

# THE 118 CELLS MONOGRAPHIC SHEET





Name		<b>Bocca Tavollo</b>			
Typology		Harbour entrance			
Boundary		coastal stretch between Cattolica southern pier and the dock			
Coordinates	S	Lon	43,97201186	Lat	12,75143229
	F	Lon	43,97198115	Lat	12,75211586
Lenght (m)		55			
Municipality/ies		Cattolica			
Province		Rimini			

1

A	S	P	E	

**Hard defense works**

Hard defense works typology  
 **piers in concrete**

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

**Nourishments**

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

**Withdrawal**

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

**Other information**

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend

**Dynamics and morphology**

 **S-N**

 **0,35 cm/y**

 **m**

 **%**

 **m**  
to -4m      to -7m

 **%**



**Management**

Constraints  
no

Cell suitable for sediment withdrawal  
**yes**

Cell suitable as recharge zone  
no

Cell that needs intervention  
no

**Note**



Name		<b>Darsena di Cattolica</b>			
Typology		Dock			
Boundary		coastal stretch of Cattolica dock			
Coordinates	S	Lon	43,97201186	Lat	12,75143229
	F	Lon	43,97200652	Lat	12,74831916
Lenght (m)		250			
Municipality/ies		Cattolica			
Province		Rimini			

2

A	S	P	E	

Hard defense works

Hard defense works typology

Dock

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend

Dynamics and morphology



dt

S-N



ts

0,35 cm/y



ase

m



pse

%



ass

m

to -4m

to -7m



pss

%



ru

Management

Constraints

no

Cell suitable for sediment withdrawal

no

Cell suitable as recharge zone

no

Cell that needs intervention

no

Note



Name		<b>Cattolica Sud</b>	
Typology		Cell with beach	
Boundary		coastal stretch between Cattolica dock and the ninth breakwater	
Coordinates	S	Lon	43,97024543
	F	Lon	43,9703953
Coordinates	S	Lat	12,74874586
	F	Lat	12,73393226
Length (m)		1.230	
Municipality/ies		Cattolica	
Province		Rimini	

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A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology



9 (10) emerged breakwaters

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

## Withdrawal

Sand withdrawal (m<sup>3</sup>)

73.550

Cell/s of destination of sands

4, 8, 12, 14

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

-98.134

Sediment volume variation (m<sup>3</sup>/m)

-20

Shoreline trend



## Dynamics and morphology



S-N



0,42 cm/y



100 m



1,6 %

310 1299 m  
to -4m to -7m

0,52 %



## Management

Constraints

no

Cell suitable for sediment withdrawal

yes

Cell suitable as recharge zone

no

Cell that needs intervention

no

## Note



Name		<b>Cattolica Nord</b>			
Typology		Cell with beach			
Boundary		coastal stretch from the tenth breakwater and the pier of Ventena mouth			
Coordinates	S	Lon	43,9703953	Lat	12,73393226
	F	Lon	43,97238492	Lat	12,72678661
Length (m)		615			
Municipality/ies		Cattolica			
Province		Rimini			

4

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology



5 emerged breakwaters

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

5.000

Sources typology



## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

39.400

Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend



## Dynamics and morphology



S-N



0,42 cm/y



75 m



2,27 %



149 to -4m 956 m to -7m



0,53 %



## Management

Constraints

no

Cell suitable for sediment withdrawal

no

Cell suitable as recharge zone

no

Cell that needs intervention

no

## Note



Name		<b>Foce Ventena</b>			
Typology		River mouth			
Boundary		coastal stretch between piers of Ventena mouth			
Coordinates	S	Lon	43,97238492	Lat	12,72678661
	F	Lon	43,97253985	Lat	12,72633706
Lenght (m)		40			
Municipality/ies		Cattolica			
Province		Rimini			

5

A	S	P	E	

Hard defense works

Hard defense works typology



reinforcement works

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

Withdrawal

Sand withdrawal (m<sup>3</sup>)

16.800

Cell/s of destination of sands

12

Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend

Dynamics and morphology



S-N



0,39 cm/y



m



%

117 1105 m  
to -4m to -7m

%



Management

Constraints

no

Cell suitable for sediment withdrawal  
yesCell suitable as recharge zone  
noCell that needs intervention  
no

Note



Name		<b>Colonia Navi</b>			
Typology		Cell with beach			
Boundary		coastal stretch between Ventena northern pier and the south groin of Conca river mouth			
Coordinates	S	Lon	43,9733944	Lat	12,72332247
	F	Lon	43,97254004	Lat	12,72633638
Lenght (m)		260			
Municipality/ies		Cattolica			
Province		Rimini			

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A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology



3 emerged breakwaters and 1 groin

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend



## Dynamics and morphology



S-N



0,39 cm/y



53 m



3,4 %



169 to -4m 948 to -7m



0,56 %



## Management

Constraints

no

Cell suitable for sediment withdrawal

no

Cell suitable as recharge zone

no

Cell that needs intervention

yes

## Note



Name		<b>Foce Conca</b>			
Typology		River mouth			
Boundary		coastal stretch between the Conca river groins			
Coordinates	S	Lon	43,9733944	Lat	12,72332247
	F	Lon	43,97388539	Lat	12,72125194
Lenght (m)		175			
Municipality/ies		Misano Adriatico			
Province		Rimini			

7

A	S	P	E	2000 2006

Hard defense works

Hard defense works typology



groins

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

Withdrawal

Sand withdrawal (m<sup>3</sup>)

14.150

Cell/s of destination of sands

10

Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

-420

Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend



Dynamics and morphology



S-N



0,39 cm/y



m



%

318 1157 m  
to -4m to -7m

0,53 %



Management

Constraints

no

Cell suitable for sediment withdrawal

yes

Cell suitable as recharge zone

no

Cell that needs intervention

no

Note



Name		<b>Porto Verde Sud</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the northern groin of Conca mouth and the southern pier of Porto Verde			
Coordinates	S	Lon	43,97388539	Lat	12,72125194
	F	Lon	43,97410378	Lat	12,7205011
Length (m)		65			
Municipality/ies		Misano Adriatico			
Province		Rimini			

8

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology



pier and curvilinear groin

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

5.500

Sources typology



## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend



## Dynamics and morphology



dt

S-N



ts

0,48 cm/y



ase

47 m



pse

2,77 %



ass

308 960 m  
to -4m to -7m

pss

0,51 %



sb



ru

## Management

Constraints

no

Cell suitable for sediment withdrawal

no

Cell suitable as recharge zone

no

Cell that needs intervention

yes

## Note



Name		<b>Canale Porto Verde</b>			
Typology		Harbour entrance			
Boundary		coastal stretch between Porto Verde piers			
Coordinates	S	Lon	43,97410378	Lat	12,7205011
	F	Lon	43,97423336	Lat	12,72003641
Length (m)		40			
Municipality/ies		Misano Adriatico			
Province		Rimini			

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A	S	P	E	

Hard defense works

Hard defense works typology



piers in concrete

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

Withdrawal

Sand withdrawal (m<sup>3</sup>)

10.000

Cell/s of destination of sands

8, 10

Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend

Dynamics and morphology



S-N



0,48 cm/y



m



%



m

to -4m

to -7m



%



Management

Constraints

no

Cell suitable for sediment withdrawal

yes

Cell suitable as recharge zone

no

Cell that needs intervention

no

Note



Name		<b>Porto Verde Nord</b>			
Typology		Cell with beach			
Boundary		coastal stretch between Porto Verde pier and a groin			
Coordinates	S	Lon	43,97400928	Lat	12,71989441
	F	Lon	43,97435301	Lat	12,7181002
Length (m)		165			
Municipality/ies		Misano Adriatico			
Province		Rimini			

10

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology



submerged breakwaters and groins

Hard defense works realised in the period of reference



Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

29.600

Sources typology



## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend



## Dynamics and morphology



S-N



0,48 cm/y



59 m



3,56 %

306 976 m  
to -4m to -7m

0,51 %



## Management

Constraints

no

Cell suitable for sediment withdrawal

no

Cell suitable as recharge zone

no

Cell that needs intervention

yes

## Note



Name		<b>Porto Verde Scogliera Radente</b>			
Typology		Cell with beach			
Boundary		coastal stretch relative to Porto Verde seawall			
Coordinates	S	Lon	43,97435301	Lat	12,7181002
	F	Lon	43,97536165	Lat	12,71575634
Lenght (m)		220			
Municipality/ies		Misano Adriatico			
Province		Rimini			

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A	S	P	E	2000
				2006

Hard defense works

Hard defense works typology



seawall

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

51.450

Sources typology



Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

-9.089

Sediment volume variation (m<sup>3</sup>/m)

-42

Shoreline trend



Dynamics and morphology



S-N



0,48 cm/y



24 m



7,92 %

274 1127 m  
to -4m to -7m

0,56 %



Management

Constraints

no

Cell suitable for sediment withdrawal

no

Cell suitable as recharge zone

no

Cell that needs intervention

no

Note



Name		<b>Misano Pennelli</b>			
Typology		Cell with beach			
Boundary		coastal stretch relative to 26 groins			
Coordinates	S	Lon	43,97536165	Lat	12,71575634
	F	Lon	43,98355429	Lat	12,69826858
Length (m)		1.680			
Municipality/ies		Misano Adriatico			
Province		Rimini			

12

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology



**26 groins and a submerged sand barrier**

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

**Sand groins recharged and stretching of southern groin**

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

348.068

Sources typology



## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

117.544

Sediment volume variation (m<sup>3</sup>/m)

-167

Shoreline trend



## Dynamics and morphology



dt

S-N



ts

0,48 cm/y



ase

63 m



pse

3,49 %



ass

325 1078 m  
to -4m to -7m



pss

0,57 %



sb



ru

Constraints

no

## Management

Cell suitable for sediment withdrawal

no

Cell suitable as recharge zone

no

Cell that needs intervention

yes

## Note



Name		<b>Misano Scogliere</b>			
Typology		Cell with beach			
Boundary		coastal stretch defended by 7 emerged breakwaters			
Coordinates	S	Lon	43,98355429	Lat	12,69826858
	F	Lon	43,98732238	Lat	12,69044537
Length (m)		755			
Municipality/ies		Misano Adriatico			
Province		Rimini			

13

A	S	P	E	2000 2006

## Hard defense works

Hard defense works typology



7 emerged breakwaters

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

## Withdrawal

Sand withdrawal (m<sup>3</sup>)

18.450

Cell/s of destination of sands

12

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

74.685

Sediment volume variation (m<sup>3</sup>/m)

123

Shoreline trend



## Dynamics and morphology



S-N



0,48 cm/y



88 m



2,5 %

345 1085 m  
to -4m to -7m

0,56 %



## Management

Constraints

no

Cell suitable for sediment withdrawal  
yesCell suitable as recharge zone  
noCell that needs intervention  
no

## Note



Name		<b>Riccione Sud</b>			
Typology		Cell with beach			
Boundary		coastal stretch 1 km long defended by submerged sand barriers starting from Misano A. breakwaters			
Coordinates	S	Lon	43,98732238	Lat	12,69044537
	F	Lon	43,99330753	Lat	12,68114752
Length (m)		1.000			
Municipality/ies		Misano / Riccione			
Province		Rimini			

14

A	S	P	E	2000
				2006

Hard defense works

Hard defense works typology

**Submerged sand barrier**

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

**First sand groin recharged**

Nourishments

Nourishments in the period of reference (m<sup>3</sup>)**398.044**

Sources typology



Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)**63.867**Sediment volume variation (m<sup>3</sup>/m)**-334**

Shoreline trend



Dynamics and morphology

**S-N****0,57** cm/y**75** m**2,67** %**400** **1030** m  
to -4m to -7m**0,58** %

Management

Constraints

no

Cell suitable for sediment withdrawal

no

Cell suitable as recharge zone

yes

Cell that needs intervention

yes

Note



Name		<b>Riccione Centro</b>	
Typology		Cell with beach	
Boundary		coastal stretch 1850 m long defended by submerged sand barriers	
Coordinates	S	Lon	43,99330753
	F	Lon	44,00448167
Coordinates	S	Lat	12,68114752
	F	Lat	12,6640703
Length (m)		1.850	
Municipality/ies		Riccione	
Province		Rimini	

15

A	S	P	E	2000
				2006

Hard defense works

Hard defense works typology

**Submerged sand barrier**

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

126.864

Sources typology



Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

179.010

Sediment volume variation (m<sup>3</sup>/m)

41

Shoreline trend



Dynamics and morphology



S-N



0,45 cm/y



83 m



2,29 %

420 1065 m  
to -4m to -7m

0,61 %



Management

Constraints

no

Cell suitable for sediment withdrawal

no

Cell suitable as recharge zone

no

Cell that needs intervention

no

Note



Name		<b>Riccione Porto</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the end of submerged sand barriers and Riccione docks			
Coordinates	S	Lon	44,00448167	Lat	12,6640703
	F	Lon	44,00796922	Lat	12,65886478
Length (m)		570			
Municipality/ies		Riccione			
Province		Rimini			

16

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)  
**23.318**Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend



## Dynamics and morphology



S-N



0,45 cm/y



79 m



2,15 %

402 1014 m  
to -4m to -7m

0,63 %



## Management

Constraints

no

Cell suitable for sediment withdrawal

no

Cell suitable as recharge zone

no

Cell that needs intervention

no

## Note



Name		<b>Darsena di Riccione Sud</b>			
Typology		Dock			
Boundary		coastal stretch of Riccione southern dock			
Coordinates	S	Lon	44,00796922	Lat	12,65886478
	F	Lon	44,0082379	Lat	12,65836518
Length (m)		50			
Municipality/ies		Riccione			
Province		Rimini			

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A	S	P	E	

Hard defense works

Hard defense works typology

Dock

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend

Dynamics and morphology



dt

S-N



ts

0,45 cm/y



ase

m



pse

%



ass

m

to -4m

to -7m



pss

%



ru

Management

Constraints

no

Cell suitable for sediment withdrawal

no

Cell suitable as recharge zone

no

Cell that needs intervention

no

Note



Name		<b>Riccione Porto Canale</b>			
Typology		Harbour entrance			
Boundary		coastal stretch between Riccione harbour			
Coordinates	S	Lon	44,0082379	Lat	12,65836518
	F	Lon	44,00837313	Lat	12,6581163
Lenght (m)		25			
Municipality/ies		Riccione			
Province		Rimini			

18

A	S	P	E	

Hard defense works	Hard defense works typology		piers in concrete
	Hard defense works realised in the period of reference		
	Hard defense works maintenance in the period of reference		

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	48.200	
	Cell/s of destination of sands	
	10, 14	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	
	Sediment volume variation (m <sup>3</sup> /m)	
	Shoreline trend	

Dynamics and morphology		S-N
		0,45 cm/y
		m
		%
		m
		to -4m      to -7m
		%
		

Management	Constraints	no
	Cell suitable for sediment withdrawal	yes
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>Darsena di Riccione Nord</b>			
Typology		Dock			
Boundary		coastal stretch of Riccione northern dock			
Coordinates	S	Lon	44,00837321	Lat	12,65811527
	F	Lon	44,00867143	Lat	12,65749216
Length (m)		60			
Municipality/ies		Riccione			
Province		Rimini			

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A	S	P	E	

Hard defense works

Hard defense works typology

Dock

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend

Dynamics and morphology



dt

S-N



ts

0,43 cm/y



ase

m



pse

%



ass

m

to -4m

to -7m



pss

%



ru

Management

Constraints

no

Cell suitable for sediment withdrawal

no

Cell suitable as recharge zone

no

Cell that needs intervention

no

Note



Name		<b>Riccione Alba Sud</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the Riccione northern dock and piazzale Azzarita			
Coordinates	S	Lon	44,00867143	Lat	12,65749216
	F	Lon	44,01388898	Lat	12,64992192
Length (m)		840			
Municipality/ies		Riccione			
Province		Rimini			

20

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)  
-28.289Sediment volume variation (m<sup>3</sup>/m)  
-34

Shoreline trend



## Dynamics and morphology



S-N



0,43 cm/y



69 m



2,61 %

462 1072 m  
to -4m to -7m

0,62 %



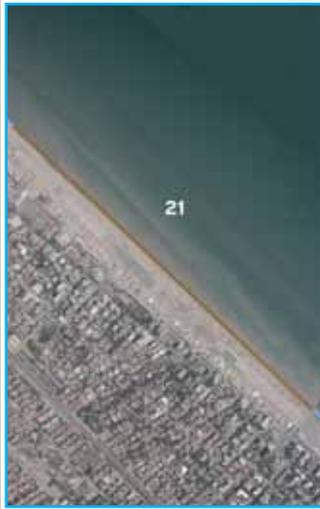
Constraints

no

Cell suitable for sediment withdrawal  
noCell suitable as recharge zone  
noCell that needs intervention  
yes

## Management

## Note



Name		<b>Riccione Alba Nord</b>			
Typology		Cell with beach			
Boundary		coastal stretch between piazzale Azzarita and Marano river mouth			
Coordinates	S	Lon	44,01388898	Lat	12,64992192
	F	Lon	44,02201008	Lat	12,63914926
Lenght (m)		1.250			
Municipality/ies		Riccione			
Province		Rimini			

21

<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

## Hard defense works

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

53.158

Sediment volume variation (m<sup>3</sup>/m)

42

Shoreline trend



## Dynamics and morphology



S-N



0,43 cm/y



83 m



2,29 %

467 1070 m  
to -4m to -7m

0,65 %



## Management

Constraints

no

Cell suitable for sediment withdrawal

no

Cell suitable as recharge zone

no

Cell that needs intervention

no

## Note



Name		<b>Foce Marano</b>			
Typology		River mouth			
Boundary		coastal stretch of Marano river mouth			
Coordinates	S	Lon	44,02201068	Lat	12,63914998
	F	Lon	44,02227702	Lat	12,63872768
Lenght (m)		45			
Municipality/ies		Riccione			
Province		Rimini			

22

A	S	P	E	

Hard defense works	Hard defense works typology	
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	
	Sediment volume variation (m <sup>3</sup> /m)	
	Shoreline trend	

**Dynamics and morphology**

	S-N
	0,47 cm/y
	m
	%
	to -4m to -7m
	%

Management	Constraints	no
	Cell suitable for sediment withdrawal	yes
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
------	--



Name		<b>Fogliano Marina</b>			
Typology		Cell with beach			
Boundary		coastal stretch between Marano river mouth and Rimini/Riccione municipality boundary			
Coordinates	S	Lon	44,02227518	Lat	12,63872586
	F	Lon	44,02629794	Lat	12,63355595
Length (m)		610			
Municipality/ies		Riccione			
Province		Rimini			

23

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

-2.884

Sediment volume variation (m<sup>3</sup>/m)

-5

Shoreline trend



## Dynamics and morphology



S-N



0,47 cm/y



106 m



1,89 %

477 1105 m  
to -4m to -7m

0,69 %



cd



sb



ru

## Management

Constraints

no

Cell suitable for sediment withdrawal

yes

Cell suitable as recharge zone

no

Cell that needs intervention

no

## Note



Name		<b>Miramare</b>			
Typology		Cell with beach			
Boundary		coastal stretch between Rimini/Riccione municipality boundary and Ausa			
Coordinates	S	Lon	44,02629794	Lat	12,63355595
	F	Lon	44,06988246	Lat	12,58564402
Length (m)		6.190			
Municipality/ies		Rimini			
Province		Rimini			

24

<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

## Hard defense works

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

## Withdrawal

Sand withdrawal (m<sup>3</sup>)

32.700

Cell/s of destination of sands

10, 12, 14

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

515.864

Sediment volume variation (m<sup>3</sup>/m)

89

Shoreline trend



## Dynamics and morphology



S-N



0,65 cm/y



126 m



1,43 %



457 to -4m    1101 to -7m



0,65 %



## Management

Constraints

no

Cell suitable for sediment withdrawal

yes

Cell suitable as recharge zone

no

Cell that needs intervention

no

## Note



Name		<b>Rimini Centro</b>			
Typology		Cell with beach			
Boundary		coastal stretch between AUSA and Rimini harbour			
Coordinates	S	Lon	44,06988037	Lat	12,58564061
	F	Lon	44,07993856	Lat	12,57620656
Length (m)		1.350			
Municipality/ies		Rimini			
Province		Rimini			

25

<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

## Hard defense works

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

## Withdrawal

Sand withdrawal (m<sup>3</sup>)

9.650

Cell/s of destination of sands

12, 14

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

45.975

Sediment volume variation (m<sup>3</sup>/m)

41

Shoreline trend



## Dynamics and morphology



S-N



0,89 cm/y



111 m



1,26 %

411 1104 m  
to -4m to -7m

0,68 %



Constraints

no

## Management

Cell suitable for sediment withdrawal  
yesCell suitable as recharge zone  
noCell that needs intervention  
no

## Note



Name		<b>Rimini Porto Canale</b>			
Typology		Harbour entrance			
Boundary		coastal stretch of Rimini harbour			
Coordinates	S	Lon	44,07993856	Lat	12,57620656
	F	Lon	44,08012028	Lat	12,57537038
Length (m)		70			
Municipality/ies		Rimini			
Province		Rimini			

26

A	S	P	E	

**Hard defense works**

Hard defense works typology  
 **piers in concrete**

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

**Nourishments**

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

**Withdrawal**

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

**Other information**

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend

**Dynamics and morphology**

 **S-N**

 **0,88 cm/y**

 **m**

 **%**

 **m**  
to -4m      to -7m

 **%**



**Management**

Constraints  
no

Cell suitable for sediment withdrawal  
**yes**

Cell suitable as recharge zone  
no

Cell that needs intervention  
no

**Note**



Name		<b>Darsena di Rimini</b>			
Typology		Dock			
Boundary		coastal stretch of Rimini dock			
Coordinates	S	Lon	44,08012028	Lat	12,57537038
	F	Lon	44,07920814	Lat	12,57022107
Lenght (m)		425			
Municipality/ies		Rimini			
Province		Rimini			

27

A	S	P	E	

Hard defense works	Hard defense works typology	Dock
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	11, 28

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	
	Sediment volume variation (m <sup>3</sup> /m)	
	Shoreline trend	

**Dynamics and morphology**

dt	S-N
ts	0,86 cm/y
ase	m
pse	%
ass	to -4m to -7m m
pss	%
ru	

Management	Constraints	no
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>San Giuliano</b>			
Typology		Cell with beach			
Boundary		coastal stretch between Rimini dock and southern pier of Marecchia drainage channel			
Coordinates	S	Lon	44,07756059	Lat	12,57075514
	F	Lon	44,07738665	Lat	12,56559098
Length (m)		450			
Municipality/ies		Rimini			
Province		Rimini			

28

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology



"L" breakwater

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

100.000

Sources typology



## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend



## Dynamics and morphology



S-N



0,86 cm/y



77 m



1,69 %

411 1622 m  
to -4m to -7m

0,63 %



## Management

Constraints

no

Cell suitable for sediment withdrawal

no

Cell suitable as recharge zone

no

Cell that needs intervention

yes

## Note



Name		<b>Deviatore Marecchia</b>			
Typology		River mouth			
Boundary		coastal stretch of Marecchia draining channel			
Coordinates	S	Lon	44,07738665	Lat	12,56559098
	F	Lon	44,07793168	Lat	12,56387908
Lenght (m)		150			
Municipality/ies		Rimini			
Province		Rimini			

29

A	S	P	E	

Hard defense works	Hard defense works typology		reinforcement works
	Hard defense works realised in the period of reference		
	Hard defense works maintenance in the period of reference		

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	
	Sediment volume variation (m <sup>3</sup> /m)	
	Shoreline trend	

Dynamics and morphology		S-N
		0,76 cm/y
		m
		%
		to -4m to -7m
		%
		

Management	Constraints	no
	Cell suitable for sediment withdrawal	yes
	Cell suitable as recharge zone	no
	Cell that needs intervention	no
Note		



Name		<b>Rivabella</b>			
Typology		Cell with beach			
Boundary		coastal stretch defended by 12 breakwaters starting from Marecchia draining channel			
Coordinates	S	Lon	44,07691605	Lat	12,56316159
	F	Lon	44,08566899	Lat	12,54654462
Length (m)		1.660			
Municipality/ies		Rimini			
Province		Rimini			

30

<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

Hard defense works	Hard defense works typology	 12 emerged breakwaters
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	<b>75.748</b>
	Sediment volume variation (m <sup>3</sup> /m)	<b>46</b>
	Shoreline trend	

Dynamics and morphology	 dt	S-N
	 ts	0,69 cm/y
	 ase	95 m
	 pse	1,58 %
	 ass	435 to -4m    1268 to -7m
	 pss	0,63 %
	 sb  ru	

Management	Constraints	no
	Cell suitable for sediment withdrawal	yes
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>Viserba Zona Sud Sortie</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the 13th and the 16th breakwater			
Coordinates	S	Lon	44,08566899	Lat	12,54654462
	F	Lon	44,08942325	Lat	12,54065639
Length (m)		630			
Municipality/ies		Rimini			
Province		Rimini			

31

A	S	P	E	2000
				2006

Hard defense works

Hard defense works typology



4 emerged breakwaters

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

53.574

Sediment volume variation (m<sup>3</sup>/m)

85

Shoreline trend



Dynamics and morphology



dt

S-N



ts

0,71 cm/y



ase

75 m



pse

1,87 %



ass

390

1167 m

to -4m

to -7m



pss

0,68 %



sb



ru

Constraints

no

Management

Cell suitable for sediment withdrawal

yes

Cell suitable as recharge zone

no

Cell that needs intervention

no

Note



Name		<b>Viserba Sud</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the 17th breakwater and the southern pier of Mulini channel			
Coordinates	S	Lon	44,08942325	Lat	12,54065639
	F	Lon	44,09259763	Lat	12,53589082
Length (m)		520			
Municipality/ies		Rimini			
Province		Rimini			

32

<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

Hard defense works	Hard defense works typology		4 emerged breakwaters
	Hard defense works realised in the period of reference		
	Hard defense works maintenance in the period of reference		

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	74.561
	Sediment volume variation (m <sup>3</sup> /m)	139
	Shoreline trend	

Dynamics and morphology		S-N
		0,65 cm/y
		42 m
		2,86 %
		407 to -4m    1181 to -7m
		0,68 %
	 	

Management	Constraints	no
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>Canale dei Mulini</b>			
Typology		Draining channel			
Boundary		coastal stretch between the two piers of Mulini channel			
Coordinates	S	Lon	44,09259763	Lat	12,53589082
	F	Lon	44,09280384	Lat	12,53564937
Lenght (m)		30			
Municipality/ies		Rimini			
Province		Rimini			

33

A	S	P	E	

**Hard defense works typology**

 **reinforcement works**

**Hard defense works realised in the period of reference**

**Hard defense works maintenance in the period of reference**

**Nourishments in the period of reference (m³)**

**Sources typology**

**Sand withdrawal (m³)**

**Cell/s of destination of sands**

**Accumulated/eroded V in the period of reference (m³)**

**Sediment volume variation (m³/m)**

**Shoreline trend**

**Dynamics and morphology**

 **S-N**

 **0,7 cm/y**

 **m**

 **%**

 **m**  
to -4m      to -7m

 **%**

 **ru**

**Constraints**

**no**

**Cell suitable for sediment withdrawal**

**no**

**Cell suitable as recharge zone**

**no**

**Cell that needs intervention**

**no**

**Note**



Name		<b>Viserba Nord</b>	
Typology		Cell with beach	
Boundary		coastal stretch defended by 3 breakwaters starting from Mulini channel	
Coordinates	S	Lon	44,09280384
	F	Lon	44,09570036
Coordinates	S	Lat	12,53564937
	F	Lat	12,53146327
Length (m)		465	
Municipality/ies		Rimini	
Province		Rimini	

34

<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

Hard defense works	Hard defense works typology		<b>3 emerged breakwaters</b>
	Hard defense works realised in the period of reference		
	Hard defense works maintenance in the period of reference		

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )		
	Sources typology		

Withdrawal	Sand withdrawal (m <sup>3</sup> )		
	Cell/s of destination of sands		

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	<b>20.317</b>
	Sediment volume variation (m <sup>3</sup> /m)	<b>44</b>
	Shoreline trend	

Dynamics and morphology		<b>S-N</b>
		<b>0,7</b> cm/y
		<b>61</b> m
		<b>2,13</b> %
		<b>415</b> <b>1180</b> m to -4m to -7m
		<b>0,64</b> %
		

Management	Constraints	<b>no</b>
	Cell suitable for sediment withdrawal	<b>yes</b>
	Cell suitable as recharge zone	<b>no</b>
	Cell that needs intervention	<b>no</b>

Note	
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Name		<b>Viserbella</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the 4th breakwater and Fossa Brancona			
Coordinates	S	Lon	44,09570036	Lat	12,53146327
	F	Lon	44,10335853	Lat	12,52090944
Length (m)		1,200			
Municipality/ies		Rimini			
Province		Rimini			

35

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology



10 emerged breakwaters

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

45.475

Sediment volume variation (m<sup>3</sup>/m)

38

Shoreline trend



## Dynamics and morphology



S-N



0,63 cm/y



41 m



3,66 %



450 to -4m 1185 m to -7m



0,62 %



## Management

Constraints

no

Cell suitable for sediment withdrawal

no

Cell suitable as recharge zone

no

Cell that needs intervention

yes

## Note



Name		<b>Torre Pedrera</b>			
Typology		Cell with beach			
Boundary		coastal stretch between Fossa Brancona and Rimini/Bellaria-Igea Marina municipality boundary			
Coordinates	S	Lon	44,10335853	Lat	12,52090944
	F	Lon	44,11663304	Lat	12,50480954
Length (m)		1,960			
Municipality/ies		Rimini			
Province		Rimini			

36

A	S	P	E	2000 2006

## Hard defense works

Hard defense works typology



16 emerged breakwaters

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

33.688

Sediment volume variation (m<sup>3</sup>/m)

17

Shoreline trend



## Dynamics and morphology



S-N



0,62 cm/y



66 m



3,03 %



444 to -4m 1101 m to -7m



0,59 %



## Management

Constraints

no

Cell suitable for sediment withdrawal

no

Cell suitable as recharge zone

no

Cell that needs intervention

no

## Note



Name		<b>Igea Marina Sud</b>			
Typology		Cell with beach			
Boundary		coastal stretch between Rimini/Bellaria-Igea Marina municipality boundary and a groin			
Coordinates	S	Lon	44,11663304	Lat	12,50480954
	F	Lon	44,12022041	Lat	12,50074189
Length (m)		515			
Municipality/ies		Bellaria Igea Marina			
Province		Rimini			

37

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology



4 emerged breakwaters

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

900

Sources typology



## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

-14.790

Sediment volume variation (m<sup>3</sup>/m)

-30

Shoreline trend



## Dynamics and morphology



S-N



0,69 cm/y



44 m



4,55 %

478 1157 m  
to -4m to -7m

0,54 %



## Management

Constraints

shellfish

Cell suitable for sediment withdrawal  
noCell suitable as recharge zone  
noCell that needs intervention  
yes

## Note



Name		<b>Igea Marina Zona Sperimentale</b>			
Typology		Cell with beach			
Boundary		coastal stretch defended by a low-crested breakwater delimited by two groins			
Coordinates	S	Lon	44,12022041	Lat	12,50074189
	F	Lon	44,12611078	Lat	12,49447718
Length (m)		825			
Municipality/ies		Bellaria Igea Marina			
Province		Rimini			

38

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology



Low-crested breakwater and 2 groins

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference in 2003, 6 emerged breakwater converted in low-crested ones and 2 groins were builded

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

49.085

Sources typology



## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)  
-50.792Sediment volume variation (m<sup>3</sup>/m)  
-121

Shoreline trend



## Dynamics and morphology



S-N



0,75 cm/y



30 m



7 %

458 1085 m  
to -4m to -7m

0,56 %



## Management

Constraints  
shellfishCell suitable for sediment withdrawal  
noCell suitable as recharge zone  
noCell that needs intervention  
yes

## Note



Name		<b>Igea Marina</b>	
Typology		Cell with beach	
Boundary		coastal stretch between the groin and the southern pier of Uso river mouth	
Coordinates	S Lon	44,12611078	Lat 12,49447718
	F Lon	44,14470953	Lat 12,47418121
Length (m)		2.630	
Municipality/ies		Bellaria Igea Marina	
Province		Rimini	

39

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology



20 emerged breakwaters

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

51.828

Sources typology



## Withdrawal

Sand withdrawal (m<sup>3</sup>)

1.000

Cell/s of destination of sands

37, 38

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

243.603

Sediment volume variation (m<sup>3</sup>/m)

73

Shoreline trend



## Dynamics and morphology



S-N



0,8 cm/y



61 m



2,79 %

289 906 m  
to -4m to -7m

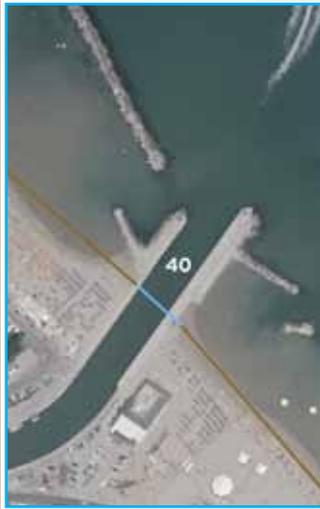
0,6 %



## Management

Constraints  
shellfishCell suitable for sediment withdrawal  
yesCell suitable as recharge zone  
noCell that needs intervention  
yes

## Note



Name		<b>Foce Uso</b>			
Typology		River mouth			
Boundary		coastal stretch of Uso river mouth			
Coordinates	S	Lon	44,14470953	Lat	12,47418121
	F	Lon	44,14496411	Lat	12,47382816
Lenght (m)		40			
Municipality/ies		Bellaria Igea Marina			
Province		Rimini			

40

A	S	P	E	

Hard defense works	Hard defense works typology		piers in concrete
	Hard defense works realised in the period of reference		
	Hard defense works maintenance in the period of reference		

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

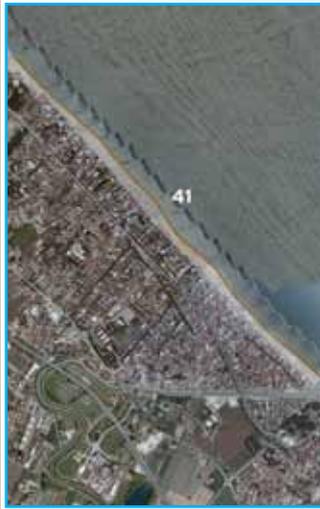
Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	20.400	
	Cell/s of destination of sands	38

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	
	Sediment volume variation (m <sup>3</sup> /m)	
	Shoreline trend	

**Dynamics and morphology**

	S-N
	0,88 cm/y
	m
	%
	to -4m to -7m
	%
	

Management	Constraints	shellfish
	Cell suitable for sediment withdrawal	yes
	Cell suitable as recharge zone	no
	Cell that needs intervention	no
Note		



Name		<b>Bellaria</b>			
Typology		Cell with beach			
Boundary		coastal stretch between Uso mouth and Bellaria-Igea Marina/S.Mauro a Pascoli boundary			
Coordinates	S	Lon	44,14496411	Lat	12,47382816
	F	Lon	44,16309693	Lat	12,45180615
Length (m)		2.690			
Municipality/ies		Bellaria Igea Marina			
Province		Rimini			

41

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology



21 emerged breakwaters

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

7.000

Sources typology



## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

99.845

Sediment volume variation (m<sup>3</sup>/m)

35

Shoreline trend



## Dynamics and morphology



S-N



0,99 cm/y



54 m



2,78 %

345 947 m  
to -4m to -7m

0,61 %



## Management

Constraints

shellfish

Cell suitable for sediment withdrawal  
noCell suitable as recharge zone  
noCell that needs intervention  
yes

## Note



Name		<b>San Mauro</b>			
Typology		Cell with beach			
Boundary		coastal stretch between of San Mauro a Pascoli municipality			
Coordinates	S	Lon	44,16309693	Lat	12,45180615
	F	Lon	44,16791615	Lat	12,4461773
Length (m)		700			
Municipality/ies		San Mauro Pascoli			
Province		Forlì-Cesena			

42

A	S	P	E	2000 2006

## Hard defense works

Hard defense works typology

**Emerged breakwaters**

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference  
**in 2001 opening of gap between breakwater 3 and 4 and recharging of them**

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

29.185

Sources typology



## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

28.011

Sediment volume variation (m<sup>3</sup>/m)

-2

Shoreline trend



## Dynamics and morphology



S-N



0,96 cm/y



53 m



3,4 %



273

868 m

to -4m

to -7m



0,64 %



Constraints

## Management

Cell suitable for sediment withdrawal  
**yes**

Cell suitable as recharge zone  
**no**

Cell that needs intervention  
**yes**

## Note



Name		<b>Savignano</b>			
Typology		Cell with beach			
Boundary		coastal stretch between S.Mauro a Pascoli boundary and and the southern pier fo Rubicone mouth			
Coordinates	S	Lon	44,16791615	Lat	12,4461773
	F	Lon	44,16895534	Lat	12,44488613
Lenght (m)		155			
Municipality/ies		Savignano			
Province		Forlì-Cesena			

43

A	S	P	E	2000 2006

## Hard defense works

Hard defense works typology



Low-crested breakwater

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

emerged breakwater converted in low-crested one

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

9.482

Sources typology



## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

7.061

Sediment volume variation (m<sup>3</sup>/m)

-16

Shoreline trend



## Dynamics and morphology



S-N



1,31 cm/y



55 m



2,36 %



224 to -4m 822 to -7m



0,62 %



Constraints

## Management

Cell suitable for sediment withdrawal  
noCell suitable as recharge zone  
noCell that needs intervention  
yes

## Note



Name		<b>Foce Rubicone</b>			
Typology		River mouth			
Boundary		coastal stretch of Rubicone river mouth			
Coordinates	S	Lon	44,16946148	Lat	12,44578496
	F	Lon	44,17051589	Lat	12,4444242
Lenght (m)		160			
Municipality/ies		Savignao / Gatteo			
Province		Forli-Cesena			

44

A	S	P	E	

**Hard defense works typology**

 **reinforcement works**

**Hard defense works realised in the period of reference**

**Hard defense works maintenance in the period of reference**

**Nourishments**

**Nourishments in the period of reference (m³)**

**Sources typology**

**Withdrawal**

**Sand withdrawal (m³)**

**Cell/s of destination of sands**

**Other information**

**Accumulated/eroded V in the period of reference (m³)**

**Sediment volume variation (m³/m)**

**Shoreline trend**

**Dynamics and morphology**

 **S-N**

 **1,31 cm/y**

 **m**

 **%**

 **m**  
to -4m      to -7m

 **%**

 **ru**

**Management**

**Constraints**

**Cell suitable for sediment withdrawal**  
**yes**

**Cell suitable as recharge zone**  
**no**

**Cell that needs intervention**  
**no**

**Note**



Name		<b>Gatteo a Mare</b>			
Typology		Cell with beach			
Boundary		coastal stretch between northern pier of Rubicone river mouth and the 6th breakwater			
Coordinates	S	Lon	44,17051589	Lat	12,4444242
	F	Lon	44,17494129	Lat	12,43820164
Length (m)		700			
Municipality/ies		Gatteo a Mare			
Province		Forlì-Cesena			

45

A	S	P	E	2000 2006

Hard defense works	Hard defense works typology		<b>Emerged breakwaters</b>
	Hard defense works realised in the period of reference		
	Hard defense works maintenance in the period of reference		
	<b>in 2001 breakwaters recharged with rocks</b>		

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	<b>31.570</b>
	Sources typology	  

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	<b>40.740</b>
	Sediment volume variation (m <sup>3</sup> /m)	<b>13</b>
	Shoreline trend	

Dynamics and morphology		<b>S-N</b>
		<b>0,98</b> cm/y
		<b>72</b> m
		<b>1,67</b> %
		<b>180</b> to -4m <b>824</b> m to -7m
		<b>0,67</b> %
	 	

Management	Constraints	
	Cell suitable for sediment withdrawal	<b>no</b>
	Cell suitable as recharge zone	<b>no</b>
	Cell that needs intervention	<b>yes</b>

Note	
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Name		<b>Villamarina</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the 7th breakwater and the first Valverde groin			
Coordinates	S	Lon	44,17494821	Lat	12,43820455
	F	Lon	44,18055561	Lat	12,43044215
Length (m)		880			
Municipality/ies		Cesenatico			
Province		Forlì-Cesena			

46

A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology	 <b>Emerged breakwaters</b>
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	<b>5.000</b>
	Sources typology	  

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	<b>66.585</b>
	Sediment volume variation (m <sup>3</sup> /m)	<b>60</b>
	Shoreline trend	

Dynamics and morphology	 dt	<b>S-N</b>
	 ts	<b>0,95</b> cm/y
	 ase	<b>58</b> m
	 pse	<b>2,24</b> %
	 ass	<b>274</b> <b>963</b> m to -4m to -7m
	 pss	<b>0,64</b> %
	 cd	 sb

Management	Constraints	
	Cell suitable for sediment withdrawal	<b>no</b>
	Cell suitable as recharge zone	<b>no</b>
	Cell that needs intervention	<b>yes</b>

Note	
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Name		<b>Valverde</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the first Valverde groin and the Colonia Agip groins			
Coordinates	S	Lon	44,18055768	Lat	12,43044599
	F	Lon	44,1931357	Lat	12,41737696
Length (m)		1750			
Municipality/ies		Cesenatico			
Province		Forlì-Cesena			

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A	S	P	E	2000
				2006

Hard defense works

Hard defense works typology

**Emerged breakwaters and groins**

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

192.600

Sources typology



Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

214.630

Sediment volume variation (m<sup>3</sup>/m)

13

Shoreline trend



Dynamics and morphology



dt

S-N



ts

0,93 cm/y



ase

50 m



pse

2,2 %



ass

308

1011 m

to -4m

to -7m



pss

0,58 %



sb



ru

Management

Constraints

Cell suitable for sediment withdrawal  
noCell suitable as recharge zone  
noCell that needs intervention  
yes

Note



Name		<b>Cesenatico</b>			
Typology		Cell with beach			
Boundary		coastal stretch between Colonia Agip groins and Cesenatico southern pier			
Coordinates	S	Lon	44,19313018	Lat	12,41737665
	F	Lon	44,20890071	Lat	12,40510797
Length (m)		2.015			
Municipality/ies		Cesenatico			
Province		Forlì-Cesena			

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<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

Hard defense works	Hard defense works typology	 <b>Emerged breakwaters</b>
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	15.000	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	357.475
	Sediment volume variation (m <sup>3</sup> /m)	179
	Shoreline trend	

Dynamics and morphology	 dt	S-N
	 ts	0,86 cm/y
	 ase	83 m
	 pse	1,08 %
	 ass	366 to -4m    1022 to -7m
	 pss	0,63 %
	 sb  ru	

Management	Constraints	
	Cell suitable for sediment withdrawal	yes
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>Porto Canale Cesenatico</b>			
Typology		Harbour entrance			
Boundary		coastal stretch of Cesenatico harbour			
Coordinates	S	Lon	44,20890071	Lat	12,40510797
	F	Lon	44,20924996	Lat	12,40462086
Lenght (m)		55			
Municipality/ies		Cesenatico			
Province		Forli-Cesena			

49

A	S	P	E	

**Hard defense works**

Hard defense works typology  
 **piers in concrete**

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

**Nourishments**

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

**Withdrawal**

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

**Other information**

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend

**Dynamics and morphology**

 **S-N**

 **0,72 cm/y**

 **m**

 **%**

 **m**  
to -4m to -7m

 **%**



**Management**

Constraints

Cell suitable for sediment withdrawal  
**yes**

Cell suitable as recharge zone  
**no**

Cell that needs intervention  
**no**

**Note**



Name		<b>Cesenatico Ponente</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the Cesenatico northern pier and the big groin			
Coordinates	S	Lon	44,20743716	Lat	12,40155551
	F	Lon	44,21298947	Lat	12,39471086
Length (m)		825			
Municipality/ies		Cesenatico			
Province		Forlì-Cesena			

50

A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology		Low-crested breakwater and 3 groins
	Hard defense works realised in the period of reference		
	Hard defense works maintenance in the period of reference		

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	146.060
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	-17.565
	Sediment volume variation (m <sup>3</sup> /m)	-194
	Shoreline trend	

Dynamics and morphology	dt	S-N	
	ts	0,74 cm/y	
	ase	67 m	
	pse	2,24 %	
	ass	652 to -4m	1881 to -7m
	pss	0,47 %	
	cd	sb	ru

Management	Constraints	
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	yes
	Cell that needs intervention	yes

Note	
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Name		<b>Cesenatico Colonie</b>			
Typology		Cell with beach			
Boundary		coastal stretch 800 m long starting from the big groin			
Coordinates	S	Lon	44,21298947	Lat	12,39471086
	F	Lon	44,21894537	Lat	12,38967433
Length (m)		775			
Municipality/ies		Cesenatico			
Province		Forlì-Cesena			

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A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

117.812

Sources typology



## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

-45.125

Sediment volume variation (m<sup>3</sup>/m)

-195

Shoreline trend



## Dynamics and morphology



S-N



0,82 cm/y



45 m



2,89 %

789 1695 m  
to -4m to -7m

0,45 %



## Management

Constraints

Cell suitable for sediment withdrawal  
noCell suitable as recharge zone  
yesCell that needs intervention  
yes

## Note



Name		<b>Cesenatico Campeggio Zadina</b>			
Typology		Cell with beach			
Boundary		coastal stretch 500 m long southern of Tagliata channel			
Coordinates	S	Lon	44,21894537	Lat	12,38967433
	F	Lon	44,22300244	Lat	12,38697559
Length (m)		500			
Municipality/ies		Cesenatico			
Province		Forlì-Cesena			

52

<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

Hard defense works	Hard defense works typology	
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	28.419
	Sediment volume variation (m <sup>3</sup> /m)	57
	Shoreline trend	

Dynamics and morphology	dt	S-N
	ts	0,8 cm/y
	ase	62 m
	pse	2,9 %
	ass	778 to -4m    1671 to -7m
	pss	0,47 %
	cd	sb

Management	Constraints	
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	yes
	Cell that needs intervention	no

Note	
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Name		<b>Canale Tagliata</b>			
Typology		Draining channel			
Boundary		coastal stretch of Tagliata channel			
Coordinates	S	Lon	44,22300139	Lat	12,38697592
	F	Lon	44,2230638	Lat	12,38688586
Lenght (m)		10			
Municipality/ies		Cesenatico			
Province		Forlì-Cesena			

53

A	S	P	E	

**Hard defense works typology**

 **reinforcement works**

**Hard defense works realised in the period of reference**

**Hard defense works maintenance in the period of reference**

**Nourishments**

**Nourishments in the period of reference (m³)**

**Sources typology**

**Withdrawal**

**Sand withdrawal (m³)**

**Cell/s of destination of sands**

**Other information**

**Accumulated/eroded V in the period of reference (m³)**

**Sediment volume variation (m³/m)**

**Shoreline trend**

**Dynamics and morphology**

 **S-N**

 **0,76 cm/y**

 **m**

 **%**

 **m**  
to -4m      to -7m

 **%**

 **cd**       **ru**

**Management**

**Constraints**

**Cell suitable for sediment withdrawal**  
no

**Cell suitable as recharge zone**  
no

**Cell that needs intervention**  
no

**Note**



Name		<b>Zadina Tagliata</b>	
Typology		Cell with beach	
Boundary		coastal stretch 1 km long starting from Tagliata channel	
Coordinates	S Lon	44,2230638	Lat 12,38688586
	F Lon	44,23112703	Lat 12,38134222
Length (m)		1.000	
Municipality/ies		Cesenatico / Cervia	
Province		Forlì-Cesena / Ravenna	

54

A	S	P	E	2000 2006

## Hard defense works

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

51.633

Sources typology



## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

223.324

Sediment volume variation (m<sup>3</sup>/m)

172

Shoreline trend



## Dynamics and morphology



S-N



0,76 cm/y



62 m



2,9 %

764 1514 m  
to -4m to -7m

0,49 %



## Constraints

## Management

Cell suitable for sediment withdrawal  
noCell suitable as recharge zone  
noCell that needs intervention  
no

## Note



Name		<b>Cervia</b>			
Typology		Cell with beach			
Boundary		coastal stretch 4400 m long southern of Cervia dock			
Coordinates	S	Lon	44,23112703	Lat	12,38134222
	F	Lon	44,26789772	Lat	12,36062437
Length (m)		4.420			
Municipality/ies		Cervia			
Province		Ravenna			

55

<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

## Hard defense works

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)  
**55.775**Sediment volume variation (m<sup>3</sup>/m)  
**13**

Shoreline trend



## Dynamics and morphology



CP



0,87 cm/y



101 m



1,49 %

735 1444 m  
to -4m to -7m

0,55 %



## Management

Constraints

no

Cell suitable for sediment withdrawal  
noCell suitable as recharge zone  
noCell that needs intervention  
no

## Note



Name		<b>Darsena di Cervia</b>			
Typology		Dock			
Boundary		coastal stretch of Cervia dock			
Coordinates	S	Lon	44,26789772	Lat	12,36062437
	F	Lon	44,26920582	Lat	12,35964864
Length (m)		165			
Municipality/ies		Cervia			
Province		Ravenna			

56

A	S	P	E	

Hard defense works	Hard defense works typology	Dock
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	
	Sediment volume variation (m <sup>3</sup> /m)	
	Shoreline trend	

**Dynamics and morphology**

dt	N-S
ts	1,11 cm/y
ase	m
pse	%
ass	to -4m to -7m m
pss	0,47 %
ru	

Management	Constraints	
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	no
	Cell that needs intervention	no
Note		



Name		<b>Porto Canale di Cervia</b>			
Typology		Harbour entrance			
Boundary		coastal stretch of Cervia harbour			
Coordinates	S	Lon	44,26920582	Lat	12,35964864
	F	Lon	44,26951474	Lat	12,35939194
Length (m)		40			
Municipality/ies		Cervia			
Province		Ravenna			

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A	S	P	E	

Hard defense works	Hard defense works typology		reinforcement works
	Hard defense works realised in the period of reference		
	Hard defense works maintenance in the period of reference		

Nourishments	Nourishments in the period of reference (m³)		
	Sources typology		

Withdrawal	Sand withdrawal (m³)		
		33.500	
	Cell/s of destination of sands		

Other information	Accumulated/eroded V in the period of reference (m³)		
	Sediment volume variation (m³/m)		
	Shoreline trend		

Dynamics and morphology		N-S
		1,11 cm/y
		m
		%
		to -4m to -7m
		%
		

Management	Constraints	Natural Park
	Cell suitable for sediment withdrawal	yes
	Cell suitable as recharge zone	no
	Cell that needs intervention	no
Note		



Name		<b>Milano Marittima</b>			
Typology		Cell with beach			
Boundary		coastal stretch between northern pier of Cervia harbour and southern pier of Canalino delle Saline			
Coordinates	S	Lon	44,26951474	Lat	12,35939194
	F	Lon	44,28133468	Lat	12,35483291
Length (m)		1.365			
Municipality/ies		Cervia			
Province		Ravenna			

58

<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

## Hard defense works

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)  
**42.754**Sediment volume variation (m<sup>3</sup>/m)  
**31**

Shoreline trend



## Dynamics and morphology



N-S



1,18 cm/y



84 m



1,79 %

644 1277 m  
to -4m to -7m

0,58 %



Constraints

Natural Park

## Management

Cell suitable for sediment withdrawal  
**no**Cell suitable as recharge zone  
**yes**Cell that needs intervention  
**no**

## Note



Name		<b>Canalino delle Saline</b>			
Typology		Draining channel			
Boundary		coastal stretch of Canalino delle Saline			
Coordinates	S	Lon	44,28133468	Lat	12,35483291
	F	Lon	44,28157409	Lat	12,35465961
Length (m)		30			
Municipality/ies		Cervia			
Province		Ravenna			

59

A	S	P	E	

**Hard defense works typology**

 **reinforcement works**

**Hard defense works realised in the period of reference**

**Hard defense works maintenance in the period of reference**

**Nourishments**

**Nourishments in the period of reference (m³)**

**Sources typology**

**Withdrawal**

**Sand withdrawal (m³)**

**Cell/s of destination of sands**

**Other information**

**Accumulated/eroded V in the period of reference (m³)**

**Sediment volume variation (m³/m)**

**Shoreline trend**

**Dynamics and morphology**

**dt** **N-S**

**ts** **1,17 cm/y**

**ase** **m**

**pse** **%**

**ass** **m**  
to -4m to -7m

**pss** **0,55 %**

**ru**

**Management**

**Constraints**

**Natural Park**

**Cell suitable for sediment withdrawal**

**yes**

**Cell suitable as recharge zone**

**no**

**Cell that needs intervention**

**no**

**Note**



Name		<b>Milano Marittima Nord</b>			
Typology		Cell with beach			
Boundary		coastal stretch between northern pier of Canalino delle Saline and the first groin			
Coordinates	S	Lon	44,28157409	Lat	12,35465961
	F	Lon	44,29633157	Lat	12,34989624
Length (m)		1.685			
Municipality/ies		Cervia			
Province		Ravenna			

60

A	S	P	E	2000 2006

Hard defense works	Hard defense works typology	 <b>Submerged sand barrier</b>
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	<b>131.875</b>
	Sources typology	 

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	<b>101.775</b>
	Sediment volume variation (m <sup>3</sup> /m)	<b>-17</b>
	Shoreline trend	

Dynamics and morphology	 dt	<b>N-S</b>
	 ts	<b>1,01</b> cm/y
	 ase	<b>53</b> m
	 pse	<b>3,21</b> %
	 ass	<b>586</b> to -4m <b>1186</b> m to -7m
	 pss	<b>0,57</b> %



Management	Constraints	SIC IT 4070008
	Cell suitable for sediment withdrawal	<b>no</b>
	Cell suitable as recharge zone	<b>yes</b>
	Cell that needs intervention	<b>no</b>

Note	
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Name		<b>Milano Marittima Colonie</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the first groin and southern pier of Cupa drainage channel			
Coordinates	S	Lon	44,29633157	Lat	12,34989624
	F	Lon	44,3011487	Lat	12,34902908
Length (m)		540			
Municipality/ies		Cervia			
Province		Ravenna			

61

A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology		<b>Submerged sand barrier and groins</b>
	Hard defense works realised in the period of reference		
	Hard defense works maintenance in the period of reference		

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	<b>169.681</b>
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	<b>37.035</b>
	Sediment volume variation (m <sup>3</sup> /m)	<b>-245</b>
	Shoreline trend	

Dynamics and morphology	dt	N-S	
	ts	0,97 cm/y	
	ase	48 m	
	pse	3,33 %	
	ass	560 to -4m	1189 m to -7m
	pss	0,57 %	
	cd	sb	ru

Management	Constraints	SIC IT 4070009
	Cell suitable for sediment withdrawal	<b>no</b>
	Cell suitable as recharge zone	<b>yes</b>
	Cell that needs intervention	<b>yes</b>

Note	
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Name		<b>Canale di Via Cupa</b>			
Typology		Draining channel			
Boundary		coastal stretch of Cupa drainage channel			
Coordinates	S	Lon	44,3011487	Lat	12,34902908
	F	Lon	44,30132759	Lat	12,34900273
Lenght (m)		20			
Municipality/ies		Cervia			
Province		Ravenna			

62

A	S	P	E	

**Hard defense works typology**

**reinforcement works**

**Hard defense works realised in the period of reference**

**Hard defense works maintenance in the period of reference**

**Nourishments**

**Nourishments in the period of reference (m³)**

**Sources typology**

**Withdrawal**

**Sand withdrawal (m³)**

**Cell/s of destination of sands**

**Other information**

**Accumulated/eroded V in the period of reference (m³)**

**Sediment volume variation (m³/m)**

**Shoreline trend**

**Dynamics and morphology**

**dt** N-S

**ts** 0,97 cm/y

**ase** m

**pse** %

**ass** m  
to -4m to -7m

**pss** %

**ru**

**Management**

**Constraints**

no

Cell suitable for sediment withdrawal

**yes**

Cell suitable as recharge zone

no

Cell that needs intervention

no

**Note**



Name		<b>Lido di Savio</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the northern pier of Cupa and southern groin of Savio river mouth			
Coordinates	S	Lon	44,30132759	Lat	12,34900273
	F	Lon	44,31955257	Lat	12,3436941
Length (m)		2.070			
Municipality/ies		Ravenna			
Province		Ravenna			

63

A	S	P	E	2000 2006

Hard defense works	Hard defense works typology	 <b>15 emerged breakwaters</b>
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	<b>3.736</b>
	Sediment volume variation (m <sup>3</sup> /m)	<b>2</b>
	Shoreline trend	

Dynamics and morphology	 dt	<b>N-S</b>
	 ts	<b>1,01 cm/y</b>
	 ase	<b>49 m</b>
	 pse	<b>3,27 %</b>
	 ass	<b>507 to -4m</b> <b>1120 m to -7m</b>
	 pss	<b>0,58 %</b>
	 sb	 ru

Management	Constraints	<b>no</b>
	Cell suitable for sediment withdrawal	<b>no</b>
	Cell suitable as recharge zone	<b>no</b>
	Cell that needs intervention	<b>no</b>

Note	
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Name		<b>Foce Savio</b>			
Typology		River mouth			
Boundary		coastal stretch of Savio river mouth			
Coordinates	S	Lon	44,31997073	Lat	12,34475377
	F	Lon	44,32211474	Lat	12,3433029
Lenght (m)		265			
Municipality/ies		Ravenna			
Province		Ravenna			

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A	S	P	E	

**Hard defense works typology**  
 reinforcement works

**Hard defense works realised in the period of reference**

**Hard defense works maintenance in the period of reference**

**Nourishments in the period of reference (m³)**

**Sources typology**

**Sand withdrawal (m³)**

**Cell/s of destination of sands**

**Accumulated/eroded V in the period of reference (m³)**

**Sediment volume variation (m³/m)**

**Shoreline trend**

**Dynamics and morphology**

**dt** DP

**ts** 0,97 cm/y

**ase** m

**pse** %

**ass** m  
to -4m to -7m

**pss** %

**ru**

**Constraints**  
 State natural reserve westward

**Management**

Cell suitable for sediment withdrawal  
**yes**

Cell suitable as recharge zone  
**no**

Cell that needs intervention  
**no**

**Note**



Name		<b>Lido di Classe</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the northern groin of Savio and the first groin of Lido di Classe Nord			
Coordinates	S	Lon	44,3221474	Lat	12,3433029
	F	Lon	44,33249771	Lat	12,33835474
Length (m)		1,220			
Municipality/ies		Ravenna			
Province		Ravenna			

65

<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

Hard defense works	Hard defense works typology	 <b>10 emerged breakwaters</b>
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	<b>25.240</b>
	Sediment volume variation (m <sup>3</sup> /m)	<b>21</b>
	Shoreline trend	

Dynamics and morphology	 dt	<b>S-N</b>
	 ts	<b>1,06</b> cm/y
	 ase	<b>90</b> m
	 pse	<b>1,78</b> %
	 ass	<b>465</b> <b>1053</b> m to -4m to -7m
	 pss	<b>0,59</b> %
	 cd	 sb

Management	Constraints	no
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>Lido di Classe Nord</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the first and the last groin of di Lido di Classe Nord			
Coordinates	S	Lon	44,33231247	Lat	12,33767093
	F	Lon	44,33715889	Lat	12,3349803
Length (m)		580			
Municipality/ies		Ravenna			
Province		Ravenna			

66

<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

Hard defense works	Hard defense works typology		<b>Submerged sand barrier and groins</b>
	Hard defense works realised in the period of reference		
	Hard defense works maintenance in the period of reference		

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	<b>-31.718</b>
	Sediment volume variation (m <sup>3</sup> /m)	<b>-54</b>
	Shoreline trend	

Dynamics and morphology	 dt	S-N
	 ts	1,17 cm/y
	 ase	50 m
	 pse	4,4 %
	 ass	521 to -4m    1147 to -7m
	 pss	0,56 %
	 cd	

Management	Constraints	Natural Park and SIC/ZPS IT4070009
	Cell suitable for sediment withdrawal	<b>no</b>
	Cell suitable as recharge zone	<b>yes</b>
	Cell that needs intervention	<b>no</b>

Note	
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Name		<b>Bevano Sud</b>			
Typology		Cell with beach			
Boundary		coastal stretch 1 km long starting from the last groin of Lido di Classe nord			
Coordinates	S	Lon	44,33715889	Lat	12,3349803
	F	Lon	44,34579362	Lat	12,33146925
Length (m)		1.000			
Municipality/ies		Ravenna			
Province		Ravenna			

67

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

41.013

Sources typology



## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)  
17.533Sediment volume variation (m<sup>3</sup>/m)

-23

Shoreline trend



## Dynamics and morphology



S-N



1,11 cm/y



28 m



7,14 %

531 1213 m  
to -4m to -7m

0,53 %



Constraints

Natural Park and SIC/ZPS IT4070009

## Management

Cell suitable for sediment withdrawal  
noCell suitable as recharge zone  
noCell that needs intervention  
yes

## Note



Name		<b>Bevano Centro Sud</b>			
Typology		Cell with beach			
Boundary		coastal stretch between 1900 m long southern Bevano river mouth			
Coordinates	S	Lon	44,34579362	Lat	12,33146925
	F	Lon	44,36244336	Lat	12,32609606
Length (m)		1,900			
Municipality/ies		Ravenna			
Province		Ravenna			

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A	S	P	E	2000 2006

Hard defense works	Hard defense works typology	
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	7.274
	Sediment volume variation (m <sup>3</sup> /m)	4
	Shoreline trend	

Dynamics and morphology		S-N
		1,3 cm/y
		26 m
		7,69 %
		490 to -4m    1187 to -7m
		0,55 %

Management	Constraints	Natural Park and SIC/ZPS IT4070009
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>Foce Bevano</b>			
Typology		River mouth			
Boundary		coastal stretch of Bevano river mouth			
Coordinates	S	Lon	44,36244336	Lat	12,32609606
	F	Lon	44,36339726	Lat	12,32572976
Lenght (m)		110			
Municipality/ies		Ravenna			
Province		Ravenna			

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A	S	P	E	

**Hard defense works typology**  
 **reinforcement works**

**Hard defense works realised in the period of reference**  


**Hard defense works maintenance in the period of reference**

**Nourishments**

**Nourishments in the period of reference (m³)**

**Sources typology**

**Withdrawal**

**Sand withdrawal (m³)**

**Cell/s of destination of sands**

**Other information**

**Accumulated/eroded V in the period of reference (m³)**

**Sediment volume variation (m³/m)**

**Shoreline trend**

**Dynamics and morphology**

**dt** **S-N**

**ts** **1,25 cm/y**

**ase** **m**

**pse** **%**

**ass** **m**  
to -4m to -7m

**pss** **%**

**cd** **ru**

**Management**

**Constraints**  
 Natural Park and SIC/ZPS IT4070009

**Cell suitable for sediment withdrawal**  
**no**

**Cell suitable as recharge zone**  
**no**

**Cell that needs intervention**  
**no**

**Note**



Name		<b>Bevano Centro Nord</b>			
Typology		Cell with beach			
Boundary		coastal stretch 1300 m long from Bevano river mouth			
Coordinates	S	Lon	44,36339726	Lat	12,32572976
	F	Lon	44,3749439	Lat	12,32315573
Length (m)		1.300			
Municipality/ies		Ravenna			
Province		Ravenna			

70

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)  
-7.519Sediment volume variation (m<sup>3</sup>/m)  
-6

Shoreline trend



## Dynamics and morphology



S-N



1,39 cm/y



39 m



3,85 %

423 1082 m  
to -4m to -7m

0,63 %



Constraints

Natural Park and SIC/ZPS IT4070009

## Management

Cell suitable for sediment withdrawal  
noCell suitable as recharge zone  
noCell that needs intervention  
no

## Note



Name		<b>Bevano Nord</b>			
Typology		Cell with beach			
Boundary		coastal stretch 1 km long southern of the first groin of Lido di Dante			
Coordinates	S	Lon	44,3749439	Lat	12,32315573
	F	Lon	44,38386676	Lat	12,32157188
Length (m)		1.000			
Municipality/ies		Ravenna			
Province		Ravenna			

71

A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology	
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	-111.377
	Sediment volume variation (m <sup>3</sup> /m)	-114
	Shoreline trend	

Dynamics and morphology	dt	S-N
	ts	1,8 cm/y
	ase	17 m
	pse	13,53 %
	ass	323 to -4m    972 to -7m
	pss	0,66 %
	cd	ru

Management	Constraints	Natural Park and SIC/ZPS IT4070009
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	yes
	Cell that needs intervention	yes
Note		



Name		<b>Lido di Dante</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the first and the last groin			
Coordinates	S	Lon	44,38386676	Lat	12,32157188
	F	Lon	44,38929777	Lat	12,32109229
Length (m)		605			
Municipality/ies		Ravenna			
Province		Ravenna			

72

A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology	 	<b>Low-crested breakwater and groins</b>
	Hard defense works realised in the period of reference		
	Hard defense works maintenance in the period of reference		
	in 2005 maintenance of southern groin		

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
		<b>105.225</b>
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	<b>51.519</b>
	Sediment volume variation (m <sup>3</sup> /m)	<b>-88</b>
	Shoreline trend	

Dynamics and morphology	dt	S-N
	ts	1,87 cm/y
	ase	37 m
	pse	3,24 %
	ass	255 to -4m    980 to -7m
	pss	0,73 %
	cd	sb

Management	Constraints	Natural Park and SIC/ZPS IT4070009
	Cell suitable for sediment withdrawal	<b>no</b>
	Cell suitable as recharge zone	<b>no</b>
	Cell that needs intervention	<b>yes</b>

Note	
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Name		<b>Sud Foce Fiumi Uniti</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the last groin of Lido di Dante and the Fiumi Uniti river mouth			
Coordinates	S	Lon	44,38929565	Lat	12,32109217
	F	Lon	44,39404488	Lat	12,31832002
Length (m)		600			
Municipality/ies		Ravenna			
Province		Ravenna			

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A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology	
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	-68.360
	Sediment volume variation (m <sup>3</sup> /m)	-113
	Shoreline trend	

Dynamics and morphology		S-N
		1,87 cm/y
		34 m
		4,71 %
		289 to -4m    980 to -7m
		0,69 %

Management	Constraints	Natural Park and SIC/ZPS IT4070009
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	no
	Cell that needs intervention	yes

Note	
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Name		<b>Foce Fiumi Uniti</b>			
Typology		River mouth			
Boundary		coastal stretch of Fiumi Uniti river mouth			
Coordinates	S	Lon	44,39404488	Lat	12,31832002
	F	Lon	44,39638846	Lat	12,3174316
Lenght (m)		270			
Municipality/ies		Ravenna			
Province		Ravenna			

74

A	S	P	E	

**Hard defense works**

Hard defense works typology  
 **reinforcement works**

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

**Nourishments**

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

**Withdrawal**

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

**Other information**

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend

**Dynamics and morphology**

 dt **S-N**

 ts **1,36 cm/y**

 ase **m**

 pse **%**

 ass **m**  
to -4m to -7m

 pss **%**

 cd

**Management**

Constraints  
 Natural Park and SIC/ZPS IT4070009

Cell suitable for sediment withdrawal  
**yes**

Cell suitable as recharge zone  
**no**

Cell that needs intervention  
**no**

**Note**



Name		<b>Nord Foce Fiumi Uniti</b>			
Typology		Cell without beach			
Boundary		coastal stretch between Fiumi Uniti mouth and the first breakwater of Lido Adriano			
Coordinates	S	Lon	44,39638846	Lat	12,3174316
	F	Lon	44,39948837	Lat	12,31827444
Lenght (m)		360			
Municipality/ies		Ravenna			
Province		Ravenna			

75

A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology	 <b>seawall</b>
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	<b>-18.547</b>
	Sediment volume variation (m <sup>3</sup> /m)	<b>-48</b>
	Shoreline trend	

Dynamics and morphology	 dt	<b>S-N</b>
	 ts	<b>1,36</b> cm/y
	 ase	
	 pse	
	 ass	<b>334</b> <b>1074</b> m to -4m to -7m
	 pss	<b>0,76</b> %
	 ru	

Management	Constraints	Natural Park and SIC/ZPS IT4070009
	Cell suitable for sediment withdrawal	<b>no</b>
	Cell suitable as recharge zone	<b>no</b>
	Cell that needs intervention	<b>yes</b>

Note	
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Name		<b>Lido Adriano</b>			
Typology		Cell with beach			
Boundary		coastal stretch defended by 19 emerged breakwaters			
Coordinates	S	Lon	44,39948837	Lat	12,31827444
	F	Lon	44,42130523	Lat	12,30883575
Length (m)		2.560			
Municipality/ies		Ravenna			
Province		Ravenna			

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A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology		19 emerged breakwaters
	Hard defense works realised in the period of reference		
	Hard defense works maintenance in the period of reference		

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )		
	Sources typology		

Withdrawal	Sand withdrawal (m <sup>3</sup> )		
	Cell/s of destination of sands		

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	-103.973
	Sediment volume variation (m <sup>3</sup> /m)	-41
	Shoreline trend	

Dynamics and morphology		S-N
		1,41 cm/y
		55 m
		3,45 %
		292 to -4m    1058 to -7m
		0,77 %
		

Management	Constraints	no
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	no
	Cell that needs intervention	yes

Note	
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Name		<b>Punta Marina</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the first and the 11th groins defended by a low-crested breakwater			
Coordinates	S	Lon	44,42130523	Lat	12,30883575
	F	Lon	44,4531909	Lat	12,29456997
Length (m)		3.730			
Municipality/ies		Ravenna			
Province		Ravenna			

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A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology		Low-crested breakwater and 11 groins
	Hard defense works realised in the period of reference		
	Hard defense works maintenance in the period of reference		

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	187.000
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	-123.426
	Sediment volume variation (m <sup>3</sup> /m)	-87
	Shoreline trend	

Dynamics and morphology	dt	S-N	
	ts	1 cm/y	
	ase	45 m	
	pse	4,22 %	
	ass	427 to -4m	1437 to -7m
	pss	0,66 %	
	cd	sb	ru

Management	Constraints	Natural Park and SIC/ZPS IT4070006
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	no
	Cell that needs intervention	yes

Note	
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Name		<b>Punta Marina Nord</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the 11th and the Bagno Ruvido groin			
Coordinates	S	Lon	44,4531909	Lat	12,29456997
	F	Lon	44,46070992	Lat	12,29177693
Length (m)		865			
Municipality/ies		Ravenna			
Province		Ravenna			

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A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology		Submerged sand barrier and 1 groin
	Hard defense works realised in the period of reference		
	Hard defense works maintenance in the period of reference		

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	-9.451
	Sediment volume variation (m <sup>3</sup> /m)	-53
	Shoreline trend	

Dynamics and morphology	dt	S-N
	ts	0,7 cm/y
	ase	84 m
	pse	2,74 %
	ass	563 to -4m    2107 to -7m
	pss	0,6 %
	cd	sb

Management	Constraints	Natural Park
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	yes
	Cell that needs intervention	yes

Note	
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Name		<b>Marina di Ravenna</b>			
Typology		Cell with beach			
Boundary		coastal stretch between Bagno Ruvido groin and southern pier of Ravenna harbour			
Coordinates	S	Lon	44,46070992	Lat	12,29177693
	F	Lon	44,48744441	Lat	12,28710934
Length (m)		3.000			
Municipality/ies		Ravenna			
Province		Ravenna			

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<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

## Hard defense works

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

125.616

Sediment volume variation (m<sup>3</sup>/m)

42

Shoreline trend



## Dynamics and morphology



S-N



1,09 cm/y



141 m



1,06 %

533 1401 m  
to -4m to -7m

0,62 %



Constraints

Natural Park

## Management

Cell suitable for sediment withdrawal  
yesCell suitable as recharge zone  
noCell that needs intervention  
no

## Note



Name		<b>Porto di Ravenna</b>			
Typology		Harbour entrance			
Boundary		coastal stretch of Ravenna harbour mouth			
Coordinates	S	Lon	44,48744441	Lat	12,28710934
	F	Lon	44,49846028	Lat	12,28567356
Lenght (m)		1,230			
Municipality/ies		Ravenna			
Province		Ravenna			

80

A	S	P	E	

Hard defense works	Hard defense works typology	reinforcement works
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	250.000
	Cell/s of destination of sands	85

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	
	Sediment volume variation (m <sup>3</sup> /m)	
	Shoreline trend	

Dynamics and morphology	dt	S-N
	ts	0,83 cm/y
	ase	m
	pse	%
	ass	to -4m to -7m
	pss	%
	ru	

Management	Constraints	no
	Cell suitable for sediment withdrawal	yes
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>Porto Corsini</b>			
Typology		Cell with beach			
Boundary		coastal stretch 1 km long starting from Ravenna harbour			
Coordinates	S	Lon	44,49846028	Lat	12,28567356
	F	Lon	44,50723822	Lat	12,28292987
Length (m)		1.000			
Municipality/ies		Ravenna			
Province		Ravenna			

81

<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

Hard defense works	Hard defense works typology	
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	29.255	
	Cell/s of destination of sands	
	83	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	93.076
	Sediment volume variation (m <sup>3</sup> /m)	122
	Shoreline trend	

Dynamics and morphology		CP	
		1,25 cm/y	
		116 m	
		1,21 %	
		591 to -4m    1860 to -7m	
		0,56 %	

Management	Constraints	Natural Park and SIC/ZPS IT4070005
	Cell suitable for sediment withdrawal	yes
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>Marina Romea</b>			
Typology		Cell with beach			
Boundary		coastal stretch between 1 km and 2,3 km from Ravenna harbour			
Coordinates	S	Lon	44,50723822	Lat	12,28292987
	F	Lon	44,51883303	Lat	12,28081281
Length (m)		1.300			
Municipality/ies		Ravenna			
Province		Ravenna			

82

<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

Hard defense works	Hard defense works typology	
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	65.019
	Sediment volume variation (m <sup>3</sup> /m)	50
	Shoreline trend	

Dynamics and morphology		N-S
		1,18 cm/y
		117 m
		1,54 %
		488 to -4m    1381 to -7m
		0,63 %

Management	Constraints	Natural Park and SIC/ZPS IT4070005
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>Marina Romea Nord</b>			
Typology		Cell with beach			
Boundary		coastal stretch 950 m long southern Lamone river mouth			
Coordinates	S	Lon	44,51883303	Lat	12,28081281
	F	Lon	44,52733302	Lat	12,28088847
Lenght (m)		945			
Municipality/ies		Ravenna			
Province		Ravenna			

83

A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology	
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	50.155	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	-22.535
	Sediment volume variation (m <sup>3</sup> /m)	-76
	Shoreline trend	

Dynamics and morphology	dt	N-S	
	ts	1,16 cm/y	
	ase	40 m	
	pse	6 %	
	ass	410 to -4m	1163 m to -7m
	pss	0,68 %	
	cd	sb	ru

Management	Constraints	Natural Park and SIC/ZPS IT4070005
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	yes
	Cell that needs intervention	yes

Note	
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Name		<b>Foce Lamone</b>			
Typology		River mouth			
Boundary		coastal stretch Lamone river mouth			
Coordinates	S	Lon	44,52733302	Lat	12,28088847
	F	Lon	44,52859227	Lat	12,28090018
Lenght (m)		140			
Municipality/ies		Ravenna			
Province		Ravenna			

84

A	S	P	E	

**Hard defense works typology**  
 **reinforcement works**

**Hard defense works realised in the period of reference**

**Hard defense works maintenance in the period of reference**  
**maintenance of northern groin**

**Nourishments in the period of reference (m³)**

**Sources typology**

**Sand withdrawal (m³)**

**Cell/s of destination of sands**

**Accumulated/eroded V in the period of reference (m³)**

**Sediment volume variation (m³/m)**

**Shoreline trend**

**Dynamics and morphology**

**dt** **N-S**

**ts** **1,06 cm/y**

**ase** **m**

**pse** **%**

**ass** **m**  
 to -4m      to -7m

**pss** **%**

**ru**

**Constraints**  
 Natural Park and SIC/ZPS IT4070005

**Management**

Cell suitable for sediment withdrawal  
**yes**

Cell suitable as recharge zone  
**no**

Cell that needs intervention  
**no**

**Note**



Name		<b>Foce Lamone-Casal Borsetti</b>			
Typology		Cell with beach			
Boundary		coastal stretch between northern pier of Lamone mouth and the first breakwater of Casal Borsetti			
Coordinates	S	Lon	44,52859227	Lat	12,28090018
	F	Lon	44,54755102	Lat	12,28212952
Length (m)		2.110			
Municipality/ies		Ravenna			
Province		Ravenna			

85

A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology	  <b>Seawall, groins, "T" groins, residual submerged sand barrier</b>
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	270.250
	Sources typology	 

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	44.337
	Sediment volume variation (m <sup>3</sup> /m)	-107
	Shoreline trend	

Dynamics and morphology	 dt	N-S
	 ts	0,96 cm/y
	 ase	23 m
	 pse	13,04 %
	 ass	295 to -4m    1056 to -7m
	 pss	0,77 %
	 cd	 sb

Management	Constraints	Natural Park and SIC/ZPS IT4070005
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	no
	Cell that needs intervention	yes

Note	
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Name		<b>Casal Borsetti Sud</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the first breakwater of Casal Borsetti and the right channel of Reno river			
Coordinates	S	Lon	44,54755102	Lat	12,28212952
	F	Lon	44,55460279	Lat	12,28540392
Length (m)		835			
Municipality/ies		Ravenna			
Province		Ravenna			

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<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

Hard defense works	Hard defense works typology		<b>Emerged breakwaters</b>
	Hard defense works realised in the period of reference		
	Hard defense works maintenance in the period of reference		

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )		
	Sources typology		

Withdrawal	Sand withdrawal (m <sup>3</sup> )		
	Cell/s of destination of sands		

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	<b>8.296</b>	
	Sediment volume variation (m <sup>3</sup> /m)	<b>10</b>	
	Shoreline trend		

Dynamics and morphology		<b>N-S</b>		
		<b>0,99</b> cm/y		
		<b>63</b> m		
		<b>3,49</b> %		
		<b>279</b>	<b>988</b> m	
		to -4m	to -7m	
		<b>0,94</b> %		
				

Management	Constraints	Natural Park and SIC/ZPS IT4070005	
	Cell suitable for sediment withdrawal	<b>no</b>	
	Cell suitable as recharge zone	<b>no</b>	
	Cell that needs intervention	<b>no</b>	
Note			



Name		<b>Canale Destra Reno</b>			
Typology		Draining channel			
Boundary		coastal stretch of right channel of Reno river			
Coordinates	S	Lon	44,55460821	Lat	12,2854047
	F	Lon	44,55487751	Lat	12,28538076
Length (m)		30			
Municipality/ies		Ravenna			
Province		Ravenna			

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A	S	P	E	

**Hard defense works**

Hard defense works typology  
 **reinforcement works**

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

**Nourishments**

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

**Withdrawal**

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

**Other information**

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend

**Dynamics and morphology**

 dt **N-S**

 ts **0,96 cm/y**

 ase **m**

 pse **%**

 ass **m**  
to -4m to -7m

 pss **%**

 ru

**Management**

Constraints  
 Natural Park and SIC/ZPS IT4070003

Cell suitable for sediment withdrawal  
**yes**

Cell suitable as recharge zone  
**no**

Cell that needs intervention  
**no**

**Note**



Name		<b>Casal Borsetti Nord</b>			
Typology		Cell with beach			
Boundary		coastal stretch defended by 4 emerged breakwaters starting from the right channel of Reno river			
Coordinates	S	Lon	44,55487751	Lat	12,28538076
	F	Lon	44,55948907	Lat	12,28428784
Length (m)		520			
Municipality/ies		Ravenna			
Province		Ravenna			

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A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology		4 emerged breakwaters
	Hard defense works realised in the period of reference		
	Hard defense works maintenance in the period of reference		

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )		
	Sources typology		

Withdrawal	Sand withdrawal (m <sup>3</sup> )		
	Cell/s of destination of sands		

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	-48.590
	Sediment volume variation (m <sup>3</sup> /m)	-93
	Shoreline trend	

Dynamics and morphology		N-S
		0,96 cm/y
		75 m
		2,67 %
		216 to -4m    835 to -7m
		1,02 %
		

Management	Constraints	Natural Park and SIC/ZPS IT4070003
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	no
	Cell that needs intervention	yes

Note	
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Name		<b>Casal Borsetti Fio 82</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the 4th breakwaters and the 2nd groin of Casal Borsetti			
Coordinates	S	Lon	44,55948907	Lat	12,28428784
	F	Lon	44,56512764	Lat	12,2834986
Length (m)		630			
Municipality/ies		Ravenna			
Province		Ravenna			

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<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

Hard defense works	Hard defense works typology	 groins
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	45.811
	Sediment volume variation (m <sup>3</sup> /m)	72
	Shoreline trend	

Dynamics and morphology	 dt	N-S
	 ts	1,09 cm/y
	 ase	26 m
	 pse	6,92 %
	 ass	288 to -4m    913 to -7m
	 pss	0,92 %
	 cd	 sb

Management	Constraints	Natural Park and SIC/ZPS IT4070004
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>Polligono Militare</b>			
Typology		Cell without beach			
Boundary		coastal stretch 2,5 km long starting from the 2nd groin of Casal Borsetti			
Coordinates	S	Lon	44,56512764	Lat	12,2834986
	F	Lon	44,58761431	Lat	12,28366159
Lenght (m)		2.500			
Municipality/ies		Ravenna			
Province		Ravenna			

90

A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology	 <b>seawall</b>
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	-1.897
	Sediment volume variation (m <sup>3</sup> /m)	-1
	Shoreline trend	

Dynamics and morphology	 dt	N-S
	 ts	0,96 cm/y
	 ase	m
	 pse	%
	 ass	234 to -4m    870 to -7m
	 pss	0,95 %
	 ru	

Management	Constraints	Natural Park and SIC/ZPS IT4070005. Military shooting range
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>Pollgono Militare Nord</b>			
Typology		Cell with beach			
Boundary		coastal stretch 1,1 km long southern Reno river mouth			
Coordinates	S	Lon	44,58761431	Lat	12,28366159
	F	Lon	44,59749754	Lat	12,28300824
Lenght (m)		1.100			
Municipality/ies		Ravenna			
Province		Ravenna			

91

A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology	 <b>seawall</b>
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	-128.991
	Sediment volume variation (m <sup>3</sup> /m)	-117
	Shoreline trend	

Dynamics and morphology	 dt	N-S
	 ts	0,97 cm/y
	 ase	14 m
	 pse	9,29 %
	 ass	245 to -4m    834 to -7m
	 pss	0,97 %
	 cd	

Management	Constraints	Natural Park and SIC/ZPS IT4070005. Military shooting range
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	no
	Cell that needs intervention	yes

Note	
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Name		<b>Foce Reno</b>			
Typology		River mouth			
Boundary		coastal stretch of Reno river mouth			
Coordinates	S	Lon	44,59749747	Lat	12,28300661
	F	Lon	44,59737252	Lat	12,2800534
Lenght (m)		235			
Municipality/ies		Ravenna			
Province		Ravenna			

92

A	S	P	E	

Hard defense works	Hard defense works typology	
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	
	Sediment volume variation (m <sup>3</sup> /m)	
	Shoreline trend	

Dynamics and morphology	dt	DP
	ts	1,03 cm/y
	ase	m
	pse	%
	ass	to -4m to -7m m
	pss	%
cd		

Management	Constraints	Delta del Po regional park, SIC-ZPS IT4060003, Sacca di Bellocchio State natural reserve, Military shooting range
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>Nord Foce Reno</b>			
Typology		Cell with beach			
Boundary		coastal stretch 2 km long starting from Reno river mouth			
Coordinates	S	Lon	44,59737248	Lat	12,2800534
	F	Lon	44,61526671	Lat	12,27749377
Length (m)		2.000			
Municipality/ies		Ravenna			
Province		Ravenna			

93

A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology	
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	-38.465
	Sediment volume variation (m <sup>3</sup> /m)	-19
	Shoreline trend	

Dynamics and morphology	dt	S-N
	ts	1,03 cm/y
	ase	12 m
	pse	10 %
	ass	362 to -4m    980 to -7m
	pss	0,8 %
cd		

Management	Constraints	Delta del Po regional park, SIC-ZPS IT4060003, Sacca di Bellocchio State natural reserve, Military shooting range
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>Foce Gobbino Sud</b>			
Typology		Cell with beach			
Boundary		coastal stretch 850 m long southern Gobbino channel mouth			
Coordinates	S	Lon	44,61526671	Lat	12,27749377
	F	Lon	44,62271369	Lat	12,2745634
Length (m)		860			
Municipality/ies		Ravenna			
Province		Ravenna			

94

A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology	
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	-137.367
	Sediment volume variation (m <sup>3</sup> /m)	-164
	Shoreline trend	

Dynamics and morphology	dt	S-N	
	ts	1,03 cm/y	
	ase	10 m	
	pse	11 %	
	ass	285 to -4m	878 to -7m
	pss	0,87 %	
cd			

Management	Constraints	Delta del Po regional park, SIC-ZPS IT4060003, Sacca di Bellocchio State natural reserve, Military shooting range
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	no
	Cell that needs intervention	yes

Note	
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Name		<b>Foce Gobbino</b>			
Typology		Draining channel			
Boundary		coastal stretch of Gobbino channel mouth			
Coordinates	S	Lon	44,62271369	Lat	12,2745634
	F	Lon	44,62357763	Lat	12,2742129
Length (m)		100			
Municipality/ies		Ravenna			
Province		Ravenna			

95

A	S	P	E	

Hard defense works	Hard defense works typology	
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	57.000	
	Cell/s of destination of sands	42, 46, 47, 50, 51, 54, 97

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	-44.079
	Sediment volume variation (m <sup>3</sup> /m)	126
	Shoreline trend	

Dynamics and morphology	dt	S-N
	ts	1,03 cm/y
	ase	m
	pse	%
	ass	to -4m to -7m
	pss	%
	cd	

Management	Constraints	Delta del Po regional park, SIC-ZPS IT4060003, Sacca di Bellocchio State natural reserve, Military shooting range
	Cell suitable for sediment withdrawal	yes
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>Foce Gobbino - Bagno Giamaica</b>			
Typology		Cell with beach			
Boundary		coastal stretch between Gobbino river mouth and Giamaica establishment			
Coordinates	S	Lon	44,62357763	Lat	12,2742129
	F	Lon	44,63653804	Lat	12,26620193
Length (m)		1,575			
Municipality/ies		Ravenna / Comacchio			
Province		Ravenna / Ferrara			

96

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

9.300

Sources typology



## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

-340.472

Sediment volume variation (m<sup>3</sup>/m)

-221

Shoreline trend



## Dynamics and morphology



S-N



1,09 cm/y



11 m



8,18 %

311 903 m  
to -4m to -7m

0,9 %



Constraints

Delta del Po regional park, SIC-ZPS IT4060003, Military shooting range

## Management

Cell suitable for sediment withdrawal  
noCell suitable as recharge zone  
noCell that needs intervention  
yes

## Note



Name		<b>Lido di Spina Sud</b>			
Typology		Cell with beach			
Boundary		coastal stretch 900 m long starting from Giamaica establishment			
Coordinates	S	Lon	44,63653804	Lat	12,26620193
	F	Lon	44,64349874	Lat	12,26041302
Length (m)		900			
Municipality/ies		Comacchio			
Province		Ferrara			

97

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology



5 groins with piles of wood

Hard defense works realised in the period of reference



Hard defense works maintenance in the period of reference in 2005 replacing of piles damage by sea

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

219.200

Sources typology

## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)  
60.944Sediment volume variation (m<sup>3</sup>/m)  
-173

Shoreline trend



## Dynamics and morphology



dt

S-N



ts

0,65 cm/y



ase

47 m



pse

4,04 %



ass

352 1016 m  
to -4m to -7m

pss

0,98 %



cd



sb



ru

Constraints

Delta del Po regional park, SIC-ZPS IT4060003, Military shooting range

## Management

Cell suitable for sediment withdrawal  
noCell suitable as recharge zone  
yesCell that needs intervention  
yes

## Note



Name		<b>Lido di Spina Nord</b>			
Typology		Cell with beach			
Boundary		coastal stretch 2 km long southern of Logonovo channel mouth			
Coordinates	S	Lon	44,64349874	Lat	12,26041302
	F	Lon	44,6613614	Lat	12,25305292
Length (m)		2.070			
Municipality/ies		Comacchio			
Province		Ferrara			

98

<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

Hard defense works	Hard defense works typology	
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	223.867
	Sediment volume variation (m <sup>3</sup> /m)	108
	Shoreline trend	

Dynamics and morphology		S-N
		0,74 cm/y
		197 m
		0,86 %
		409 to -4m    1116 to -7m
		1 %

Management	Constraints	
	Military shooting range	
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>Foce Logonovo</b>			
Typology		Draining channel			
Boundary		coastal stretch of Logonovo channel mouth			
Coordinates	S	Lon	44,6613614	Lat	12,25305292
	F	Lon	44,66310753	Lat	12,2524465
Length (m)		200			
Municipality/ies		Comacchio			
Province		Ferrara			

99

A	S	P	E	

Hard defense works	Hard defense works typology	
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	247800	
	Cell/s of destination of sands	96, 97, 105, 108

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	
	Sediment volume variation (m <sup>3</sup> /m)	
	Shoreline trend	

Dynamics and morphology	 dt	S-N
	 ts	0,66 cm/y
	 ase	m
	 pse	%
	 ass	to -4m to -7m
	 pss	%
	 ru	

Management	Constraints	
	Cell suitable for sediment withdrawal	yes
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>Lido degli Estensi</b>			
Typology		Cell with beach			
Boundary		coastal stretch between Logonovo muth and southern pier of Porto Garibaldi			
Coordinates	S	Lon	44,66310753	Lat	12,2524465
	F	Lon	44,67692363	Lat	12,25127869
Lenght (m)		1,540			
Municipality/ies		Comacchio			
Province		Ferrara			

100

<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

Hard defense works	Hard defense works typology	
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	246.800	
	Cell/s of destination of sands	12, 14, 97, 102, 103, 104, 105, 109

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	57.418
	Sediment volume variation (m <sup>3</sup> /m)	197
	Shoreline trend	

Dynamics and morphology		S-N
		0,89 cm/y
		229 m
		0,74 %
		545 to -4m    1202 to -7m
		0,78 %

Management	Constraints	
	Cell suitable for sediment withdrawal	yes
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>Bocca Porto Garibaldi</b>			
Typology		Harbour entrance			
Boundary		coastal stretch of Porto Garibaldi harbour			
Coordinates	S	Lon	44,67692363	Lat	12,25127869
	F	Lon	44,67785499	Lat	12,25081065
Lenght (m)		110			
Municipality/ies		Comacchio			
Province		Ferrara			

101

A	S	P	E	

**Hard defense works**

Hard defense works typology  
 **piers in concrete**

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

**Nourishments**

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

**Withdrawal**

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

**Other information**

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend

**Dynamics and morphology**

 **S-N**

 **0,76 cm/y**

 **m**

 **%**

 **m**  
to -4m      to -7m

 **%**

 **ru**

**Management**

Constraints

Cell suitable for sediment withdrawal  
**yes**

Cell suitable as recharge zone  
**no**

Cell that needs intervention  
**no**

**Note**



Name		<b>Porto Garibaldi</b>			
Typology		Cell with beach			
Boundary		coastal stretch between northern pier of Porto Garibaldi and the 15th breakwater			
Coordinates	S	Lon	44,67711341	Lat	12,24728825
	F	Lon	44,68989215	Lat	12,24205831
Length (m)		1.480			
Municipality/ies		Comacchio			
Province		Ferrara			

102

A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology	 <b>15 emerged breakwaters</b>
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	<b>11.300</b>
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	<b>50.122</b>
	Sediment volume variation (m <sup>3</sup> /m)	<b>27</b>
	Shoreline trend	

Dynamics and morphology	 dt	<b>S-N</b>
	 ts	<b>0,76</b> cm/y
	 ase	<b>105</b> m
	 pse	<b>1,81</b> %
	 ass	<b>620</b> to -4m <b>1315</b> m to -7m
	 pss	<b>0,62</b> %
	 cd	 sb

Management	Constraints	
	Cell suitable for sediment withdrawal	<b>no</b>
	Cell suitable as recharge zone	<b>no</b>
	Cell that needs intervention	<b>yes</b>

Note	
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Name		<b>Lido degli Scacchi</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the 16th and the 34th breakwater			
Coordinates	S	Lon	44,68989215	Lat	12,24205831
	F	Lon	44,71235758	Lat	12,24216276
Length (m)		2.500			
Municipality/ies		Comacchio			
Province		Ferrara			

103

A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology	 <b>19 emerged breakwaters</b>
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	<b>43.900</b>
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	<b>15.888</b>
	Sediment volume variation (m <sup>3</sup> /m)	<b>-11</b>
	Shoreline trend	

Dynamics and morphology	 dt	<b>S-N</b>
	 ts	<b>0,66 cm/y</b>
	 ase	<b>58 m</b>
	 pse	<b>4,14 %</b>
	 ass	<b>470 to -4m</b> <b>1212 m to -7m</b>
	 pss	<b>0,8 %</b>
	 cd	 sb

Management	Constraints	<b>SIC-ZPS IT4060012</b>
	Cell suitable for sediment withdrawal	<b>no</b>
	Cell suitable as recharge zone	<b>no</b>
	Cell that needs intervention	<b>yes</b>

Note	
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Name		<b>Lido di Pomposa</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the 35th and 52nd breakwater			
Coordinates	S	Lon	44,71235758	Lat	12,24216276
	F	Lon	44,7324623	Lat	12,24402072
Length (m)		2.240			
Municipality/ies		Comacchio			
Province		Ferrara			

104

A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology		<b>18 emerged breakwaters</b>
	Hard defense works realised in the period of reference		
	Hard defense works maintenance in the period of reference		

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	<b>35.200</b>
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	<b>-42.661</b>
	Sediment volume variation (m <sup>3</sup> /m)	<b>-35</b>
	Shoreline trend	

Dynamics and morphology		<b>S-N</b>
		<b>0,72 cm/y</b>
		<b>49 m</b>
		<b>4,9 %</b>
		<b>313 to -4m</b> <b>1151 m to -7m</b>
		<b>0,98 %</b>
		

Management	Constraints	<b>SIC-ZPS IT4060012</b>
	Cell suitable for sediment withdrawal	<b>no</b>
	Cell suitable as recharge zone	<b>no</b>
	Cell that needs intervention	<b>yes</b>

Note	
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Name		<b>Lido delle Nazioni</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the 53rd breakwater and the groin closing the breakwater			
Coordinates	S	Lon	44,7324623	Lat	12,24402072
	F	Lon	44,75833533	Lat	12,24958043
Length (m)		2.910			
Municipality/ies		Comacchio			
Province		Ferrara			

105

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology



**Emerged breakwaters, 1 groins and 1 groins with piles of wood**

Hard defense works realised in the period of reference



Hard defense works maintenance in the period of reference  
**in 2000 recharge and closing of gap in the 8 breakwater northward**

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

144.900

Sources typology



## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

-64.086

Sediment volume variation (m<sup>3</sup>/m)

-64

Shoreline trend



## Dynamics and morphology



S-N



0,89 cm/y



55 m



4,18 %



348 1496 m  
to -4m to -7m



%



Constraints

Delta del Po regional park, SIC-ZPS  
IT4060007

## Management

Cell suitable for sediment withdrawal  
**no**

Cell suitable as recharge zone  
**no**

Cell that needs intervention  
**yes**

## Note



Name		<b>Bocche del Bianco</b>			
Typology		Cell with beach			
Boundary		coastal stretch, defended by a seawall, 1,1 km long starting from the groin			
Coordinates	S	Lon	44,75842624	Lat	12,2491007
	F	Lon	44,76782977	Lat	12,25245805
Lenght (m)		1,130			
Municipality/ies		Comacchio			
Province		Ferrara			

106

A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology	 <b>seawall</b>
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	<b>-40.344</b>
	Sediment volume variation (m <sup>3</sup> /m)	<b>-36</b>
	Shoreline trend	

Dynamics and morphology	 dt	<b>S-N</b>
	 ts	<b>0,84</b> cm/y
	 ase	<b>13</b> m
	 pse	<b>17,69</b> %
	 ass	<b>608</b> <b>2084</b> m to -4m to -7m
	 pss	<b></b> %

Management	Constraints	Delta del Po regional park, SIC-ZPS IT4060007
	Cell suitable for sediment withdrawal	<b>no</b>
	Cell suitable as recharge zone	<b>no</b>
	Cell that needs intervention	<b>yes</b>

Note	
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Name		<b>Pineta di Volano</b>			
Typology		Cell without beach			
Boundary		coastal stretch, defended by a seawall, 1,6 km long southern of the first groin			
Coordinates	S	Lon	44,76782977	Lat	12,25245805
	F	Lon	44,78155686	Lat	12,25845699
Length (m)		1.600			
Municipality/ies		Comacchio			
Province		Ferrara			

107

A	S	P	E	2000 2006

Hard defense works	Hard defense works typology	 <b>seawall</b>
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	<b>in 2001 a breakwater collapse was repaired</b>

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

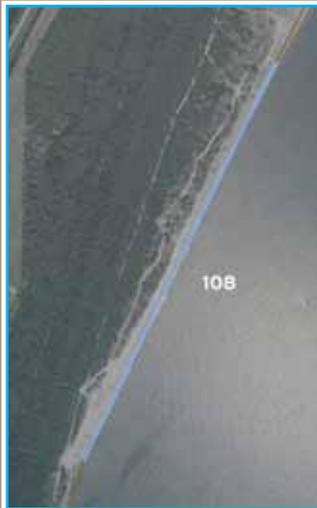
Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	<b>-31.299</b>
	Sediment volume variation (m <sup>3</sup> /m)	<b>-20</b>
	Shoreline trend	

Dynamics and morphology	 dt	<b>S-N</b>
	 ts	<b>0,75</b> cm/y
	 ase	
	 pse	
	 ass	<b>773</b> <b>3850</b> m to -4m to -7m
	 pss	
	 ru	

Management	Constraints	Delta del Po regional park, SIC-ZPS IT4060007
	Cell suitable for sediment withdrawal	<b>no</b>
	Cell suitable as recharge zone	<b>no</b>
	Cell that needs intervention	<b>yes</b>

Note	
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Name		<b>Volano Zona Pennelli</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the first and the last groin			
Coordinates	S	Lon	44,78155686	Lat	12,25845699
	F	Lon	44,78943406	Lat	12,26428767
Length (m)		990			
Municipality/ies		Comacchio			
Province		Ferrara			

108

A	S	P	E	2000
				2006

Hard defense works	Hard defense works typology	 groins with piles of wood
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	
	in 2005 and 2008 groin (ground part) maintenance	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	130.000
	Sources typology	  

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	39.306
	Sediment volume variation (m <sup>3</sup> /m)	-101
	Shoreline trend	

Dynamics and morphology	 dt	S-N
	 ts	0,79 cm/y
	 ase	22 m
	 pse	11,36 %
	 ass	1075 to -4m    4300 to -7m m
	 pss	%
	 cd	 sb

Management	Constraints	Delta del Po regional park, SIC-ZPS IT4060007
	Cell suitable for sediment withdrawal	no
	Cell suitable as recharge zone	yes
	Cell that needs intervention	yes

Note	
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Name		<b>Volano</b>			
Typology		Cell with beach			
Boundary		coastal stretch 1750 m long starting from the last groin			
Coordinates	S	Lon	44,78943406	Lat	12,26428767
	F	Lon	44,80344485	Lat	12,27423278
Length (m)		1750			
Municipality/ies		Comacchio			
Province		Ferrara			

109

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

47.700

Sources typology



## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

24.567

Sediment volume variation (m<sup>3</sup>/m)

-13

Shoreline trend



## Dynamics and morphology



S-N



0,71 cm/y



57 m



3,68 %

1500 4600 m  
to -4m to -7m

%



Constraints

Delta del Po regional park, SIC-ZPS IT4060005, Po di Volano State natural reserve

## Management

Cell suitable for sediment withdrawal

no

Cell suitable as recharge zone

no

Cell that needs intervention

yes

## Note



Name		<b>Scannone di Volano</b>			
Typology		Cell with beach			
Boundary		coastal stretch 1950 m long southern of Po di Volano river mouth			
Coordinates	S	Lon	44,80344485	Lat	12,27423278
	F	Lon	44,8182334	Lat	12,28678781
Length (m)		1,949			
Municipality/ies		Comacchio			
Province		Ferrara			

110

<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

## Hard defense works

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

## Withdrawal

Sand withdrawal (m<sup>3</sup>)

123.500

Cell/s of destination of sands

105, 108, 109

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

151.019

Sediment volume variation (m<sup>3</sup>/m)

139

Shoreline trend



## Dynamics and morphology



CP



0,85 cm/y



32 m



3,75 %

2500 5300 m  
to -4m to -7m

%



## Constraints

Delta del Po regional park, SIC-ZPS IT4060005, Po di Volano State natural reserve

## Management

Cell suitable for sediment withdrawal  
yesCell suitable as recharge zone  
noCell that needs intervention  
no

## Note



Name		<b>Foce Po di Volano</b>			
Typology		River mouth			
Boundary		coastal stretch of Po di Volano			
Coordinates	S	Lon	44,81938008	Lat	12,26308279
	F	Lon	44,8182334	Lat	12,28678781
Lenght (m)		1.880			
Municipality/ies		Comacchio / Codigono			
Province		Ferrara			

111

A	S	P	E	

**Hard defense works**

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

**Nourishments**

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

**Withdrawal**

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

**Other information**

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend

**Dynamics and morphology**

dt

ts 0,99 cm/y

ase m

pse %

ass m  
to -4m to -7m

pss %

cd

**Management**

Constraints  
Delta del Po regional park, SIC-ZPS IT4060005

Cell suitable for sediment withdrawal  
**yes**

Cell suitable as recharge zone  
**no**

Cell that needs intervention  
**no**

**Note**



Name		<b>Po di Volano Area Naturale</b>			
Typology		Sacca			
Boundary		coastal stretch 750 m long starting from Po di Volano river mouth			
Coordinates	S	Lon	44,82575858	Lat	12,26616821
	F	Lon	44,81938008	Lat	12,26308279
Lenght (m)		750			
Municipality/ies		Codigoro / Goro			
Province		Ferrara			

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A	S	P	E	

**Hard defense works**

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

**Nourishments**

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

**Withdrawal**

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

**Other information**

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend

**Dynamics and morphology**

dt

ts 0,72 cm/y

ase m

pse %

ass m  
to -4m to -7m

pss %

**Management**

Constraints  
Delta del Po regional park, SIC-ZPS IT4060005

Cell suitable for sediment withdrawal  
no

Cell suitable as recharge zone  
no

Cell that needs intervention  
no

**Note**



Name		<b>Territorio del Comune di Goro</b>			
Typology		Sacca			
Boundary		coastal stretch 10 km long defended by seawall			
Coordinates	S	Lon	44,82575858	Lat	12,26616821
	F	Lon	44,82020057	Lat	12,35178434
Lenght (m)		10.000			
Municipality/ies		Goro			
Province		Ferrara			

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A	S	P	E	

**Hard defense works typology**  
 **seawall**

**Hard defense works realised in the period of reference**

**Hard defense works maintenance in the period of reference**

**Nourishments in the period of reference (m³)**

**Sources typology**

**Sand withdrawal (m³)**

**Cell/s of destination of sands**

**Accumulated/eroded V in the period of reference (m³)**

**Sediment volume variation (m³/m)**

**Shoreline trend**

**Dynamics and morphology**

**dt**

**ts** 1,05 cm/y

**ase** m

**pse** %

**ass** m  
to -4m to -7m

**pss** %

**ru**

**Constraints**  
 Delta del Po regional park, SIC-ZPS IT4060005

**Cell suitable for sediment withdrawal**  
no

**Cell suitable as recharge zone**  
no

**Cell that needs intervention**  
no

**Note**



Name		<b>Po di Goro</b>			
Typology		Sacca			
Boundary		last stretch of Po di Goro river			
Coordinates	S	Lon	44,82020057	Lat	12,35178434
	F	Lon	44,79261878	Lat	12,40060878
Lenght (m)		5.260			
Municipality/ies		Goro			
Province		Ferrara			

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A	S	P	E	

**Hard defense works**

Hard defense works typology

Hard defense works realised in the period of reference

Hard defense works maintenance in the period of reference

**Nourishments**

Nourishments in the period of reference (m<sup>3</sup>)

Sources typology

**Withdrawal**

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

**Other information**

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

Sediment volume variation (m<sup>3</sup>/m)

Shoreline trend

**Dynamics and morphology**

dt

ts 0,98 cm/y

ase m

pse %

ass m  
to -4m to -7m

pss %

ru

**Management**

Constraints  
Delta del Po regional park, SIC-ZPS IT4060005

Cell suitable for sediment withdrawal  
no

Cell suitable as recharge zone  
no

Cell that needs intervention  
no

**Note**



Name		<b>Foce Po di Goro</b>			
Typology		River mouth			
Boundary		coastal stretch of Po di Goro river mouth			
Coordinates	S	Lon	44,79261177	Lat	12,40062427
	F	Lon	44,79167989	Lat	12,39943508
Lenght (m)		140			
Municipality/ies		Goro			
Province		Ferrara			

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A	S	P	E	

Hard defense works	Hard defense works typology	reinforcement works
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	120.000
	Cell/s of destination of sands	42, 46, 47, 50, 51, 54, 116

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	
	Sediment volume variation (m <sup>3</sup> /m)	
	Shoreline trend	

Dynamics and morphology	dt	E-O
	ts	0,89 cm/y
	ase	m
	pse	%
	ass	to -4m to -7m m
	pss	%
	cd	

Management	Constraints	
	Cell suitable for sediment withdrawal	yes
	Cell suitable as recharge zone	no
	Cell that needs intervention	no

Note	
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Name		<b>Faro di Goro</b>			
Typology		Cell with beach			
Boundary		coastal stretch 1 km long southern of the groin of Po di Goro			
Coordinates	S	Lon	44,79220804	Lat	12,39923565
	F	Lon	44,78647978	Lat	12,38996837
Lenght (m)		1.000			
Municipality/ies		Goro			
Province		Ferrara			

116

A	S	P	E	2000
				2006

## Hard defense works

Hard defense works typology



1 groin

Hard defense works realised in the period of reference



Hard defense works maintenance in the period of reference

## Nourishments

Nourishments in the period of reference (m<sup>3</sup>)

99.000

Sources typology



## Withdrawal

Sand withdrawal (m<sup>3</sup>)

Cell/s of destination of sands

## Other information

Accumulated/eroded V in the period of reference (m<sup>3</sup>)

-78.783

Sediment volume variation (m<sup>3</sup>/m)

-180

Shoreline trend



## Dynamics and morphology



E-O



0,89 cm/y



16 m



9,38 %

630 1520 m  
to -4m to -7m

%



Constraints

Delta del Po regional park, SIC-ZPS IT4060005, Sacca di Gorino Dunes and Islands State natural reserve

## Management

Cell suitable for sediment withdrawal  
noCell suitable as recharge zone  
noCell that needs intervention  
yes

## Note



Name		<b>Scanno di Goro centro</b>			
Typology		Cell with beach			
Boundary		coastal stretch between the 1st and the 6th km westward Po di Goro mouth			
Coordinates	S	Lon	44,78647978	Lat	12,38996837
	F	Lon	44,78885016	Lat	12,32775074
Lenght (m)		5.000			
Municipality/ies		Goro			
Province		Ferrara			

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<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

Hard defense works	Hard defense works typology	 <b>geotextile tube filled with sand</b>
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	Cell/s of destination of sands	

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	<b>61.893</b>
	Sediment volume variation (m <sup>3</sup> /m)	<b>12</b>
	Shoreline trend	

Dynamics and morphology	 <b>dt</b>	<b>E-O</b>
	 <b>ts</b>	
	 <b>ase</b>	<b>26 m</b>
	 <b>pse</b>	<b>3,85 %</b>
	 <b>ass</b>	<b>716</b> <b>1584 m</b> to -4m to -7m
	 <b>pss</b>	
	 <b>cd</b>	

Management	Constraints	Delta del Po regional park, SIC-ZPS IT4060005, Sacca di Gorino Dunes and Islands State natural reserve
	Cell suitable for sediment withdrawal	<b>yes</b>
	Cell suitable as recharge zone	<b>no</b>
	Cell that needs intervention	<b>no</b>
Note		



Name		<b>Bocca Laguna</b>			
Typology		Lagoon mouth			
Boundary		coastal stretch of lagoon mouth			
Coordinates	S	Lon	44,78885016	Lat	12,32775074
	F	Lon	44,8182334	Lat	12,28678781
Length (m)		4.625			
Municipality/ies		Goro			
Province		Ferrara			

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<b>A</b>	<b>S</b>	<b>P</b>	<b>E</b>	2000 2006

Hard defense works	Hard defense works typology	
	Hard defense works realised in the period of reference	
	Hard defense works maintenance in the period of reference	

Nourishments	Nourishments in the period of reference (m <sup>3</sup> )	
	Sources typology	

Withdrawal	Sand withdrawal (m <sup>3</sup> )	
	850.000	
	Cell/s of destination of sands	Sacca di Goro

Other information	Accumulated/eroded V in the period of reference (m <sup>3</sup> )	75.726
	Sediment volume variation (m <sup>3</sup> /m)	247
	Shoreline trend	

**Dynamics and morphology**

	DP
	cm/y
	m
	%
	to -4m    to -7m
	%

Management	Constraints	no
	Cell suitable for sediment withdrawal	yes
	Cell suitable as recharge zone	no
	Cell that needs intervention	

Note	
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