PASOS. Revista de Turismo y Patrimonio Cultural
ISSN: 1695-7121
info@pasosonline.org
Universidad de La Laguna
España

Stefanos, Karagiannis
Tidal wave phenomenon as a lever of tourist development in Greece- Halkis case
PASOS. Revista de Turismo y Patrimonio Cultural, vol. 4, núm. 2, enero, 2006, pp. 225-234
Universidad de La Laguna
El Sauzal (Tenerife), España

PASOS
Revista de Turismo y Patrimonio Cultural
www.pasosonline.org

Vol. 4 Nº 2 págs. 225-234. 2006

Tidal wave phenomenon as a lever of tourist development in Greece-Halkis case

Karagiannis Stefanos †
Institute of Crete (Grece)

Abstract: Tourist season in Halkis is nowadays limited to the three summer months offering a resort for weekend tourists (Athens-Halkis). Halkis is given the opportunity to improvise and illustrate its cultural and historical elements that constitute her uniqueness by establishing a local development programme that would include alternate tourism forms. This proposal regarding the tourist development of Halkis through tidal phenomena is primarily an alternative tourist development model. It differs from current development standards characterized by inequality, environmental and cultural degradation. This is based on the assumption that proposing an alternative tourism form in Halkis would lead to the initiation and exploitation of factors that are disregarded nowadays, that could ignite the tourist rebirth of this area. The creation of new employment positions and the amelioration of life conditions in this town could prevent the constant escape of the vital work-force to Athens and Piraeus. The success of the tourist development through the tidal phenomenon can be considered either a complete solution or an alternative model. This may be unique from the tourist aspect, as the tidal phenomenon of Euripus could be the attraction pole, for a great number of people because this tourist forms (observation of a unique yet interesting natural phenomenon) is contradictory to luxury. Simultaneously, the Mediterranean nutrition could be co-depicted, by offering the opportunity to the tourist to become more intimate with local products. This would help people understand the importance of Euripus tidal phenomenon for the tourist development of Halkis.

Keywords: Tide; Tourist development; Alternative tourist model; Halkis; Euripus straights phenomenon

Resumen: La estación turística en Halkis se limita hoy en día a los tres meses del verano que ofrecen un recurso para los turistas del fin de semana (Atenas-Halkis). Halkis da la oportunidad de improvisar y de ilustrar sus elementos culturales e históricos que constituyen su unicidad estableciendo un programa de desarrollo local que incluiría formas alternativas del turismo. Esta propuesta que trata del desarrollo turístico de Halkis a través del fenómeno de las mareas es principalmente un modelo alternativo de desarrollo del turismo. Es diferente de los estándares de desarrollo en curso caracterizados por la desigualdad, la degradación ambiental y cultural. Esta está basada en la asunción de que proponer una forma de turismo alternativo en Halkis podría conducir a la iniciación y la explotación de recursos que son ignorados en la actualidad, auspiciando el renacimiento turístico del área. La creación de nuevos empleos y la mejora de las condiciones de vida en este pueblo podían prevenir continua fuga de personal esencial a Atenas y a El Pireo. El éxito del desarrollo turístico por el fenómeno de las mareas puede ser considerado una solución completa o un modelo alternativo.

Palabras clave: Mareas; Desarrollo turístico; Modelo alternativo; Halkis; Grecia.

† • Karagiannis Stefanos, Associate Professor, TEI of Crete – Scientific Associate Technological Educational Institute of Crete, Estavromenos. E-mail: skaragianis@sdo.teiher.gr

Evoia and Halkis

Evoia municipality occupies the island of Evoia, which is the second bigger island in Greece and the third in Europe. It extends for about 160 km, and is located across Sterea Ellada and separated by it from Evoikos gulf (Vliamos, Karagianis), which is in turn divided to Northern and Southern Evoikos gulf, through a passage just in front of Halkis town, Euripus straight, which in its narrower area becomes a 40 by 40 meters sea square, 8.5 meter deep extended to both sides. As it is depicted main Euripus passage is composed by two broad basins, a northern (the main port of Halkis) and a southern (the southern port of Halkis). (G.M. Hors). Evoia island occupies 3,896 square kilometer (Evoian Encyclopedia (1990)) and is populated by 209,132 inhabitants according to 1991 census, while according to 2001 census, the population was 215,136 people. Halkis's population is 55,241 inhabitants according to 2001 census, while nowadays it is inhabited by 53,384 (Halkis Statistic Service, 2002), which means that there was a fall of 3.4%. Evoia's fate is tightly connected to the destiny of Euripus straight. The arched bridge, under which the waves change direction, is an established meeting point, as there one can comprise the tidal phenomena of flood and ebb-tide. (C. Sfetsas, 1999).

Tourism

The case of Halkis, can be compared to other small islands, which are trying to develop and expand their tourist period in their effort not only to generate continuing economic benefits but to contribute to a general improvement in the quality of life, as well.

One similar case to which we report is that of Samoa Island in the South Pacific, where the specialists emphasized to the environment, to the economy, to society and culture and to tourism.

Small islands state at present a significant challenge in terms of sustainable tourism development. On a small island there are limited resources, economic and social activities tend to be concentrated on the coastal zone and the interconnectivity between economic, environmental, social, cultural and political spheres is strongly pervasive (Twining Ward & Butler, 2005).

Reflecting what Butler (Butler, 1993) refers to as "Robinson Crusoe factor" tropical islands have been promoted as embodying the holiday aspirations of Western consumers, being full of romantic and adventurous connotations and as King (King, 1997) notes, having a long historic pedigree of the "earthly paradise".

Other scholars point to the impact of tourism on vulnerable island ecosystems and illustrate how increased tourism can put pressure on limited resources such as fresh water and land, especially in coastal zones (Farrell, 1996; Poon, 1993; UNEP, 1999).

Berno (1996) investigated the sociocultural and psychological effects of tourism in the Cook Islands, and Mansperger (1993) comments on the commercialization of traditional societies as a result of tourism Yap. Tourism planners and decision makers need to address such issues in order to ensure that tourism on small islands is developed in a manner and scale that is compatible with available human and physical resources and is sensitive to pertinent environmental and social issues (Twining Ward & Butler, 2005).

Another case of an island is that of Texel, an important tourist destination in the Netherlands. It's the largest of the so called Wadden islands and offers a wide range of tourist attractions: nature, beach and activities to name but a few. Another field that the island can constitute a potential destination is the investigation and use of tidal and wave energy (Brezet & Schelleman, 1997). The sustainable tourism project has resulted not only in well-working ideas and suggestions but also created a strong involvement and commitment of a number of organizations to contribute to the realization of this programme.

Tourism forms developed in Evoia Island

1) Evoia as a tourist destination presents certain features that should be taken under consideration when evaluating tourist demand over the time. These features

are related to: its geographical proximity to Athens, that in turn results in a) year-wide tourist visits and b) increase in villas.

2) The northern of Evoia is known for its Therapeutic tourism since the Aidipsos spa is located there, which has been famous for the high-temperature healing waters from the ancient times. Aidipsos' hot springs, features 23 spas, 21 of which are private, 2 are not operating and belong to EOT (Aidipsos Municipality, 2002).

3) Evoia's geomorphology has to present a variety of landscapes and phenomena. Despite the fact that sightseeing and naturalist tourism has become a matter of certain programs, there is a lack in the systematic registration and marking of paths, areas etc, while also the proposed projects for the exploitation of certain resources are in primitive state, or have not yet been fully developed.

4) The prefecture of Evoia has about 890 km coastline (Informational Booklet from Prefecture of Evoia (2001)). The coasts facing the Evoian gulf are easily accessible, and therefore have been developed to a great extent. The coasts facing Aegean Sea, however, due to the fact that have poor access, are not that developed, but are far more interesting to the visitor. Along the coastline, there are beach resorts that are suitable for swimming and sea sports. The coasts have great variations regarding their size, natural environment and depth. However only 20 of the available sites are organized. The morphology of the coasts enables the development of sea sports, and mainly sailing, surfing, canoe-kayak and water-skiing.

Halkis and the tidal waves of Evripus as the main area of scientific research

The visitor may access Halkis by car, following the National road connecting Athens with Lamia, by passing from newly-built 1 km bridge. Apart from the aforementioned bridge the visitor may also access Halkis from the old mobile bridge passing above the Euripus straights. There the visitor has the opportunity to witness the remarkable tide phenomenon, featuring a change in the direction of the sea water from north to south and vice versa every six hours. On another bibliographical source (Mastrodimitris, 1964), Halkis became famous for the tide phenomenon that occurs every six hours, due to the water changing direction (N-S and S-N), with a few minutes being calm between the changes. These canonical changes last for 23-24 days, with a period of 5-6 days that either no changes happen, or when they do they follow no regular "rule". The interpretation of the phenomenon that follows the tide rules has been an issue since the time of the Ancient Greece, with Aristotle and Eratosthenes' attempt to explain it. (Nea Domi Encyclopaedia, 1996). This phenomenon has intrigued the interest of people, both from a philosophical and practical aspect, due to the beauty and mystery it presents. (Miaoulis A. 1882)

Interpretations of the phenomenon

The phenomenon was first interpreted by the great ancient philosopher Aristotle, who died on 322 B.C. (Kallias St. 1986). Since Aristotle, many philosophers have tried to explain the reason for that phenomenon but no viable solution was found. While it is known that the current changes direction every 6-7 hours, yet the exact rule of the flood and ebb tide has not been found, so as to define when the phenomenon will take place beforehand. (Kokkinis S. 1941). Modern scientific theories about the phenomenon correlate with Aristotle's view and mention that these currents occur due to the difference in the attraction between Moon and Sun on the center and the surface of the Earth, thus creating different sea water levels and rise and fall of the water mass. The tidal phenomenon of Euripus, as with all other tidal phenomena occurring in shallow natural canals, on shallow gulfs, on river banks near sea and generally on coasts, is complex, implying that not only astronomical, but also meteorological, hydraulic, topographical, coastline and geological reasons are the cause of that. (Leontaris S. (1984-85)).

Astronomic explanation of the tidal waves

The explanation of the tidal waves was given by Newton, by accepting that it happens due to the Moon's attraction on the surface of the Earth, in combination with

the Sun's attraction on the surface of the Earth. Tides are caused by the fact the side of the earth facing the Moon is attracted more than the opposite side (in greater distance from the Moon) (Figure 1).

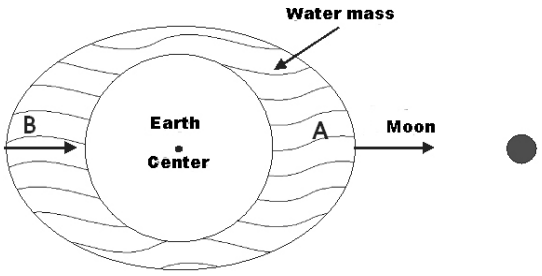

Figure 1. Tide phenomenon creation between Earth and Moon.

Figure 1 depicts that the Moon attracts both spots A and B, as well as the center of the Earth. The attraction, however, on spot A is greater, than the attraction to the center of the earth, which is in turn greater to the attraction on spot B. The attraction on spot A tends to transfer the water mass towards the Moon, while the attraction on the center of the Earth tends to move the Earth itself towards the Moon, even though it can be perceptible due to the different in mass. The attraction power imposed on spot B is smaller than spot A and as a result the movement of the water mass towards the moon is also smaller. These result in the rise of the level of water called flood tide.

Tide is therefore caused by the difference between the moon attraction on surface of the Earth and on its center. This causes the rise in the level of water on the direction connecting Earth and Moon (syzygy) and the fall on the vertical directions (squaring). We should also mention that the tidal wave is apparent on the crust of the earth and the atmosphere as well; the latter to the greater extent.

The force causing tidal phenomena is called tidal force and is expressed by formula:

$$F_t = -2g\frac{M}{r^3}$$

where F_t is the tidal force, M is the Moon's mass as opposed to the Earth's mass, r the distance between Earth and Moon and g the gravity acceleration on the surface of the Earth.

Apart from the Moon, tides may be caused by the Sun. These tides, however, are 55% smaller than the ones caused by the moon. Let F_s and F_m be the tidal forces from the Sun and the Moon respectively, M_s and M_m their masses and R_s and R_m their distance from the center of the Earth. The tidal forces caused by the Sun and Moon are then computed by $F_S = -2g\frac{M_S}{R_S^3}$ and $F_M = -2g\frac{M_M}{R_M^3}$. Knowing that the distance between the center of Earth and the Sun is 400 times greater than that between the center of the Earth and the Moon, if we divided these formulas and replace R_s with $400*R_m$ then we have $\frac{F_S}{F_M} = \frac{M_S}{64{,}000{,}000 \times M_M}$. Also since M_s= 29,090,090 $*M_m$ the division is transformed in $\frac{F_S}{F_M} = \frac{5}{11} \Rightarrow F_S = 45{,}5\% \times F_M$ (2).

The tidal phenomenon is more intense when both the Moon's and the Sun's attraction are added. This phenomenon is apparent on syzygies when we have new Moon or Full Moon. (Figure 2).

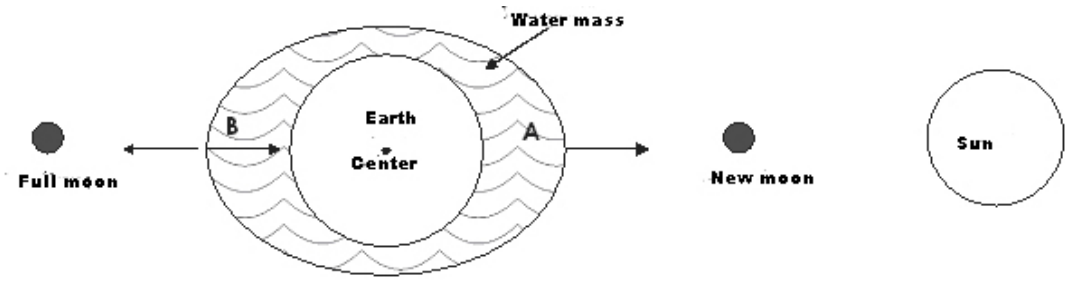

Figure2. Tide phenomenon from gravity forces between Earth, Moon and Sun

Wave Movement of Euripus straights										
Moon Days	Current Direction								Possible time of bridge opening	Ship Priority
	N-S		S-N		N-S		S-N			
1st	3:00	9:18	9:20	15:13	15:15	21:34	21:36	3:28	3:20	S-N
2nd	3:30	9:48	9:50	15:43	15:45	22:04	22:06	2:58	3:50	
3rd	4:00	10:18	10:20	16:13	16:15	22:34	22:36	4:28	22:15	N-S
4th	4:30	10:48	10:50	16:43	16:45	23:04	23:06	4:58	22:45	N-S
5th	5:00	11:18	11:20	17:18	17:15	23:34	23:36	5:28	23:15	N-S
6th	5:30	11:48	11:50	16:43	16:45	0:04	0:06	5:58	23:45	N-S
7th	Wave Irregularity								------	------
First Quarter	Wave Irregularity								------	------
9th	Wave Irregularity								------	------
10th	0:01	6:18	6:20	12:13	12:15	18:34	18:36	0:28	0:20	S-N
11th	0:30	6:48	6:50	12:43	12:45	19:04	19:06	0:58	0:50	S-N
12th	1:00	7:18	7:20	13:13	13:15	19:34	19:36	1:28	1:20	S-N
13th	1:30	7:48	7:50	13:43	13:45	20:04	20:06	1:58	1:50	S-N
14th	2:00	8:18	8:20	14:13	14:15	20:34	20:36	2:28	2:20	S-N
Full Moon	2:30	8:48	8:50	14:43	14:45	21:04	21:06	2:58	2:50	S-N
16th	3:00	9:18	9:20	15:13	15:15	21:34	21:36	3:28	3:20	S-N
17th	3:30	9:48	9:50	15:43	15:45	22:04	22:06	3:58	21:50	
18th	4:00	10:18	10:20	16:13	16:15	22:34	22:36	4:28	22:20	S-N
19th	4:30	10:48	10:50	16:43	16:45	23:04	23:06	4:58	22:50	S-N
20th	5:00	11:18	11:20	17:18	17:15	23:34	23:36	5:28	23:20	S-N
21st	5:30	11:48	11:50	16:43	16:45	0:04	0:06	5:58	23:50	S-N
22nd	Wave Irregularity								------	------
Last Quarter	Wave Irregularity								------	------
24th	Wave Irregularity								------	------
25th	0:01	6:18	6:20	12:13	12:15	18:34	18:36	0:28	0:20	S-N
26th	0:30	6:48	6:50	12:43	12:45	19:04	19:06	0:58	0:50	S-N
27th	1:00	7:18	7:20	13:13	13:15	19:34	19:36	1:28	1:20	S-N
28th	1:30	7:48	7:50	13:43	13:45	20:04	20:06	1:58	1:50	S-N
29th	2:00	8:18	8:20	14:13	14:15	20:34	20:36	2:28	2:20	S-N
New Moon	2:30	8:48	8:50	14:43	14:45	21:04	21:06	2:58	2:50	S-N

Table 1. Monthly bridge program according to tide phenomenon

Orientation and Evolution of the tidal phenomenon in Halkis

It is known that the greater the area occupied by a sea, the more intense its tidal phenomena. The tides in shallow and small seas, ports, gulfs, straights and canals are very small, while in great and deep seas, are very intense. The creation of a bug tidal phenomenon requires a big mass of water that is not present in the Aegean Sea, due to the relatively small area and depth of its water mass. Therefore, the reason for the tidal phenomena in the Aegean Sea should be found in other water areas interconnected with it.

Every six hours the waters change direction from North to South and vice versa. The phenomenon depends on the moon. During a day the water changes direction 4 times.

When the change of the wave current

begins, the rate of movement gradually increases until it reaches a peak after about 3 hours. From then on the movement rate decreases and in three hours time the waters stand still. Then the current changes direction.

The time that the bridge should open depends mainly on the intenseness of the waves, since the ship can only go through the straights when the water is calm.

Only twice per month, on the first and last quarter of the Moon, irregularity in the waves direction occurs, lasting for about 3 days each time. In this case the waters flow irregularly from North to South and vice versa.

So, primarily due to the narrowness of the straights, the closes parts of the Evoian gulf vary, either due to tide, or due to oscillation, as if they were two independent basins. The current that flows through Euripus straights is the result of the difference in the level of the Halkis's ports.

It is therefore, well proven that the current of Euripus is the result of the difference in the level of the two ports of Halkis, and therefore some distant weaker waves around the straights derive from this difference.

As for the reasons that create this difference in the water levels of the two ports, some are considered systematic, while others random, and this is due to the great difference in the level of the two ports, mostly happening on syzygies, caused by the difference of water quantity arriving to the two ports during the flood-tide, as well as the topographical situation of the coastlines around the ports.

We should also stress out the fact that the scientific and financial interest should concentrate on exploiting the kinetic energy produced by the constant water movement on Euripus straights and in other marine areas in Greece and its promotion as a main tourist attraction pole.

This intrigued as in researching the phenomenon from a different point of view with regards to the tourist development.

Research

Research Identity
Time of research: June 2005
Kind of research: Quantitative research-with questionnaire and personal interview
Specimen: 320 people
Sampling method: Sampling from people that had just visited the tidal phenomenon
Area: Halkis

Research results

From the results it was shown that 42.5% of the visitors come from Athens while the rest 57.5% from around Greece. As for the age of the visitors, 55.6% was between 15-35 years old, 23.1% between 36 and 50 years old, while the rest were older.

56.3% of the visitor chose to stay for at least one day in Halkis, while the rest only stay for some hours (1 to 6 hours) per time.

Figure 3…

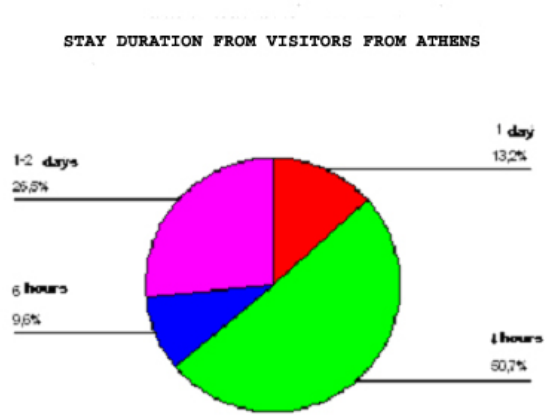

Figure 4. Stay Duration

Visitors from Athens stay in Halkis mostly (73.5%) for some hours, during an excursion or just for food, while the rest 26.5 % stays for more daysin order to visit other places in Evoia. From the visitors from the rest of Greece, only 21.7% visits the town for few hours, while 78.3% stays for a few days. Their stay differs to a great extent from the stay of the visitors from Athens. (x^2=198.725, df = 3, p = 0.00, Pearson Coefficient = 0.516)

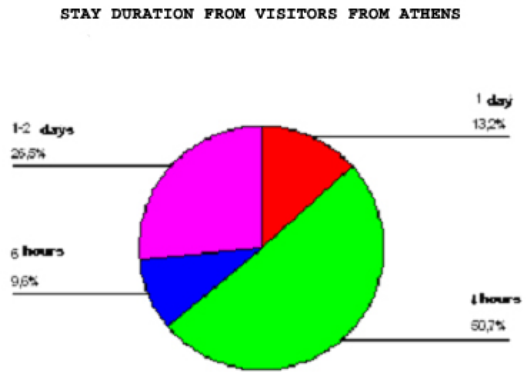

Figure 5. Stay Duration from Visitors from Athens

The findings regarding the source of information are very interesting as 62.5% of the visitors claimed that the information came from a familiar person.

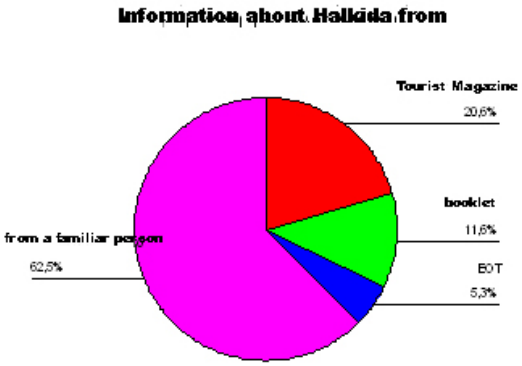

Figure 6. Information sources for Halkis

Regarding visitors from Athens 12.5% of them gets informed about Halkis from a touristic guide, 5.9% from an advertising booklet, 8.8% from EOT, and 72.8% from a familiar person, while the respective percentages for visitors outside Athens are 26.6%, 15.8%, 2.7% and 54.9% and are statistically different from the visitors coming from Athens (x^2=255.175, df = 3, p=0.00, Pearson Coefficient = -0.222)

It is also interesting to point out that the replies regarding the source of information about the tide phenomenon is mostly (78.4%) by chance.

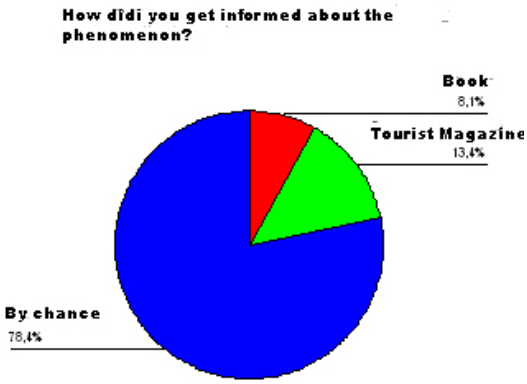

Figure 7. Information sources for tide phenomenon

5.1% from the visitors from Athens get informed about the tidal phenomenon from a book, 9.6% from a Tourist Magazine, and 85.3% by chance, while the respective percentages from visitors from all over Greece are 10.3%, 16.3% and

73.4% and are statistically different from those acquired from visitors from Athens. (χ^2=294.306, df = 2, p=0.00, Pearson Coefficient = -0.139)

Despite the fact that the information about the tidal wave was acquired by chance, 98.4% replied that it worth the visit to see the tidal wave. In addition to that the city seems to become popular with visitors, as 70.6% of the visitors are repeaters. To be more precise, 92.6% from the visitors from Athens and 54.3 from the visitors from the rest of Greece had visited Halkis in the past (x^2=54.45, df = 1, p=0.00, Pearson Coefficient = 0.416).

Apart from Halkis, other places in Evoia gain from the tidal wave. 56.3% of the visitors combine their visit to Halkis with a visit on another nearby town or area. This percentage rises up to 92.8% when the visitors stay more than one day in Halkis, visiting other places in Evoia as Aidipsos (especially older people due to the spa), Eretria, Kymi, and Agia Anna.

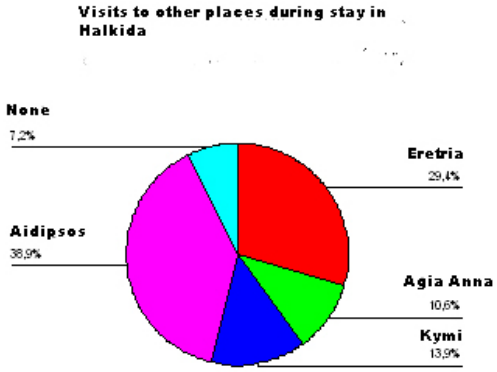

Figure 8. Visits to alternate places while staying in Halkis.

Despite the fact that a large percentage of the visitors spending their night in Halkis are hosted by friends (18.3%), 77.8% is accommodated to the local hotels, creating a considerable income for the local economy.

The percentage from visitors from Athens that stay in hotels is 61.1% while the rest 38.9% stays in friends' houses, in contrast to visitors from the rest of Greece for whom the respective percentages were 81.9% and 13.2%, while 4.9% refuse to answer the question. The aforementioned results differ statistically (χ^2=165.633, df = 2, p=0.00, Pearson Coefficient = 0.0). Among passing-by visitors 47.1% is hosted on a friendly house depicting the high hospitality feeling of the local citizens.

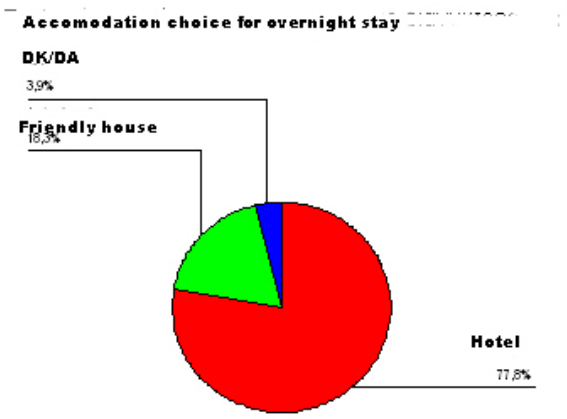

Figure 9. Accommodation choice for overnight stay

The feelings of the visitors when facing the tidal phenomenon vary from awe, to curiosity and surprise as shown on the following figure. However, almost all visitors (98,4) agree that this phenomenon can become an important attraction pole for Halkis and generally Evoia, and that it constitutes a vigorous development lever for the area.

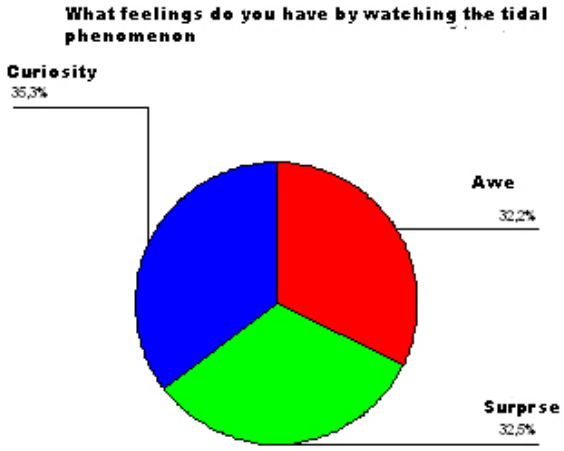

Figure 10. Tide phenomenon experience

Conclusions

We could say that two kinds of visitors travel to Halkis. Those having little time

to spend on entertainment, e.g. drink a coffee or eat, who are primarily coming from Athens, and those who come from the rest of Greece either on groups or individually, stay a few days and combine their stay with sightseeing around Evoia or visits to Aidipsos, for health reasons. Aidipsos spas are mostly visited by elder people for obvious reasons.

These two sets of visitors have different characteristics and needs with regards to the way of acquiring information about the town and the tidal phenomenon, the duration of stay, lodging etc. Visitors from Athens learn about the area mostly by word of mouth and less by magazines or booklets, stay for a few hours mainly during excursions and have friendly relationships with native citizens who are welcome to host them to a great extent. Visitors from the rest of Greece visit Halkis, mostly informed by magazines and booklets, stay a few days visiting other nearby area, while they are accommodated in hotels.

It is obvious that attraction methods of these two separate groups should be adapted to their characteristic features. Measures should be taken in the direction of enhancing visitor reception infrastructure, since recreation tourism infrastructure is not sufficient.

The tidal phenomenon of Euripus straights constitutes an important attraction pole both for the town of Halkis, and for Evoia. The flow of visitors could be more intense and possibly more organized if local authorities promoted and advertised the phenomenon in combination to the beauty of the town and Evoia, in general.

In any case, the tidal phenomenon constitutes a development lever for the wider area of Evoia and creates enterprise and job opportunities. It therefore depends on the citizens and local authorities to exploit the phenomenon as much as they can, taking care of the environmental stability of the area.

In addition to that, we are led to the conclusion that measures should be taken to attract different target groups, since Evoia depicts suitable infrastructure for recreational tourism, but lacks in both infrastructure and personnel for the reception of tourists. Tourist authorities should be immediately motivated in order to accomplish the target of exploiting the advantages stemming from tourist development, thus leading to financial gains for the prefecture.

We can be, therefore, definite that realizing such a tourist model is not a technocratic goal but a task for active citizens. Motivation for participation and action should not be the fruitless technocracy and infertile preparation but the study of local population and history. It is therefore time for the citizens to turn to their hometown and study the rich resources offered by Halkis and study the work of competent and merited people, that made and still make history and culture and highlight Halkis's society. In order to create new motivation regarding Euripus phenomenon and new hope for the local society, study and improvisation is required.

For each new tourist plan a solution should be offered to problems and satisfaction to requirements since there are no alternatives available. Each proposal, question or doubt regarding tourist development may initiate a colloquy that will be useful for the future and produce a final action plan for the town of Halkis.

References

Aidipsos municipality
2002, sity hall

Berno, T.
1996 "Cross cultural research methods: Content ot context? A Cook islands example". In Butler, R. and Hinch, T. *Tourism and Indigenous Peoples*. London: International Thomson Business Press. Pp. 376-95

Brezet, J.C & Schelleman F.
1997 *Sustainable Tourism on the Island of Texel, A survey of environmental opportunities foe Sustainable Tourism development on the island of Texel in the north of the Netherlands*.

Butler,
1993 "Tourism Development in small islands: Past Influences and future directions". In Lockhart, D.G.; Drakakis-Smith, D. and Schembri, J. *The development Process in Small Island States* London: Routledge. Pp. 71-91.

Evoian Encyclopedia
1990 Volume 1, Published by Vasilopoulos S. Pp. 544-545.
Farell, B.H.
1986 "Cooperative tourism in the coastal zone". *Coastal Zone Management Journal,* 14(1/2): 113-29.
Hors, G.M.
1939 "Tidal phenomena of Euripus", lecture on "Parnasos" conference and reproduction copy from the G.S of the Greek Army, 1 semester 1940.
Informational Booklet from Prefecture of Evoia
2001 Tourist Attraction Committee
Kalias St
1986 *Halkis from a natural and medical aspect*», Athens: Estia Publishing.
King, B.
1997 *Creating Island Resorts*. London: Routledge
Kokkinis, S.
1941 *Buchon diary. A visit in Halkis.* Athens.
Leontaris S.
1984-85 "A research of the tidal phenomenon of Euripus, Halkis, in relation to the coastline orientation of the northern and southern Evoian Gulf", A E M & ST p.p. 193-220.
Mastrodimitris, P.
1964 Stravonos' Evoika, AEM IA'.
Miaoulis A.
1882 *About the tide phenomenon in Halkis, Nat. Oceanographic Organization, "Thalasina Waves"*. Athens.
Masperger, M.
1993 "The impacts of tourism in small-scale societies: n illustration on Yap". *Tok Blong SPPF*, 43: 19-21.
Poon, A.
1993 *Tourism, Technology and Competitive Strategies*. Oxon: CAB International.
Sfetsas, C.
1999 Halkis, The Tide Wave.
Statistics Service
2002 Statistics, Halkis department.
Twining-Ward, L. & Butler R.
2002 "Implementing STD on a Small Island: Development and Use of Sustainable", *Tourism Development Indicators in Samoa*, 10(5): 363-387.
United Nations Environment Programme (UNEP)
1999 "Small island developing states". *Our Planet*, 10(3): 15-18.
Vliamos, S.- Karagianis, S.
1999 *Feld Research Έρευνα Mountain Paradirfis Villages*, Thessali: University of Thessali, First Part.
VV.AA.
1996 *Nea Domi Encyclopedia V.35*, Athens: Tegopoulos Publishing.

Recibido: 14 de diciembre de 2005
Aceptado: 10 de febrero de 2005
Sometido a evaluación por pares anónimos