

The “Luna” will have to call at Akaroa and at Timaru, on service connected with the Public Works Department. Whilst she remains at Timaru, it will be desirable for you to determine on the best position for a light at that place, and to consider whether it should be a coastal or a harbour light.

You will call at Oamaru and at Moeraki to take the necessary observations for determining the best place for the coastal light that was authorized by the Legislature last Session for that part of the coast.

If the weather should prove favourable for doing so, you will return by the West Coast, so that you may call at Cape Foulwind, to complete the observations at that place, and finally to fix the site for the proposed lighthouse there.

Major Heaphy will be a passenger by the “Luna,” on leave for the benefit of his health. He has kindly consented to sketch the sites you may fix upon, and I have no doubt he would also gladly assist you in any other way in carrying out the important service now intrusted to you.

On your return to Wellington, you will be good enough to furnish a report of your proceedings, for the information of the Hon. the Commissioner of Customs.

* * * * *

I have, &c.,

WILLIAM SEED,

Secretary of Customs.

Captain R. Johnson, &c., &c., Marine Office.

No. 2.

Captain JOHNSON to the Hon. the COMMISSIONER of CUSTOMS.

SIR,—

Wellington, 9th June, 1874.

I have the honor to report that, in accordance with the instructions contained in your letter No. 303, of the 13th February, I proceeded by the steamer “Luna” to examine the various localities suggested for the establishment of new coastal lights, and also to inspect the lights at present in use. The result of these investigations I now place before you. It will be convenient to take the stations *seriatim*, in the order in which I visited them. I append the necessary tracings of charts, referred to in the following report simply as “tracing marked —” and some excellent sketches by Major Heaphy, in like manner referred to as “sketch No. —.” These will be found very useful in elucidating my report and the suggestions therein contained.

Timaru.—The port of Timaru is a roadstead lying in a deep bight, quite out of the ordinary track of shipping, and never approached by any vessels excepting such as are directly bound there. There is therefore no necessity for a coastal light there, for no vessel has any business to be so close in unless bound for the port, when a mere harbour light would satisfy all requirements. Even should a vessel, when working to windward, stand close in before tacking, the soundings are so regular, and the water shoals so gradually, that by a reasonably careful use of the lead there would be no difficulty in ascertaining the distance from shore. I therefore recommend that there should be no light placed here for coastal purposes, but that, instead, there should be a light of small power erected for a harbour guide. This, of course, is a matter for the provincial authorities. The present light is judiciously placed, but its character and power are extremely faulty, as it is invisible at a distance of three miles in hazy weather. I made a full examination of all eligible sites, and recommend the present one to be continued. If a light were erected, as suggested, on Patiti Point, another would still be needed at the present spot to indicate the anchorage, and an additional lightkeeper and his residence would be required. Thus, as a light on Patiti Point would be, as I have shown, useless for coastal purposes, and superfluous for harbour use, I do not recommend it. The most suitable light for Timaru would be a white fixed light of the fifth order dioptric, with holophotal mirrors, and should be erected so as to show over an arc extending from N. 6° W. to S. 9° E., or about 180°. As the land at the present site is fully 10 feet higher than at Patiti Point, a tower sufficiently high to clear the tops of the houses to the southward, probably about 25 feet, would enable the light to be seen over Patiti Point, and would be visible in clear weather about fourteen miles. (See tracing marked A.)

Oamaru.—My remarks as to the absence of any necessity for a coastal light at Timaru apply with equal if not greater force to Oamaru. The neighbouring coast is remarkably free from danger. The soundings are regular, and it is in no sense a landmark or turning-point for which any vessels would make. I therefore advise that no coastal light should be placed here, but merely a light similar to that recommended for Timaru, for a harbour guide. To avoid any risk of confusion between the two lights, I would suggest that the one at Oamaru should be red, but in other respects similar to the Timaru light. This, I think, is demanded by the importance of the Oamaru trade, but a powerful light for coastal service would be utter waste of public money; and were no settlement in existence at Oamaru, the idea of placing a light there never would have suggested itself to the mind of any practical man. With reference to the site of the recommended red harbour light, several have been proposed, but the choice lies between two; one on land in the occupation of Mr. Fenwick, marked “Lighthouse Reserve” on the map in the Provincial Land Office, and the other lower down the hill, towards the landing-place. Both sites were carefully inspected by me, in company with the Harbour Master, Captain Sewell. The altitude of the former site is 250 feet above sea level, and the arc of illumination would be from S. $\frac{3}{4}$ W. to N. by W. $\frac{1}{2}$ W., showing well to the southward, and sufficiently round to the anchorage for all useful purposes; indeed, had the elevation of this site been only 100 feet instead of 250, it would have fulfilled every requirement. As, however, lights are most needed in thick weather, it is very desirable that they should not be elevated more than is absolutely necessary to show the requisite distance. It is an error to suppose that the higher a light is raised the more useful it becomes. On the contrary, the more a light is elevated, the greater are its chances of obstruction by fog, and it should only be raised sufficiently to show the needful distance clear of the earth’s convexity. The second site has an altitude of only 95 feet; its illuminating arc would be from S. 20° E., or S. by E. $\frac{3}{4}$ E. to N. by W. $\frac{1}{2}$ W., the latter limit being the same as that of the first site. It is therefore obvious, that while the first site has the trifling advantage of showing farther to the southward, the