D 3.3.1

ACTION PLANNING METHODOLOGY AND TRAINING MATERIAL DEVELOPED BASED ON A JOINT TOOL

DIGITAL TOOLS FOR UNDERWATER ARCHAEOLOGICAL SITES

AGENDA

1 December 2020

14.00-17.00

Introduction to UnderwaterMuse project and the underwater archaeological heritage of the High Adriatic and presentation of the underwater sites investigated by Ca' Foscari University in the lagoon and in the sea

- R. Auriemma 14.00-15.00
- C. Beltrame, Costa, Medas 15.00-16.30
- Discussion

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2 December 2020

9.30-12.30

Data acquisition and data processing of shipwrecks and underwater sites: documentation, modelling, hydrostatic.

- E. Costa, C. Beltrame 9.30-10.30
- P. Tanner 10.30-11.30
- S. Parizzi 11.30-12.30

14.00-17.00

Documentation, photogrammetry, GIS and WebGIS

- E. Costa 14.00-15.00
- C. Balletti 15.00-16.00
- P. Perozzo 16.00-17.00 Possible alternatives to GIS for a georeferenced web map

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3 December 2020

9.30-12.30

Digital exhibit at the Museo Nazionale di Archeologia del Mare of Caorle.

- P. Perozzo 9.30-11.00 Digital installation at the maritime archaeology museum of Caorle
- C. Barbiani 11.00-12.30

THE PROJECT UNDERWATERMUSE AND THE UNDERWATER ARCHAEOLOGICAL HERITAGE IN ADRIATIC SEA

Rita Auriemma

Interreg
Italy - Croatia
UnderwaterMuse
European Regional Development Fund
EUROPEAN UNION


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UNDERWATERMUSE
The project UnderwaterMuse
and the underwater archaeological heritage
in Adriatic sea
Through interpretation, understanding;
through understanding, appreciation;
through appreciation, protection
Freeman Tilden
Interpreting our Heritage
UNDERWATERMUSE WORKSHOP
DIGITAL TOOLS FOR UNDERWATER ARCHAEOLOGICAL SITES
Rita Auriemma (LP – PP4)
Elisa Costa
Carlo Beltrame
Rita Auriemma
Dominik Žanić
Giulio Scrima
Interreg
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UnderwaterMuse
EUROPEAN UNION
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PatrimonioCulturale
REGIONE PUGLIA
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UNDERWATERMUSE
TORRE SANTA SABINA 2020
GALEA MAGNA
Elisa Costa
Rita Auriemma
Davide
Dominik Žanić
Carlo Beltrame
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EUROPEAN UNION
Rita Auriemma
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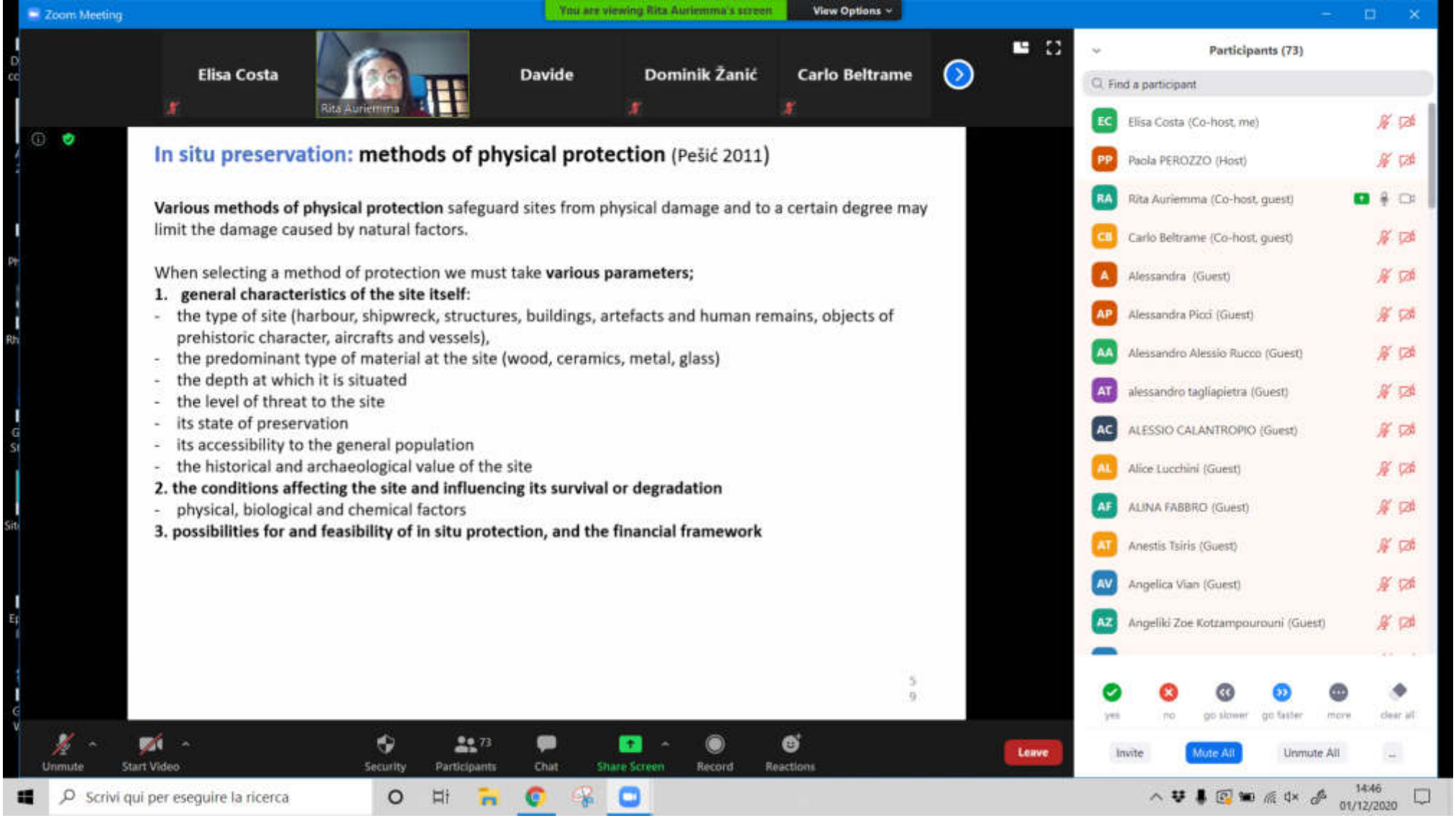
Zoom Meeting
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Elisa Costa
Rita Auriemma
Davide
Dominik Žanić
Carlo Beltrame
In situ preservation: methods of physical protection (Pešić 2011)
Various methods of physical protection safeguard sites from physical damage and to a certain degree may limit the damage caused by natural factors.
When selecting a method of protection we must take various parameters;
1. general characteristics of the site itself:
- the type of site (harbour, shipwreck, structures, buildings, artefacts and human remains, objects of prehistoric character, aircrafts and vessels),
- the predominant type of material at the site (wood, ceramics, metal, glass)
- the depth at which it is situated
- the level of threat to the site
- its state of preservation
- its accessibility to the general population
- the historical and archaeological value of the site
2. the conditions affecting the site and influencing its survival or degradation
- physical, biological and chemical factors
3. possibilities for and feasibility of in situ protection, and the financial framework
Participants (73)
Find a participant
Elisa Costa (Co-host, me)
Paola PEROZZO (Host)
Rita Auriemma (Co-host, guest)
Carlo Beltrame (Co-host, guest)
Alessandra (Guest)
Alessandra Picci (Guest)
Alessandro Alessio Rucco (Guest)
alessandro tagliapietra (Guest)
ALESSIO CALANTROPIO (Guest)
Alice Lucchini (Guest)
ALINA FABBRO (Guest)
Anestis Tsiris (Guest)
Angelica Vian (Guest)
Angeliki Zoe Kotzampourouni (Guest)
Unmute
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Participants
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Reactions
Leave
Invite
Mute All
Unmute All
Scrivi qui per eseguire la ricerca
14:46
01/12/2020

UNDERWATER ARCHAEOLOGICAL SITES IN THE VENICE LAGOON AND SEA

Carlo Beltrame, Stefano Medas

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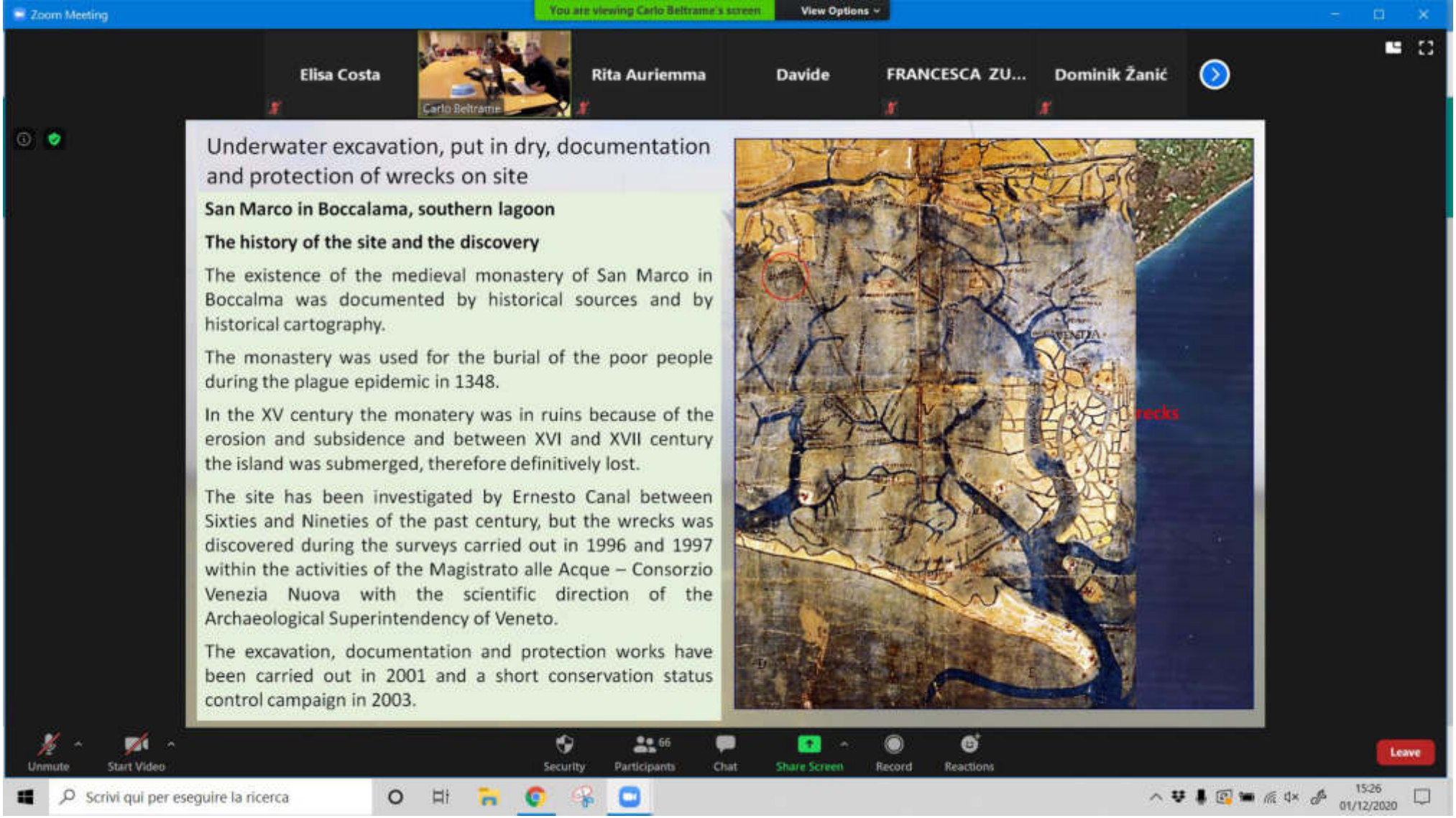

Interreg Italy - Croatia UnderwaterMuse
European Regional Development Fund
EUROPEAN UNION

Zoom Meeting — You are viewing Carlo Beltrame's screen — View Options

Elisa Costa | Carlo Beltrame | Rita Auriemma | Davide | FRANCESCA ZU... | Dominik Žanić

Underwater excavation, moving out of the water, dry documentation and final protection of a wreck.

The «Molo Sud» Wreck

The wreck was discovered during the MOSE works at the inlet or port-canal of Malamocco, between 3 and 6 m of depth. In 2007, with a 9 months campaign, it was excavated, moved out of the water, documented by 3D laser scanner and photogrammetry and finally protected on a different site.

Moving the wreck was necessary because it hindered the progress of the works (the costruction of a pier).

The discovery of coins inside the wreck attests that the shipwreck occured after 1861 but not later than 1870, when the construction of the new piers was completed. Actually the historical cartography shows that the site of the shipwreck is located inside the old inlet, consisting of a natural canal tourned southward. The wreck can be probably identified with a brig.

Archaeological campaign was carried out contextually to the MOSE works, with careful for the water trafic of pontoons, dredgers and others working boats.

Unmute | Start Video | Security | Participants 68 | Chat | Share Screen | Record | Reactions | Leave

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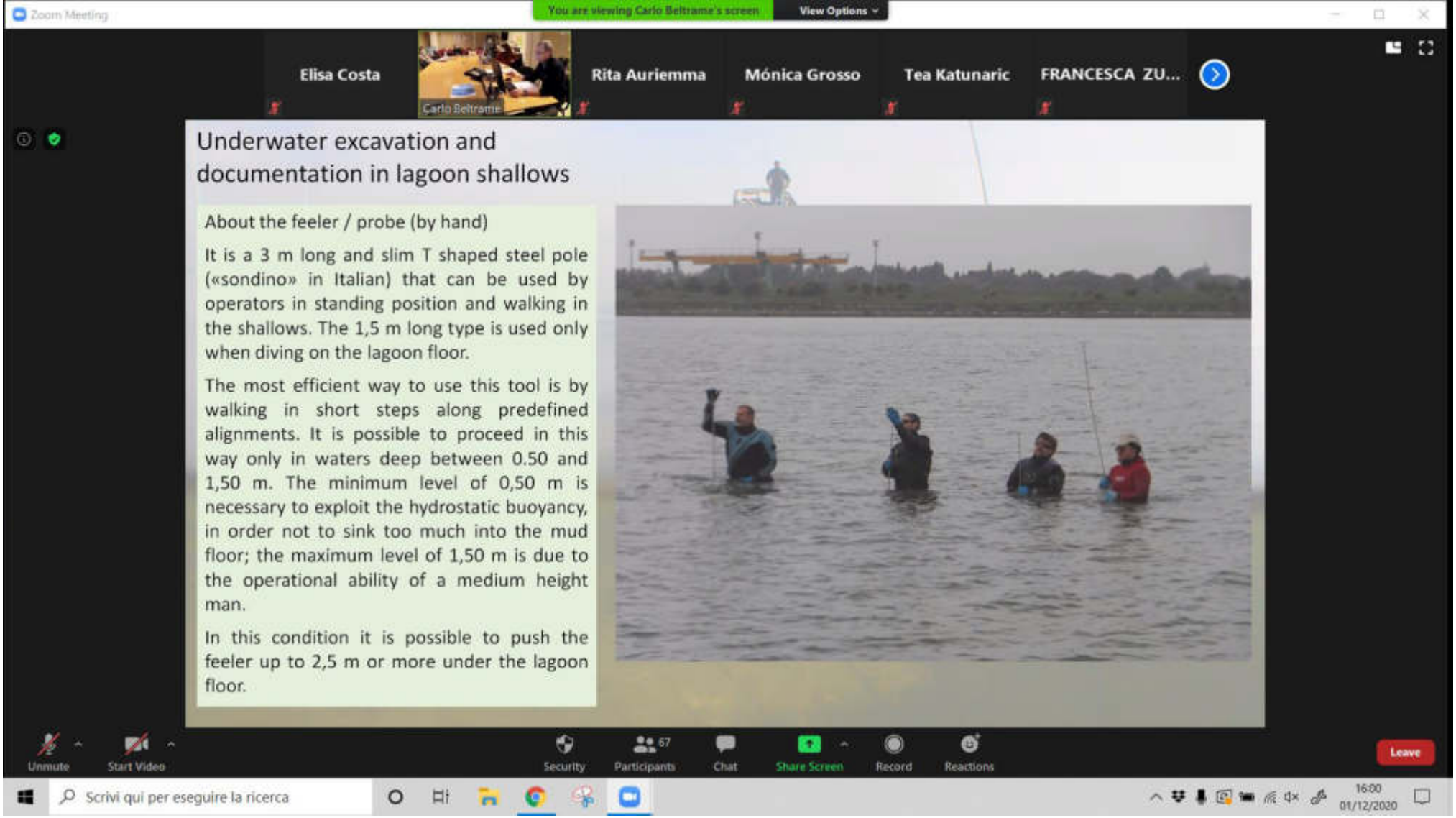
Zoom Meeting
You are viewing Carlo Beltrame's screen
View Options
Elisa Costa
Carlo Beltrame
Rita Auriemma
Mónica Grosso
Tea Katunaric
FRANCESCA ZU...
Underwater excavation and documentation in lagoon shallows
About the feeler / probe (by hand)
It is a 3 m long and slim T shaped steel pole («sondino» in Italian) that can be used by operators in standing position and walking in the shallows. The 1,5 m long type is used only when diving on the lagoon floor.
The most efficient way to use this tool is by walking in short steps along predefined alignments. It is possible to proceed in this way only in waters deep between 0.50 and 1,50 m. The minimum level of 0,50 m is necessary to exploit the hydrostatic buoyancy, in order not to sink too much into the mud floor; the maximum level of 1,50 m is due to the operational ability of a medium height man.
In this condition it is possible to push the feeler up to 2,5 m or more under the lagoon floor.
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Reactions
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Scrivi qui per eseguire la ricerca
16:00
01/12/2020

DIGITAL ACQUISITION AND PROCESSING OF ARCHIVE AND LEGACY DATA ON GRADO I SHIPWRECK

Elisa Costa

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European Regional Development Fund
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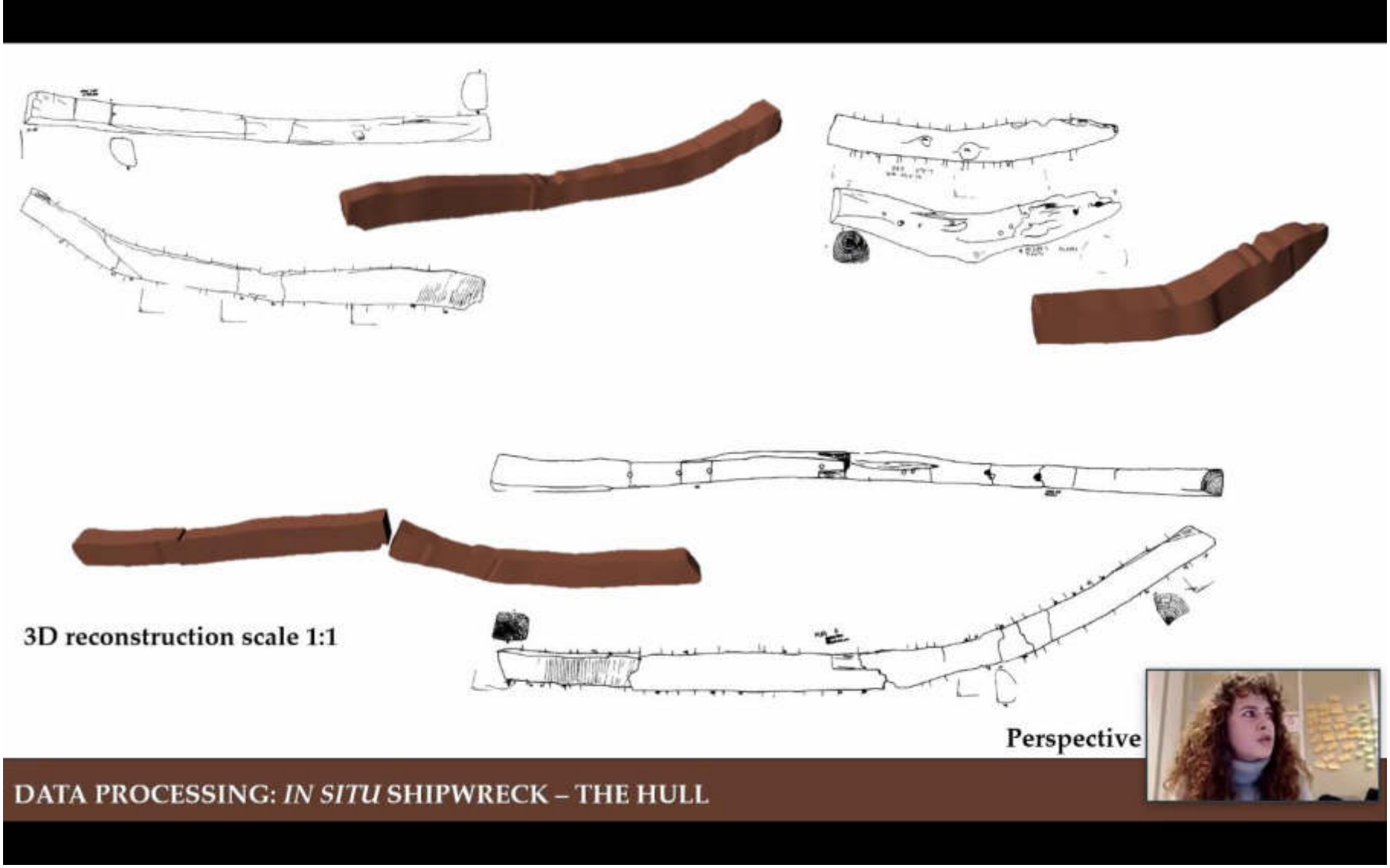
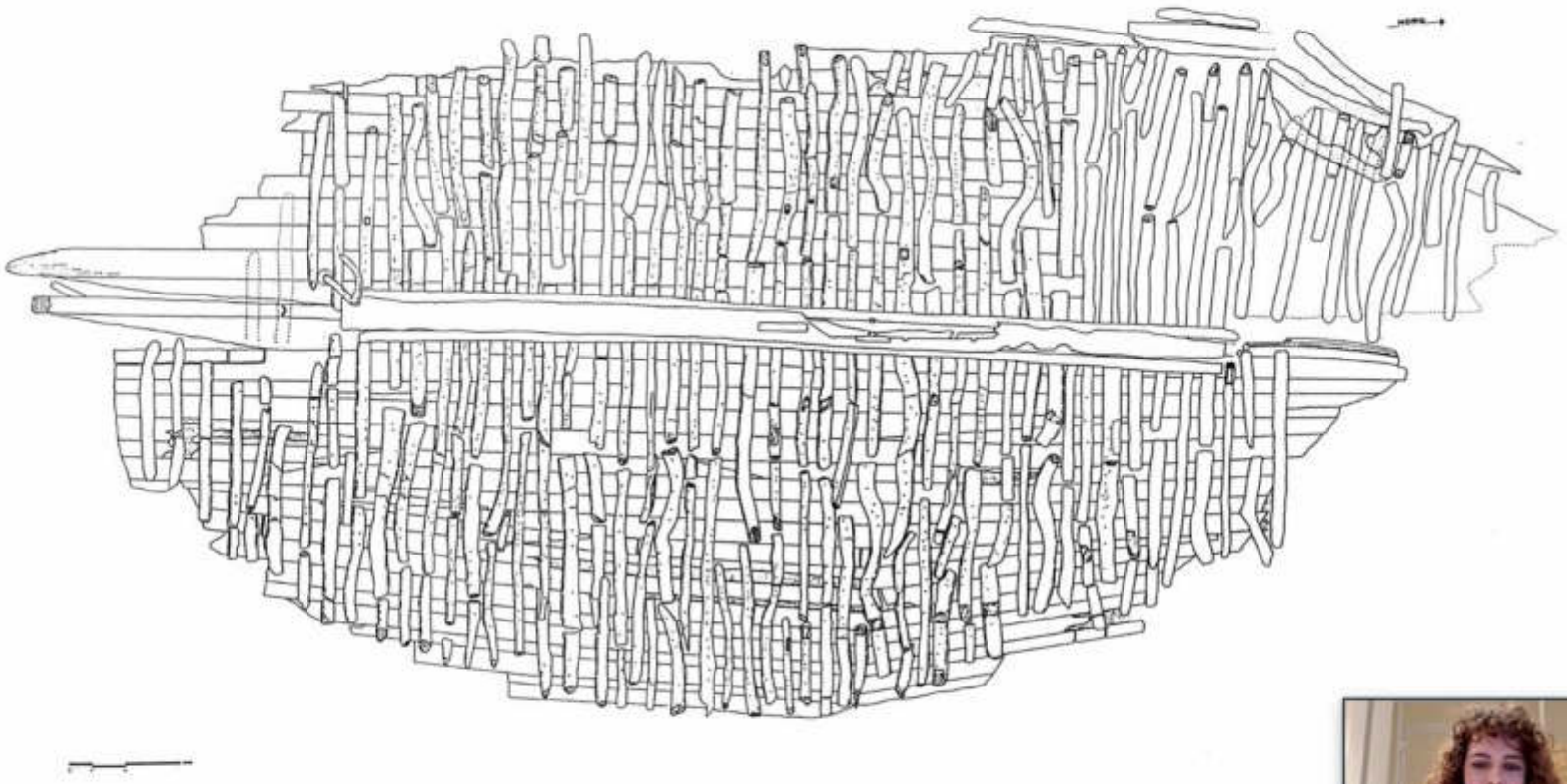
THE GRADO I SHIPWRECK


THE GRADO I SHIPWRECK

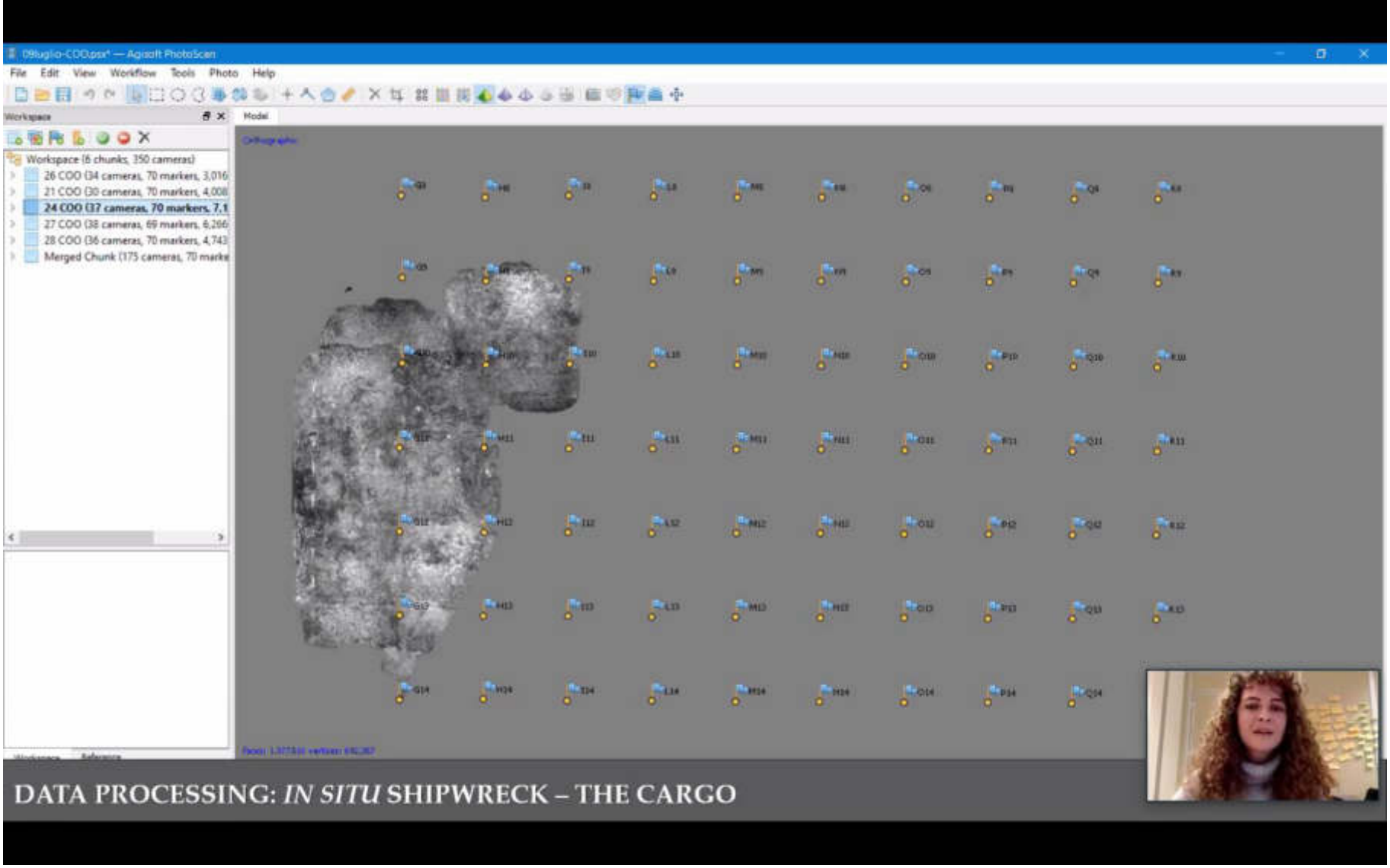

3D reconstruction scale 1:1
Perspective
DATA PROCESSING: *IN SITU* SHIPWRECK – THE HULL

Plan of the site *in situ* - 1999

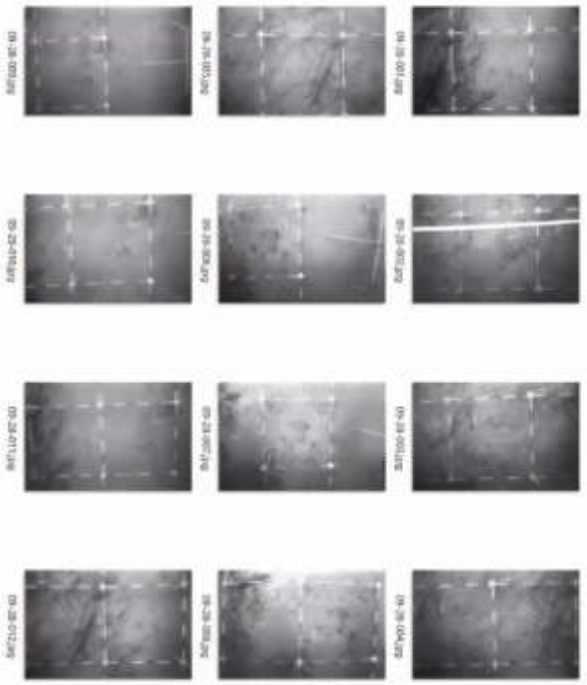


DATA PROCESSING: *IN SITU* SHIPWRECK – THE HULL

DATA PROCESSING: *IN SITU* SHIPWRECK – THE HULL

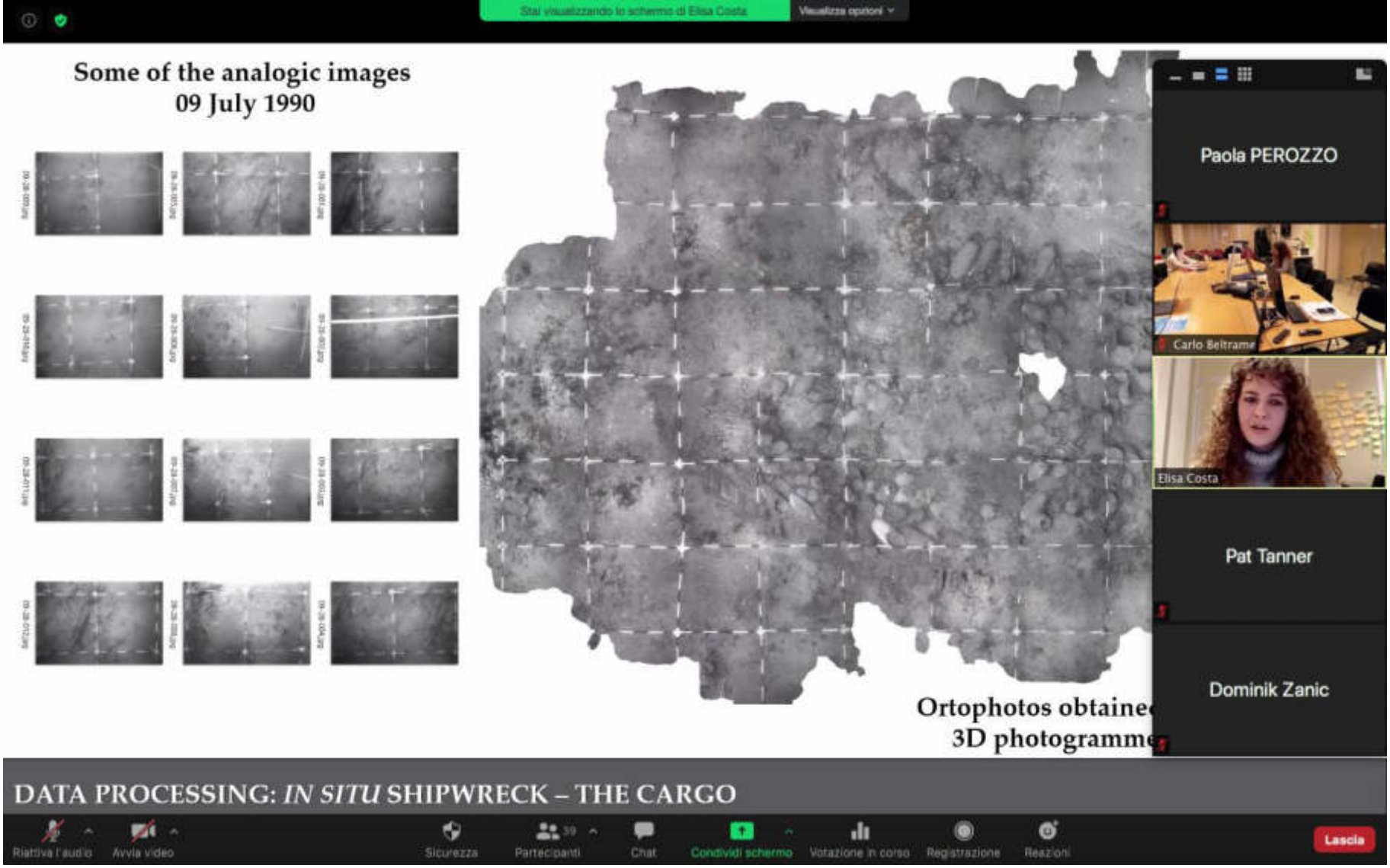

File Edit View Workflow Tools Photo Help
Workspace (6 chunks, 350 cameras)
26 COO (34 cameras, 70 markers, 3,016
21 COO (30 cameras, 70 markers, 4,008
24 COO (37 cameras, 70 markers, 7,1
27 COO (38 cameras, 69 markers, 6,266
28 COO (36 cameras, 70 markers, 4,743
Merged Chunk (175 cameras, 70 marke
Model
DATA PROCESSING: *IN SITU* SHIPWRECK – THE CARGO

Some of the analogic images
09 July 1990

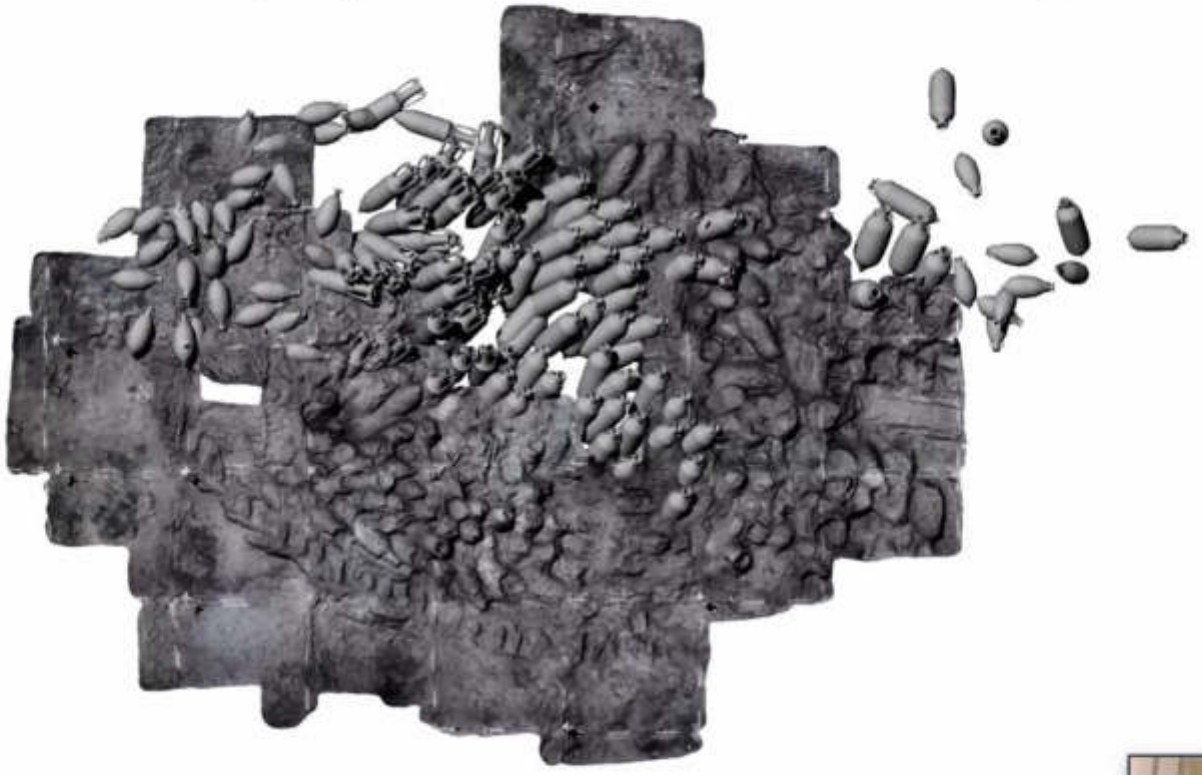


Ortophotos obtaine
3D photogramm

DATA PROCESSING: *IN SITU* SHIPWRECK – THE CARGO


Some of the analogic images
09 July 1990
Ortophotos obtaine
3D photogramme
Paola PEROZZO
Carlo Beltrame
Elisa Costa
Pat Tanner
Dominik Zanic
DATA PROCESSING: IN SITU SHIPWRECK – THE CARGO
Riattiva l'audio
Avvia video
Sicurezza
Partecipanti
Chat
Condividi schermo
Votazione in corso
Registrazione
Reazioni
Lascia

Integration of the 3d photogrammetric model with the reconstructed amphoras

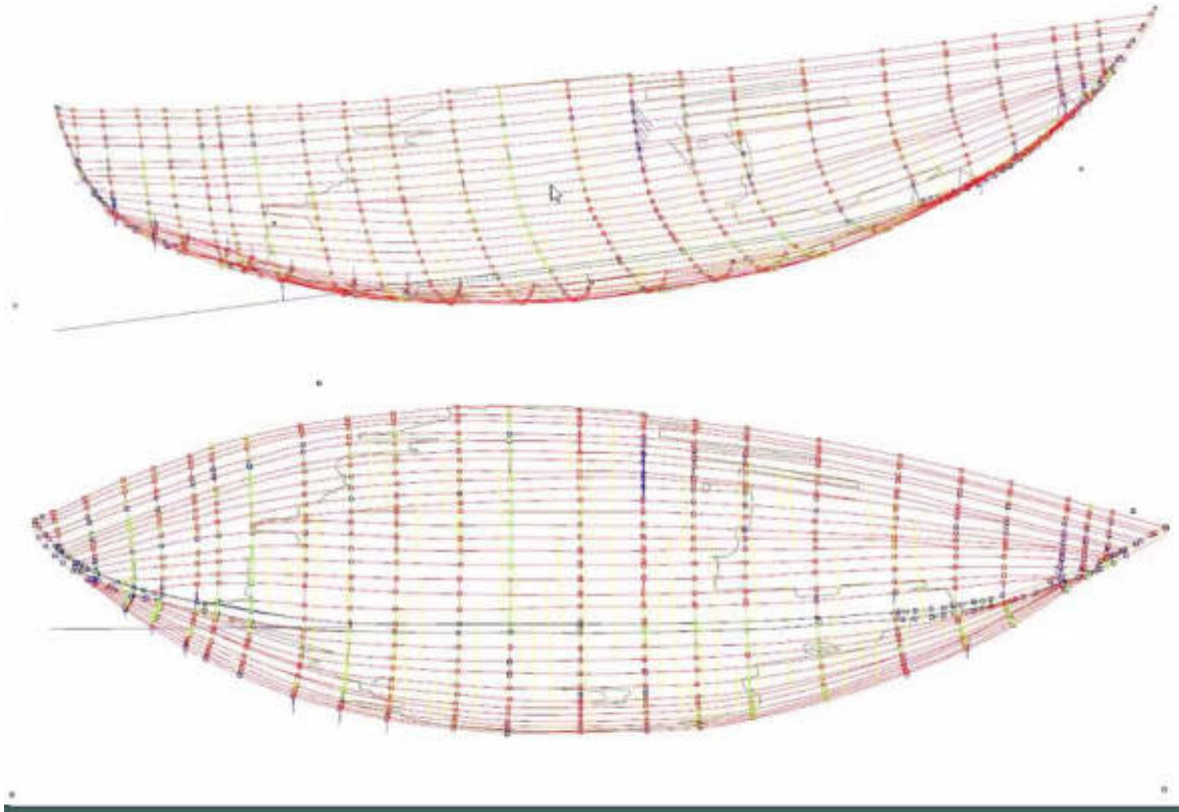


DATA PROCESSING: *IN SITU* SHIPWRECK – THE CARGO

Integration of the 3d photogrammetric model with the reconstructed amphoras

DATA PROCESSING: *IN SITU* SHIPWRECK – THE CARGO

Faro Arm survey of the cardboard study model



DATA PROCESSING: THE RECONSTRUCTED SHIPWRECK

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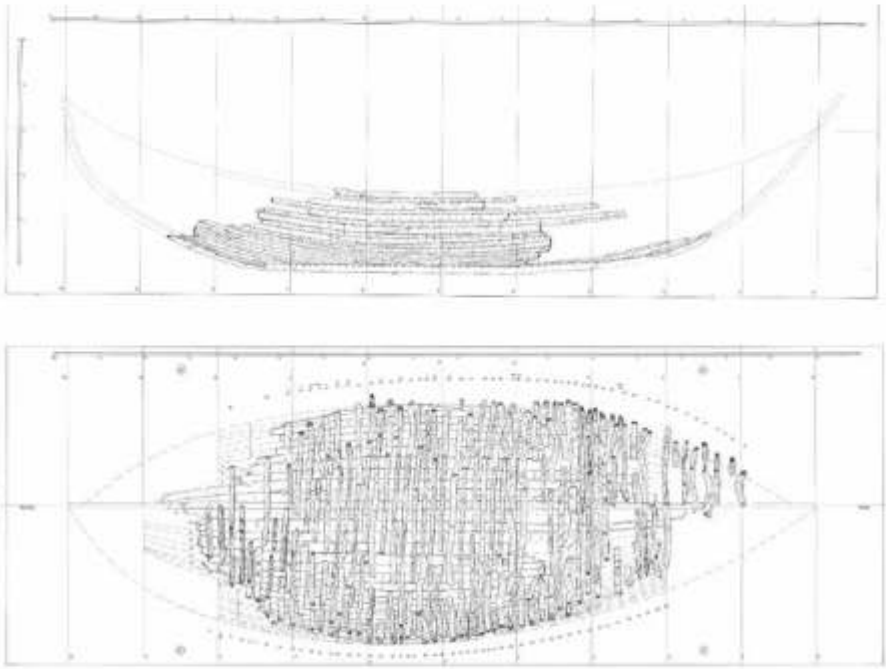
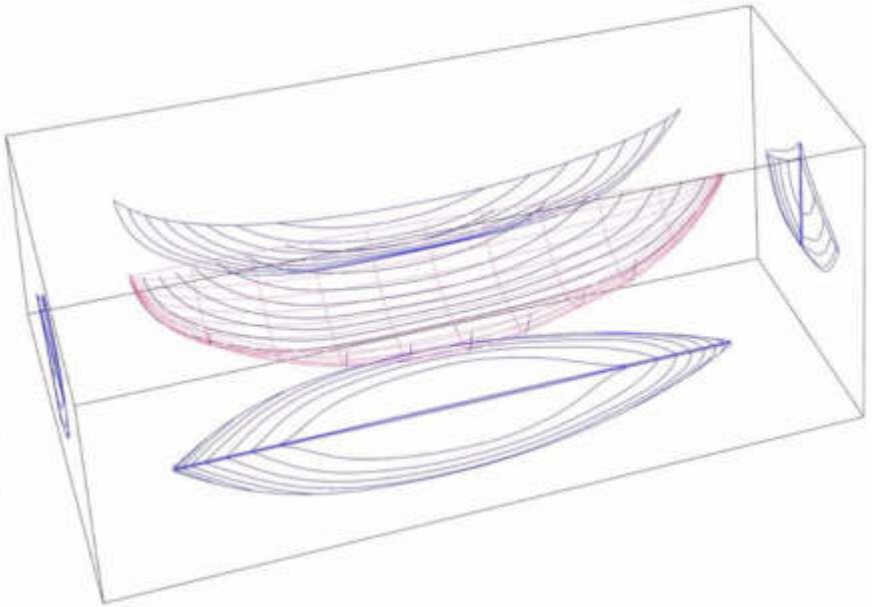
Reconstruction of the hull lines with digitalization of the 2D drawings

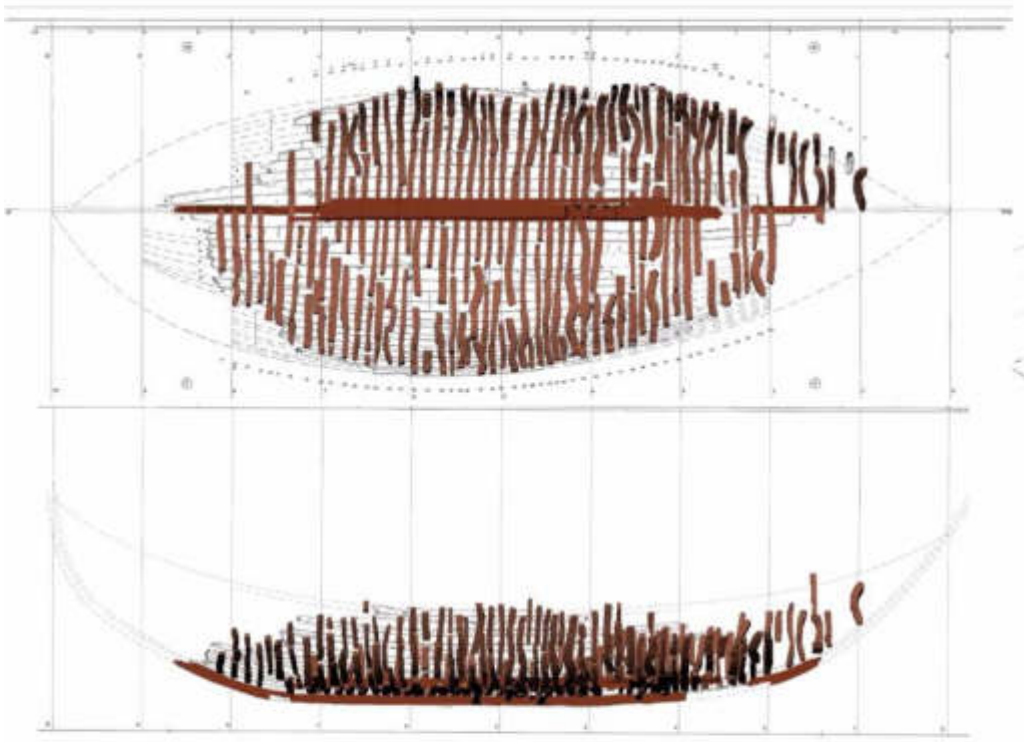


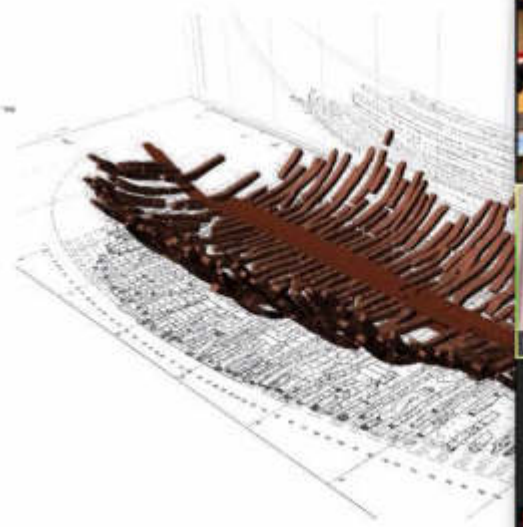


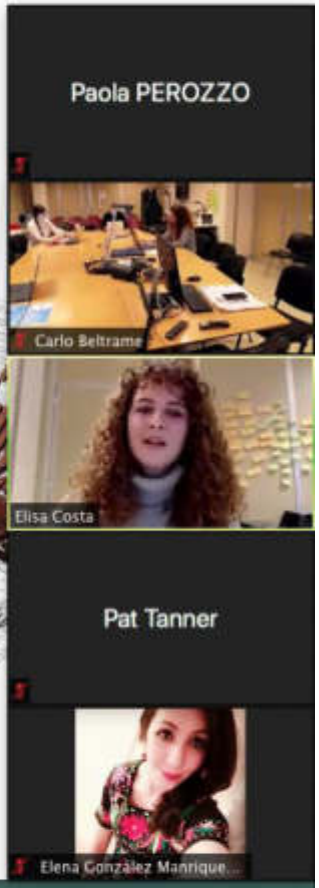
DATA PROCESSING: THE RECONSTRUCTED SHIPWRECK

Stai visualizzando lo schermo di Elisa Costa Visualizza opzioni

Rototraslation of the wooden element in the reconstructed hull lines

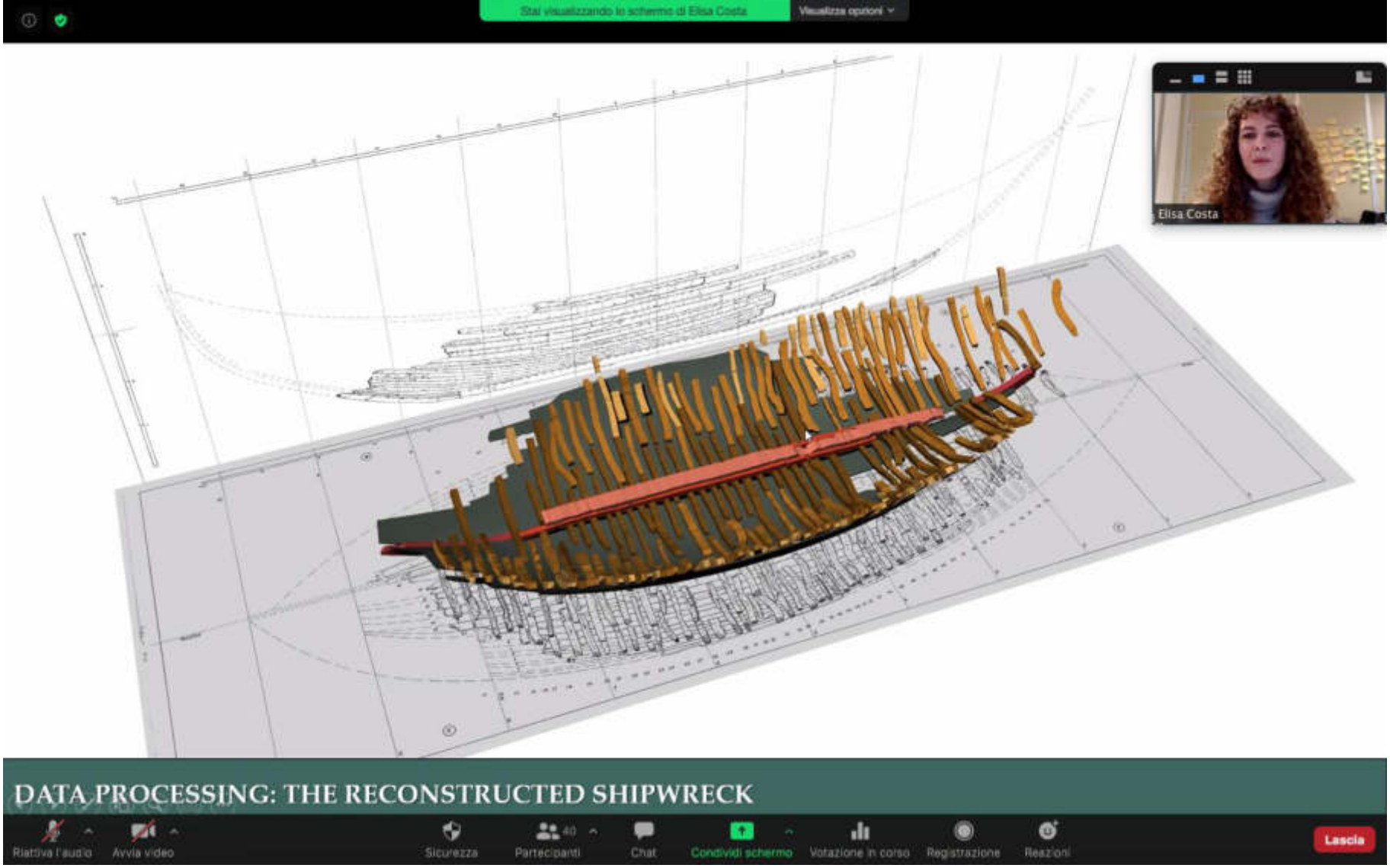






DATA PROCESSING: THE RECONSTRUCTED SHIPWRECK

Riattiva l'audio Avvia video Sicurezza Partecipanti Chat Condividi schermo Votazione in corso Registrazione Reazioni Lascia


Stai visualizzando lo schermo di Elisa Costa
Visualizza opzioni
Elisa Costa
DATA PROCESSING: THE RECONSTRUCTED SHIPWRECK
Riattiva l'audio
Avvia video
Sicurezza
Partecipanti
40
Chat
Condividi schermo
Votazione in corso
Registrazione
Reazioni
Lascia

Concluding:

- Essential requirement of the recovery of legacy data
- Digital technologies and innovative solution to resolve problems
- New studies and visualization of a site not available and never exposed to the public

3D DOCUMENTATION, DIGITAL RECONSTRUCTION AND HYDROSTATIC ANALYSIS OF ARCHAEOLOGICAL BOATS AND SHIPS

Pat Tanner

Interreg
Italy - Croatia
UnderwaterMuse
European Regional Development Fund
EUROPEAN UNION

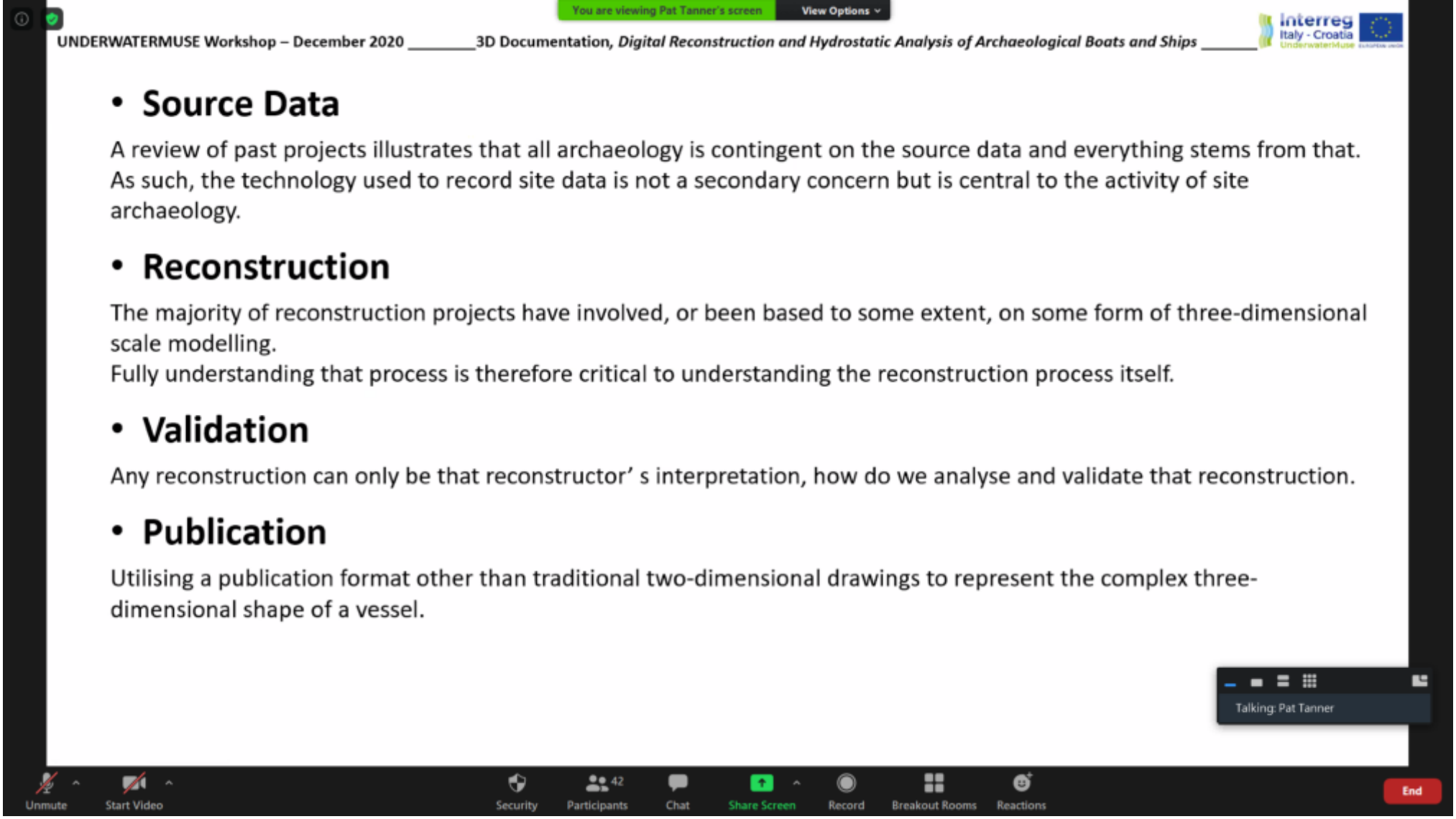
Full-scale replicas are then constructed as a means to validate the proposed reconstruction. However, as noted by Ravn *et al.* (2013:239) drawings sometimes have to be altered due to the fact that oak planks do not behave in exactly the same way as the paper or cardboard used in the scale model.

Kraka Fyr a replica of Skuldelev 6 was built in 1998, but an error in the stem meant a second replica, *Skjoldungen* had to be rebuilt with a different interpretation of the bow and stern design.

Skuldelev 3 now has three replicas constructed – each with differing interpretations.

Project	Date	Site Survey	Timbers Recorded	As Found	Initial basis for Hull Form	Development of Reconstruction	Validation of Reconstruction
Kalmar	1932	Traditional 2D offsets survey	2D Offsets	Survey Drawing	Scale Drawings	Scale Model	Scale Model
Ferriby	1937	Traditional 2D offsets survey	2D Offsets	Interpreted excavation dwg.	Scale Drawings	Scale Drawings and 5 Scale Models	Coefficients + displacement and ½ scale replica
Yassi Ada 7th C	1961	Underwater Photography		Corrected and scaled from photographs	Reassembly of scaled model strakes	Scale Models	Tonnage
Skuldelev	1962	Photogrammetry Then scale dwg.	Full-scale Elevated plane tracing	Interpreted Torso dwg.	Reassembly of 2D scaled model strakes	Scale Model	Coefficients + displacement and full-scale replica
Kyrenia	1968	Underwater Photography	Drawn full-scale Photo-graphed	Corrected and scaled from photographs	Initial hull form model	18 models – some full-scale	Tonnage and 2 full-scale replicas
Graveney	1970	Traditional 2D offsets survey and full-scale plaster cast	Full-scale Contact tracing	Reduced scale dwgs.	Reduced scale drawings	Scale Drawings and 4 Scale Models	Coefficients + displacement and ½ scale replica
Serçe Limani	1977	Underwater Photography	Full-scale Elevated plane tracing	Site Diorama model	Site Diorama model and mould + batten model	Various models	Tonnage

Project	Date	Site Survey	Timbers Recorded	As Found	Initial basis for Hull Form	Development of	Validation of Reconstruction
Grace Dieu	1980 -	Traditional 2D survey and Sub-bottom profile	Some with 2D Offsets				
Ma'agan Mikhael	1985	Underwater 2D offsets survey and photographs	2D Offsets	Survey Drawing	Surviving frame shape and reassembly of hull remains	reassembly of hull remains and 3 scale models	Coefficients + displacement causing hull redesign and full-scale replica
Barland's Farm	1993	Traditional 2D offsets survey	2D Offsets	Interpreted 'as-found' dwg.	Reassembly of scaled model strakes	Scale Model	Coefficients + displacement
Roskilde	2002	Photogrammetry Then scale dwg.	3D full-scale digitising	Interpreted Torso dwg.	Flatten data to 2D and assemble scaled model strakes	Scale Model	Coefficients + displacement and full-scale replica
Newport	2002	Traditional 2D offsets survey and Photogrammetry	3D full-scale digitising	As surveyed and post-deposition model	3D Post deposition model	Full-scale 3D digital model	Full Orca3D hydrostatic and hydrodynamic analysis
Sørenga 7	2007	Traditional 2D offsets survey	3D full-scale digitising	Traced from on-site digital scan	Surviving frame shape 3D printed and reassembly of hull remains	Scale Model	Orca3D hydrostatic analysis


You are viewing Pat Tanner's screen
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UNDERWATERMUSE Workshop – December 2020 _____3D Documentation, Digital Reconstruction and Hydrostatic Analysis of Archaeological Boats and Ships _____
interreg Italy - Croatia UnderwaterMuse
• Source Data
A review of past projects illustrates that all archaeology is contingent on the source data and everything stems from that. As such, the technology used to record site data is not a secondary concern but is central to the activity of site archaeology.
• Reconstruction
The majority of reconstruction projects have involved, or been based to some extent, on some form of three-dimensional scale modelling.
Fully understanding that process is therefore critical to understanding the reconstruction process itself.
• Validation
Any reconstruction can only be that reconstructor' s interpretation, how do we analyse and validate that reconstruction.
• Publication
Utilising a publication format other than traditional two-dimensional drawings to represent the complex three-dimensional shape of a vessel.
Talking: Pat Tanner
Unmute
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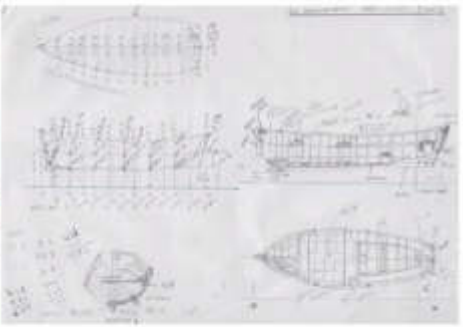
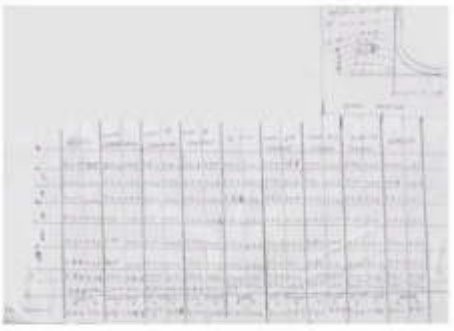
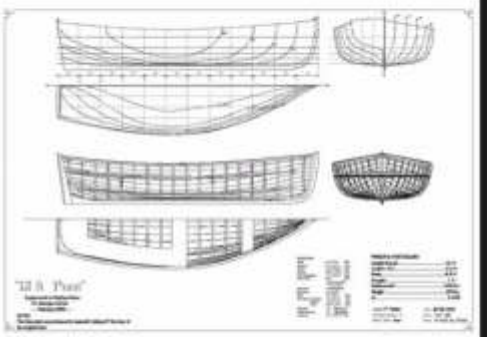
Chat
Share Screen
Record
Breakout Rooms
Reactions
End

- **Source Data – Traditional recording methods**



- **Source Data – Tacheometric surveying**

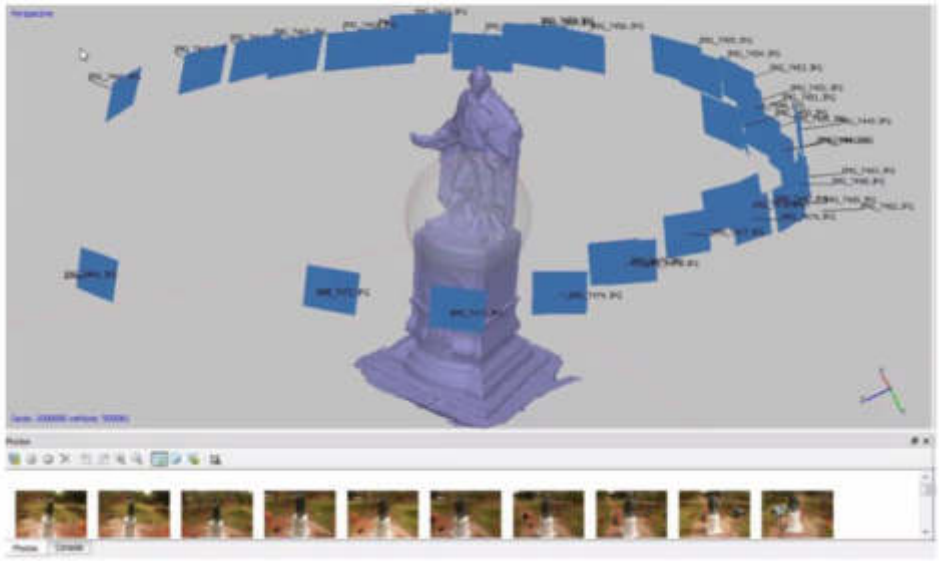
Tacheometric surveying such as with a theodolite or total station, involves the measurement of individual three-dimensional points relative to one another, using a combination of angular and distance measurements

One of the first uses of a total station to record large ship structures in Denmark was pioneered by Christian Lemée in 1996 during the excavation of the renaissance ships at the B&W site in Christianshavn (Lemée 2006).
With typical logging of up to 1,200 points per day, and a total of circa 32,000 points logged

The recording of multiple wrecks in Yenikapi, Turkey, also employed a total station with a recorded point density of between 4000 and 10,000 points per wreck depending on its size

Lemée, Christian PP 2006 *The Renaissance Shipwrecks fro*
An Archaeological and Architectural Study of Large Carve
Waters, 1580-1640. Viking Ship Museum.

- **Source Data – Photogrammetric Surveying**



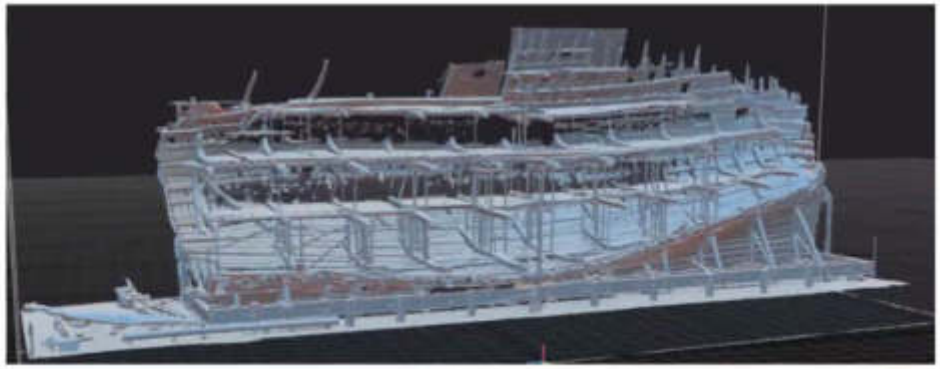
For underwater surveying of archaeological sites, the potential of photogrammetry was recognised as early as the 1960s when George Bass used paired cameras mounted on a mini submarine to document a late Roman wreck

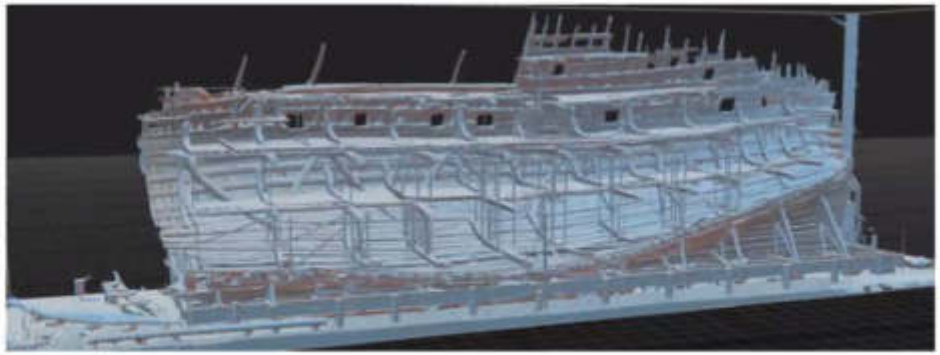
Advances over the last two decades have included a move away from stereo paired photogrammetry with the advent of multi-image photogrammetric software such as Agisoft Photoscan - also commonly known as structure from motion.

If the computer software can correctly identify a sufficient number of tie points, then the relative position and orientation of the cameras can be correctly calculated. However, an insufficient number, or incorrectly matched tie points, may produce inaccurate camera positions, resulting in a distorted representation of the source data.
One thing purveyors of photogrammetric software often neglect to mention is how long it takes to process high-resolution photos and how much computing power is needed.

- **Source Data – Hybrid techniques – combining 3D Laser Scanning with Photogrammetry**

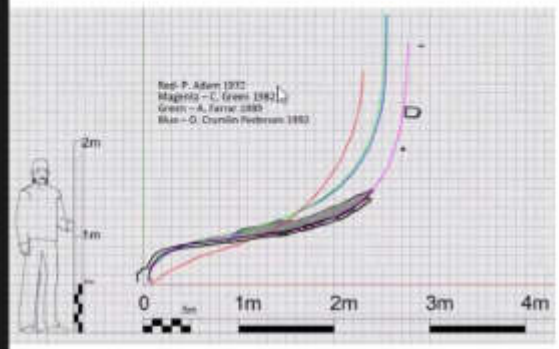
Recent software developments such as RealityCapture® now mean there is no reason why the two techniques cannot be used together. This software can use the geometrically accurate laser scanning as a control network for scale and relative positioning, while using the high-resolution photography for colour and surface texture.



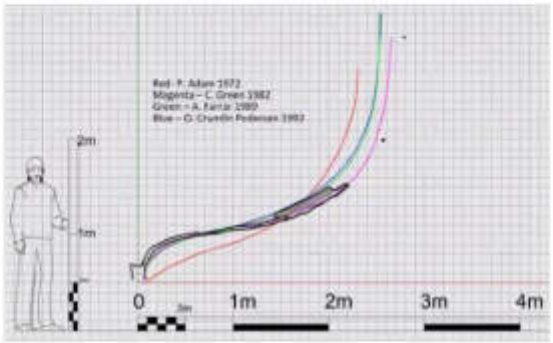


In a proof of concept case study, thanks to Eleanor Schofield and the team at the Mary Rose museum, Henry VIII's Tudor ship the *Mary Rose* was recorded using a combination of 22 individual laser scans, and a total of 374 photographs taken by Rodrigo Ortiz.

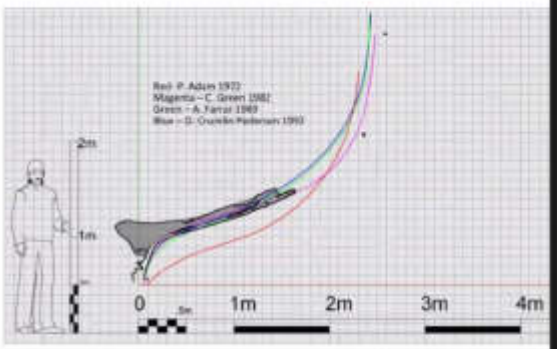
As it was not an organised or pre-planned survey, the conditions were less than ideal, with limited access and constant changes in lighting conditions



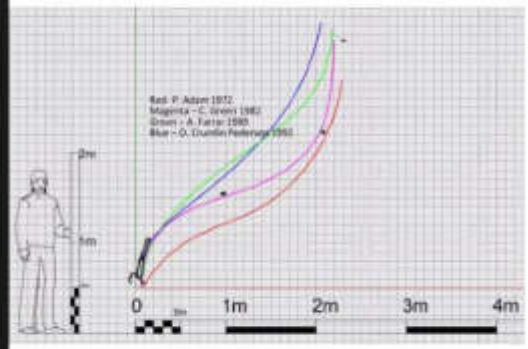
Section at 8m (forward of keel)



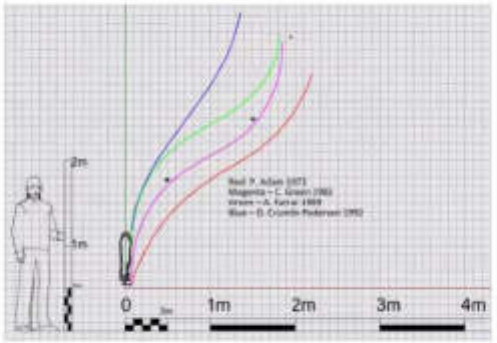
Section at 6m (forward of keel)



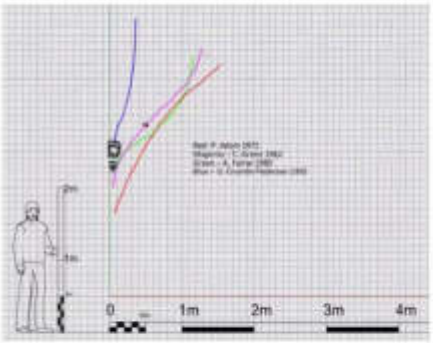
Section at 4m (forward of keel)



Section at 2m (forward of keel)

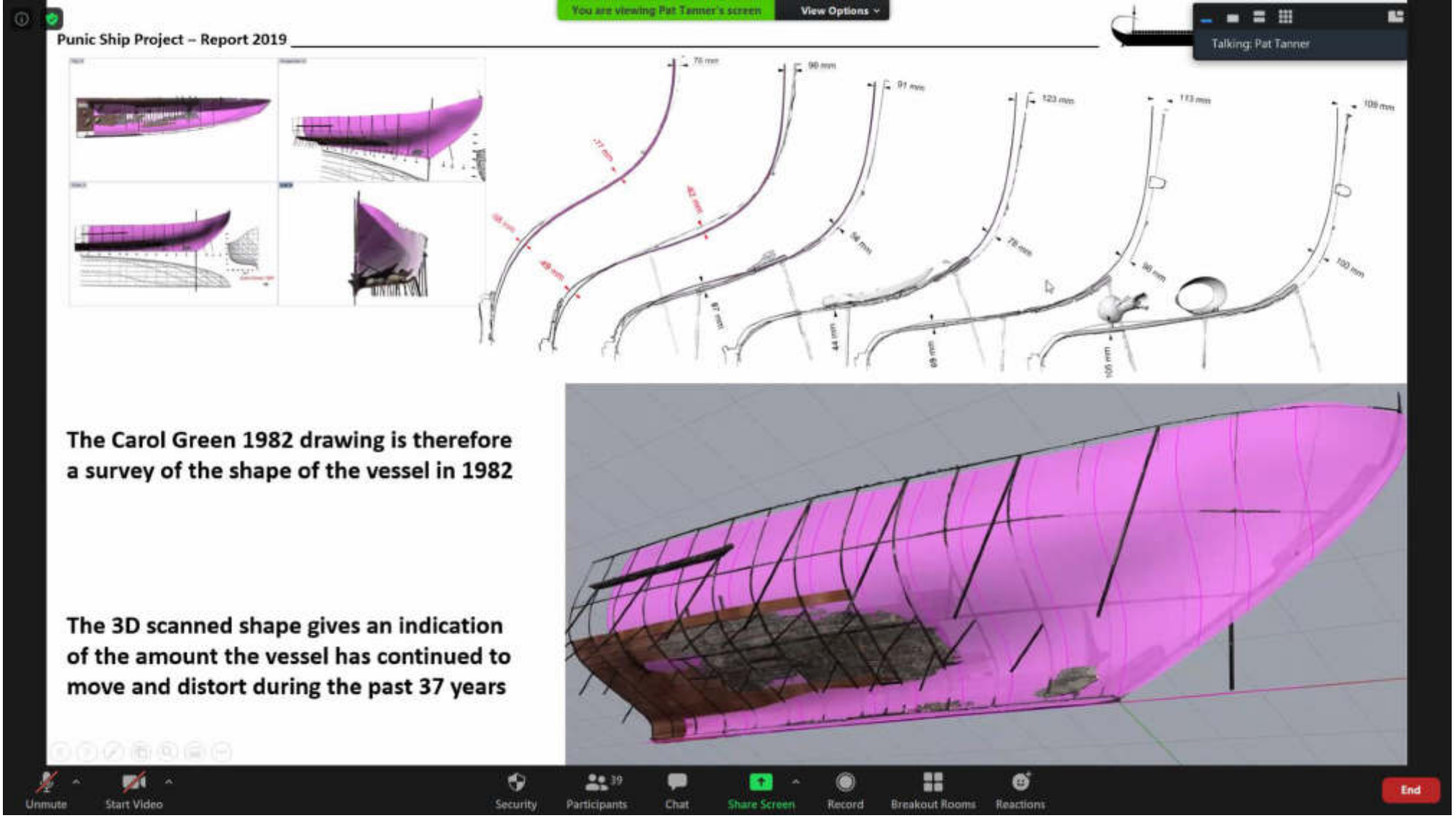


Section at 0m (Aft face of keel)



Section at -2m (aft of keel)

Red- P. Adam 1972, Magenta – C. Green 1982, Green – A. Farrar 1989, Blue – O. Crumlin Pedersen 1992


You are viewing Pat Tanner's screen
View Options
Talking: Pat Tanner
Punic Ship Project – Report 2019
The Carol Green 1982 drawing is therefore a survey of the shape of the vessel in 1982
The 3D scanned shape gives an indication of the amount the vessel has continued to move and distort during the past 37 years
Unmute
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Reactions
End


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View Options
Punic Ship Project – Report 2019
Talking: Pat Tanner
2m
1m
5m
262 mm
0
.5m
1m
2m
3m
Unmute
Start Video
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Record
Breakout Rooms
Reactions
End

As an example the Newport Medieval ship project included 28 specialist reports, all of which are available online:
https://archaeologydataservice.ac.uk/archives/view/newportship_2013/downloads.cfm

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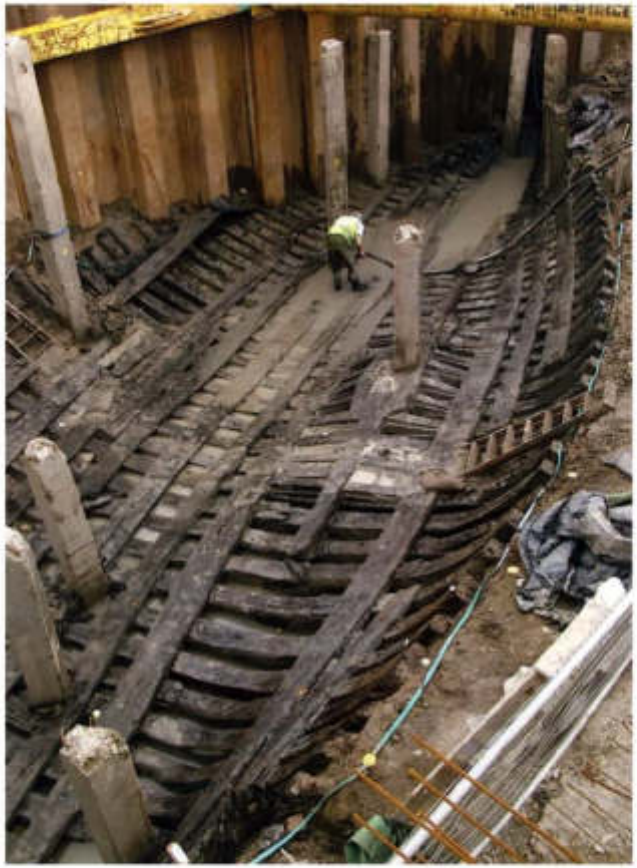
Talking: Pat Tanner

Digital Reconstruction and Analysis of the Newport Medieval Ship



- Discovered in Newport, Wales in 2002
- Built after AD 1449 and repaired in the late 1450s and early 1460s
- A late example of a large clinker-built merchant vessel (with 1000+ artifacts)
- Preserved by anoxic river sediments
- Around 30m in length with a displacement of 210 - 390+ tons
- Cargo capacity of between 100–200 tons
- Capable of direct/long-duration voyages
- Evidence of travel and trade with the Iberian Peninsula
- Ended its working life in Newport after the spring of AD 1468

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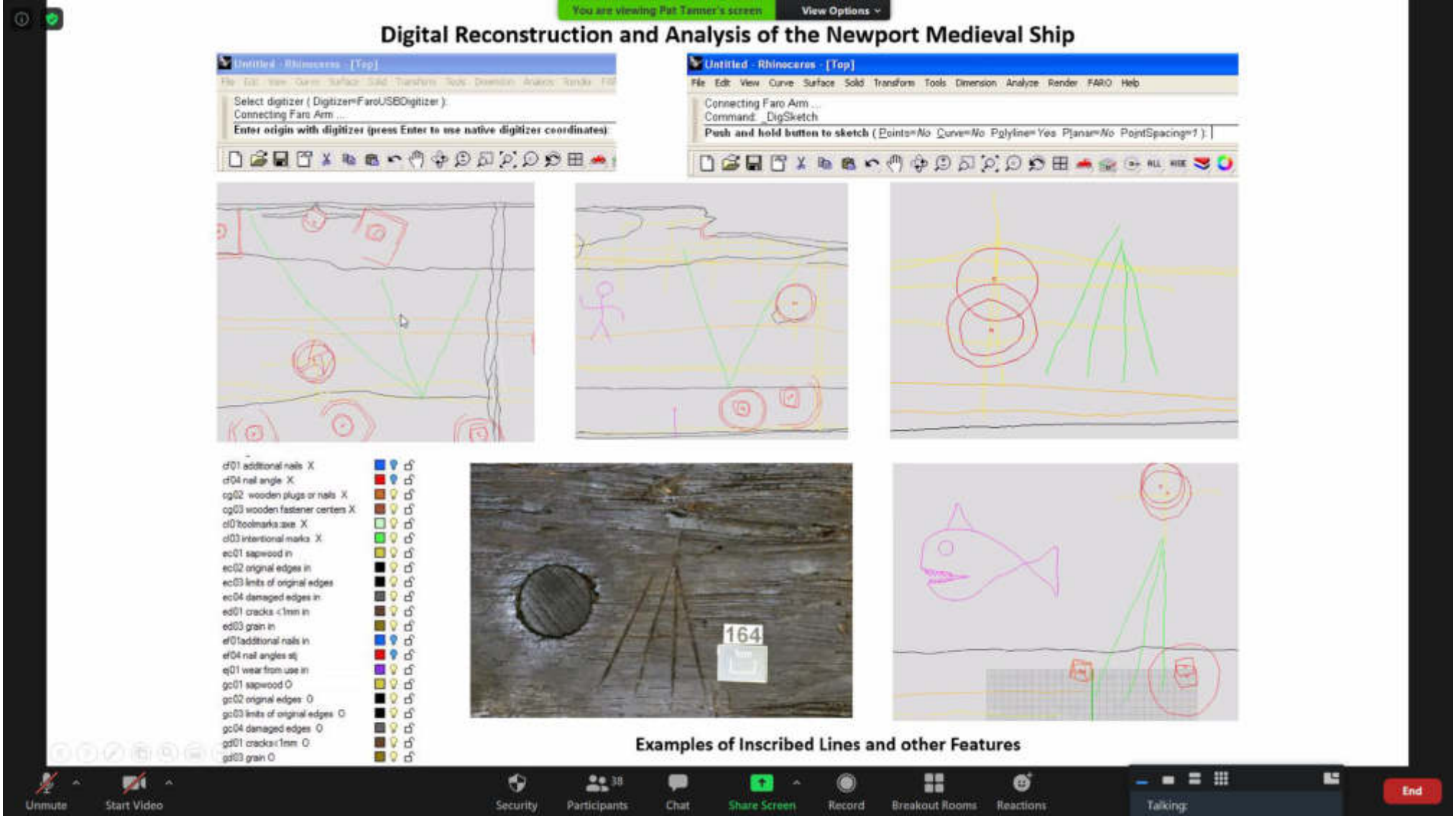
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View Options
Digital Reconstruction and Analysis of the Newport Medieval Ship
Untitled - Rhinoceros - [Top]
Select digitizer (Digitizer=FaroUSBDigitizer):
Connecting Faro Arm ...
Enter origin with digitizer (press Enter to use native digitizer coordinates):
Untitled - Rhinoceros - [Top]
File Edit View Curve Surface Solid Transform Tools Dimension Analyze Render FARO Help
Connecting Faro Arm ...
Command: _DigSketch
Push and hold button to sketch (Points=No Curves=No Polylines=Yes Planar=No PointSpacing=1):
cf01 additional nails X
cf04 nail angle X
cg02 wooden plugs or nails X
cg03 wooden fastener centers X
cl01toolmarks:axe X
cl03 intentional marks X
ec01 sapwood in
ec02 original edges in
ec03 limits of original edges
ec04 damaged edges in
ed01 cracks <1mm in
ed03 grain in
ef01additional nails in
ef04 nail angles stj
ej01 wear from use in
gc01 sapwood O
gc02 original edges O
gc03 limits of original edges O
gc04 damaged edges O
gd01 cracks<1mm O
gd03 grain O
164
Examples of Inscribed Lines and other Features
Unmute
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Talking:
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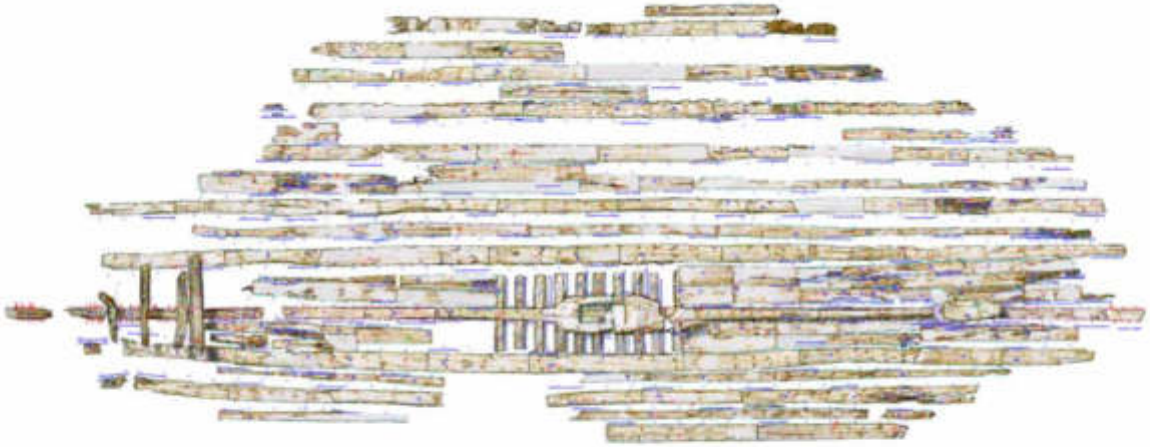
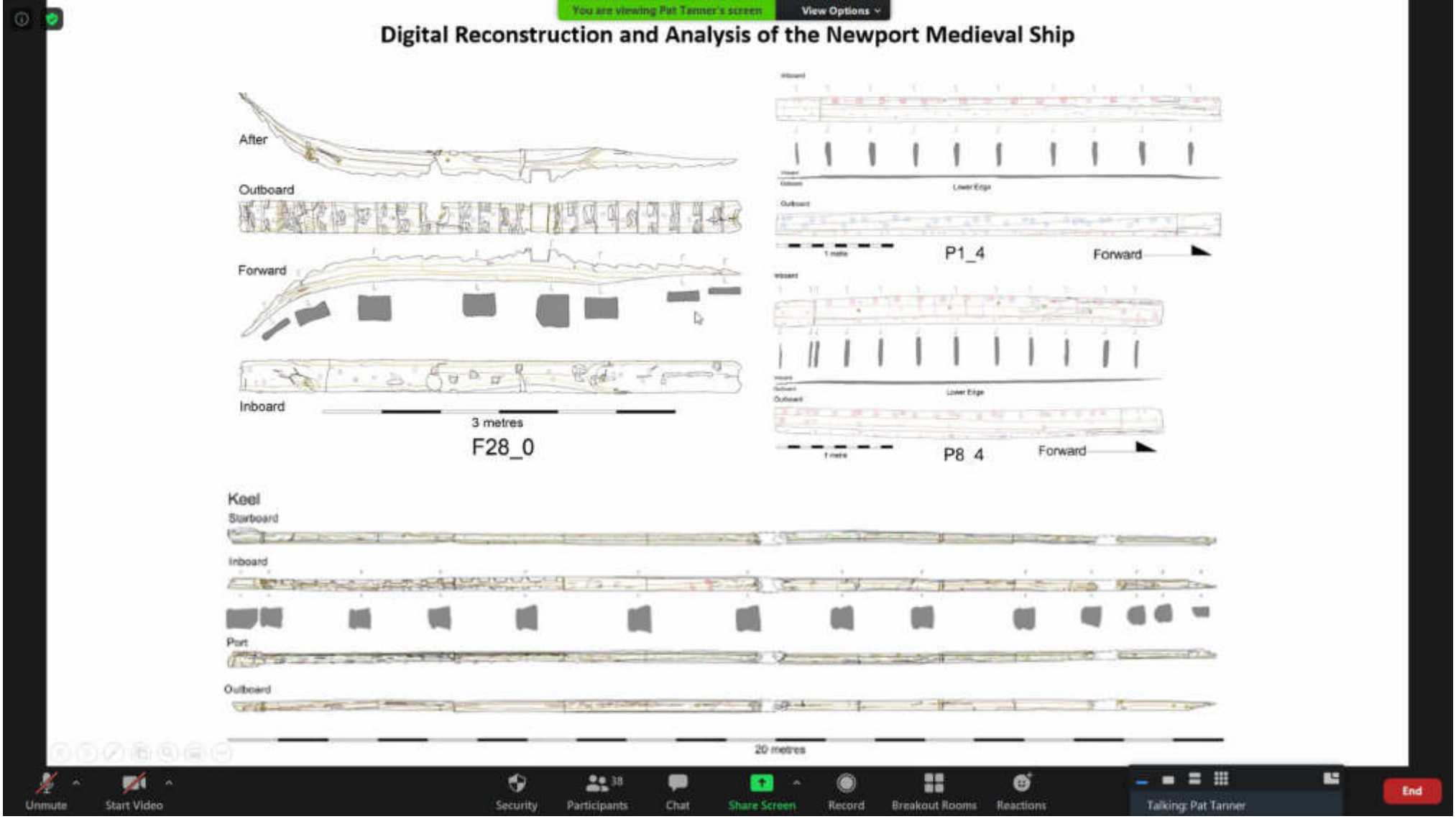
Digital Reconstruction and Analysis of the Newport Medieval Ship



Inner Hull timbers master composite, the mast step/keelson, braces, stringers, ceiling and riders.
The bow is to the left.

Perspective view highlighting the flattened two-dimensional nature of the schematic view

Unmute Start Video Security Participants 38 Chat Share Screen Record Breakout Rooms Reactions Talking: Pat Tanner End


You are viewing Pat Tanner's screen
View Options
Digital Reconstruction and Analysis of the Newport Medieval Ship
After
Outboard
Forward
Inboard
3 metres
F28_0
P1_4
Forward
P8_4
Forward
Keel
Starboard
Inboard
Port
Outboard
20 metres
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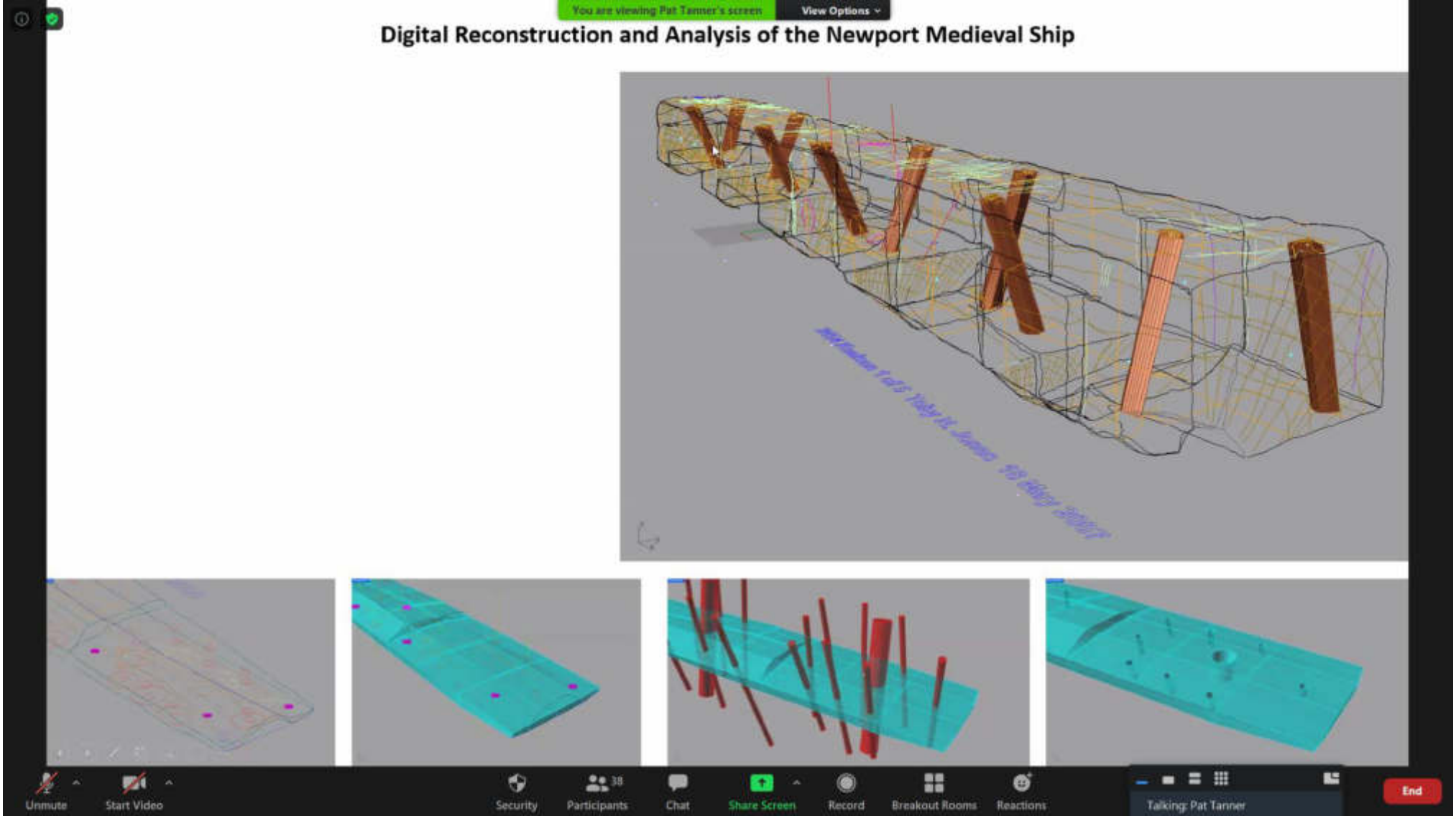
Talking: Pat Tanner
End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Digital Reconstruction and Analysis of the Newport Medieval Ship
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Reactions
Talking: Pat Tanner
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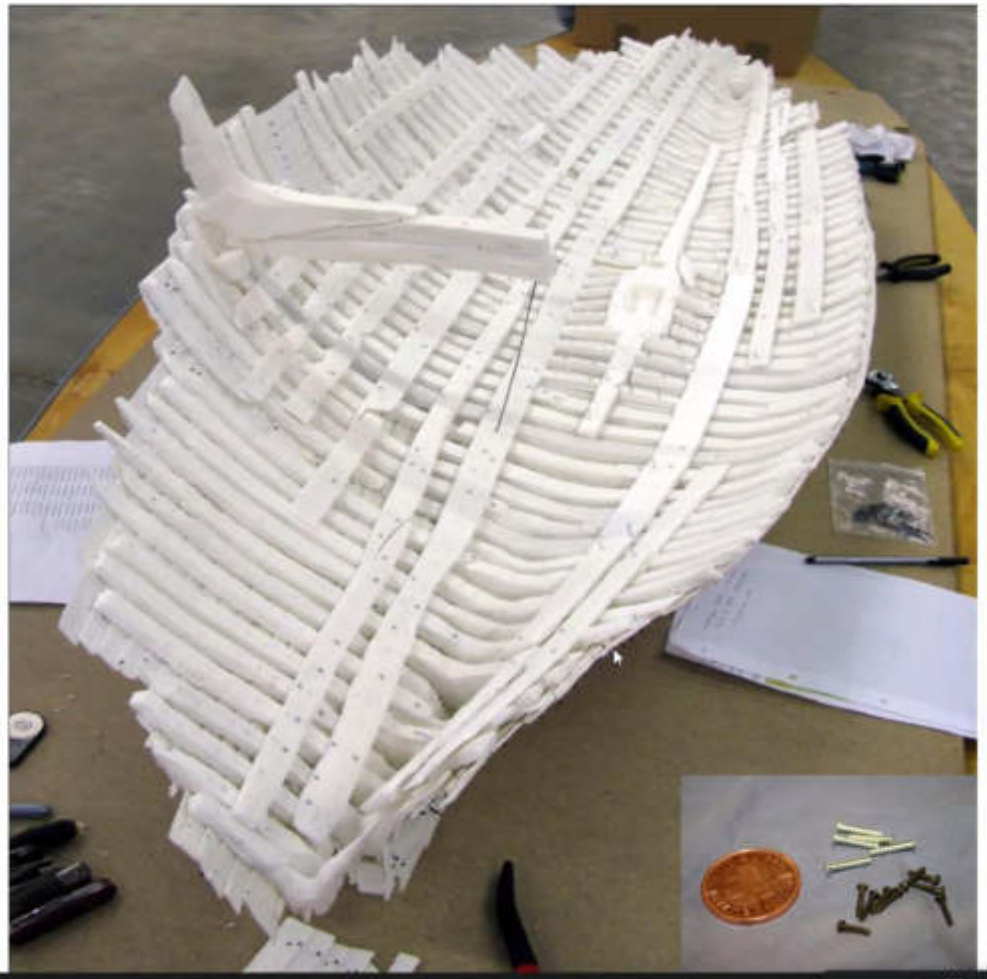
Digital Reconstruction and Analysis of the Newport Medieval Ship



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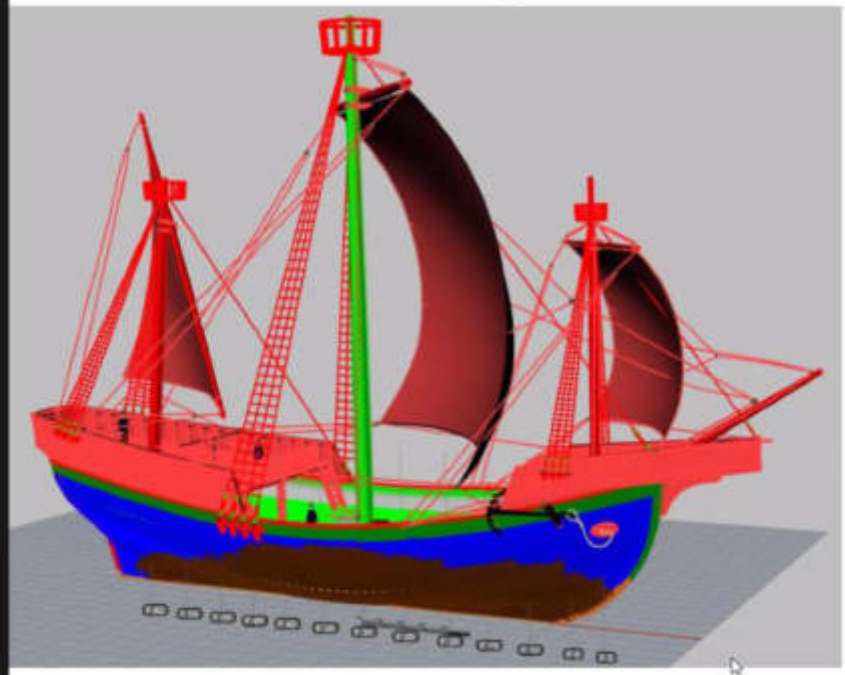
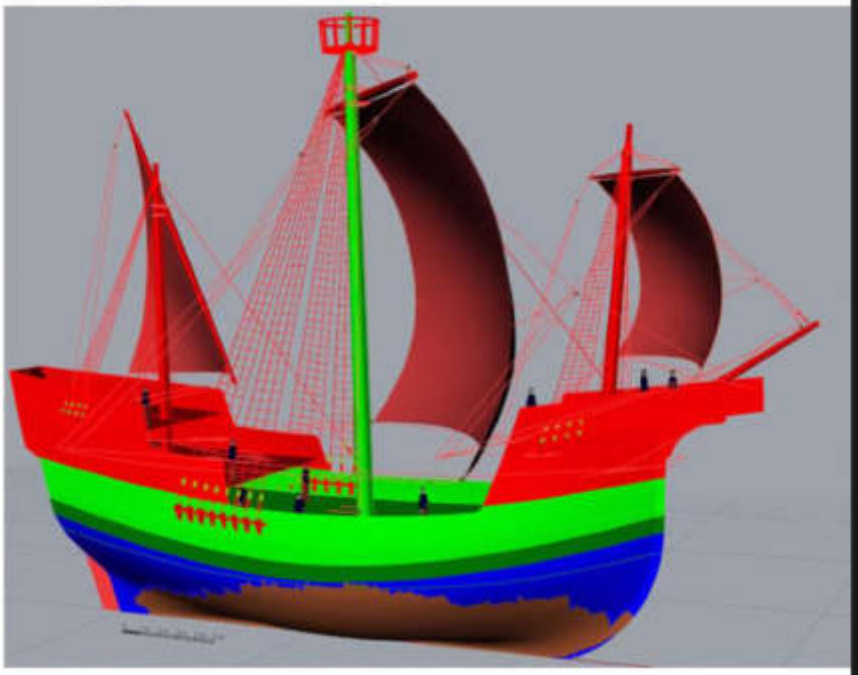
Digital Reconstruction and Analysis of the Newport Medieval Ship





The concept of minimum or capital reconstruction

Minimum reconstruction is a model formed of the boat as found, but with distortions and compressions removed, displaced elements replaced, fragmented timbers made whole, and the hull rotated to its deduced attitude when afloat

A capital reconstruction will build on the hull form developed during a minimum reconstruction, in the case of Newport Medieval ship, this involved utilising the several hundred disarticulated elements recovered during excavation, as well as iconography, comparable archaeological evidence and ship building knowledge.

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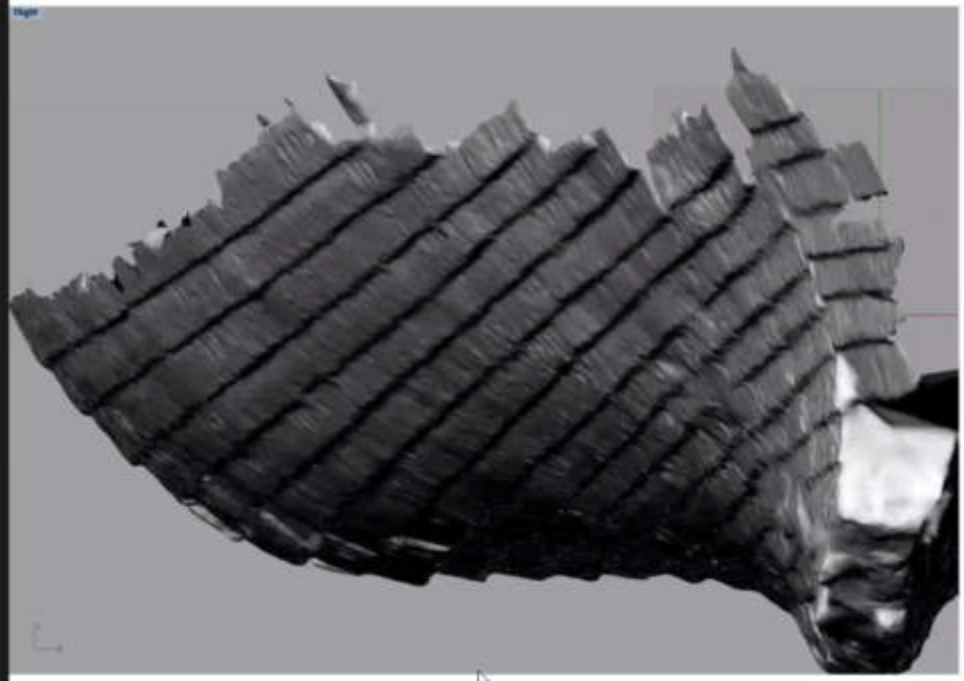
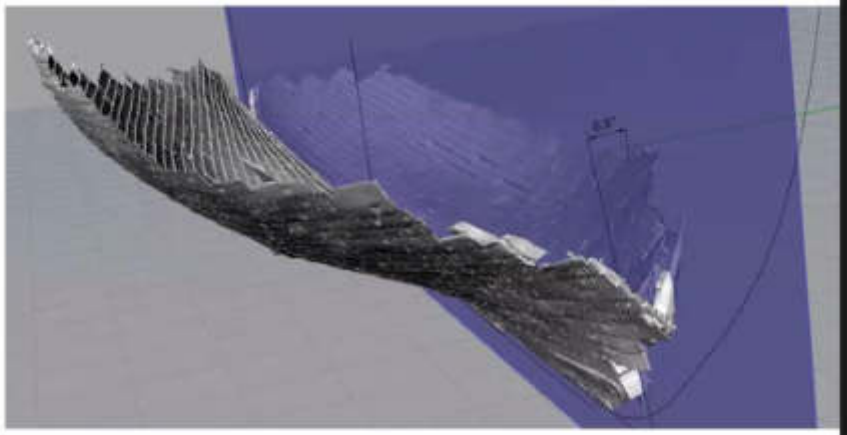
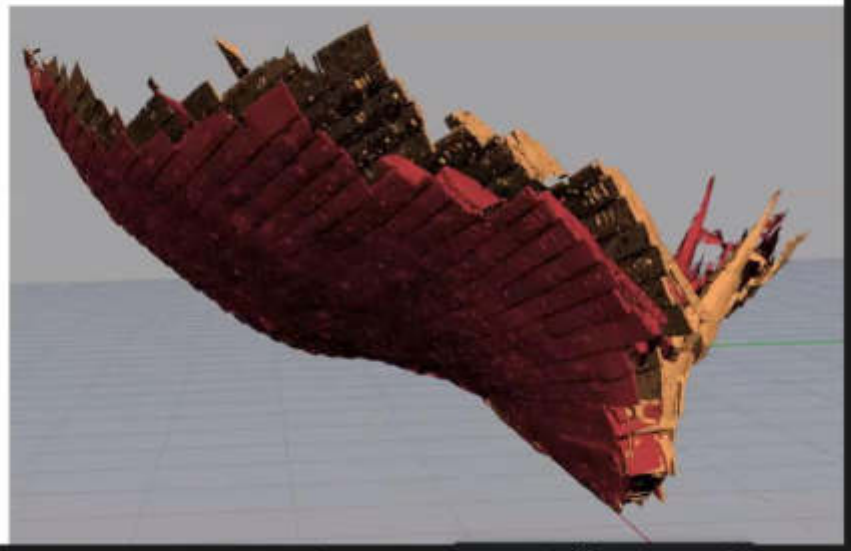
Digital Reconstruction and Analysis of the Newport Medieval Ship







Measuring Global Distortion

A longitudinal symmetry plane was fitted along the vessel centre line to check twist.

Repairing Global Distortion

Twisting the scanned mesh to correct global distortion. Original scanned mesh shown red and rectified mesh shown brown

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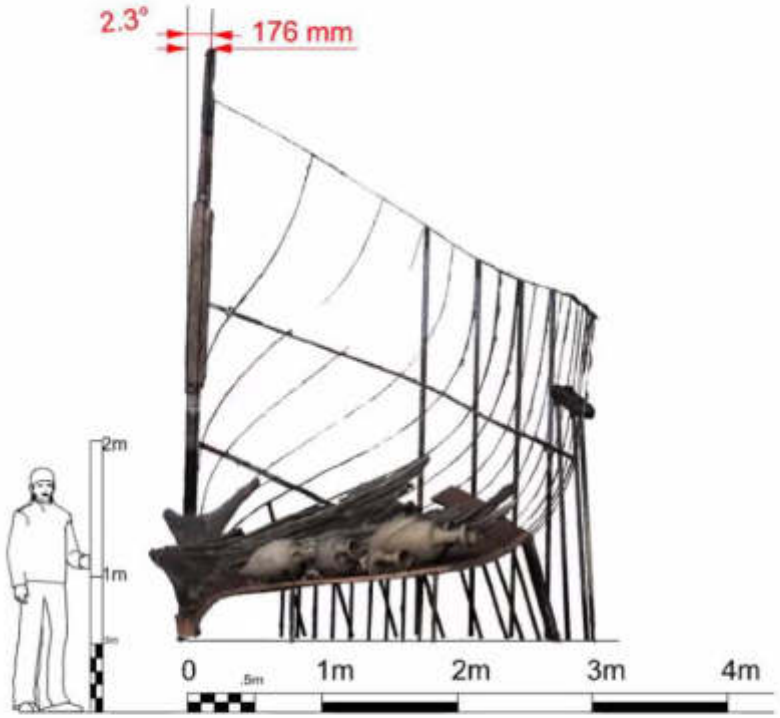
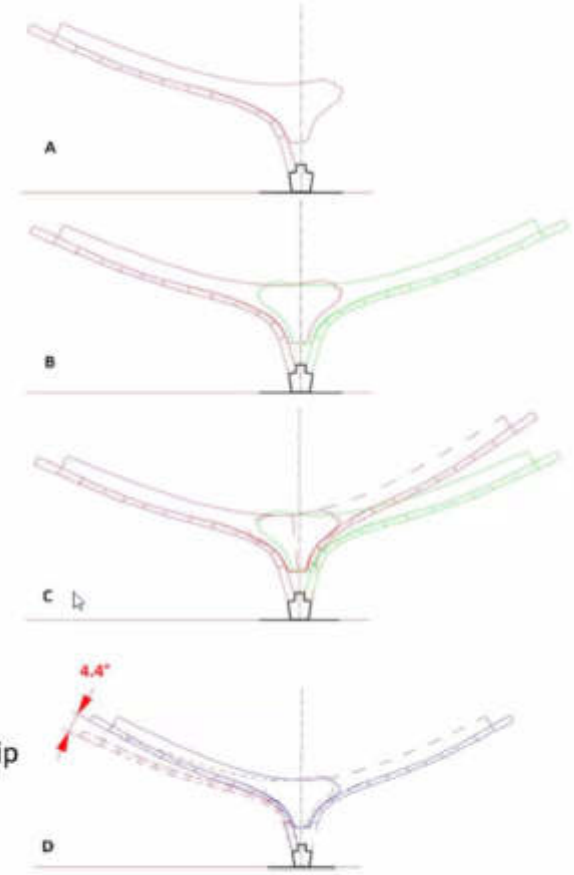
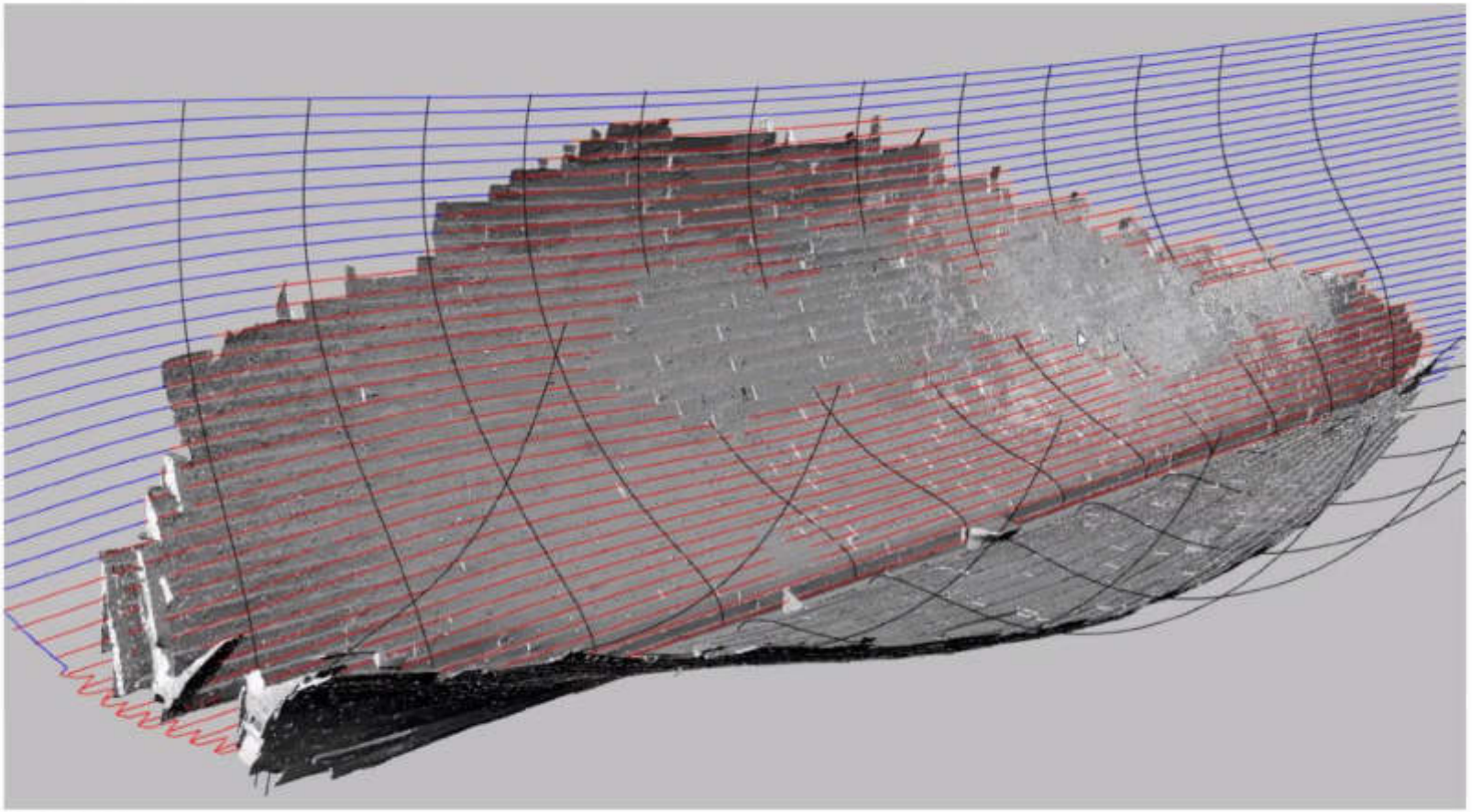
Global distortion

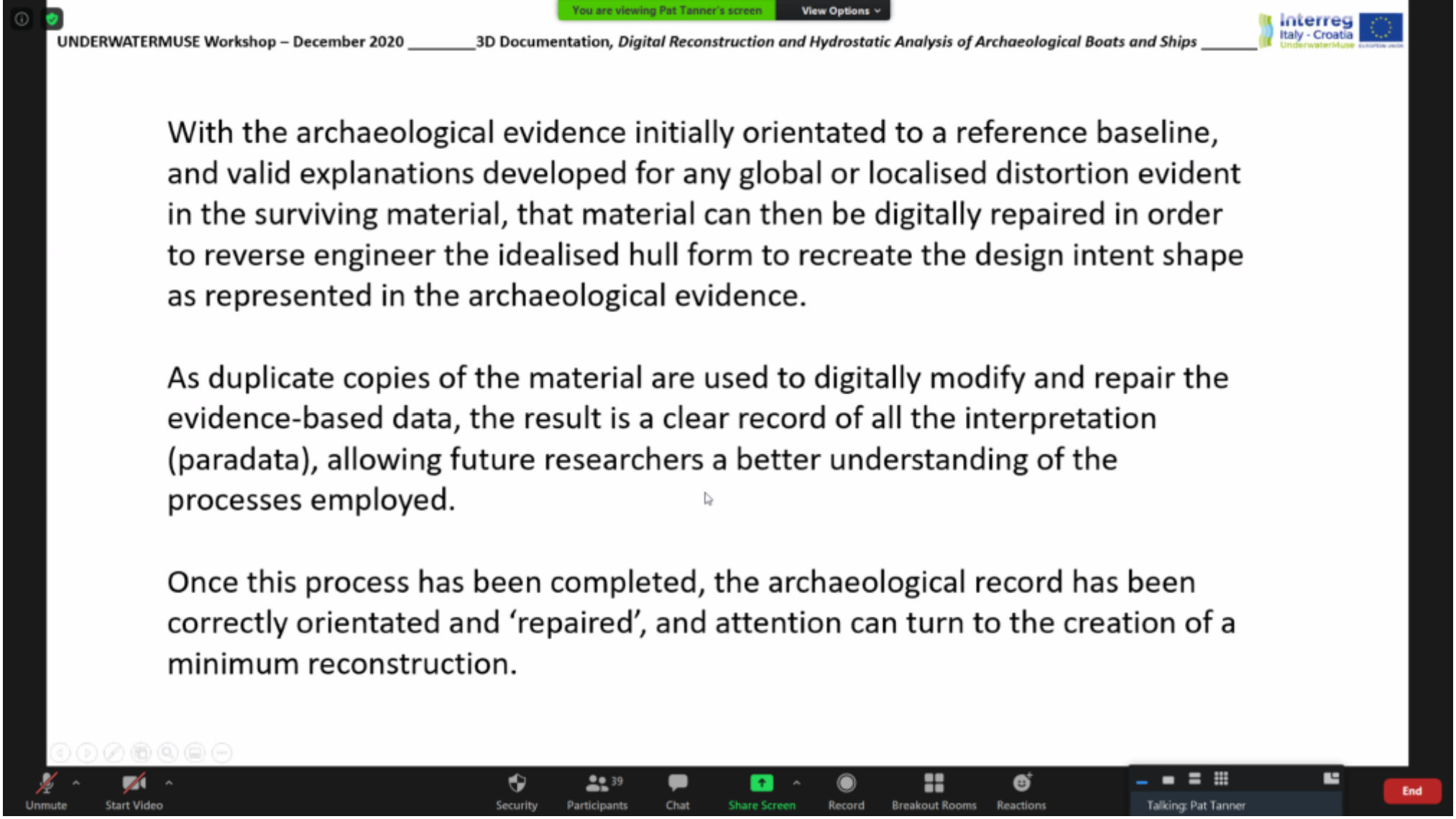




Measuring distortion of the stern post in the Marsala Punic ship

Local distortion

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UNDERWATERMUSE Workshop – December 2020 _____3D Documentation, Digital Reconstruction and Hydrostatic Analysis of Archaeological Boats and Ships _____
With the archaeological evidence initially orientated to a reference baseline, and valid explanations developed for any global or localised distortion evident in the surviving material, that material can then be digitally repaired in order to reverse engineer the idealised hull form to recreate the design intent shape as represented in the archaeological evidence.
As duplicate copies of the material are used to digitally modify and repair the evidence-based data, the result is a clear record of all the interpretation (paradata), allowing future researchers a better understanding of the processes employed.
Once this process has been completed, the archaeological record has been correctly orientated and 'repaired', and attention can turn to the creation of a minimum reconstruction.
Unmute
Start Video
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Participants
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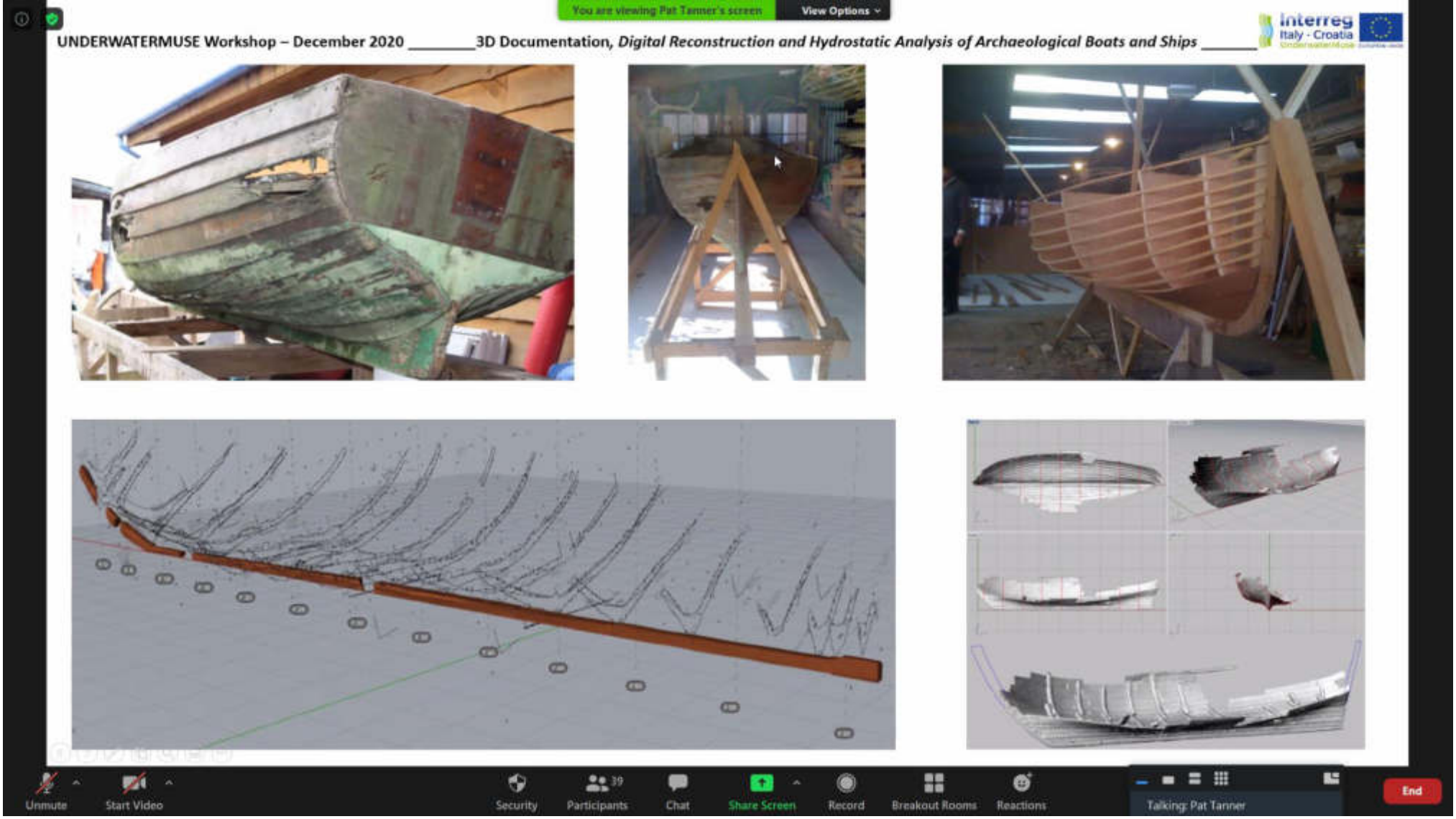
Reactions
Talking: Pat Tanner
End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UNDERWATERMUSE Workshop – December 2020 _____3D Documentation, Digital Reconstruction and Hydrostatic Analysis of Archaeological Boats and Ships _____
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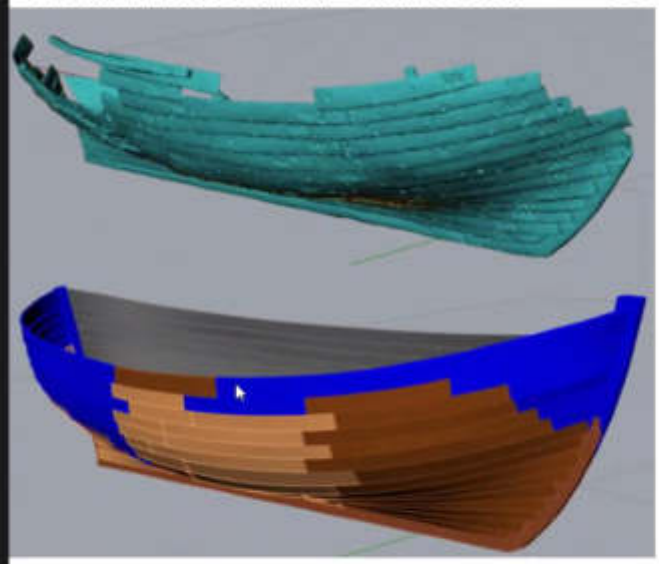
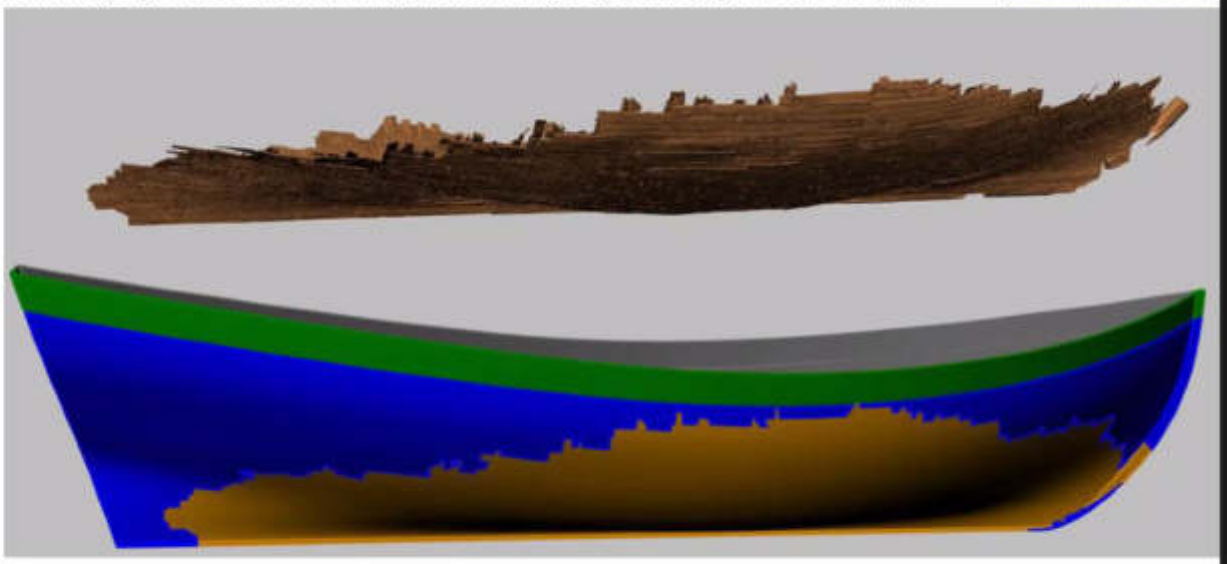
Breakout Rooms
Reactions
Talking: Pat Tanner
End



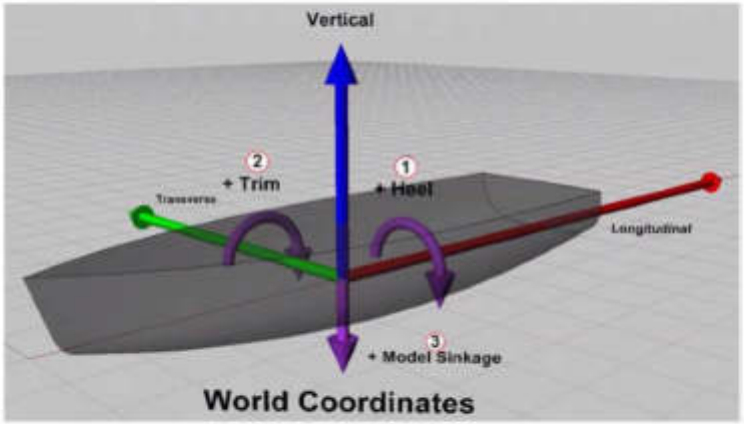


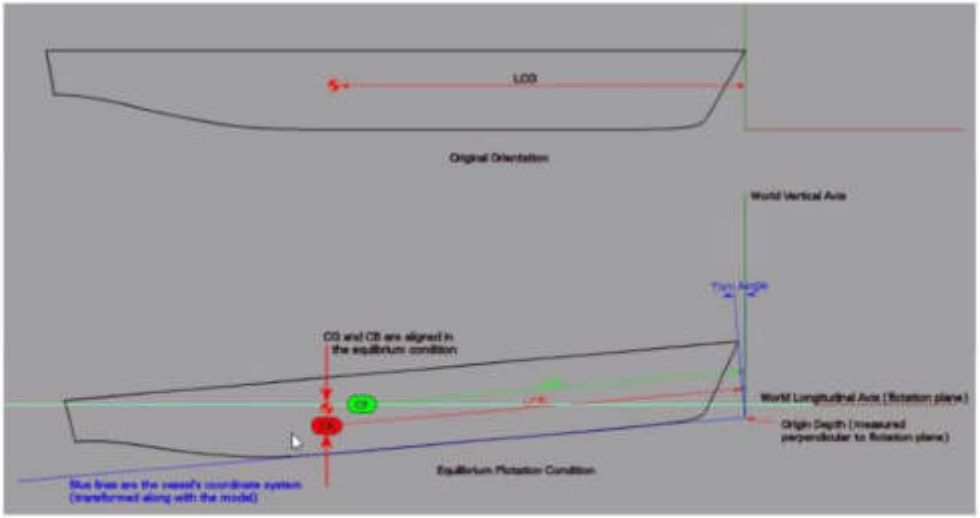
The archaeological remains of the vessel have now been 'repaired' to remove both global and localised distortion.

The recovered partial remains have been extended to determine the hypothetical extents of the hull using faired curves, essentially a digital version of Steffy's 'mould and batten' model.

This has the same effects as McGrail's definition of 'as-found' but without the assumption of rotating the vessel to its deduced flotation attitude when afloat, as this is still an unknown.

- **Validation - Floating the hypothesis**

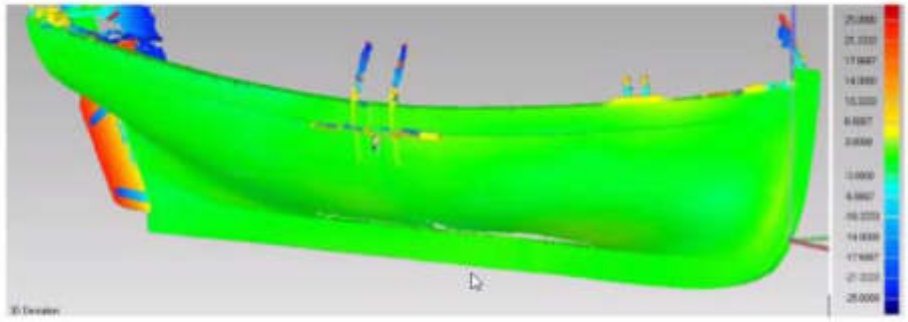




In order to establish a floatation condition for a vessel:
- the volumetric shape of the underwater hull surface
- the weight of the vessel with and without loads
- the positions for centre of gravity and centre of floatation

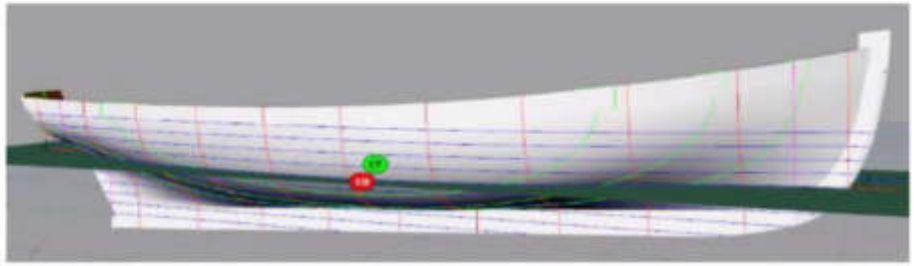
all need to be established before any static stability calculations can be examined.

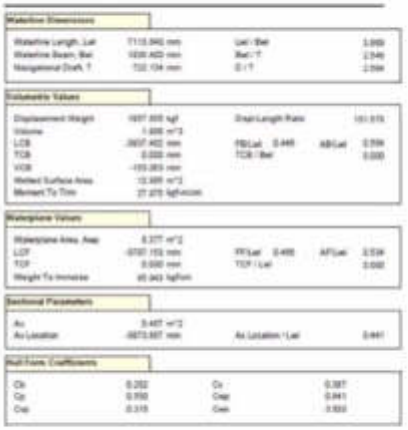
- **Validation - Floating the hypothesis**



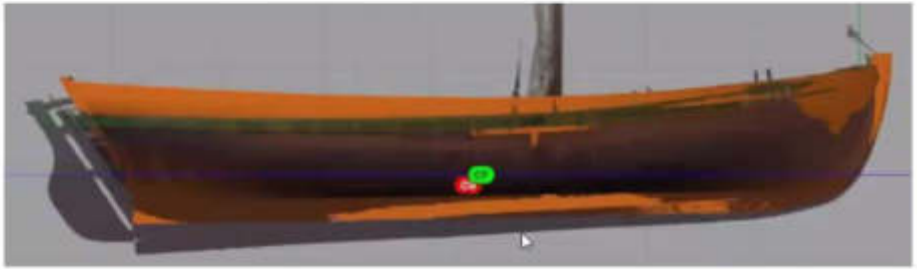
The NURBs surface model was manually orientated to match the documented flotation waterline and was then analysed by the Orca 3D software.

This generated a set of baseline hydrostatic data for the digital vessel in its known flotation condition, which could be compared to an actual physical vessel.





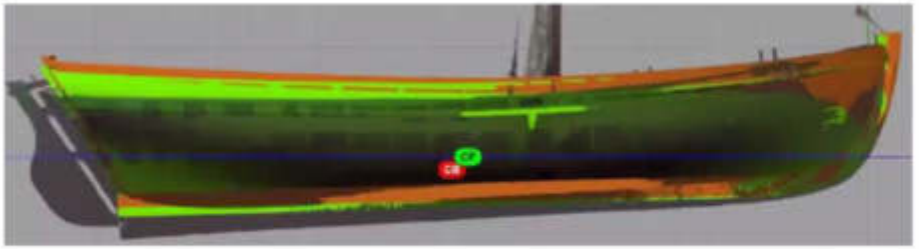
- **Validation - Floating the hypothesis**



"Hull material only" flotation condition coloured brown overlaid on original vessel.

Clearly the brown (timber only) modelled hull form is floating high when compared to the actual physical vessel's flotation condition.

The additional elements such as: iron fastenings; flooring; rigging; oars; life raft; additional warps; anchors; and equipment were modelled, and the resultant weight calculations applied to the Orca surface model (green).



- **Validation - Floating the hypothesis**

Condition Summary

Load Condition Parameters

Condition	Weight / Sinkage	LCG / Trim	TCG / Heel	VCG (mm)
Condition 1	1935.430 kgf	-3950.000 mm	0.000 mm	70.9

Resulting Model Attitude and Hydrostatic Properties

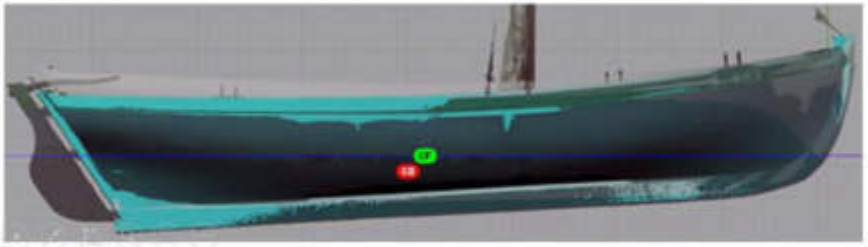
Condition	Sinkage (mm)	Trim(deg)	Heel(deg)	Ax(m^2)
Condition 1	-6.784	-0.063	0.000	0.48

Condition	Displacement Weight (kgf)	LCB(mm)	TCB(mm)	VCB(mm)	Wet Area (m^2)
Condition 1	1935.430	-3950.247	0.000	-154.815	12.848

Condition	Awp(m^2)	LCF(mm)	TCF(mm)	VCF(mm)
Condition 1	8.341	-3805.142	0.000	-2.612

Condition	BMt(mm)	BMl(mm)	GMt(mm)	GMl(mm)
Condition 1	867.578	10198.842	641.889	9973.154

Condition	Cb	Cp	Cwp	Cx	Cws	Cvp
Condition 1	0.200	0.549	0.640	0.364	3.508	0.313



The internal ballast is then modelled and added to the digital reconstruction, having combined weights of 842 kg.

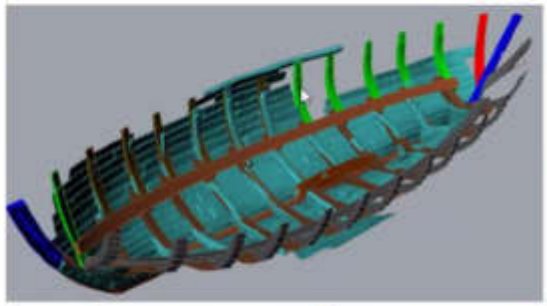
The ballast is then included in the Orca 3D weight analysis, and the Orca 3D free flotation analysis repeated.

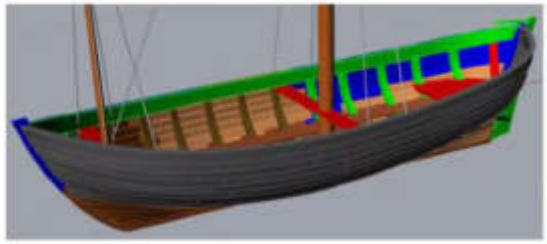
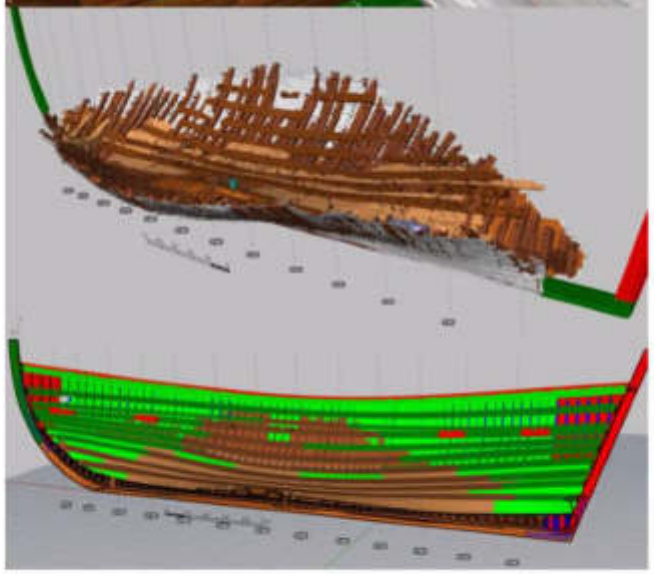
When the results from the digital modelling process are compared to the baseline flotation condition, the results are almost identical.

The baseline vessel has a displacement of 1957.85 kg, while the digital modelled version has a displacement of 1935.43 kg,

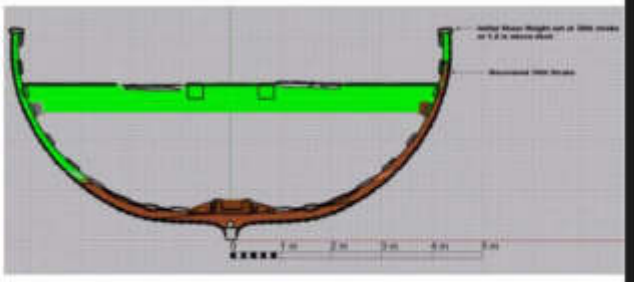
a difference which indicates the digital version is underweight by 22.42 kg, indicating an accuracy of 98.8%.

- **Hull Structure**

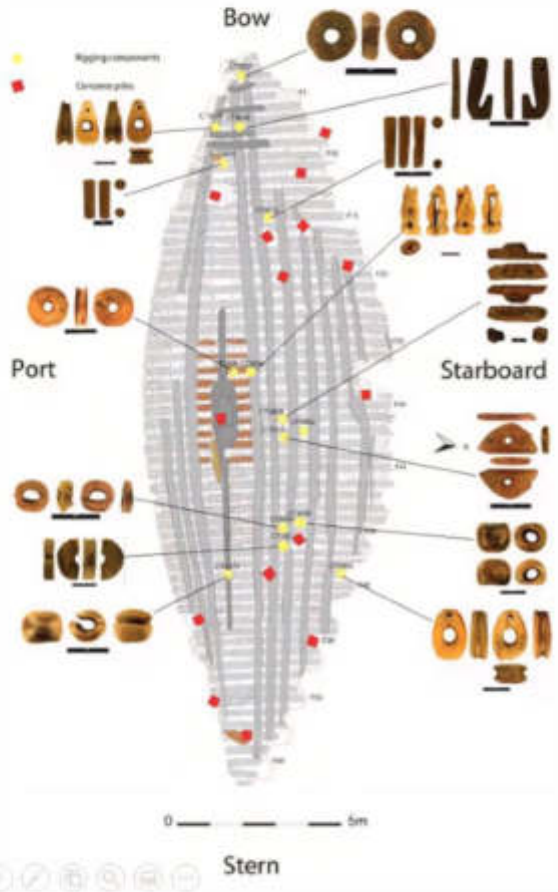


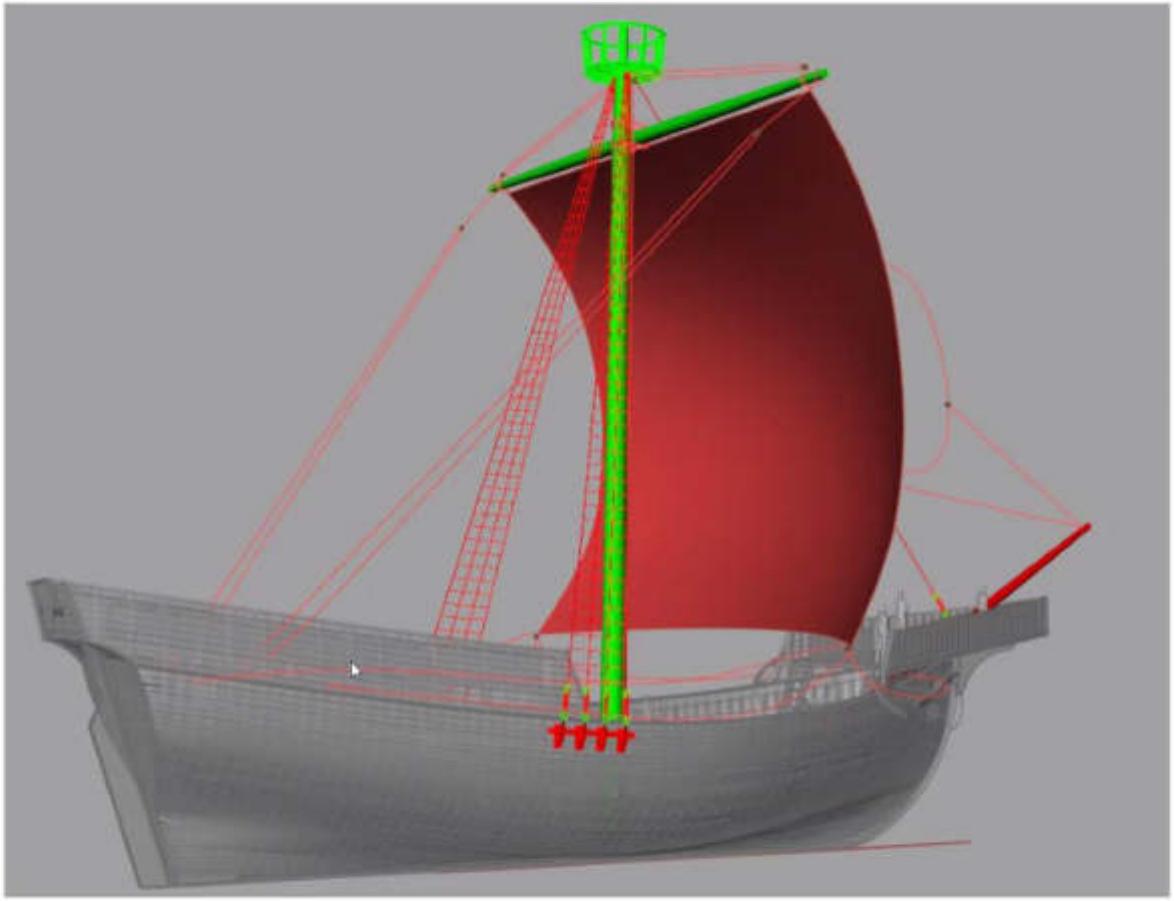






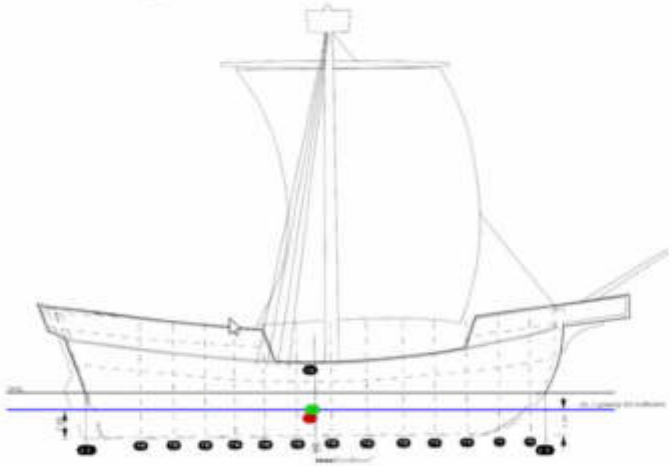


- **Minimum Reconstruction**

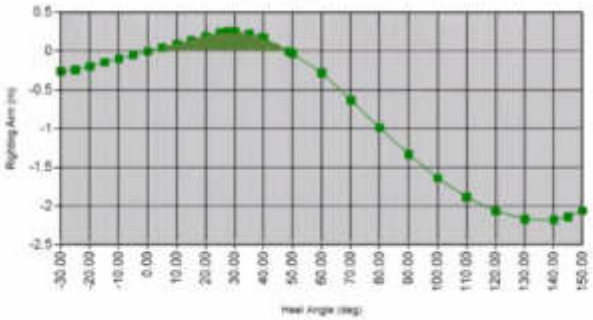




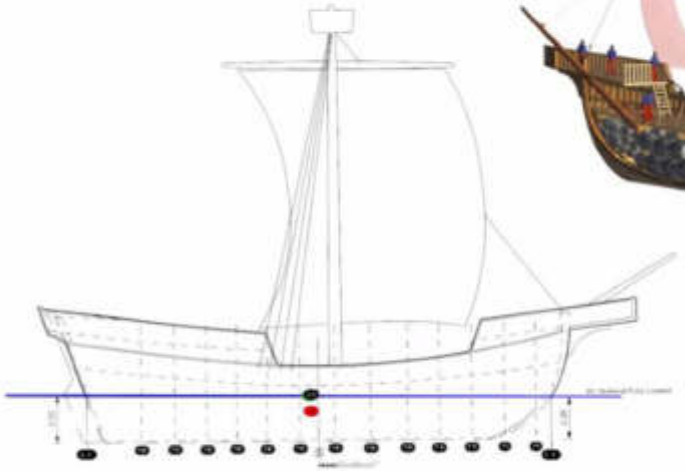
- **Testing and analysis of the Minimum Reconstruction**



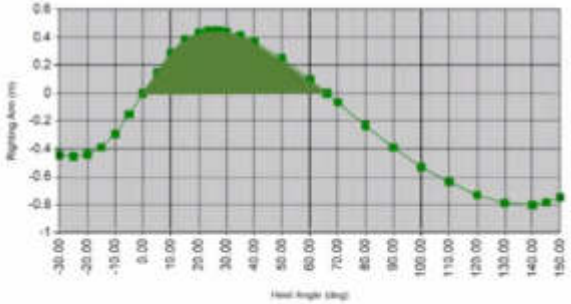
Stability Curve



Newport Medieval ship unballasted lightship flotation condition



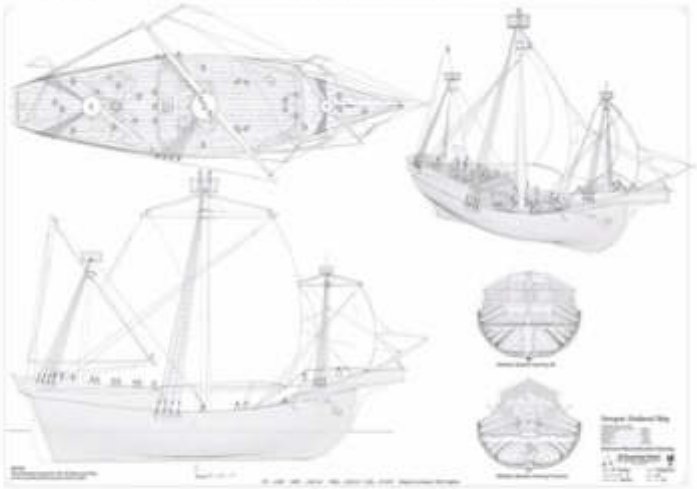
Stability Curve

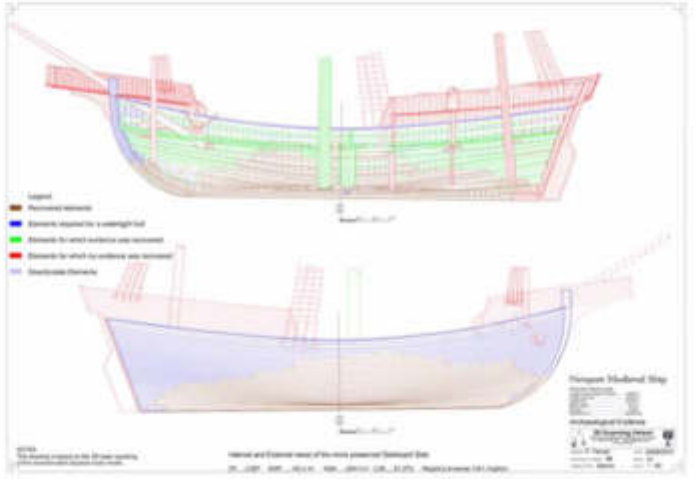


Newport Medieval ship fully loaded flotation condition

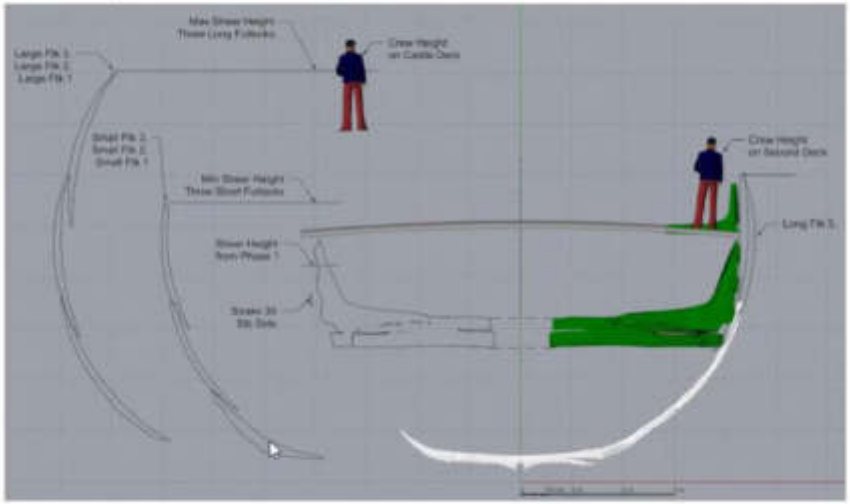
- **Initial publication for peer review**

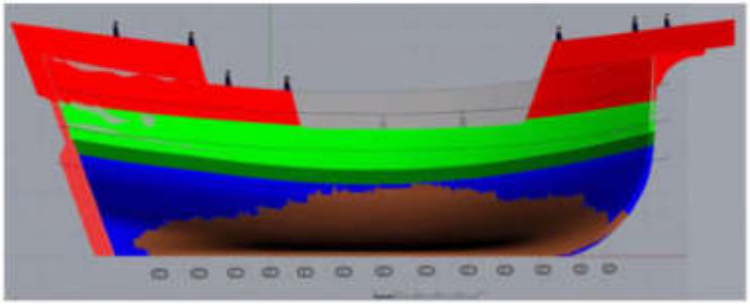
The results of the minimum reconstruction and digital testing is subsequently published for peer review to allow feedback and/or criticism, which can be further investigated using the same techniques, and will allow if the evidence permits, to continue to a hypothetical Capital reconstruction.

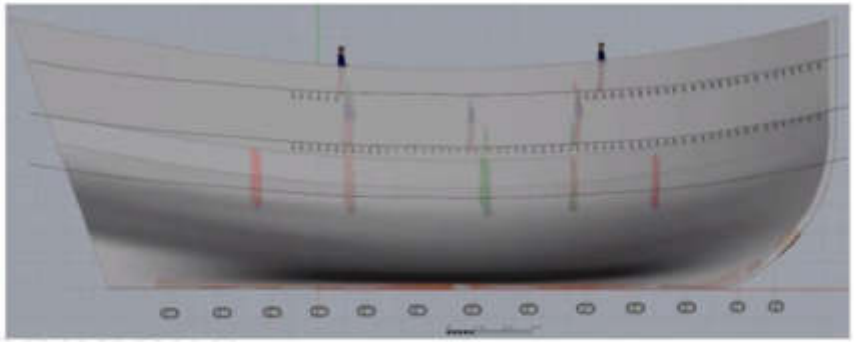


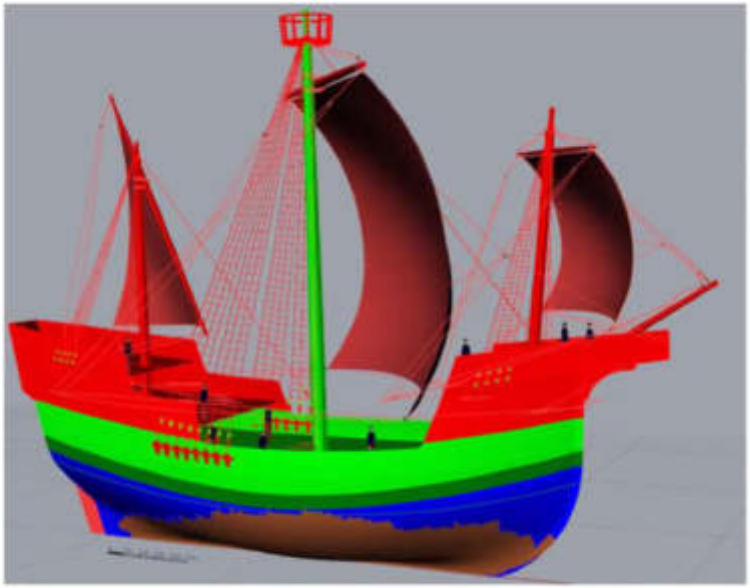


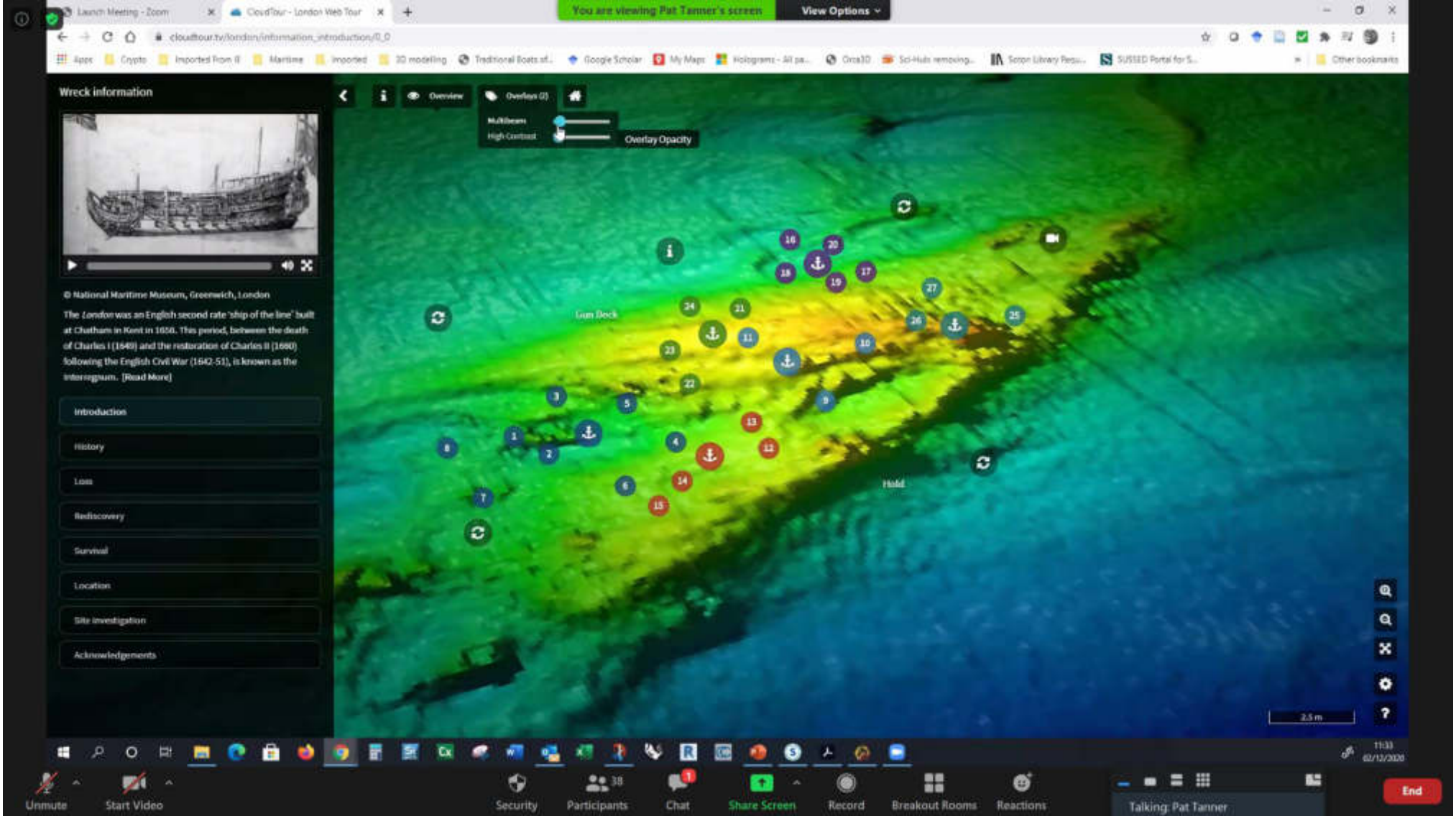
- **Capital Reconstruction**









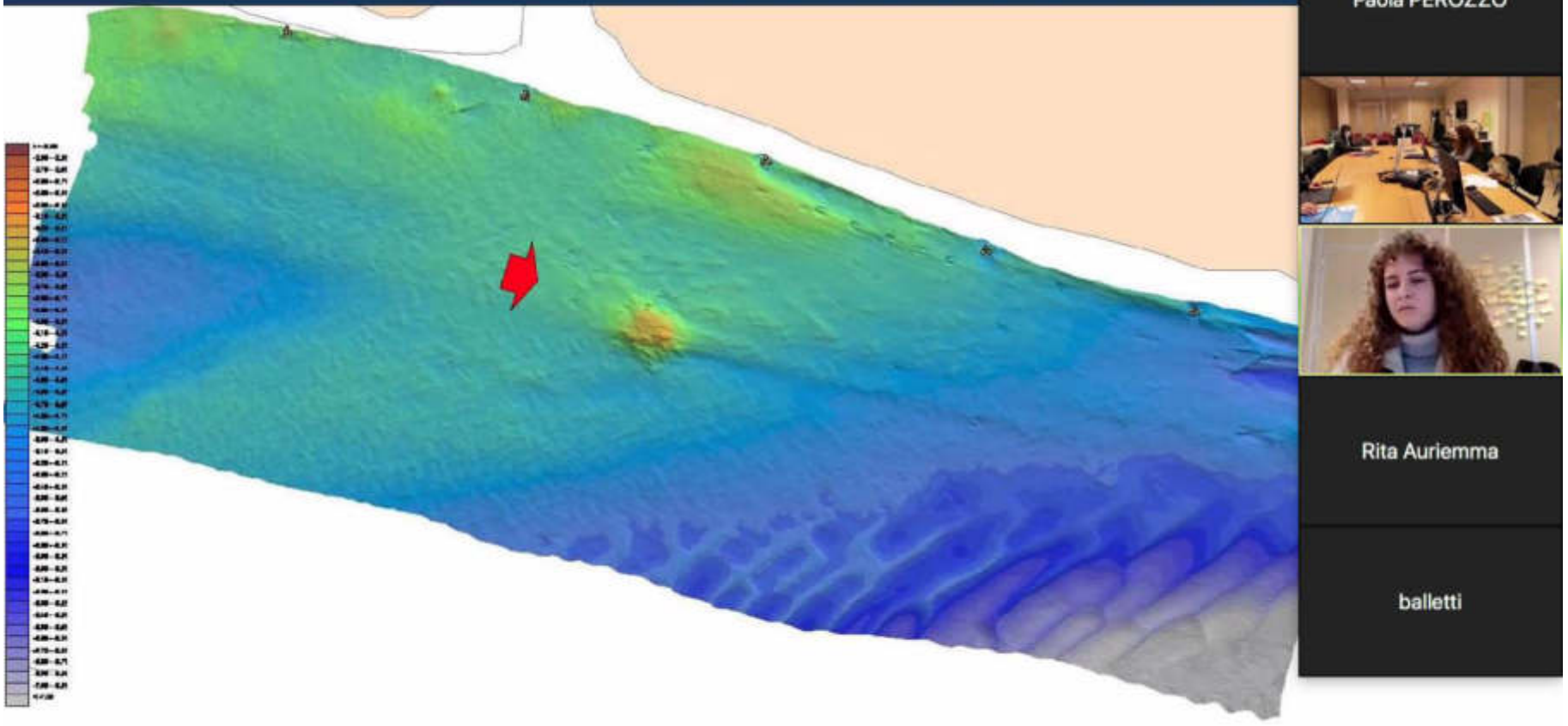

You are viewing Pat Tanner's screen
View Options
Wreck information
© National Maritime Museum, Greenwich, London
The London was an English second rate 'ship of the line' built at Chatham in Kent in 1656. This period, between the death of Charles I (1649) and the restoration of Charles II (1660) following the English Civil War (1642-51), is known as the Interregnum. [Read More]
Introduction
History
Loss
Rediscovery
Survival
Location
Site investigation
Acknowledgements
Overview
Overlays (2)
Multibeam
High-Contrast
Overlay Opacity
Gun Deck
Hold
2.5 m
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Pat Tanner
End

UNDERWATER PHOTOGRAMMETRY

Elisa Costa

Interreg
Italy - Croatia
UnderwaterMuse
European Regional Development Fund
EUROPEAN UNION

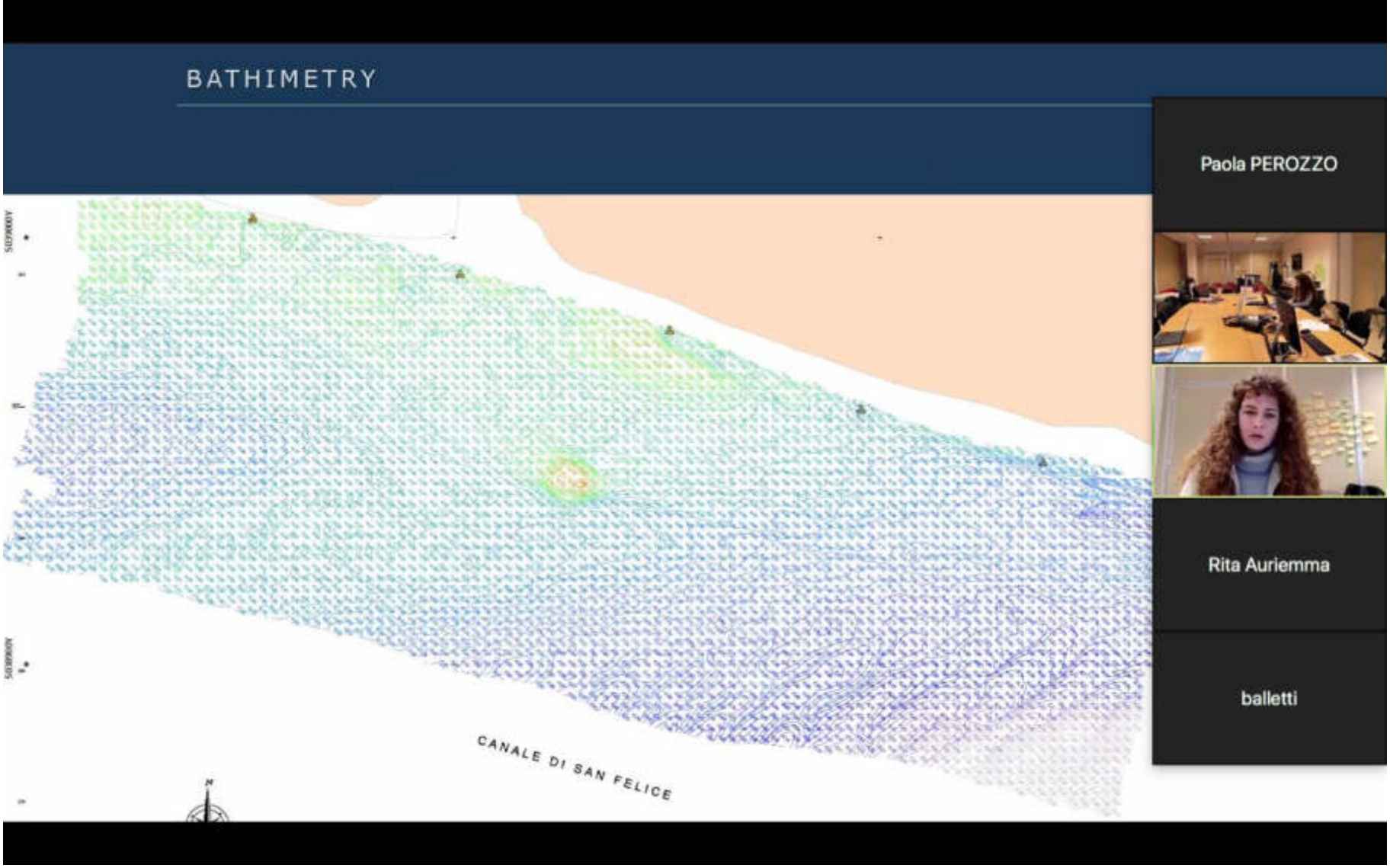
DTM – DIGITAL TERRAIN MODEL



Paola PEROZZO

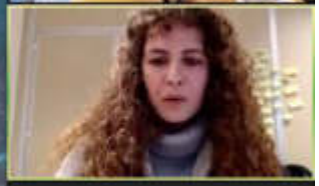
Rita Auriemma

balletti


BATHIMETRY
CANALE DI SAN FELICE
Paola PEROZZO
Rita Auriemma
balletti

DIRECT SURVEY

Paola PEROZZO



Rita Auriemma

balletti

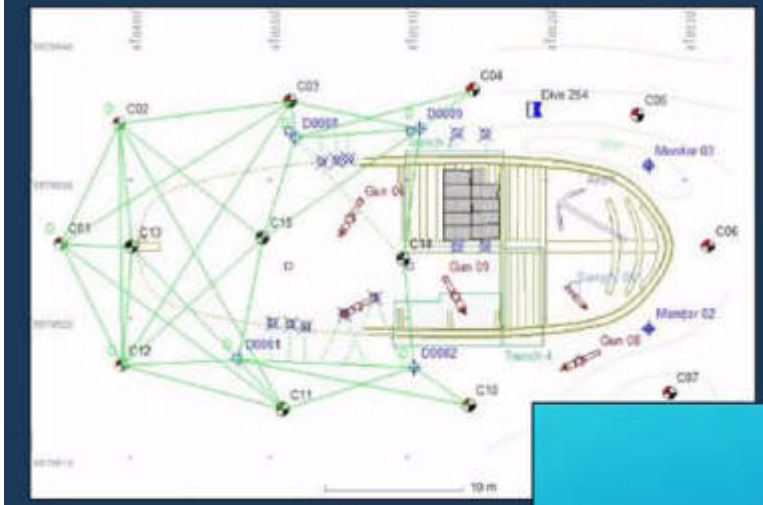
HRVATSKI RESTAURATORSKI ZAVOD

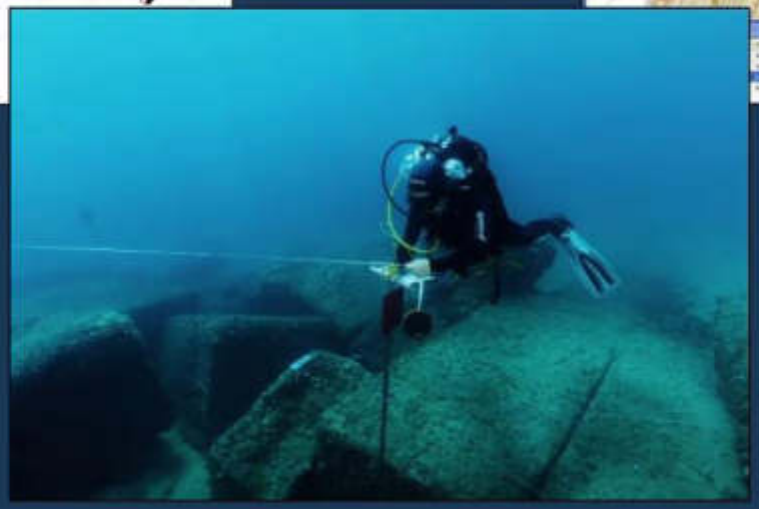
Interreg Italy - Croatia UnderwaterMuse

European Regional Development Fund

EUROPEAN UNION

3D TRILATERATION - DSM – DIRECT SURVEY METHOD

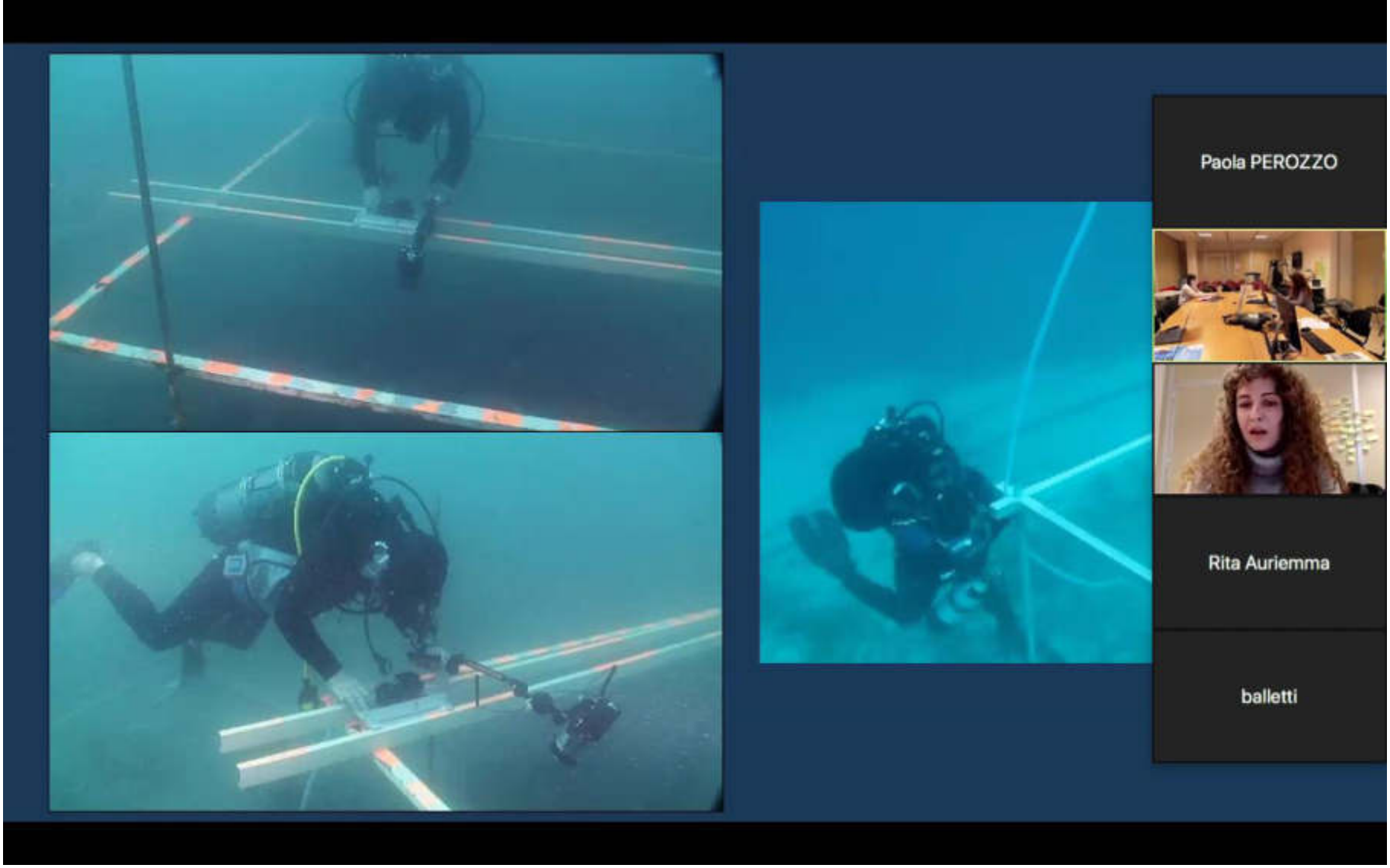


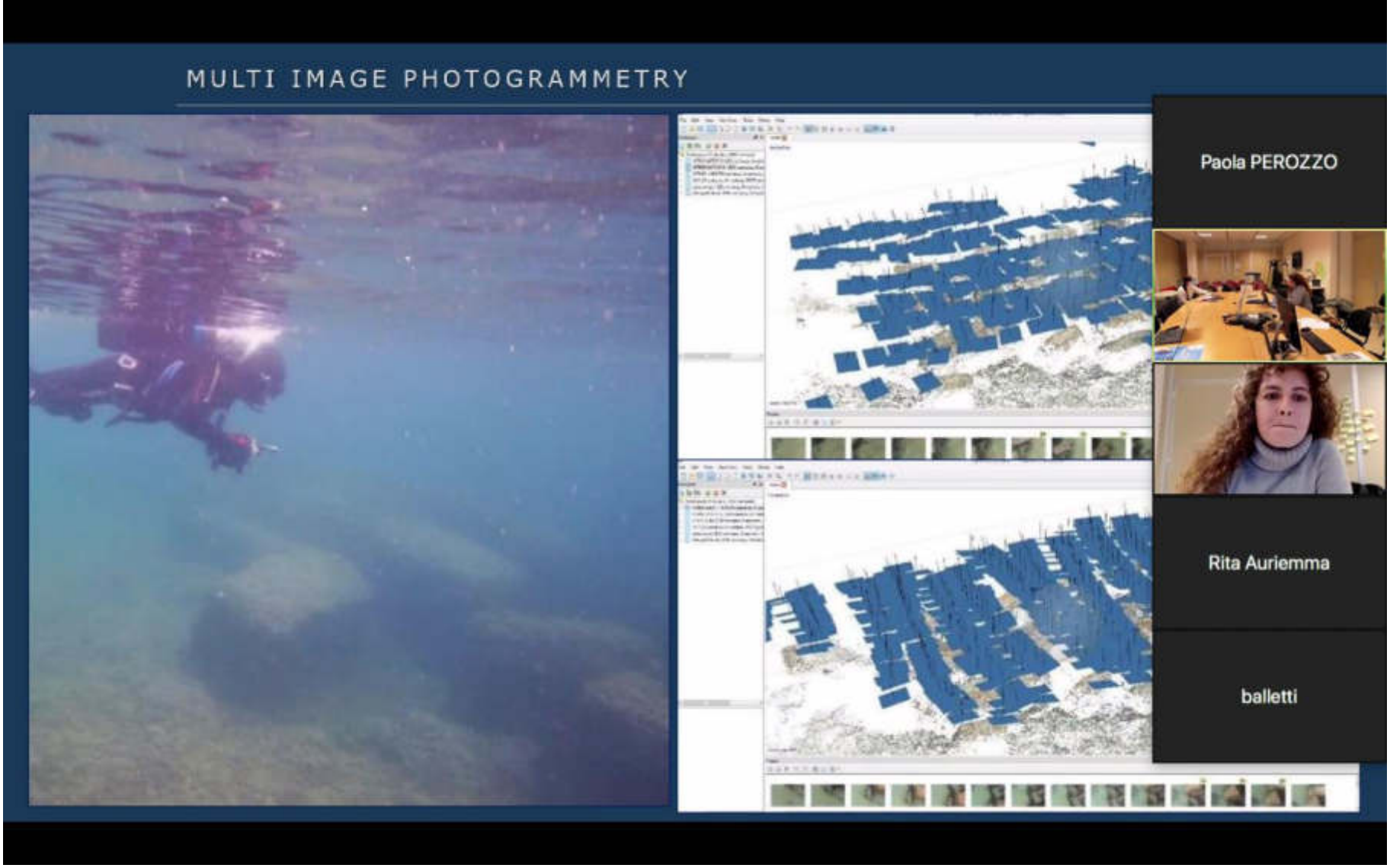


Paola PEROZZO

Rita Auriemma

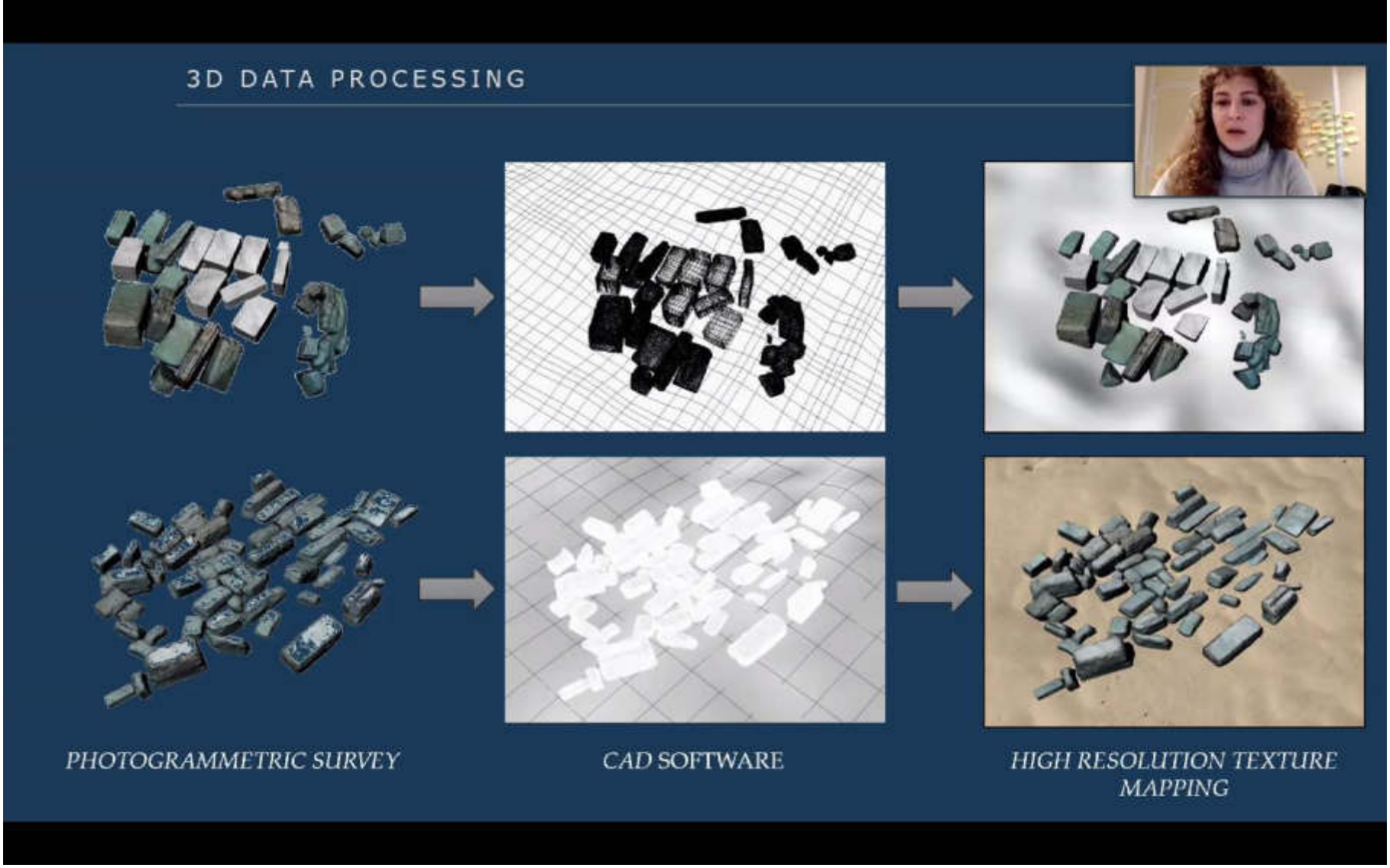
balletti

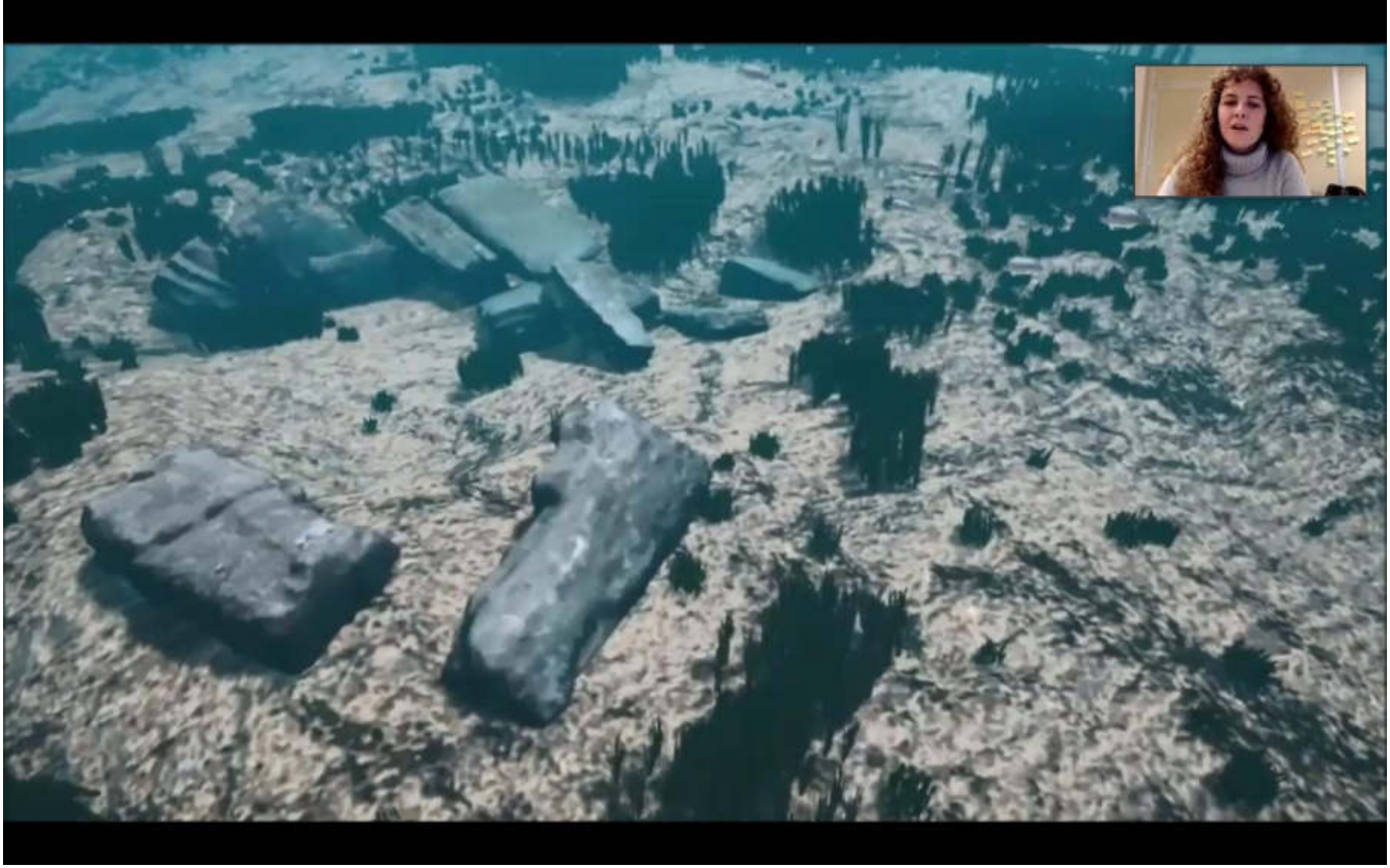

Paola PEROZZO
Rita Auriemma
balletti

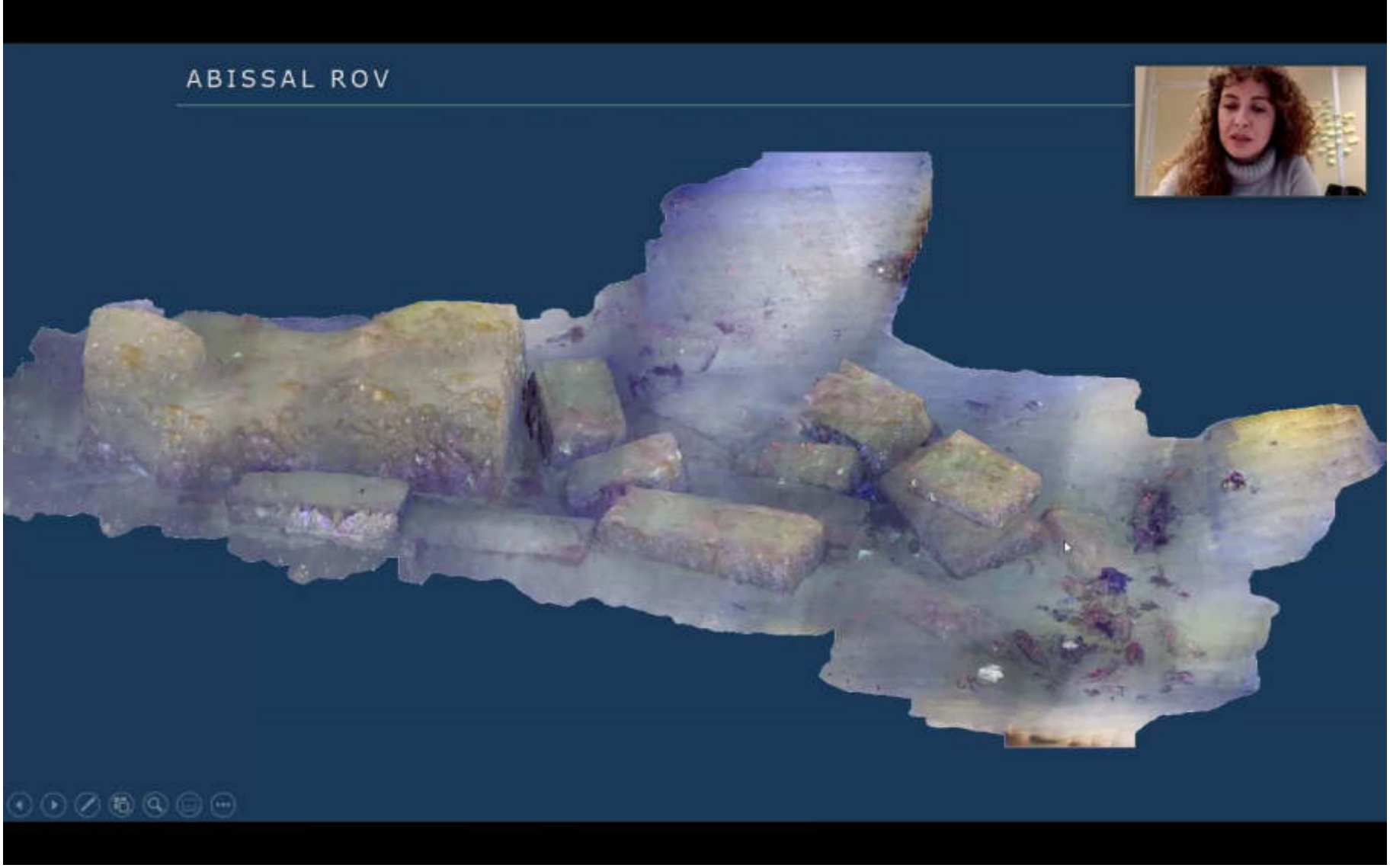

MULTI IMAGE PHOTOGRAMMETRY
Paola PEROZZO
Rita Auriemma
balletti


Paola PEROZZO
Rita Auriemma
balletti


Stai visualizzando lo schermo di Elisa Costa
Visualizza opzioni
Elisa Costa
Riattiva l'audio
Avvia video
Sicurezza
Partecipanti
39
Chat
Condividi schermo
Votazione in corso
Registrazione
Reazioni
Lascia


3D DATA PROCESSING
PHOTOGRAMMETRIC SURVEY
CAD SOFTWARE
HIGH RESOLUTION TEXTURE MAPPING




ABISSAL ROV

DRESSEL 2-4 DAL RELITTO DAE37

Università Ca'Foscari Venezia

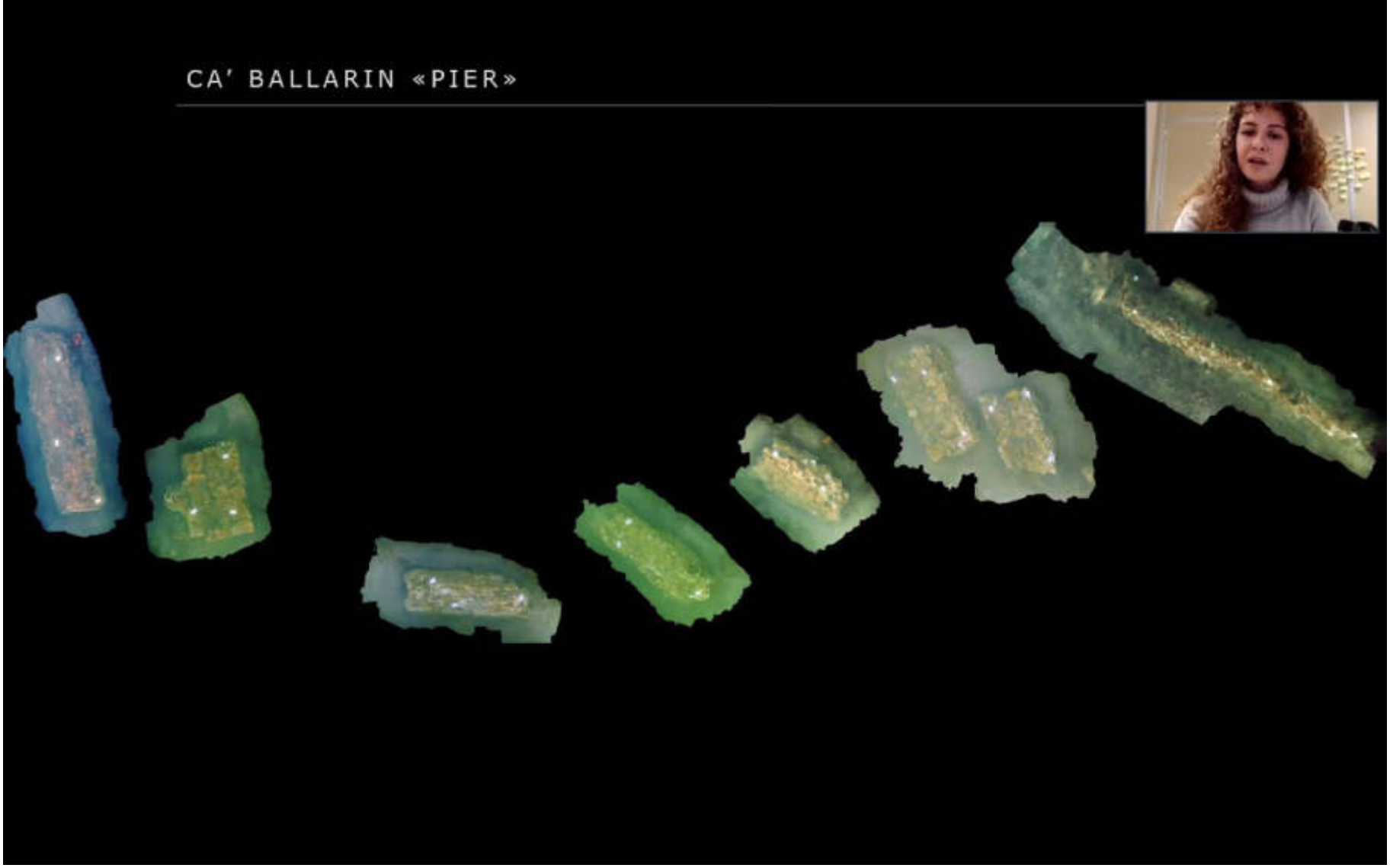
azionemare

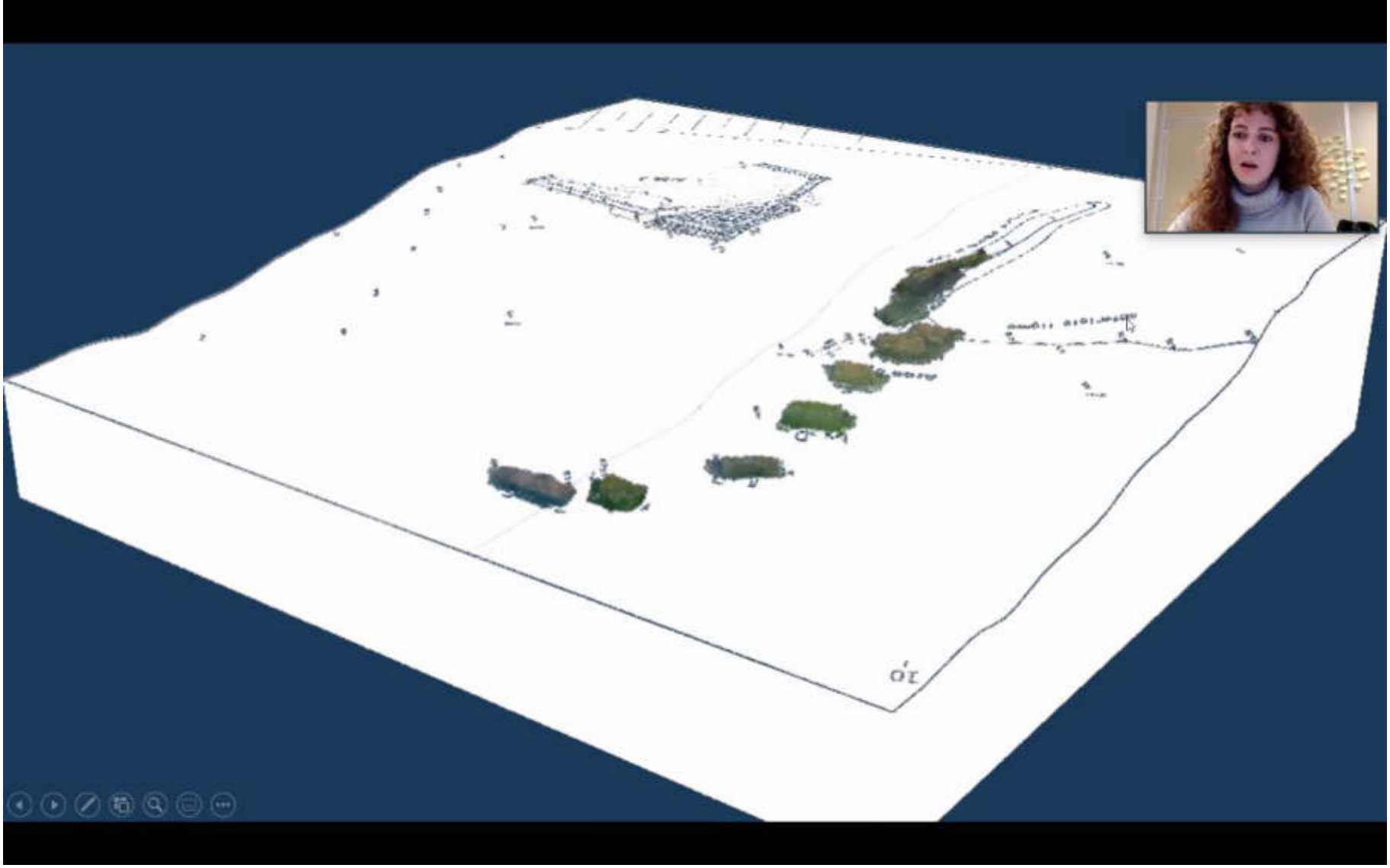
Interreg Italy - Croatia UnderwaterMuse

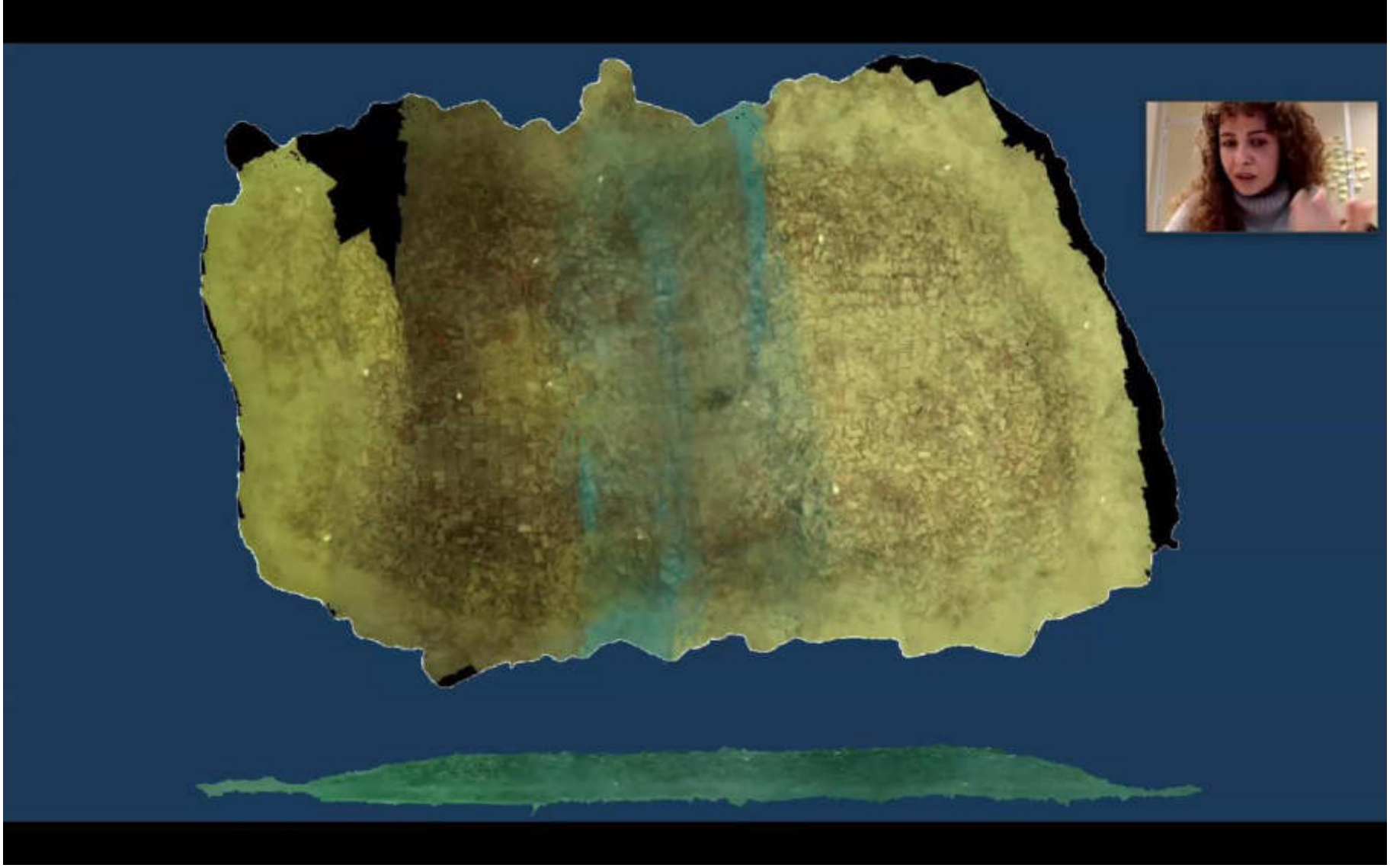
EUROPEAN UNION

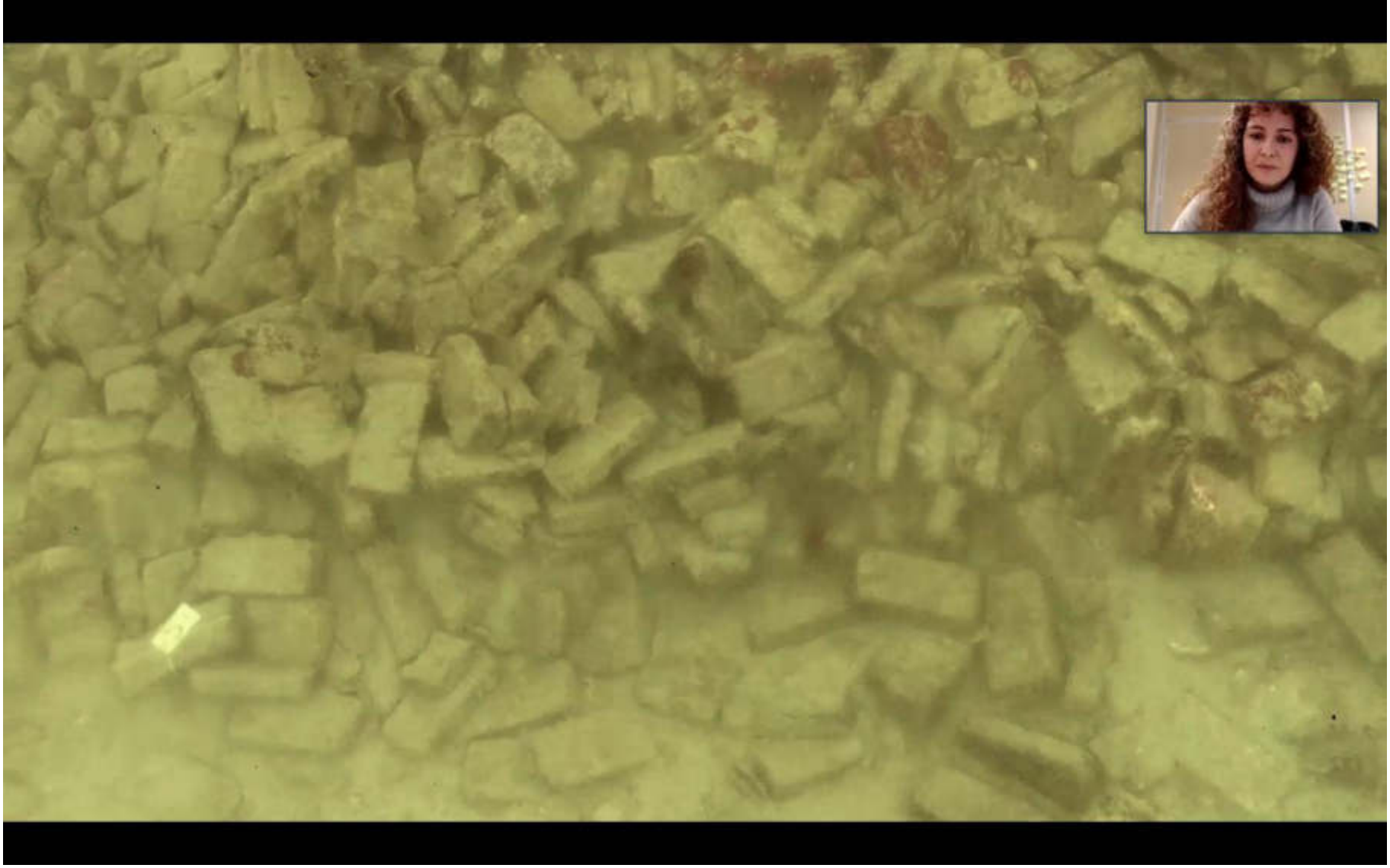
European Regional Development Fund

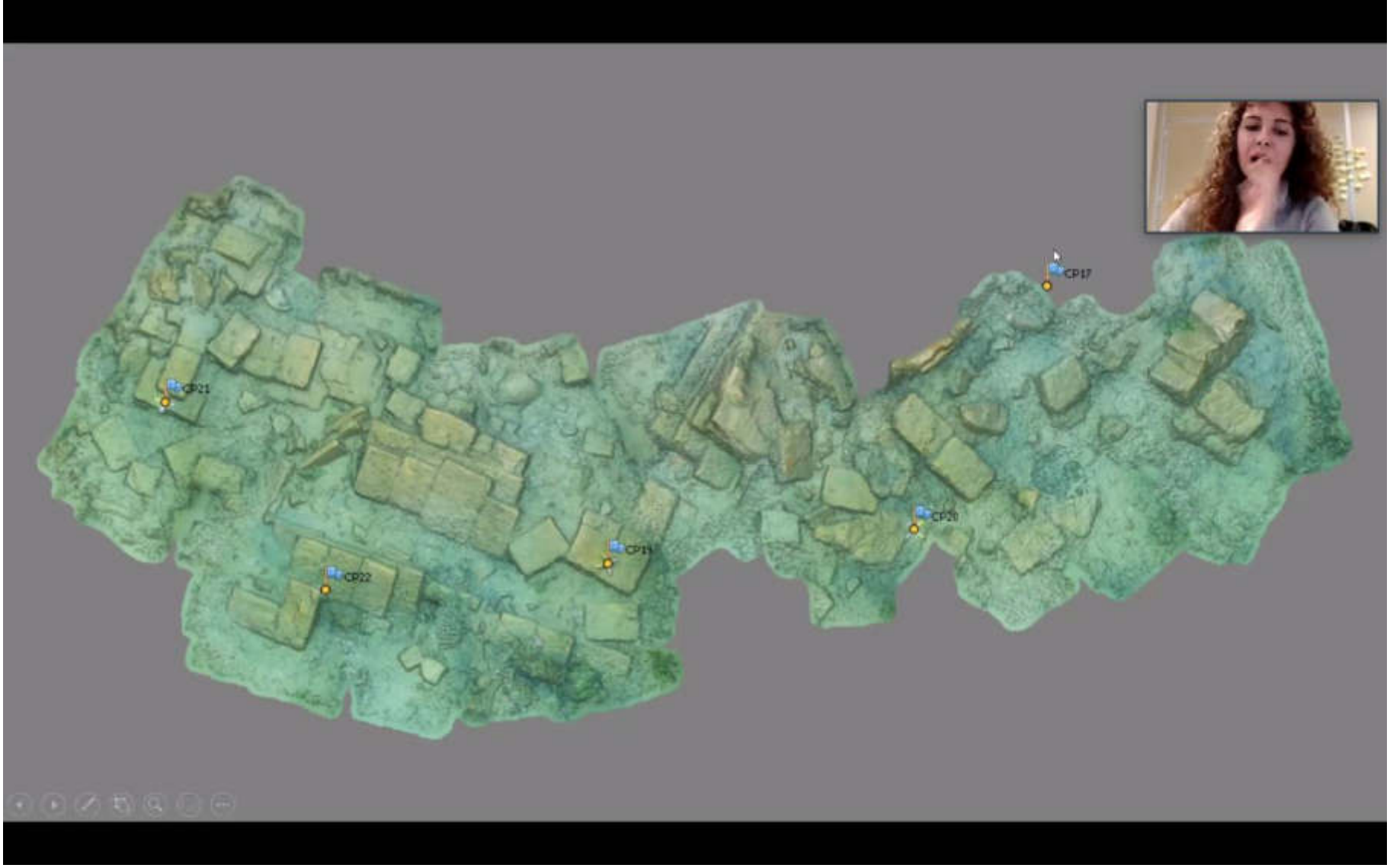

CA' BALLARIN «PIER»

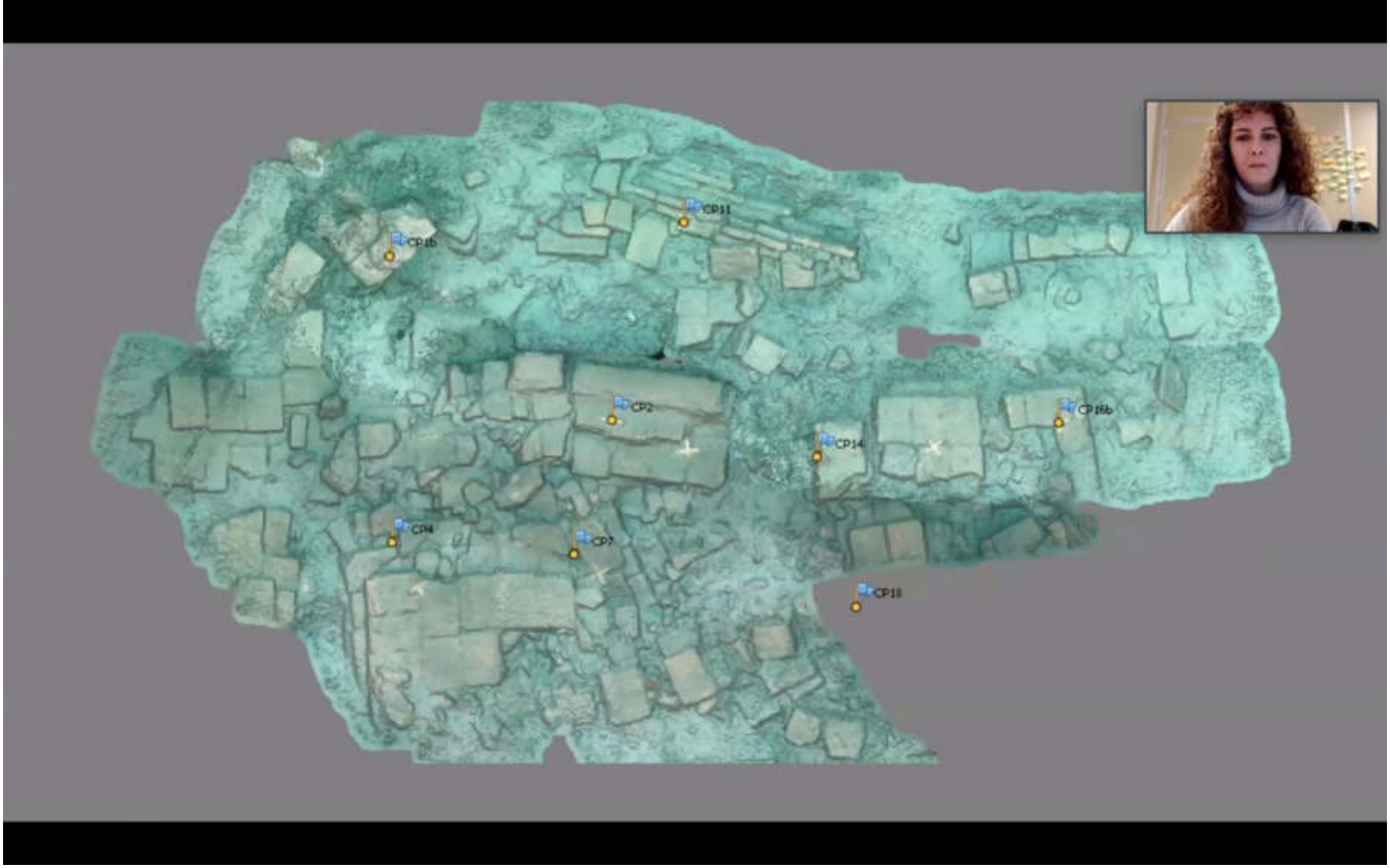

CA' BALLARIN «PIER»







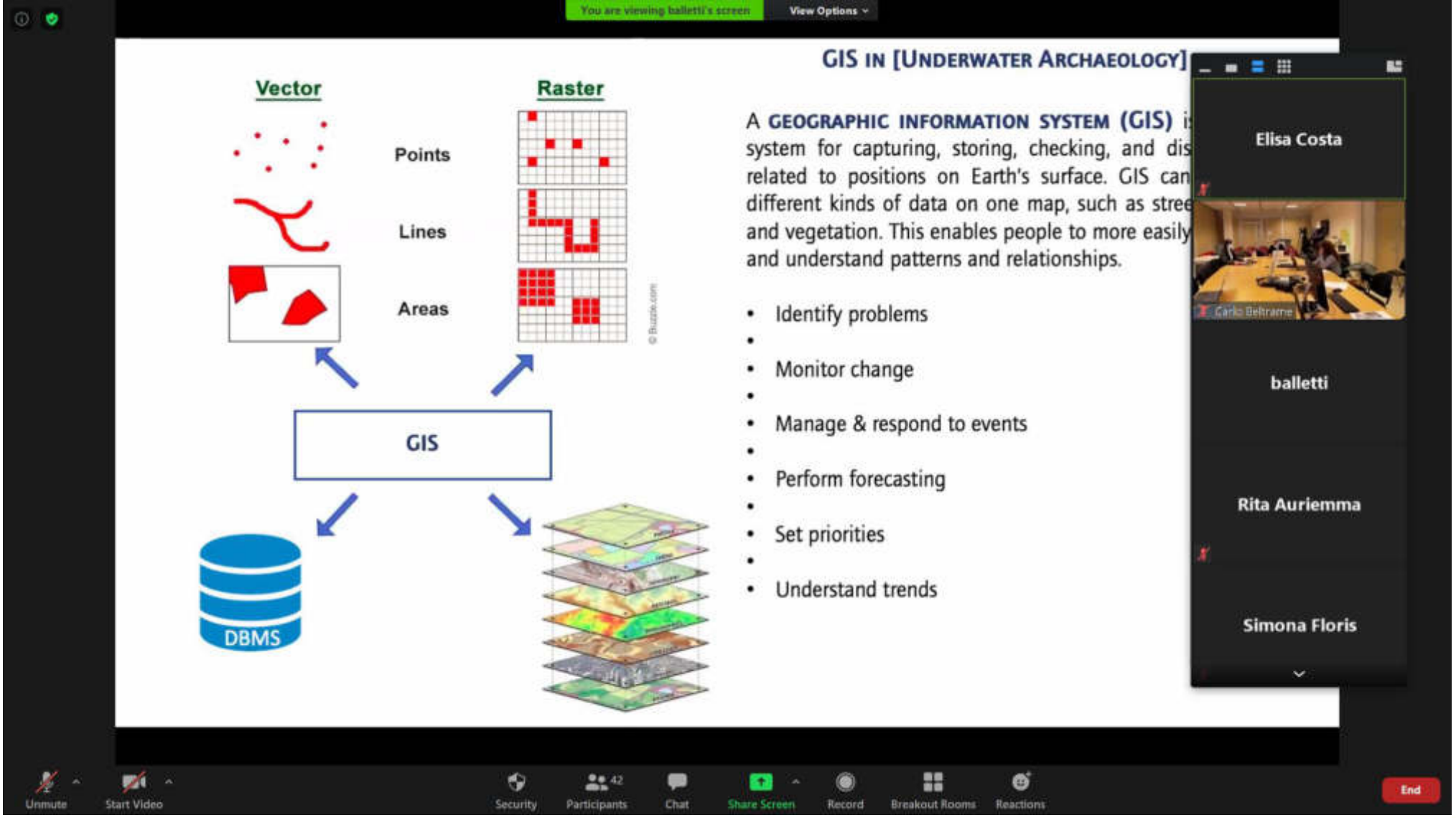

CP17
CP21
CP22
CP20

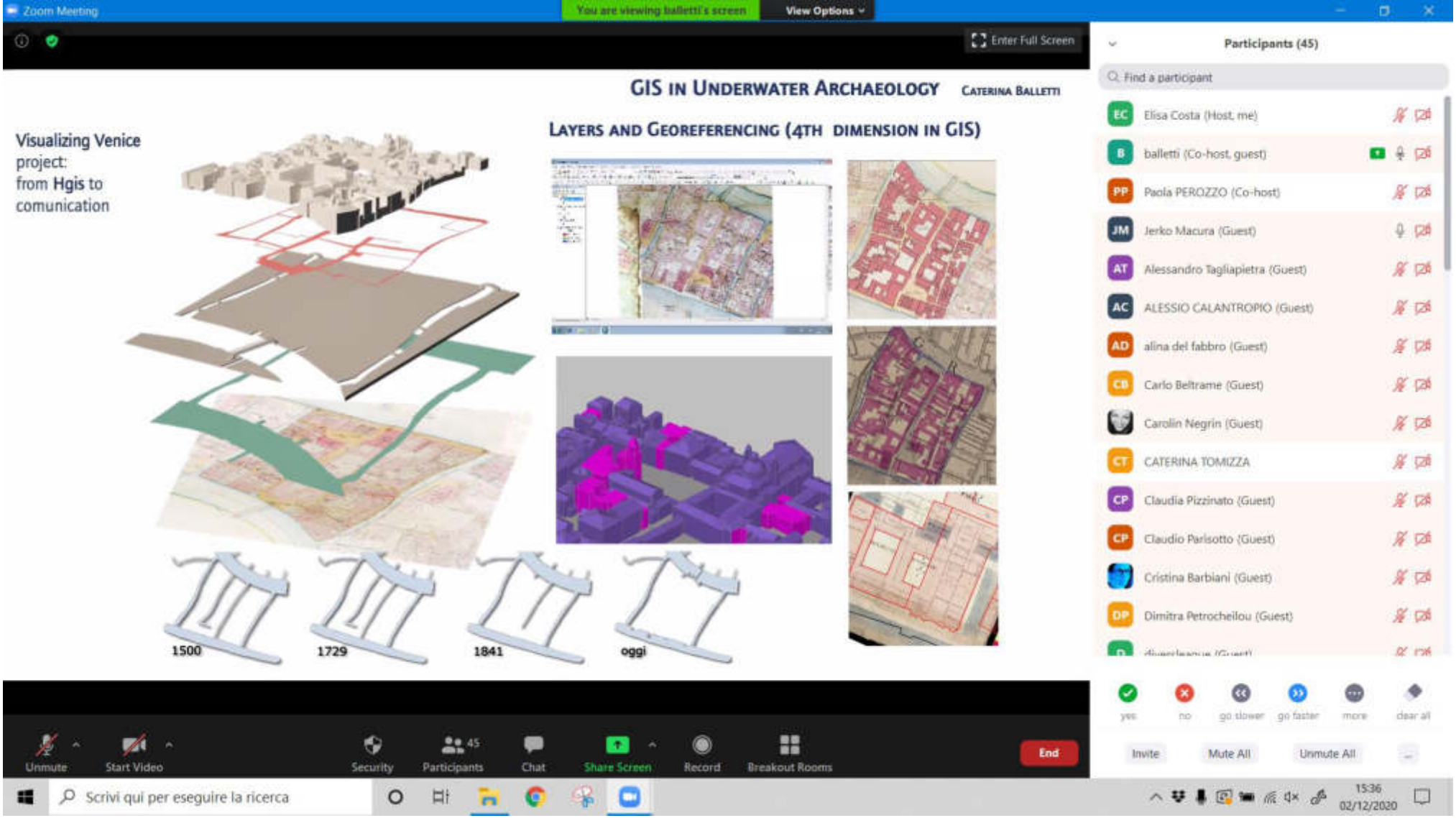

CP11
CP15
CP2
CP16b
CP14
CP4
CP7
CP18

GIS IN UNDERWATER ARCHAEOLOGY

Caterina Balletti

Interreg
Italy - Croatia
UnderwaterMuse
European Regional Development Fund
EUROPEAN UNION


You are viewing balletti's screen
View Options
GIS IN [UNDERWATER ARCHAEOLOGY]
Vector
Raster
Points
Lines
Areas
GIS
DBMS
A GEOGRAPHIC INFORMATION SYSTEM (GIS) i
system for capturing, storing, checking, and dis
related to positions on Earth's surface. GIS can
different kinds of data on one map, such as stree
and vegetation. This enables people to more easily
and understand patterns and relationships.
• Identify problems
• Monitor change
• Manage & respond to events
• Perform forecasting
• Set priorities
• Understand trends
Elisa Costa
balletti
Rita Auriemma
Simona Floris
Unmute
Start Video
Security
Participants
42
Chat
Share Screen
Record
Breakout Rooms
Reactions
End



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Zoom Meeting
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GIS IN UNDERWATER ARCHAEOLOGY
CATERINA BALLETTI
LAYERS AND GEOREFERENCING (4TH DIMENSION IN GIS)
Micro-histories of a Lagoon Island in a Visual Mapping Project
1945
18th cent.
1850
1945
Today
Unmute
Start Video
Security
Participants
45
Chat
Share Screen
Record
Breakout Rooms
End
Scrivi qui per eseguire la ricerca
15:39
02/12/2020


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GIS IN UNDERWATER ARCHAEOLOGY CATERINA BALLETTI
LAYERS AND GEOREFERENCING (4TH DIMENSION IN GIS)
Micro-histories of a Lagoon Island in a Visual Mapping Project
Unmute
Start Video
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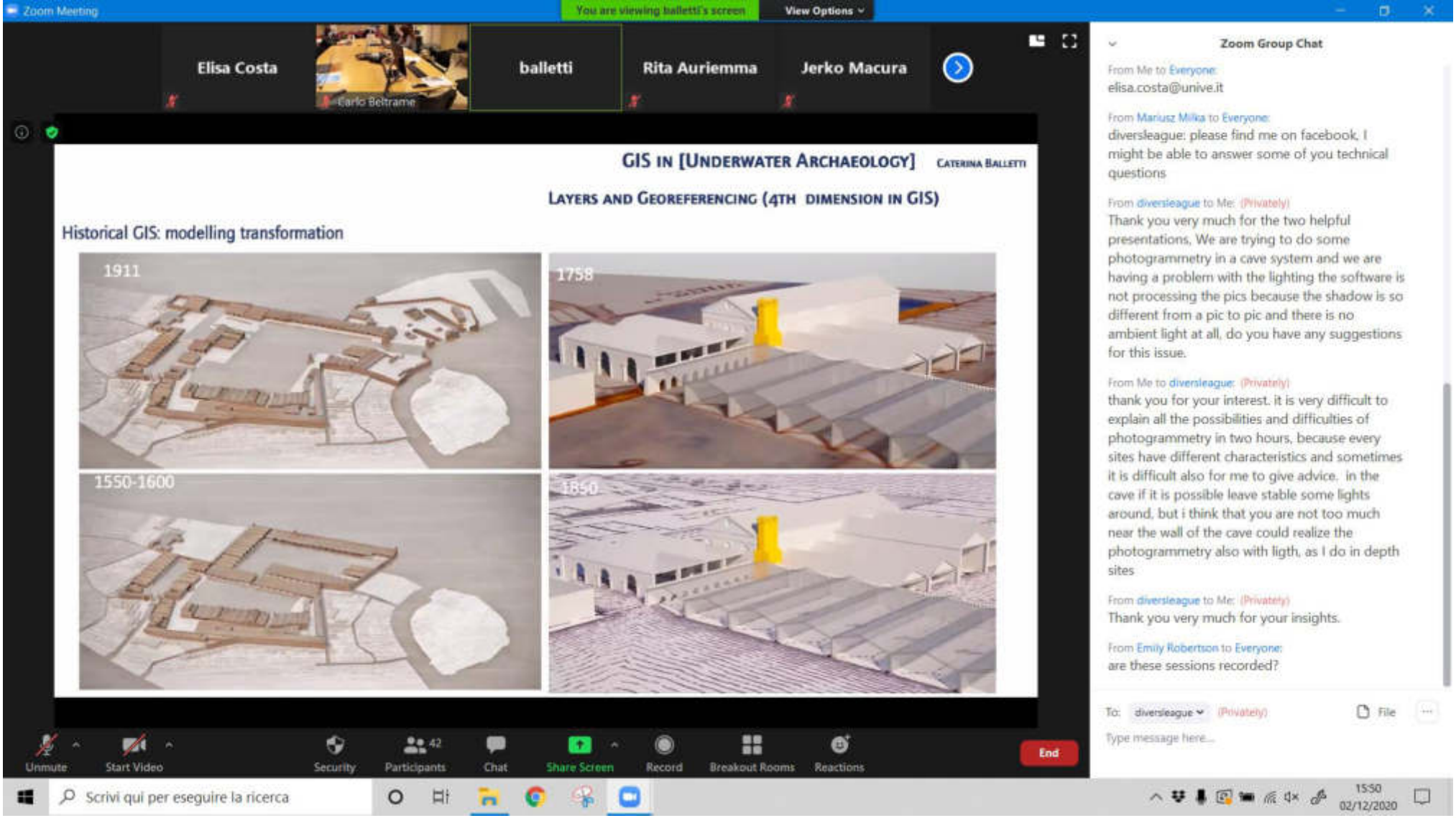
Participants
44
Chat
Share Screen
Record
Breakout Rooms
End
Scrivi qui per eseguire la ricerca
15:40
02/12/2020


Zoom Meeting
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Elisa Costa
Carlo Beltrame
balletti
Rita Auriemma
Jerko Macura
GIS IN [UNDERWATER ARCHAEOLOGY]
CATERINA BALLETTI
LAYERS AND GEOREFERENCING (4TH DIMENSION IN GIS)
Historical GIS: modelling transformation
1911
1758
1550-1600
1850
Zoom Group Chat
From Me to Everyone:
elisa.costa@unive.it
From Mariusz Milka to Everyone:
diversleague: please find me on facebook, I might be able to answer some of you technical questions
From diversleague to Me: (Privately)
Thank you very much for the two helpful presentations, We are trying to do some photogrammetry in a cave system and we are having a problem with the lighting the software is not processing the pics because the shadow is so different from a pic to pic and there is no ambient light at all, do you have any suggestions for this issue.
From Me to diversleague: (Privately)
thank you for your interest. it is very difficult to explain all the possibilities and difficulties of photogrammetry in two hours, because every sites have different characteristics and sometimes it is difficult also for me to give advice. in the cave if it is possible leave stable some lights around, but i think that you are not too much near the wall of the cave could realize the photogrammetry also with ligth, as I do in depth sites
From diversleague to Me: (Privately)
Thank you very much for your insights.
From Emily Robertson to Everyone:
are these sessions recorded?
To: diversleague (Privately)
File
Type message here...
Unmute
Start Video
Security
Participants
42
Chat
Share Screen
Record
Breakout Rooms
Reactions
End
Scrivi qui per eseguire la ricerca
15:50
02/12/2020


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View Options
GIS IN UNDERWATER ARCHAEOLOGY
CATERINA BALLETTI
GIS IN UNDERWATER ARCHAEOLOGY
Data relevant for managing underwater cultural heritage in a GIS. © MACHU Project
Unmute
Start Video
Security
Participants
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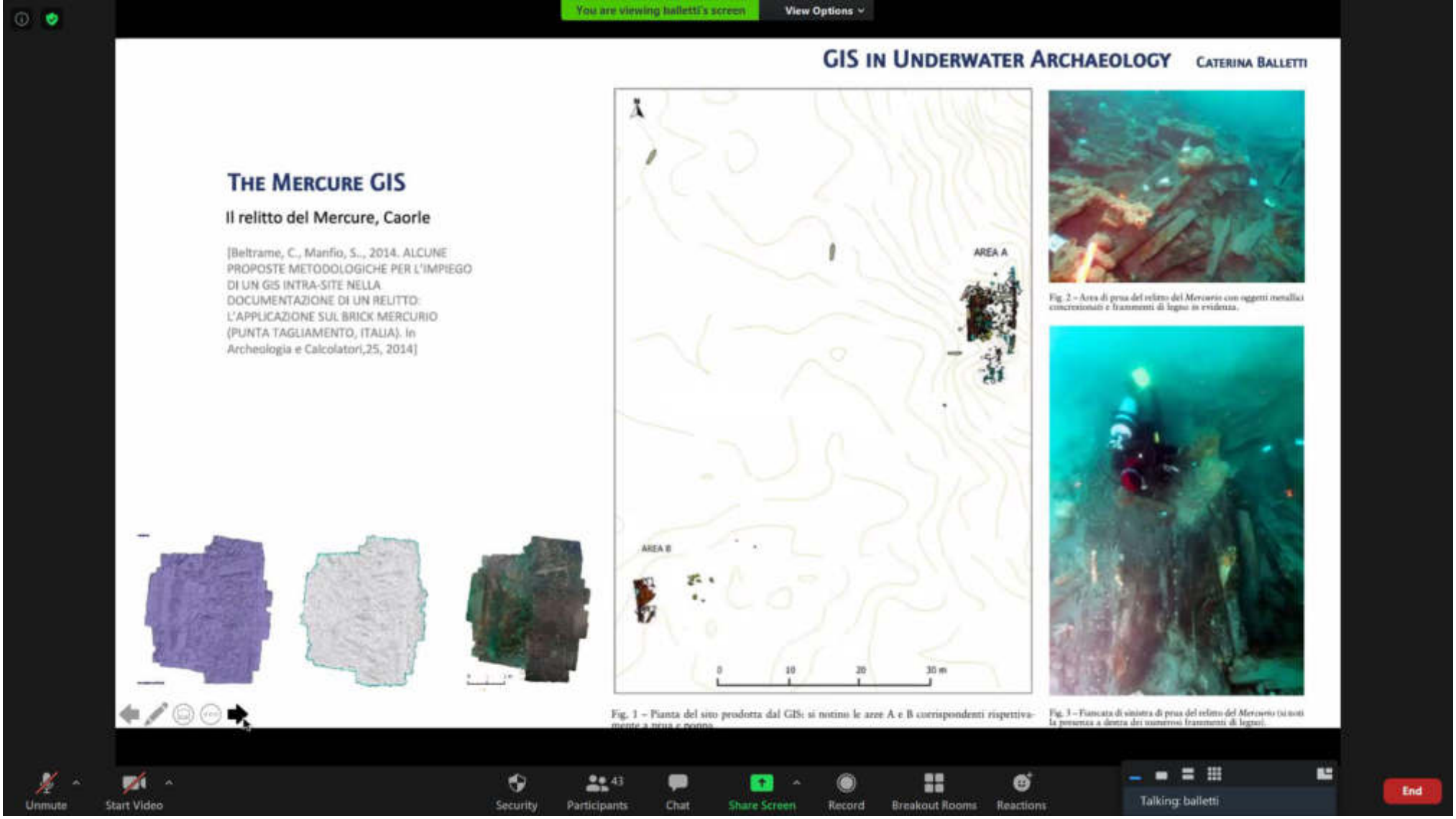
Breakout Rooms
Reactions
Talking: balletti
End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GIS IN UNDERWATER ARCHAEOLOGY
CATERINA BALLETTI
THE MERCURE GIS
Il relitto del Mercure, Caorle
[Beltrame, C., Manfio, S.., 2014. ALCUNE PROPOSTE METODOLOGICHE PER L'IMPIEGO DI UN GIS INTRA-SITE NELLA DOCUMENTAZIONE DI UN RELITTO: L'APPLICAZIONE SUL BRICK MERCURIO (PUNTA TAGLIAMENTO, ITALIA). In Archeologia e Calcolatori,25, 2014]
AREA A
AREA B
0
10
20
30 m
Fig. 1 – Pianta del sito prodotta dal GIS: si notino le aree A e B corrispondenti rispettivamente a prua e poppa.
Fig. 2 – Area di prua del relitto del Mercurio con oggetti metallici concrezionati e frammenti di legno in evidenza.
Fig. 3 – Fiancata di sinistra di prua del relitto del Mercurio (si noti la presenza a destra dei numerosi frammenti di legno).
Unmute
Start Video
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Breakout Rooms
Reactions
Talking: balletti
End

THE MERCURE GIS

Il relitto del Mercure, Caorle

[Beltrame, C., Manfio, S.., 2014. ALCUNE PROPOSTE METODOLOGICHE PER L'IMPIEGO DI UN GIS INTRA-SITE NELLA DOCUMENTAZIONE DI UN RELITTO: L'APPLICAZIONE SUL BRICK MERCURIO (PUNTA TAGLIAMENTO, ITALIA). In Archeologia e Calcolatori,25, 2014]

Fig. 4 – Planimetria dell'intero sito, prodotta dal GIS, comprensiva delle zone A e B e di quattro carronate disperse ad O.

THE MERCURE GIS

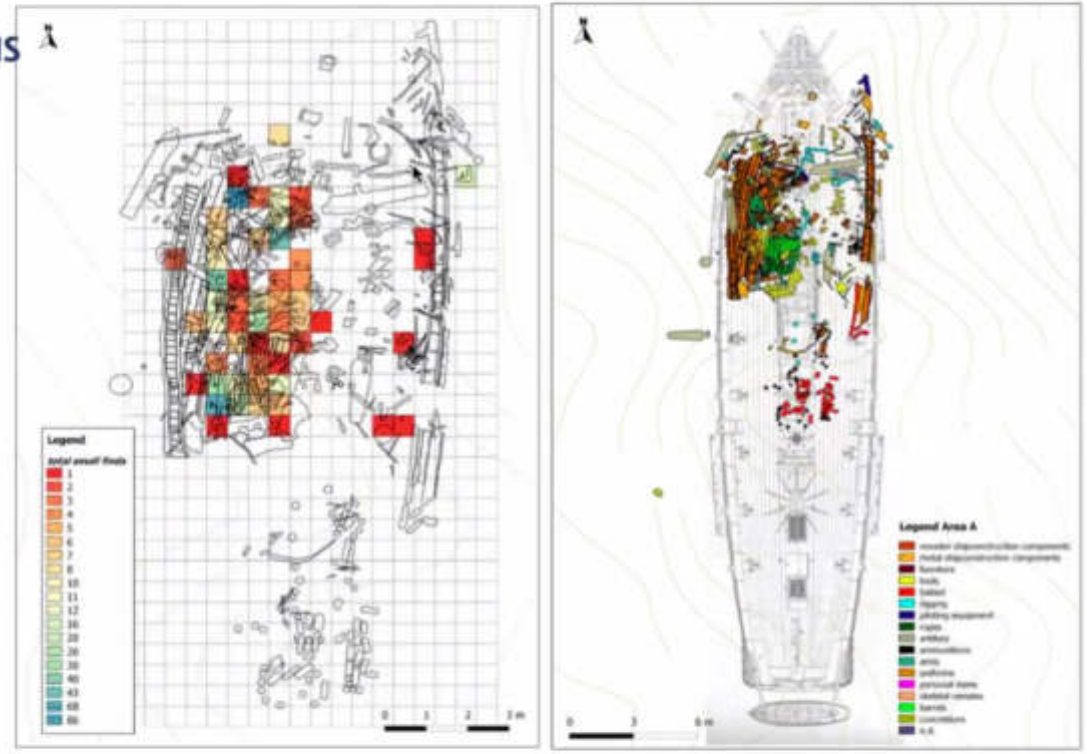
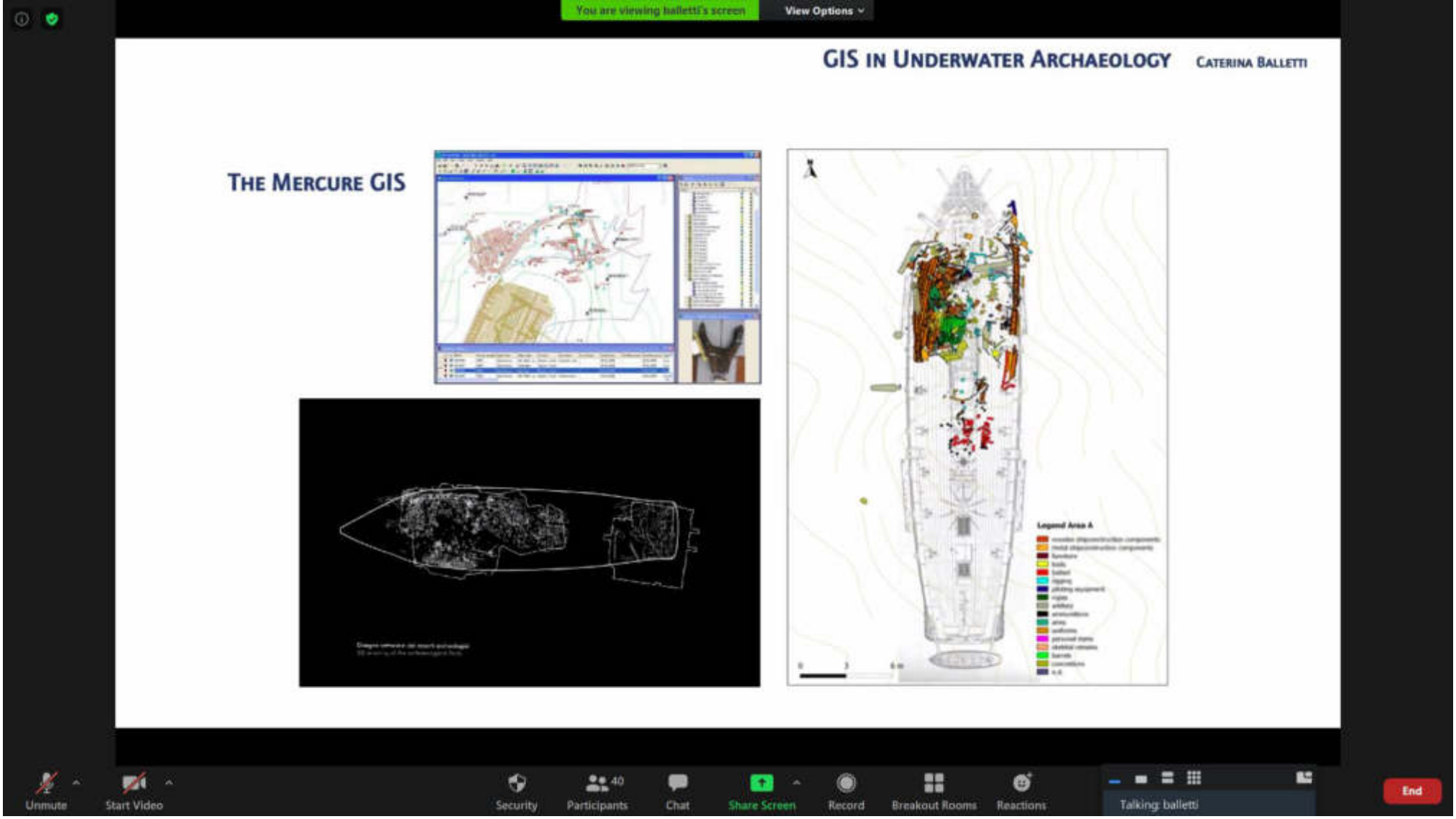


Fig. 6 – Pianta dell'area A dal GIS con la distribuzione topografica dei piccoli reperti: ogni cella contiene un numero specifico di piccoli reperti.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GIS IN UNDERWATER ARCHAEOLOGY
CATERINA BALLETTI
THE MERCURE GIS
Legend Area A
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40
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Reactions
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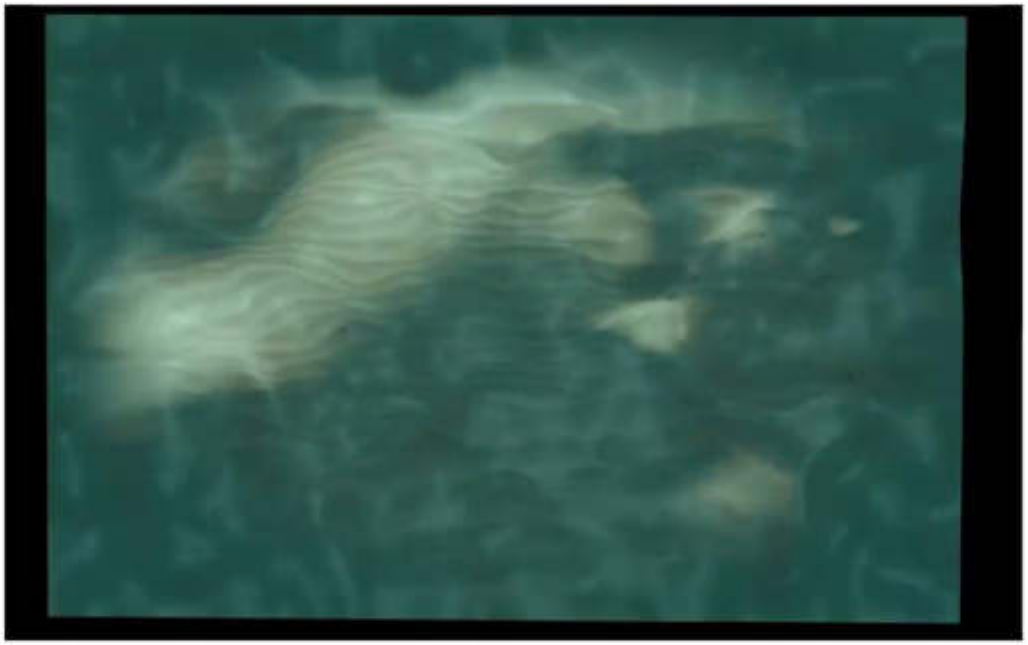
GIS IN UNDERWATER ARCHAEOLOGY CATERINA BALLETTI



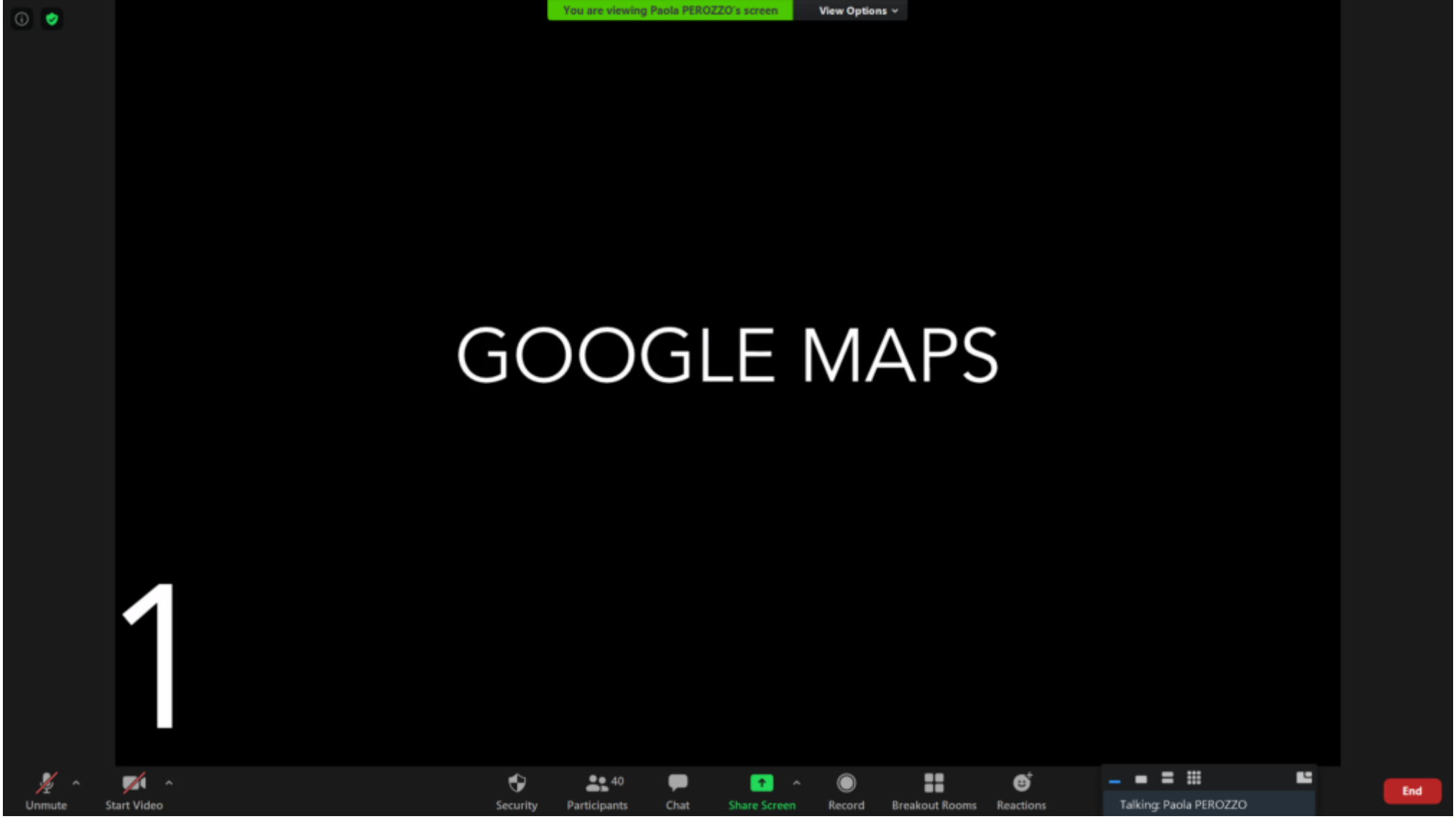
THANKS

Unmute Start Video Security Participants 40 Chat Share Screen Record Breakout Rooms Reactions Talking: balletti End

POSSIBLE ALTERNATIVES TO GIS FOR A GEOREFERENCED WEB MAP

Paola Perozzo

Interreg
Italy - Croatia
UnderwaterMuse
European Regional Development Fund
EUROPEAN UNION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GOOGLE MAPS
1
Unmute
Start Video
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Participants
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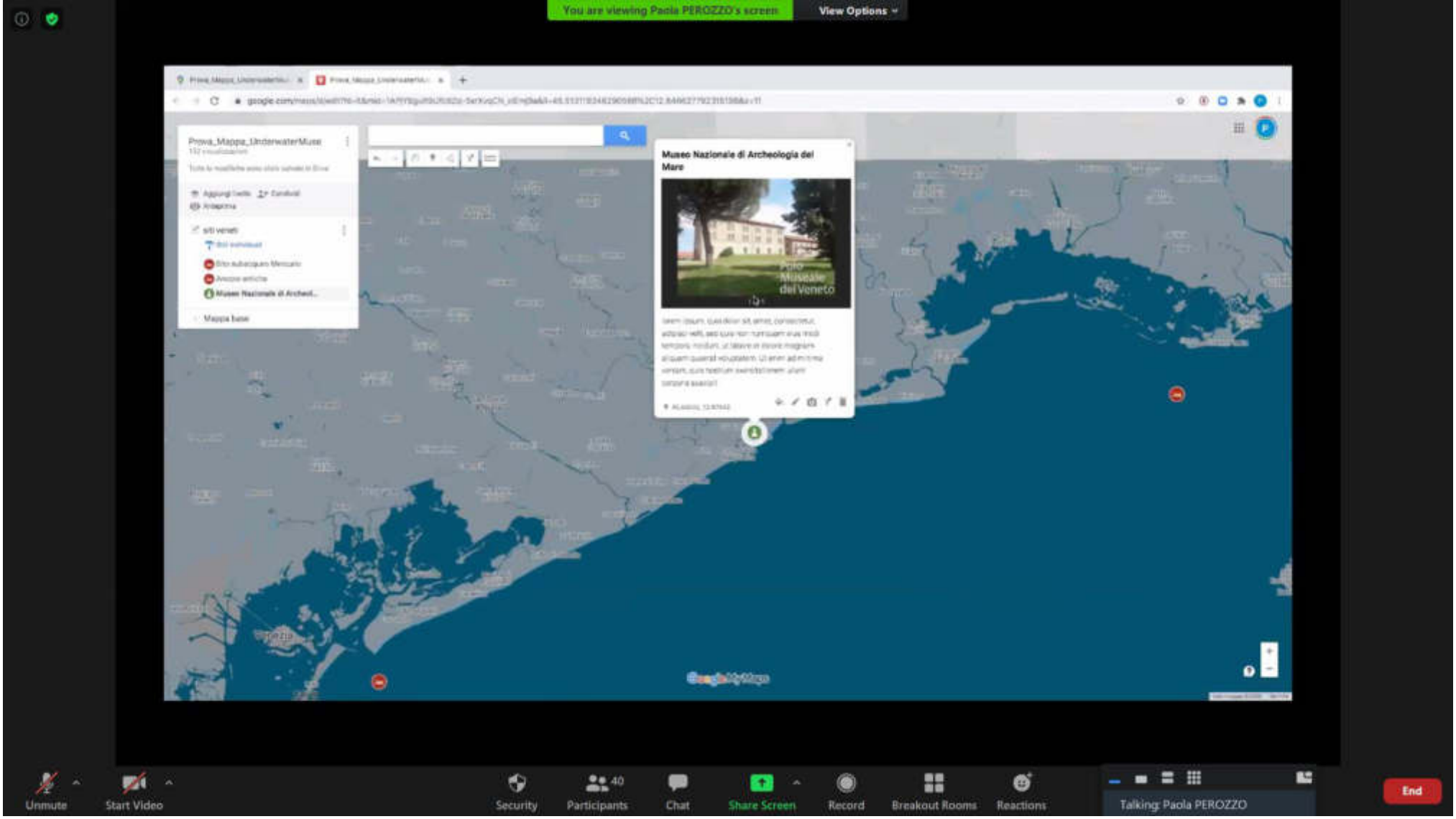
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End


You are viewing Paola PEROZZO's screen
View Options
Prova_Mappa_UnderwaterMuse
siti veneti
Mappa base
Museo Nazionale di Archeologia del Mare
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40
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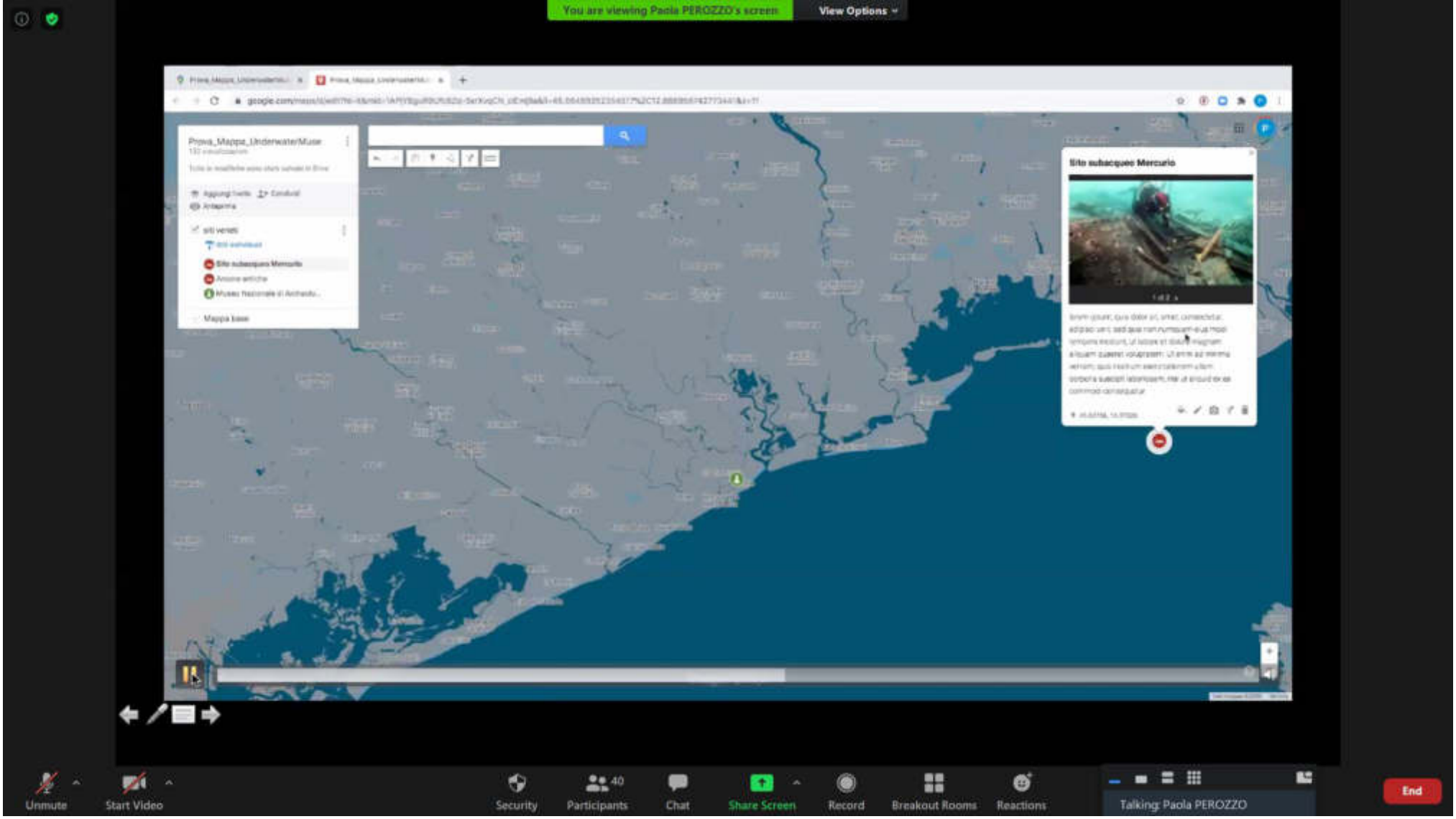
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End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View Options
Prova_Mappa_UnderwaterMuse
Sito subacqueo Mercurio
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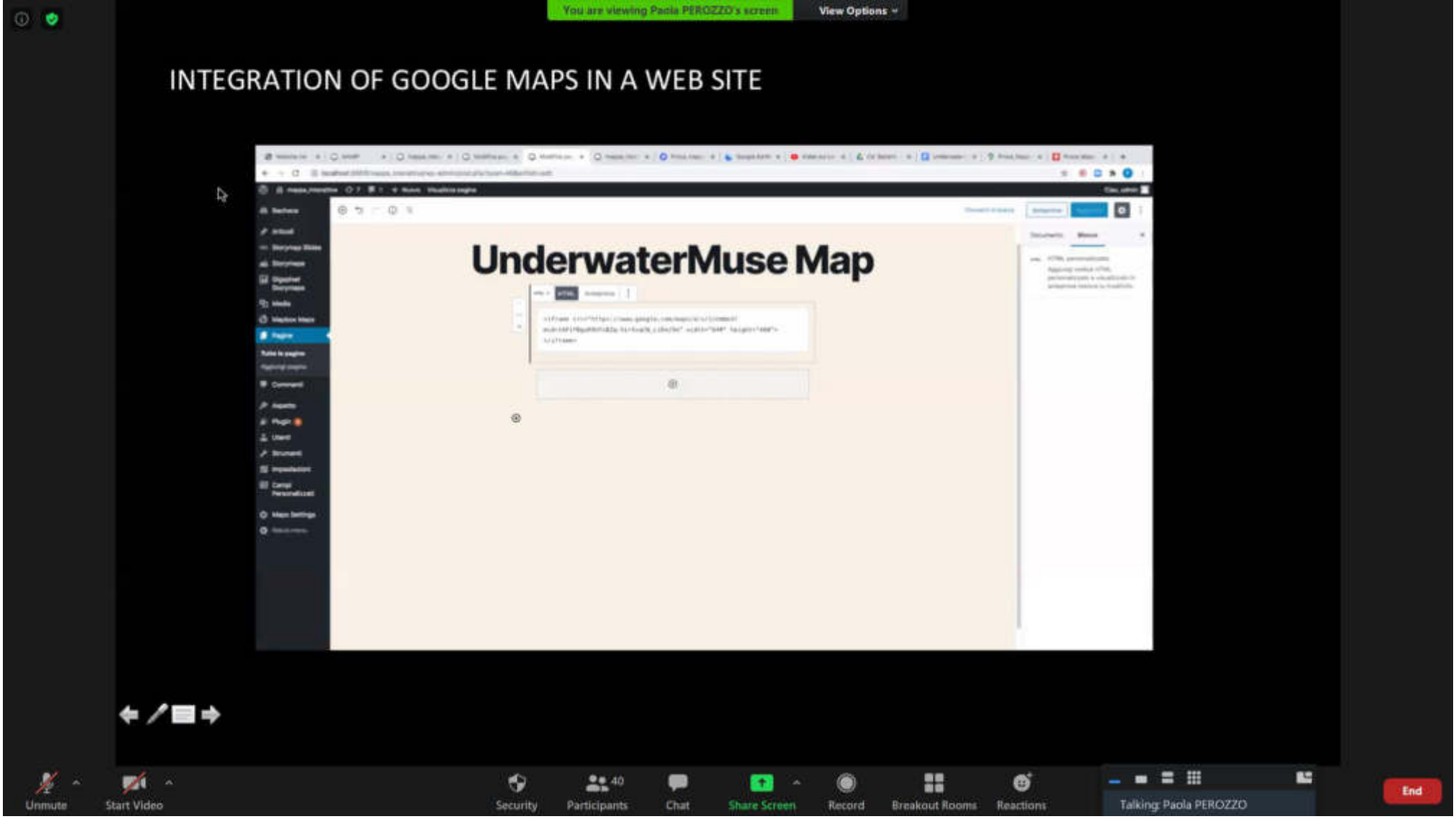
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End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INTEGRATION OF GOOGLE MAPS IN A WEB SITE
UnderwaterMuse Map
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Participants
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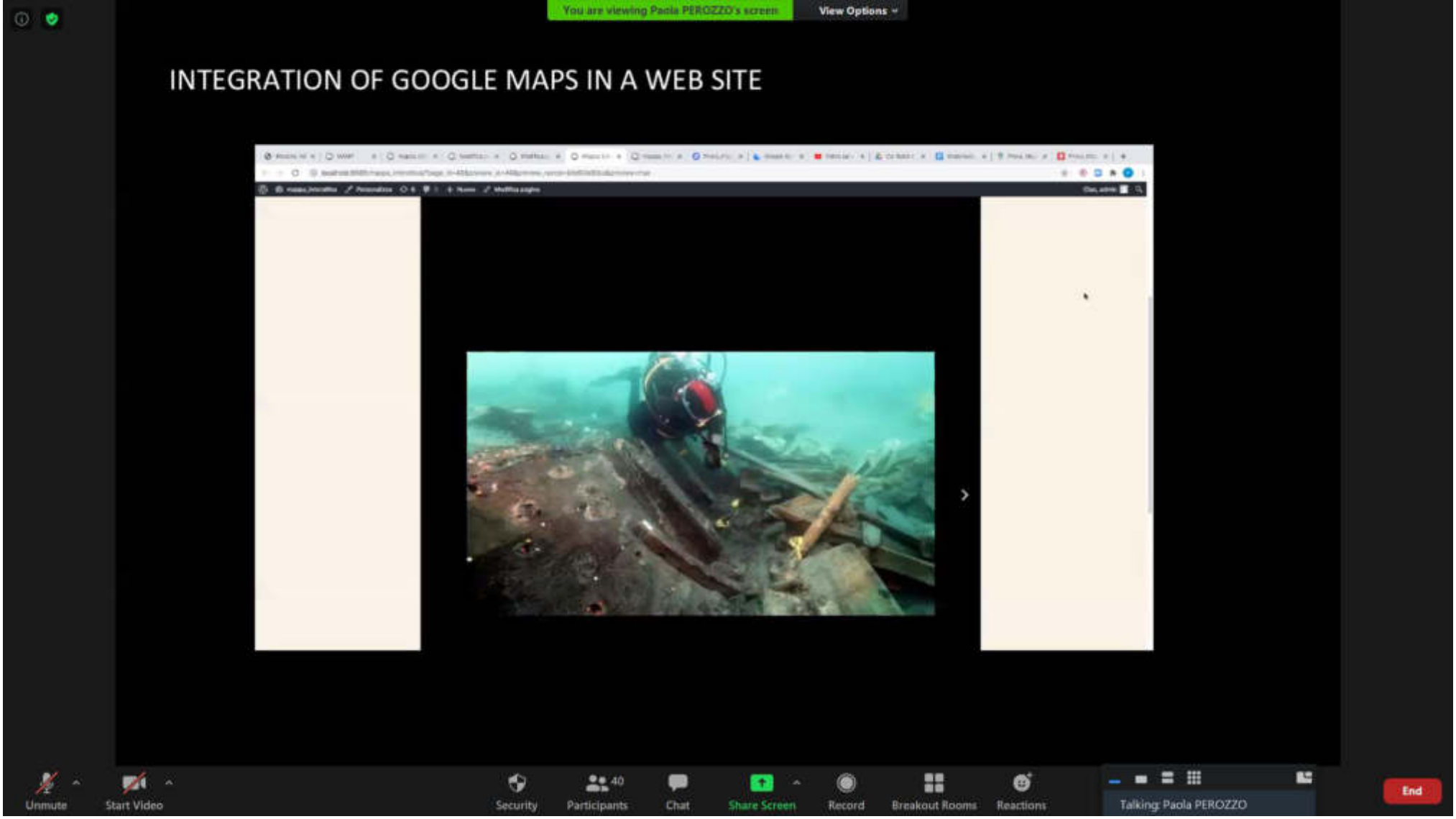
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End


You are viewing Paola PEROZZO's screen
View Options
INTEGRATION OF GOOGLE MAPS IN A WEB SITE
Unmute
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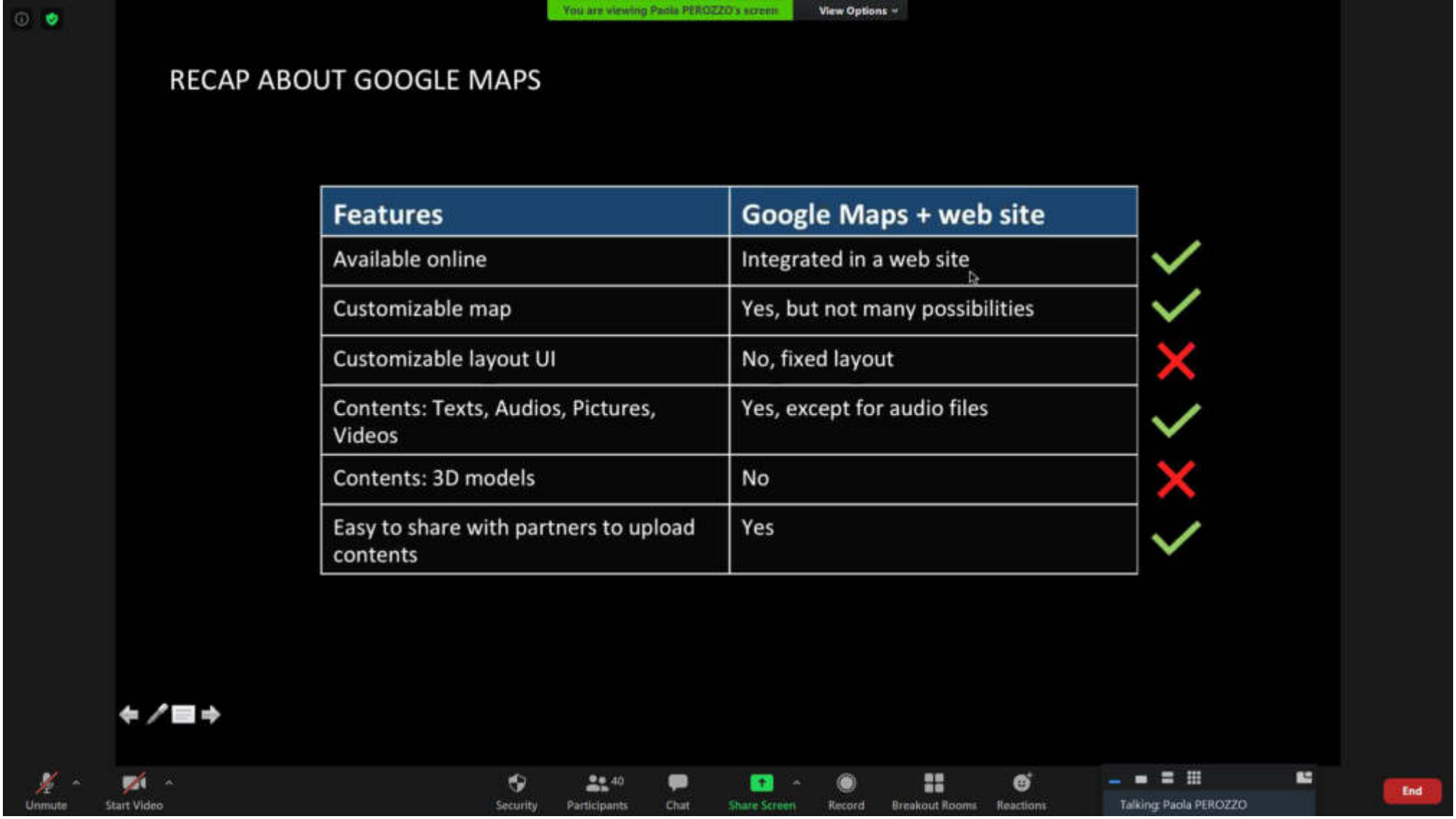
Security
Participants
40
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End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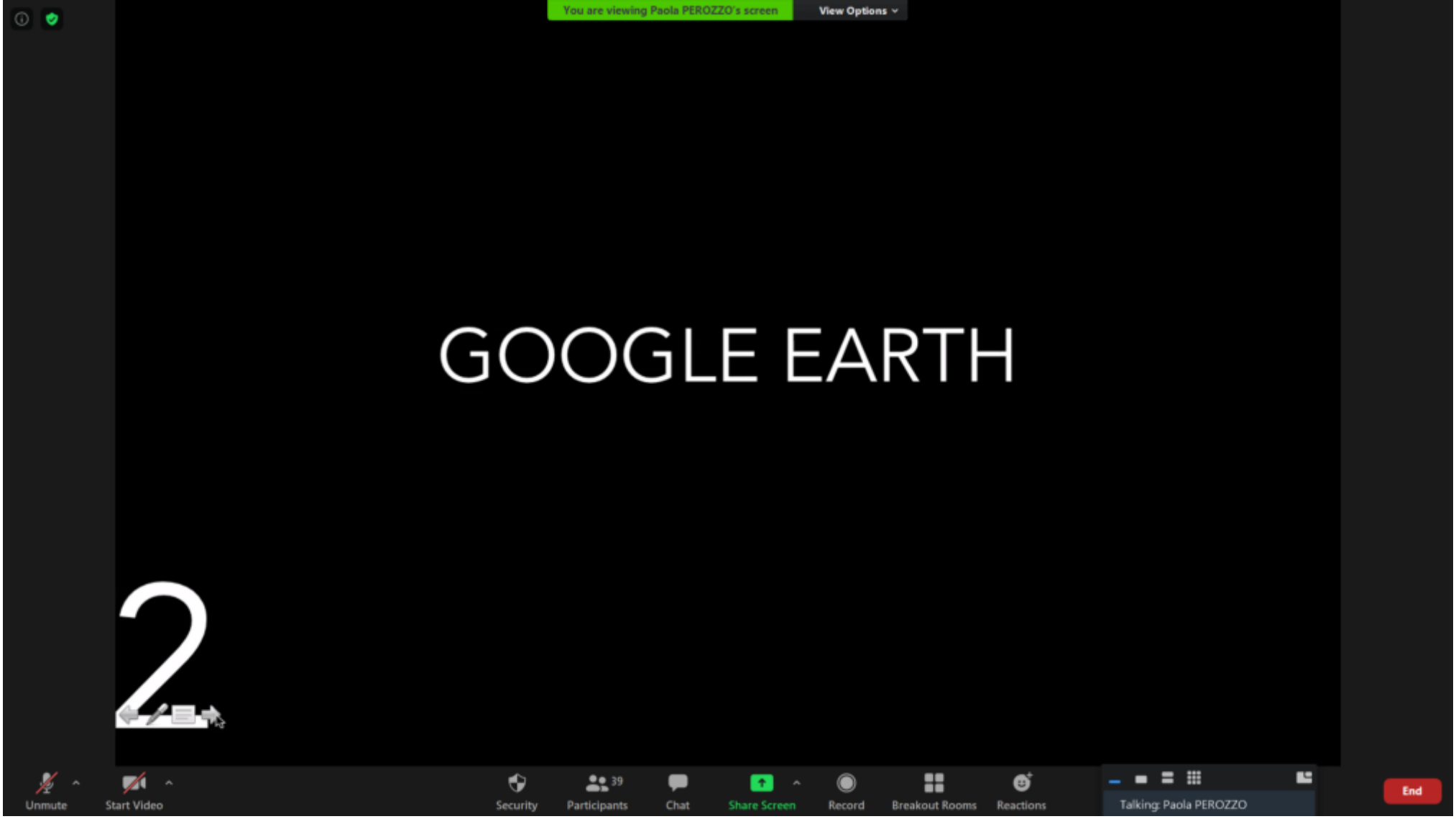
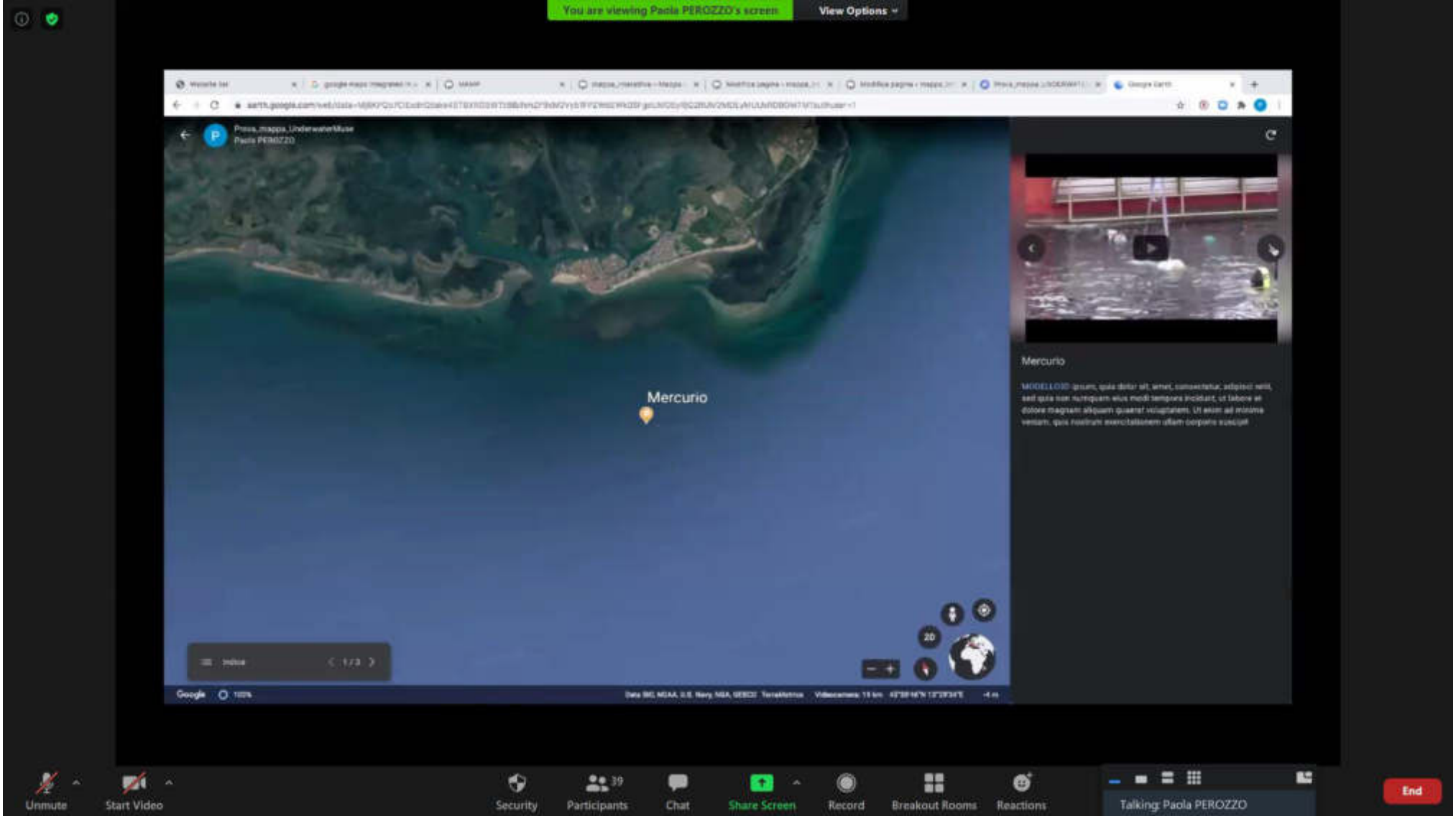
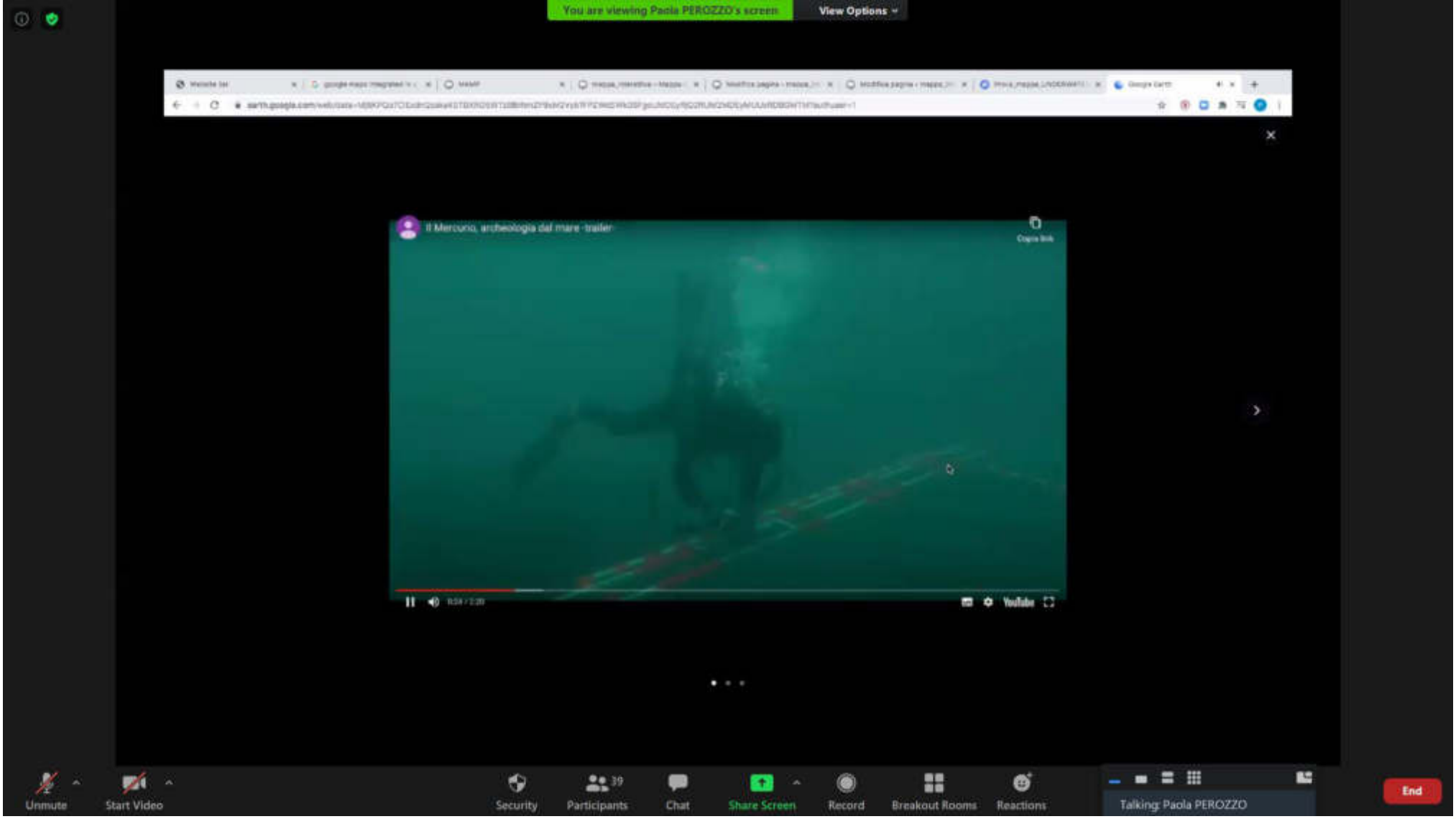
Google Maps + web site
Available online
Integrated in a web site
Customizable map
Yes, but not many possibilities
Customizable layout UI
No, fixed layout
Contents: Texts, Audios, Pictures, Videos
Yes, except for audio files
Contents: 3D models
No
Easy to share with partners to upload contents
Yes
Unmute
Start Video
Security
Participants
40
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

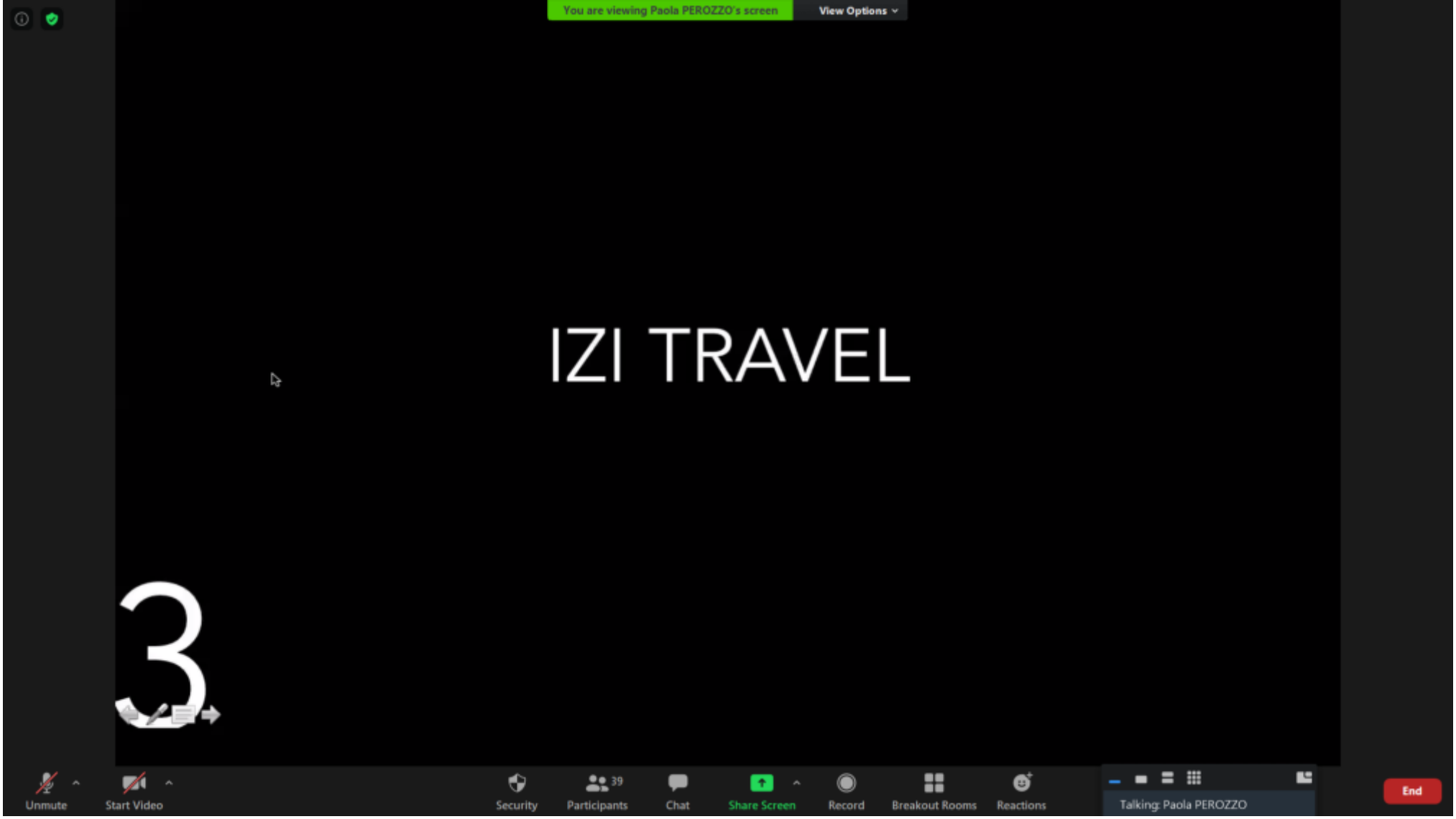

You are viewing Paola PEROZZO's screen
View Options
GOOGLE EARTH
2
Unmute
Start Video
Security
Participants
39
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

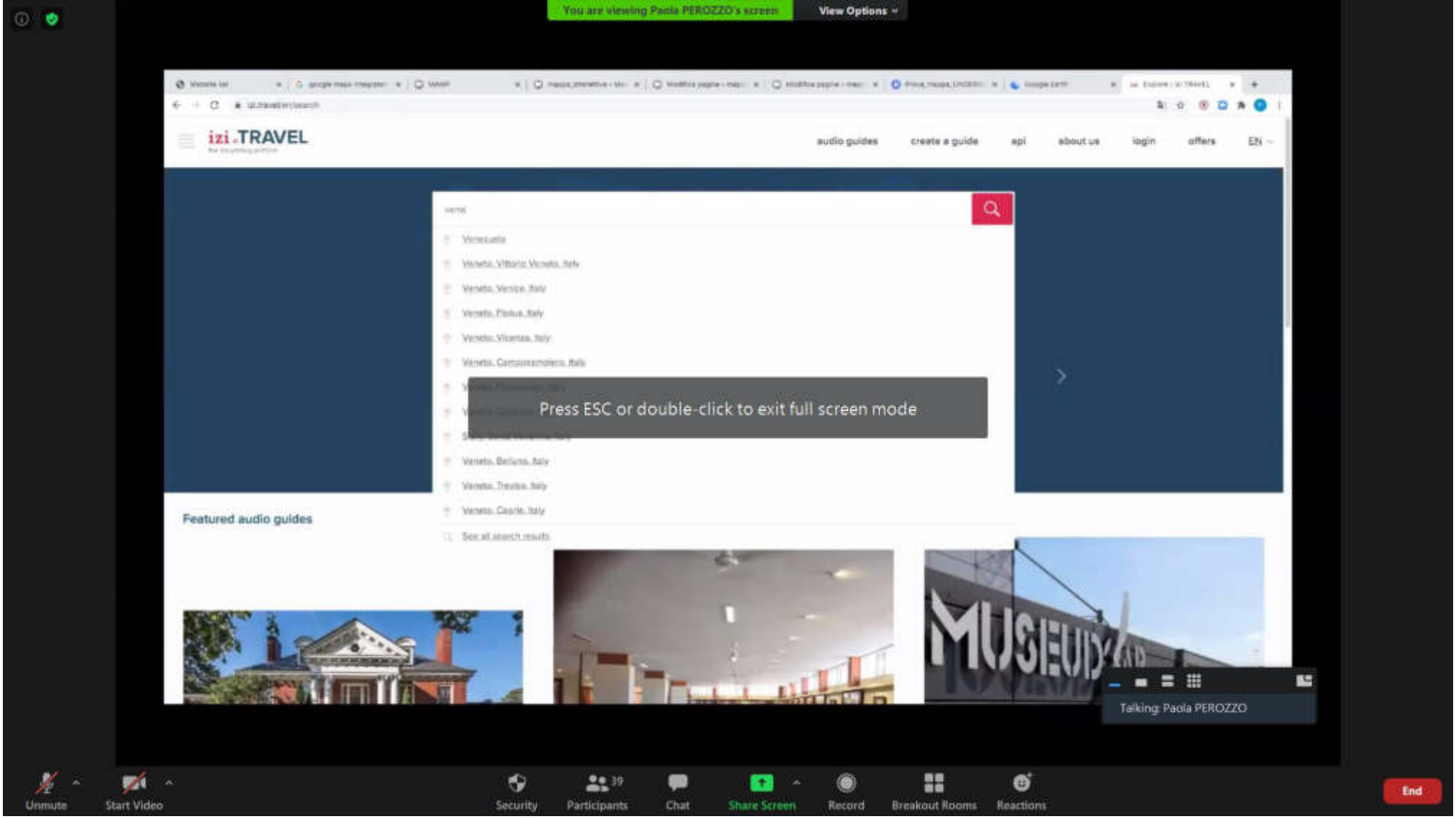


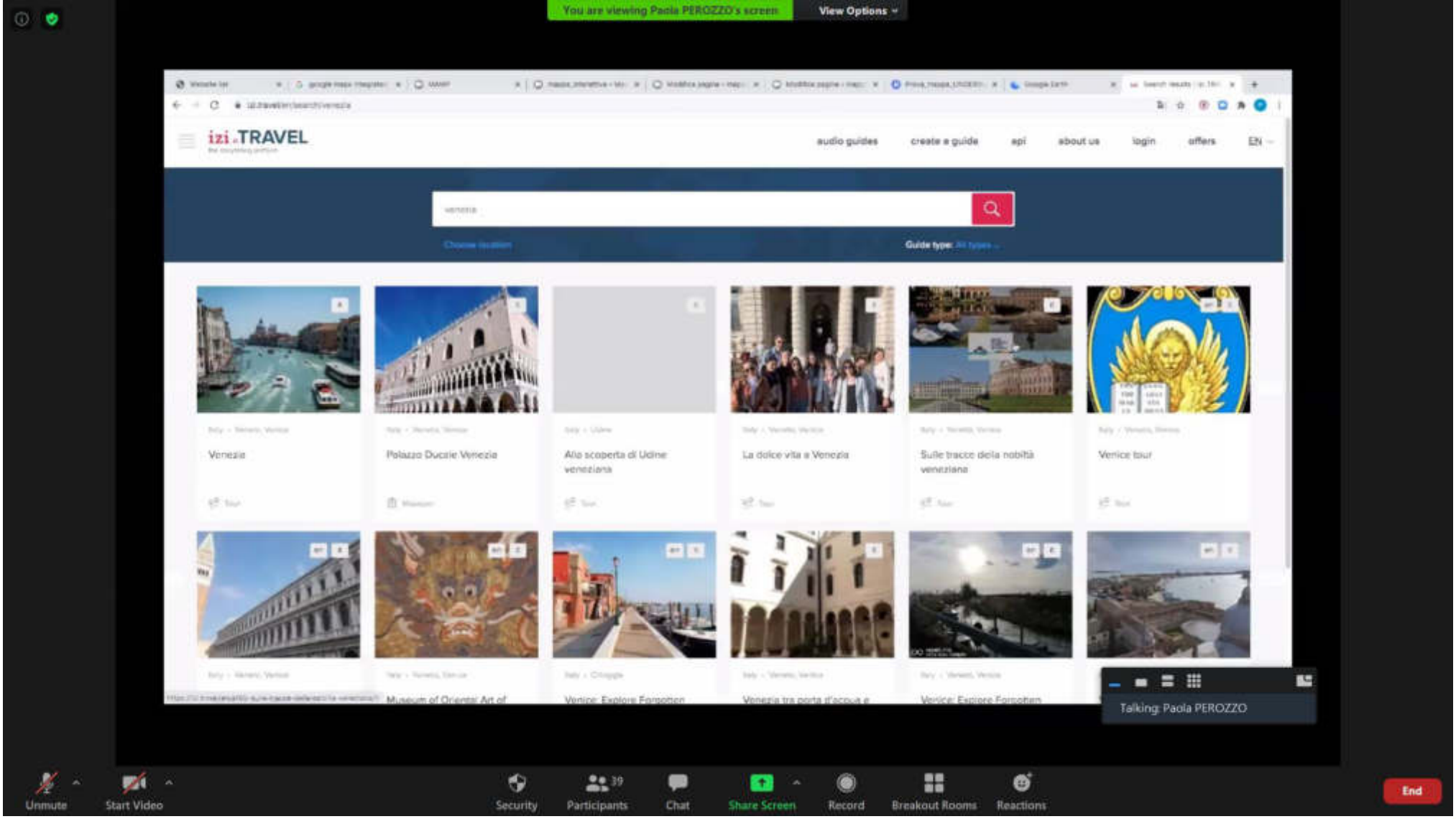
Interreg Italy - Croatia UnderwaterMuse
European Regional Development Fund
EUROPEAN UNION

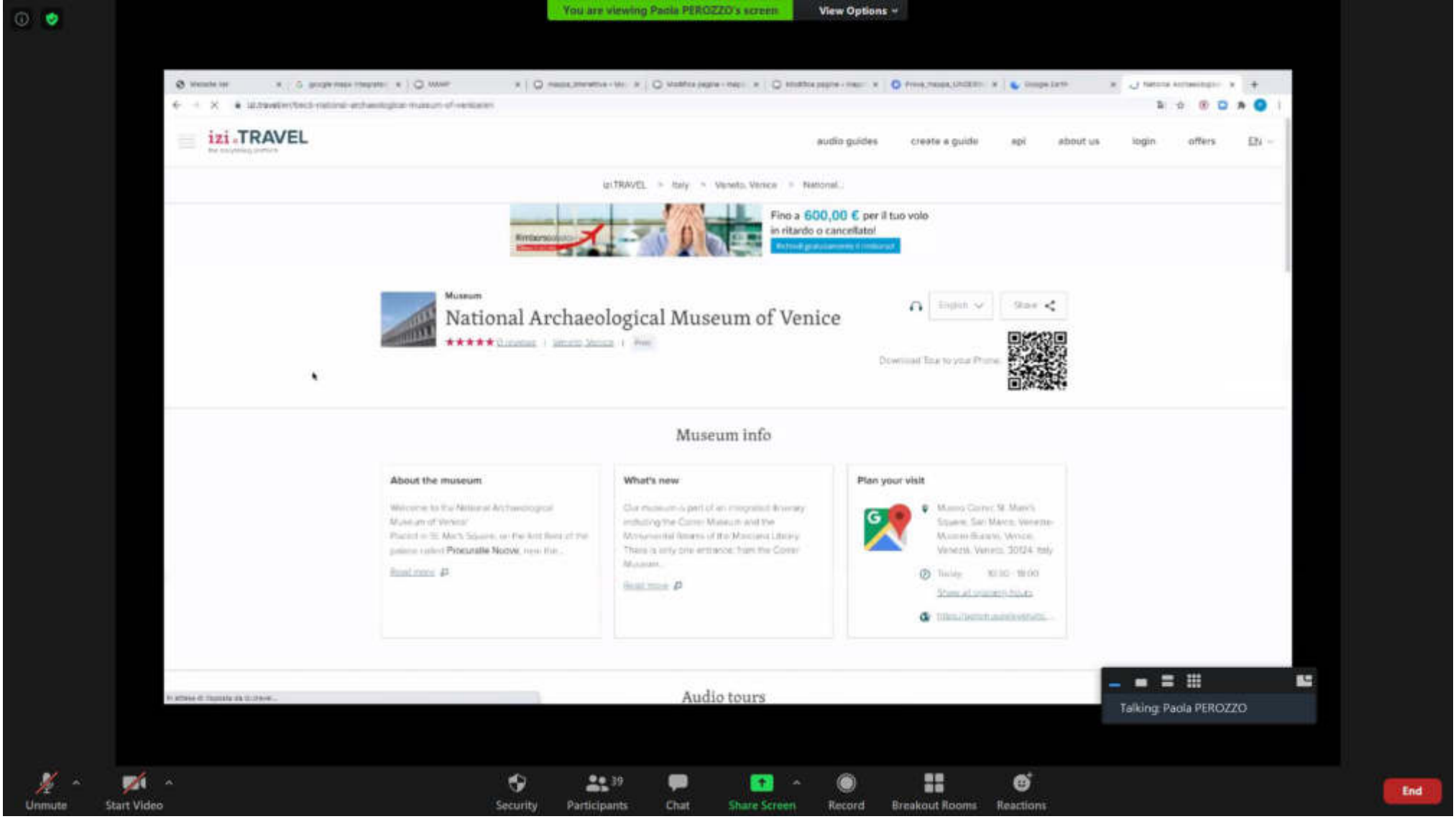

You are viewing Paola PEROZZO's screen
View Options
Il Mercurio, archeologia dal mare -trailer
Unmute
Start Video
Security
Participants
39
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

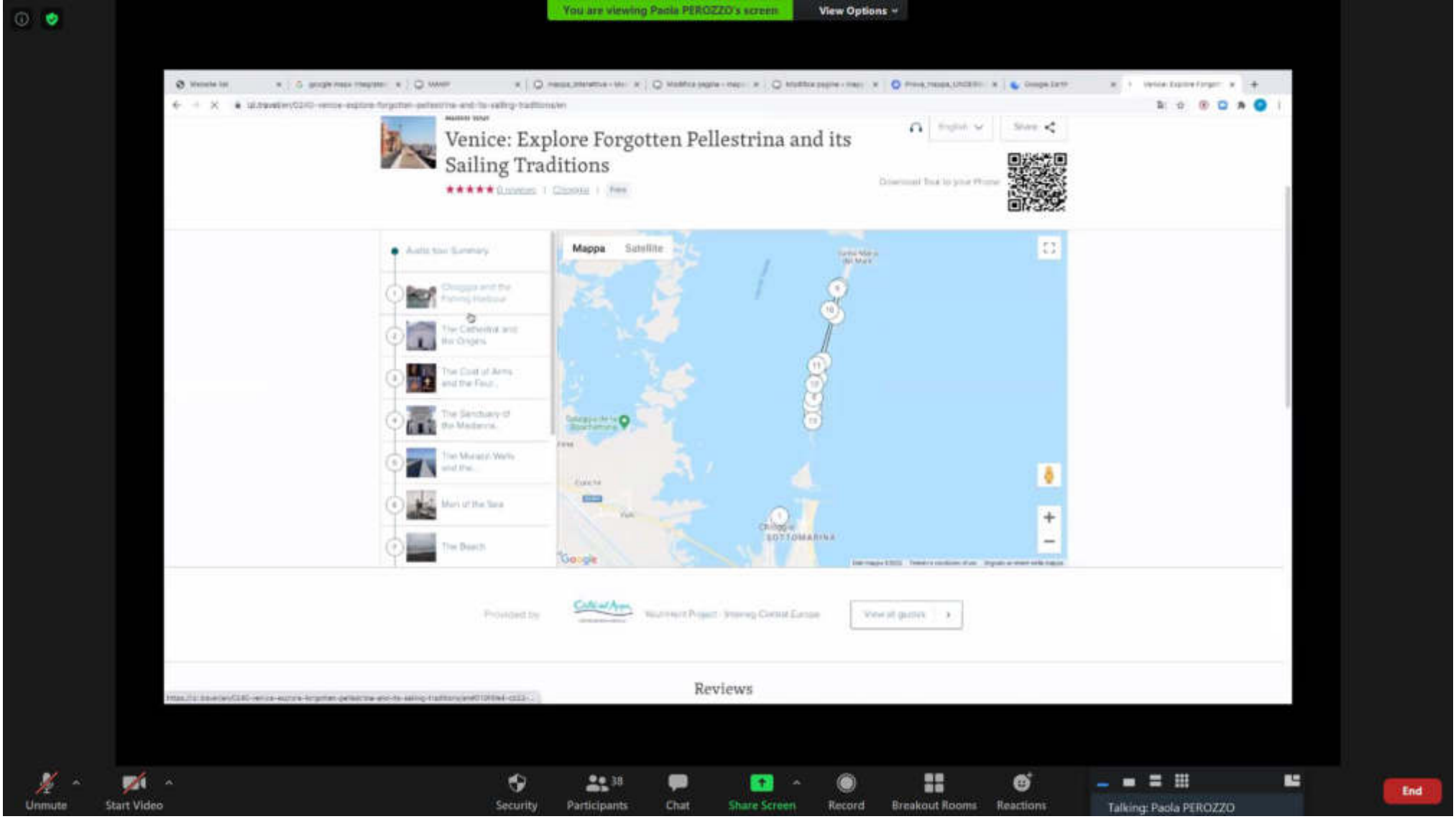

You are viewing Paola PEROZZO's screen
View Options
RECAP ABOUT GOOGLE EARTH
Features
Google Earth + web site
Available online
Integrated in a web site
Customizable map
No
Customizable layout UI
No, fixed layout
Contents: Texts, Audios, Pictures, Videos
Yes, except for audio source
Contents: 3D models
No
Easy to share with partners to upload contents
Yes
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

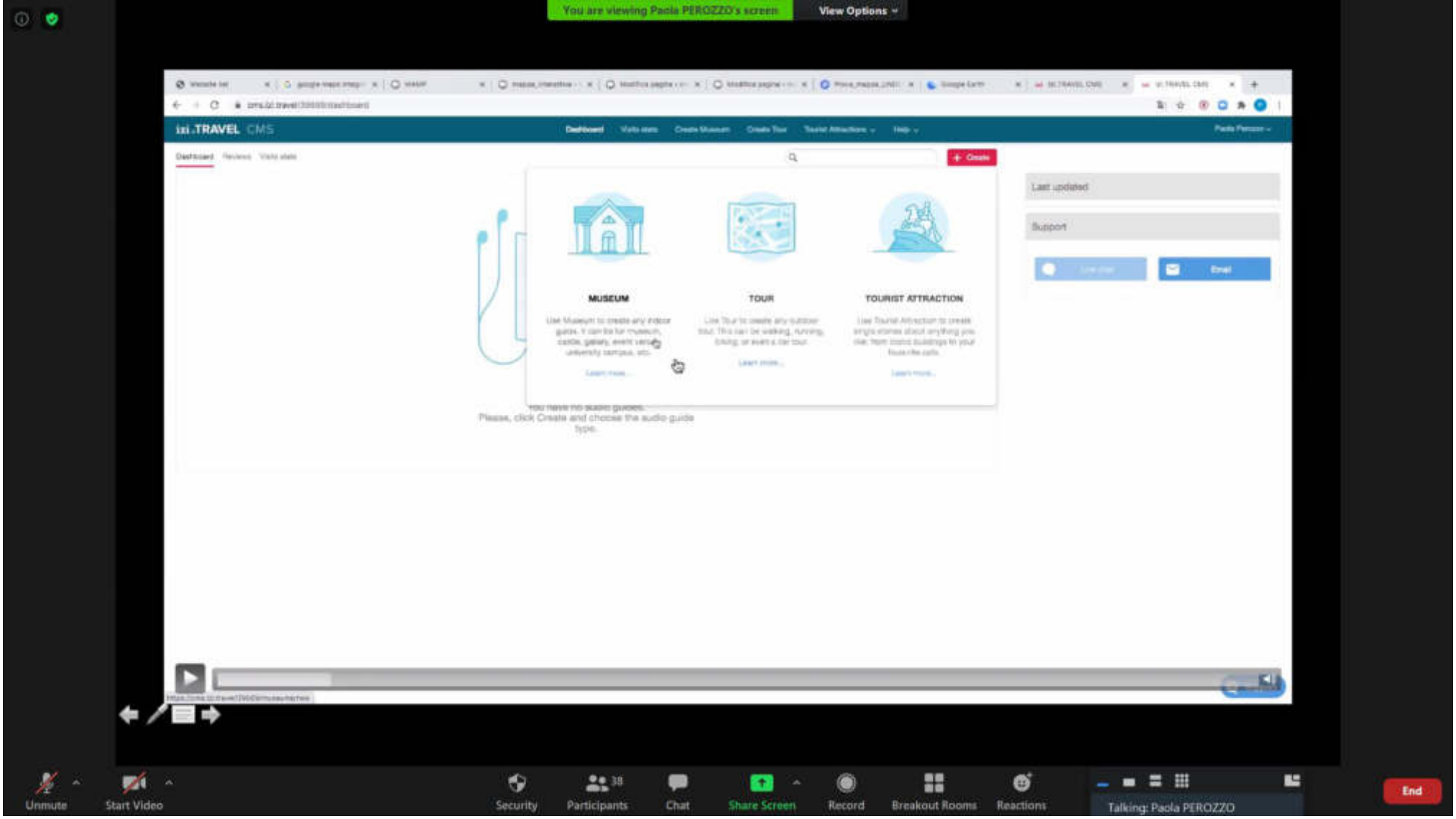

You are viewing Paola PEROZZO's screen
View Options
IZI TRAVEL
3
Unmute
Start Video
Security
Participants
39
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

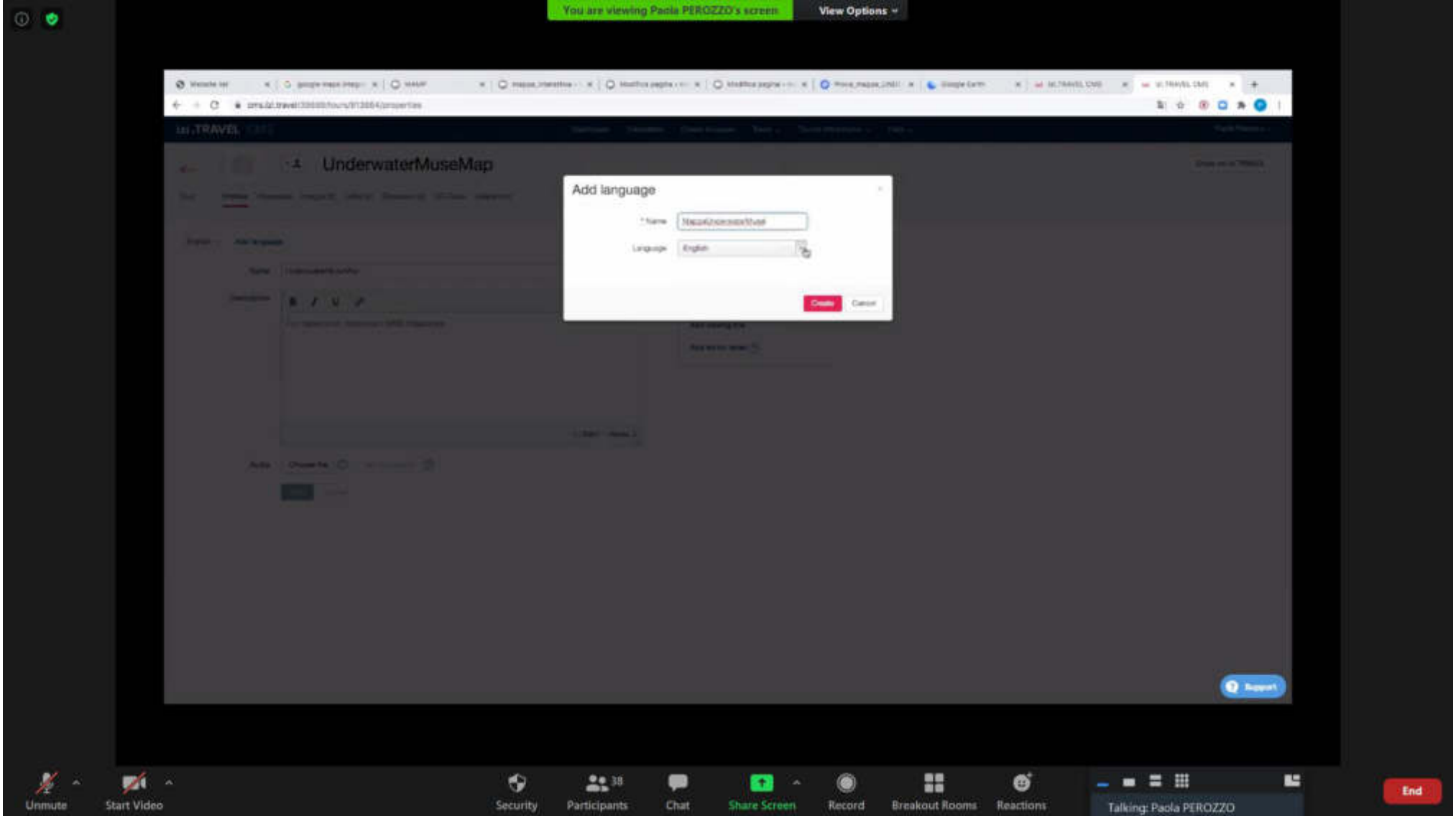

You are viewing Paola PEROZZO's screen
View Options
izi.TRAVEL
audio guides
create a guide
api
about us
login
offers
EN
Press ESC or double-click to exit full screen mode
Featured audio guides
Talking: Paola PEROZZO
Unmute
Start Video
Security
Participants
39
Chat
Share Screen
Record
Breakout Rooms
Reactions
End

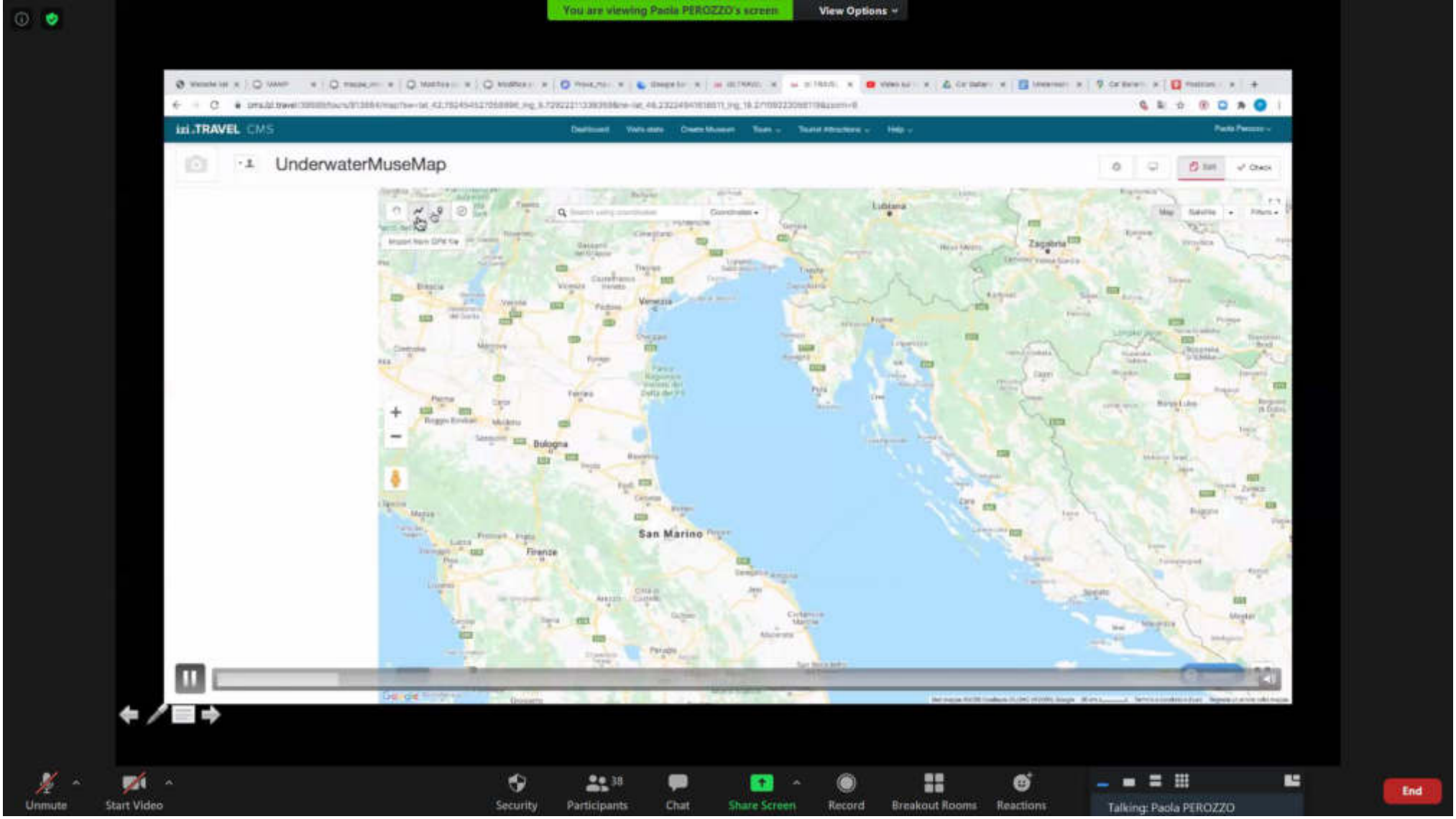

You are viewing Paola PEROZZO's screen
View Options
izi.TRAVEL
audio guides
create a guide
api
about us
login
offers
EN
Venezia
Palazzo Ducale Venezia
Alla scoperta di Udine veneziana
La dolce vita a Venezia
Sulle tracce della nobiltà veneziana
Venice tour
Talking: Paola PEROZZO
Unmute
Start Video
Security
Participants
39
Chat
Share Screen
Record
Breakout Rooms
Reactions
End

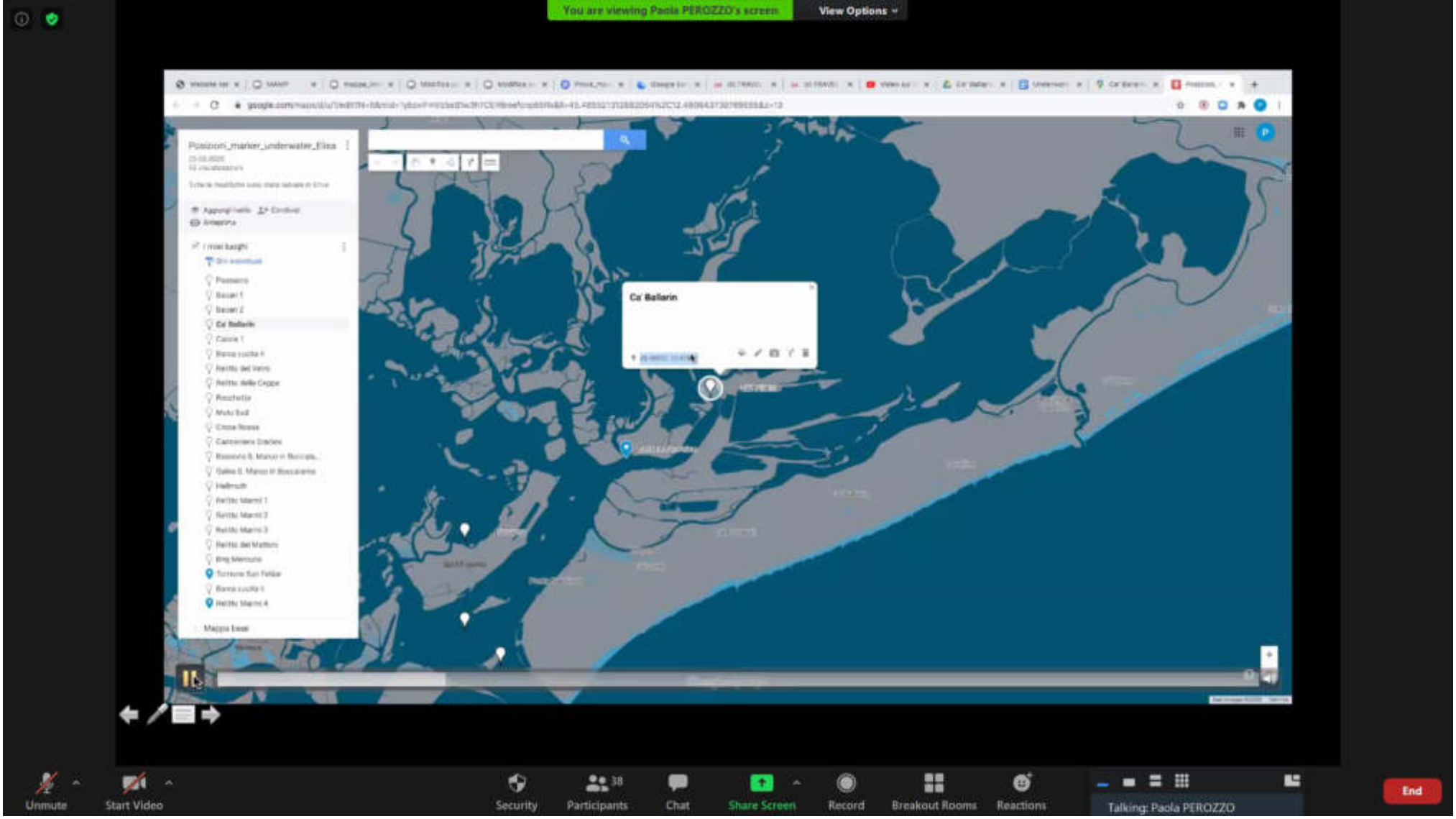

You are viewing Paola PEROZZO's screen
View Options
izi.TRAVEL
audio guides
create a guide
api
about us
login
offers
Fino a 600,00 € per il tuo volo in ritardo o cancellato!
Museum
National Archaeological Museum of Venice
Museum info
About the museum
What's new
Plan your visit
Audio tours
Talking: Paola PEROZZO
Unmute
Start Video
Security
Participants
39
Chat
Share Screen
Record
Breakout Rooms
Reactions
End

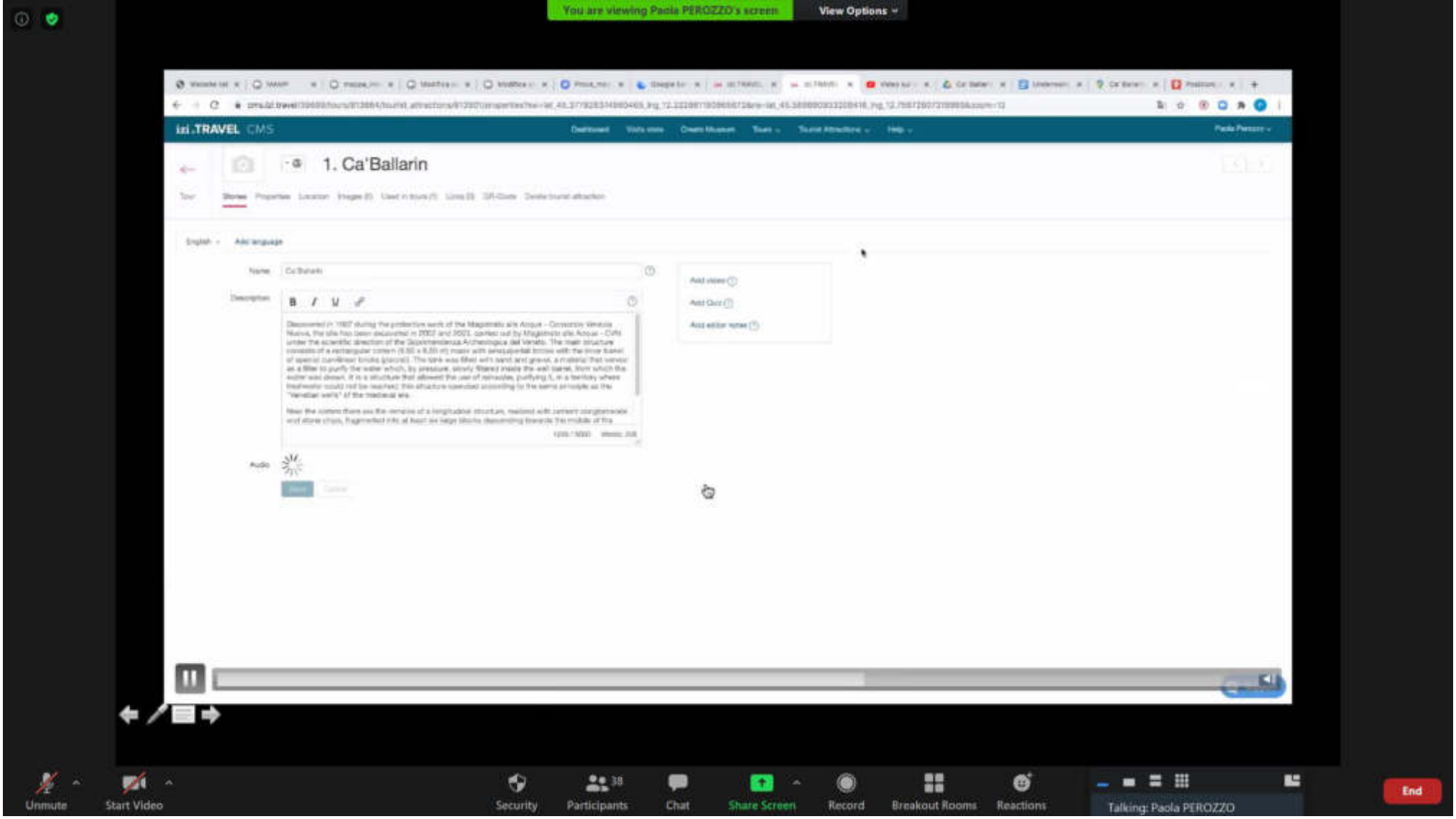

You are viewing Paola PEROZZO's screen
View Options
Venice: Explore Forgotten Pellestrina and its Sailing Traditions
Mappa
Satellite
Reviews
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

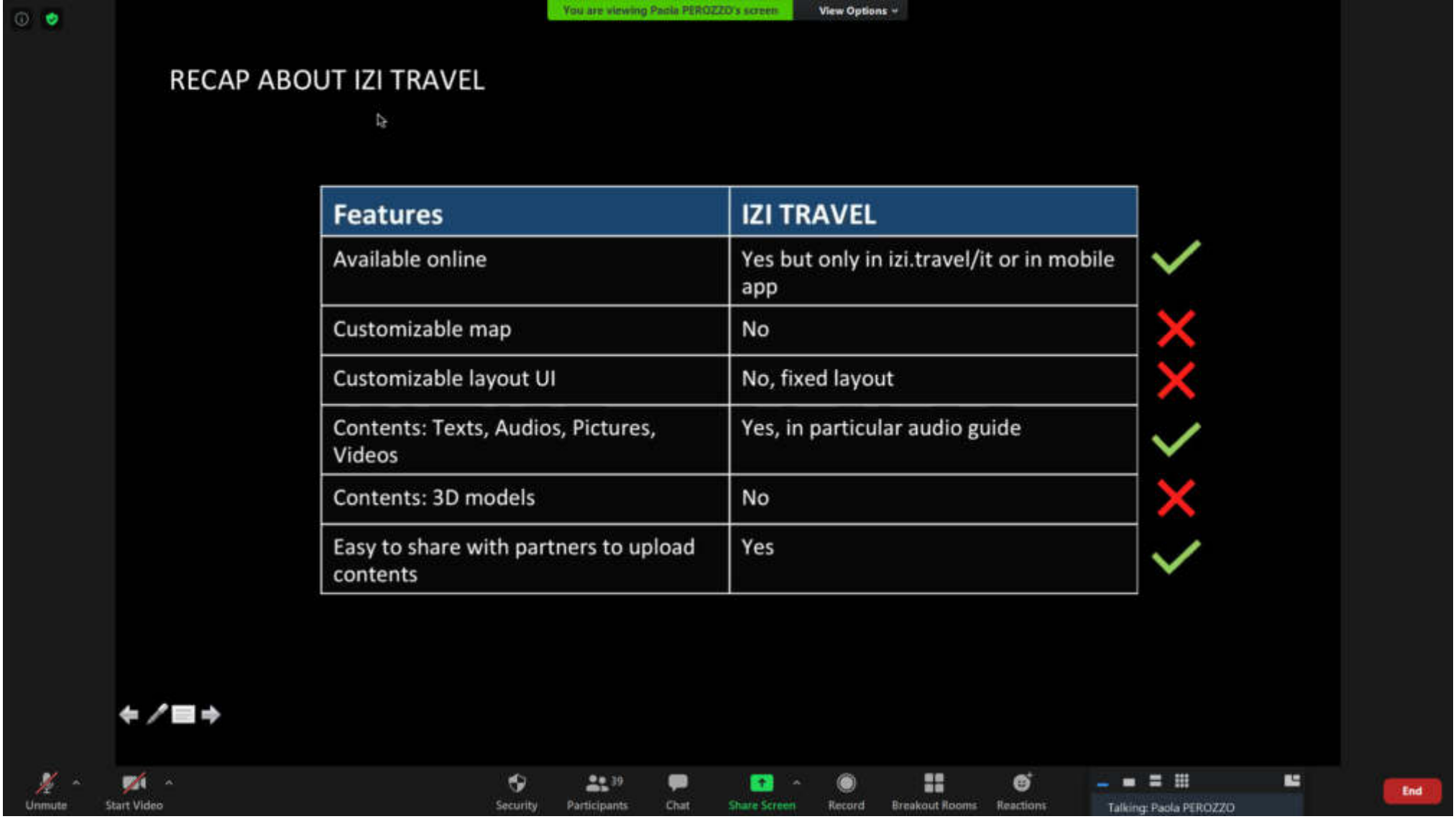

You are viewing Paola PEROZZO's screen
View Options
izi.TRAVEL CMS
Dashboard
Create
MUSEUM
TOUR
TOURIST ATTRACTION
Last updated
Support
Email
Please, click Create and choose the audio guide type.
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End


You are viewing Paola PEROZZO's screen
View Options
UnderwaterMuseMap
Add language
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

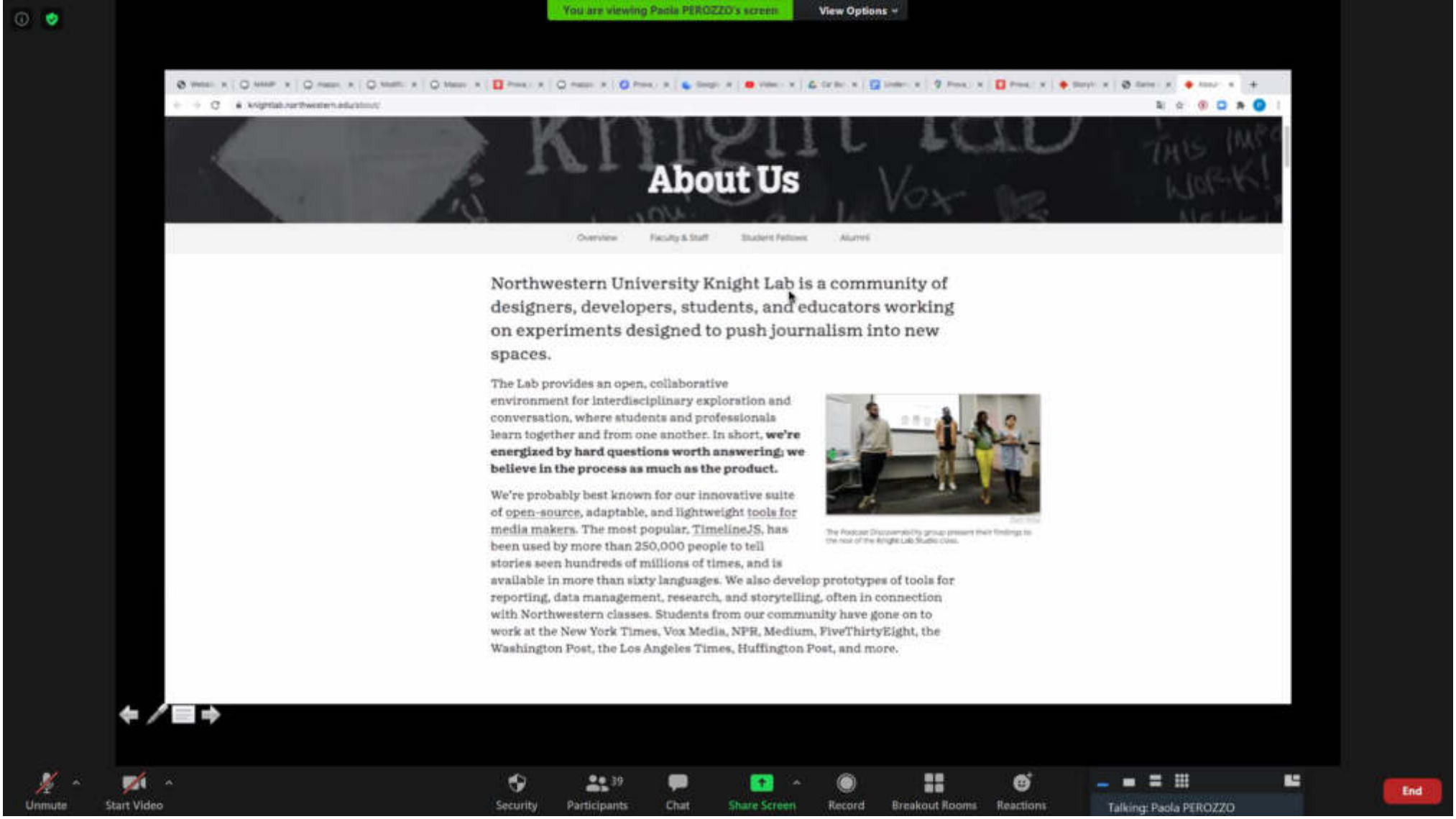

You are viewing Paola PEROZZO's screen
View Options
izi.TRAVEL CMS
UnderwaterMuseMap
Ljubljana
Zagabria
Venezia
Bologna
San Marino
Firenze
Unmute
Start Video
Security
Participants
38
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

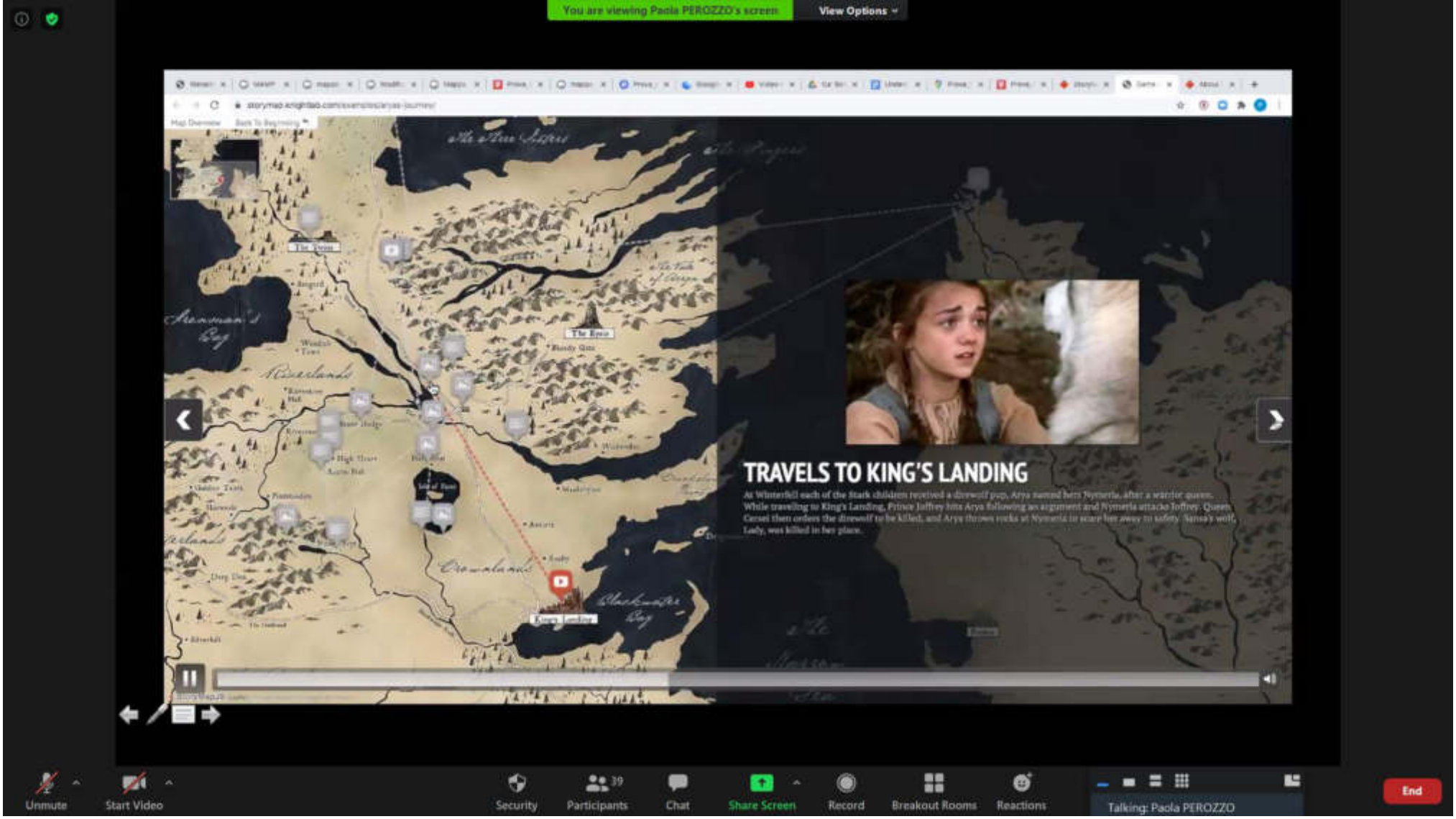

You are viewing Paola PEROZZO's screen
View Options
Posizioni_marker_underwater_Elisa
Ca' Ballarin
Unmute
Start Video
Security
Participants
38
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

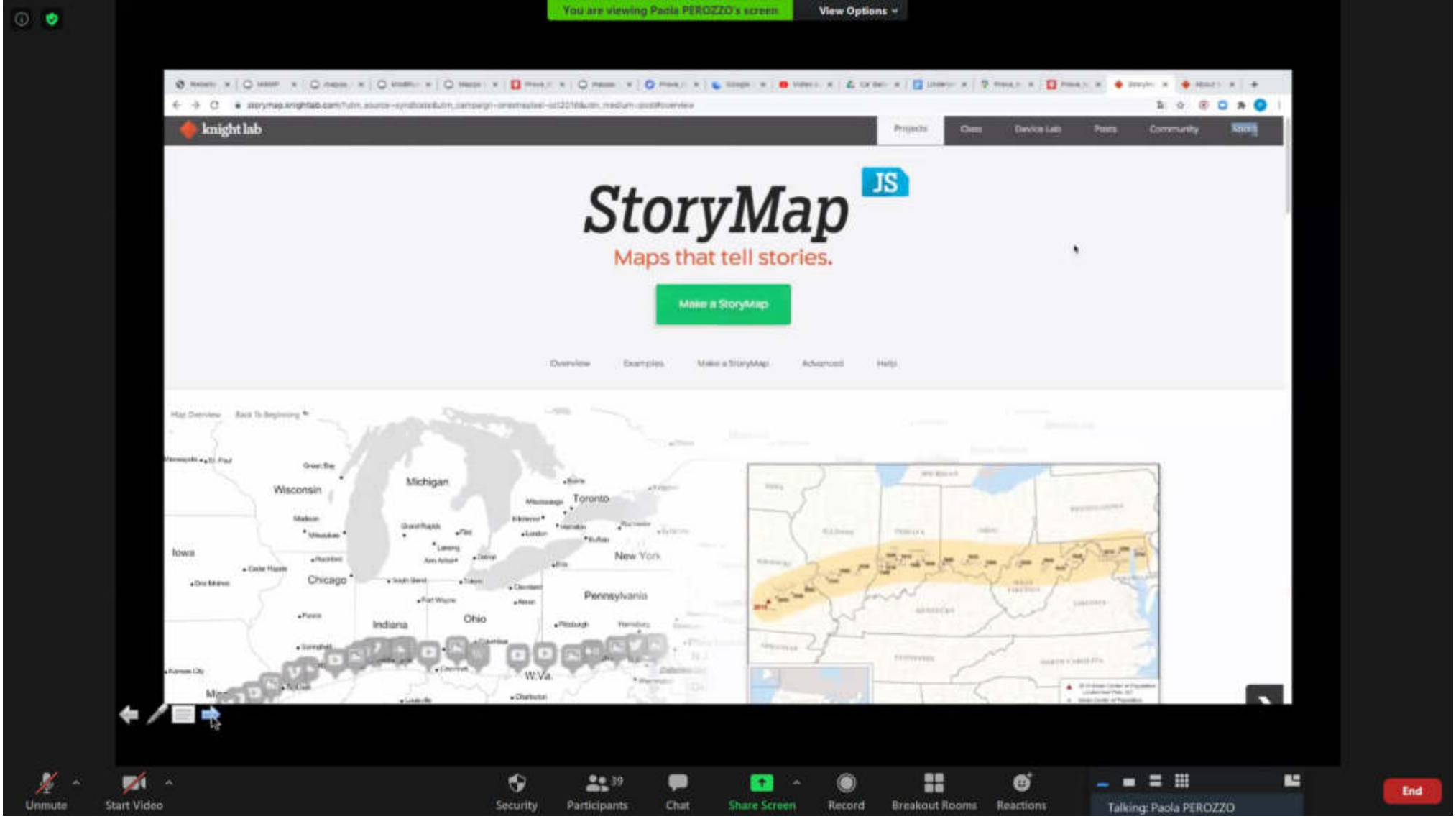

You are viewing Paola PEROZZO's screen
View Options
izi.TRAVEL CMS
1. Ca'Ballarin
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

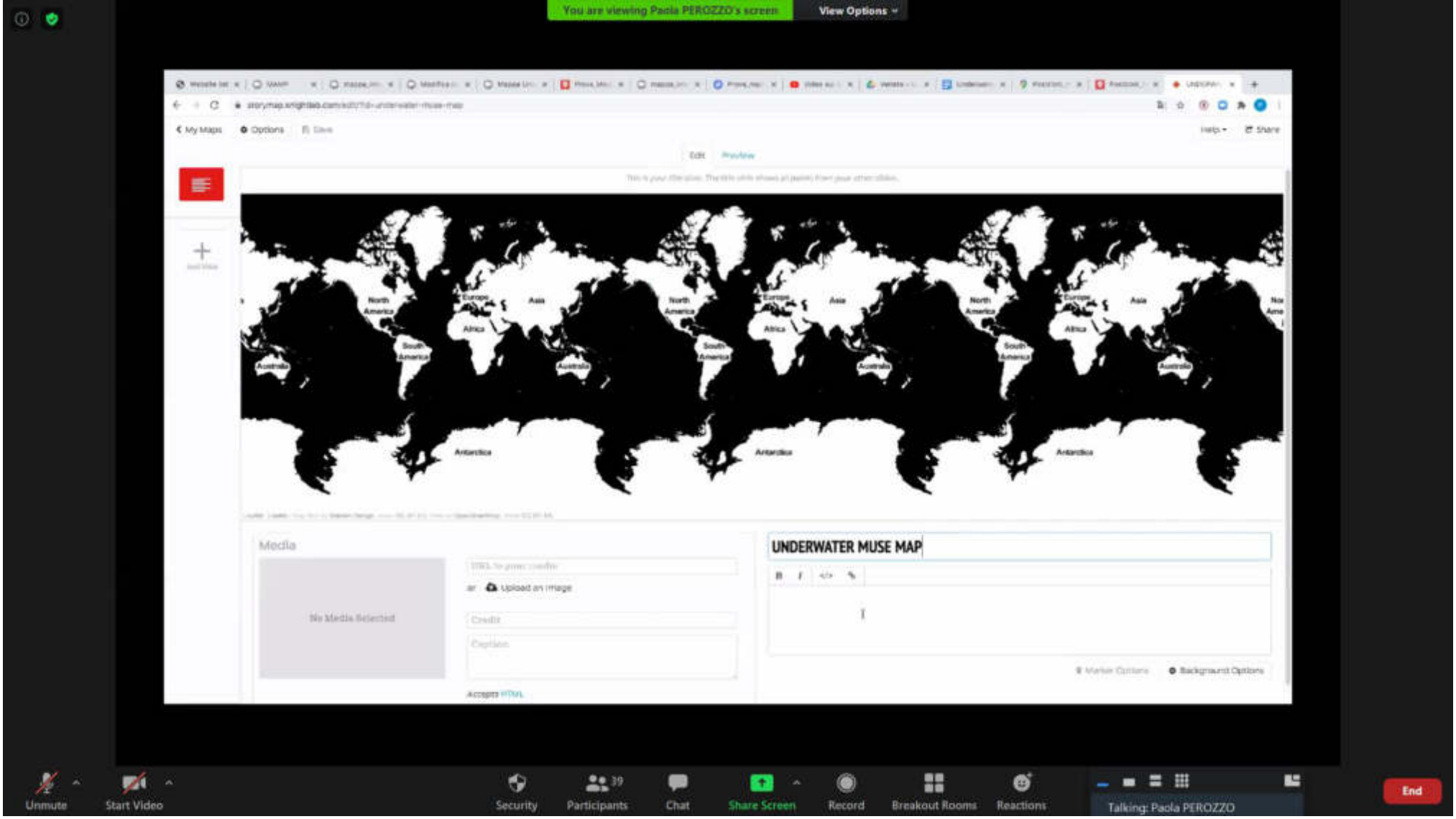

You are viewing Paola PEROZZO's screen
View Options
RECAP ABOUT IZI TRAVEL
Features
IZI TRAVEL
Available online
Yes but only in izi.travel/it or in mobile app
Customizable map
No
Customizable layout UI
No, fixed layout
Contents: Texts, Audios, Pictures, Videos
Yes, in particular audio guide
Contents: 3D models
No
Easy to share with partners to upload contents
Yes
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

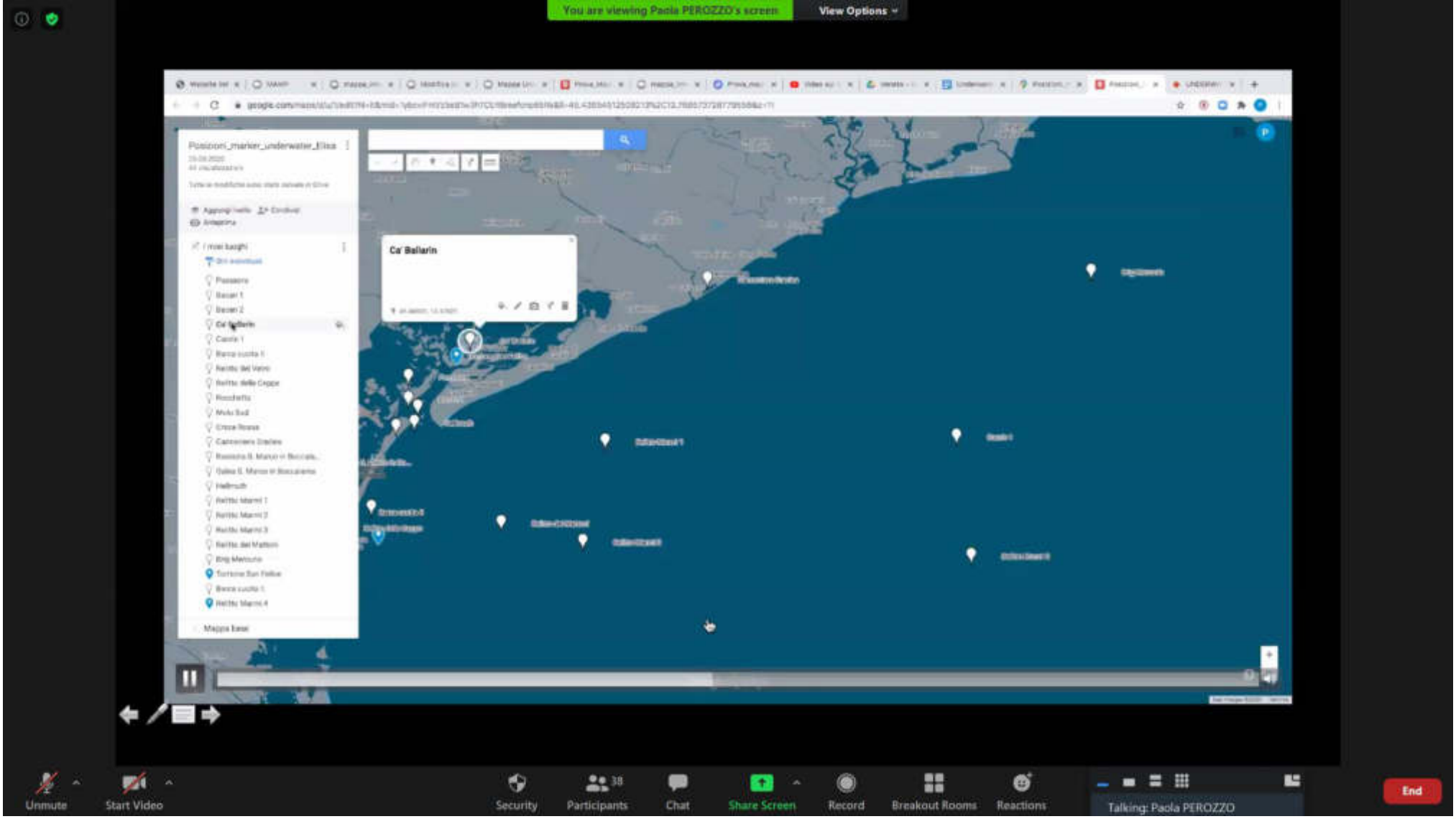

You are viewing Paola PEROZZO's screen
View Options
STORYMAP JS
4
Unmute
Start Video
Security
Participants
39
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

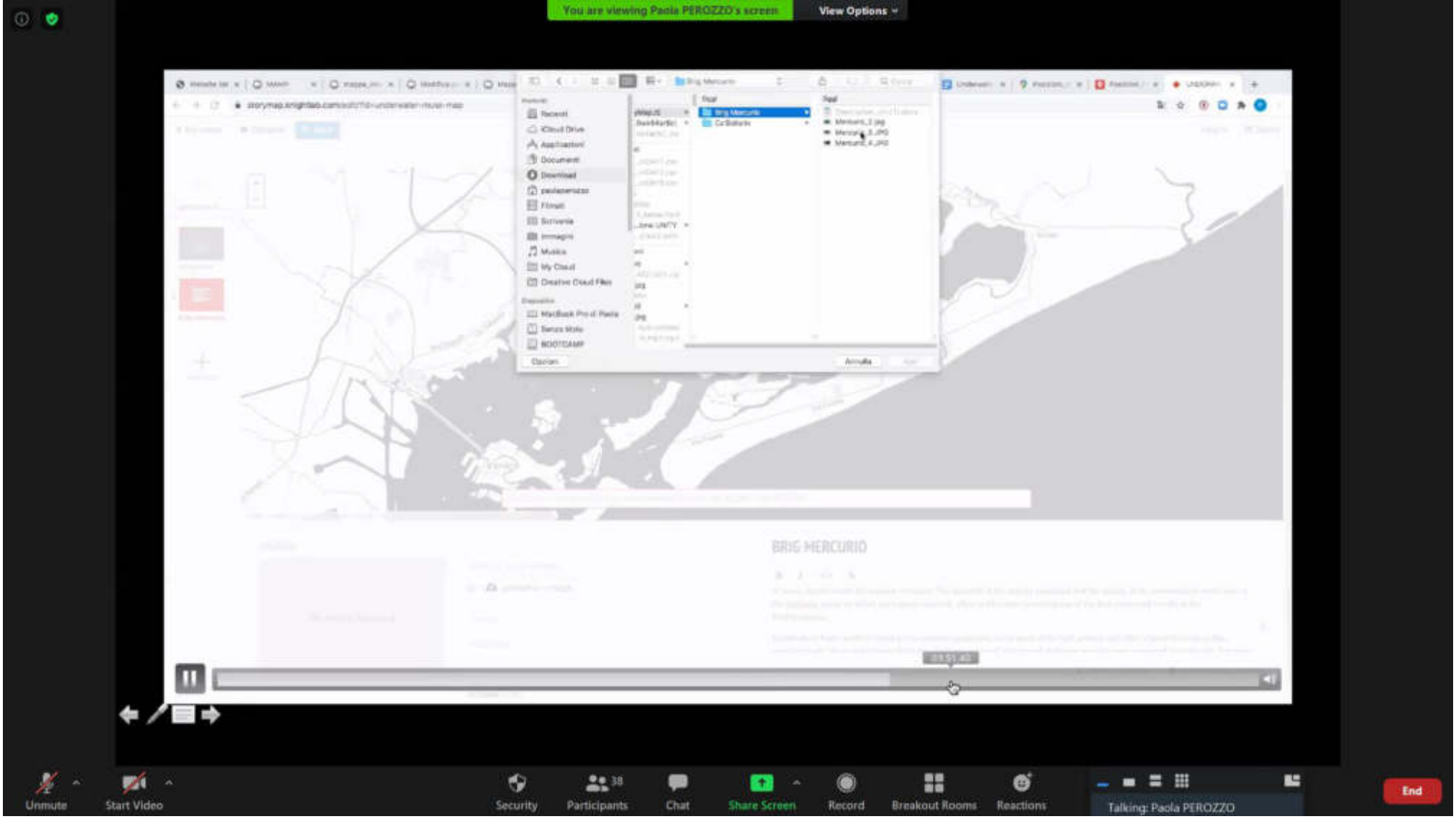

You are viewing Paola PEROZZO's screen
View Options
About Us
Overview
Faculty & Staff
Student Fellows
Alumni
Northwestern University Knight Lab is a community of designers, developers, students, and educators working on experiments designed to push journalism into new spaces.
The Lab provides an open, collaborative environment for interdisciplinary exploration and conversation, where students and professionals learn together and from one another. In short, we're energized by hard questions worth answering; we believe in the process as much as the product.
We're probably best known for our innovative suite of open-source, adaptable, and lightweight tools for media makers. The most popular, TimelineJS, has been used by more than 250,000 people to tell stories seen hundreds of millions of times, and is available in more than sixty languages. We also develop prototypes of tools for reporting, data management, research, and storytelling, often in connection with Northwestern classes. Students from our community have gone on to work at the New York Times, Vox Media, NPR, Medium, FiveThirtyEight, the Washington Post, the Los Angeles Times, Huffington Post, and more.
Unmute
Start Video
Security
Participants
39
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

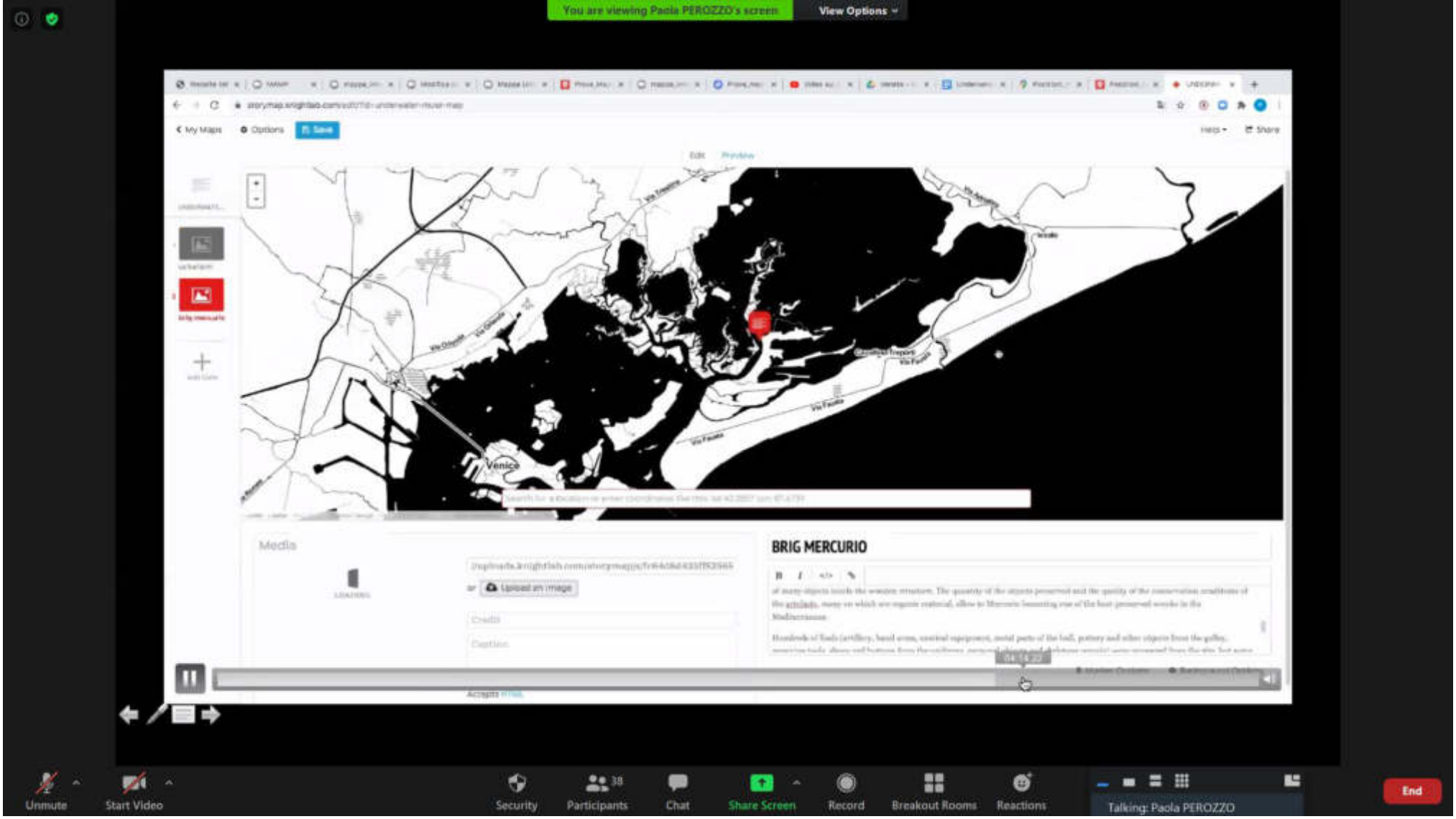

You are viewing Paola PEROZZO's screen
View Options
TRAVELS TO KING'S LANDING
Unmute
Start Video
Security
Participants
39
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

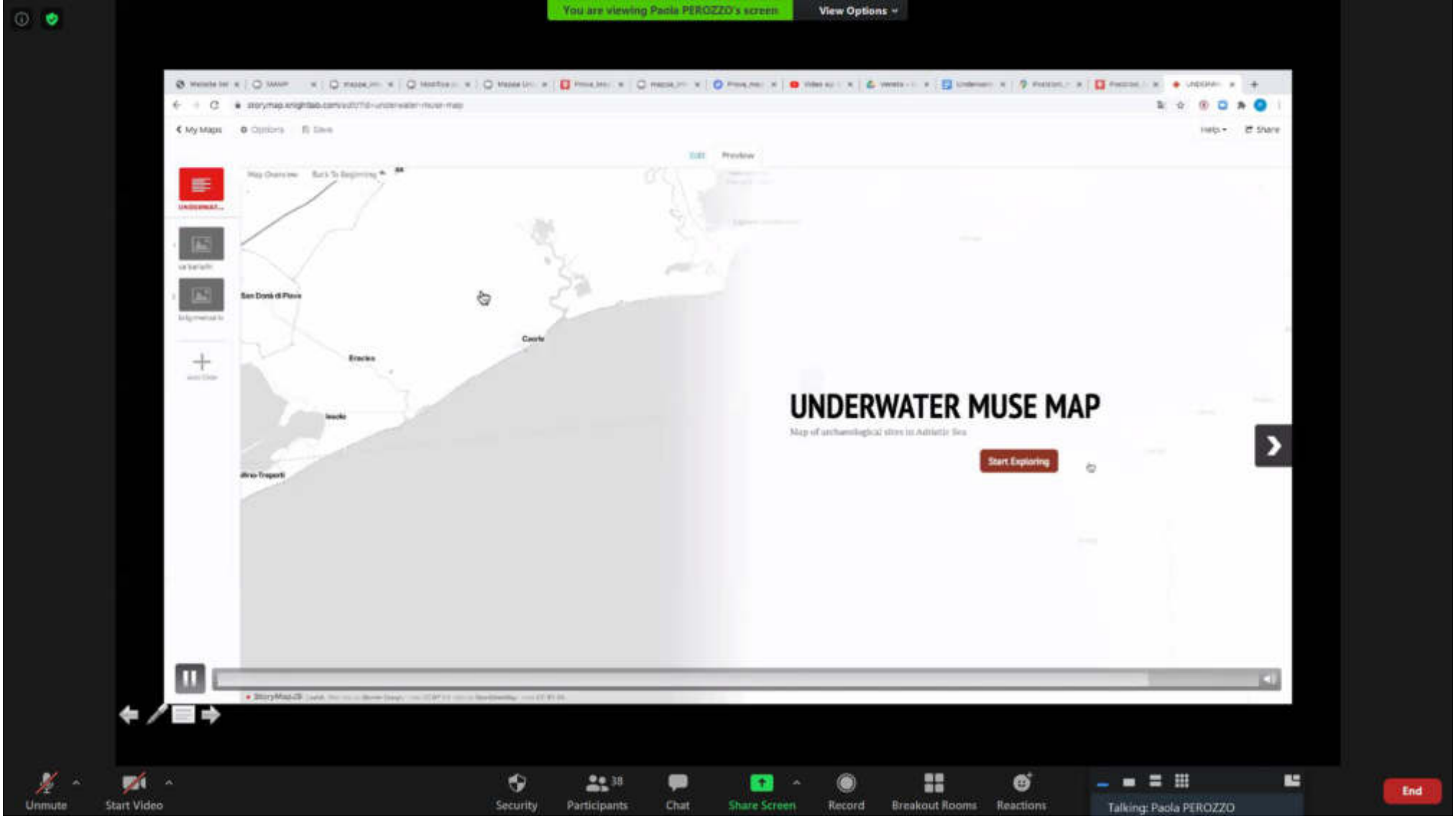

You are viewing Paola PEROZZO's screen
View Options
knight lab
Projects
Gallery
Device Lab
Posts
Community
StoryMap JS
Maps that tell stories.
Make a StoryMap
Overview
Examples
Make a StoryMap
Advanced
Help
Wisconsin
Michigan
Toronto
Iowa
Chicago
New York
Pennsylvania
Indiana
Ohio
W.Va.
Unmute
Start Video
Security
Participants
39
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End


You are viewing Paola PEROZZO's screen
View Options
My Maps
Options
Edit
Preview
North America
Europe
Asia
Africa
South America
Australia
Antarctica
Media
No Media Selected
Upload an image
UNDERWATER MUSE MAP
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

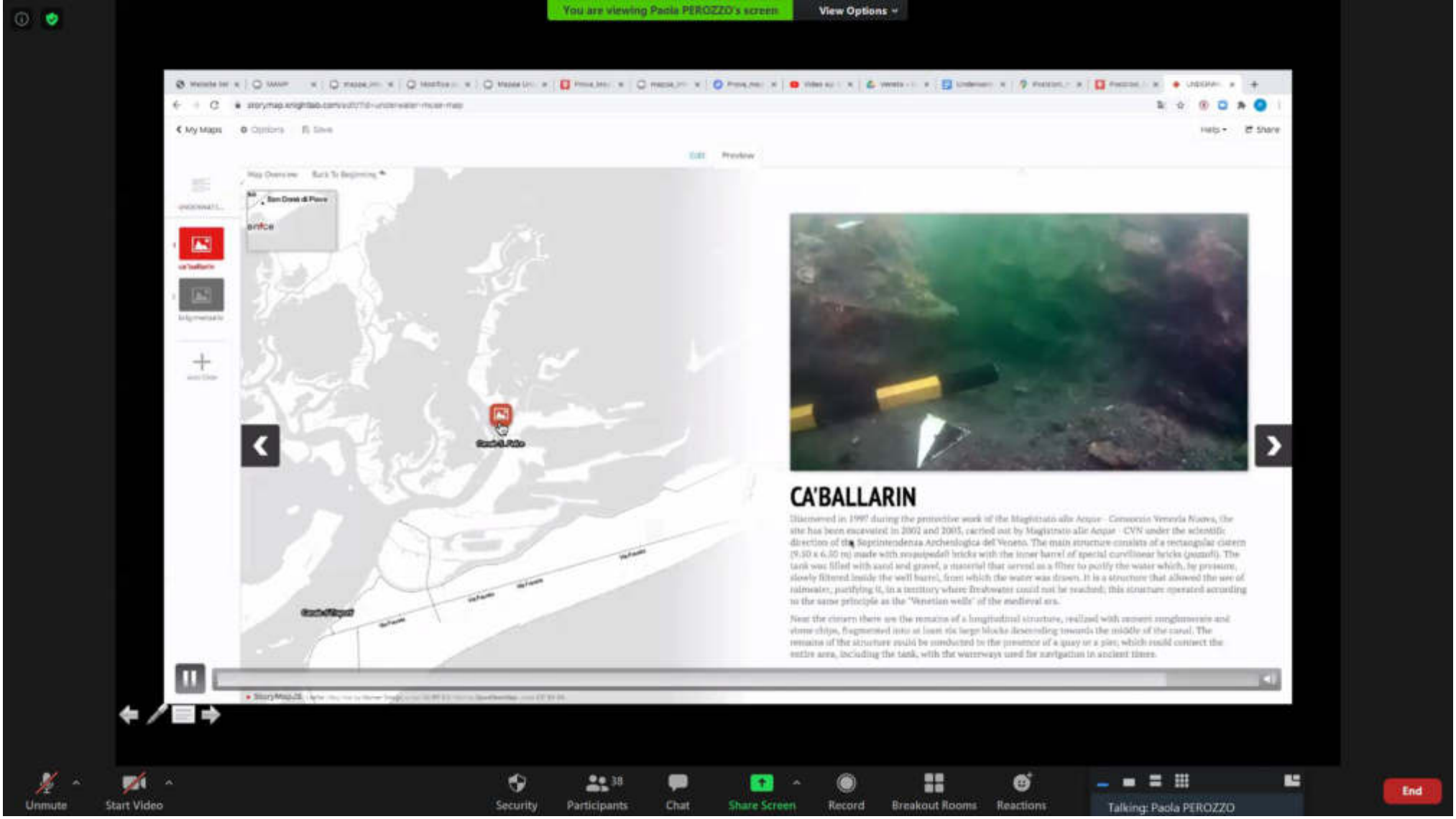

You are viewing Paola PEROZZO's screen
View Options
Posizioni_marker_underwater_Elisa
Ca' Ballarin
Unmute
Start Video
Security
Participants
38
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

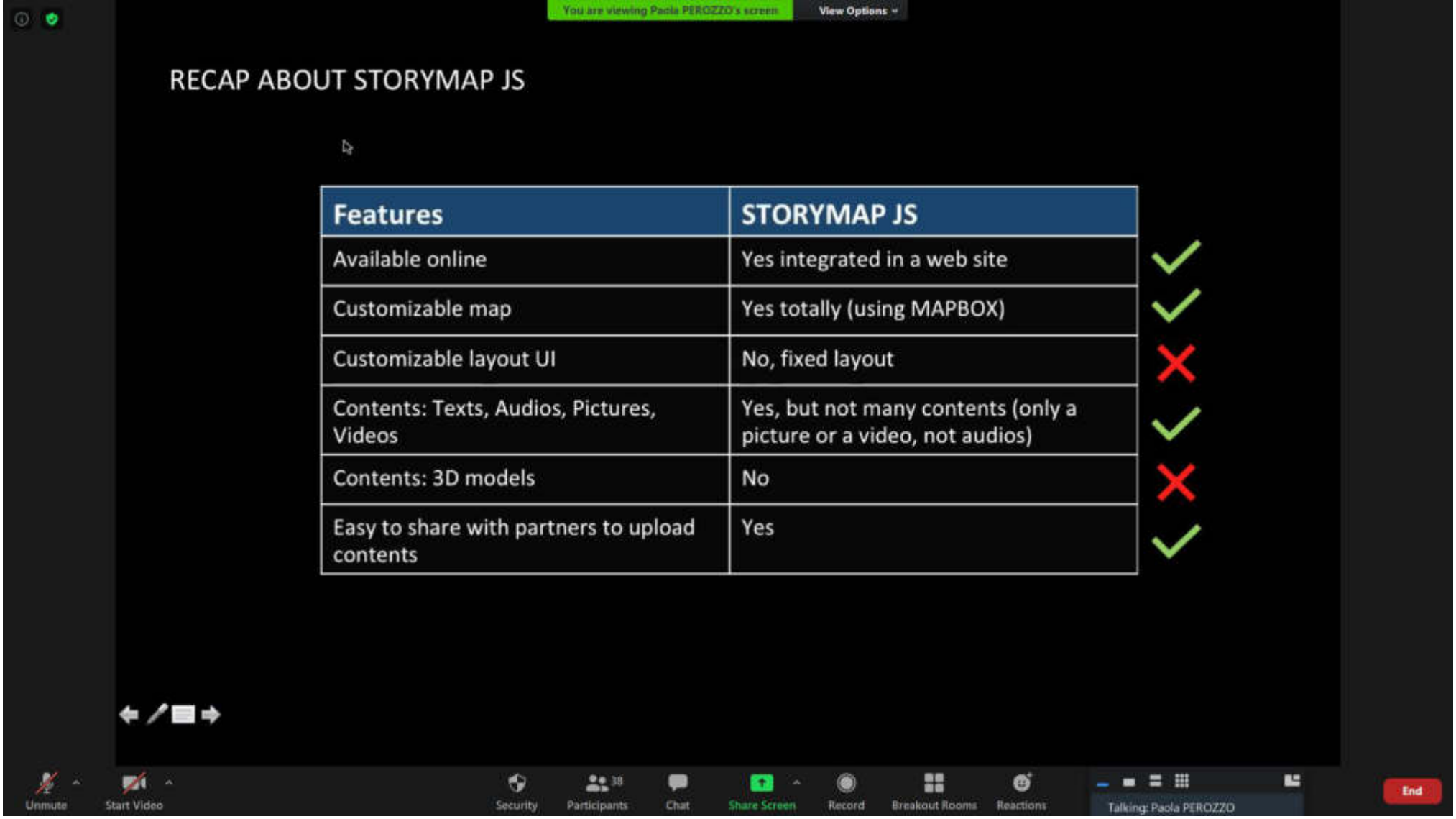

You are viewing Paola PEROZZO's screen
View Options
BRIG MERCURIO
Unmute
Start Video
Security
Participants
38
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

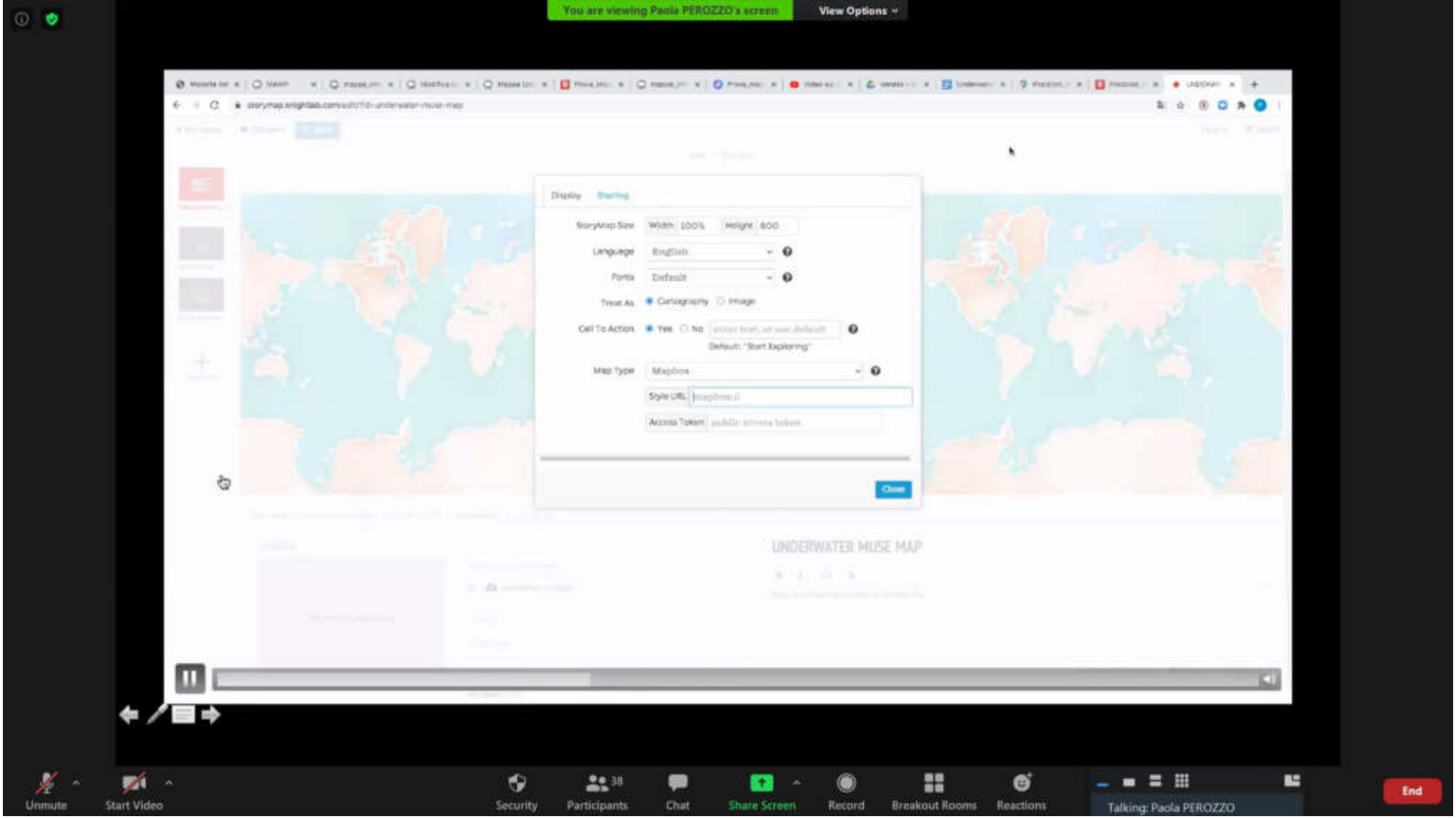

You are viewing Paola PEROZZO's screen
View Options
My Maps
Options
Save
Help
Share
Edit
Preview
Venice
Media
BRIG MERCURIO
Upload an image
Unmute
Start Video
Security
Participants
38
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

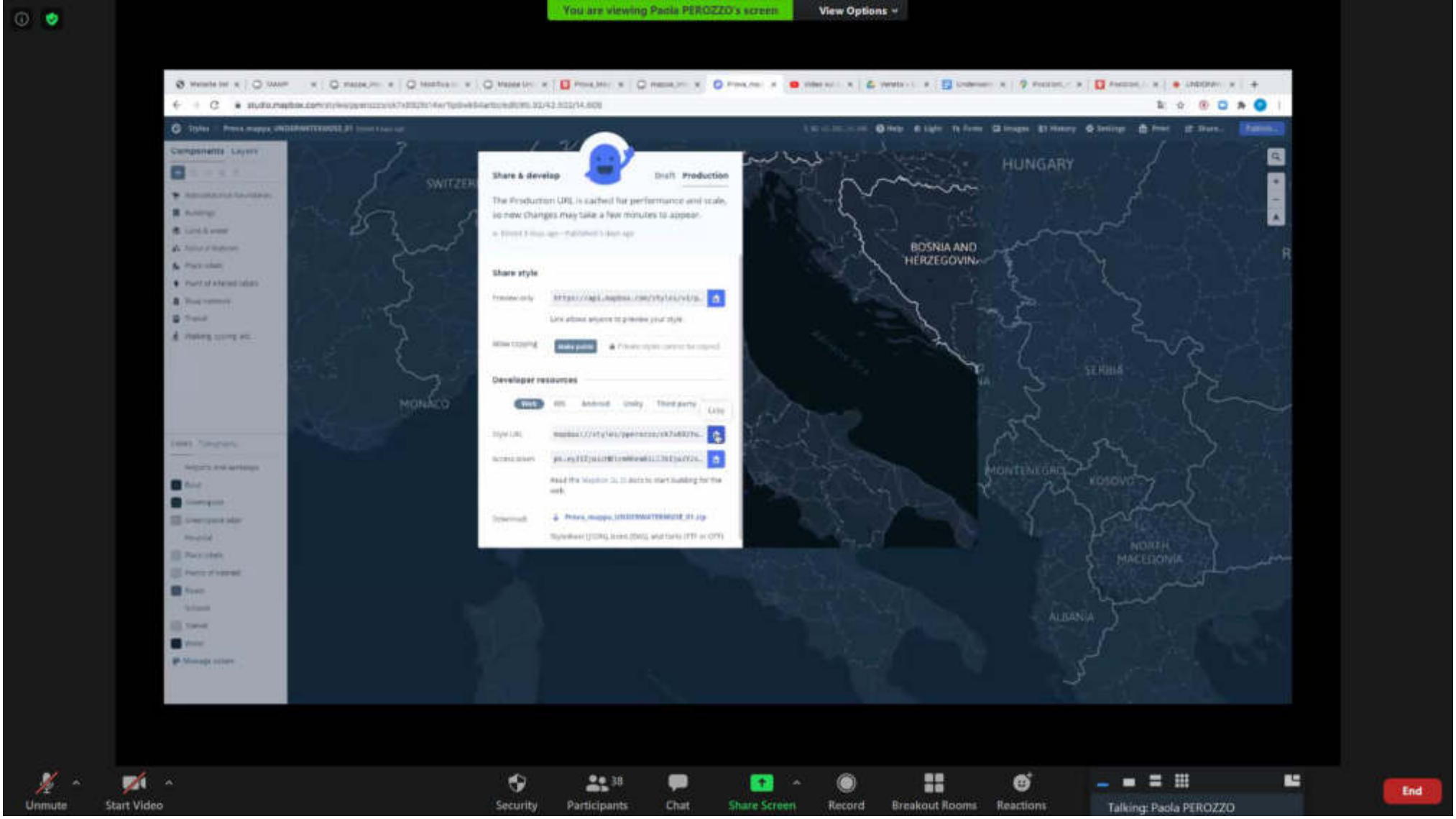


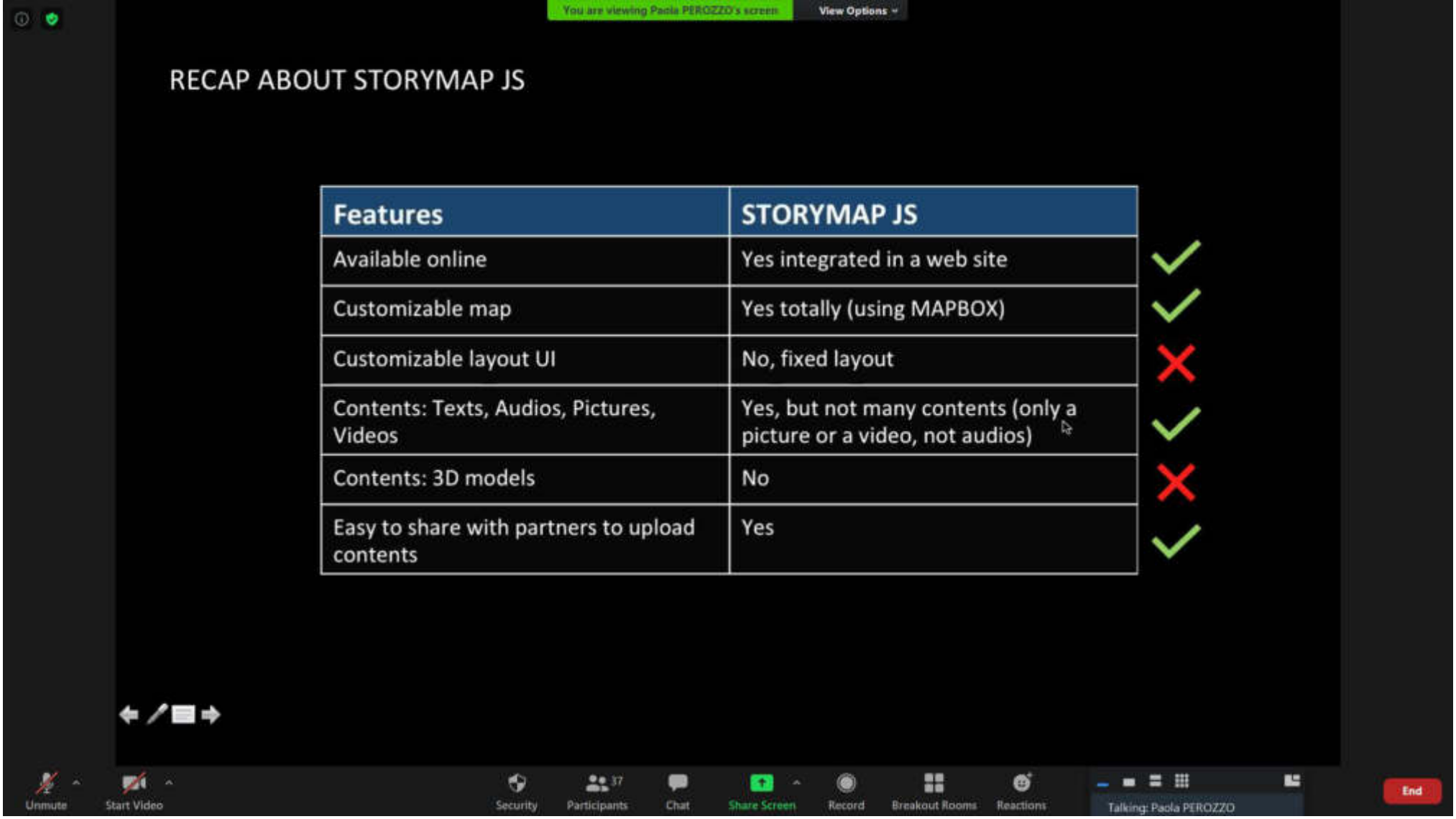
Interreg Italy - Croatia UnderwaterMuse
European Regional Development Fund
EUROPEAN UNION


You are viewing Paola PEROZZO's screen
View Options
My Maps
Options
Share
Edit
Preview
CA'BALLARIN
Unmute
Start Video
Security
Participants
38
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End


You are viewing Paola PEROZZO's screen
View Options
RECAP ABOUT STORYMAP JS
Features
STORYMAP JS
Available online
Yes integrated in a web site
Customizable map
Yes totally (using MAPBOX)
Customizable layout UI
No, fixed layout
Contents: Texts, Audios, Pictures, Videos
Yes, but not many contents (only a picture or a video, not audios)
Contents: 3D models
No
Easy to share with partners to upload contents
Yes
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End


You are viewing Paola PEROZZO's screen
View Options
Display
Sharing
StoryMap Size
Width 100%
Height 800
Language
English
Fonts
Default
Treat As
Cartography
Image
Call To Action
Yes
No
Default: "Start Exploring"
Map Type
Mapbox
Style URL
Access Token
Close
UNDERWATER MUSE MAP
Unmute
Start Video
Security
Participants
38
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End


You are viewing Paola PEROZZO's screen
View Options
Share & develop
Draft
Production
The Production URL is cached for performance and scale, so new changes may take a few minutes to appear.
Share style
Developer resources
HUNGARY
BOSNIA AND HERZEGOVIN
SERBIA
MONTENEGRO
KOSOVO
NORTH MACEDONIA
ALBANIA
MONACO
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End


You are viewing Paola PEROZZO's screen
View Options
RECAP ABOUT STORYMAP JS
Features
STORYMAP JS
Available online
Yes integrated in a web site
Customizable map
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Customizable layout UI
No, fixed layout
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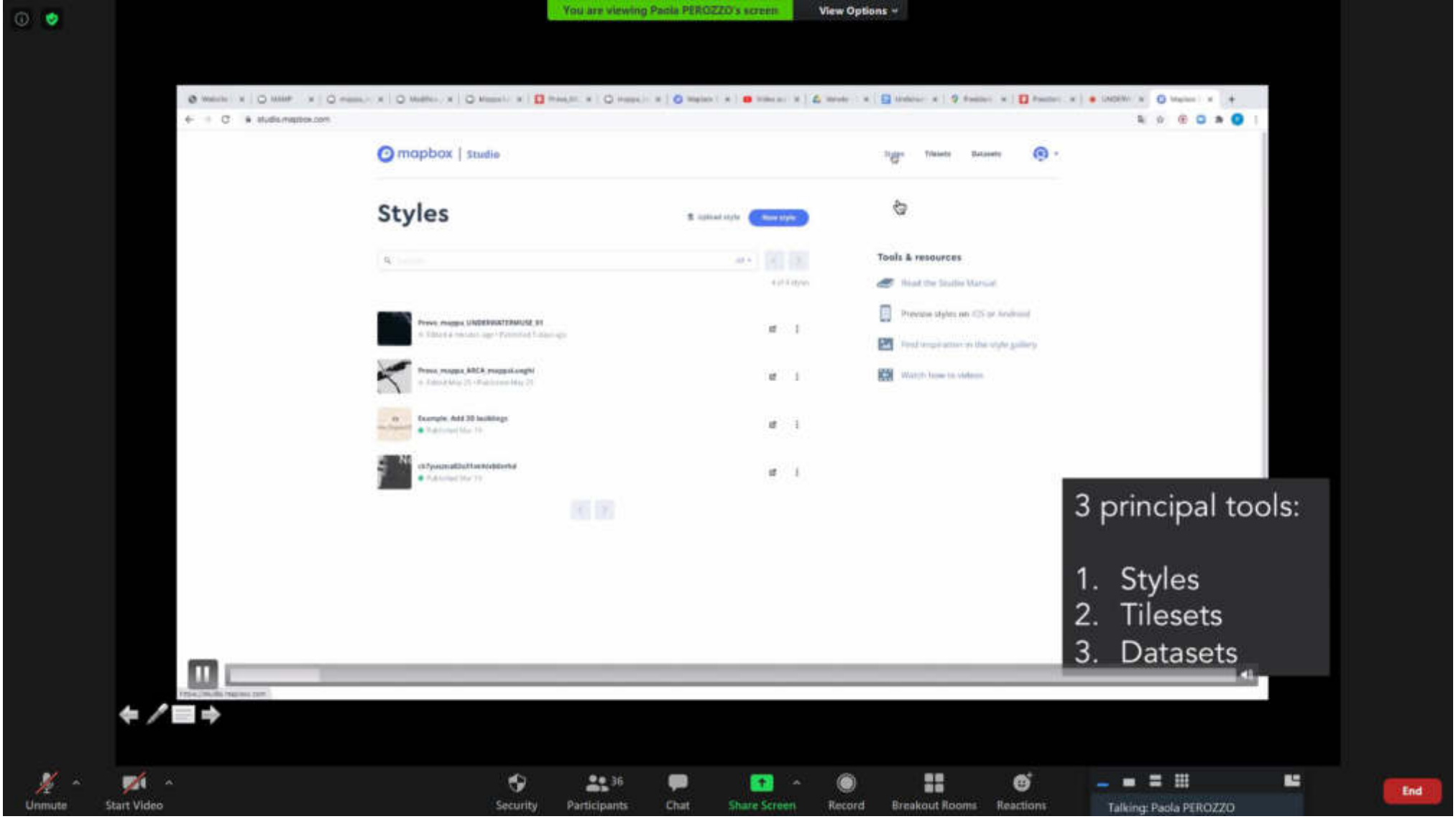
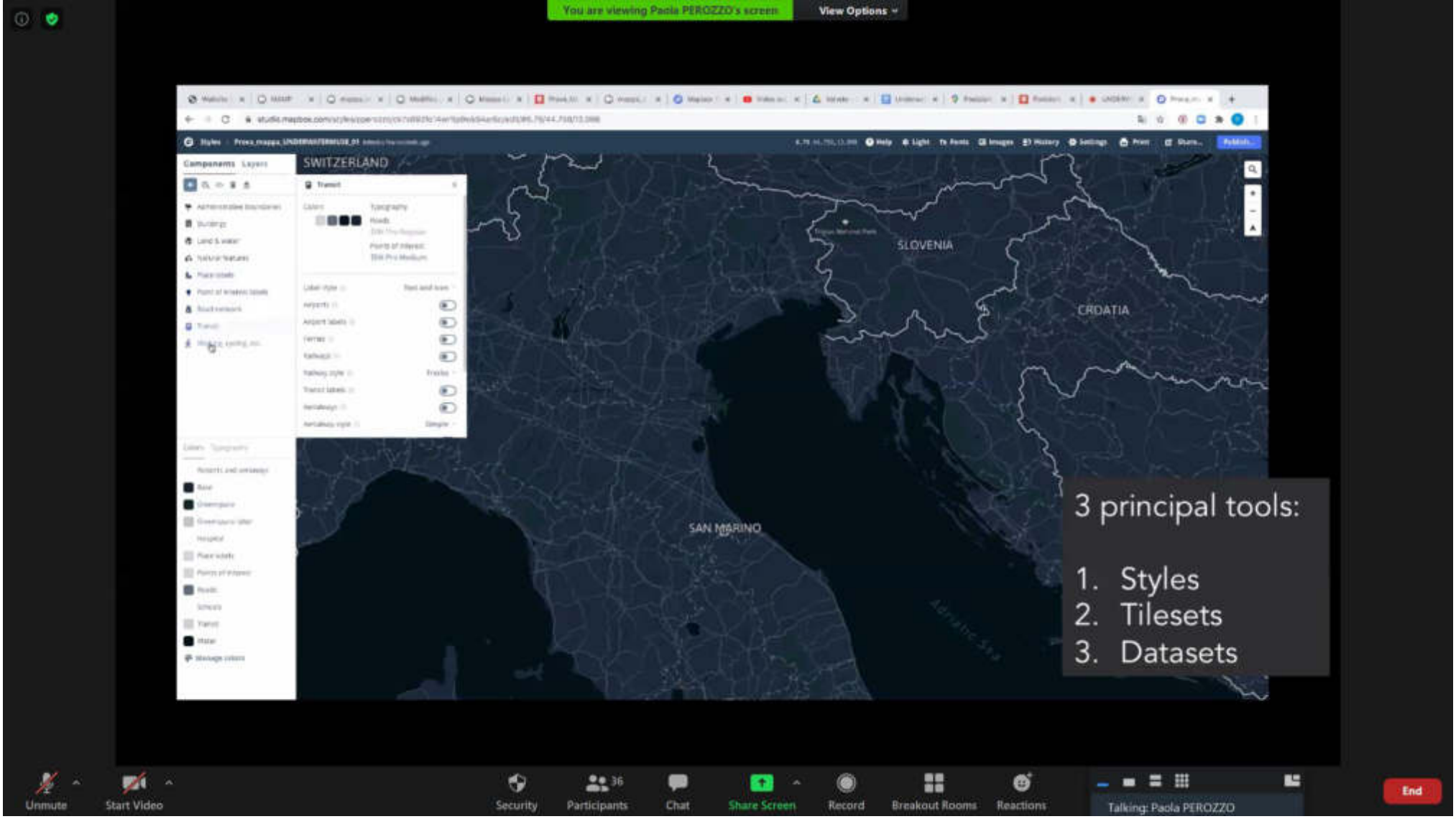
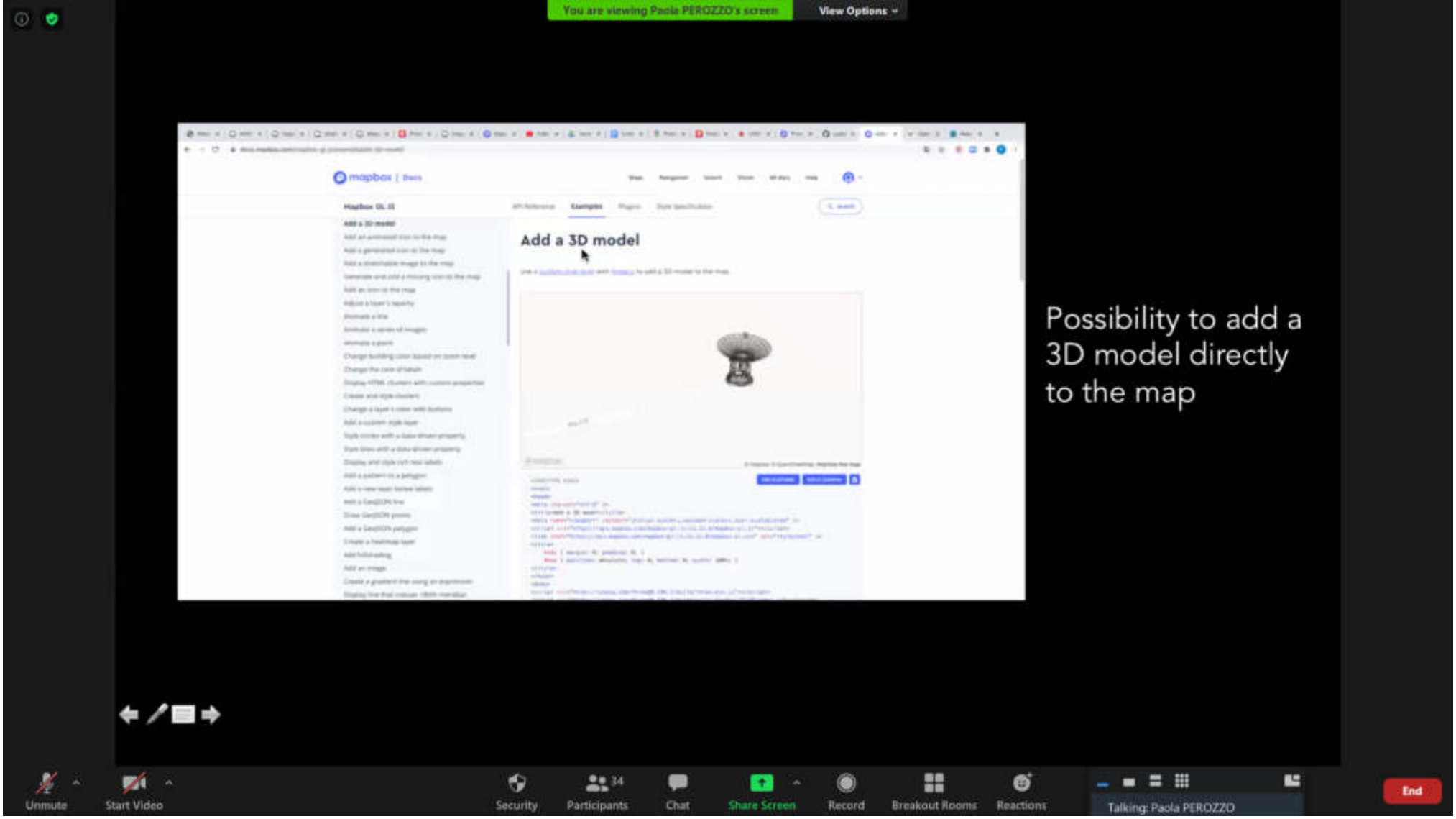
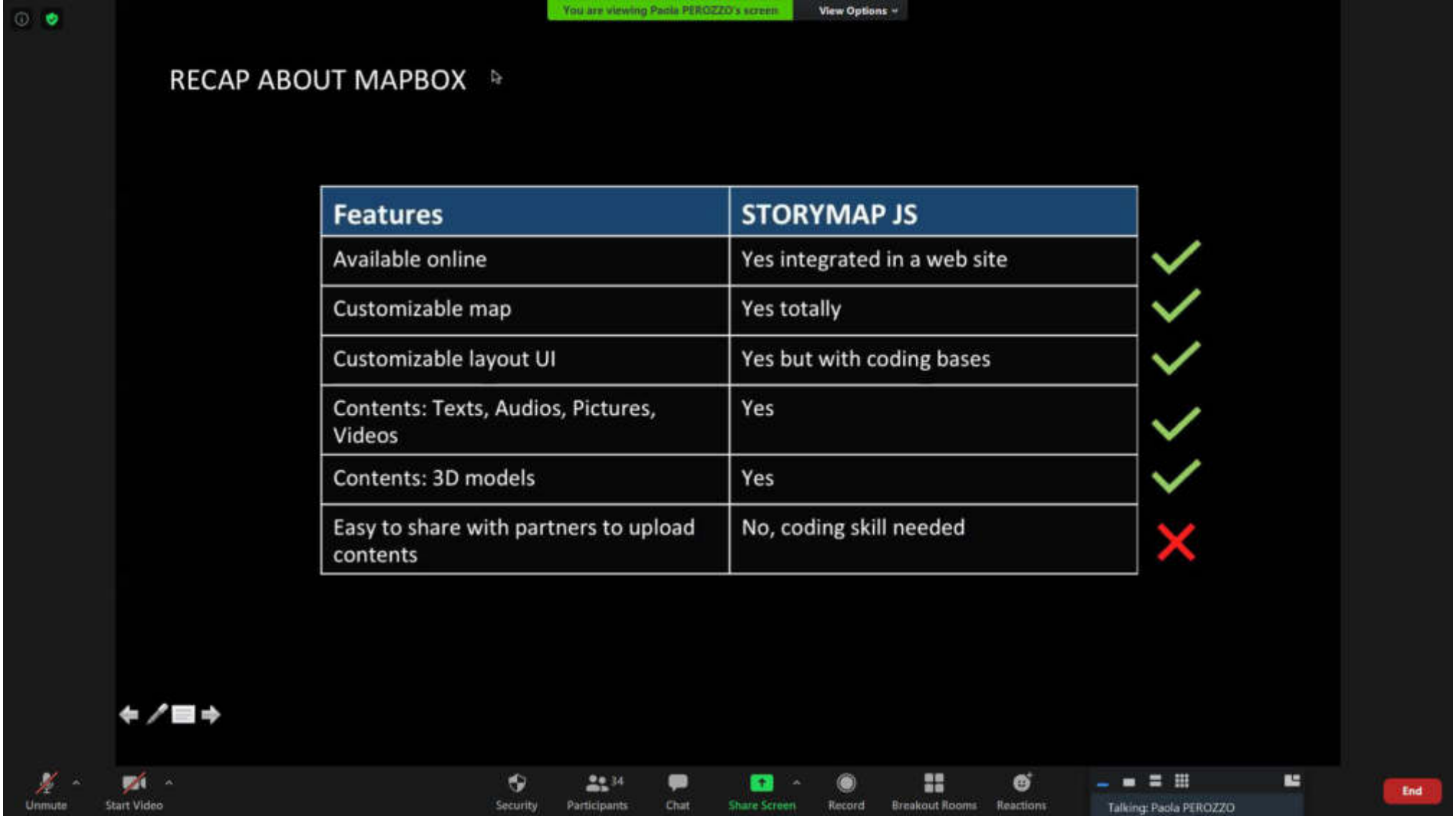
Contents: 3D models
No
Easy to share with partners to upload contents
Yes
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

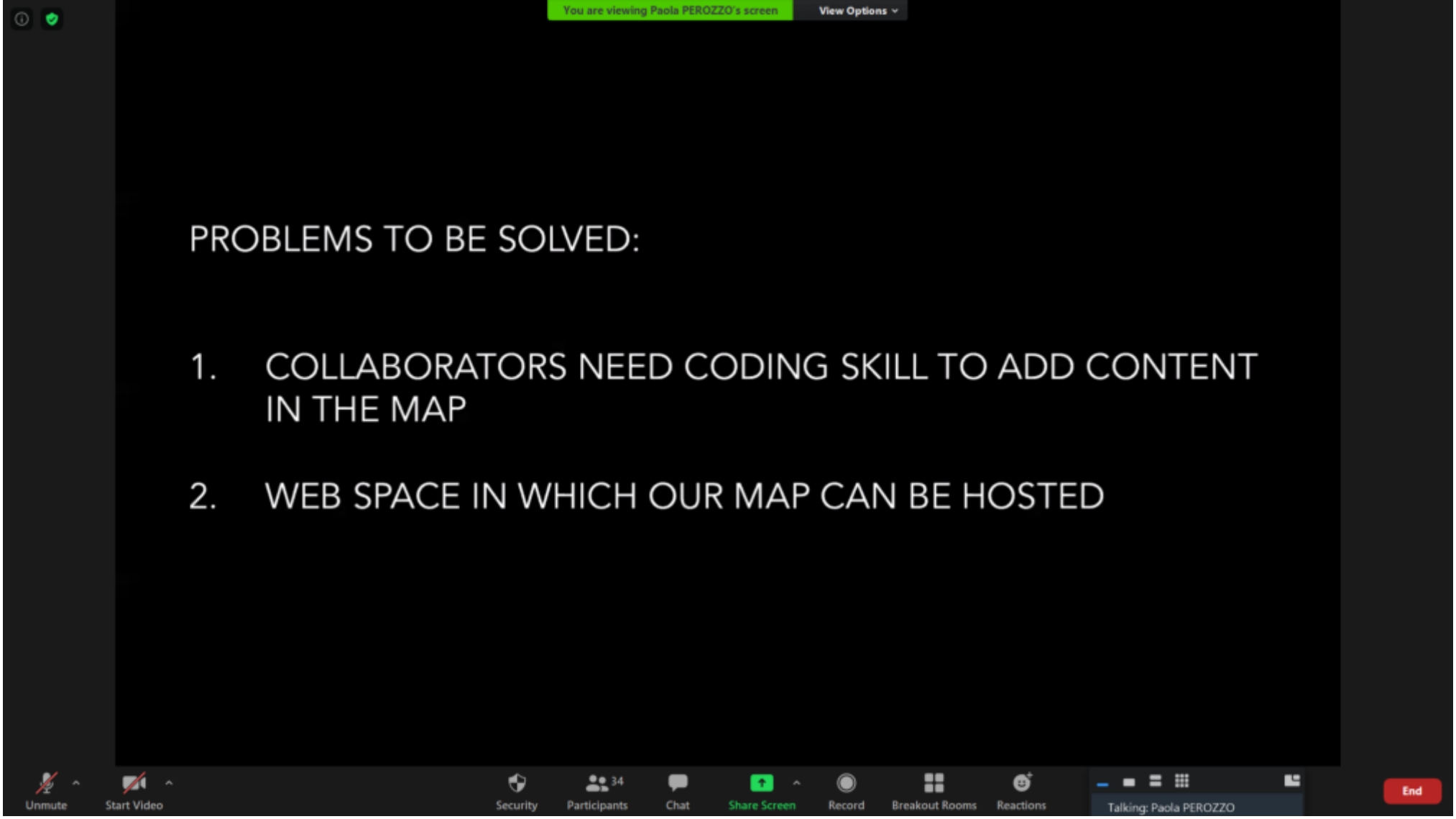

You are viewing Paola PEROZZO's screen
View Options
MAPBOX
5
Unmute
Start Video
Security
Participants
37
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

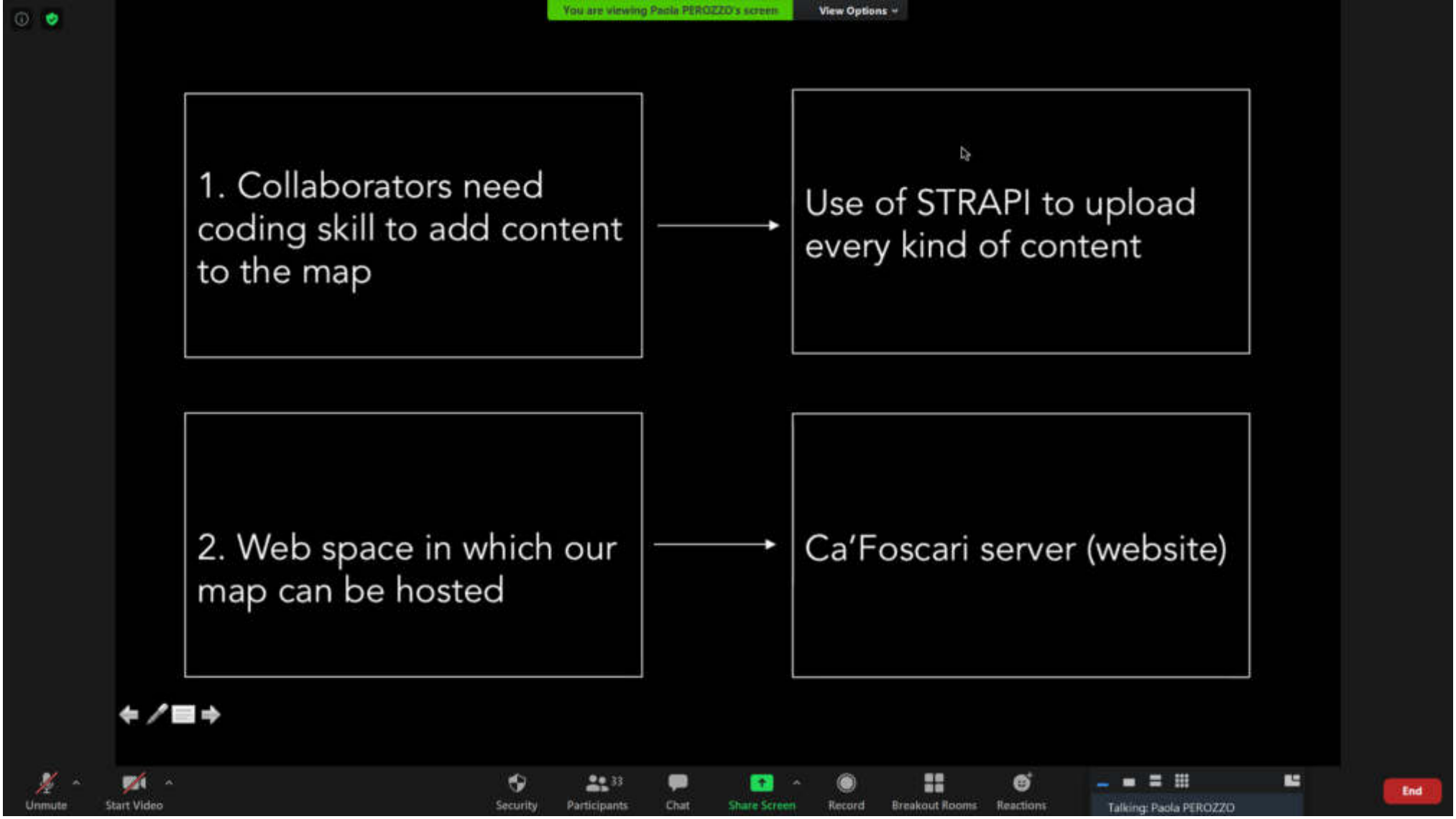

You are viewing Paola PEROZZO's screen
View Options
mapbox | Studio
Styles
Tools & resources
3 principal tools:
1. Styles
2. Tilesets
3. Datasets
Unmute
Start Video
Security
Participants
36
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

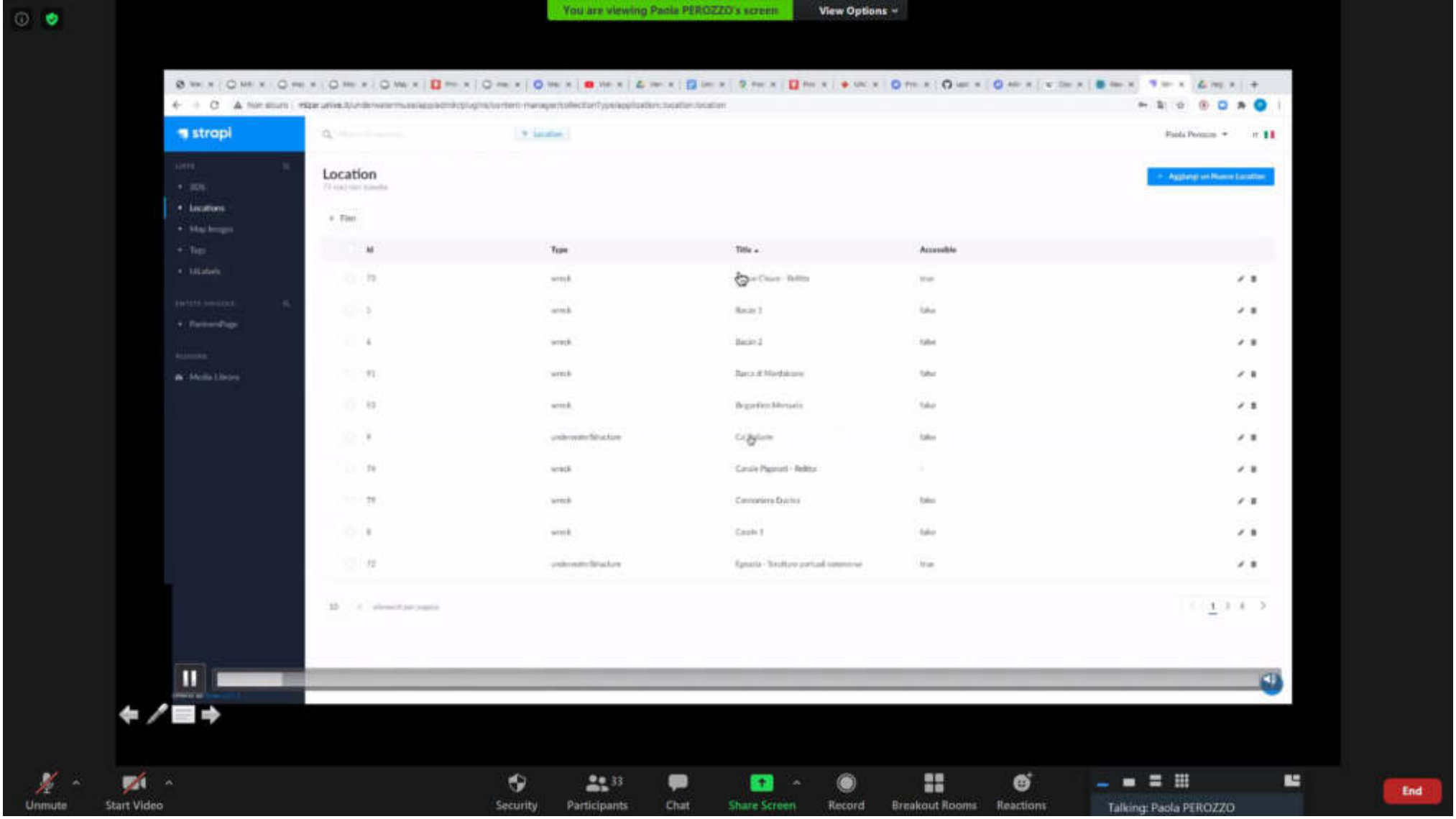

You are viewing Paola PEROZZO's screen
View Options
SWITZERLAND
SLOVENIA
CROATIA
SAN MARINO
3 principal tools:
1. Styles
2. Tilesets
3. Datasets
Unmute
Start Video
Security
Participants
36
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

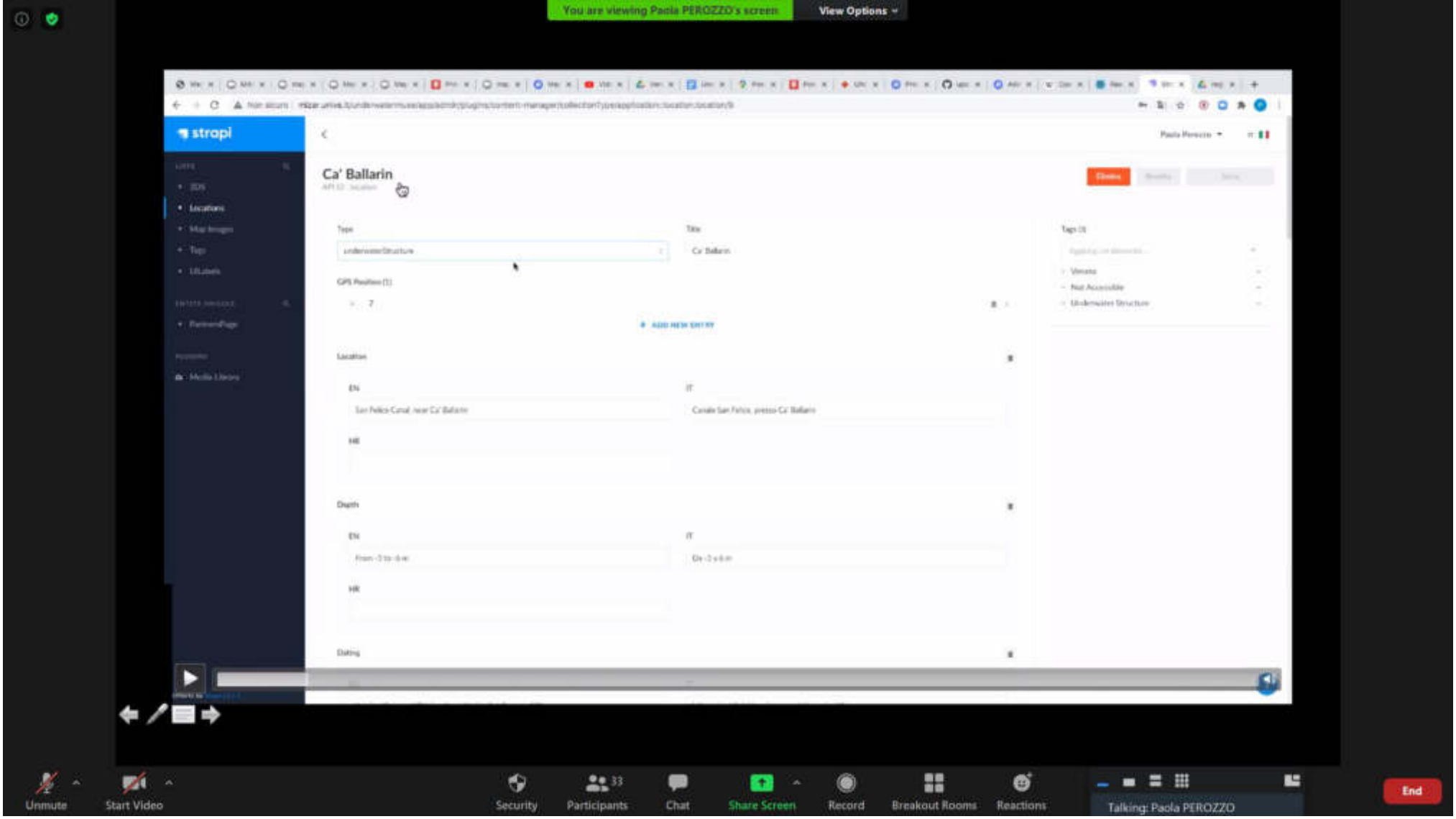

You are viewing Paola PEROZZO's screen
View Options
mapbox | Docs
Add a 3D model
Possibility to add a 3D model directly to the map
Unmute
Start Video
Security
Participants
34
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

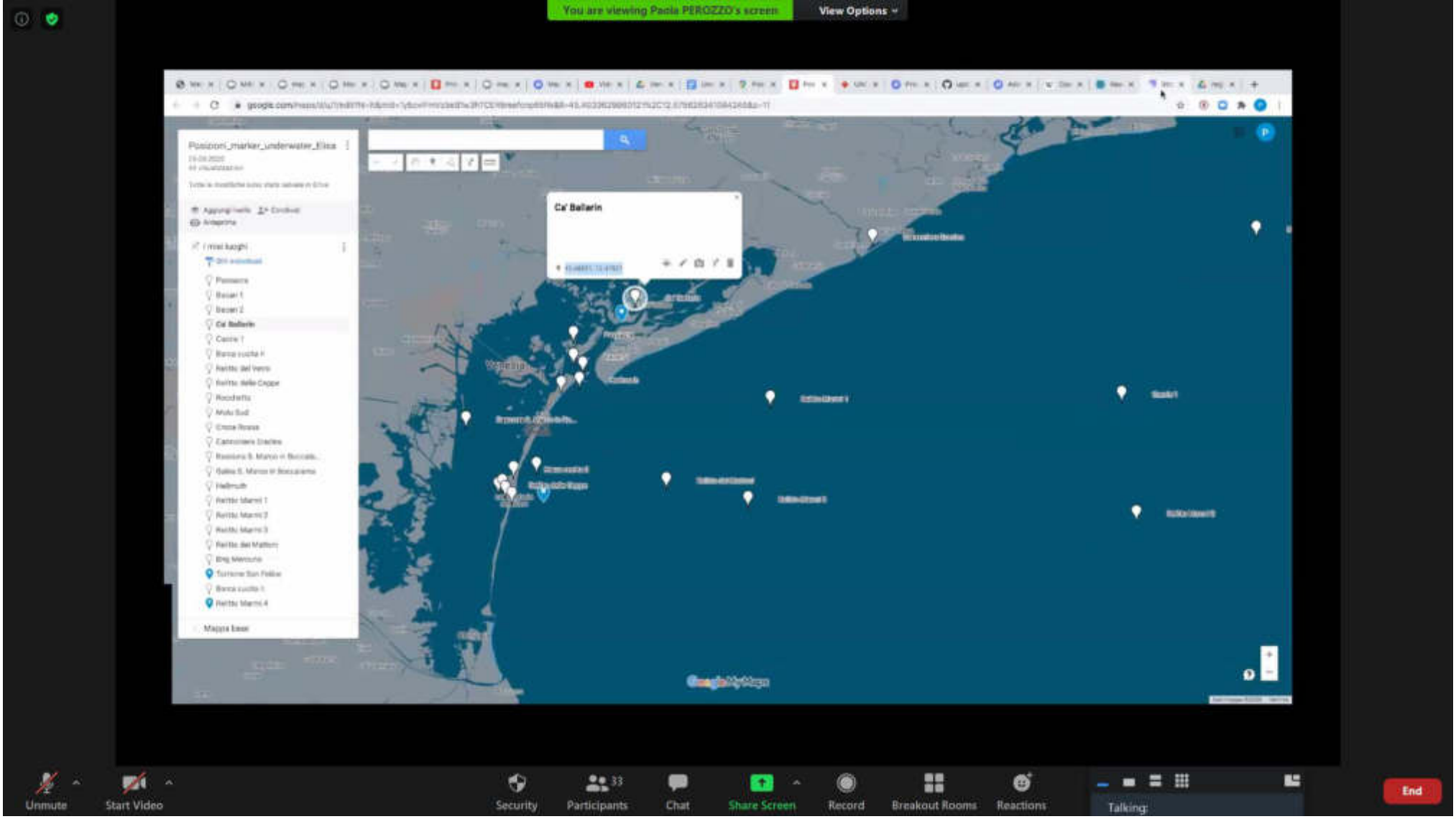

You are viewing Paola PEROZZO's screen
View Options
RECAP ABOUT MAPBOX
Features
STORYMAP JS
Available online
Yes integrated in a web site
Customizable map
Yes totally
Customizable layout UI
Yes but with coding bases
Contents: Texts, Audios, Pictures, Videos
Yes
Contents: 3D models
Yes
Easy to share with partners to upload contents
No, coding skill needed
Unmute
Start Video
Security
Participants
34
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

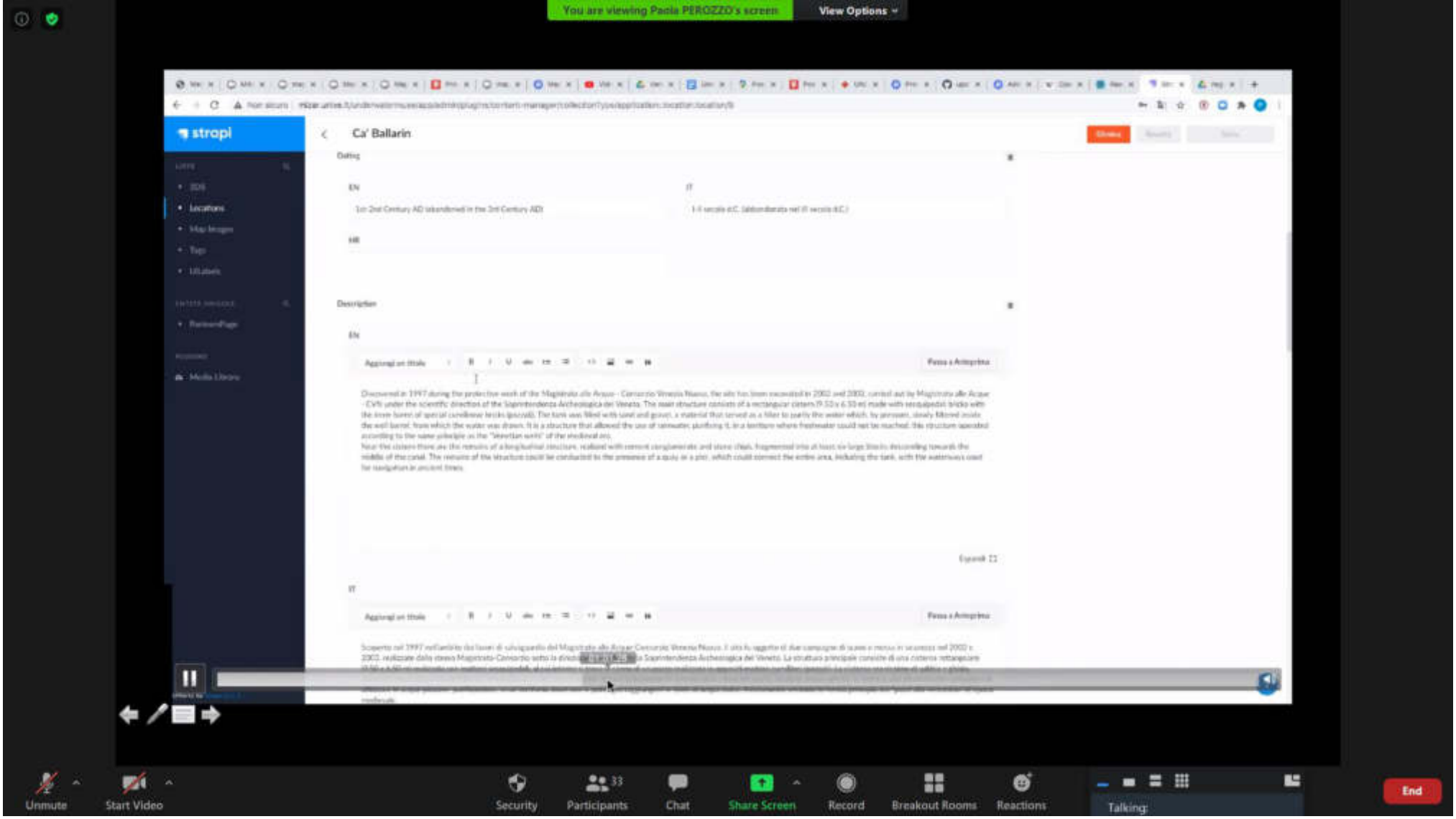

You are viewing Paola PEROZZO's screen
View Options
PROBLEMS TO BE SOLVED:
1. COLLABORATORS NEED CODING SKILL TO ADD CONTENT IN THE MAP
2. WEB SPACE IN WHICH OUR MAP CAN BE HOSTED
Unmute
Start Video
Security
Participants
34
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

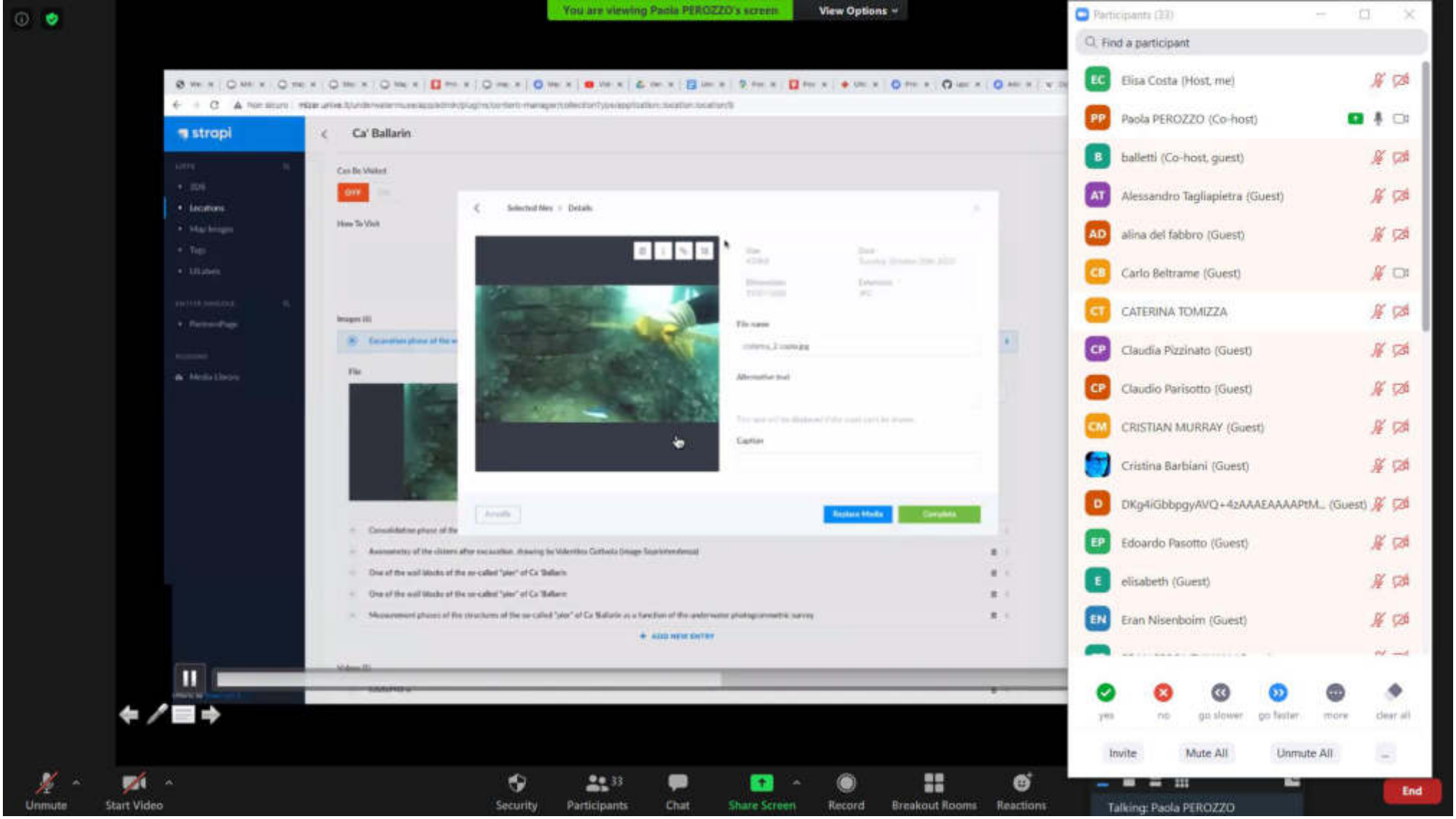

You are viewing Paola PEROZZO's screen
View Options
1. Collaborators need coding skill to add content to the map
Use of STRAPI to upload every kind of content
2. Web space in which our map can be hosted
Ca'Foscari server (website)
Unmute
Start Video
Security
Participants
33
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

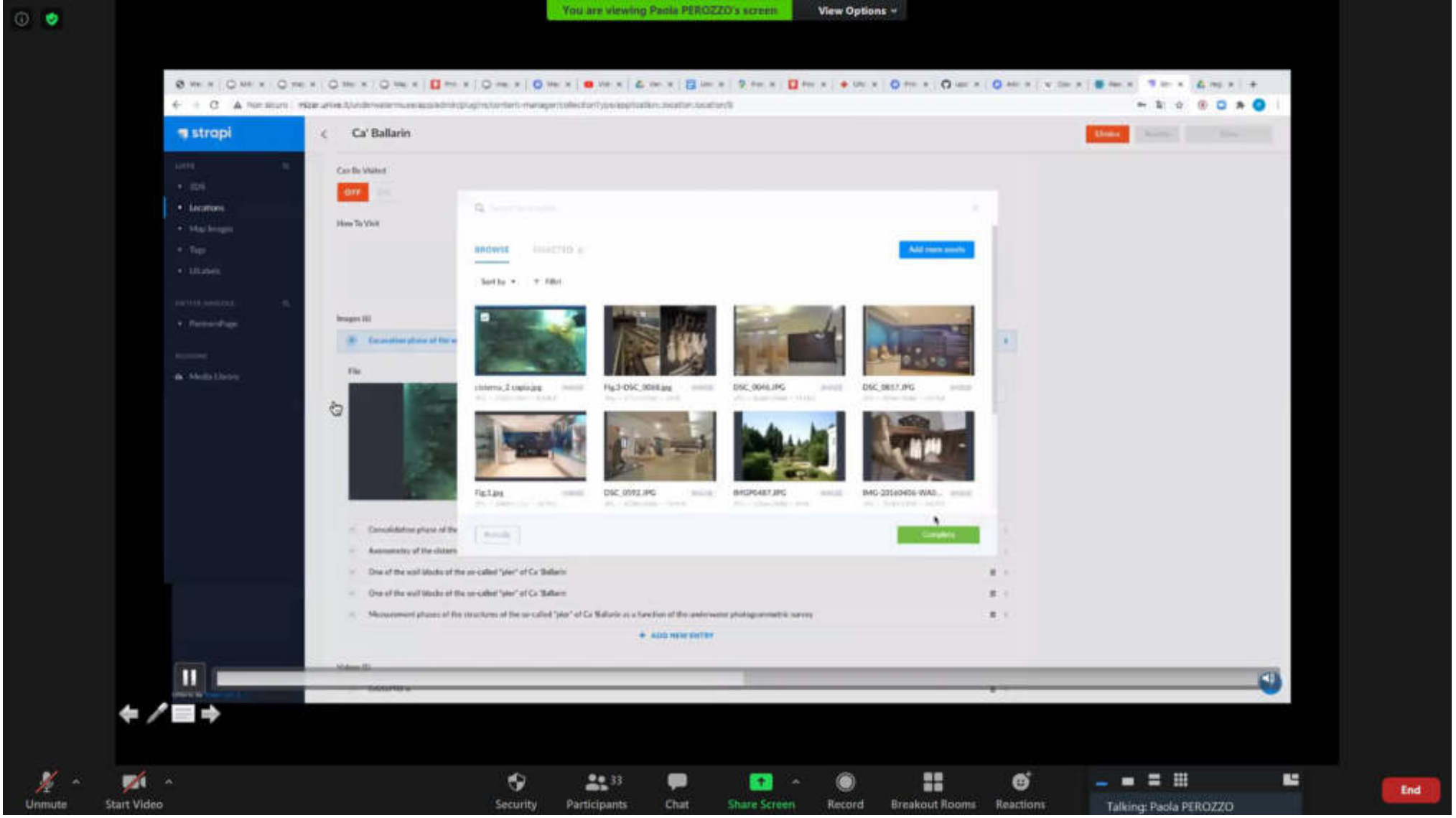

You are viewing Paola PEROZZO's screen
View Options
strapi
Location
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

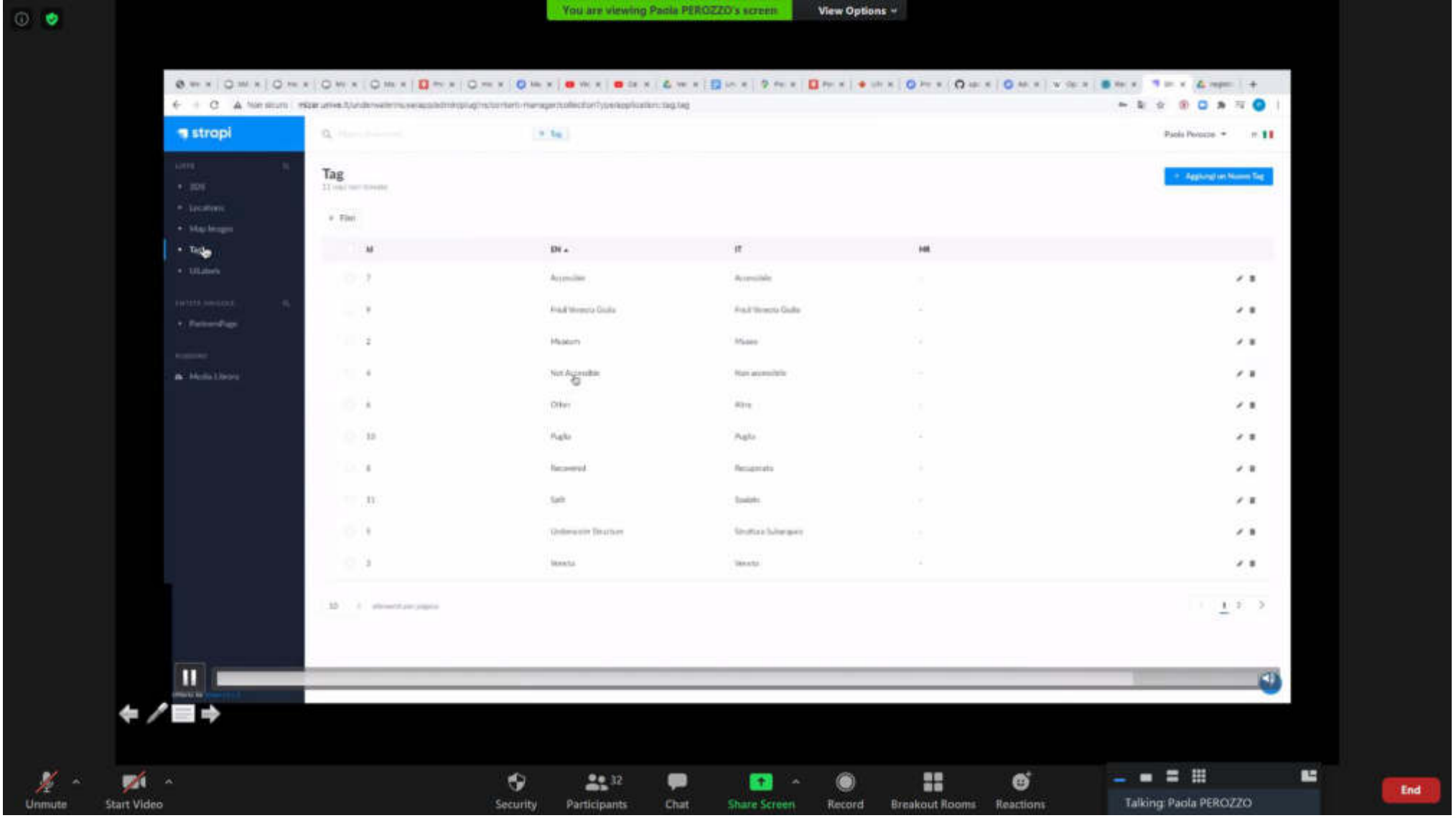

You are viewing Paola PEROZZO's screen
View Options
strapi
Ca' Ballarin
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

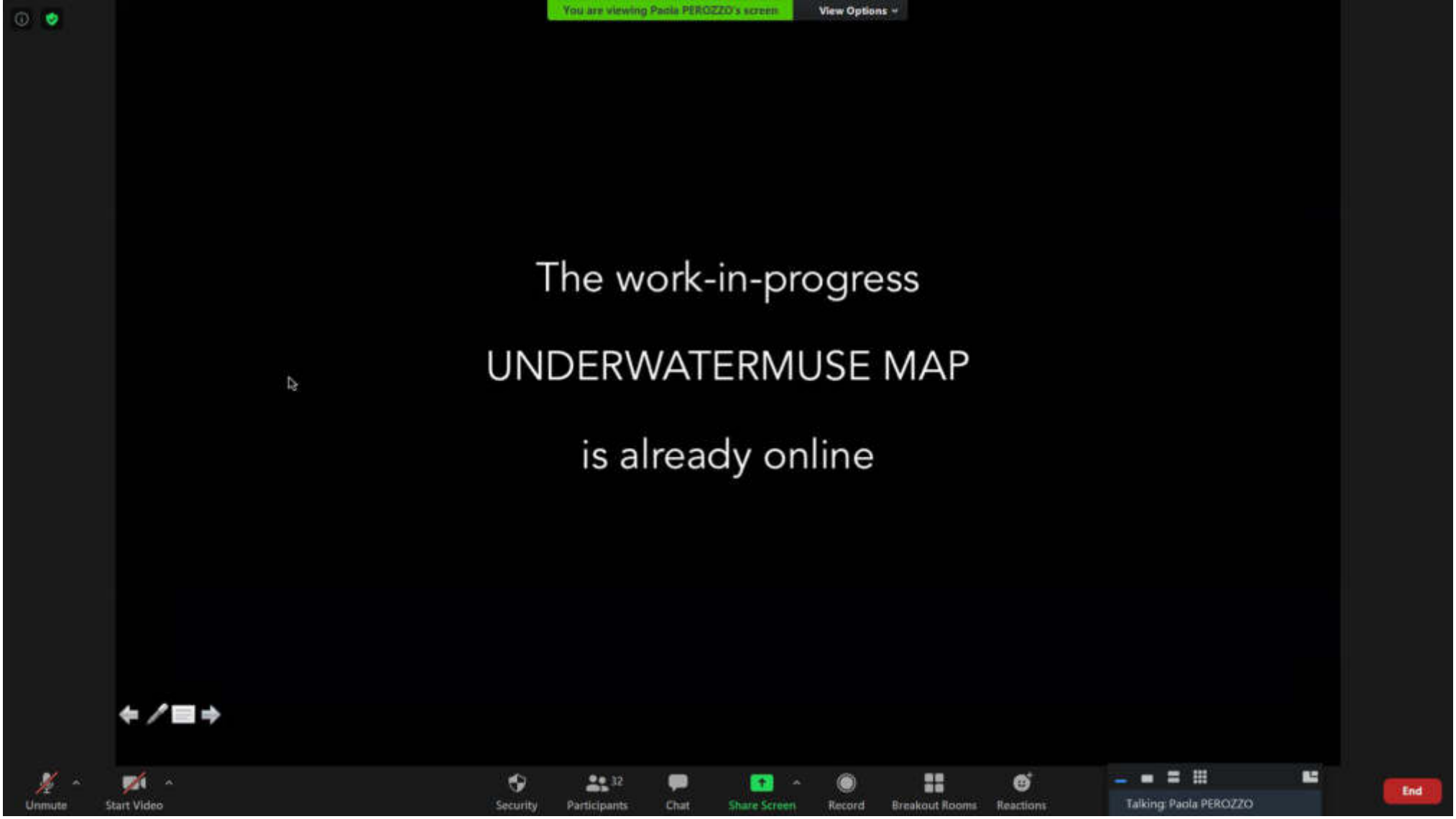

You are viewing Paola PEROZZO's screen
View Options
Posizioni_marker_underwater_Elisa
Ca' Ballarin
Unmute
Start Video
Security
Participants
33
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking:
End


You are viewing Paola PEROZZO's screen
View Options
strapi
Ca' Ballarin
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking:
End

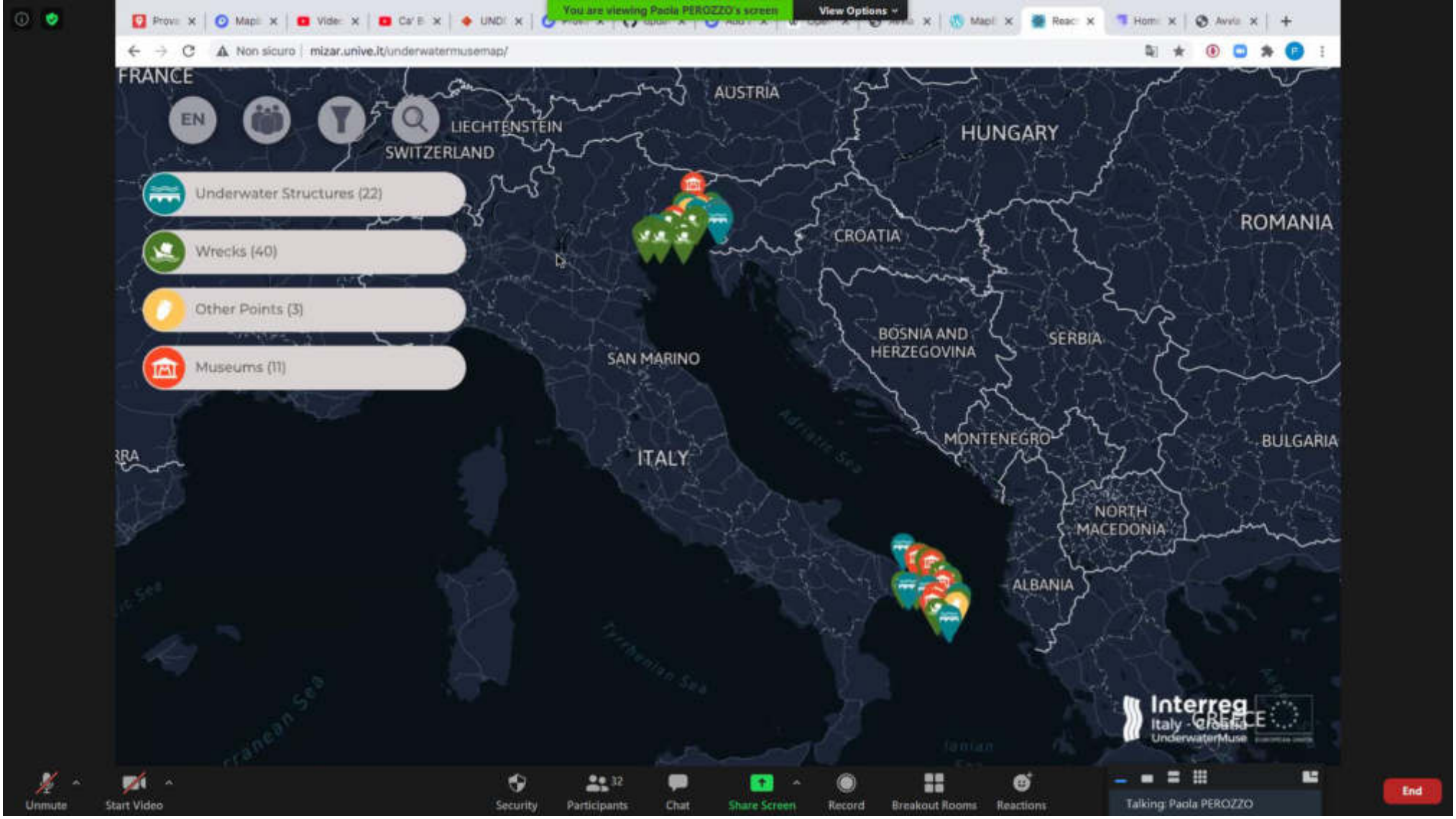

You are viewing Paola PEROZZO's screen
View Options
strapi
Ca' Ballarin
Participants (33)
Find a participant
Elisa Costa (Host, me)
Paola PEROZZO (Co-host)
balletti (Co-host, guest)
Alessandro Tagliapietra (Guest)
alina del fabbro (Guest)
Carlo Beltrame (Guest)
CATERINA TOMIZZA
Claudia Pizzinato (Guest)
Claudio Parisotto (Guest)
CRISTIAN MURRAY (Guest)
Cristina Barbiani (Guest)
Edoardo Pasotto (Guest)
elisabeth (Guest)
Eran Nisenboim (Guest)
yes
no
go slower
go faster
more
clear all
Invite
Mute All
Unmute All
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

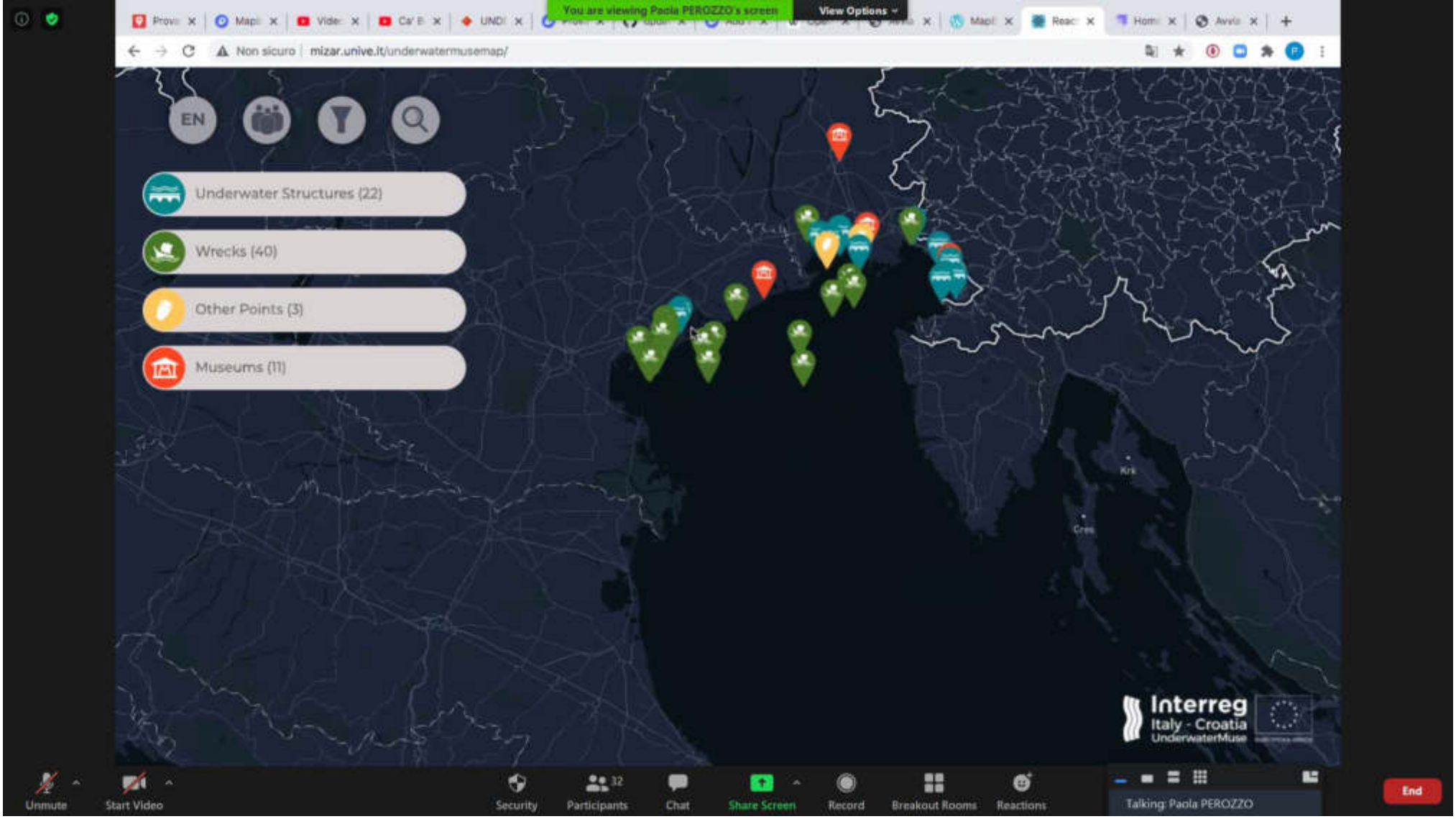

You are viewing Paola PEROZZO's screen
View Options
strapi
Ca' Ballarin
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

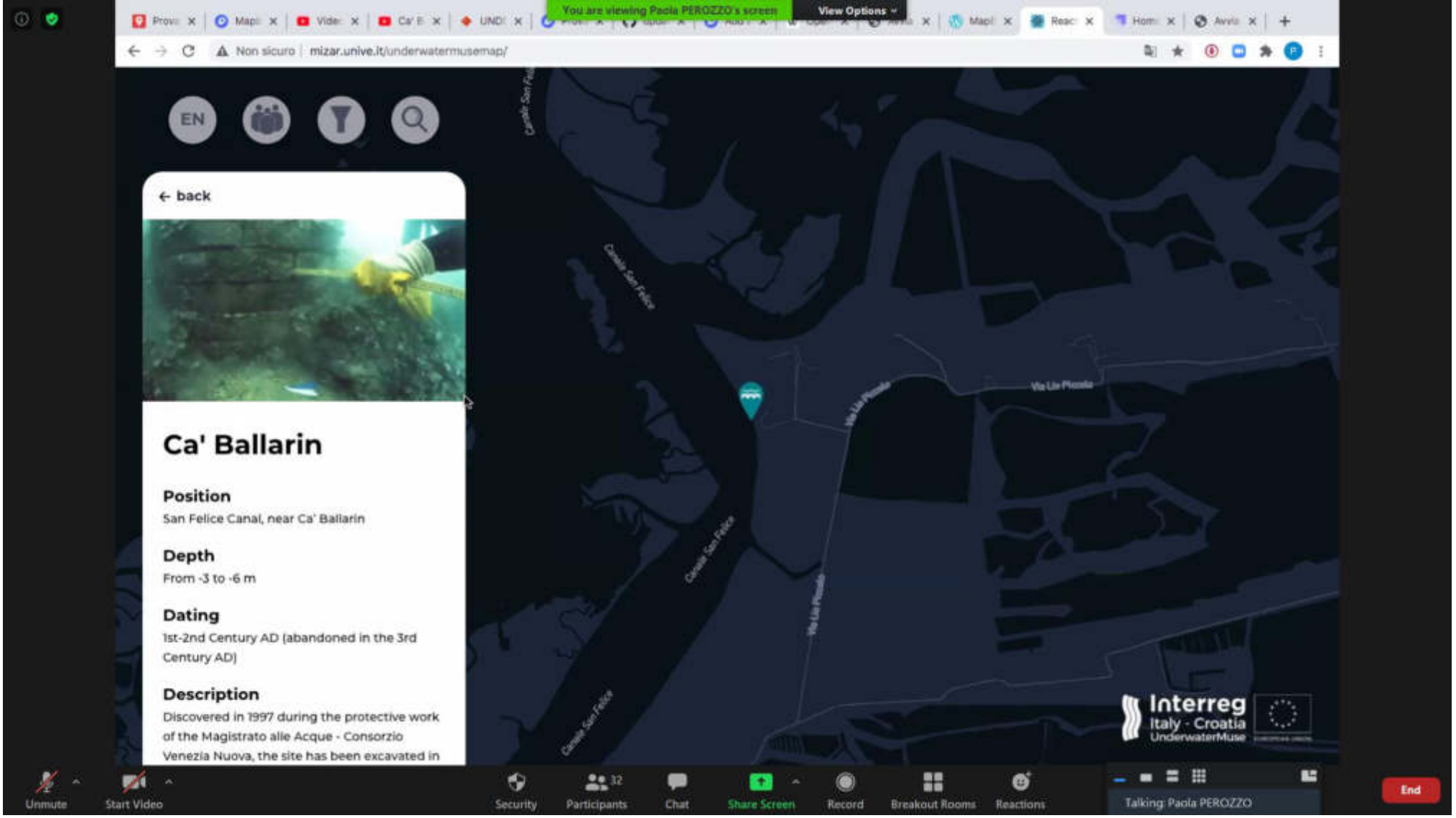

You are viewing Paola PEROZZO's screen
View Options
strapi
Tag
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

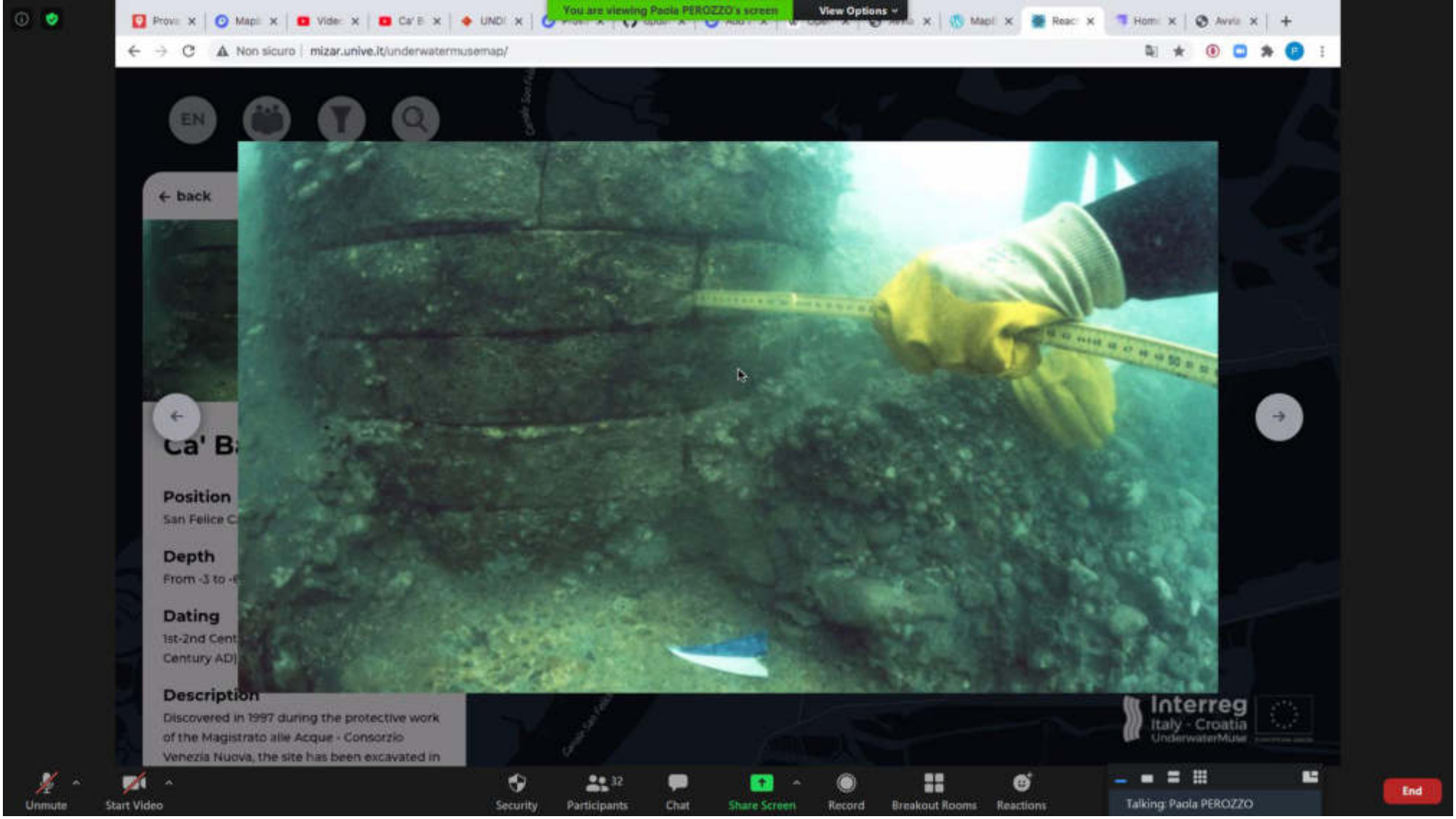

You are viewing Paola PEROZZO's screen
View Options
The work-in-progress
UNDERWATERMUSE MAP
is already online
Unmute
Start Video
Security
Participants
32
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

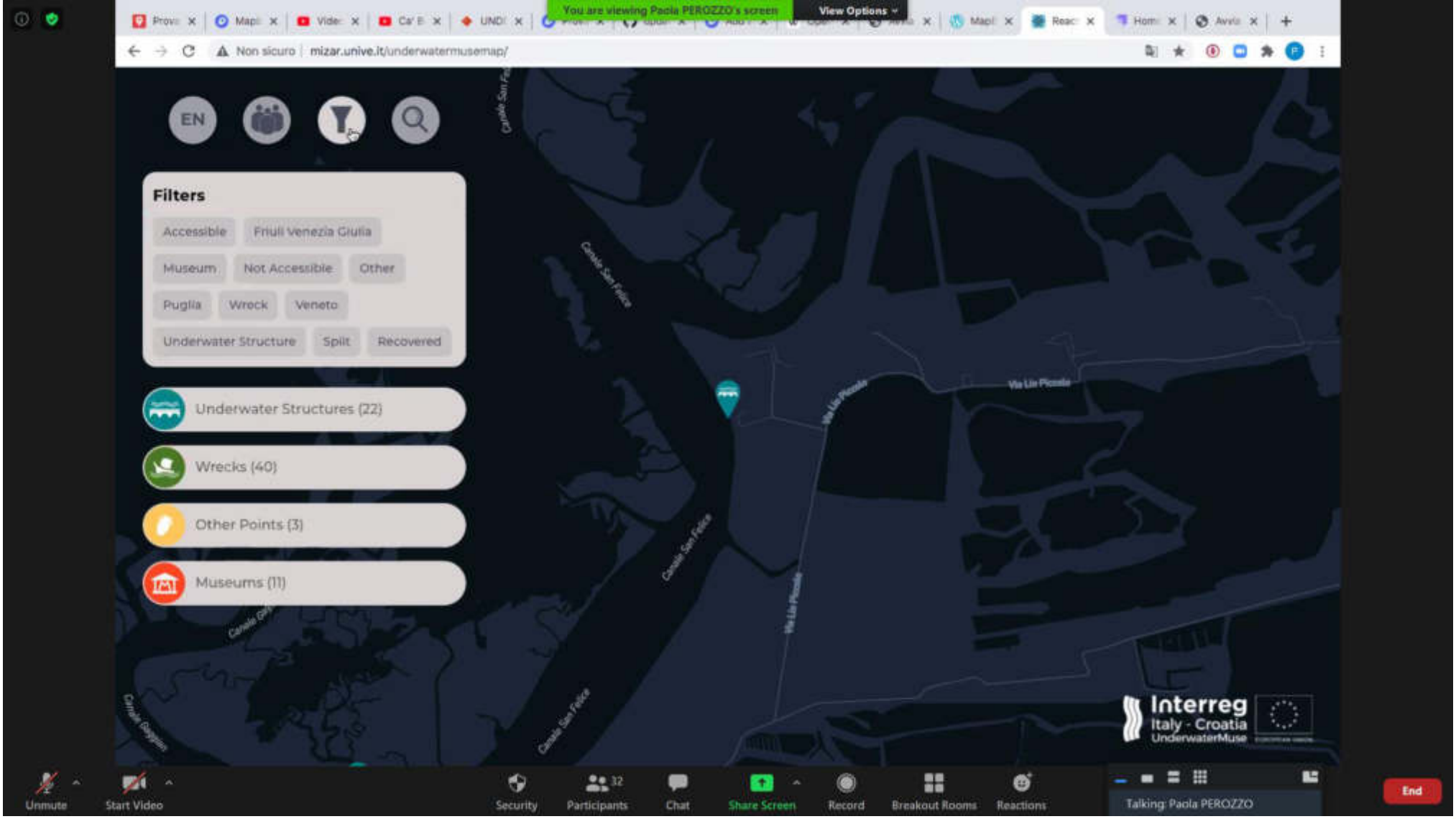

You are viewing Paola PEROZZO's screen
View Options
Non sicuro
mizar.unive.it/underwatermusemap/
EN
Underwater Structures (22)
Wrecks (40)
Other Points (3)
Museums (11)
CROATIA
BOSNIA AND HERZEGOVINA
SERBIA
SAN MARINO
ITALY
MONTENEGRO
KOSOVO
NORTH MACEDONIA
ALBANIA
interreg
Italy - Croatia
UnderwaterMuse
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

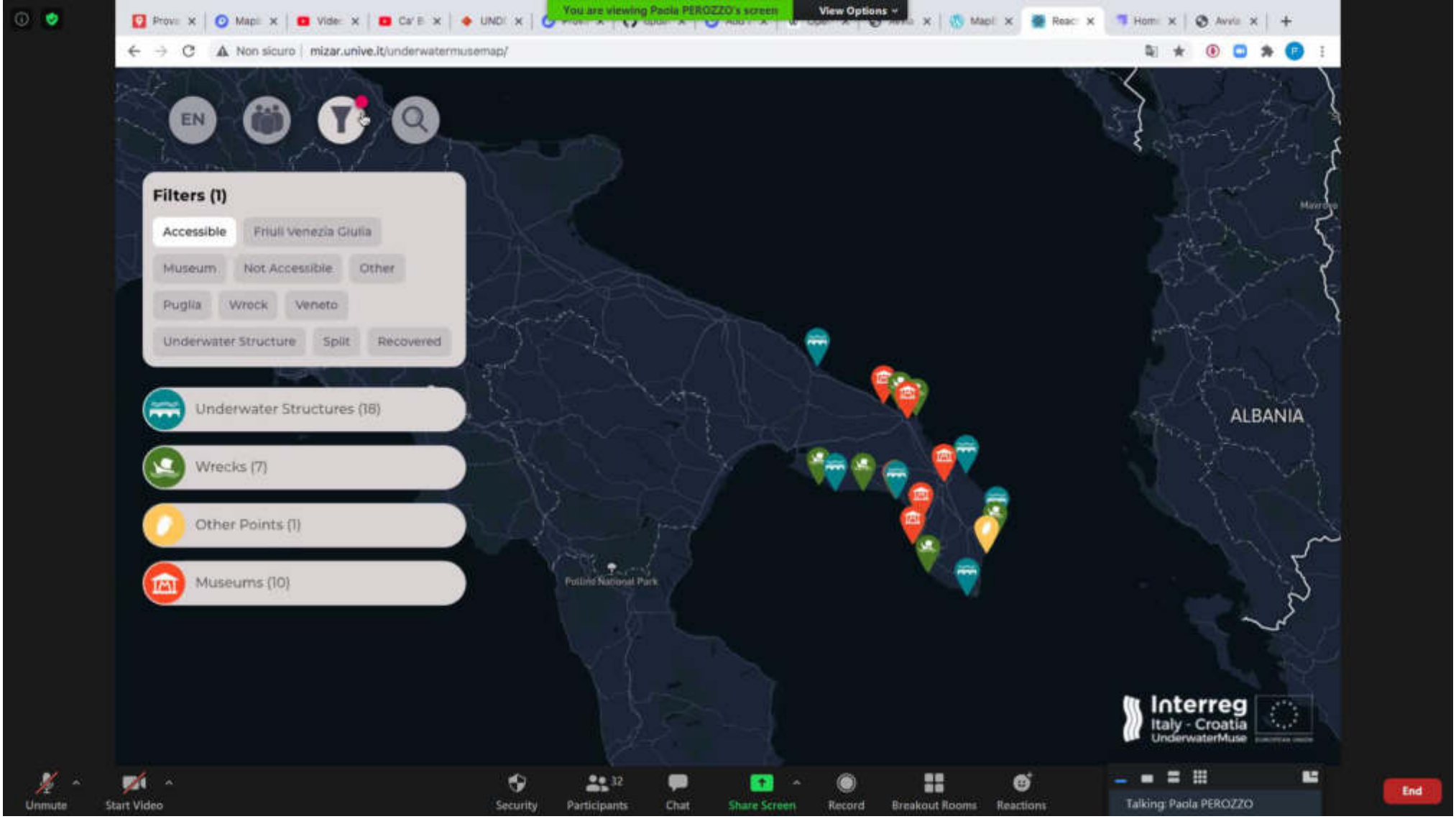

You are viewing Paola PEROZZO's screen
View Options
Non sicuro
mizar.unive.it/underwatermusemap/
FRANCE
AUSTRIA
HUNGARY
EN
LIECHTENSTEIN
SWITZERLAND
Underwater Structures (22)
Wrecks (40)
Other Points (3)
Museums (11)
CROATIA
ROMANIA
BOSNIA AND HERZEGOVINA
SERBIA
SAN MARINO
ITALY
MONTENEGRO
BULGARIA
NORTH MACEDONIA
ALBANIA
Interreg Italy - Croatia UnderwaterMuse
GREECE
Unmute
Start Video
Security
Participants
32
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

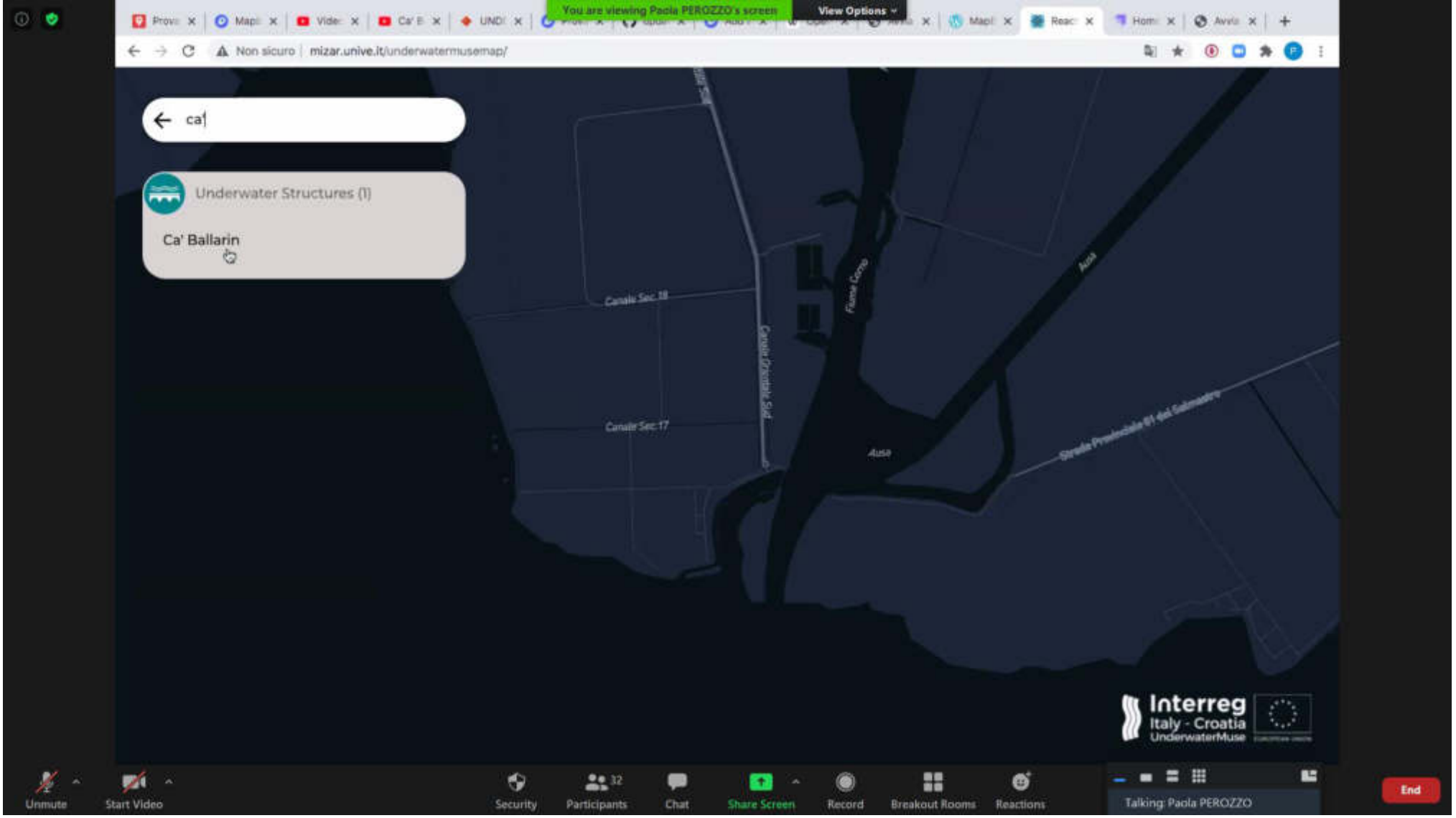

You are viewing Paola PEROZZO's screen
View Options
Non sicuro
mizar.unive.it/underwatermusemap/
EN
Underwater Structures (22)
Wrecks (40)
Other Points (3)
Museums (11)
Interreg
Italy - Croatia
UnderwaterMuse
Unmute
Start Video
Security
Participants
32
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

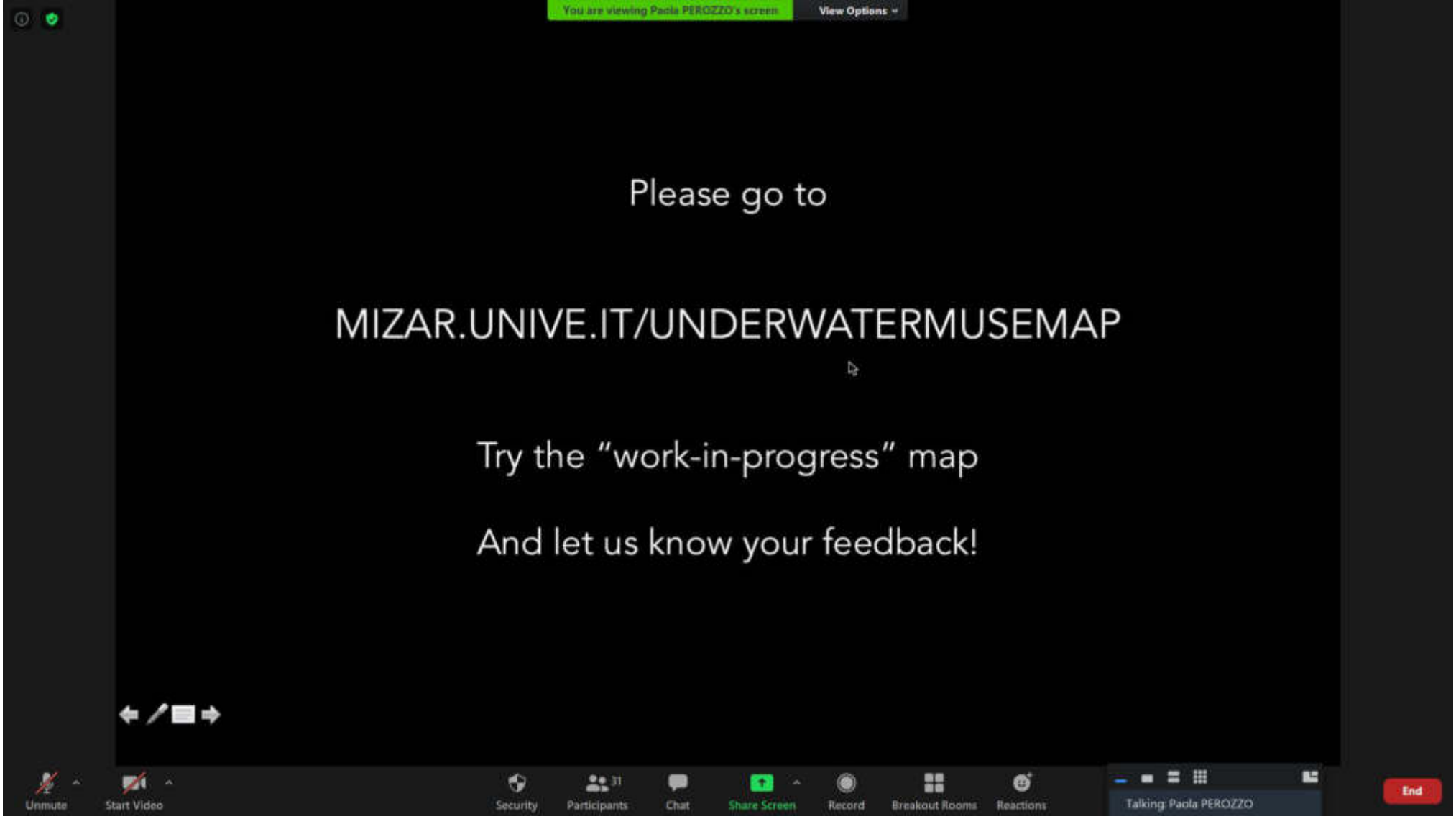

You are viewing Paola PEROZZO's screen
View Options
Non sicuro
mizar.unive.it/underwatermusemap/
EN
← back
Ca' Ballarin
Position
San Felice Canal, near Ca' Ballarin
Depth
From -3 to -6 m
Dating
1st-2nd Century AD (abandoned in the 3rd Century AD)
Description
Discovered in 1997 during the protective work of the Magistrato alle Acque - Consorzio Venezia Nuova, the site has been excavated in
Canale San Felice
Via Lio Piccolo
Interreg
Italy - Croatia
UnderwaterMuse
Unmute
Start Video
Security
Participants
32
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End


You are viewing Paola PEROZZO's screen
View Options
Non sicuro | mizar.unive.it/underwatermusemap/
EN
← back
Ca' B
Position
Depth
Dating
Description
Discovered in 1997 during the protective work of the Magistrato alle Acque - Consorzio Venezia Nuova, the site has been excavated in
Interreg
Italy - Croatia
UnderwaterMuse
Unmute
Start Video
Security
Participants
32
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End


You are viewing Paola PEROZZO's screen
View Options
Non sicuro | mizar.unive.it/underwatermusemap/
EN
Filters
Accessible
Friuli Venezia Giulia
Museum
Not Accessible
Other
Puglia
Wreck
Veneto
Underwater Structure
Split
Recovered
Underwater Structures (22)
Wrecks (40)
Other Points (3)
Museums (11)
Via Lio Piccolo
Canale San Felice
Interreg
Italy - Croatia
UnderwaterMuse
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End


You are viewing Paola PEROZZO's screen
View Options
Non sicuro
mizar.unive.it/underwatermusemap/
EN
Filters (1)
Accessible
Friuli Venezia Giulia
Museum
Not Accessible
Other
Puglia
Wreck
Veneto
Underwater Structure
Split
Recovered
Underwater Structures (18)
Wrecks (7)
Other Points (1)
Museums (10)
ALBANIA
Interreg
Italy - Croatia
UnderwaterMuse
Unmute
Start Video
Security
Participants
32
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

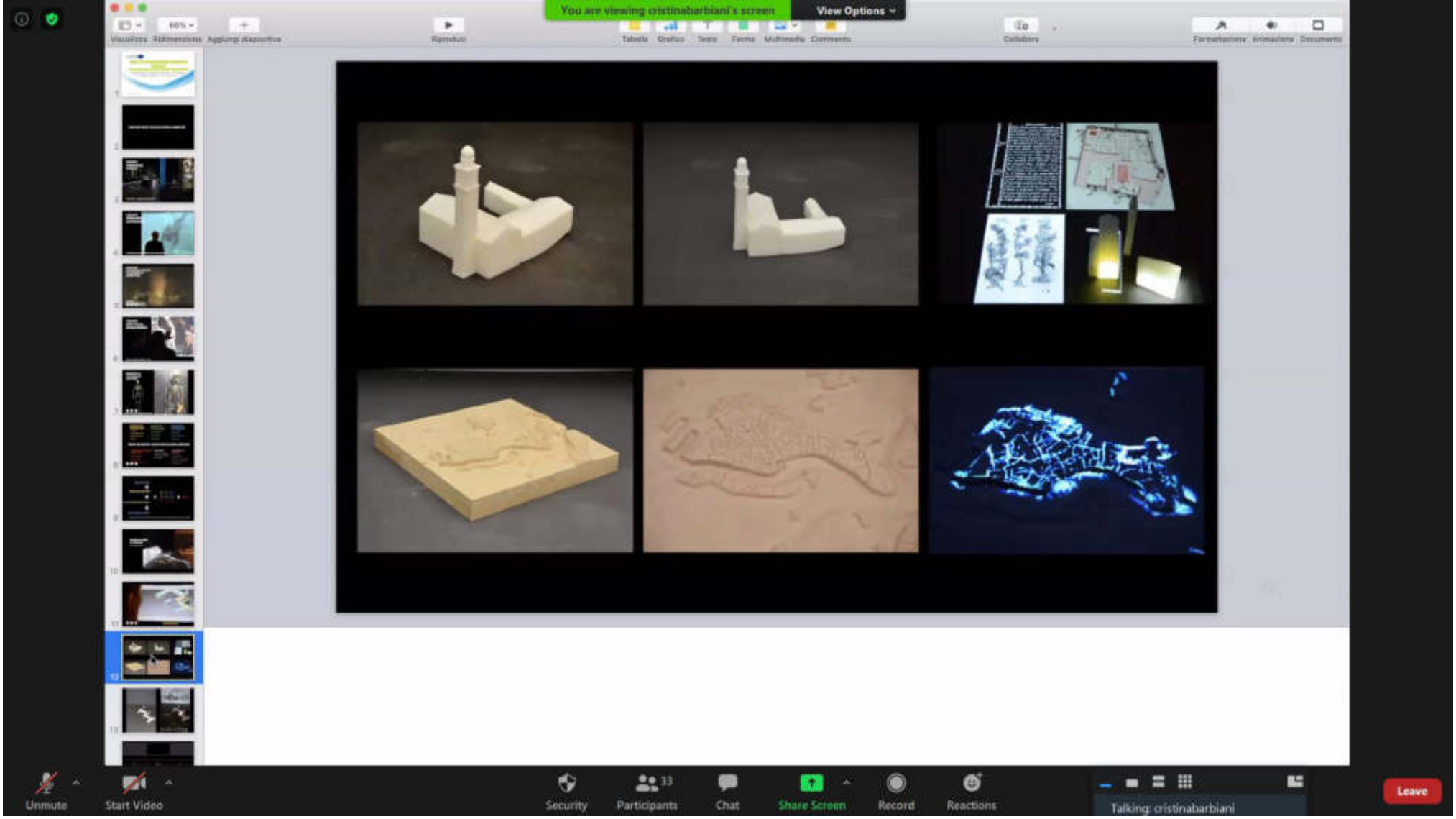

You are viewing Paola PEROZZO's screen
View Options
Non sicuro
mizar.unive.it/underwatermusemap/
ca
Underwater Structures (1)
Ca' Ballarin
Canale Sec.18
Canale Sec.17
Fiume Corno
Ausa
Interreg
Italy - Croatia
UnderwaterMuse
Unmute
Start Video
Security
Participants
32
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

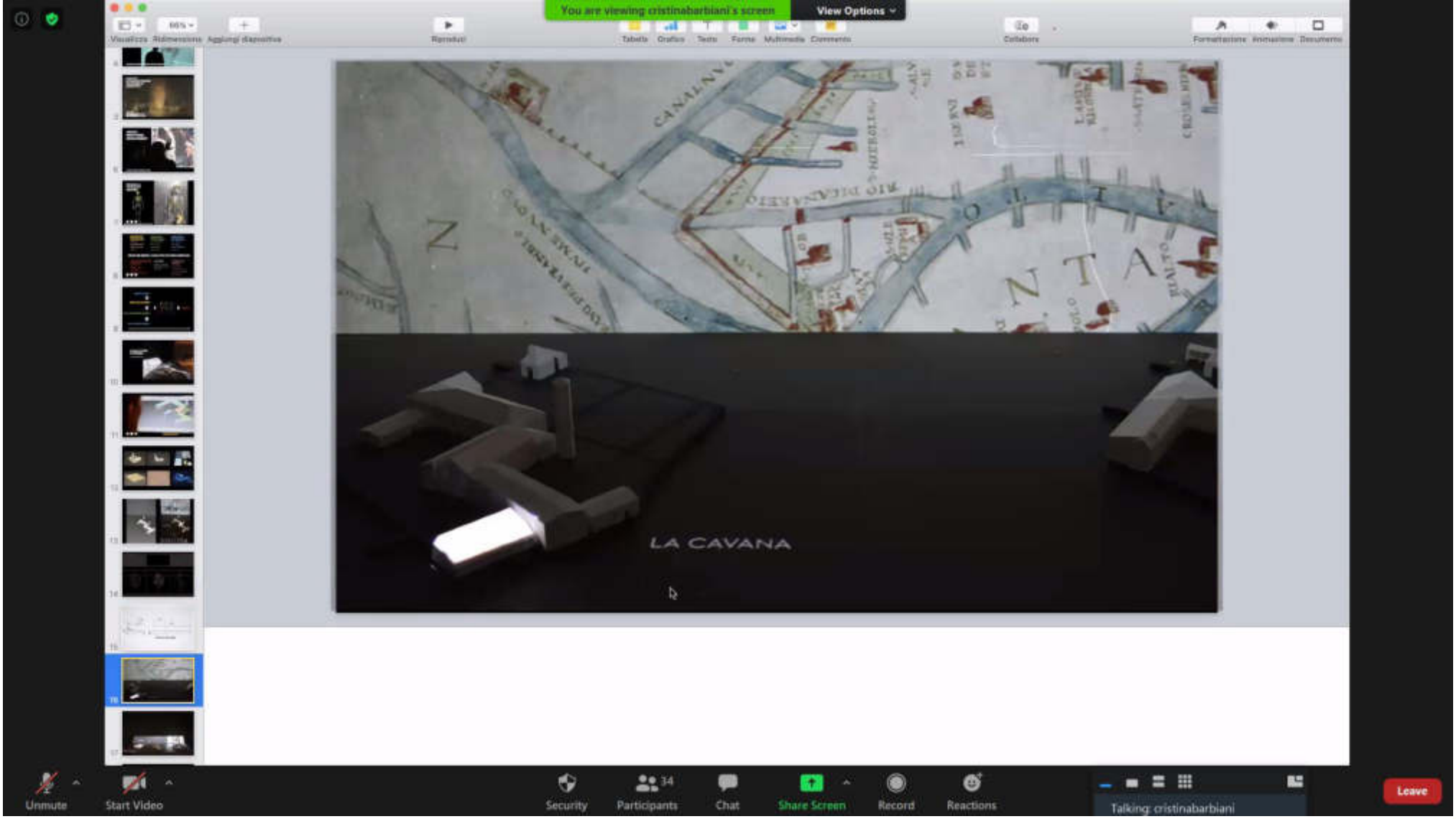

You are viewing Paola PEROZZO's screen
View Options
Please go to
MIZAR.UNIVE.IT/UNDERWATERMUSEMAP
Try the "work-in-progress" map
And let us know your feedback!
Unmute
Start Video
Security
Participants
31
Chat
Share Screen
Record
Breakout Rooms
Reactions
Talking: Paola PEROZZO
End

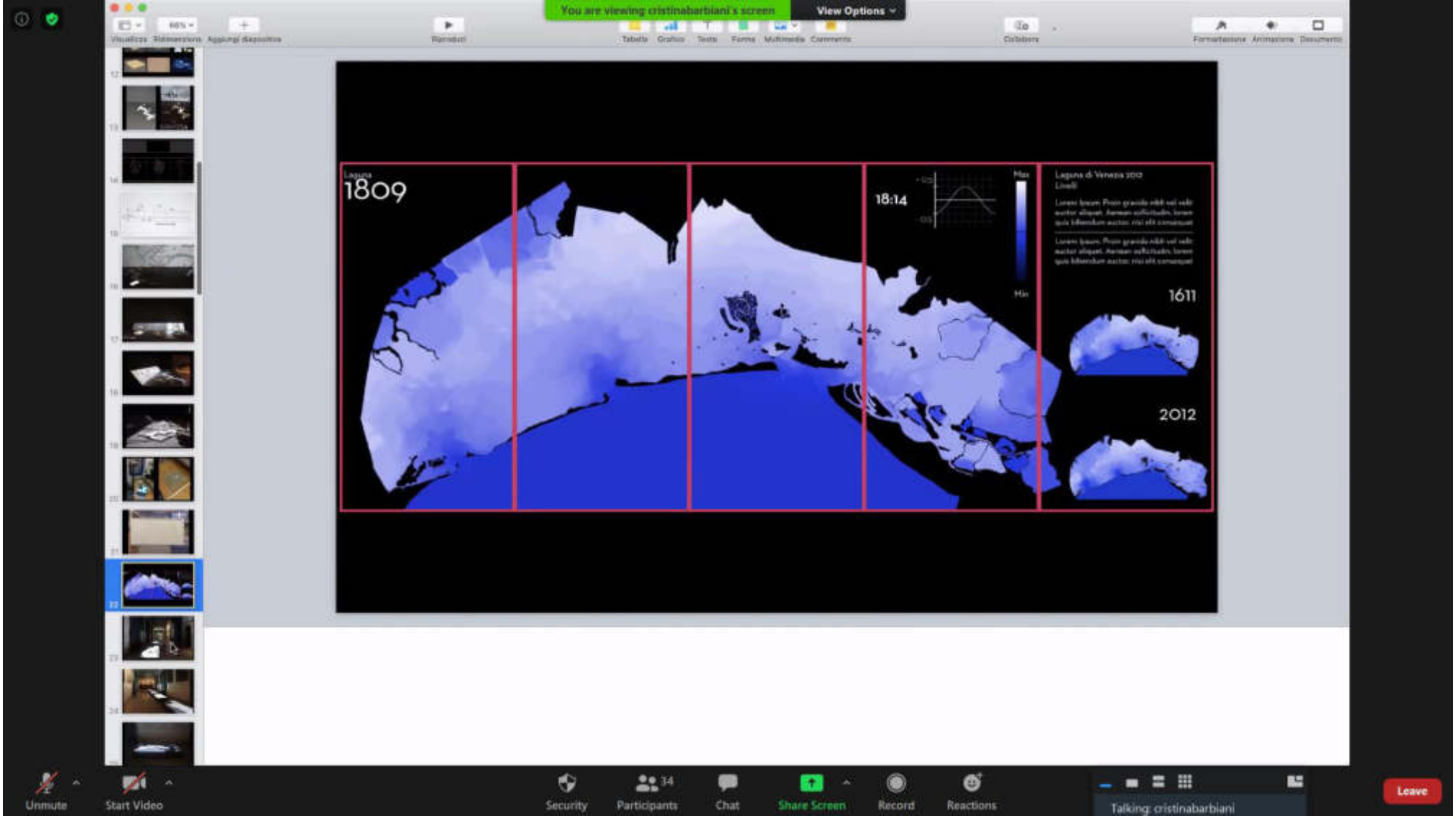
DIGITAL STORYTELLING AND MULTIMEDIA FOR UNDERWATER ARCHAEOLOGY: THE NATIONAL ARCHAEOLOGICAL MARITIME MUSEUM EXAMPLE

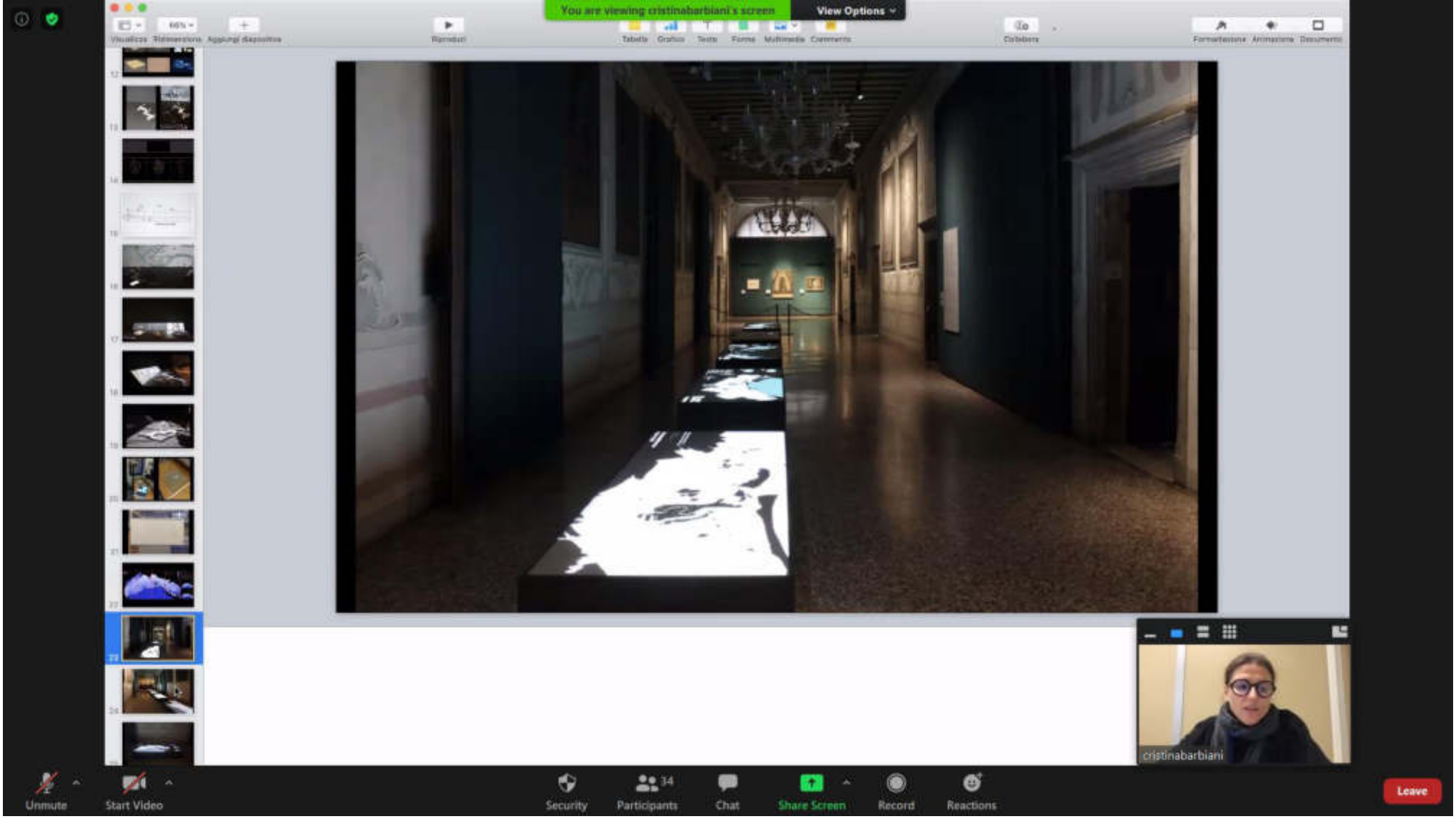
Cristina Barbiani

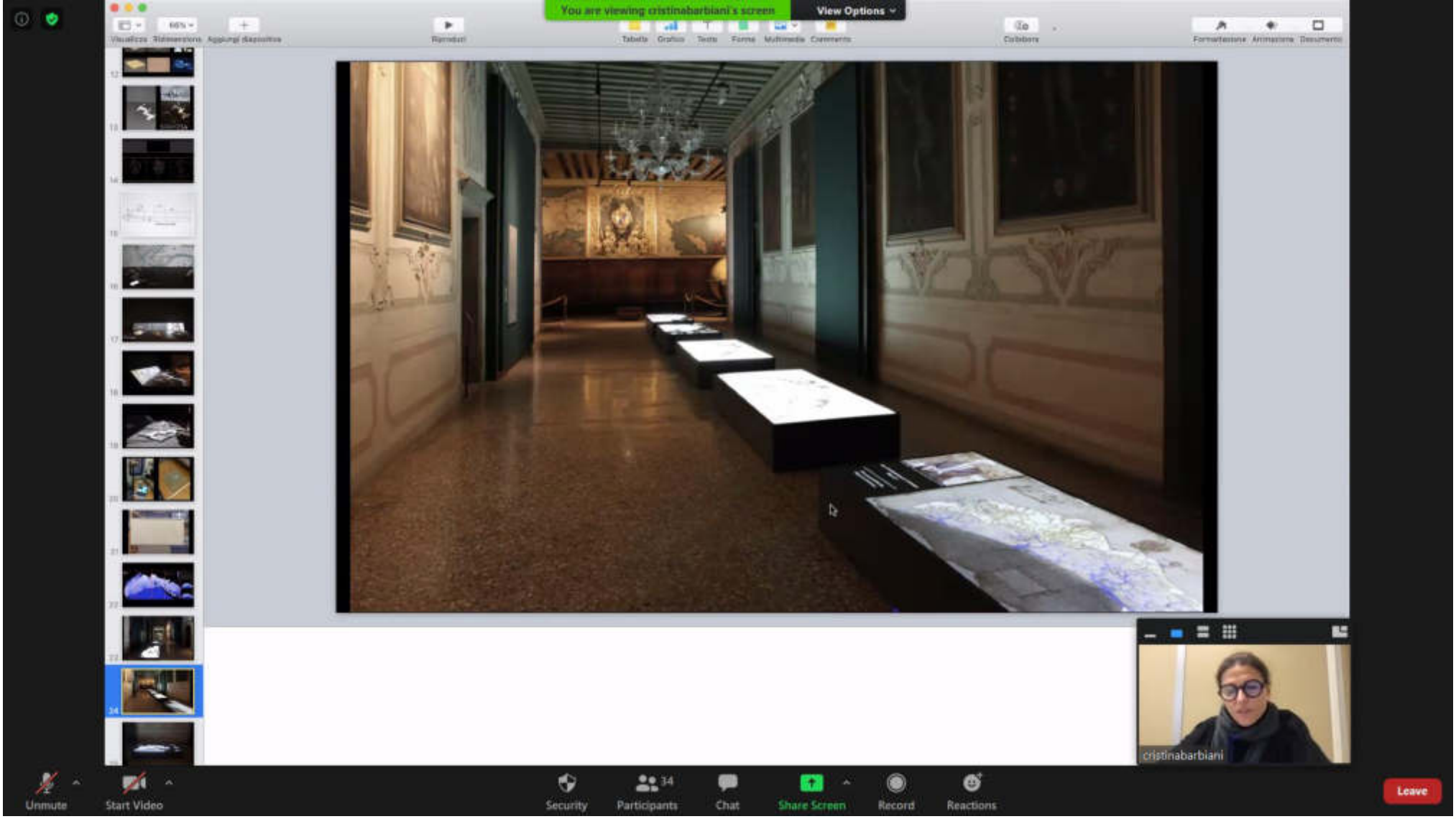
Interreg Italy - Croatia UnderwaterMuse
European Regional Development Fund
EUROPEAN UNION

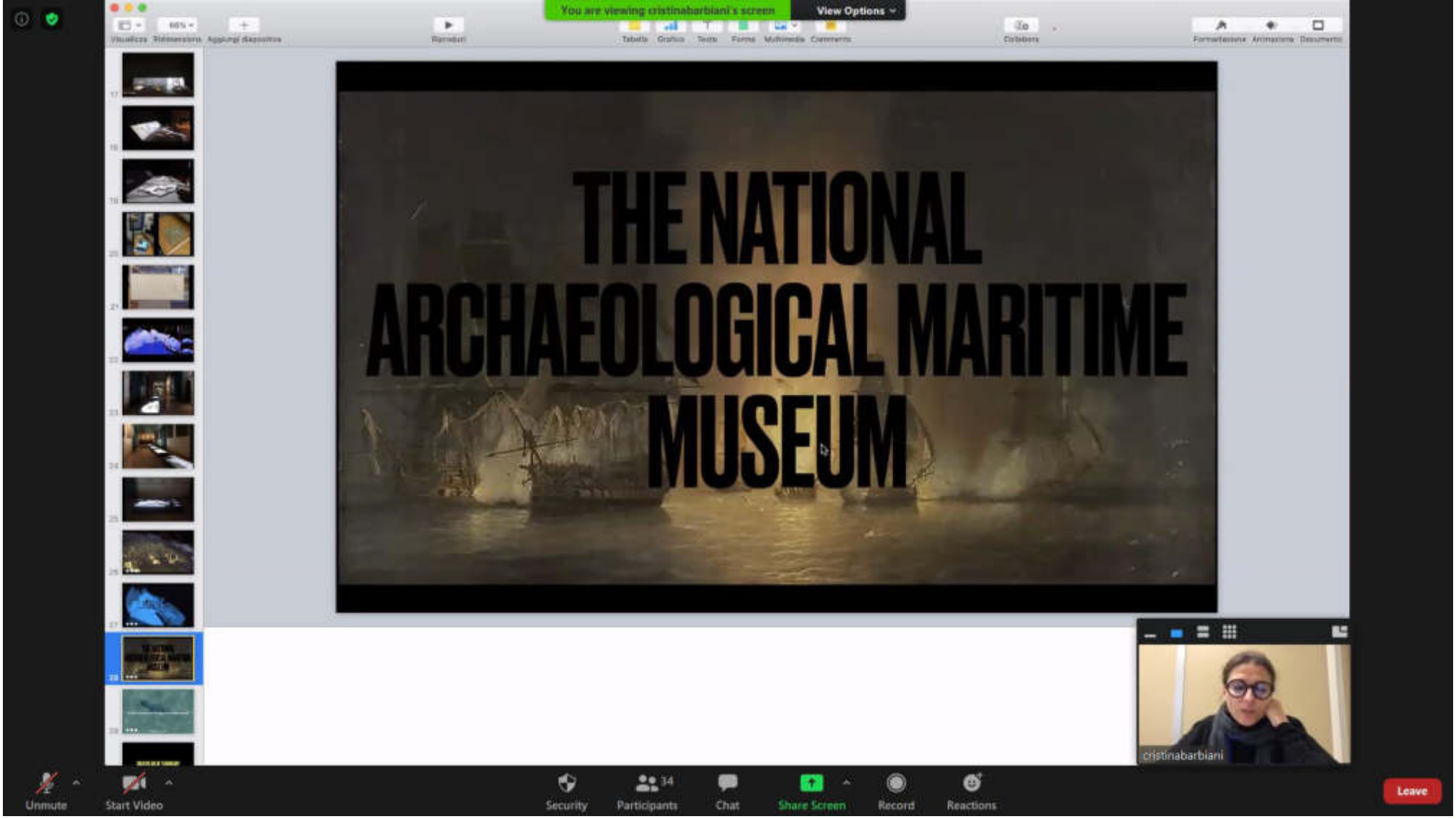

You are viewing cristinabarbiani's screen
View Options
Unmute
Start Video
Security
Participants
33
Chat
Share Screen
Record
Reactions
Talking: cristinabarbiani
Leave

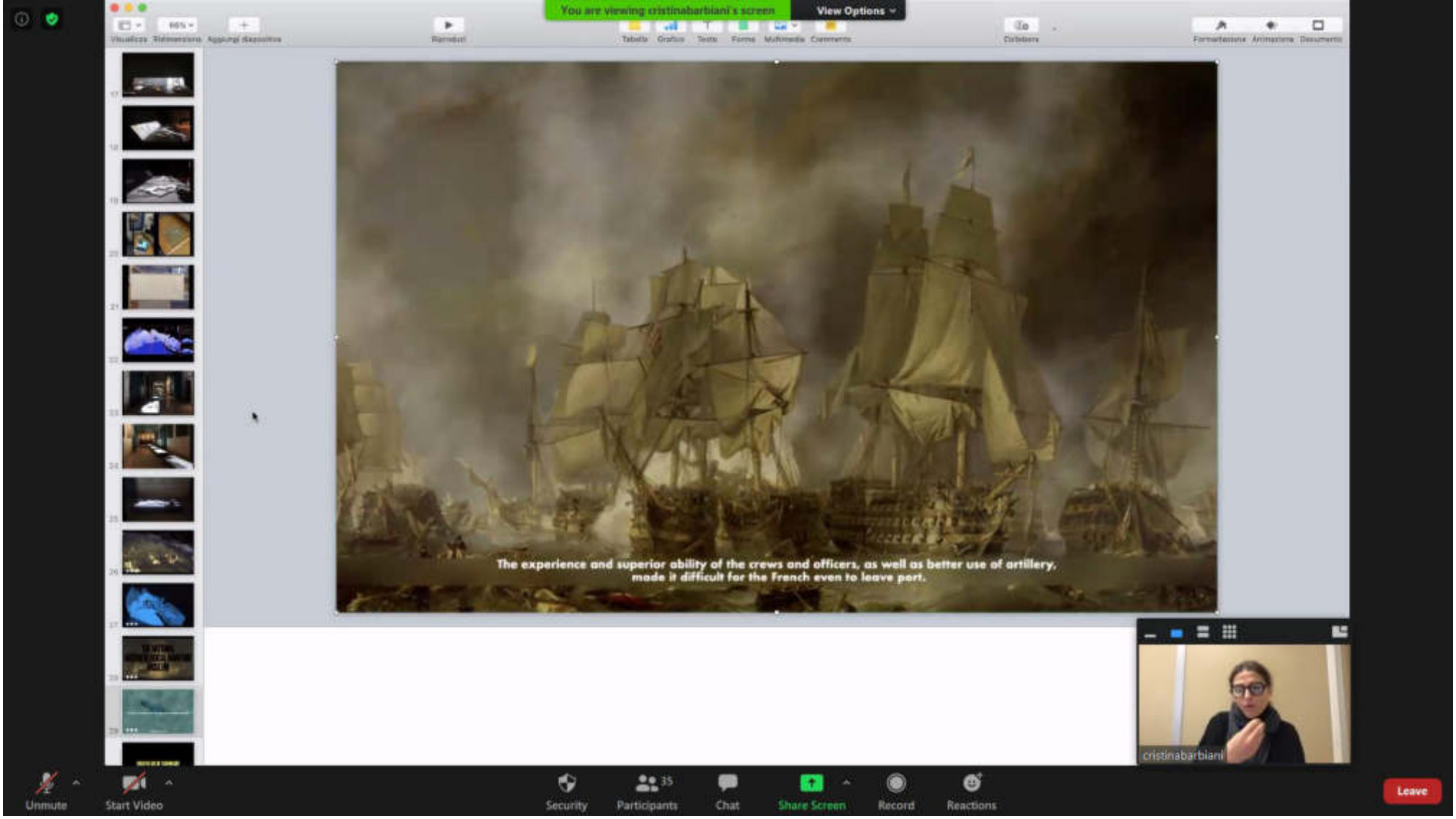

You are viewing cristinabarbiani's screen
View Options
LA CAVANA
Unmute
Start Video
Security
Participants
34
Chat
Share Screen
Record
Reactions
Talking: cristinabarbiani
Leave

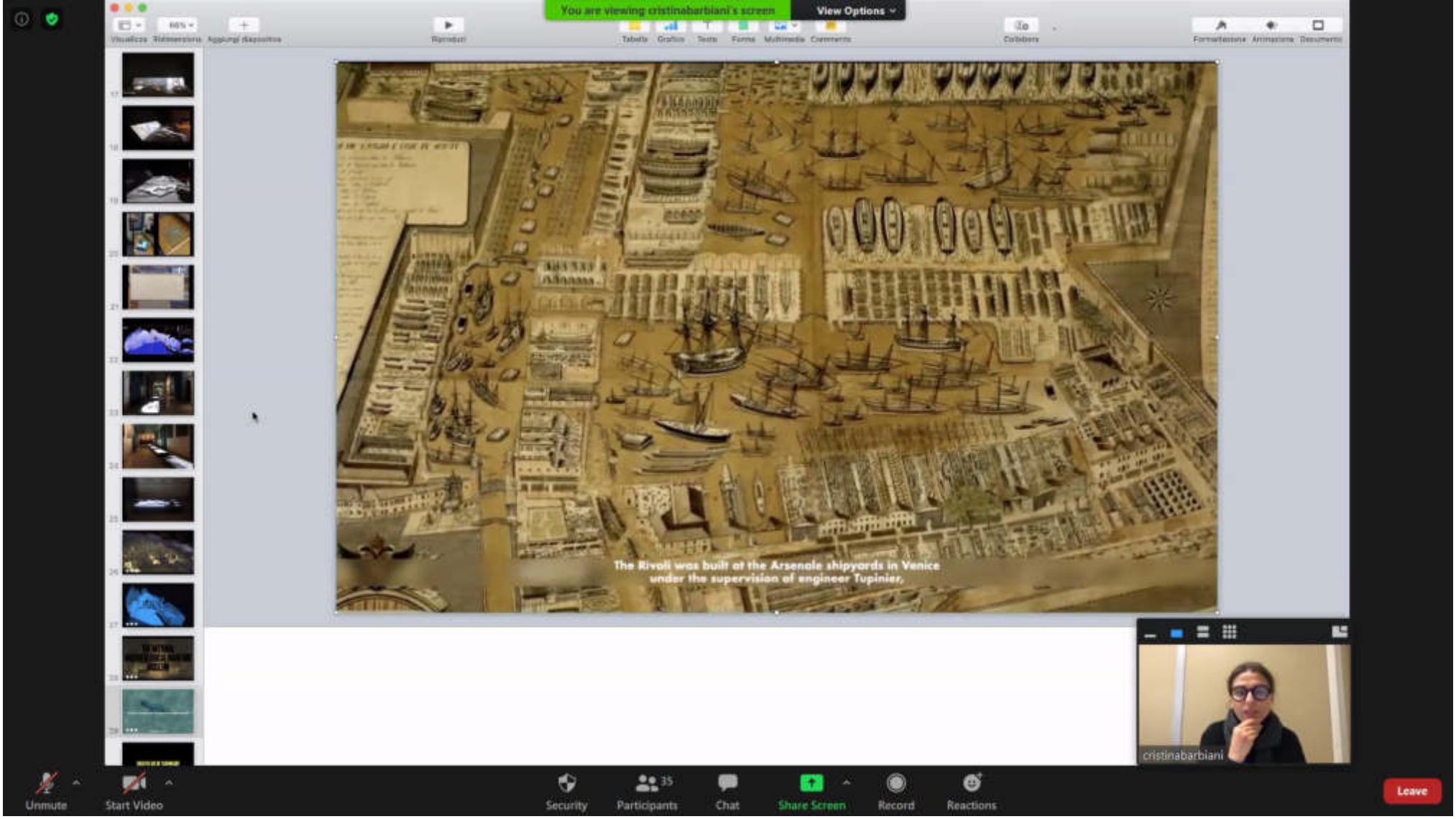

You are viewing cristinabarbiani's screen
View Options
Laguna
1809
18:14
Max
Min
1611
2012
Unmute
Start Video
Security
Participants
34
Chat
Share Screen
Record
Reactions
Talking: cristinabarbiani
Leave

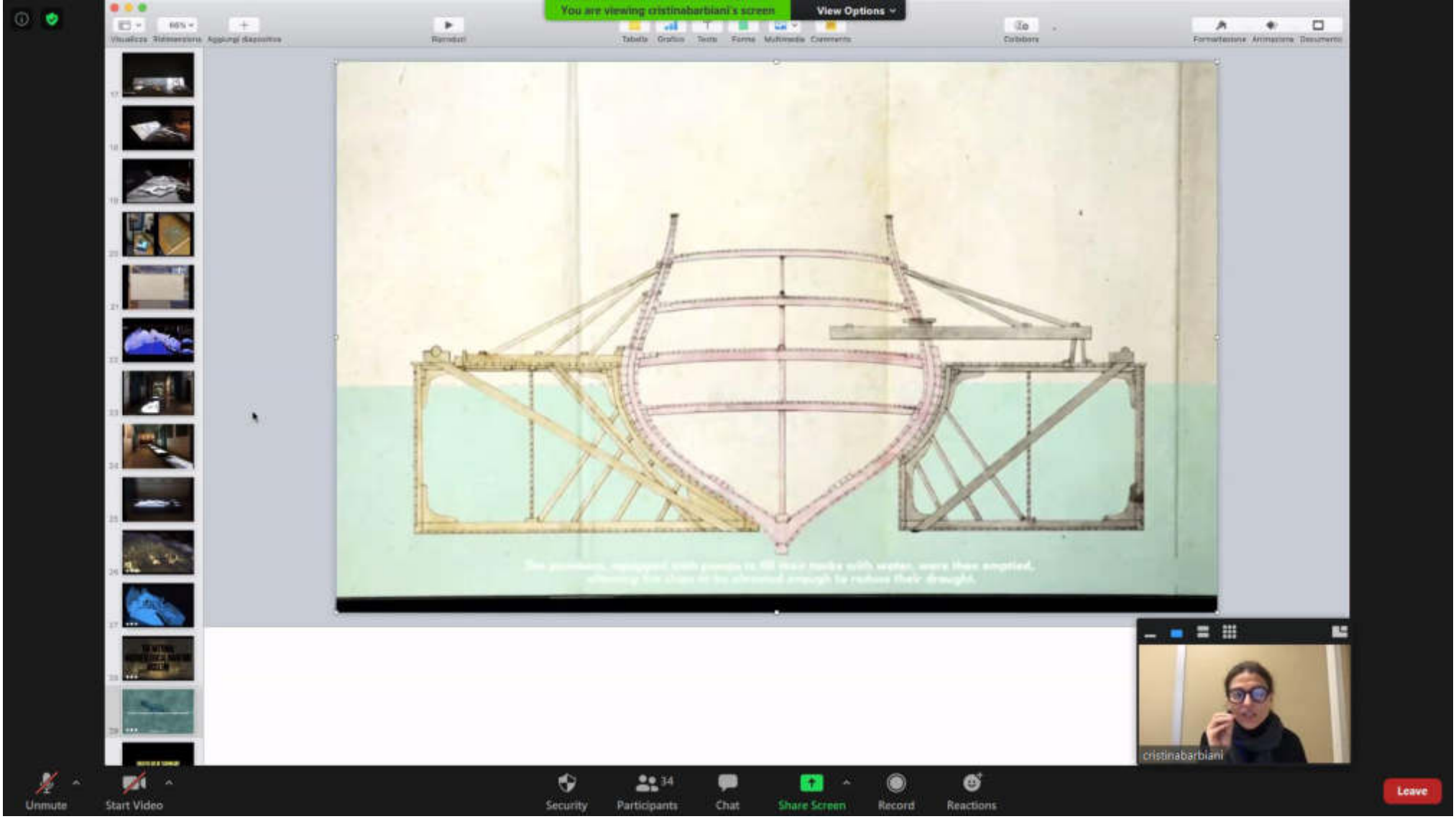

You are viewing cristinabarbiani's screen
View Options
cristinabarbiani
Unmute
Start Video
Security
Participants
34
Chat
Share Screen
Record
Reactions
Leave


You are viewing cristinabarbiani's screen
View Options
cristinabarbiani
Unmute
Start Video
Security
Participants
34
Chat
Share Screen
Record
Reactions
Leave


You are viewing cristinabarbiani's screen
View Options
THE NATIONAL ARCHAEOLOGICAL MARITIME MUSEUM
cristinabarbiani
Unmute
Start Video
Security
Participants
34
Chat
Share Screen
Record
Reactions
Leave


You are viewing cristinabarbiani's screen
View Options
The experience and superior ability of the crews and officers, as well as better use of artillery, made it difficult for the French even to leave port.
cristinabarbiani
Unmute
Start Video
Security
Participants
35
Chat
Share Screen
Record
Reactions
Leave

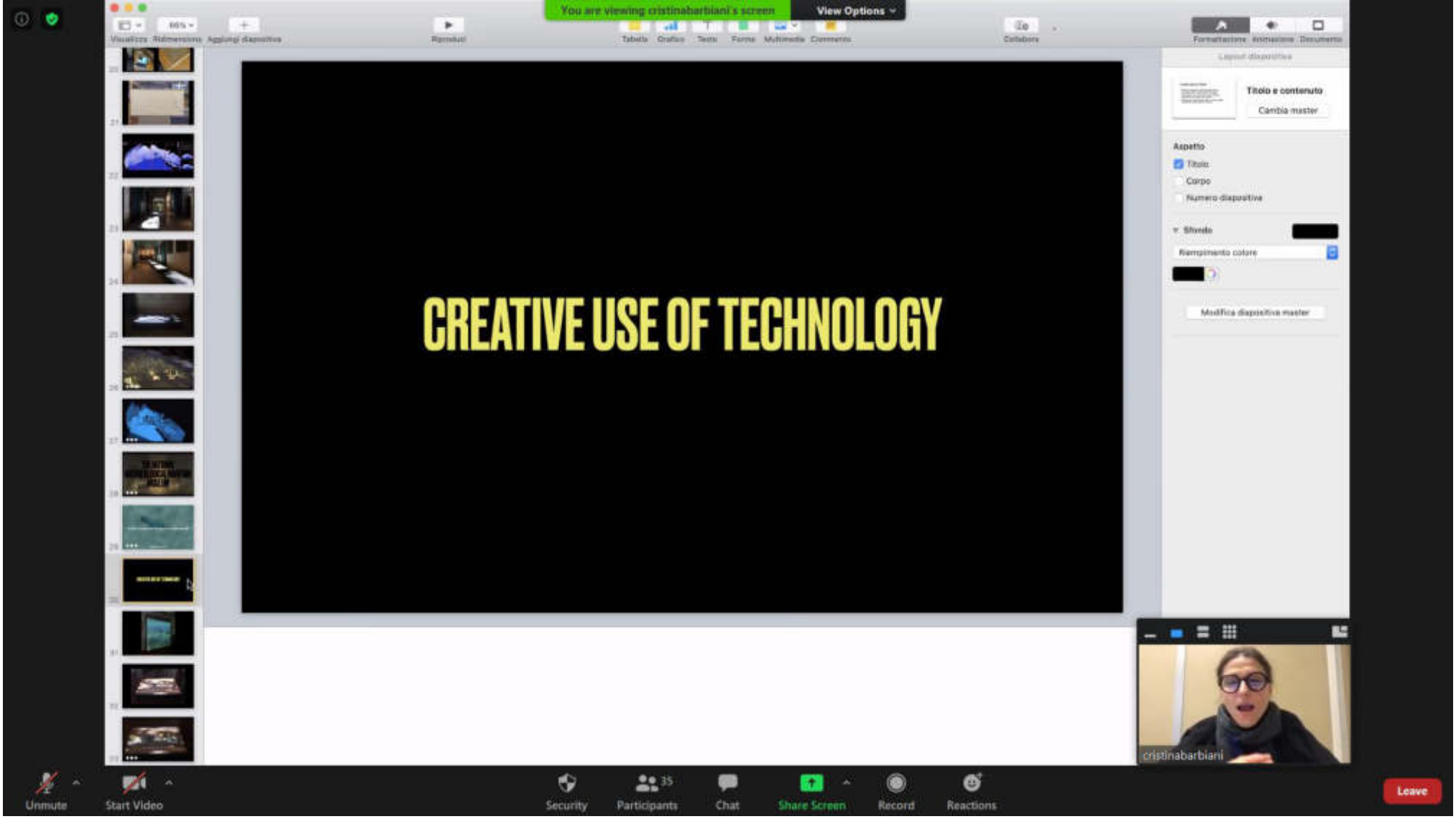

You are viewing cristinabarbiani's screen
View Options
The Rivoli was built at the Arsenale shipyards in Venice
under the supervision of engineer Tupinier.
cristinabarbiani
Unmute
Start Video
Security
Participants
35
Chat
Share Screen
Record
Reactions
Leave

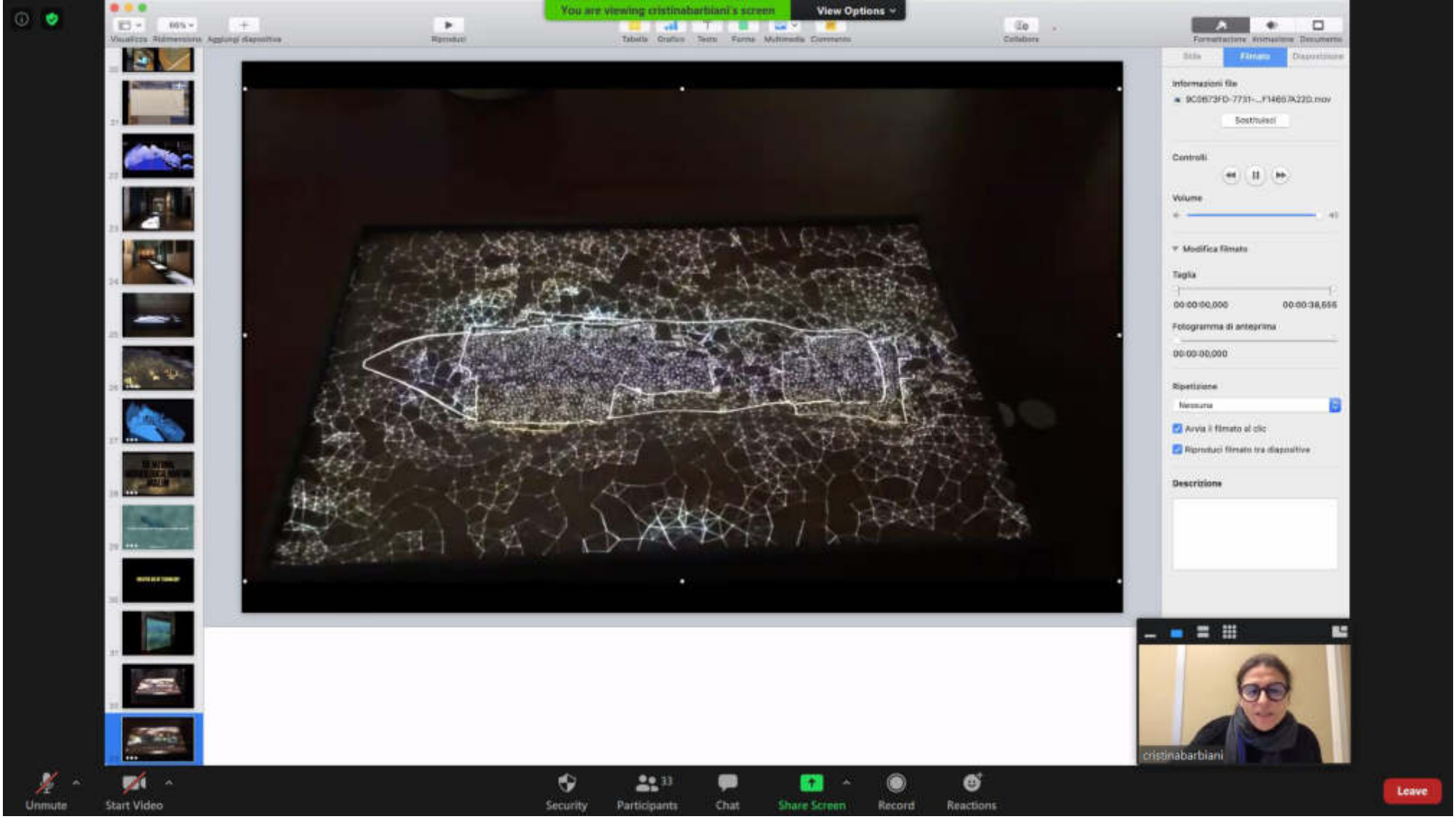

You are viewing cristinabarbiani's screen
View Options
cristinabarbiani
Unmute
Start Video
Security
Participants
34
Chat
Share Screen
Record
Reactions
Leave

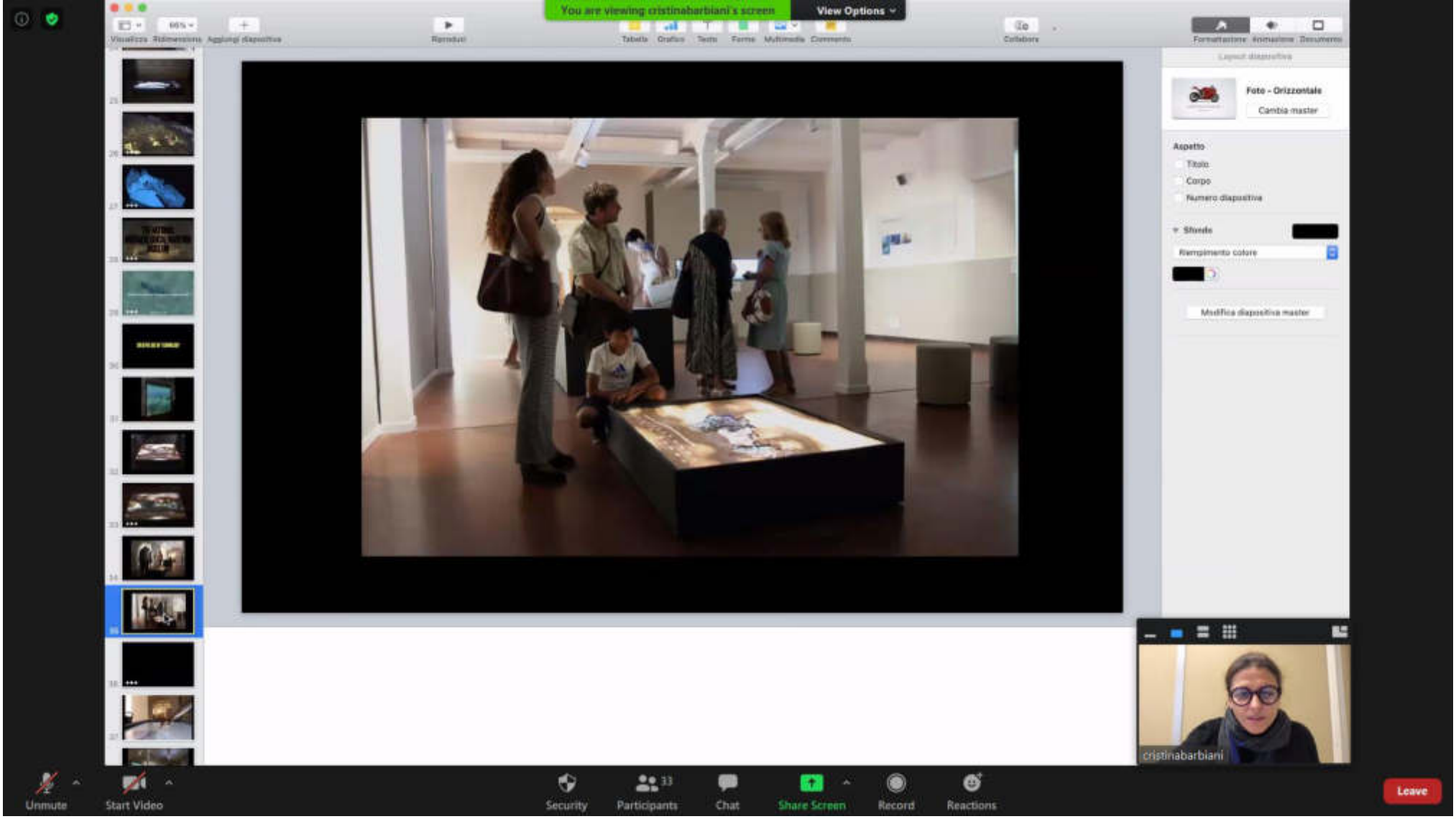

You are viewing cristinabarbiani's screen
View Options
16 febbraio 1812
The 74-gun Victorious, captained by John Talbot, and the brig Weasel, commanded by William Andrew,
had been waiting for the departure of French-Italian ships – the movements of which they knew well – since 16 February.
cristinabarbiani
Unmute
Start Video
Security
Participants
34
Chat
Share Screen
Record
Reactions
Leave

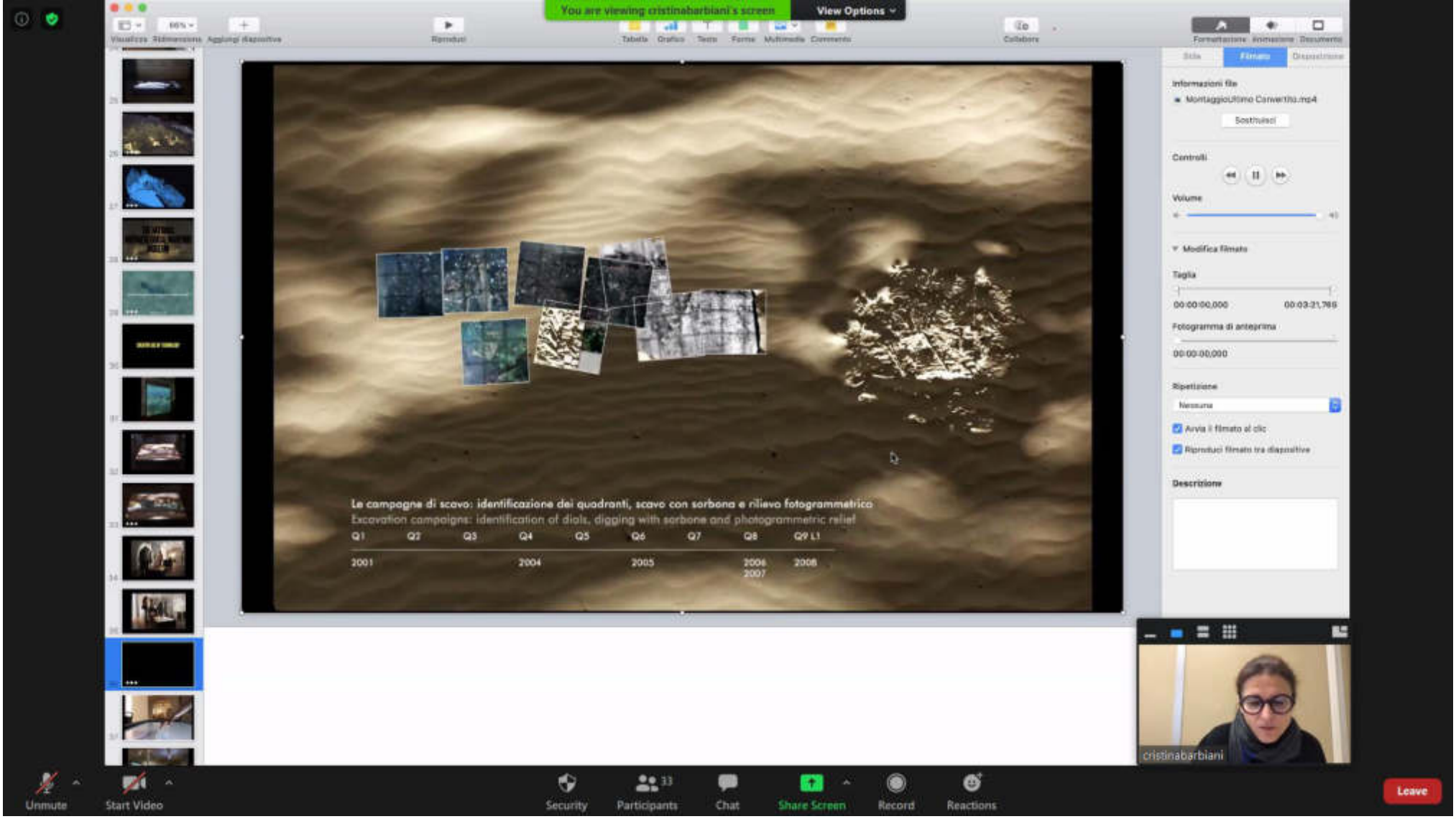

You are viewing cristinabarbiani's screen
View Options
21 febbraio 1812
16:
Weasel
Victorius
Despite the darkness and fog, however, an English crew realized that the French-Italian ship was exiting.
cristinabarbiani
Unmute
Start Video
Security
Participants
34
Chat
Share Screen
Record
Reactions
Leave

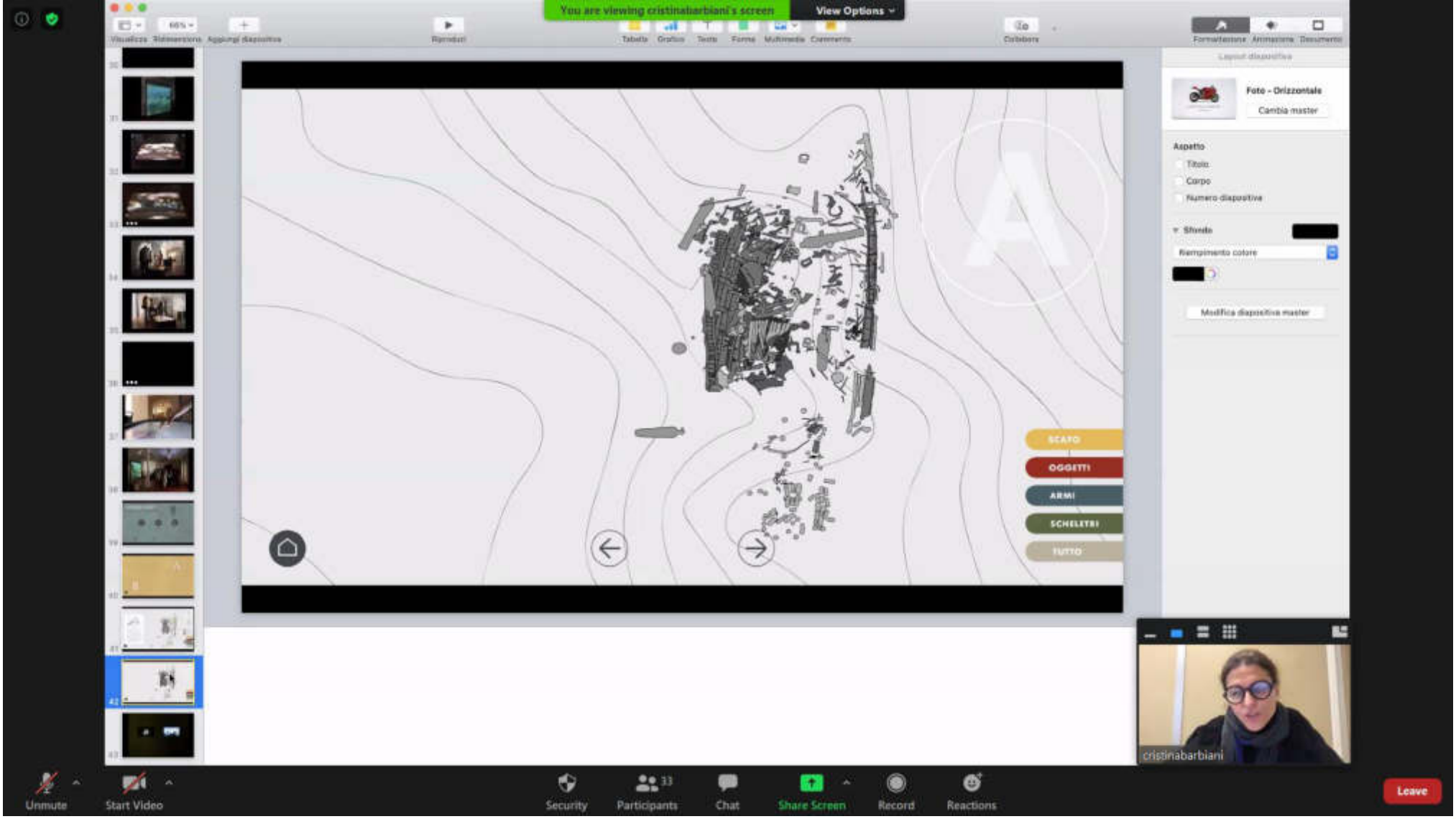

You are viewing cristinabarbiani's screen
View Options
22 febbraio 1812
04:55
Weasel
Jena
Mercurio
For 40 minutes the three brigs exchanged gunfire until the Mercurio suddenly blew up, struck by the gunpowder of the Santa Barbara.
cristinabarbiani
Unmute
Start Video
Security
Participants
34
Chat
Share Screen
Record
Reactions
Leave

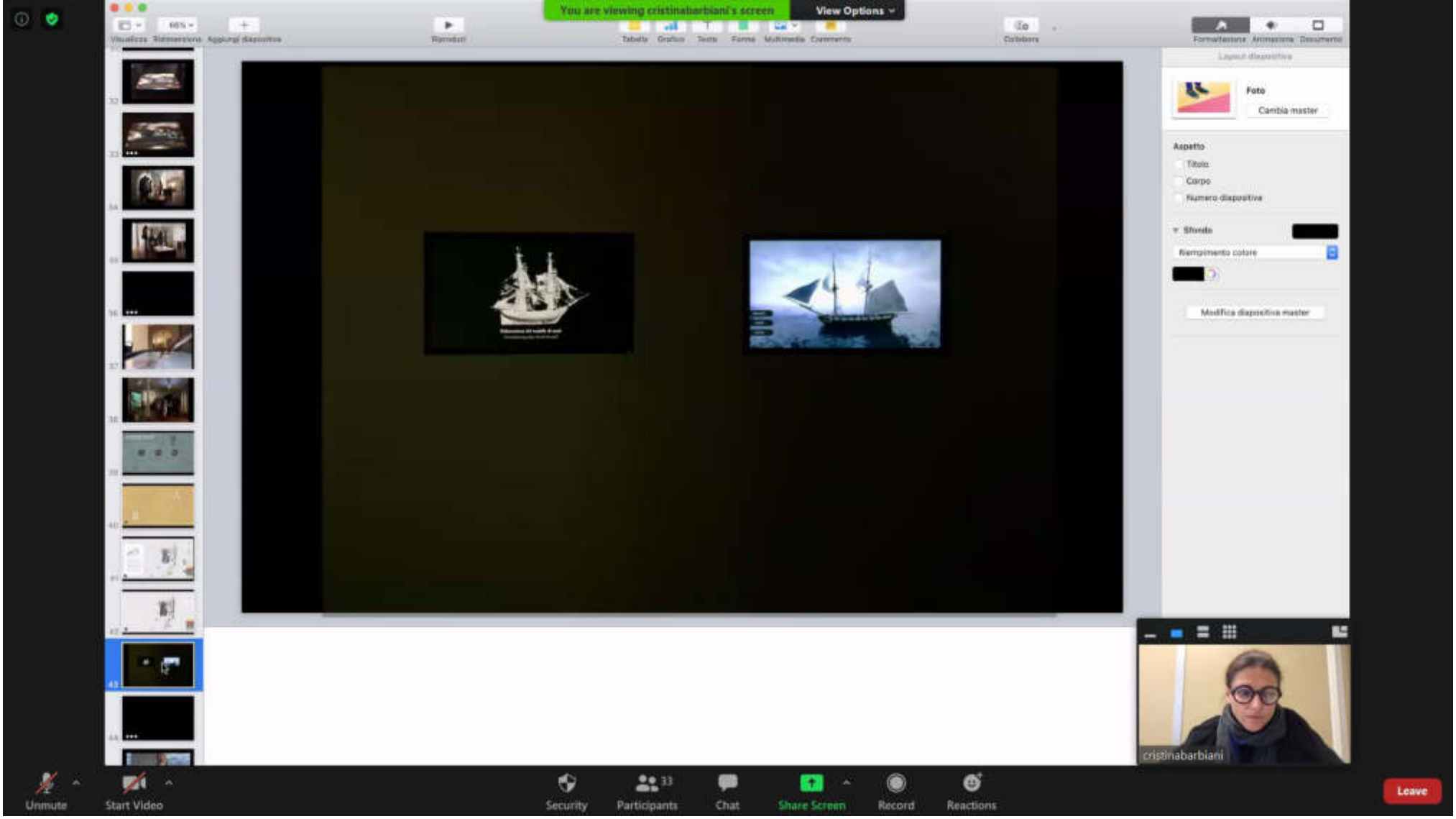

You are viewing cristinabarbiani's screen
View Options
CREATIVE USE OF TECHNOLOGY
Titolo e contenuto
Cambia master
cristinabarbiani
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave

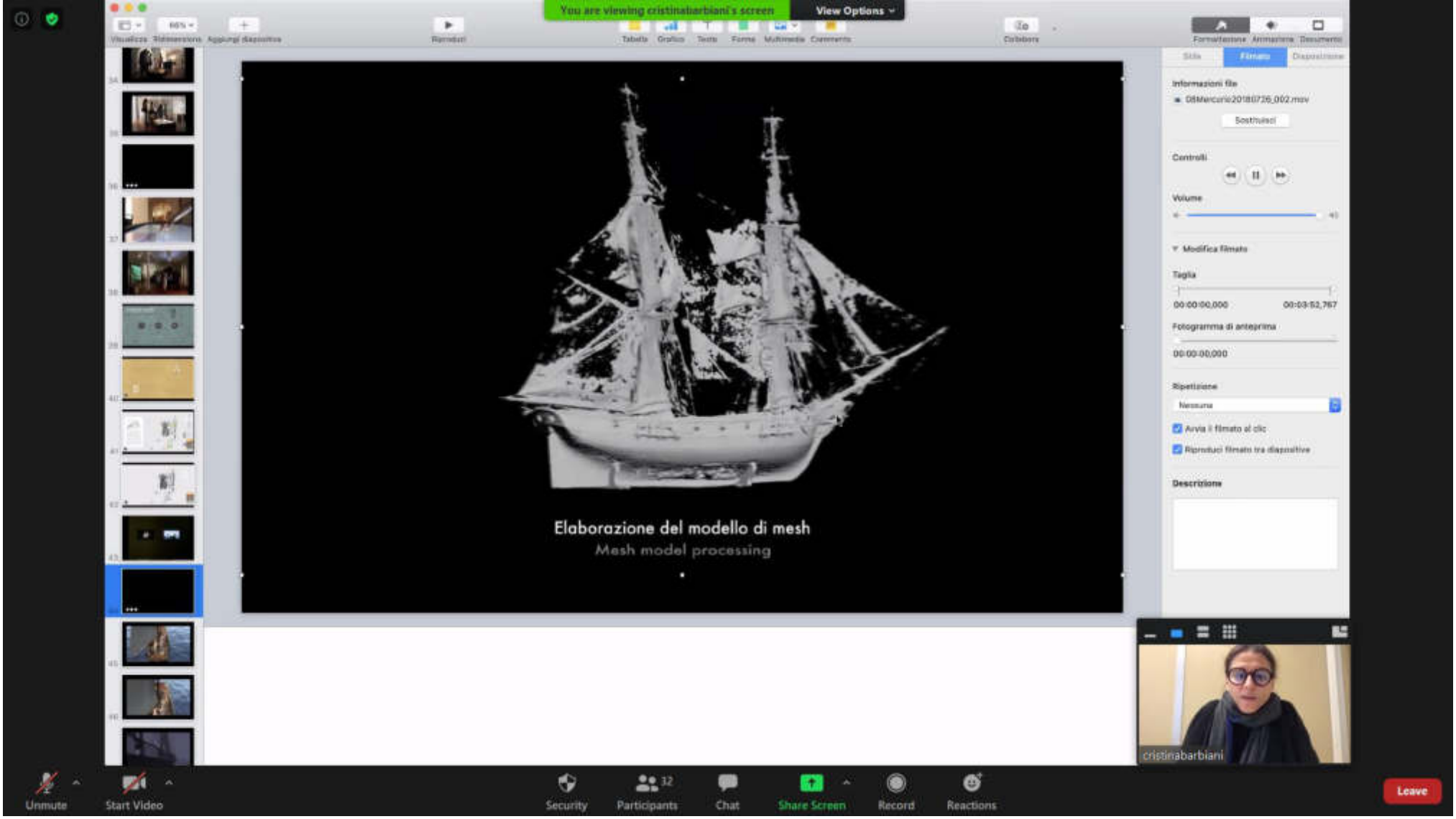

You are viewing cristinabarbiani's screen
View Options
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave
cristinabarbiani

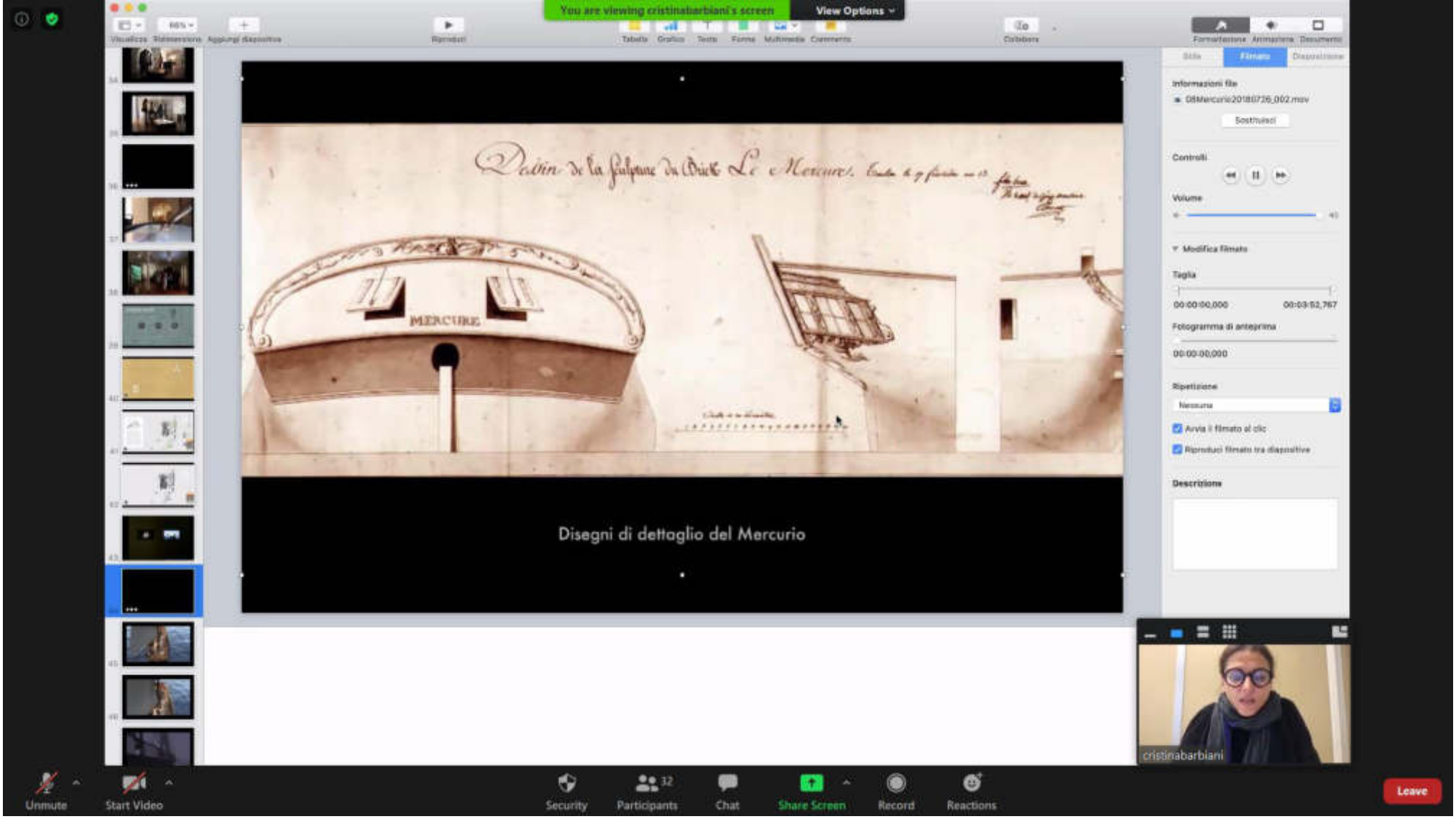

You are viewing cristinabarbiani's screen
View Options
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave
cristinabarbiani

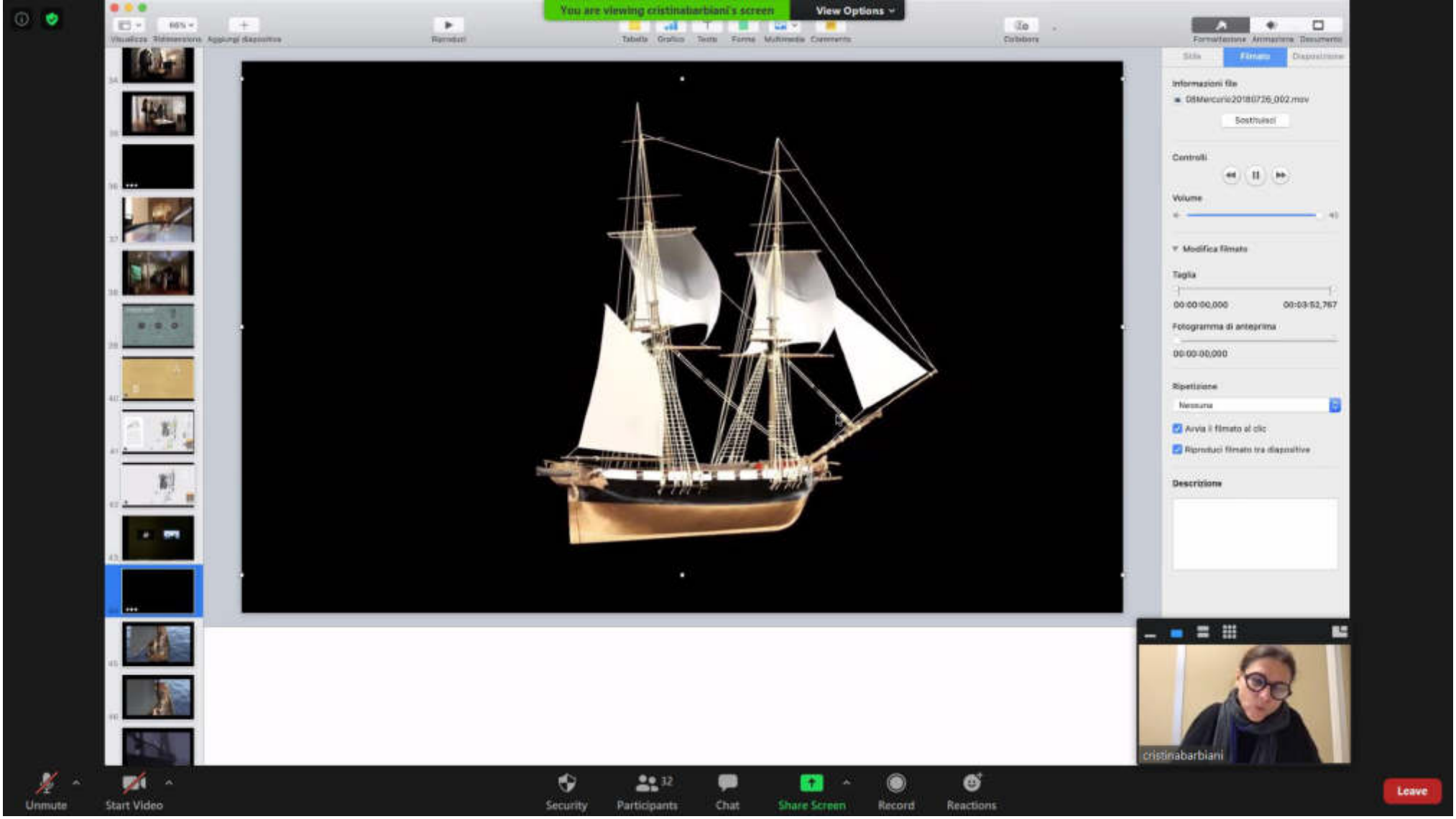

You are viewing cristinabarbiani's screen
View Options
Le campagne di scavo: identificazione dei quadranti, scavo con sorbona e rilievo fotogrammetrico
Excavation campaigns: identification of dials, digging with sorbone and photogrammetric relief
Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 L1
2001 2004 2005 2006 2007 2008
cristinabarbiani
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave

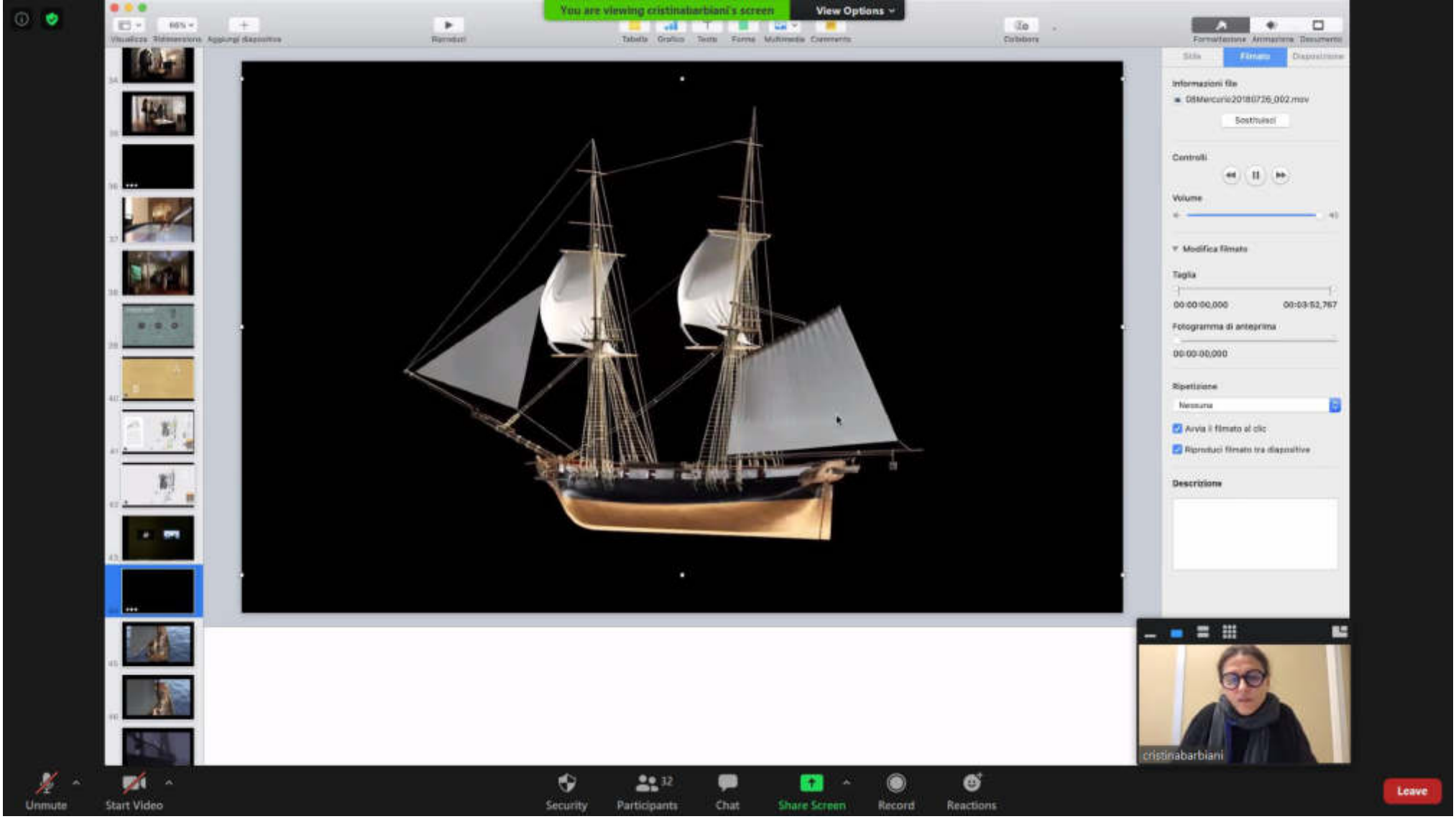

You are viewing cristinabarbiani's screen
View Options
SCAFO
OGGETTI
ARMI
SCHELETRI
TUTTO
cristinabarbiani
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave

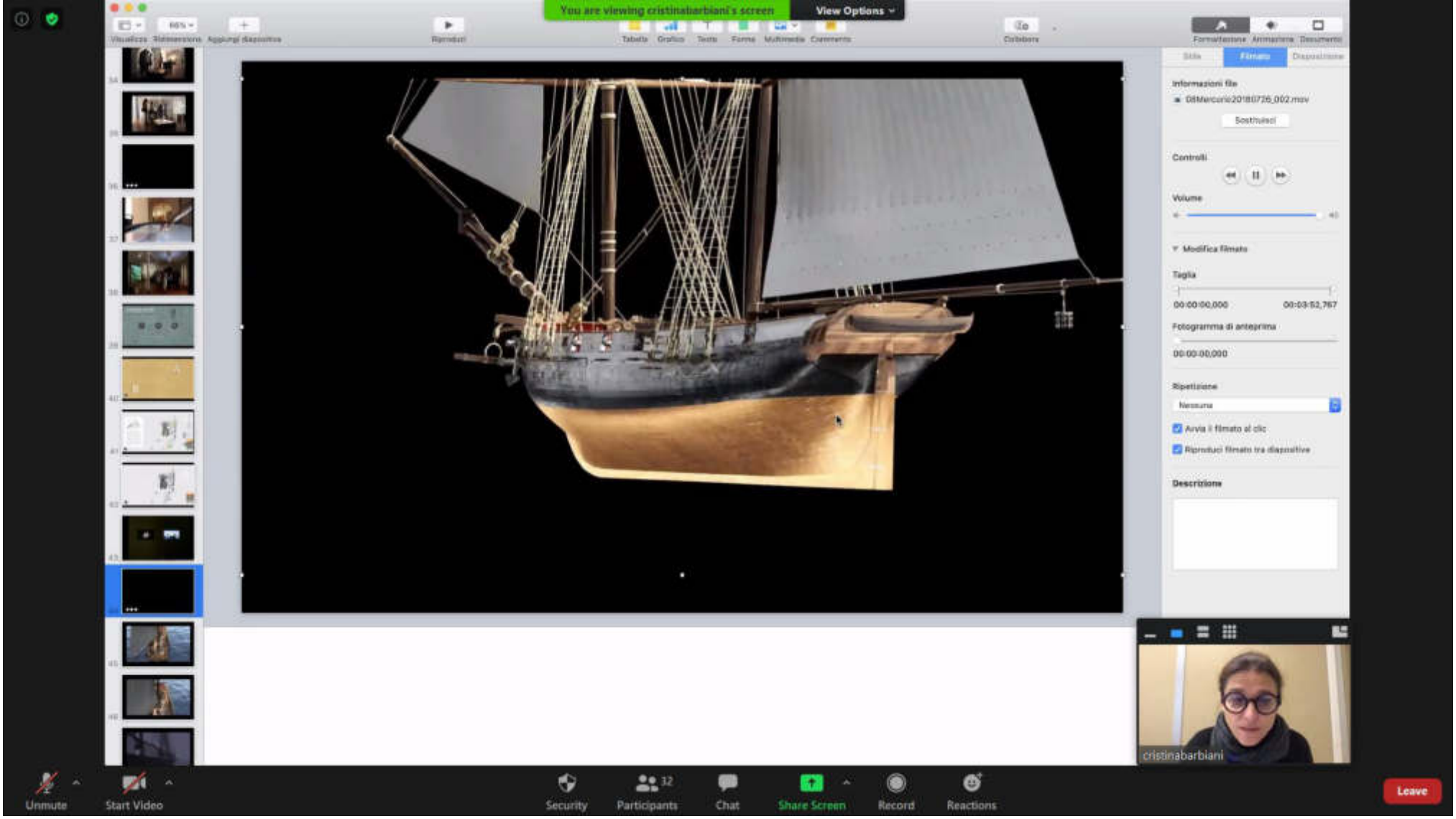

You are viewing cristinabarbiani's screen
View Options
Foto
Cambia master
Aspetto
Titolo
Corpo
Numero diapositiva
Riempimento colore
Modifica diapositiva master
cristinabarbiani
Unmute
Start Video
Security
Participants
33
Chat
Share Screen
Record
Reactions
Leave

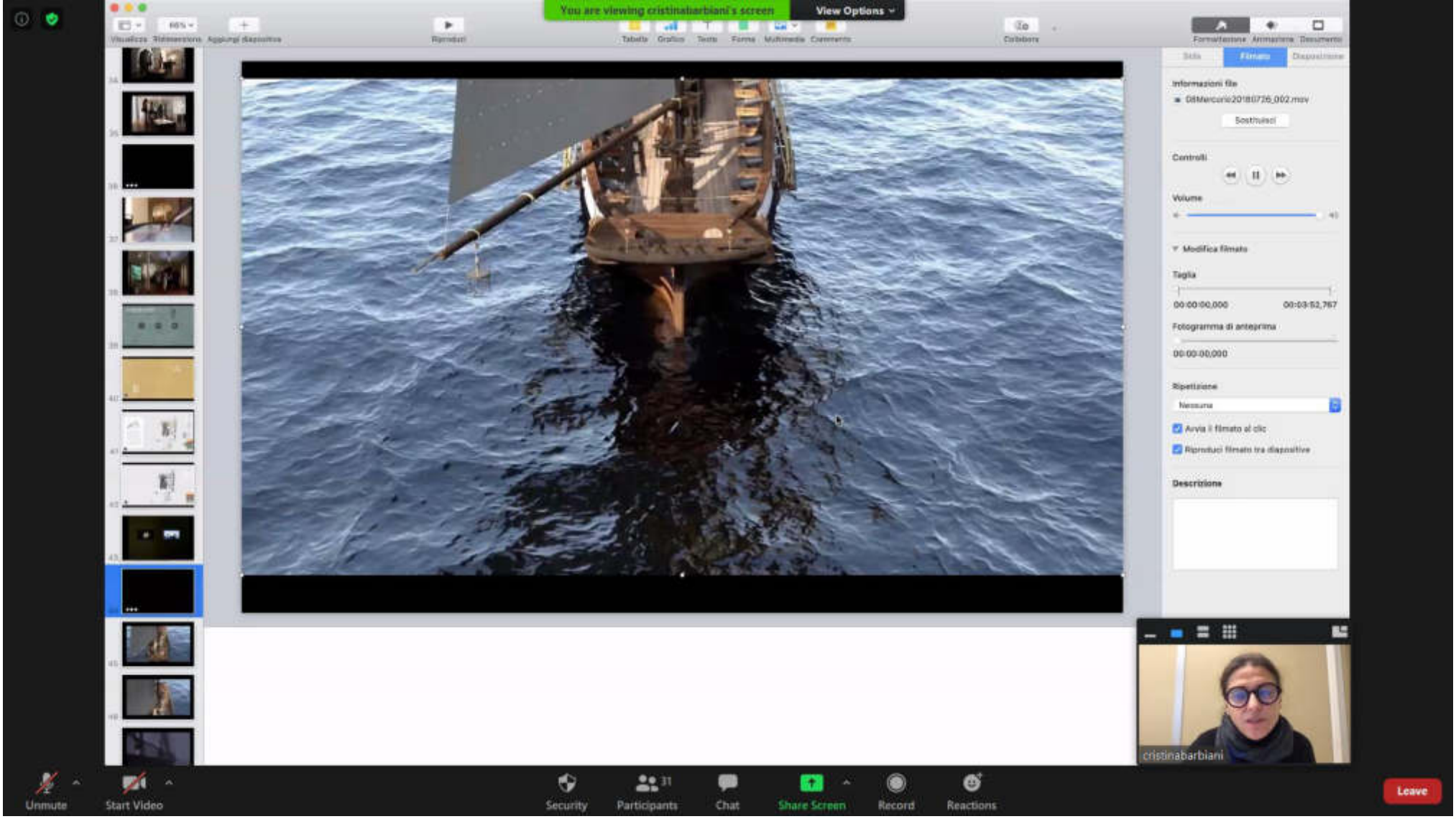

You are viewing cristinabarbiani's screen
View Options
Elaborazione del modello di mesh
Mesh model processing
cristinabarbiani
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave

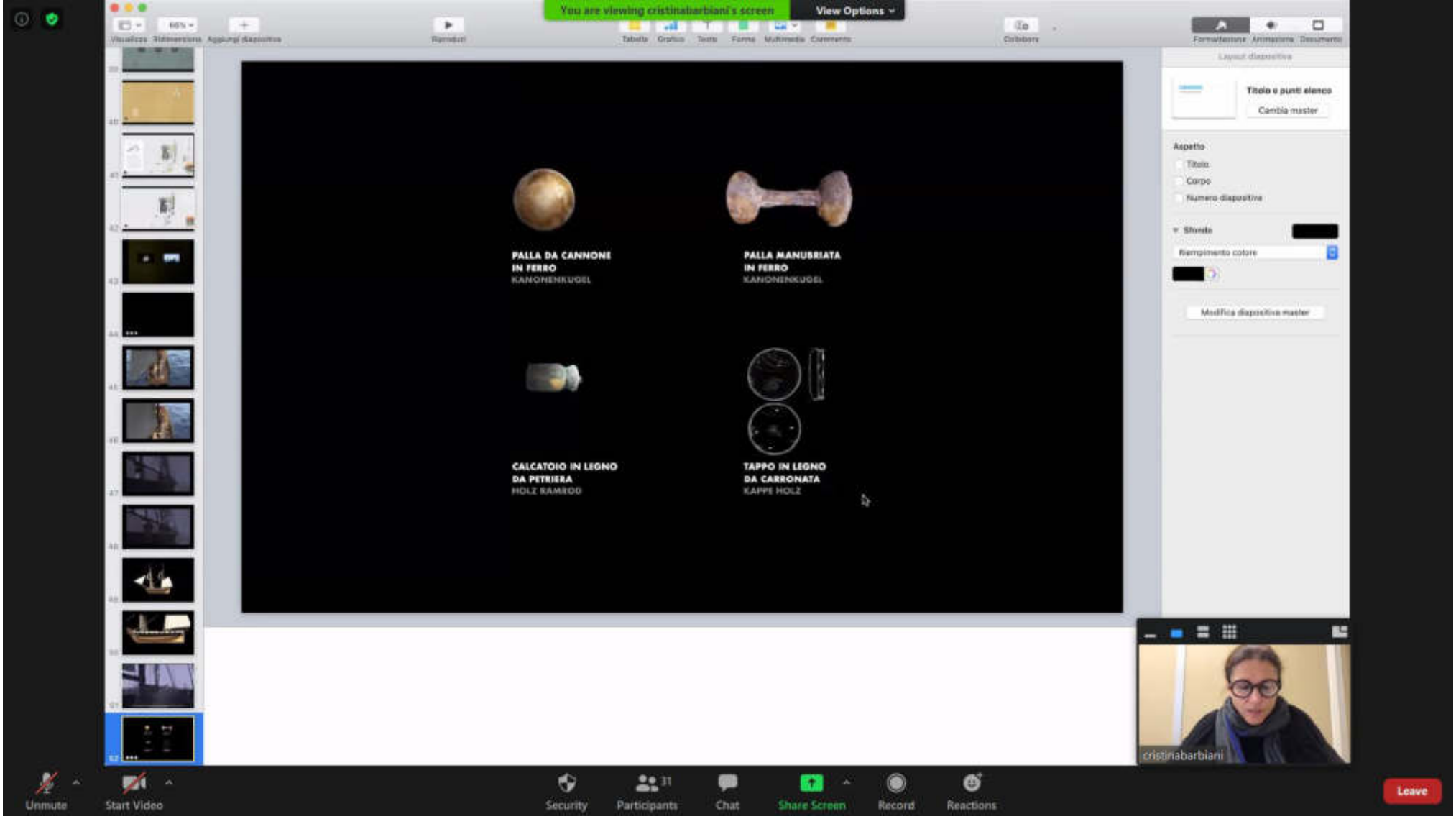

You are viewing cristinabarbiani's screen
View Options
MERCURE
Disegni di dettaglio del Mercurio
cristinabarbiani
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave

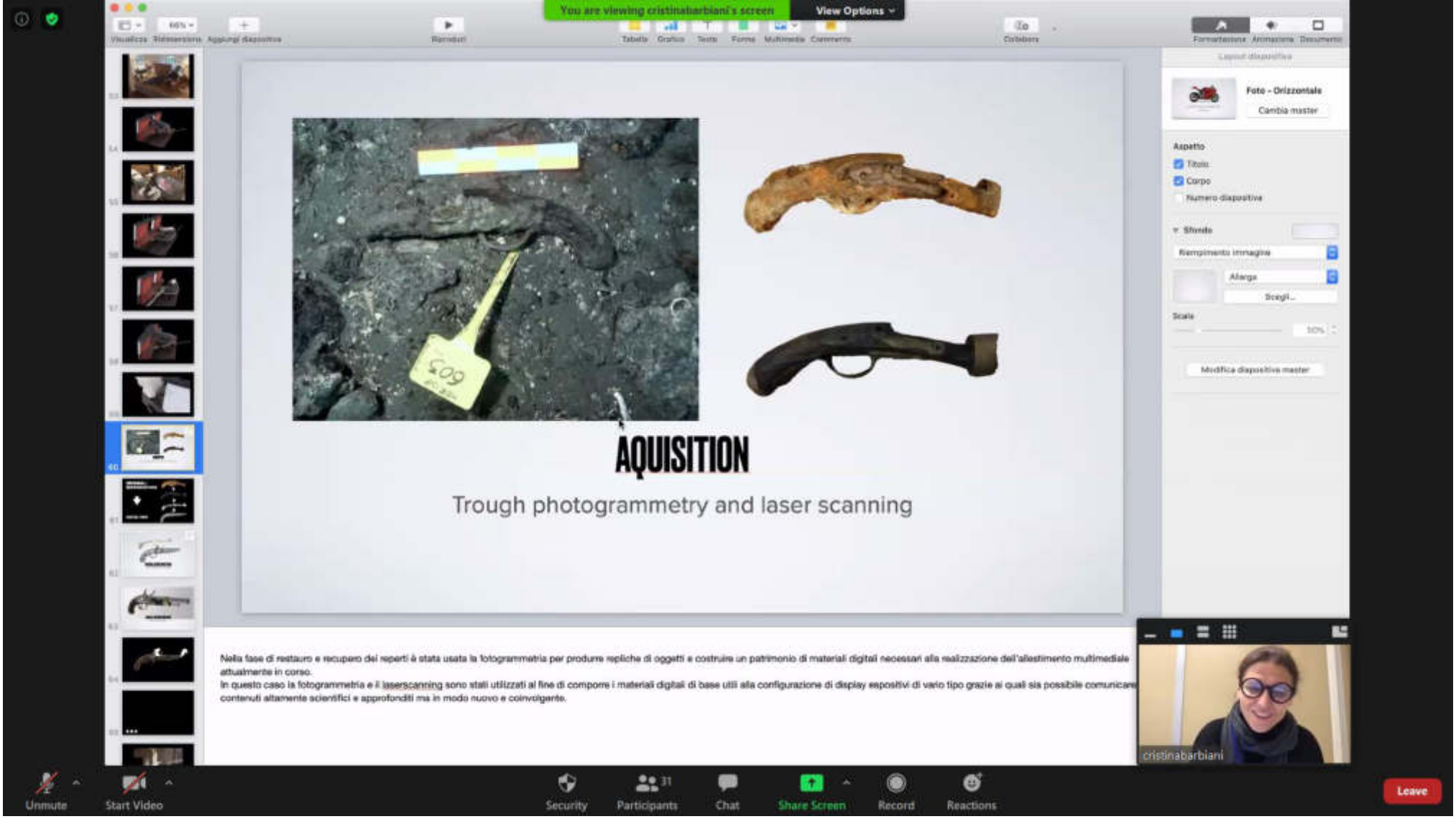

You are viewing cristinabarbiani's screen
View Options
Unmute
Start Video
Security
Participants
12
Chat
Share Screen
Record
Reactions
Leave
cristinabarbiani

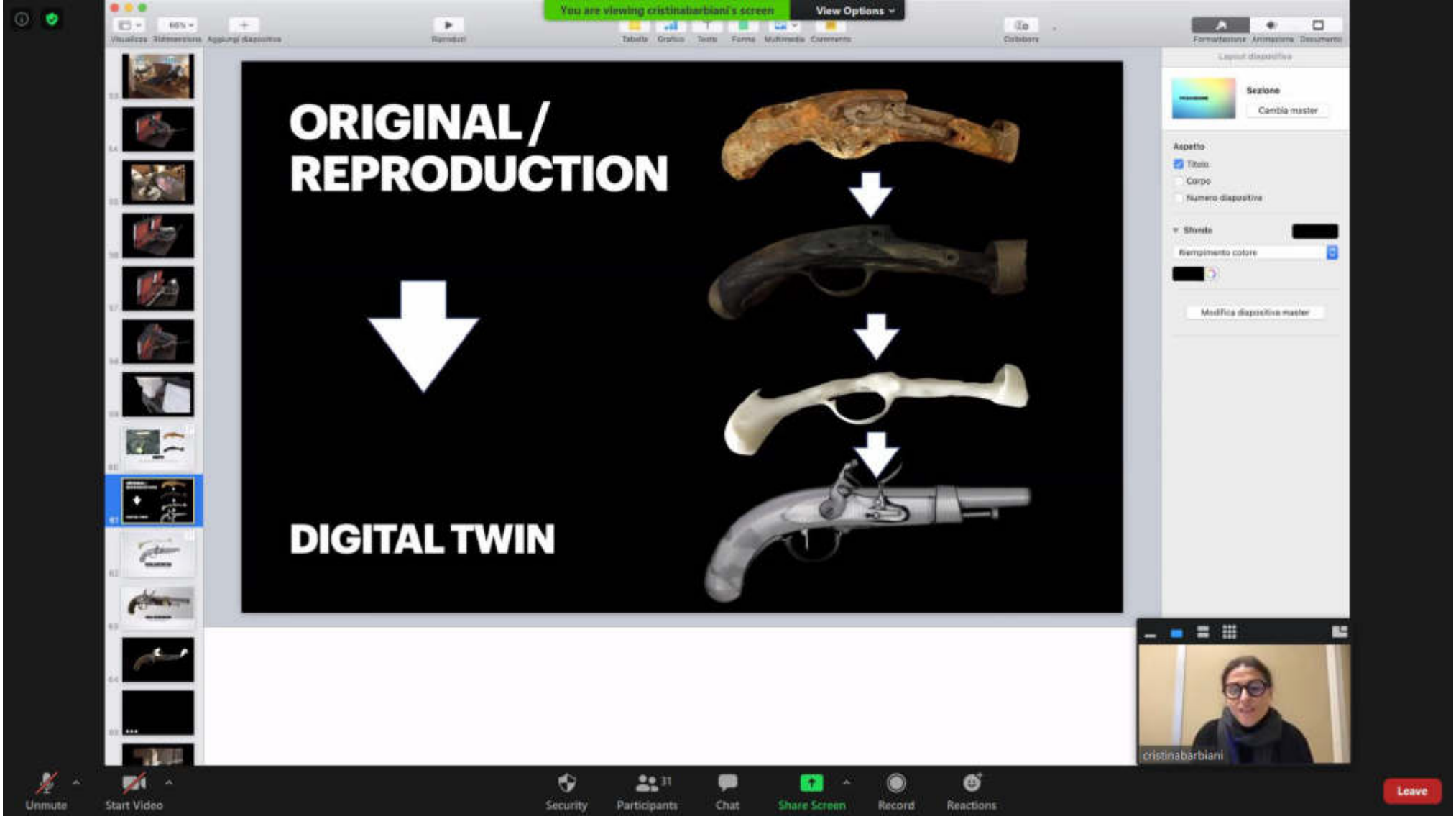

You are viewing cristinabarbiani's screen
View Options
Unmute
Start Video
Security
Participants
12
Chat
Share Screen
Record
Reactions
Leave
cristinabarbiani

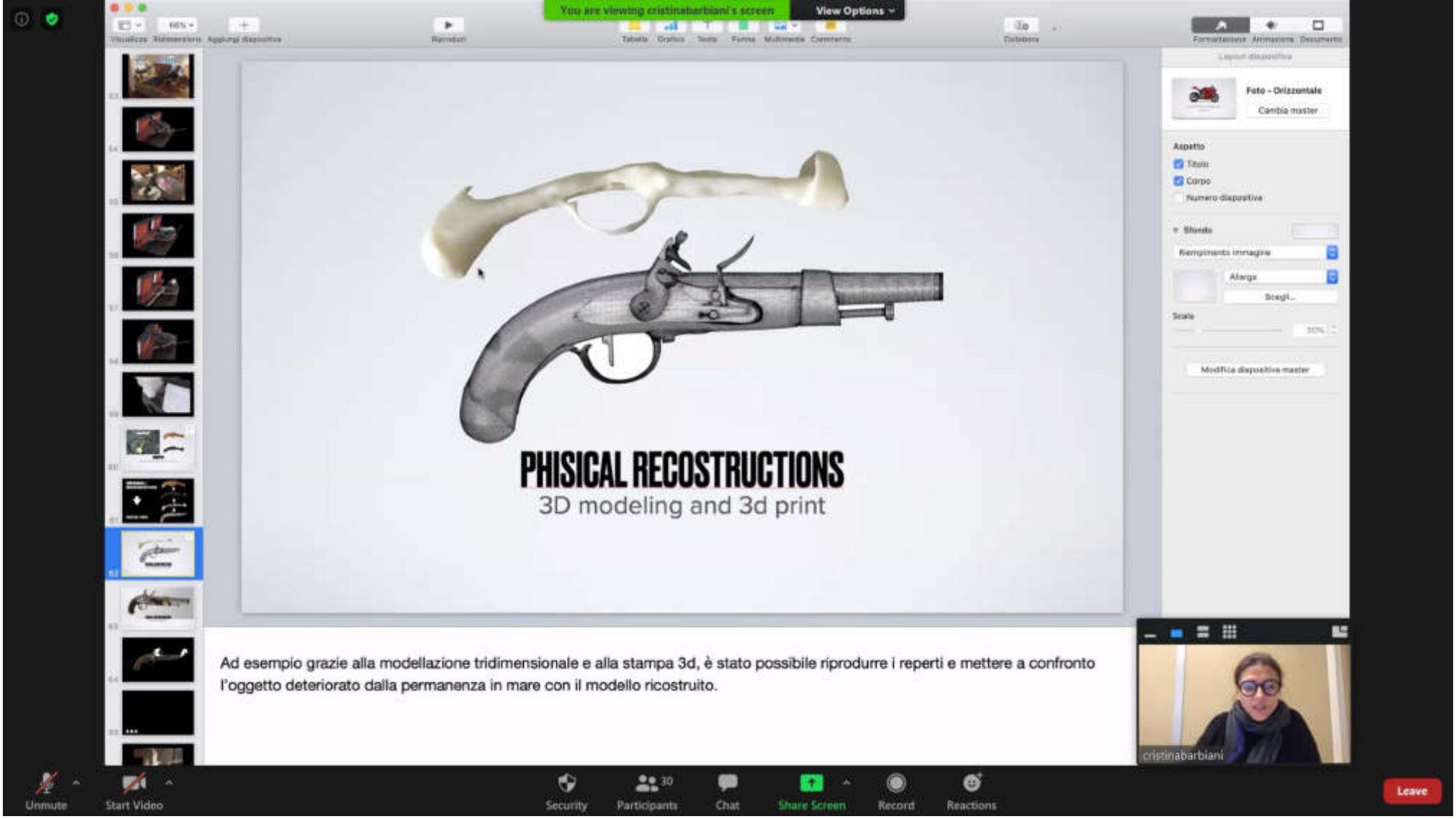

You are viewing cristinabarbiani's screen
View Options
Unmute
Start Video
Security
Participants
12
Chat
Share Screen
Record
Reactions
Leave
cristinabarbiani

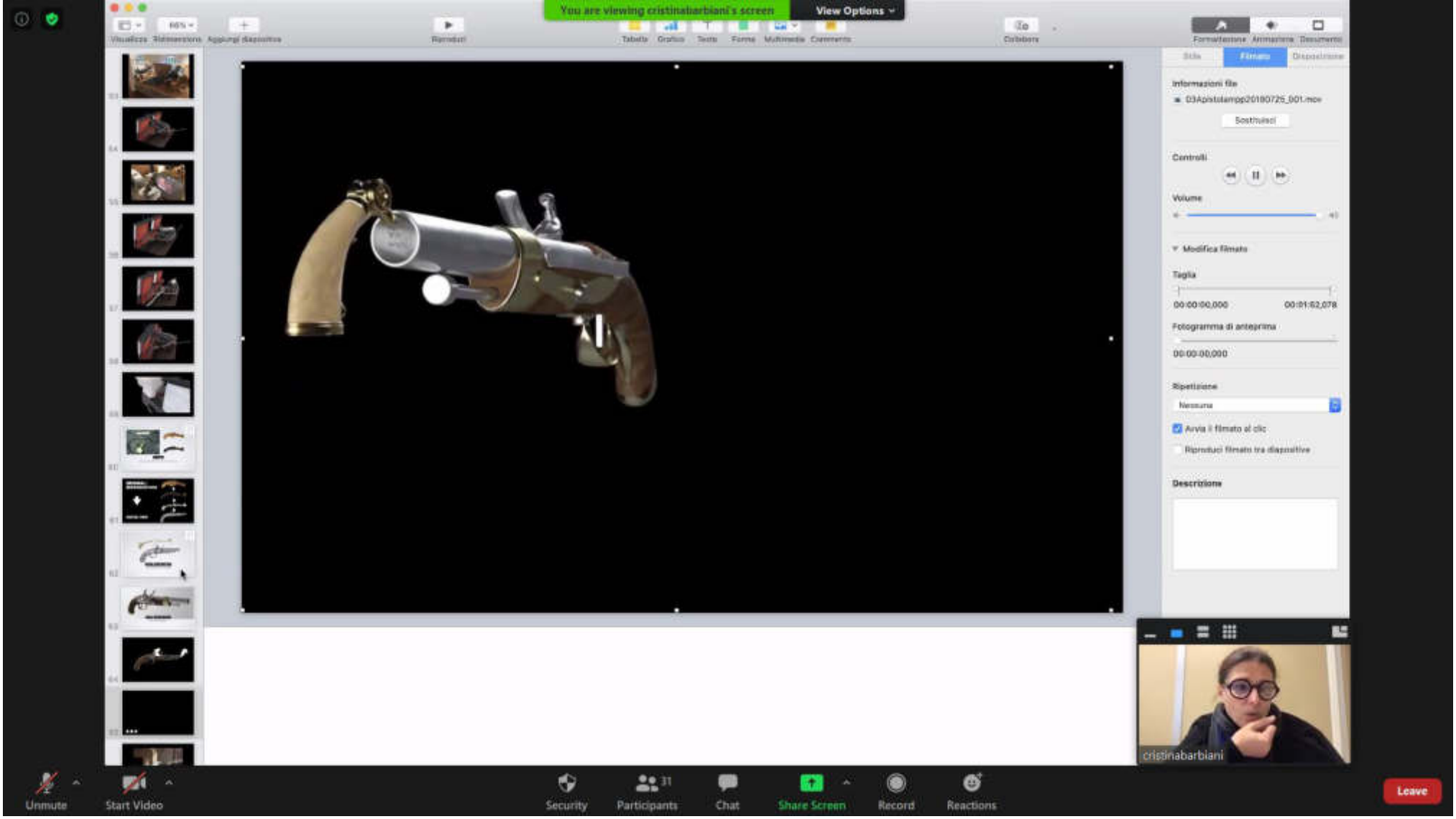

You are viewing cristinabarbiani's screen
View Options
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave
cristinabarbiani

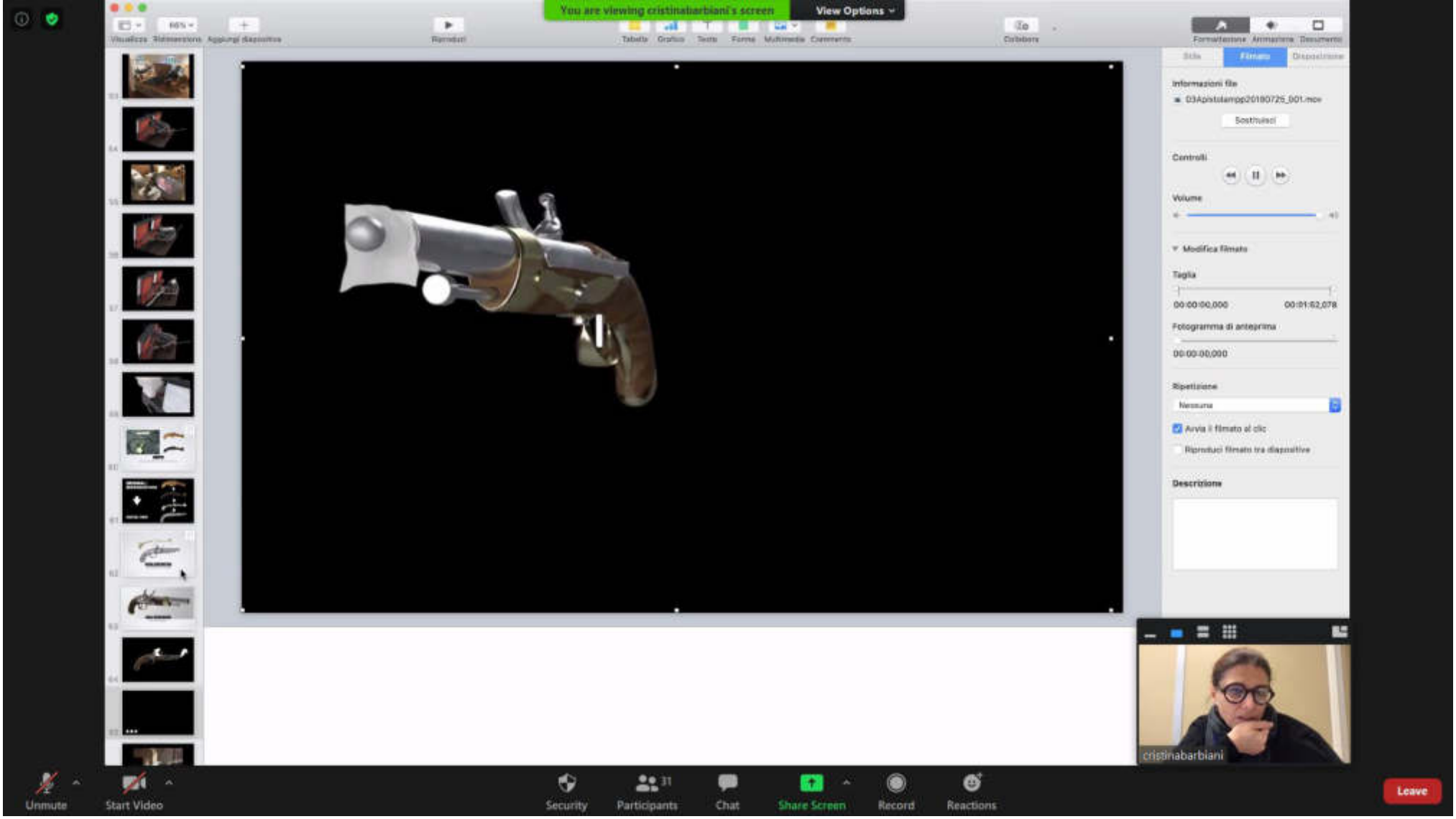

You are viewing cristinabarbiani's screen
View Options
PALLA DA CANNONE
IN FERRO
KANONENKUGEL
PALLA MANUBRIATA
IN FERRO
KANONENKUGEL
CALCATOIO IN LEGNO
DA PETRIERA
HOLZ RAMROD
TAPPO IN LEGNO
DA CARRONATA
KAPPE HOLZ
Titolo e punti elenco
Cambia master
Aspetto
Titolo
Corpo
Numero diapositiva
Sfondo
Riempimento colore
Modifica diapositiva master
cristinabarbiani
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave

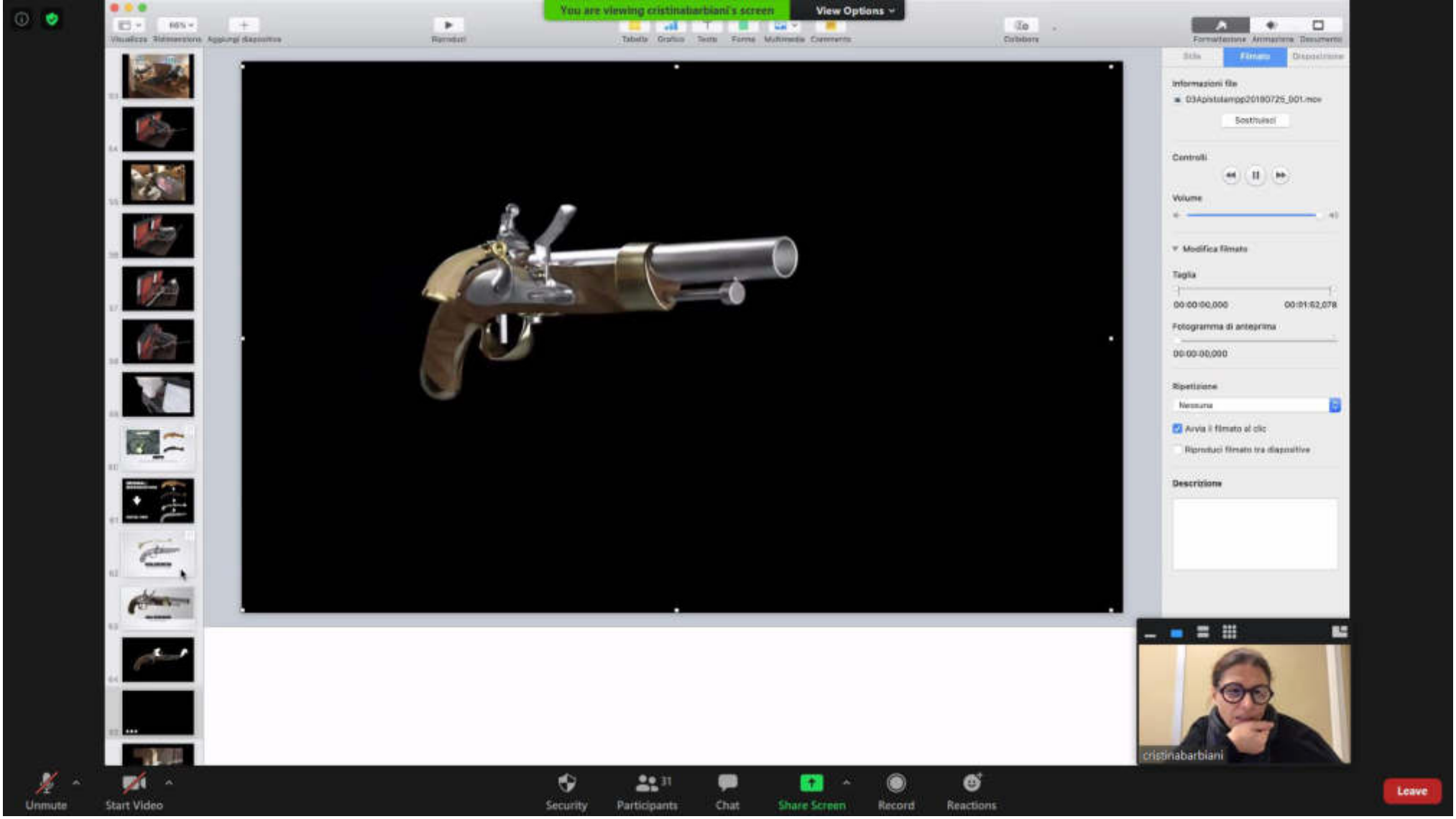

You are viewing cristinabarbiani's screen
View Options
AQUISITION
Trough photogrammetry and laser scanning
Nella fase di restauro e recupero dei reperti è stata usata la fotogrammetria per produrre repliche di oggetti e costruire un patrimonio di materiali digitali necessari alla realizzazione dell'allestimento multimediale attualmente in corso.
In questo caso la fotogrammetria e il laserscanning sono stati utilizzati al fine di comporre i materiali digitali di base utili alla configurazione di display espositivi di vario tipo grazie ai quali sia possibile comunicare contenuti altamente scientifici e approfonditi ma in modo nuovo e coinvolgente.
cristinabarbiani
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave

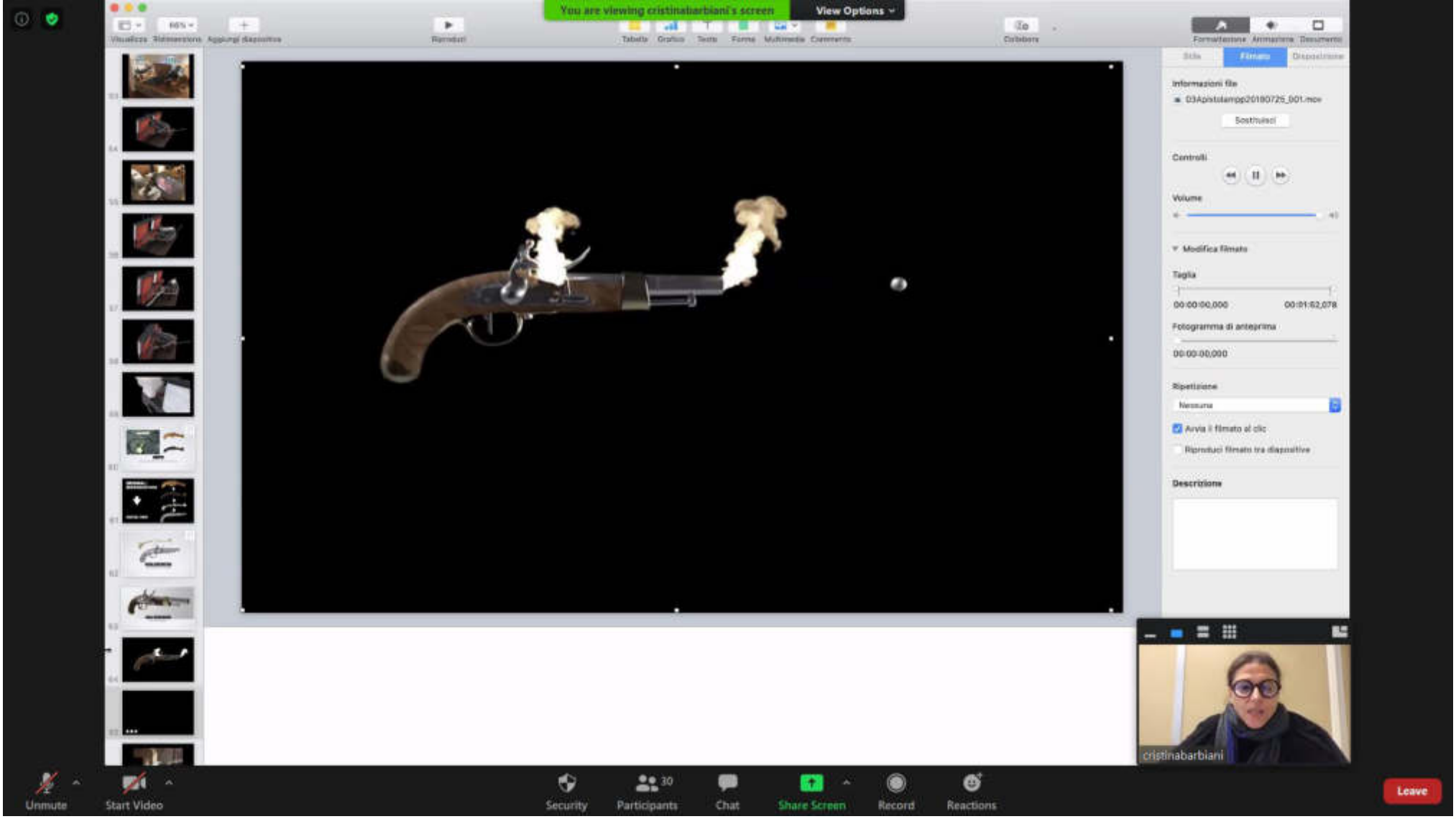

You are viewing cristinabarbiani's screen
View Options
ORIGINAL / REPRODUCTION
DIGITAL TWIN
cristinabarbiani
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave

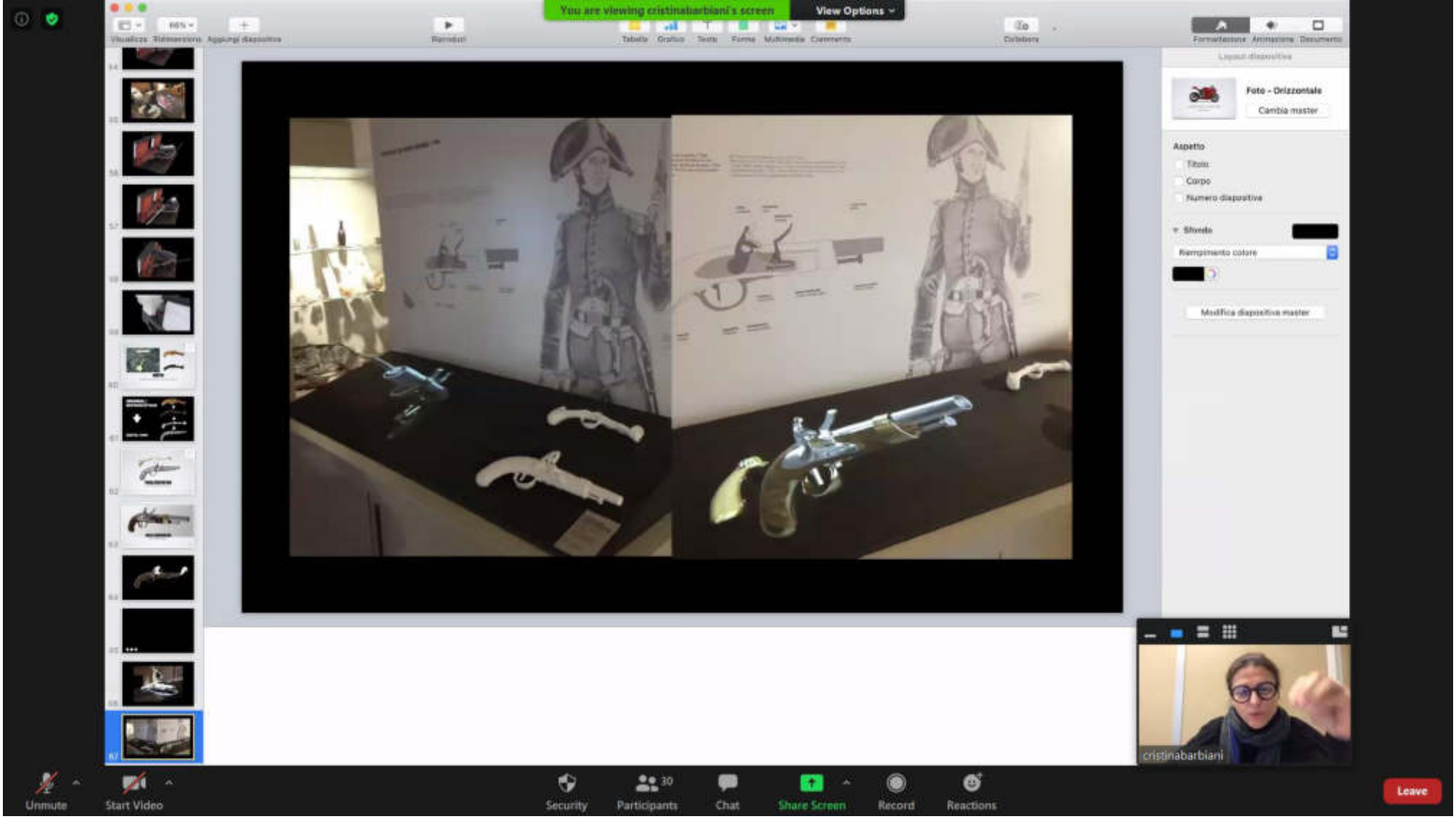

You are viewing cristinabarbiani's screen
View Options
PHISICAL RECOSTRUCTIONS
3D modeling and 3d print
Ad esempio grazie alla modellazione tridimensionale e alla stampa 3d, è stato possibile riprodurre i reperti e mettere a confronto l'oggetto deteriorato dalla permanenza in mare con il modello ricostruito.
cristinabarbiani
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave

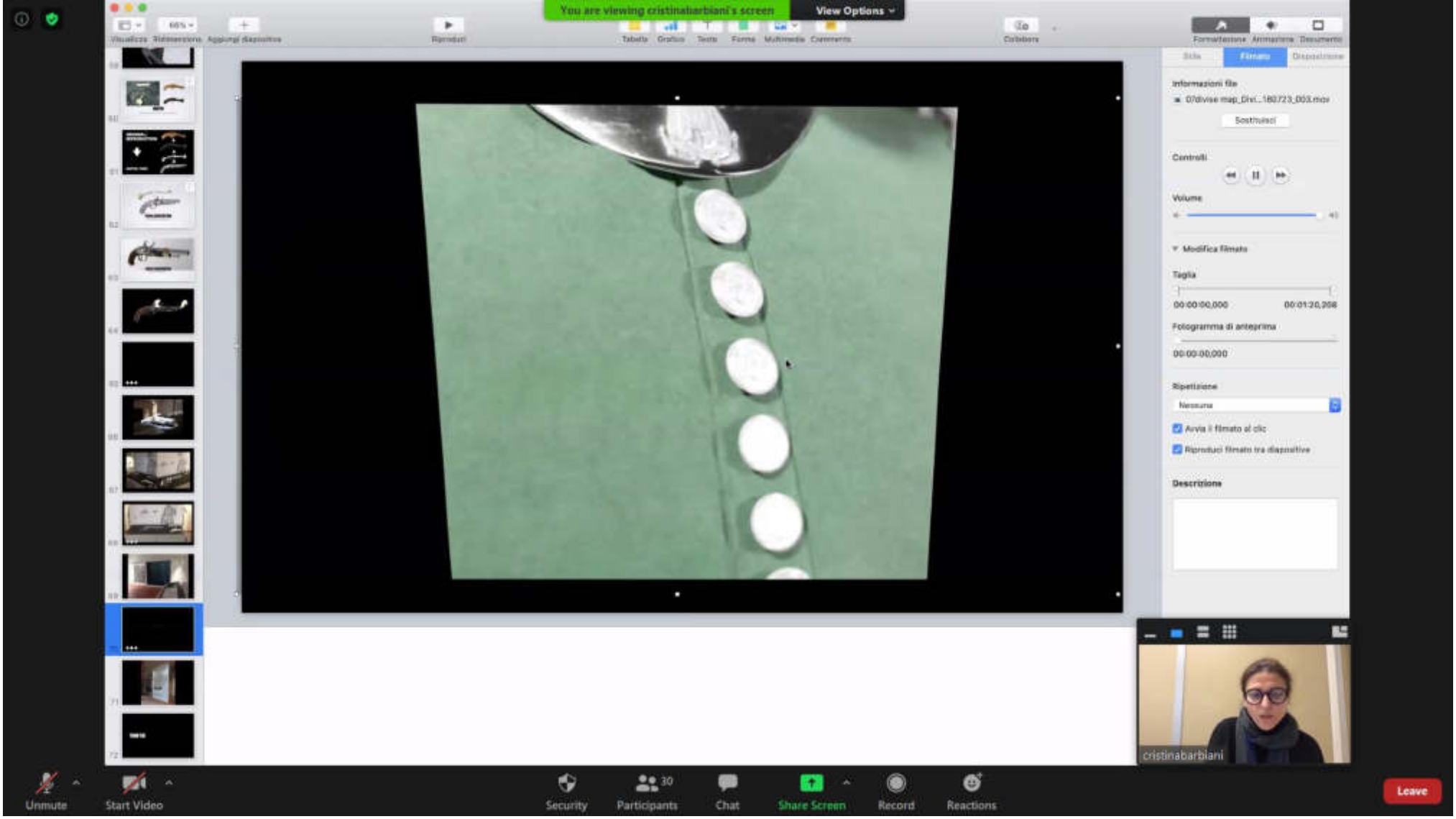

You are viewing cristinabarbiani's screen
View Options
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave
cristinabarbiani

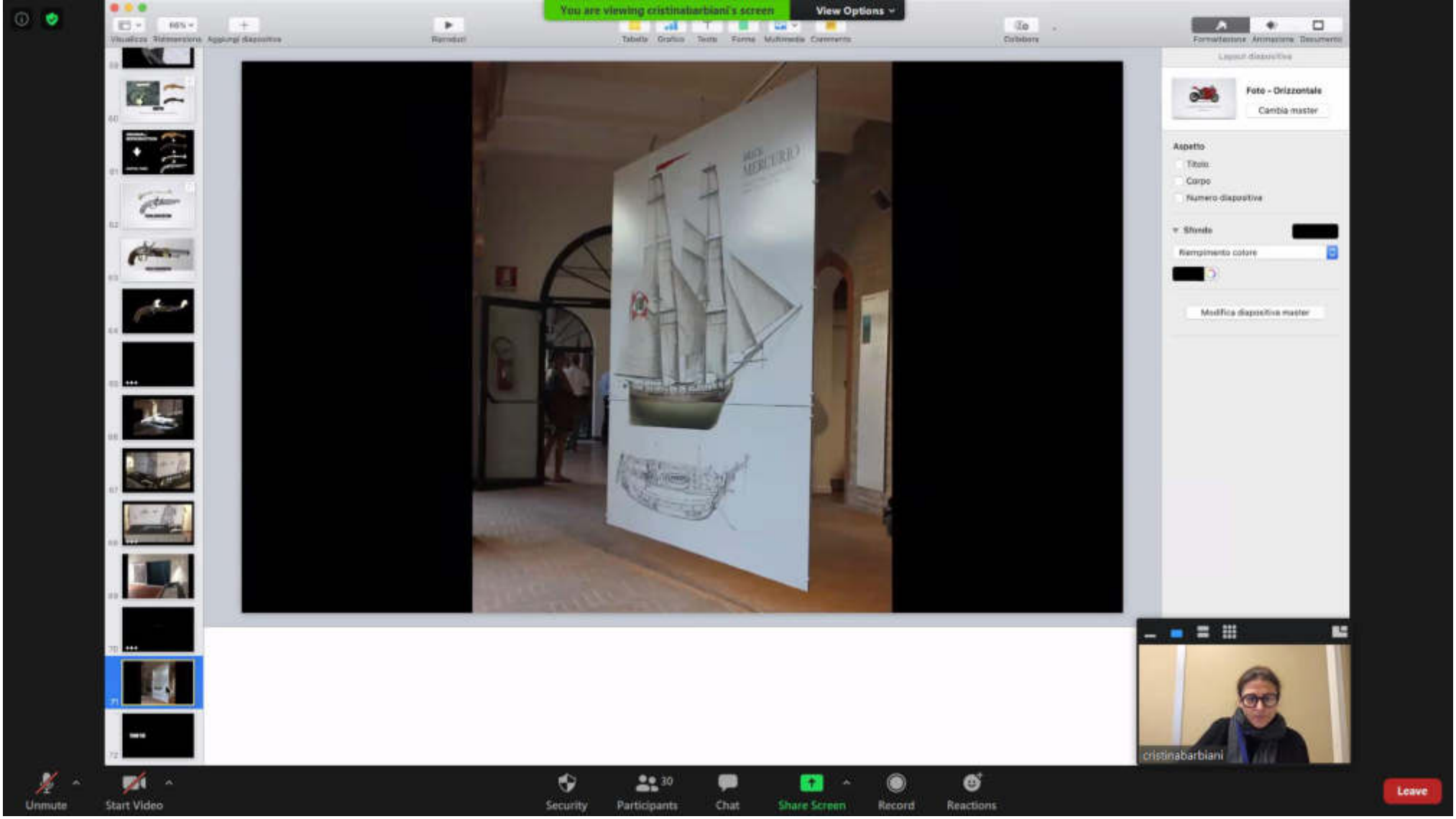

You are viewing cristinabarbiani's screen
View Options
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave
cristinabarbiani


You are viewing cristinabarbiani's screen
View Options
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave
cristinabarbiani


You are viewing cristinabarbiani's screen
View Options
Informazioni file
Controlli
Volume
Modifica filmato
Taglia
Fotogramma di anteprima
Ripetizione
Descrizione
cristinabarbiani
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave


You are viewing cristinabarbiani's screen
View Options
Foto - Orizzontale
Cambia master
Aspetto
Titolo
Corpo
Numero diapositiva
Sfondo
Riempimento colore
Modifica diapositiva master
cristinabarbiani
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave


You are viewing cristinabarbiani's screen
View Options
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave
cristinabarbiani

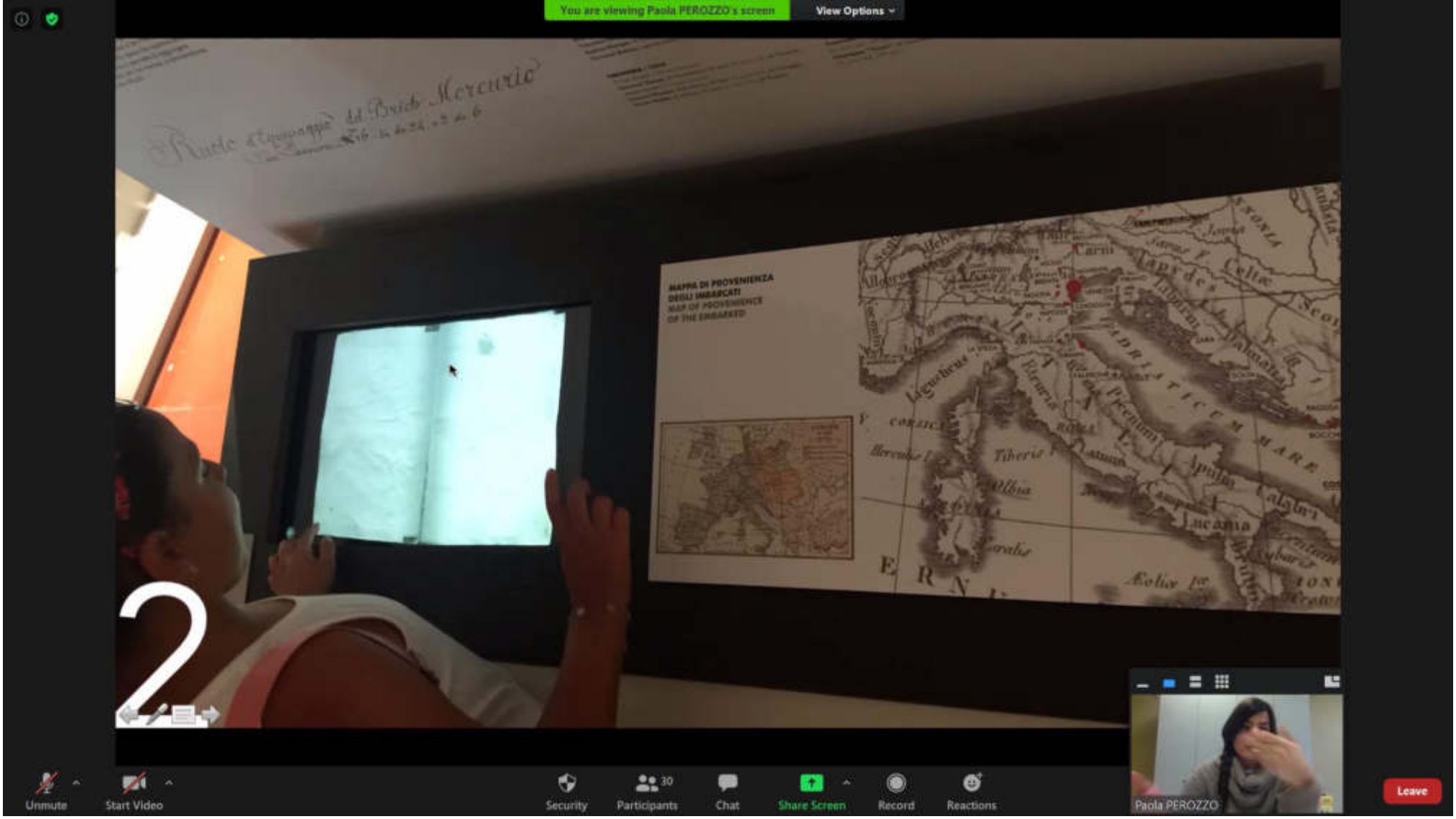

You are viewing cristinabarbiani's screen
View Options
Foto - Orizzontale
Cambia master
Aspetto
Titolo
Corpo
Numero diapositiva
Sfondo
Riempimento colore
Modifica diapositiva master
cristinabarbiani
Unmute
Start Video
Security
Participants
30
Chat
Share Screen
Record
Reactions
Leave

VIRTUAL REALITY ENGINES FOR MULTIMEDIA INSTALLATION AT THE NATIONAL ARCHAEOLOGICAL MARITIME MUSEUM

Paola Perozzo

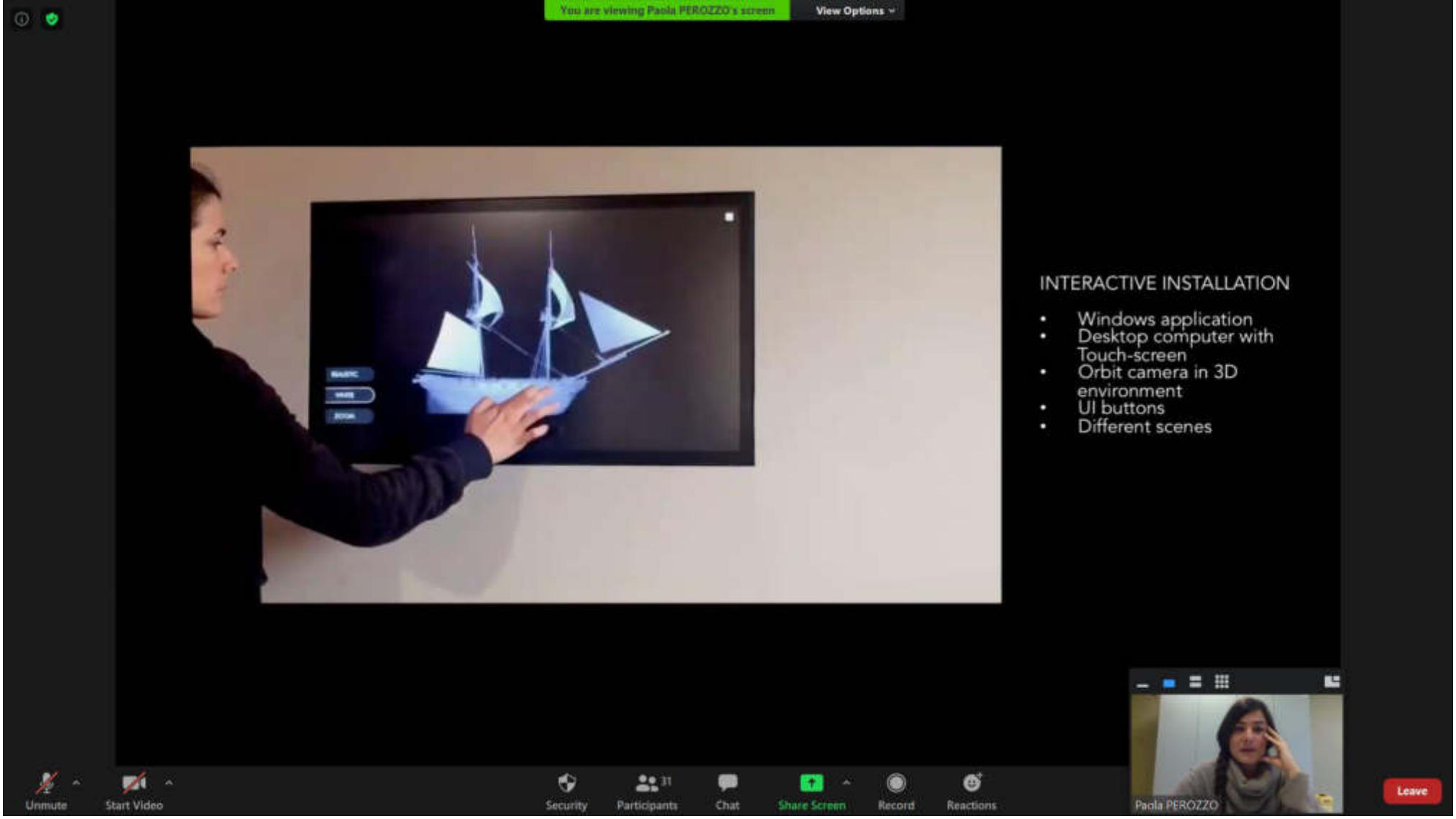
Interreg
Italy - Croatia
UnderwaterMuse
European Regional Development Fund
EUROPEAN UNION

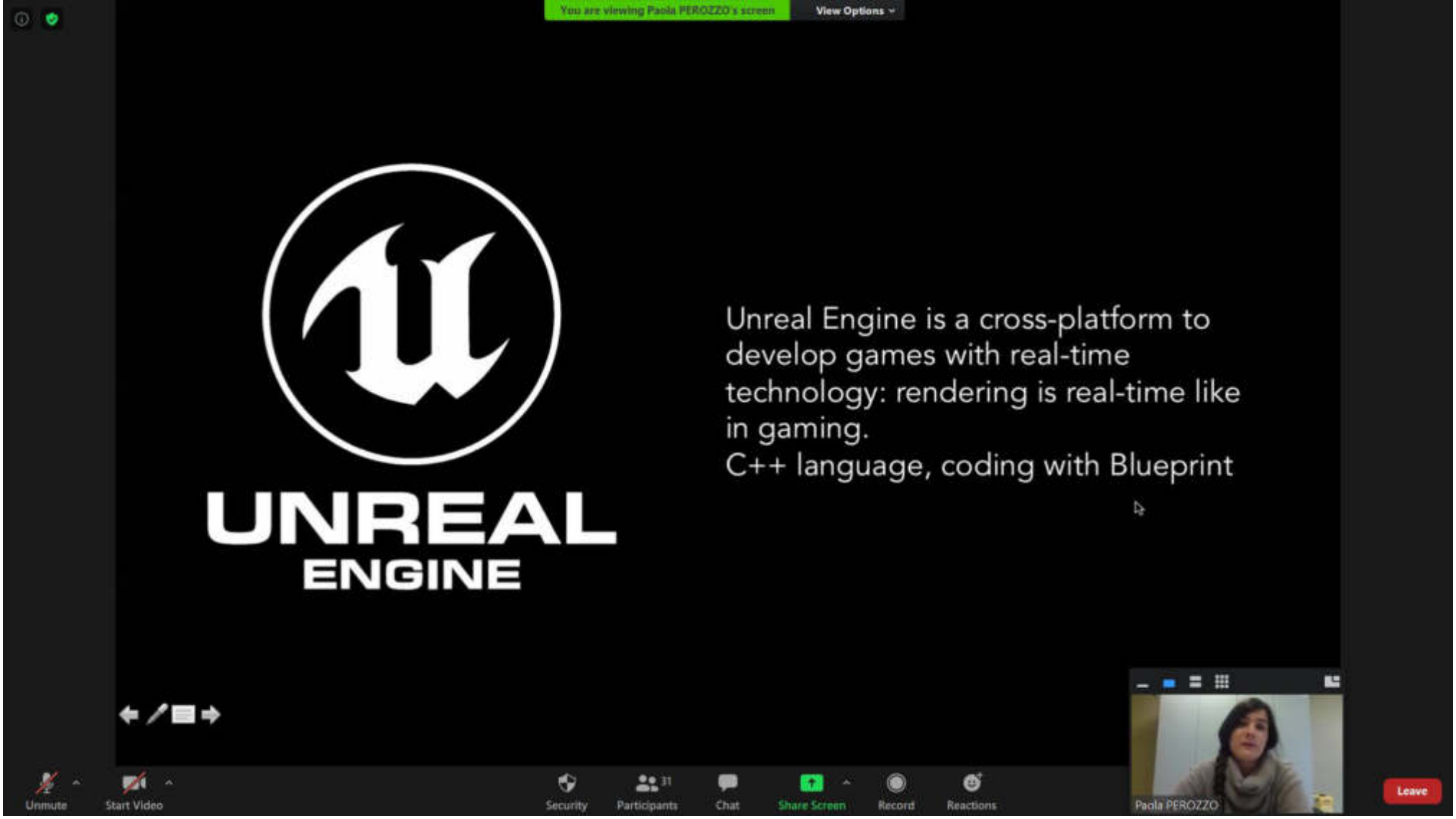

You are viewing Paola PEROZZO's screen
View Options
1
Unmute
Start Video
Security
Participants
30
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave


You are viewing Paola PEROZZO's screen
View Options
MAPPA DI PROVENIENZA
DEGLI IMBARCATI
MAP OF PROVENIENCE
OF THE EMBARKED
Unmute
Start Video
Security
Participants
30
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave


You are viewing Paola PEROZZO's screen
View Options
1. the mesh model from photogrammetry of the "Cygne wooden model
Unmute
Start Video
Security
Participants
30
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave


You are viewing Paola PEROZZO's screen
View Options
INTERACTIVE INSTALLATION
Windows application
Desktop computer with Touch-screen
Orbit camera in 3D environment
UI buttons
Different scenes
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave

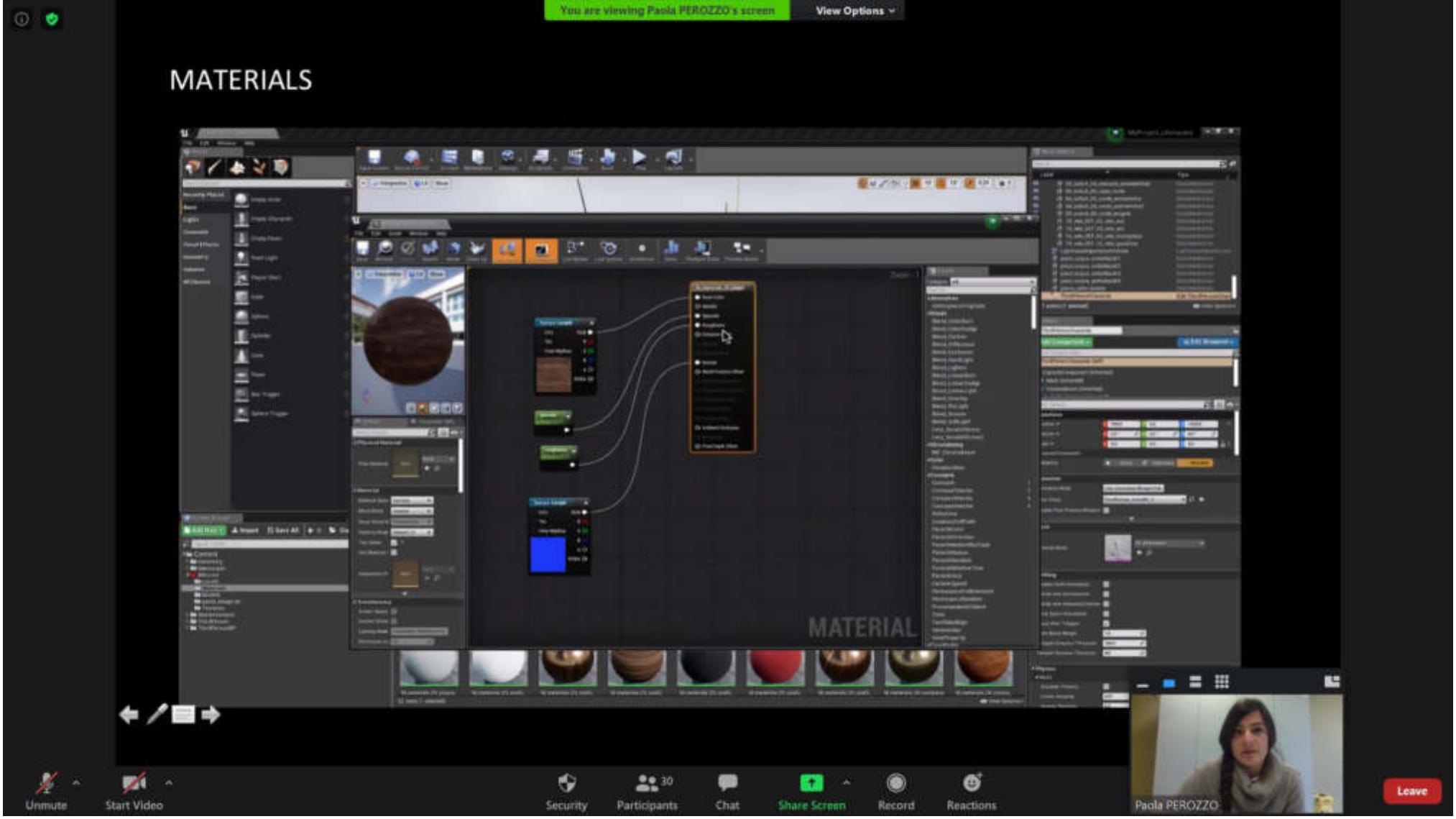

You are viewing Paola PEROZZO's screen
View Options
INTERACTIVE INSTALLATION
Windows application
Desktop computer with Touch-screen
Orbit camera in 3D environment
UI buttons
Different scenes
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave

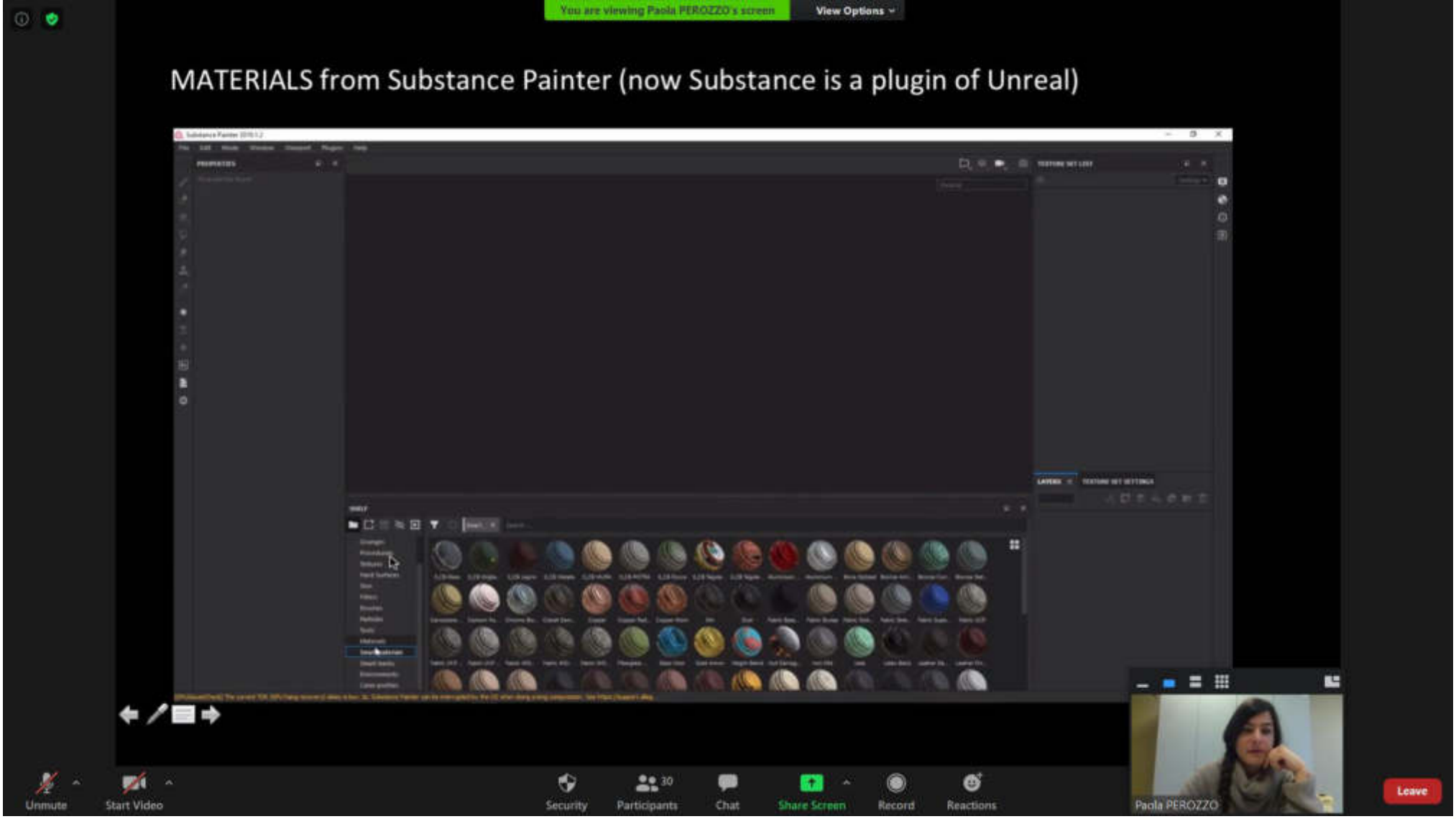

You are viewing Paola PEROZZO's screen
View Options
UNREAL
ENGINE
Unreal Engine is a cross-platform to develop games with real-time technology: rendering is real-time like in gaming.
C++ language, coding with Blueprint
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave

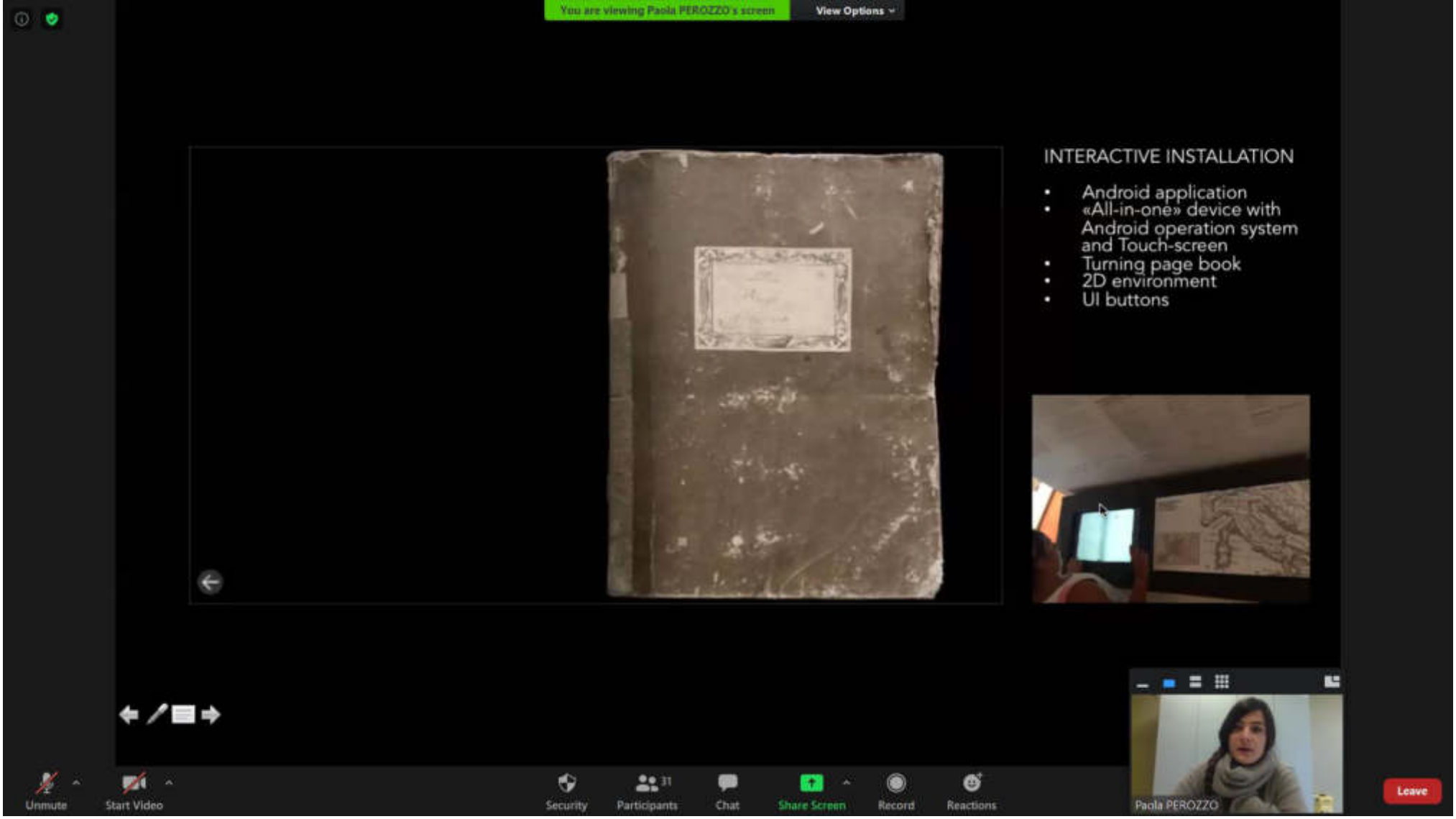

You are viewing Paola PEROZZO's screen
View Options
3D ENVIRONMENT
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave


You are viewing Paola PEROZZO's screen
View Options
THIRD PERSON CHARACTER
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave

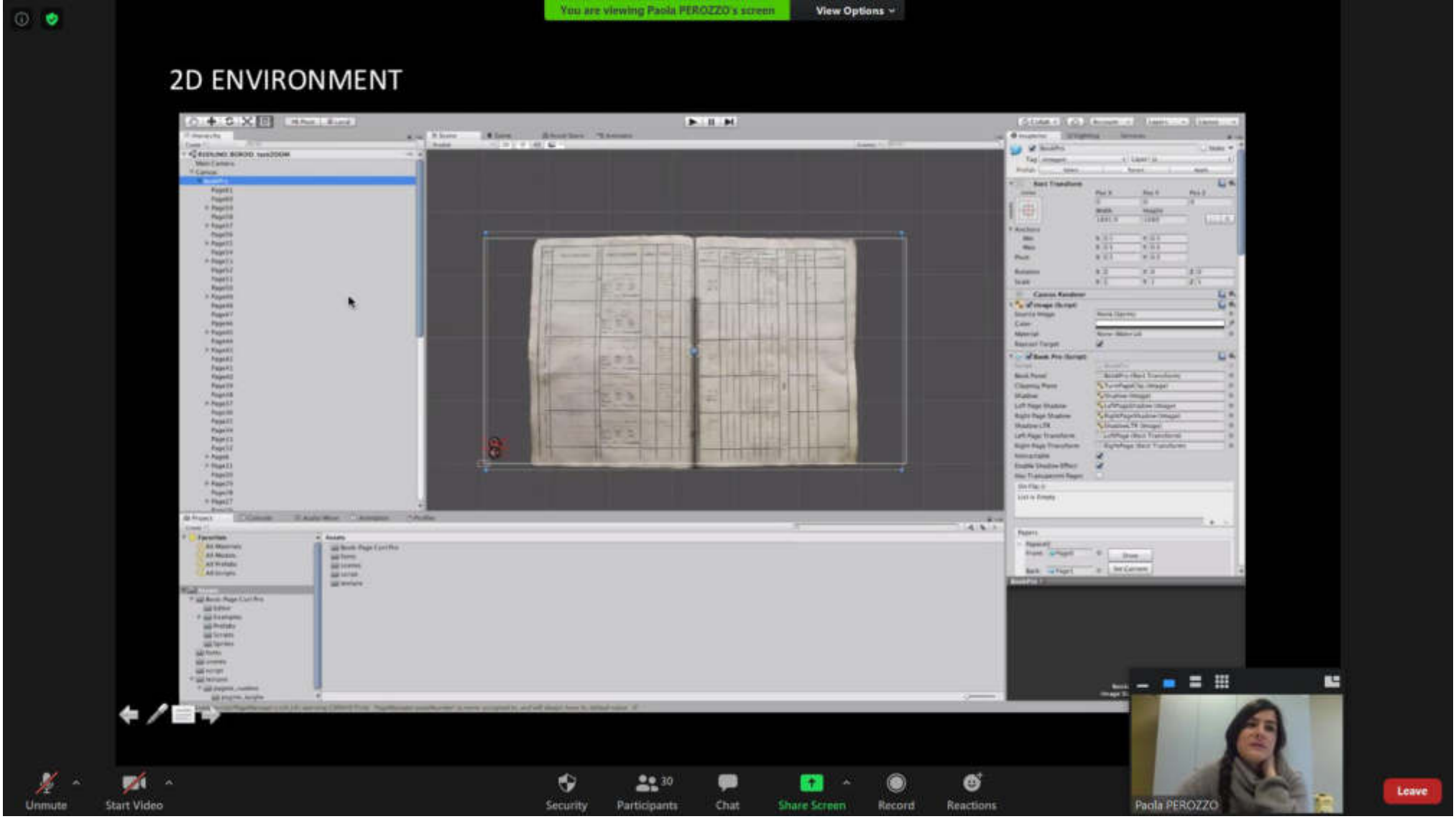

You are viewing Paola PEROZZO's screen
View Options
THIRD PERSON CHARACTER
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave

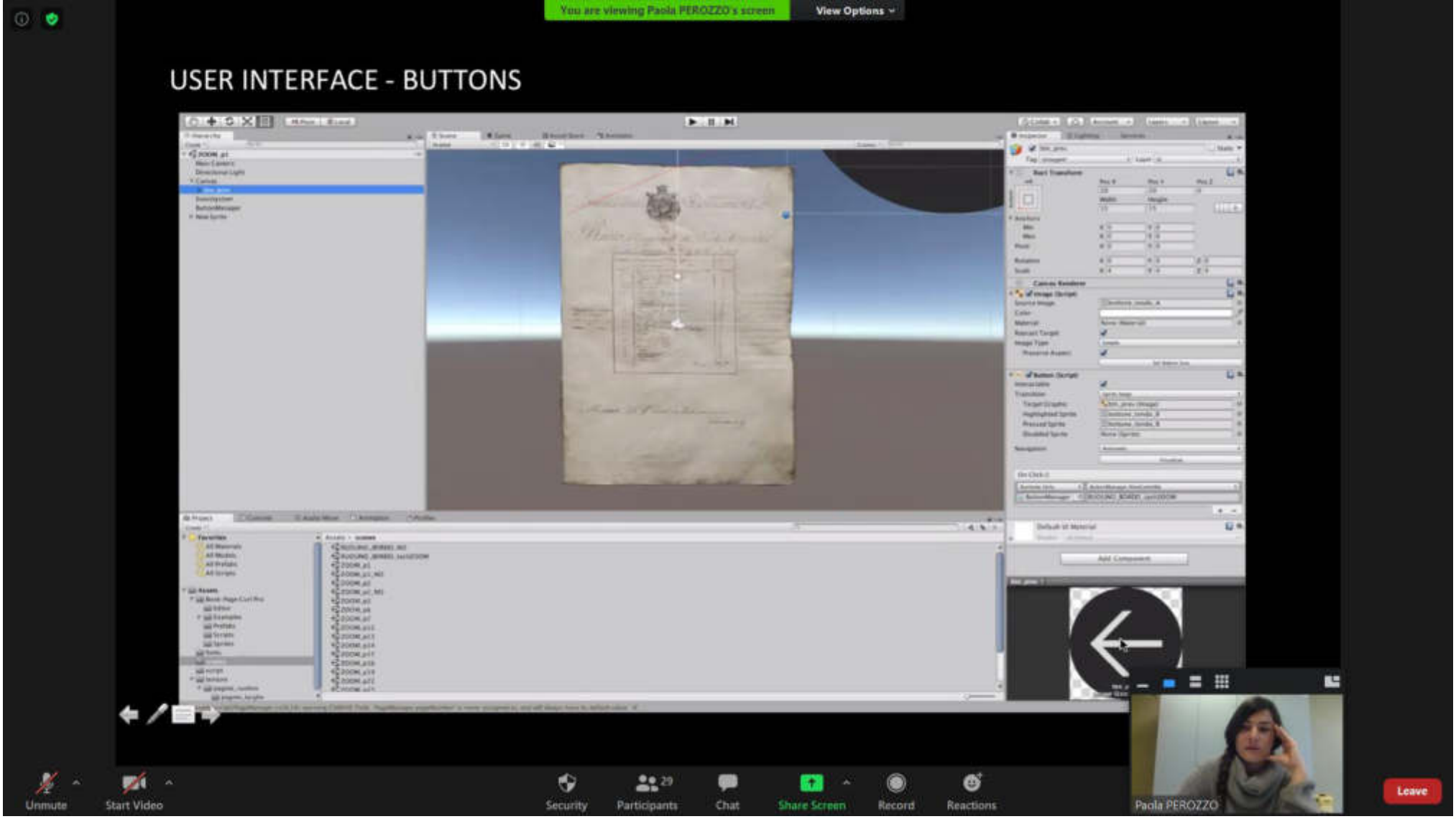

You are viewing Paola PEROZZO's screen
View Options
MATERIALS
MATERIAL
Unmute
Start Video
Security
Participants
30
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave


You are viewing Paola PEROZZO's screen
View Options
MATERIALS from Substance Painter (now Substance is a plugin of Unreal)
Unmute
Start Video
Security
Participants
30
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave

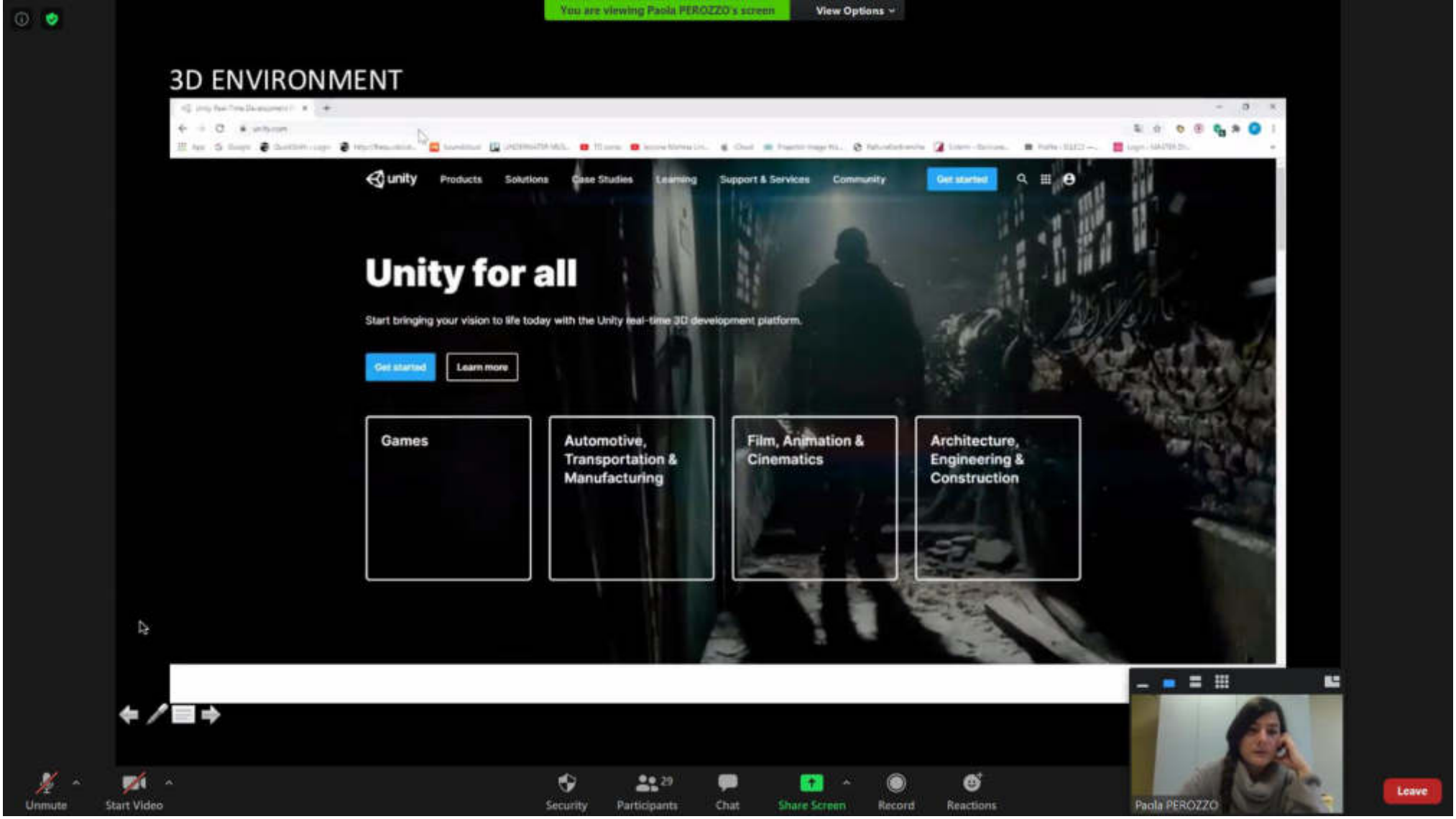

You are viewing Paola PEROZZO's screen
View Options
INTERACTIVE INSTALLATION
Android application
«All-in-one» device with Android operation system and Touch-screen
Turning page book
2D environment
UI buttons
Unmute
Start Video
Security
Participants
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave

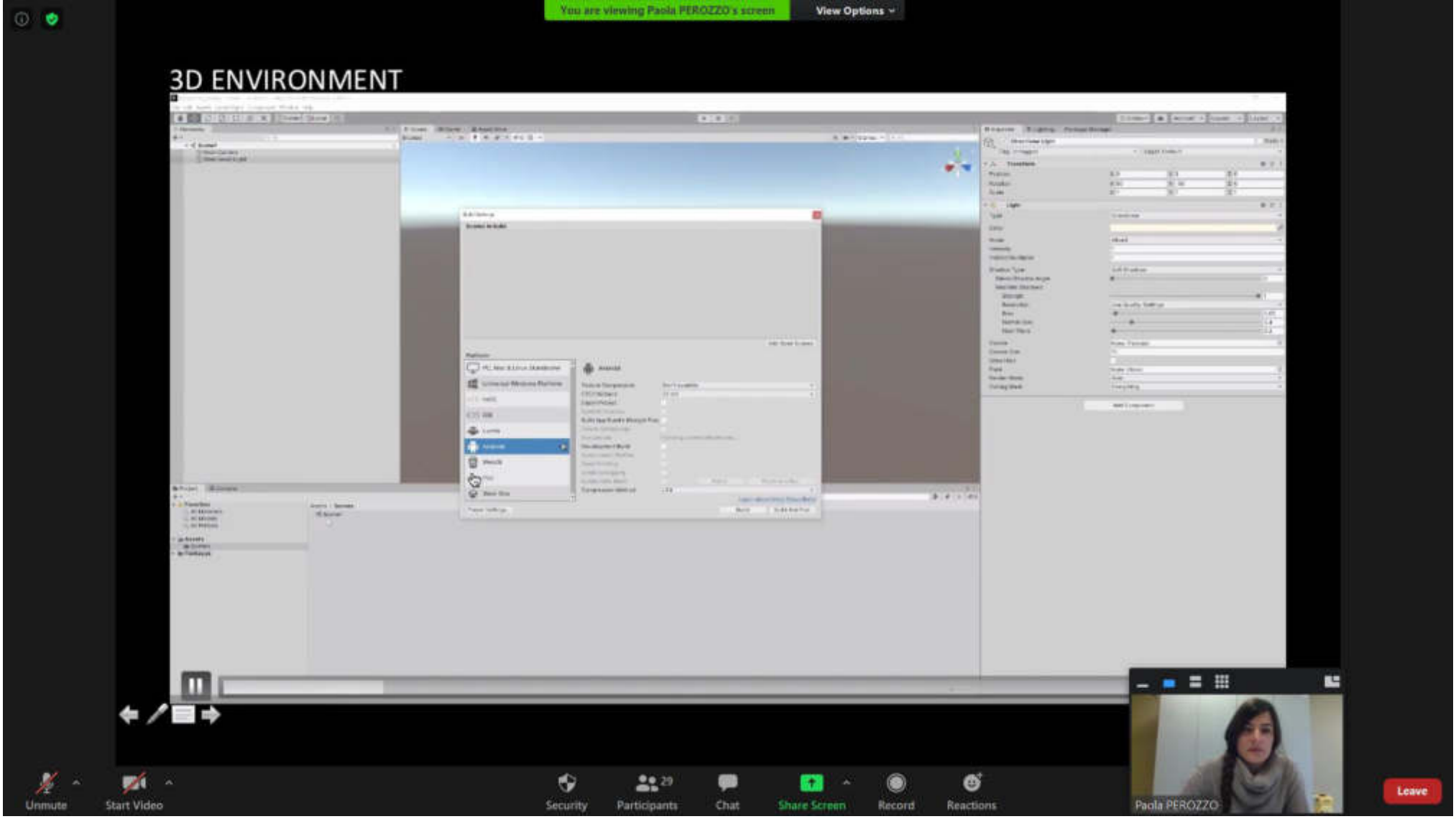

You are viewing Paola PEROZZO's screen
View Options
unity
Unity 3d is a cross-platform game engine with real-time rendering.
C# language
Unmute
Start Video
Security
Participants
31
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave

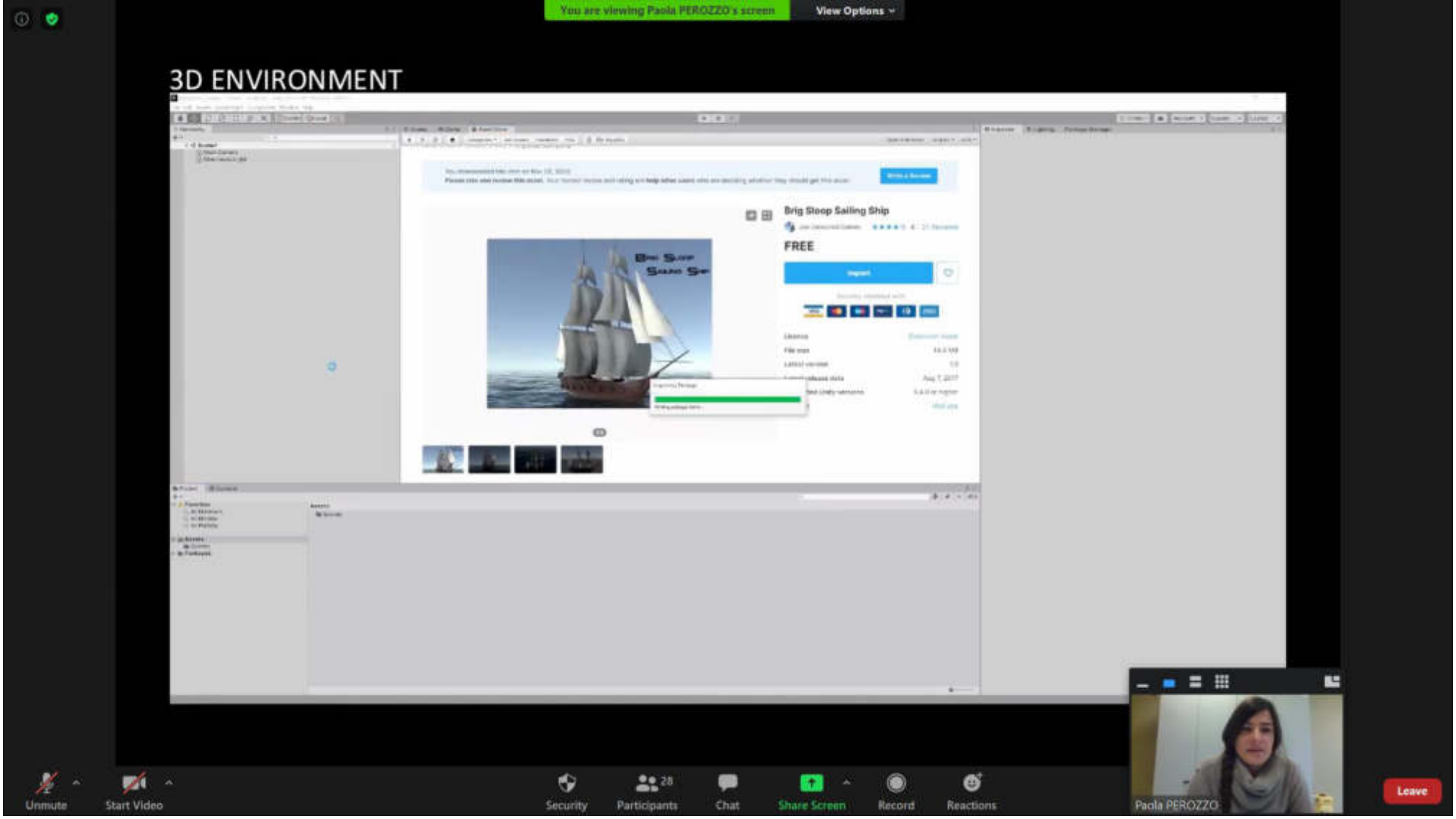

You are viewing Paola PEROZZO's screen
View Options
2D ENVIRONMENT
Unmute
Start Video
Security
Participants
30
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave

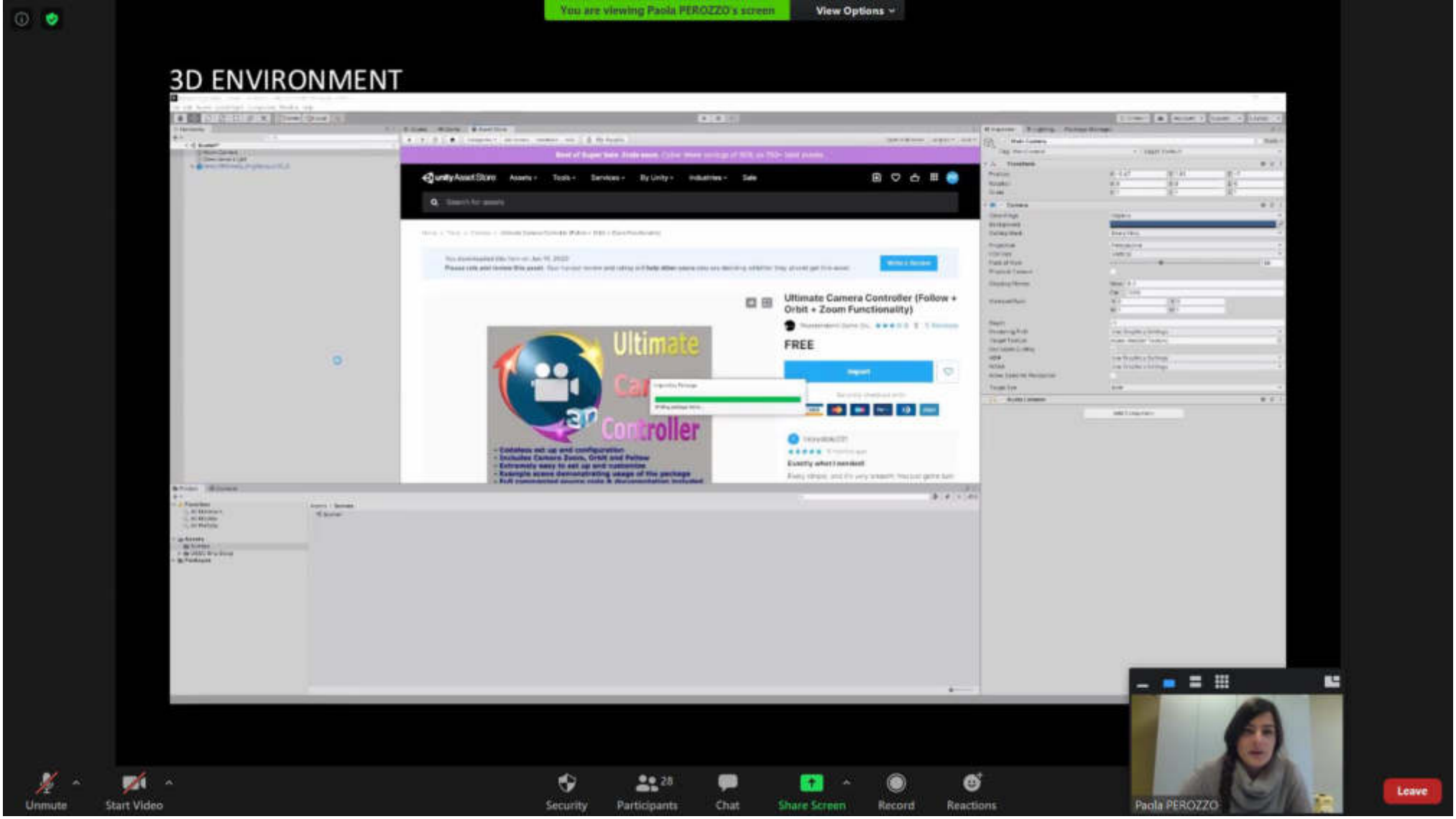

You are viewing Paola PEROZZO's screen
View Options
USER INTERFACE - BUTTONS
Unmute
Start Video
Security
Participants
29
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave


You are viewing Paola PEROZZO's screen
View Options
FOCUS
ON THE DEVELOPMENT OF AN APPLICATION
FOR AN INTERACTIVE DISPLAY
Unmute
Start Video
Security
Participants
29
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave

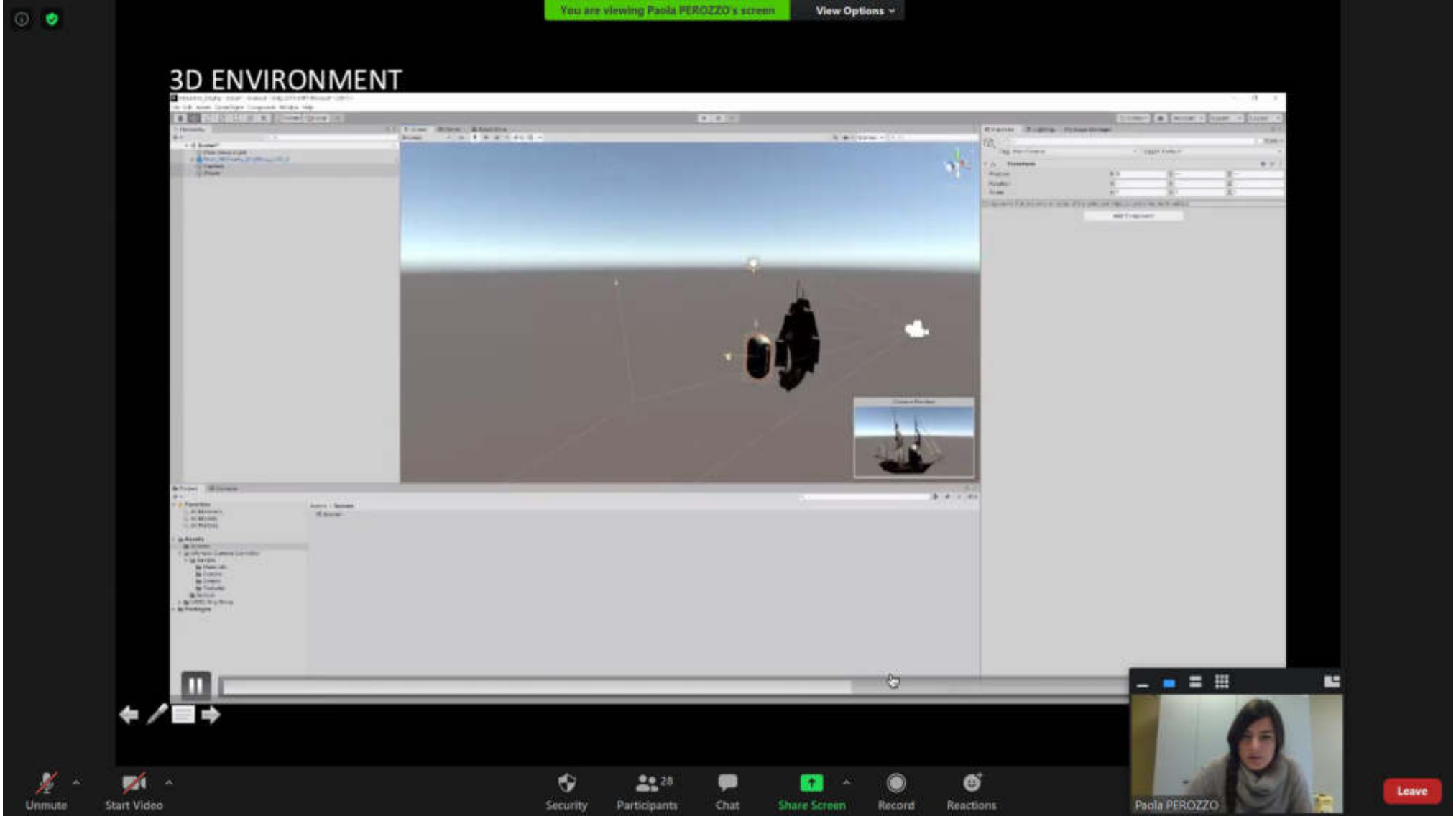

You are viewing Paola PEROZZO's screen
View Options
3D ENVIRONMENT
unity
Products
Solutions
Case Studies
Learning
Support & Services
Community
Get started
Unity for all
Start bringing your vision to life today with the Unity real-time 3D development platform.
Get started
Learn more
Games
Automotive, Transportation & Manufacturing
Film, Animation & Cinematics
Architecture, Engineering & Construction
Unmute
Start Video
Security
Participants
29
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave

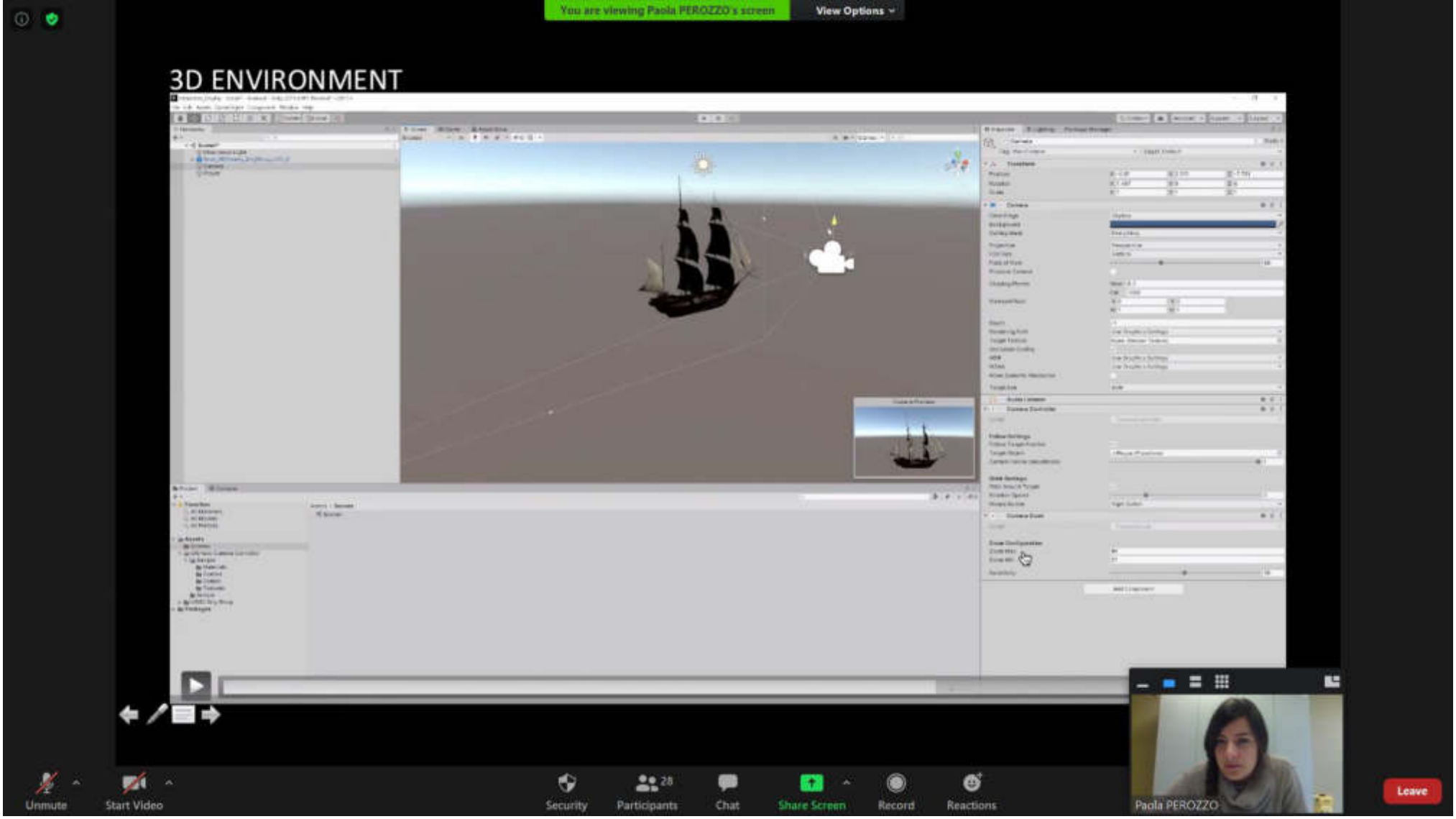

You are viewing Paola PEROZZO's screen
View Options
3D ENVIRONMENT
Unmute
Start Video
Security
Participants
29
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave

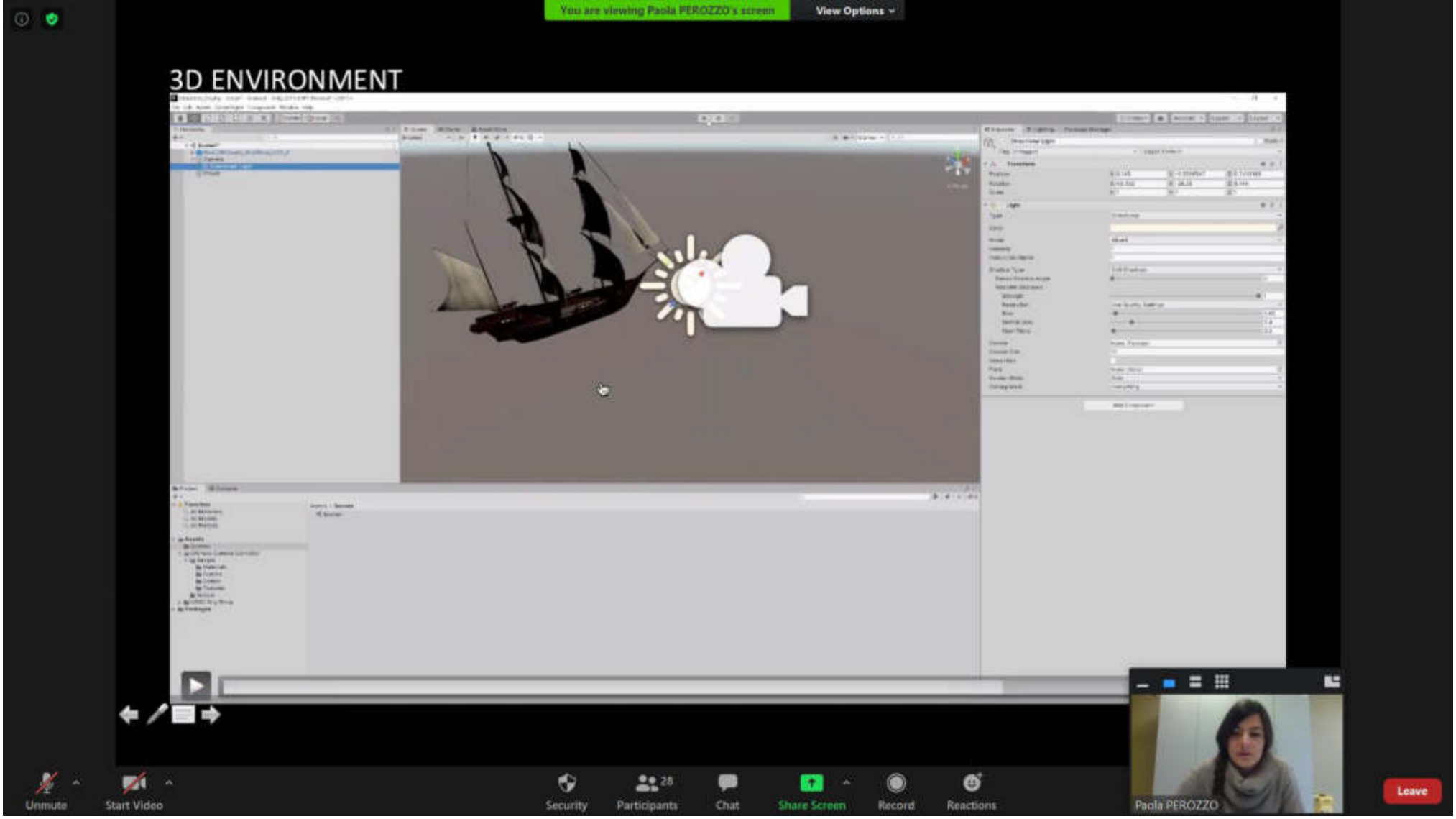

You are viewing Paola PEROZZO's screen
View Options
3D ENVIRONMENT
Brig Sloop Sailing Ship
FREE
Unmute
Start Video
Security
Participants
28
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave

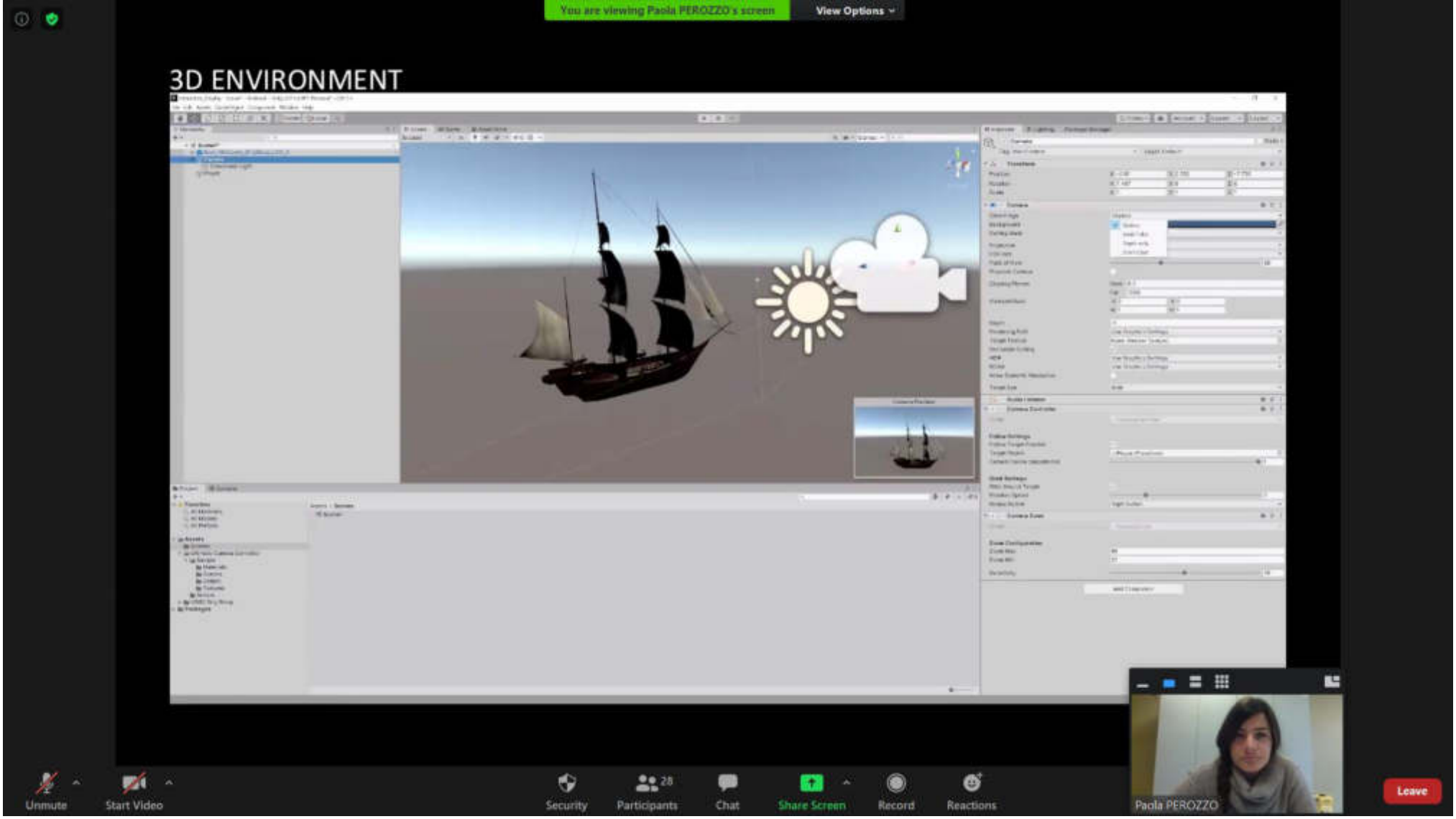

You are viewing Paola PEROZZO's screen
View Options
3D ENVIRONMENT
Ultimate Camera Controller (Follow + Orbit + Zoom Functionality)
FREE
Ultimate
Controller
Unmute
Start Video
Security
Participants
28
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave


You are viewing Paola PEROZZO's screen
View Options
3D ENVIRONMENT
Unmute
Start Video
Security
Participants
28
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave


You are viewing Paola PEROZZO's screen
View Options
3D ENVIRONMENT
Unmute
Start Video
Security
Participants
28
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave


You are viewing Paola PEROZZO's screen
View Options
3D ENVIRONMENT
Unmute
Start Video
Security
Participants
28
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave


You are viewing Paola PEROZZO's screen
View Options
3D ENVIRONMENT
Unmute
Start Video
Security
Participants
28
Chat
Share Screen
Record
Reactions
Paola PEROZZO
Leave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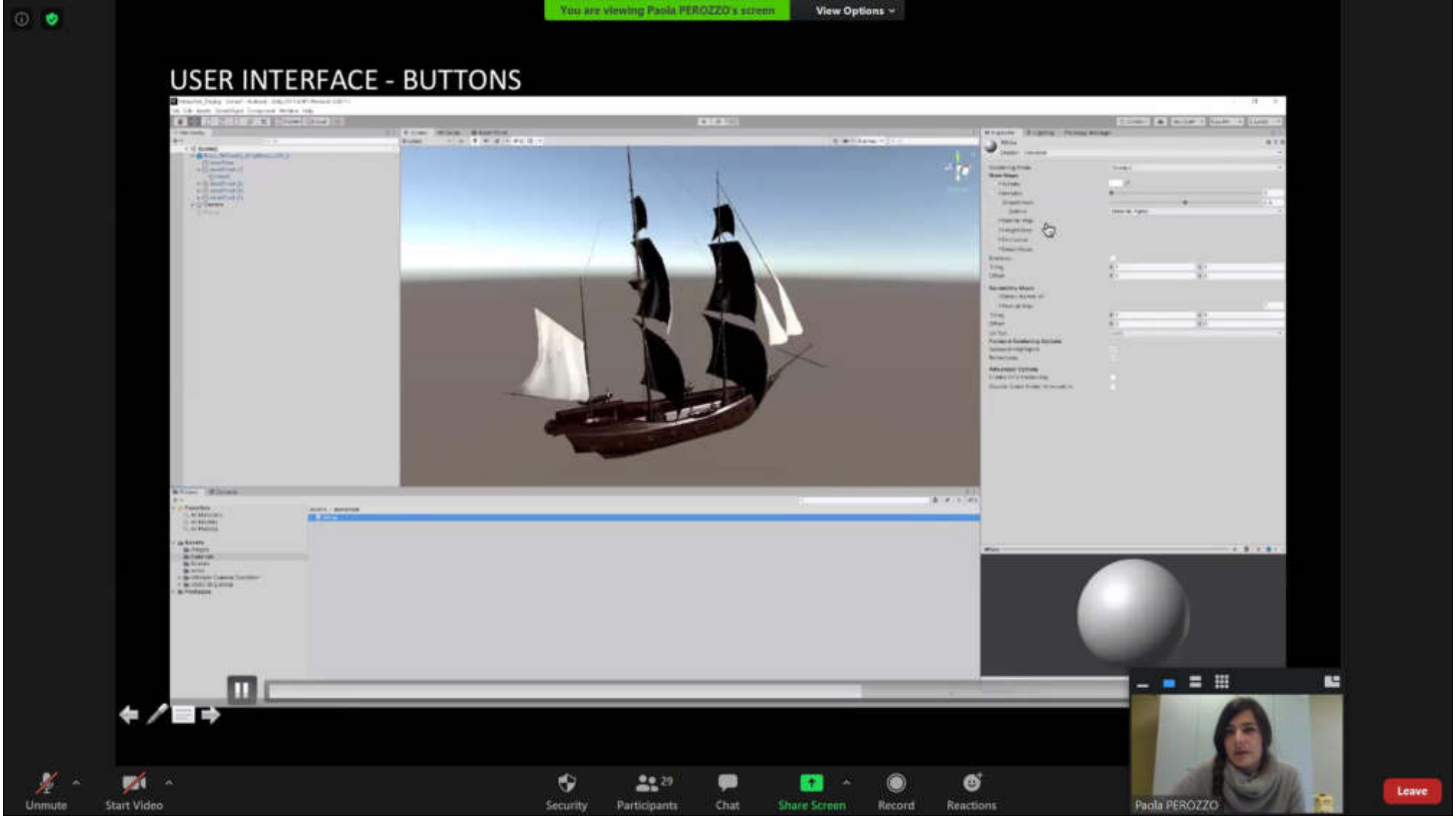
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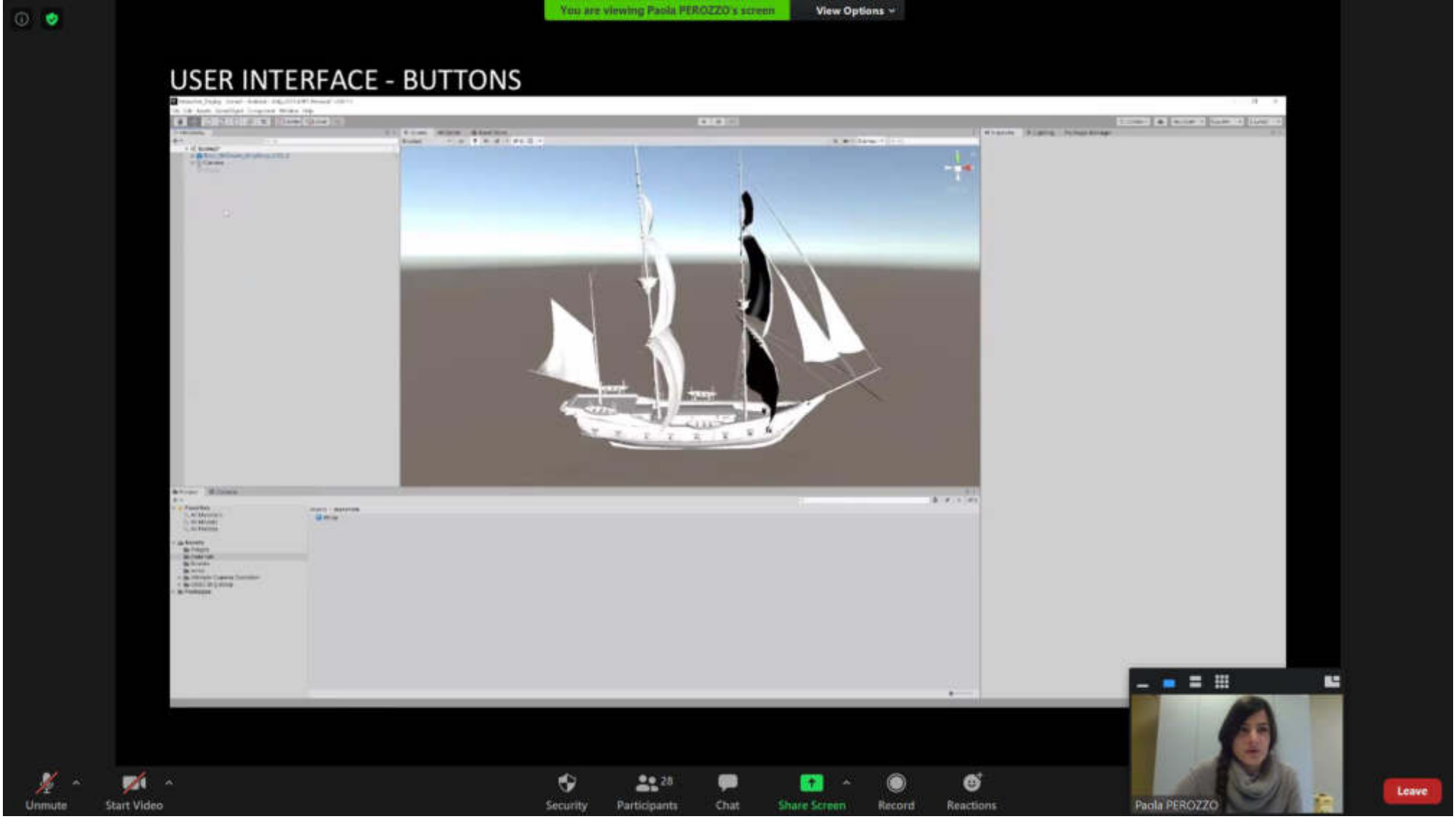
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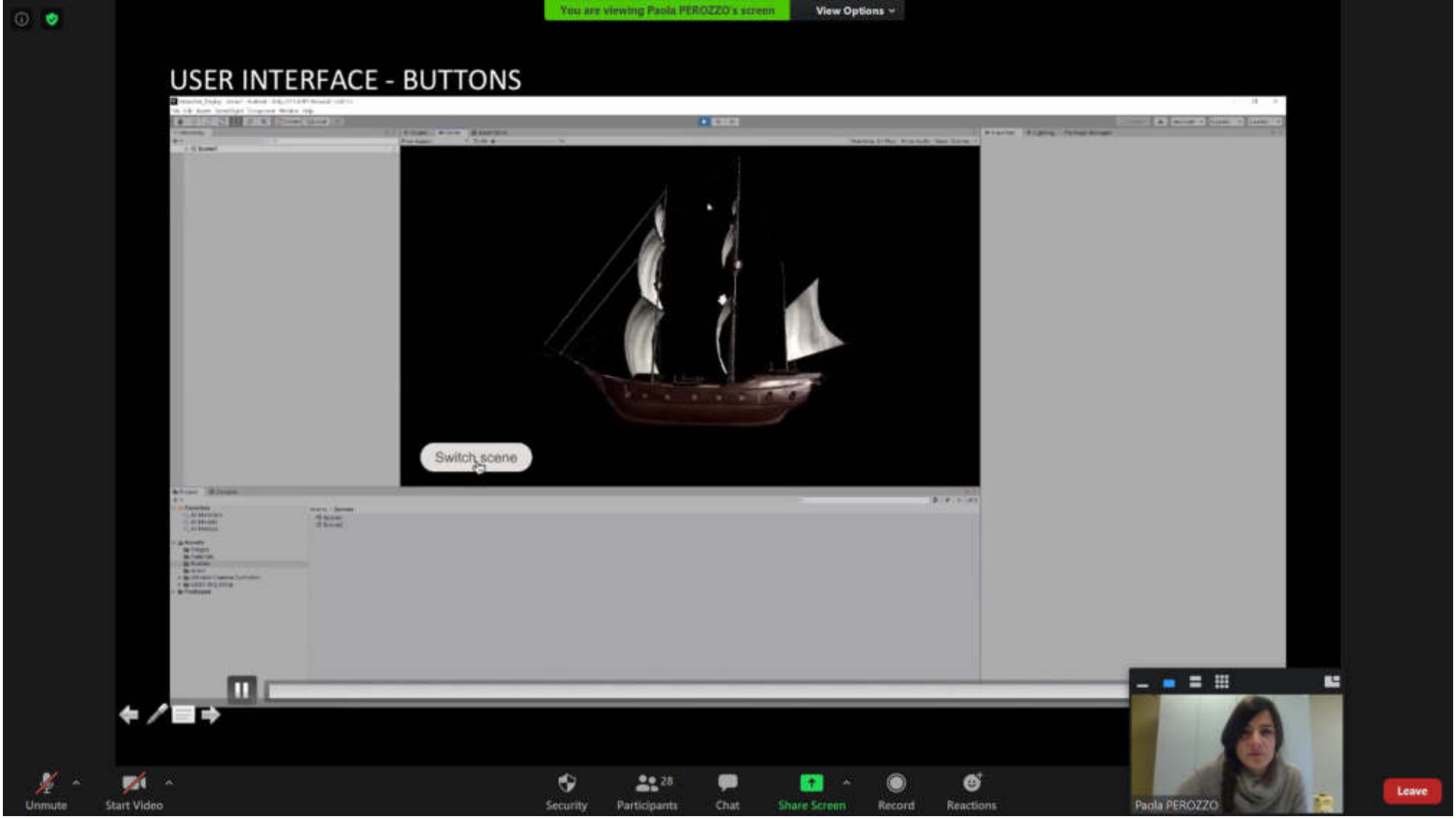
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