

**ANNEX 5**  
**TO**  
**EXHIBIT A**

Catalogue of iron and bronze cannon on the Black Swan site.

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# **Catalogue of Iron and Bronze Cannon from Odyssey Marine Exploration's Black Swan Site**

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This annex catalogues all 18 cannon on the Black Swan site descriptively and illustratively. In the case of the iron guns, the objective is to highlight the extremely poor level of preservation of the most diagnostic metallic material present on the seabed and to demonstrate that they are oriented in random patterns that does not reflect the existence of a structured shipwreck on the seabed.

All of the iron cannon are extremely corroded, forming concretions that predominantly penetrate downwards into the mud substrate to form corrosion pedestals. Without the recovery of a concretion, understanding the precise dynamics involved in their creation will remain impossible. However, it is visibly clear that any attempt to define the type, date or nationality of these iron guns in the absence of any inscriptions is an archaeological impossibility. This goal is hard enough for guns whose concretions preserve iron content intact, but in the present case, where the metal's surfaces and thickness is heavily deteriorated, such an initiative would be completely hopeless: unless stated otherwise below, the defining typological characteristics of the form of the muzzle, cascable, trunnions and reinforces are not even visible, even as concretions, but have completely corroded away. Given the fragile condition of these artifacts, they would not survive recovery to the surface for study or x-ray analysis. Delgado's attempt to demonstrate typological affinities between the Black Swan iron cannon and those in Spanish collections is an example of deliberate deception.

The measurements provided in this document are calibrated from the relative dimensions of the copper ingots, recovery of which has demonstrated standard lengths of 60 centimeters. While this method of measurement is far from ideal, under the current circumstances it is the most accurate means available.

Measurement may be considered accurate to the nearest 10 centimeters.

Abbreviations: m (meters); cm (centimetres); L. (length); W. (width).

The grid numbers supplied after the cannon numbers are the Black Swan grid nos. (Annex 1), which permit the contextual locations of the guns to be referenced geospatially across the site.

Entries accompanied by (?) are not clearly identifiable as cannon. Though listed here for the sake of accuracy, they are not quantified in this report's gun count. Only where the parallel, straight sides of cannon are visible, or muzzles, cascables or trunnions, are examples listed as definite guns.

## **Annex 5**

Cannon No.	Medium	Grid No.	Length	Muzzle Orientation	Gun Orientation
C1	Iron	J11	1.1	s-w	
C3	Iron	L18	2.5		e-w
C4	Iron	M9	1.9		nw-se
C5	Iron	M33	1.9	s	
C6	Iron	R34	1.4	w	
C7	Iron	Q24	2.5	s-e	
C8	Iron	T23- 24/U24	1.7	n-w	
C10	Iron	T14	2.4	n-w	
C12	Iron	Y21	---	s-w	
C14	Iron	AB33	2.7		e-w
C15	Iron	AC27	2.2	s-w	
C16	Iron	AE43	---	w	
C17	Iron	AG39	2.65	n-w	
C18	Bronze	V21	0.65	s-e	
C19	Bronze	U44	0.7	s-e	
C20	Bronze	AG42	1.1	n-w	
C21	Bronze	AH38	---	s-w	
C22	Bronze	----	---	---	

Table 1. Summary of cannon on the Black Swan site.

## Catalogue

### 1. Iron Cannon Catalogue

#### *Cannon C1*

Grid No. J11; Fig. 1

Oriented with possible muzzle facing south-west. North-eastern quarter covered by light sediment and apparently extensively corroded. Visible L. 1.1m.

#### *Cannon C2 (?)*

Grid No. L34; Fig. 2

Possible iron gun, heavily corroded; no anatomical shape survives. Oriented on an east/west axis. Visible iron L. 1.7m; concretion platform L. 2.3m.

#### *Cannon C3*

Grid No. L18; Fig. 3

Iron gun; no distinct shape survives. Oriented east/west. Visible iron L. 2.5m; massive concretion platform L. 3.1m and 1m wide. Additional rust-coloured leaching below this platform.

#### *Cannon C4*

Grid No. M9; Fig. 4

Probable iron cannon, very heavily corroded concretion. Oriented northwest-southeast. Concretion L. 1.9m. Sponge growth on north-east side. Dense corrosion pedestal at south.

*Cannon C5*

Grid No. M33; Fig. 5

Iron cannon with fishing net trapped around the southern end, lying on a flat, horizontal plane. Probable muzzle oriented southward. 1 trunnion visible on western flank. Northern half of cannon covered by light sediment, no less than 10cm deep. Typical kind of concretion found on marine sites; no leach pedestal. Visible L. 1.9m.

*Cannon C6*

Grid No. R34; Fig. 6

Broken iron gun, muzzle oriented west. Preserved along three-quarters of its length, then broken. Normal iron concretion, no corrosion pedestal, but two corroded strips of leaching off the eastern end of gun. L. 1.4m.

*Cannon C7*

Grid No. Q24; Fig. 7

Iron gun with light concretion and no pedestal. Muzzle oriented south-east. Iron leaching and chunks broken off to the north. Associated with dense area of probable 'rigging' (grid no. R24) immediately to the southeast, covering approximately 3.6 x 3.7m. Gun L. 2.5m. Dense sponge growth affixed to the mass, copper sheathing/tubing to north, 0.7m long. Possible one-armed iron anchor on north edge of rigging, directly facing southern end of cannon C7, either one-armed or with a single arm preserved on western flank and second one broken away. Anchor shank oriented southeast to northwest; arm oriented southwest.

*Cannon C8*

Grid No. T23-24/U24; Fig. 8

7.2m south of probable rigging concretion associated with cannon C7 an iron gun retains its original shape within a thin concretion. The muzzle faces northwest. Contrary to Delgado (point 112, annex 9.35), this iron object is not an anchor because it narrows from south to north. Anchor shanks are straight-sided. Two iron rings are concreted to the sides of the gun: one on eastern side of the cascable, the other three-quarters down, towards the muzzle, on the western flank. L. 1.7m. Two sets of rope oriented east/west, spaced 0.6m apart, run at right-angles to C8 along its southern half. The northern rope is 1.8m long and touches C8, terminating with a loop c. 0.3m long and 0.25m wide. Mass of undeterminable probable rigging concretion to west. Traces of two other rope sections also oriented east/west and running directly parallel to the material associated with C8 located 4.8m northwest of the ring-looped northern rope element.

*Cannon C9 (?)*

Grid No. S27; Fig. 9

Corroded remains of two possible parallel iron gun platforms. Oriented southwest-northeast. Ring encrusted to north-western example, which has two distinct leach platforms around each end, but is unlikely to be an anchor because the object narrows marginally from west to east, perhaps an indication that the muzzle lies to the east (if the anatomy has not been distorted by iron corrosion). However, neither a muzzle, cascable swelling or trunnions are visible. The southern concretion has split into three lumps with

leach platform around the mass. Though perhaps originally an iron cannon, the anatomy is so badly decomposed that no identification can be secured. Northern gun (C9) L. 1.7m; concretion L. 2.2m. Leach platform W. 1.0 x 0.7m. Two copper ingots, one tin ingot, coin clump and possible copper spike to northwest; miscellaneous iron tubular object to north; coin clump to south.

*Cannon C10*

Grid No. T14; Fig. 10

Iron gun with lead pipe on western side. Muzzle faces northwest. Typical marine concretion along northern half, but dense corrosion pedestal across southern half. Cannon L. 2.4m; total L. with pedestal 2.7m. Lead pipe 1.1m long, extends southwest-northeast with possible junction to northeast.

*Cannon C11 (?)*

Grid No. W40; Fig. 11

Very heavily decomposed iron gun on northeast-southwest axis, 2.3m long (preserved length). Heavy corrosion pedestal, with southern end fully decomposed and broken off. Tin ingot to northeast.

*Cannon C12-C13*

Grid No. Y21; Fig. 12

Two possible iron cannon with both ends lying under shallow sediment. Muzzles oriented in different axes: one to northeast and other to southwest. Concretion platform on east of to southern cannon. Total L. of both guns 2.4m. Southern gun (C12) identification positive; northern example tentative.

*Cannon C14*

Grid No. AB33; Fig. 13

Iron gun running east-west with a copper and tin ingot overlying it. Dense leach platform at east, narrowing towards the west. Visible iron 2.7m long; total L. of platform 3.4m. Dense area of coin clumps, ingots and probable rigging to north, including a second possible iron cannon, so heavily corroded that no positive identification is possible.

*Cannon C15*

Grid No. AC27; Fig. 14

Iron gun with muzzle facing southwest. Despite heavy corrosion, both muzzle, cascable and western trunnion can be discerned. Gun L. 2.2m long. Concretion stain 2.7m long. Gun W. midway along 30cm. Maximum W. of concretion 1m. The concretion is visibly thicker at the northeast where it is in proximity to a copper ingot.

*Cannon C16*

Grid No. AE43; Fig. 15

Very heavily corroded iron gun with probable muzzle facing just north of westward. Gun between centre and muzzle anatomy visible; lower half towards cascable completely decomposed. Sponge overgrowth to south. Total corrosion pedestal L. 3.0m.

*Cannon C17*

Grid No. AG39; Fig. 16

Iron gun, intact concretion. Muzzle faces northwest. Narrow corrosion pedestal, mainly at northern and southern flanks. Gun L. 2.65cm; pedestal L. 3.0m.

**2. Bronze Cannon Catalogue**

*Cannon C18*

Grid No. V21; Fig. 17

Intact bronze gun, muzzle facing southeast. Impact crater to southeast. Cascable broken off (antique cannon). L. 0.65m.

*Cannon C19*

Grid No. U44; Figs. 18-19

Intact bronze gun, muzzle facing southeast. No context/isolated. L. 0.7m.

*Cannon C20*

Grid No. AG42; Fig. 20

Bronze cannon. Muzzle oriented northwest, southern half covered by sediment. L. 1.1m.

*Cannon C21*

Grid No. AH38; Figs. 21-23

Bronze antique culverin, muzzle facing south-west. Only visible along half of length. Dolphins at north. Visible L. 2.5m.

*Cannon C22*

No grid no. Fig. 24

Bronze cannon protruding vertically out of the seabed, muzzle upwards. Embedded for one-quarters of its length in the clay substrate.

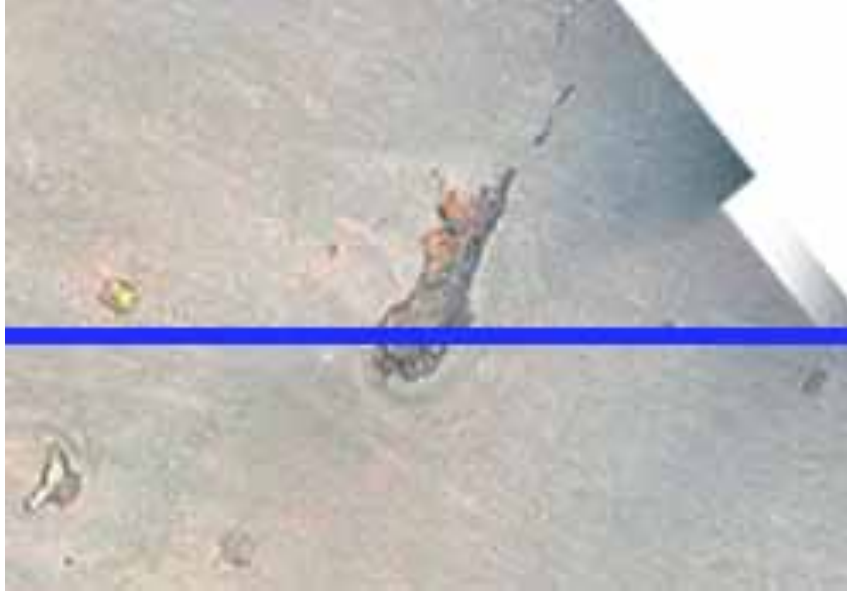


Fig. 1. Black Swan Cannon C1



Fig. 2. Black Swan Cannon C2



Fig. 3. Black Swan Cannon C3



Fig. 4. Black Swan Cannon C4





Fig. 5. Black Swan Cannon C5



Fig. 6. Black Swan Cannon C6



Fig. 7. Black Swan Cannon C7



Fig. 8. Black Swan Cannon C8



Fig. 9. Black Swan Cannon C9



Fig. 10. Black Swan Cannon C10



Fig. 11. Black Swan Cannon C11



Fig. 12. Black Swan Cannon C12-C13

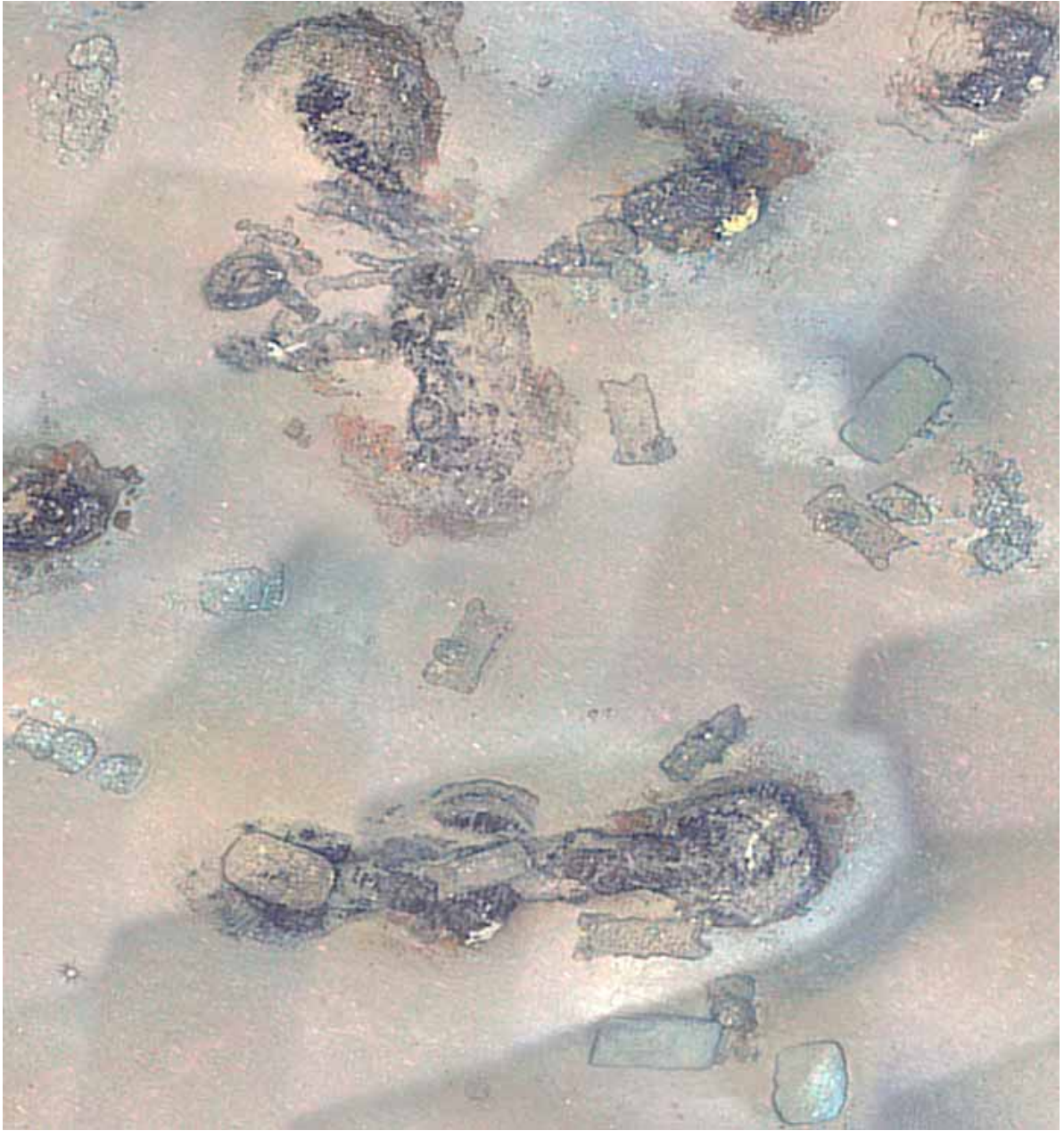


Fig. 13. Black Swan Cannon C14



Fig. 14. Black Swan Cannon C15



Fig. 15. Black Swan Cannon C16





Figs. 16a-16b. Black Swan Cannon C17



Fig. 17. Black Swan Cannon C18

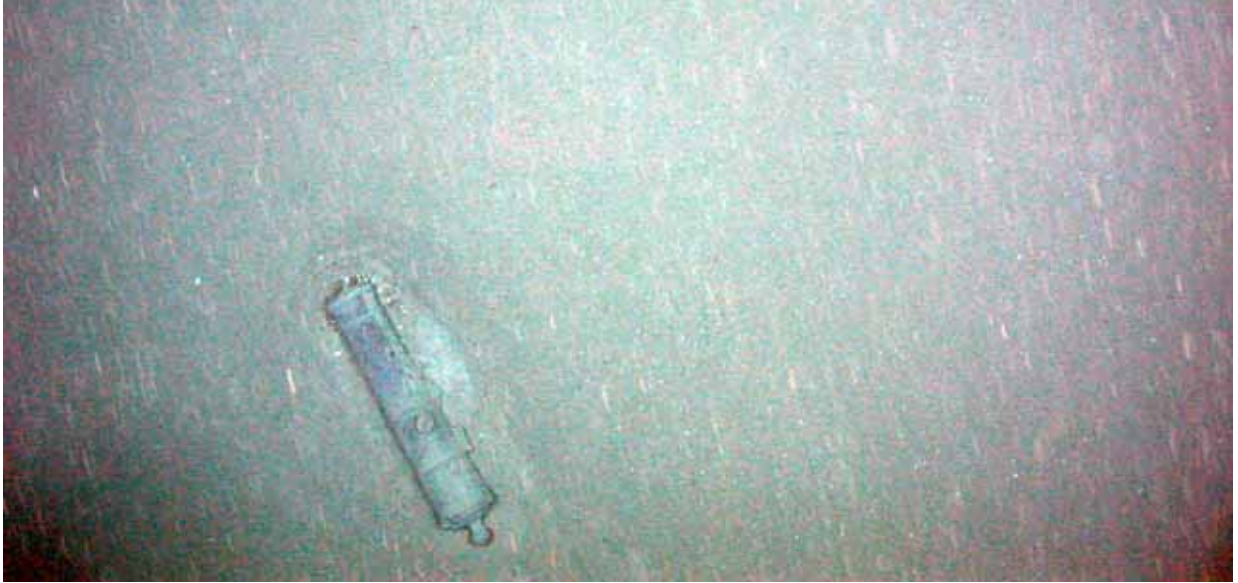


Fig. 18. Black Swan Cannon C19



Fig. 19. Detail of Black Swan Cannon C19

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Fig. 20. Black Swan Cannon C20



Figs. 21-22. General and close-up views of Black Swan Cannon C21

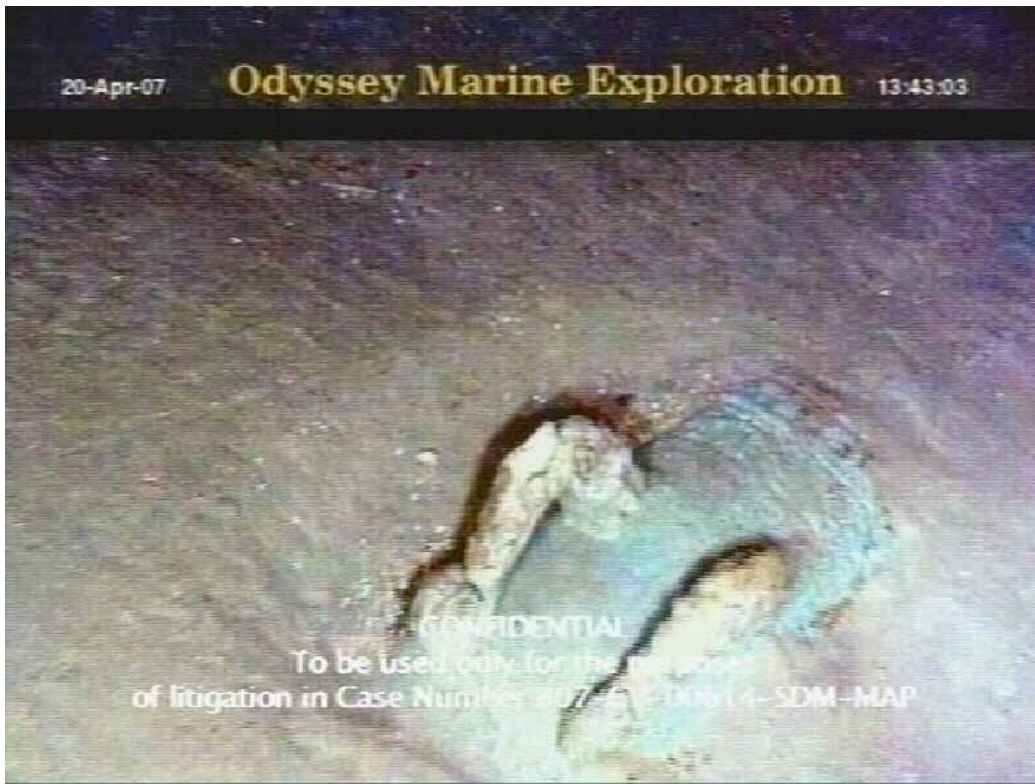


Fig. 23. Detail of dolphin handles on Black Swan Cannon C21



Fig. 24. Black Swan Cannon C22