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## Malaga Island, Isles of Shoals: Collection Assessment & Re-Curation of Archaeological Research

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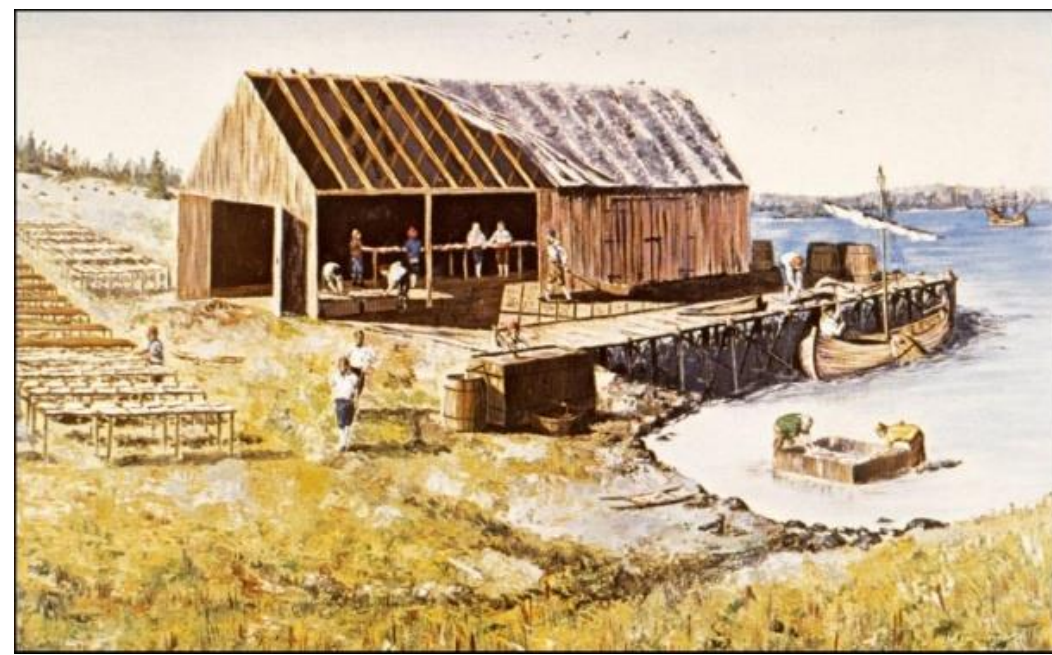
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# Malaga Island, Isles of Shoals: Collection Assessment & Re-Curation of Archaeological Research

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## Introduction

The University of Southern Maine conducted two seasons of archaeological excavation at Malaga Island in 1991-1992. The field school was an American and New England class directed by Faith Harrington, PhD (Figures 1-5). The island exhibited significant 17<sup>th</sup> century activities associated with an early New England cod fishery. Earlier pre-contact deposits reveal Native American use during the Ceramic Period *circa* 1000 BP. This research focused on processing curated soil samples, constructing a digital catalog and database, and properly curating the excavated material. Several specialized analyses included smoking pipe stem & bowl analysis for dating deposits and application of X-Ray Fluorescence analysis of sediment for chemical patterns of select elements. The site was recently mapped to a detailed orthomosaic map (Figure 6), highlighting excavation area and ecology.

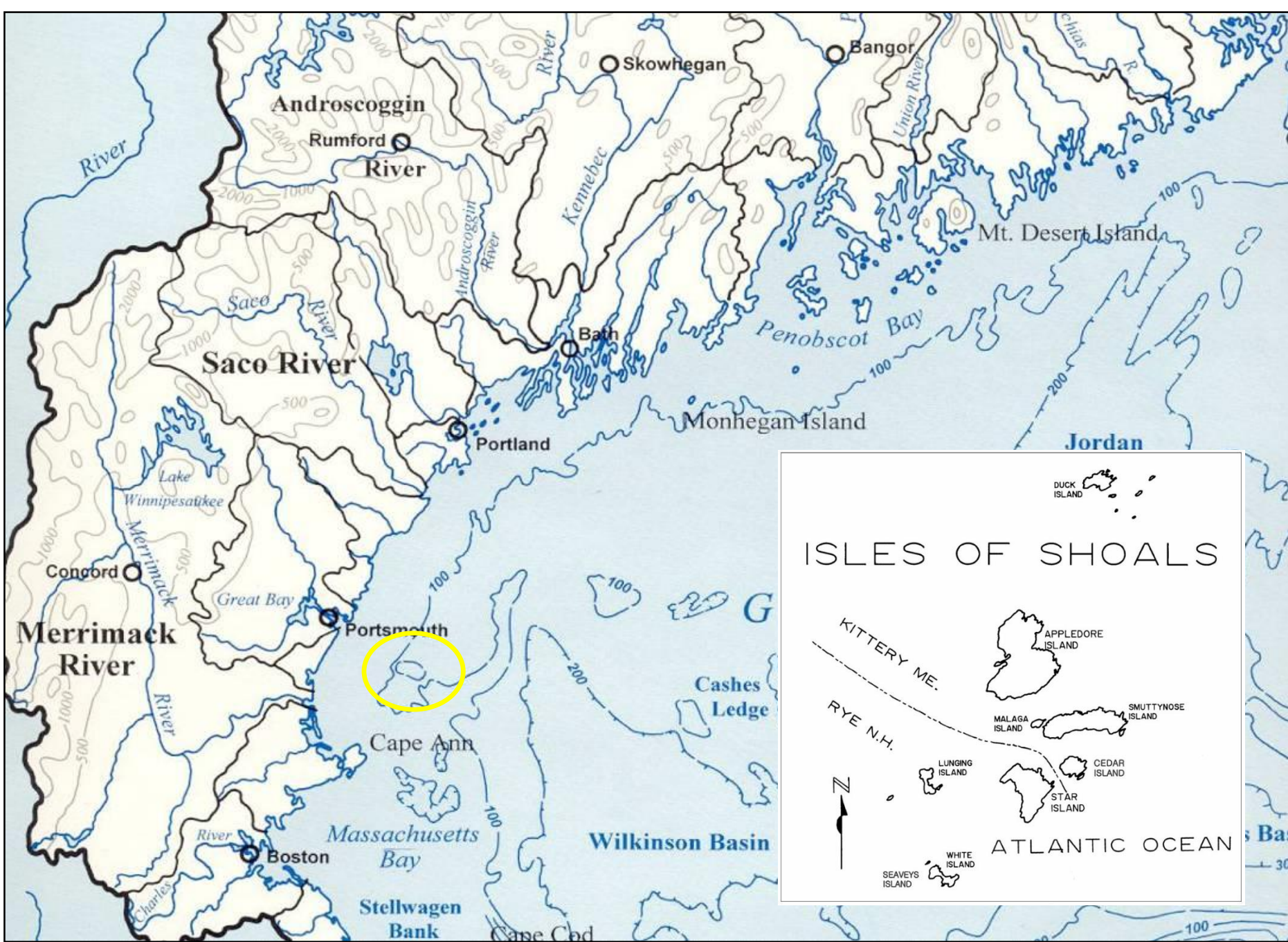


Figure 1. Map of Western Gulf of Maine by D. Kelley. Inset islands of the Isles of Shoals from D. Robinson.



Figure 2. Excavation unit N3E1 during the 1992 ISAP field school (N. Hamilton)

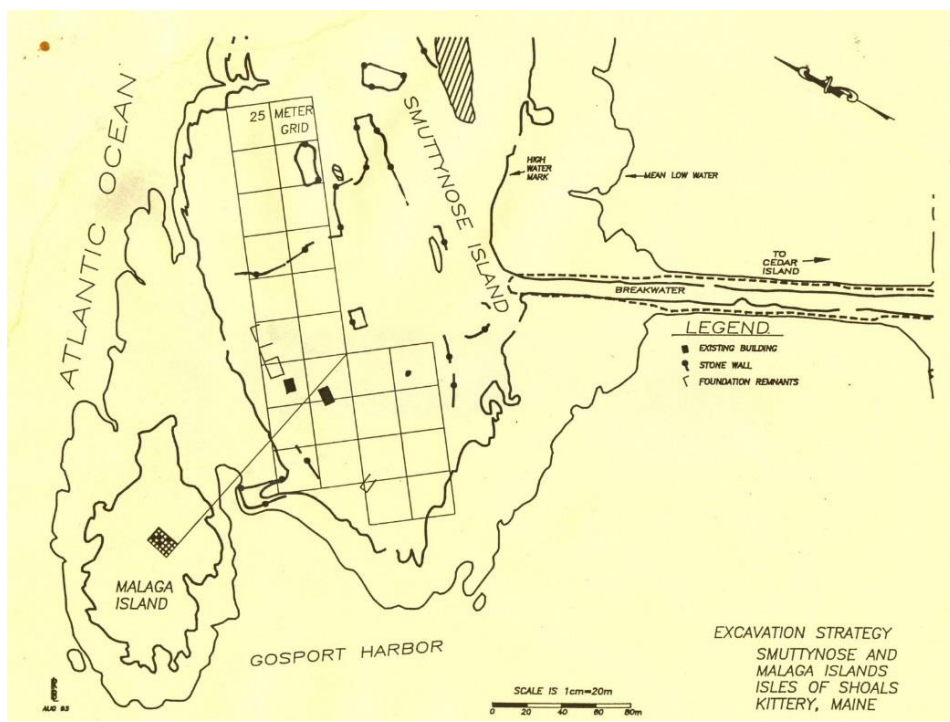


Figure 3. Map of survey and excavation grid for the 1991-1992 ISAP field school

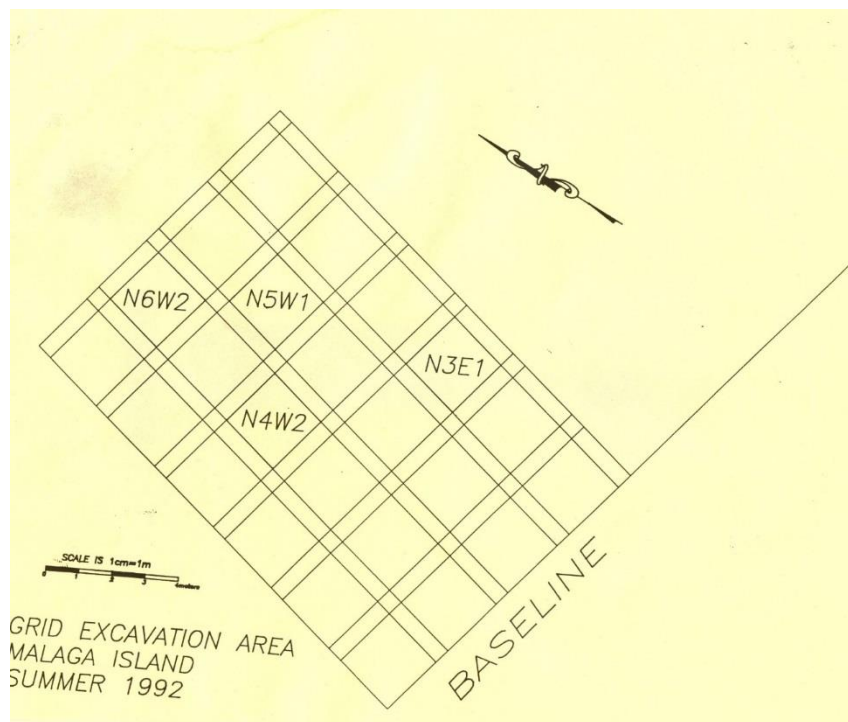


Figure 4. Excavation unit grid on Malaga Island during the 1992 ISAP field school



Figure 5. Excavation activities on Malaga Island during the 1992 field school. Faith Harrington teaching students. Appledore Island is in the background facing north. (N. Hamilton)

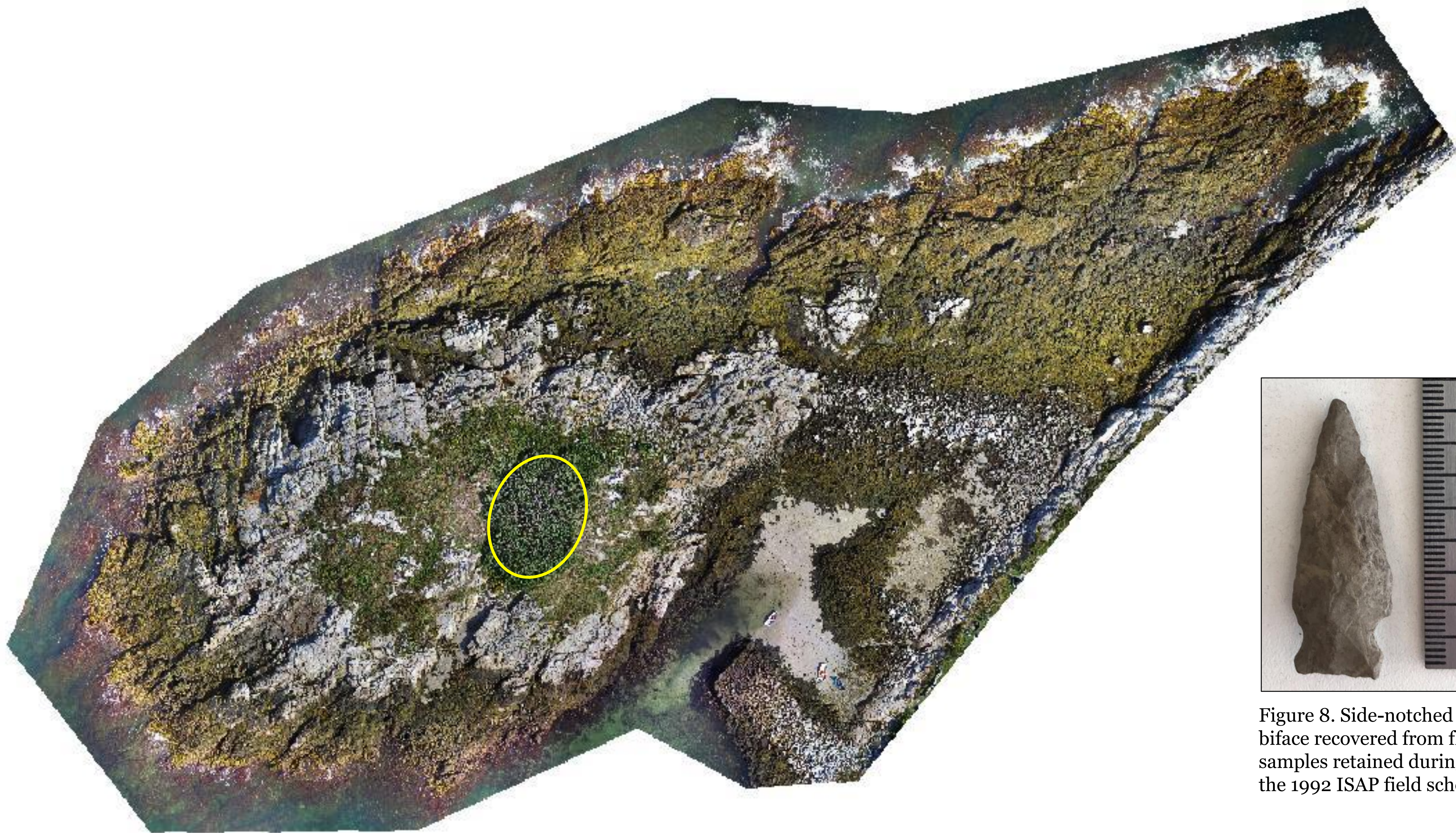


Figure 6. Orthomosaic image derived from drone photos of Malaga Island at the Isles of Shoals. Image created with Agisoft and by Anthony Viola as part of the Isles of Shoals Historical Research Association 2017 fall conference. The patch of rosebush (yellow) is situated directly on the 1991-1992 excavation area. (A. Viola)

ARTIFACT TYPE	TRANSECT	N3E1	N4W2	N5W1	N6W2	TOTAL
<b>Metal</b>						
Nail	1	51	119	286	79	536
Other	78	0	9	34	34	155
<b>Ceramics</b>						
Regular	1	8	14	76	8	107
Redware	44	18	120	501	82	765
<b>Glass</b>						
Bottle	34	3	75	37	101	250
Window	7	1	19	39	21	87
Smoking Pipes	33	28	101	381	123	666
Bone	48	29	468	880	144	1569
Shell	5	7	154	85	9	260
Brick	13	8	41	46	21	129
Chert	10	16	51	90	25	192
Other	0	1	4	12	3	20
<b>TOTAL</b>	<b>274</b>	<b>170</b>	<b>1175</b>	<b>2467</b>	<b>650</b>	<b>4736</b>

TABLE 1. Distribution of select data in catalog by unit and transect

## Analysis

Samples obtained in the ISAP and curated at the University of Southern Maine contained in eight bankers boxes were inventoried and utilized to construct a catalog and a digital database (see Table 1). Artifacts were assigned to defined material culture and faunal categories. The sample numbering 4736 include a dominant well preserved faunal sample of bird, fish and mammal as well as shell bivalve and univalves. A significant sample (n=666) of white and redware smoking pipes were subject to bore diameter analysis and application of the regression equation analysis to determine historic age of the deposits (Table 2, Figures 7-9). Twenty one-liter sediment samples were floated and screened by 3.2 and 6.4mm (see Table 3). The number of artifacts discovered from each unit and the weight of organic material found in each unit (see Figure 10). Another separate analysis on chemical composition of the soil was done with XRF in the lab to measure human activity through select elements (see figure 11.) and can be related to the data compiled on close-by Smuttynose island.

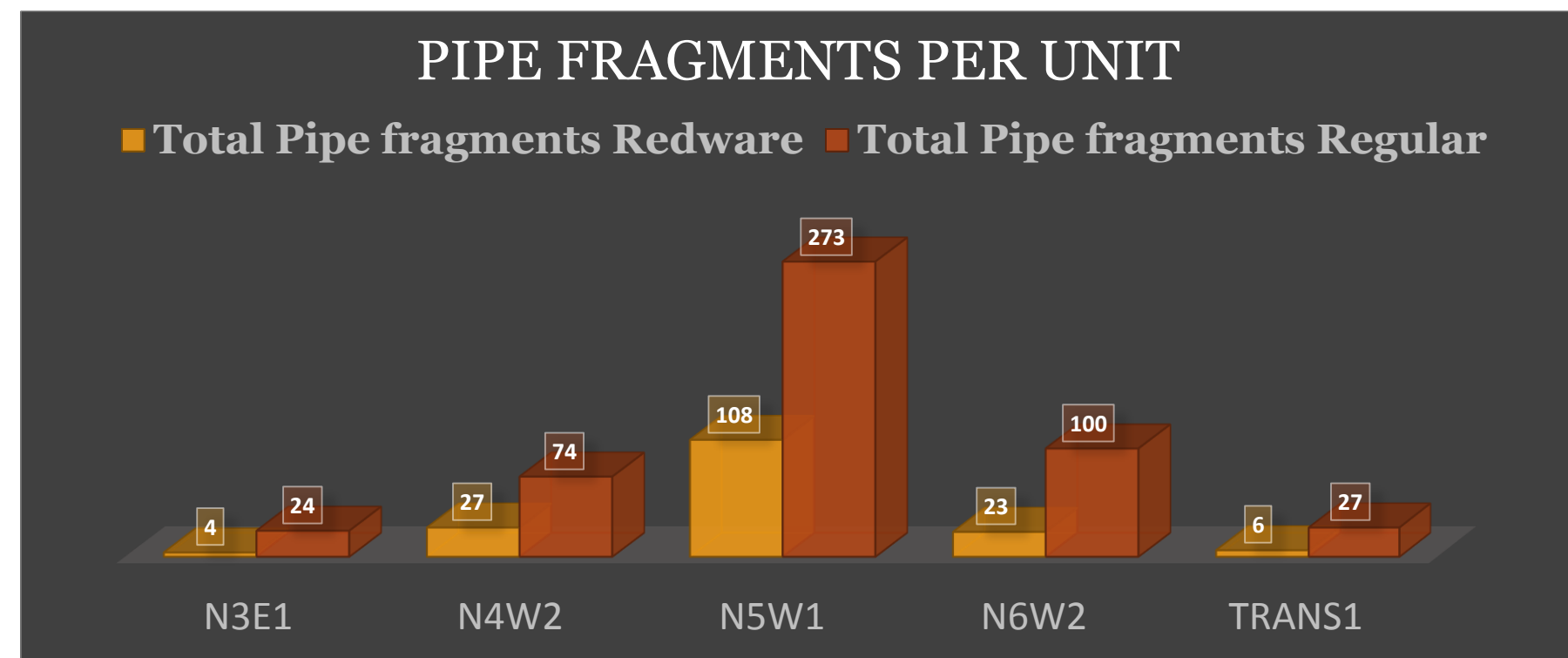


Figure 7. Distribution of redware and white smoking pipes in the four excavated on Malaga Island during the 1992 ISAP field school.

	WHITE			REDWARE		
UNIT	NUMBER	MEAN	DATE	NUMBER	MEAN	DATE
N3E1	11	7.91	1629	1	9	n.a.
N4W2	27	7.81	1633	7	8	1669
N5W1	99	7.65	1639	42	8.14	1662
N6W2	48	7.6	1641	11	7.82	1678
TRANS	10	6.9	1667	1	9	n.a.
TOTAL	195			62		

TABLE 2. Distribution and mean bore diameters (mm) utilized to derive smoking pipe dates. The Binford formula was applied to white pipe stem bore and the Colono formula applied to the redware pipe bores. A strong cluster of dates with adequate samples (white) suggest 1633-1641 early 17<sup>th</sup> century occupations.

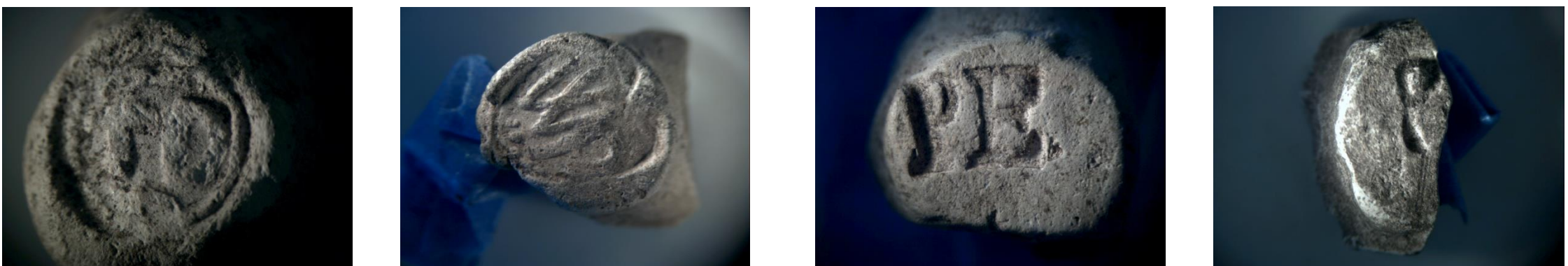


Figure 9. Digital microscope photos of the smoking pipe heal marks. All white, English and derived from 17<sup>th</sup> century pipe manufacture.

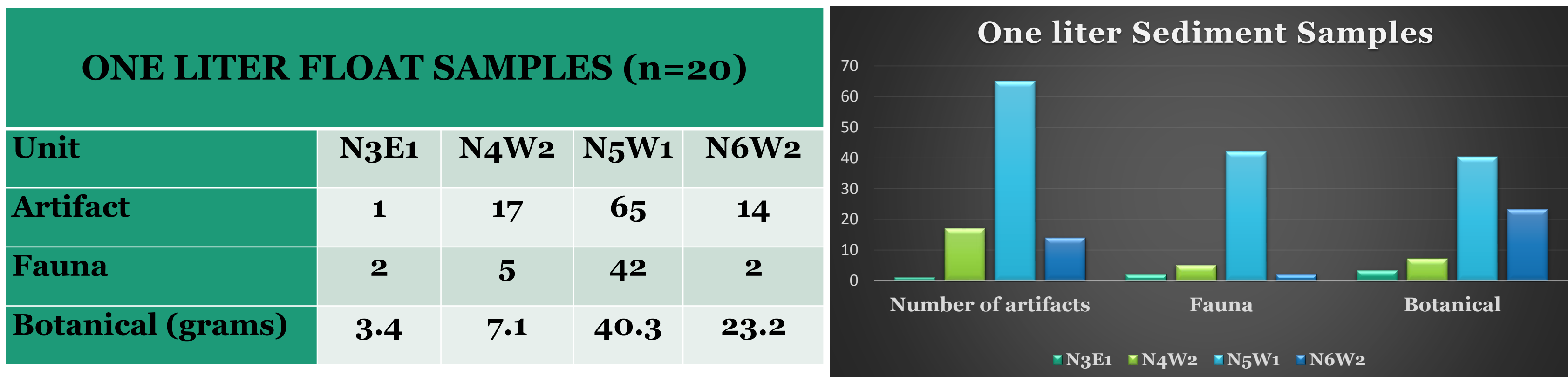


Figure 10. Distribution of materials recovered in flotation samples processed from Malaga Island and the 1992 ISAP field school

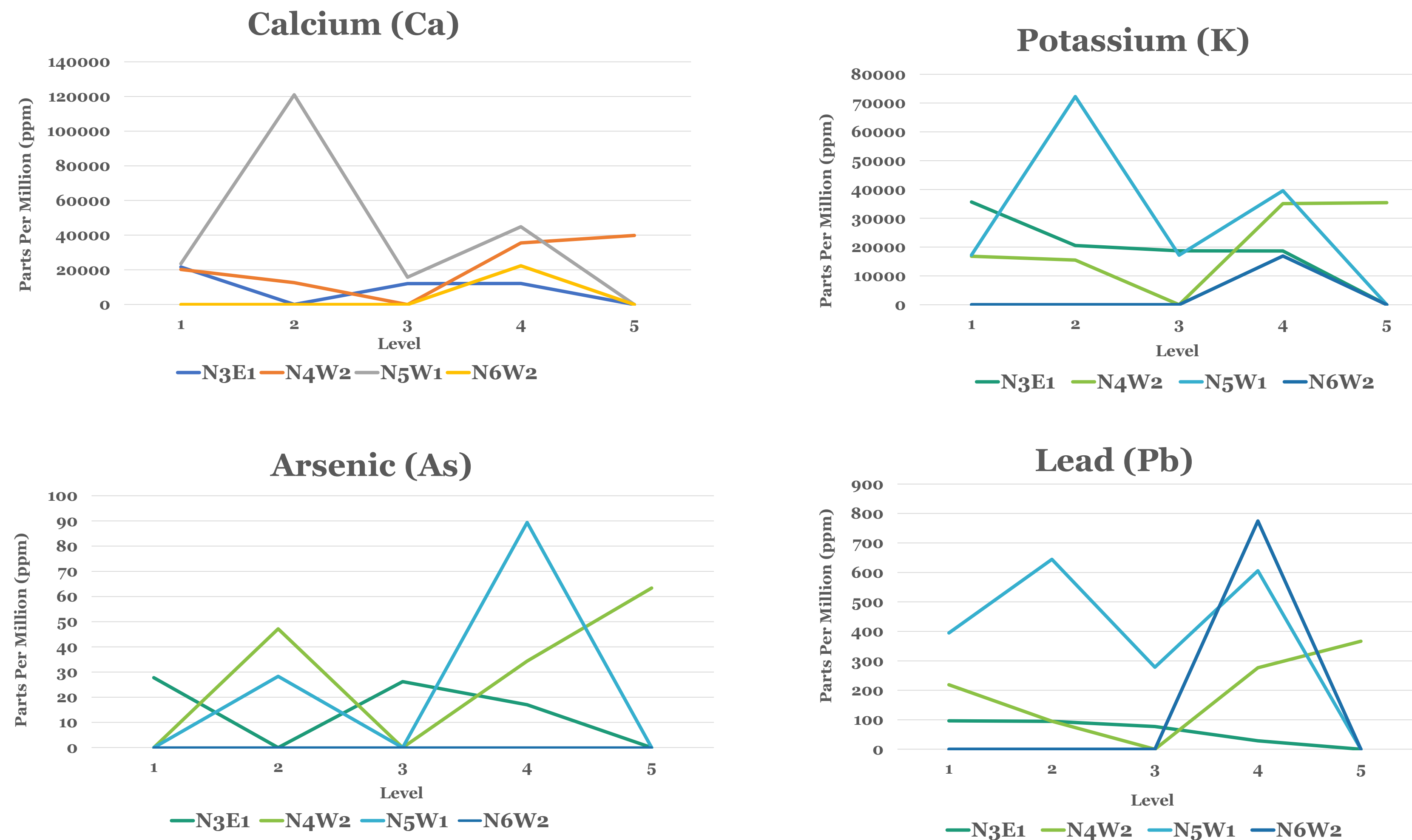


Figure 11. X-Ray Fluorescence analysis results for select elements in the processed soil samples from Malaga Island. Calcium reflects the increase of marine shell in the upper portion of the stratigraphic matrix. Both arsenic and lead are higher in the lower portions of the deposits. Lead is a by product of the manufacture and use of bullets and fishing weights. The ppm of lead is above the general EPA standard of 500 ppm and concern.