

**IV Convegno Nazionale sulle Scienze del Mare del
Consorzio Nazionale Interuniversitario per le Scienze del
Mare – CoNISMa
XVI Congresso dell'Associazione Italiana di Oceanografia
e Limnologia – AIOL**

**Le scienze naturali, economiche e giuridiche
nello studio e per la gestione degli ambienti
acquatici**

18 –22 ottobre 2004 Città del mare – Terrasini (PA)

**Economic Valuation of a Natural Area:
the Southern Beach of Lido di Dante
(Ravenna)**

Silva Marzetti Dall'Aste Brandolini*

** University of Bologna, DSE, Piazza Scaravilli 2, 40126 Bologna, Italy
Marzetti@economia.unibo.it*

1. Kind of research and characteristics of the site

Within the EU DELOS (2000-03) framework, this research focuses on the economic evaluation of the recreational use of the Southern beach of Lido di Dante (Ravenna). A comparison is done with the economic value of the other Lido di Dante beaches.

Beaches are visited by local residents, day-visitors and tourists for informal recreational activities. Tourism is well developed and foreign tourists are numerous, mainly attracted by the natural state of the Southern beach.

The Lido di Dante beaches are classified in:

i) Southern beach which is in a very natural state with dunes and without buildings or tourism facilities. It is an undeveloped beach very rare in the region (photographs 1 and 2).

ii) Northern beach, distinguished into two areas: iia) developed beach, where some sunbathing buildings are on the beach, and iib) semi-developed beach with only one sunbathing building. A number of tourism facilities, such as flats to be rented and campsites, are nearby. Photograph 3 shows that this beach is artificially defended from erosion (Comune di Ravenna, 2002).

In August 2002 a survey by questionnaire was carried out. 600 face-to-face interviews were done on the Lido di Dante beaches by trained interviewers.

It consists of the application of the Contingent Valuation Method for assessing in Euros the daily value of enjoyment (VOE) or the non-marketable recreational use (such as sunbathing, walking and swimming) of these beaches, in three different conditions:

- i) present state,
- ii) hypothetical scenario of erosion,
- iii) hypothetical scenario of protection.

A random sample of respondents, aged 18 plus, was chosen. Relevant population: residents, day-visitors and tourists on the beach. Foreigners were also interviewed.

Photo 1: The natural beach of Lido di Dante



2. The questionnaire

The basic structure of the VOE questionnaire used for the Lido di Dante case-study is the standard site user questionnaire published in the 'Yellow Manual' (Penning-RowSELL *et al.*, 1992), which was adapted to the specific characteristics of this site.

The questionnaire permits of collecting information in order of estimating the following function for each individual:

$$VOE = w (q, V, A, G, T, W, O, VOEs, VOEa, F, C, S, I),$$

where:

VOE = individual VOE per beach daily visit;

q = individual number of visits (beach days per annum)

V = beach visit characteristics: time of visit (weekend, other days), number of hours per day and recreational activities done;

A = beach attributes: beach width, water quality, crowding (square metres of beach per person), beach facilities;

G = visiting group, child in a visiting group;

T = trip attributes: distance from the beach, means of transportation, travel time;

W = different weather, such as spring/summer and autumn/winter;

O = alternative beaches;

VOEs = VOE of alternative scenarios (erosion and protection) of the site;

VOEa = VOE of alternative sites;

F = facilities: sunbathing buildings, lifeguard, parking lots, beach volley field;

C = costs, such as cost of beach trip, cost of alternative beach trip;

S = socio-economic attributes, such as, income, sex, age, education, marital status;

I = survey influences, such as starting point and interviewer.

Photo 2: Lido di Dante Southern beach – Present state



3. Main Results

In 2002, residents were 1.9% of respondents, day-visitors 44.8%, and tourists 53.5%. 32.1% of tourists were foreigners.

Residents and day-visitors spent on the Lido di Dante beaches, on average, 46.70 and 22.91 days respectively, while tourists 12.44 days.

In spring/summer, visitors stay on the beach just under 5 hours (on average) per day.

24.5% of respondents visit the beach in autumn/winter, and stay just over 1 hour per day.

The main recreational activities are:

- i) spring/summer: sunbathing and relaxing (47.5% of respondents), walking (19%) and swimming (13%.);
- ii) autumn/winter: walking (91.2%).

In particular, *young visitors* and *foreigners* are more attracted from the Southern beach than from the Northern beach.

Photograph 3: The Northern beaches in the present state



Photomontage 1: The Southern beach – situation of protection



4. Values of enjoyment of a beach daily visit: Status quo

As regards the *status quo* of the Lido di Dante beach, table 1 shows the mean daily use values in Euros according to beach characteristics and seasons (Marzetti, 2003; Marzetti and Zanuttigh, 2003).

Comparing these mean values, whether in spring/summer or in autumn/winter, the mean use value of the natural Southern beach is *higher* than:

- i) the mean values of the semi-developed and developed beaches, and
- ii) the mean value of the whole sample.

Table 1: Status quo – daily mean use values (Euros) of the Lido di Dante beach

Mean value (Std.dev.)	Spring/Summer	Autumn/Winter
Undeveloped beach	32.44 (29.38)	19.62 (23.62)
Northern semi-developed area	27.21 (27.21)	17.60 (22.65)
Developed area	25.41 (26.01)	16.38 20.50)
Whole sample	27.67 (27.64)	4.10 (12.80)
Visitors only*		17.29 (21.54)

[* 'Visitors only' means visitors to the Lido di Dante beach in Autumn/Winter]

Photomontage 1: Lido di Dante Southern beach – Erosion situation



5. Values of enjoyment of a beach daily visit: Erosion and Protection

Table 2 shows the mean values of enjoyment according to the beach hypothetical scenarios of erosion and protection, also distinguished according to the three Lido di Dante beach areas (Marzetti, 2003; Marzetti and Zanuttigh, 2003).

Table 2: Different scenarios - Mean use values (Euros) in spring/summer

Mean values (Std.dev.)	Situation of erosion	Situation of protection
Southern undeveloped beach	21.49 (26.20)	33.39 (30.16)
Northern semi-developed area	9.94 (17.17)	26.35 (25.16)
Northern developed area	11.47 (16.27)	27.43 (23.60)
Whole sample	13.26 (19.77)	28.37 (25.79)

Compared with the mean use value (whole sample) of the status quo (see table 1) in spring/summer:

- i) the change in the mean value of enjoyment due to erosion is considerable (from 27.67 to 13.26);
- ii) while there is little change as regards the situation of protection (from 27.67 to 28.37).

In particular, in the hypothetical situations of erosion and protection the mean use value of the natural Southern beach is higher than:

- i) the mean value of the whole sample, and
- ii) the mean values of the Northern beach areas.

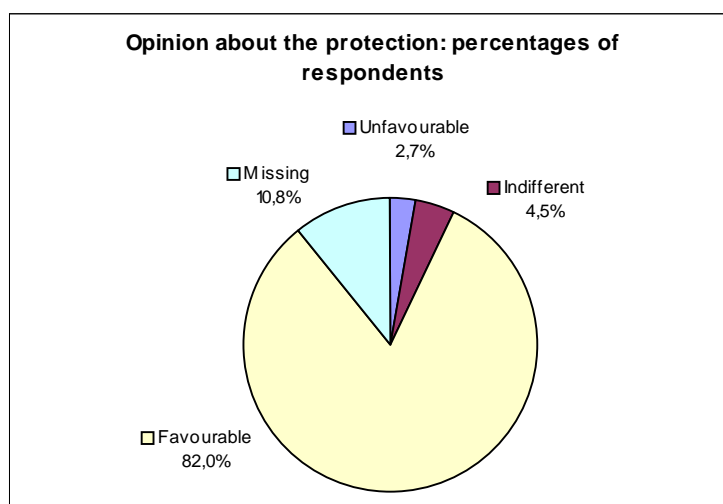


Figure 1

6. Opinion about beach protection

As regards the question: “Would you be in favour of or against the implementation of a protection project of the Lido di Dante beach?”

Considering the whole sample, the great majority of respondents are favourable to the implementation of a protection project, as shown in figure 1.

According to the different beaches, respondents’ opinions are showed in table 3, which shows that the great majority of respondents in the Southern beach are favourable to the protection of this beach, but their percentage is fewer than those of the Northern beaches, while the number of respondents unfavourable to the protection is a bit higher.

Table 3: Opinion about beach protection in the different areas – percentage of respondents

	Favourable	Indifferent	Unfavourable	Non-response
Southern natural beach	77,9	5,0	3,5	13,6
Northern semi-developed beach	78,4	4,4	2,0	15,2
Northern developed beach	87,1	4,3	2,7	5,9

Acknowledgements

EU support through RTD project DELOS, contract EVK3-CT-2000-00041, is gratefully acknowledged. Thanks are due to Alberto Lamberti for the engineering aspects of the defence project, Giovanni Gabbianelli for having given photograph 3, and the City Council of Ravenna for its support and the material provided.

References

- Comune di Ravenna (2002), Ricerca per l’analisi e la previsione dell’evoluzione a breve - medio termine del litorale ravennate.
- Marzetti Dall’Aste Brandolini S. (2003), D28/A of the DELOS final report D28 “Economic and Social Valuation about European Coastal Sites”, www.delos.unibo.it/.
- Marzetti Dall’Aste Brandolini and Zanuttigh B. (2003), Economic and Social Valuation of Beach protection in Lido di Dante (Italy), in Ozhan E.(Ed), *Proceedings of the Sixth International Conference on the Mediterranean Coastal Environment*, MEDCOAST 03, 7-11 October 2003, pp.319-30.
- Penning-Rowsell, C.H. Green, P.M. Thompson, A.M. Coker, S.M. Tunstall, C. Richards, and D.J. Parker. (1992), *The Economics of Coastal Management: a Manual of Benefit Assessment Techniques (Yellow Manual)*. Belhaven Press, London.