

Chief, Civil Engineering Division

OSU
18 June 1954
H3

Chief, Shore Units Division

French Frigate Shoals LORSTA; report of storm damage

Ref: (a) CL4CGD(e) ltr to Comdt (ECV) dtd 26 May 1954,
H4, serial 3234
(b) ECV-1 memo to OSU dtd 11 June 1954 with 7
enclosures

1. Shore Units Division has retained a copy of reference (a) and enclosures (1) and (2) of reference (b) for file purposes. The report has been noted.

2. No further action by this Division is indicated at this time.

18 A. C. UNGER

Encl: (1) Plans a and b (2) - encl 3 of ref (b)
(2) Plans c and d (d) - encl 4 of ref (b)
(3) Plan e (2) - encl 5 of ref (b)
(4) Plan f (1) - encl 6 of ref (b)
(5) Plan g (1) - encl 7 of ref (b)

50 5-1 6/22-c

C.H. Waring
C.H. WARING:DR OSU Return to station 7-12

4137/s

JM

What do with this
one? Looks as if Court has
already told 14th (61) what he
wants.

Something to the effect: ~~AM~~
Noted and returned. No
action by this division is
indicated at this time

JM

Office Memorandum • UNITED STATES GOVERNMENT

TO : Chief, Shore Units Division

ECV-1
DATE: 11 June 1954

FROM : Chief, Civil Engineering Division

SUBJECT: French Frigate Shoals LORSTA; report of storm damage

Ref: (a) GL4CGD (e) ltr 26 May 1954 H4 serial 3234

U. S. COAST GUARD

15 1954

OPERATIONS-SHORE UNITS

1. Reference (a) is transmitted for your information, study and comments.
2. Copy of reference (a) and enclosures (1) and (2) may be retained for your files, if desired. However, the remaining enclosures (3) through (7) inclusive are required for studies which will be made by the sections of this division.

E. R. Bellomy
E. R. BELLOMY

- Encl: (1) Summary Sheet
(2) Sheet of 5 Photographs
(3) Plans a and b (2)
(4) Plans c and d (2)
(5) Plan e (2)
(6) Plan f (1)
(7) Plan g (1)

4137/s

g
26 May 1954
H4
Serial 3234

From: Commander, Fourteenth Coast Guard District
To: Commandant (ECV)

Subj: Storm damage at Loran Transmitting Station French Frigate Shoals

Ref: (a) CGCD14 msg 15/23/53 Jan 1954

1. As reported in reference (a), the island on which Loran Transmitting Station French Frigate Shoals is situated was flooded to a depth of several inches by storm waves, concurrent with high tide, during the night of 10-11 January 1954. Damage consisted principally of (1) temporary closing of the runway due to heavy coverage by coral boulders, (2) raveling of the steel sheet piling bulkhead and erosion of the coral fill, and (3) additional collapse of a portion of piling bulkhead on the north side of the island. Damage caused by the storm is shown on photographs, enclosure 2.
2. The runway was cleared with station equipment, supplemented by a small wheeled loader sent to the station, and was open for aircraft near the end of January. During the latter part of February and early part of March the CGC MUKUI landed a working party and made temporary repairs to the most severely damaged sections of the sheet piling bulkhead, and expanded the cleared strip on the runway.
3. A survey was also made of the island, and the sheet piling bulkhead was found to be weakening at many places. The bulkhead was constructed during World War II, probably prior to 1944, and in the intervening 10 years corrosive conditions prevailing at the island have eroded holes completely through the steel section at many places (see photograph, enclosure 2). Seven plans were developed for improving conditions at the island and for relieving the threat of loss of portions of the island in the next few years. The plans are summarized on enclosure 1, and are shown on the attached drawings, enclosures 3 to 7. Consideration was also given to constructing groins along the northern side of the island but in the absence of littoral drift to feed the groins it appeared impractical to install them. In addition, mobilization of adequate equipment to install the groins would be approximately equal to that required for a program of replacing the sheet piling bulkhead.
4. On 4 April 1954 the Assistant Commandant, accompanied by the Commander, Fourteenth Coast Guard District, inspected the island. As a result of the inspection it was concluded that, at the present time, the most practical approach to the problem is to permit the bulkhead to continue to deteriorate

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CGCD14 ltr to
Comdt (ECV)

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26 May 1954
HL
Serial 3234

and to provide the station with a bulldozer to fill areas which are eroded by storms. The bulldozer would also be used to haul supplies and equipment ashore over landing mats from landing craft in the event the dock area fails. Current plans are to purchase a bulldozer and a supply of landing mats during fiscal year 1955.

R. M. FREEMAN
By direction

Encl: (1) Summary Sheet
(2) Sheet of 5 Photographs
(3) Plans a and b (2)
(4) Plans c and d (2)
(5) Plan e (2)
(6) Plan f (1)
(7) Plan g (1)

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FRENCH FRIGATE SHOALS
PLANS FOR REHABILITATION OF ISLAND PROTECTION

<u>Description of Plan</u>	<u>Est. First Cost</u>	<u>Est. Useful Life, years</u>	<u>Est. annual cost, incl. maintenance</u>
a. Steel sheet piling replacement, MZ-38, 50% (but not less than 10') penetration.	\$1,430,000	15	\$100,000
b. Reinforced concrete piling, 8" thick, same penetration as steel.	926,000	25	40,000
c. Dredging, clam shell.	300,000	15	25,000
d. Dredging, cutter head	232,500	12	24,000
e. Concrete wall, <u>minimum</u> size	1,160,000	25	46,000
f. Dredging, & concrete pile pier at west end of island (for mooring)	345,000	15	28,000
g. Dredging, and concrete piling along west side of island (to provide mooring)			Not feasible because shoaling would occur.
h. Allow protection to deteriorate; provide bulldozer and landing mats.	11,000	2	5,500

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LORAN TRANSMITTING STATION FRENCH FRIGATE SHOALS
STORM DAMAGE 10-11 JANUARY 1954

1/11/54. Debris
washed on runway.



1/11/54. Coral
washed on runway.

1/11/54. General
view of runway, look-
ing east.



2/26/54. Erosion
behind failed
piling, North side
of island.



2/26/54. Corroded
piling, NW corner of
island.



1/11/54. Debris
washed on runway.

1/11/54. Coral
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1/11/54. General
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1/11/54. General view of runway, looking east.

2/26/54. Erosion behind failed piling, North side of island.



2/26/54. Corroded piling, NW corner of island.