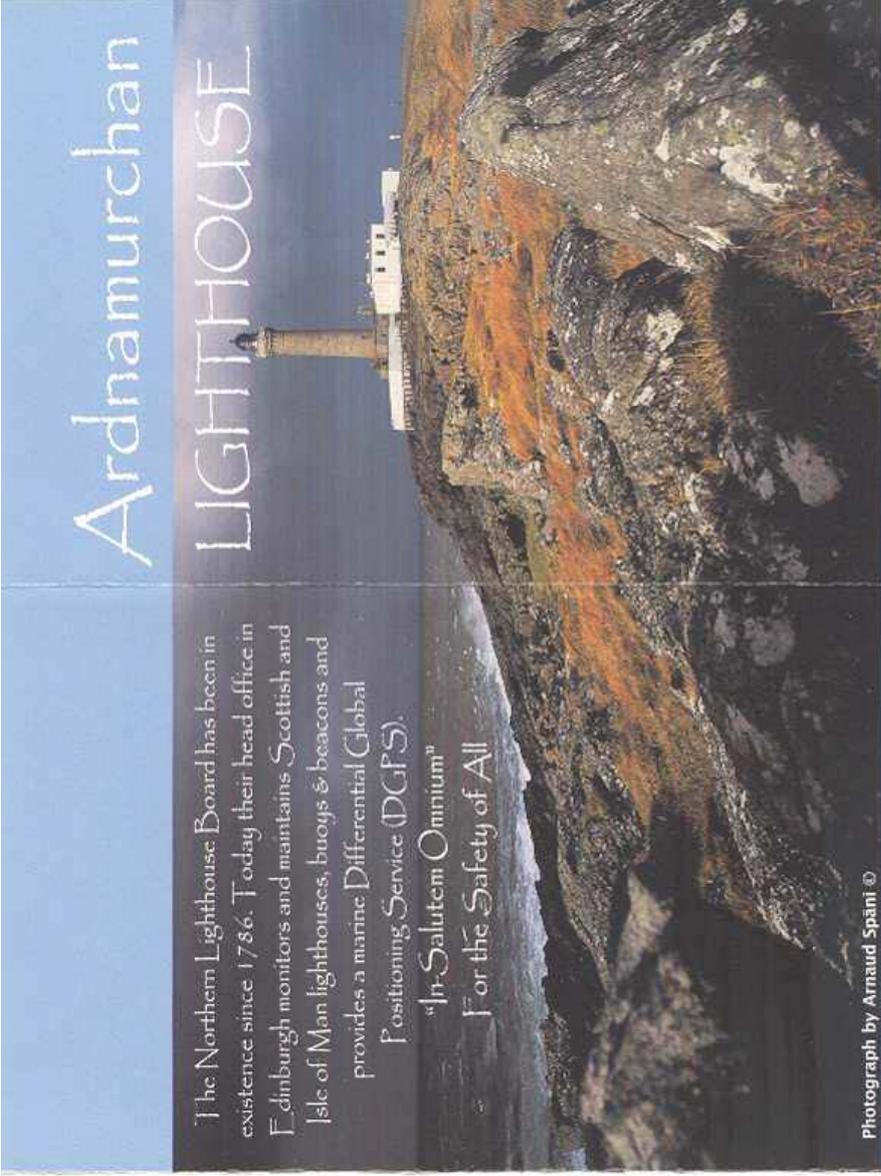
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**Ardnamurchan LIGHTHOUSE**

The Northern Lighthouse Board has been in existence since 1786. Today their head office in Edinburgh monitors and maintains Scottish and Isle of Man lighthouses, buoys & beacons and provides a marine Differential Global Positioning Service (DGPS).

**"In Salutem Omnium"  
For the Safety of All**

Photograph by Arnaud Spani ©

**More than Lighthouses  
[www.nlb.org.uk](http://www.nlb.org.uk)**

Northern Lighthouse Board  
84 George Street, Edinburgh EH2 3DA, United Kingdom  
Telephone: +44 (0) 131 473 3100 Fax: +44 (0) 131 220 2093  
E-mail: [enquiries@nlb.org.uk](mailto:enquiries@nlb.org.uk)

Peace and her huge invasion to these shores  
Puts daily homes; innumerable sails  
Down on the far horizon and draw near;  
Innumerable loves, uncounted hopes  
To our wild coasts, not darkling now, approach;  
Not now obscure, since thou and time are there.

Extract from poem "To my Father" by Robert Louis Stevenson





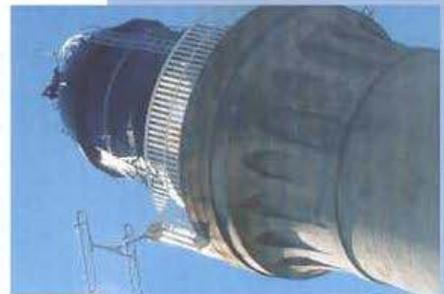
# BEACONS OF THE SEA

Ardnamurchan lighthouse is one of over 200 located around Scotland's wild coastline operated and maintained by the Northern Lighthouse Board.

## Egyptian influences

Standing 36 metres high and 55 metres above sea level Ardnamurchan lighthouse was designed and built by Alan Stevenson in 1849. This is the most westerly point on the Scottish mainland; the lighthouse plays a vital role in navigating through an area of many islands, strong tidal streams and poor weather conditions.

The site for the lighthouse was chosen in 1845 and 20 acres of land was purchased for the sum of £20,000! It took three years to complete the building of the lighthouse, which was built of Ross of Mull granite. It stands secure on the surrounding dark, coloured gabbro volcanic rock (Granite from Ross of Mull was also used to build Skerryvore and Dubh Artach lighthouses). Egyptian influences can be seen in the entrance to the tower, the chimneys of the cottages and the arches (corbel) at the top of the lighthouse tower beneath the balcony.

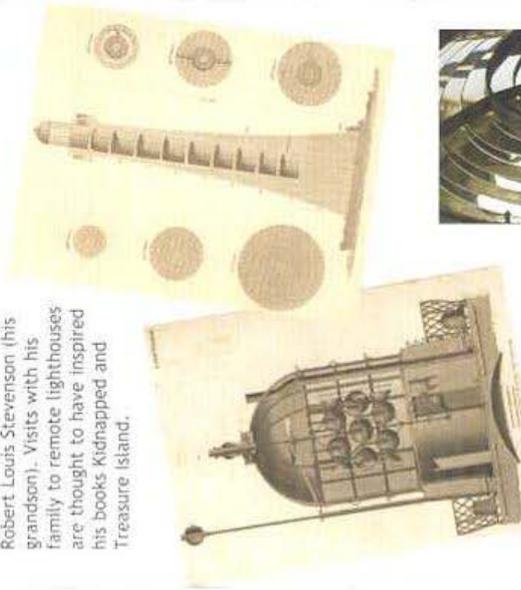


## The Sensational Stevensons

For over one hundred and fifty years Robert Stevenson and his descendants designed most of Scotland's Lighthouses. Battling against the odds and the elements - the Stevensons constructed wonders of engineering that have withstood the test of time, an amazing historical achievement. Robert Stevenson's talented family also included the famous writer Robert Louis Stevenson (his grandson). Visits with his family to remote lighthouses are thought to have inspired his books Kidnapped and Treasure Island.



Alan Stevenson



## French Crystal

The original lens at Ardnamurchan was a Fresnel lens, so named after its French inventor, Augustin Fresnel. The lens was made from a series of perfectly polished crystal glass lenses set into a brass structure. This lens has since been removed and is on display in the Visitor Centre. It was replaced with an array of sealed-beam electric lamps.



## Lightkeeping - end of an era

All Scottish lighthouses now operate automatically. The last Scottish lighthouse to be automated was Fair Isle South in 1998. Now, when daylight falls and rises between set levels, a light sensor switches the light on and off. The status of the light and all its associated equipment is relayed back to the Northern Lighthouse Board's head office in Edinburgh by phone link, radio signal or satellite. Prior to the automation of Ardnamurchan in 1988 a Principal Lightkeeper and an Assistant, with their families, lived at the light. The families were almost self sufficient and would have kept cows and sheep at the station. Lightkeeping was a remote, lonely and hard existence. At night each keeper was required to keep a watch in the lightroom to ensure that the light flashed correctly to character. During daytime keepers were engaged in cleaning, painting if necessary and generally keeping the premises clean and tidy.



## Ardnamurchan Facts

Light established: 1849  
Engineer: Alan Stevenson  
Position: Latitude 56° 43.6'N  
Longitude 06° 13.4'W  
Character: Flashing (2) White every 20 seconds  
Range of light: 24 nautical miles  
Elevation: 55 metres (above sea level)  
Height of tower: 36 metres

## Fog Horn

There is no longer a working fog horn at Ardnamurchan. The area has been made into a viewing platform and offers wonderful panoramic views of the Inner Hebrides and is ideal for viewing passing whales and dolphins.



## Example 4 – Trinity House – Eddystone Lighthouse Fact Sheet



# Lighthouse Factsheets

## Eddystone

**Position: 50° 10.84 N 04° 15.94 W**

The most famous lighthouse in the British Isles is probably the Eddystone, built on a small and very dangerous rock 13 miles south west of Plymouth.

There have been four separate lighthouses built here. The original tower, completed in 1698, was the first lighthouse to be built on a small rock in the open sea.



### **WINSTANLEY'S TOWER 1698 - 1703**

The first attempt to render the Eddystone safe to shipping was by an eccentric named Henry Winstanley. As a showman he had established "Winstanley's Waterworks" near Hyde Park which remained one of London's foremost popular attractions for decades. As a merchant he had invested money in 5 ships and when for the second time, one was wrecked on the Eddystone, Winstanley promised to rid shipping of this menace. In 1696 he commenced work on a wooden structure and finding conditions considerably harder than he had envisaged doubtless began to wonder what he had let himself in for however the work progressed steadily.

England was at war with France at this time and such was the importance of the Eddystone project that the Admiralty provided Winstanley with a warship for protection on the days when work was taking place. In 1697 a most unusual incident occurred; one morning at the end of June the protective vessel did not arrive but in its stead a French privateer which carried Winstanley off to France. However when Louis XIV heard of the incident he ordered that Winstanley be immediately released saying that "France was at war with England not with humanity". The importance of the Eddystone was now international.

The light on the Eddystone was first lit on 14 November 1698, and although the lighthouse survived that winter it was found to be badly in need of repair the following spring. Winstanley greatly altered and strengthened his tower and included numerous features which exemplified his own eccentricity, but he had sufficient confidence in his work, which was finished in 1699, to have expressed a great desire to be present in the lighthouse during the greatest storm that ever was. Sadly his wish was to be uncannily fulfilled for it was in November 1703 that the greatest storm ever recorded in this country occurred.

Winstanley had arrived at the lighthouse the evening before to carry out urgent repairs but the following day there was hardly any trace of the structure or its occupants. The lighthouse had survived five years and the difficulty of establishing a permanent lighthouse in such an exposed position was clear.

[www.trinityhouse.co.uk](http://www.trinityhouse.co.uk)

### **RUDYERD'S TOWER 1709 - 1755**

The next man to get a patent charter for the Eddystone was a Captain Lovett who acquired the lease of the rock for 99 years, and by an Act of Parliament he was allowed to charge all ships passing a toll of 1d per ton, both inward and outward. His designer was a man named John Rudyerd, who was a silk mercer on Ludgate Hill; the trade of scientist or engineer did not really exist then and problems relating to those fields were approached by people as hobbies rather than professions. It seems remarkable that such a person with no experience or proven knowledge of the subject should be selected to undertake such a difficult and dangerous task. Taking a shipbuilder's rather than a house builder's approach he came up with a design based on a cone instead of Winstanley's octagonal shape. His final wooden tower, lit in 1709, proved much more serviceable and at last it seemed the problem had been solved - a lighthouse had been permanently established at the Eddystone built by one of the greatest amateurs.

The lighthouse stood for 47 years. On the night of 2 December 1755, the top of the lantern caught fire, probably through a spark from one of the candles. Henry Hall, the keeper on watch, who was 94 years old but said to be 'of good constitution and active for his years', did his best to put out the fire by throwing water upwards from a bucket. While doing so, the leaden roof melted, his mouth was open whilst looking up and some of the molten lead ran down his throat. He and the other keeper battled continuously against the fire but they could do nothing as the fire was above them all the time - as it burnt downwards it gradually drove them out onto the rock. The fire was observed from the shore by a Mr Edwards, 'a man of some fortune and more humanity'. The old account says, he sent off a boat which arrived at the lighthouse at 10 am after the fire had been burning for 8 hours. The sea was too rough for the boat to approach the rock so they threw ropes and dragged the keepers through the waves to the boat. The lighthouse continued to burn for 5 days and was completely destroyed.

Henry Hall lived for 12 days after the incident, and a Doctor Spry of Plymouth who attended him made a postmortem and found a flat oval piece of lead in his stomach which weighted 7 ozs 5drs. Dr. Spry wrote an account of this case to the Royal Society, but the Fellows were sceptical as to whether a man could live in this condition for 12 days. This so incensed him that, for the sake of his reputation, he performed many experiments on dogs and fowls pouring molten lead down their throats to prove that they could live.

### **SMEATON'S TOWER 1759 - 1882**

After experiencing the benefit of a light for 52 years, mariners were anxious to have it replaced as soon as possible. Trinity House placed a light vessel to guard the position until a permanent light could be built. In 1756 a Yorkshire man, John Smeaton, who had been recommended by the Royal Society, travelled to Plymouth on an assignment which was to capture the imagination of the world. He had decided to construct a tower based on the shape of an English Oak tree for strength but made of stone rather than wood. For such a task he needed the toughest labourers, and many of the men employed had been Cornish Tin Miners. Press ganging had become a problem amongst the workforce, so to ensure that the men would be exempt from Naval Service, Trinity House arranged with the Admiralty at Plymouth to have a medal struck for each labourer to prove that they were working on the lighthouse.

Local granite was used for the foundations and facing, and Smeaton invented a quick drying cement, essential in the wet conditions on the rock, the formula for which is still used today. An ingenious method of securing each block of stone to its neighbour, using dovetail joints and marble dowels was employed, together with a device for lifting large blocks of stone from ships at sea to considerable heights which has never been improved upon. Using all these innovations, Smeaton's tower was completed and lit by 24 candles on 16 October 1759. In the 1870's cracks appeared in the rock upon which Smeaton's lighthouse had stood for 120 years, so the top half of the tower was dismantled and re-erected on Plymouth Hoe as a monument to the builder. The remaining stump still stands on the Eddystone Rock.

#### **DOUGLASS'S TOWER - 1882 ONWARDS**

No time was lost in building another lighthouse on the rocks, and the task of building a new tower gave ample opportunity to incorporate many of the latest ideas in lighthouse construction, which by 1877 had become a much more refined business, largely due to the efforts of Robert Stevenson, who developed Smeaton's idea and contributed many of his own. Douglass used larger stones, dovetailed not only to each other on all sides but also to the courses above and below, and in 1882 the present Eddystone Lighthouse was completed and opened by the Duke of Edinburgh, who laid the final stone of the tower.

This was the first Trinity House rock lighthouse to be converted to automatic operation. To enable the work to be carried out a helipad was built above the lantern. The automation was completed and the light reintroduced on 18 May 1982, 100 years to the day since the opening of Douglass's tower by the Duke of Edinburgh.

Eddystone Lighthouse is now monitored and controlled from the Trinity House Central Planning Unit at Harwich in Essex.

<b>Established</b>	<b>1698 (present tower 1882)</b>
<b>Height of Tower</b>	<b>49m</b>
<b>Height of Light Above MHW</b>	<b>41/28m</b>
<b>Automated</b>	<b>1982</b>
<b>Primary Source of Power</b>	<b>Solar</b>
<b>Optic</b>	<b>4<sup>th</sup> Order 250 mm Rotating</b>
<b>Lamp</b>	<b>35w</b>
<b>Character</b>	<b>Fl(2)10s + IsoR10s</b>
<b>Intensity</b>	<b>37,000 Candela</b>
<b>Range of Light</b>	<b>17/8nm</b>
<b>Fog signal Character</b>	<b>Horn(1)30s</b>
<b>Fog Signal Range</b>	<b>2nm</b>
<b>Racon fitted</b>	