

**Natural and Human Impacts on the Egyptian Northern  
Lagoons Between the Ptolemaic and Roman Eras  
In the Light of Greek Sources  
Mareotis and Sirbonis  
A Case Study**

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**Introduction:**

This study deals with Natural and human impacts on the Egyptian northern lagoons between the Ptolemaic and Roman Eras in the Light of Greek and Latin sources, and specializes in studying Mareotis (Maryut) and Sirbonis (Bardawil) as a case study. In order to shed light on the natural and human impacts, that mostly occurred in both Lagoons, I study and present what is stated in Greek and Latin sources. Consequently, when one reads what was written by classical authors, one can note the differences that have appeared in both lagoons areas. Additionally, Greek and Roman sources described the natural and human impacts that have affected the lakes and changed a lot of their nature and they mentioned various information. For example, the changes that occurred in the regions of study occurred gradually over time, and Classical texts mentioned that the northern lagoons of Egypt were much larger and deeper than in present time. This data has been demonstrated in studies of

present geographical studies that many influences have affected the changing nature of the lakes, including the levels of surface and ground of sea and lagoons, in addition to the pollution caused by human activities. Accordingly, present studies conclude that many changes have occurred to the Egyptian coastal lagoons such as the low level of the surface about three feet from the Ptolemaic and Roman Eras, dry ports, and the migration of population.<sup>1</sup>

**Keywords:**

Mareotis - Sirbonis - Canopic branch - Plinthine  
- Pelusium - Cassius.

**1- Mareotis - Μαρεώτις λίμνη**

**a. Location**

Mareotis Lagoon lies southwest of Alexandria at the northwest corner of the Delta, exactly between Alexandria and el-Alamein. Mareotis lagoon extends 50 km. west of Alexandria, 12 km. east, and to depth of 18 km. south<sup>2</sup>. Diodorus Siculus (flourished 1<sup>st</sup> century BC) mentions the Lagoon's Location as follows: "He (Alexander) decided to found a great city in Egypt, and gave orders to the men left behind with this mission to build the City between the marsh (Mareotis) and the sea."<sup>3</sup>

During the ancient times Mareotis owed its water and coasts to the River Nile, whose western branch –Canopic– was connected to Mareotis by an artificial canal, therefore, the lagoon was larger and deeper than today, because of the

<sup>1</sup> E. M. Forster, *Alexandria: A History and a Guide and Pharos and Pharillen*, ed. Miriam Allot, 1st pub., (The American University Press, 2004), 20.; Daniel Jean Stanley and Andrew G. Warne, "Nile Delta: Recent Geological Evolution and Human Impact" in *Science*, New Series, Vol. 260, No. 5108 (Apr. 30, 1993), 628-634.

<sup>2</sup> William C. Hayes, "Most Ancient Egypt: Chapter I. The Formation of the Land" in *Journal of Near Eastern Studies*, Vol. 23, No. 2 (Apr., 1964), 73-114.; P.M. Fraser, *Ptolemaic Alexandria*, (Oxford: The Clarendon Press, 1972), vol. I, 143.

<sup>3</sup> Diodorus of Sicily, *The Library of History*, translated by C. Bradford, L.C.L. no. 422, (Cambridge, 1963), 267.; "κρίνας δ ἐν ταύτῃ πόλιν μεγάλην κτίσαι προσέταξε τοῖς ἐπὶ τὴν ἐπιμέλειαν ταύτην καταλειπομένοις ἀνὰ μέσον τῆς τε λίμνης καὶ τῆς θαλάσσης οἰκίσαι τὴν πόλιν." (Diod. Sic., XVII, 52.1.)

annual flooding of the River Nile, which filled the Lagoon through its canals by its fresh water and mud. That loaded the lagoon and turned it to a shallow lagoon with an alluvial coast suitable for agriculture.<sup>4</sup>

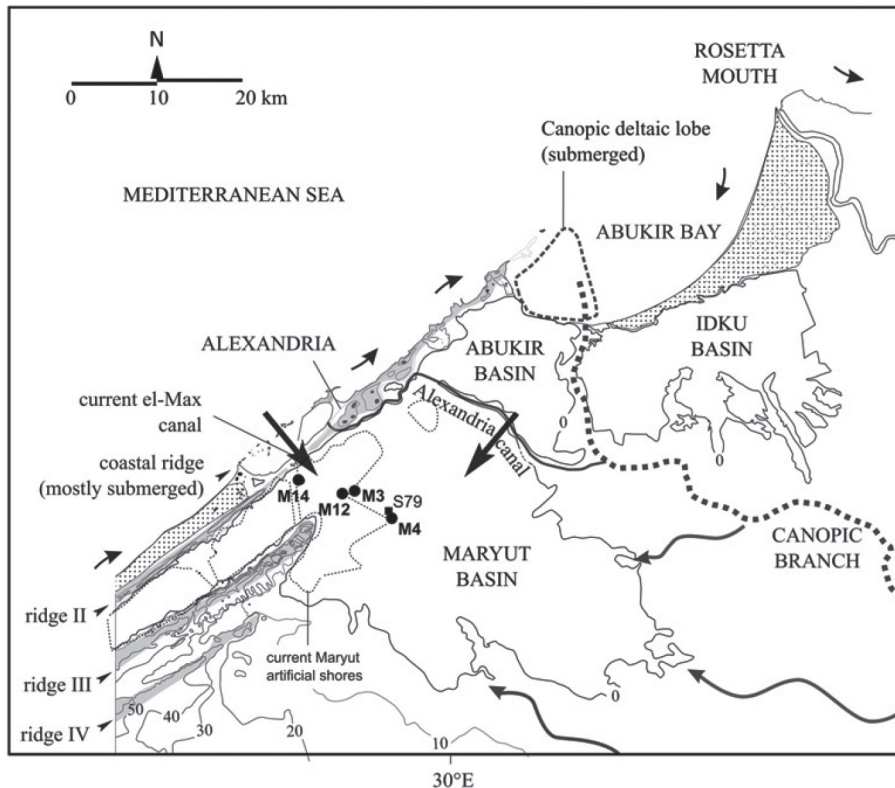


Figure (1): A topographical map showing Mareotis Lagoon and places of north-western Nile Delta, after Flaux, et. al, (2012)

### b. Natural impacts

Canopic branch was the far western one of the ancient branches of the Nile Delta pouring its water at Canopus near the current Abu Qir. The water flow through the branch passing on a number of towns and villages; beginning from Abu el-Gheit, passing Rashid, Naucratis, Damanhur and then

merged in Mahmoudiya channel until Schedia canal, which silted up and separated from the Canopic branch in the 7<sup>th</sup> century AD, after Schedia the Canopic branch ended at Kom el-Ahmar, which lies at the southwest of Abu Qir.<sup>5</sup>

<sup>4</sup> Andrew G. Warne and Daniel Jean Stanley, "Late Quaternary Evolution of the Northwest Nile Delta and Adjacent Coast in the Alexandria Region, Egypt" in *Journal of Coastal Research*, Vol. 9, No. 1 (Winter, 1993), 26-64.; E. M. Forster, Alexandria, 17.; P.M. Fraser, *Ptolemaic Alexandria*, vol. I, 132.; Mahmoud Riad, "Alexandria: Its Town Planning Development" in *The Town Planning Review*, Vol. 15, No. 4 (Dec., 1933), 233-248.

<sup>5</sup> Emad Khalil, "The Sea, the River and the Lake: All the Waterways Lead to Alexandria" in *Bullittino de Archeologia Online*, volume speciale, (Roma: International Conference of Classical Archeology, 2008) 33ff.

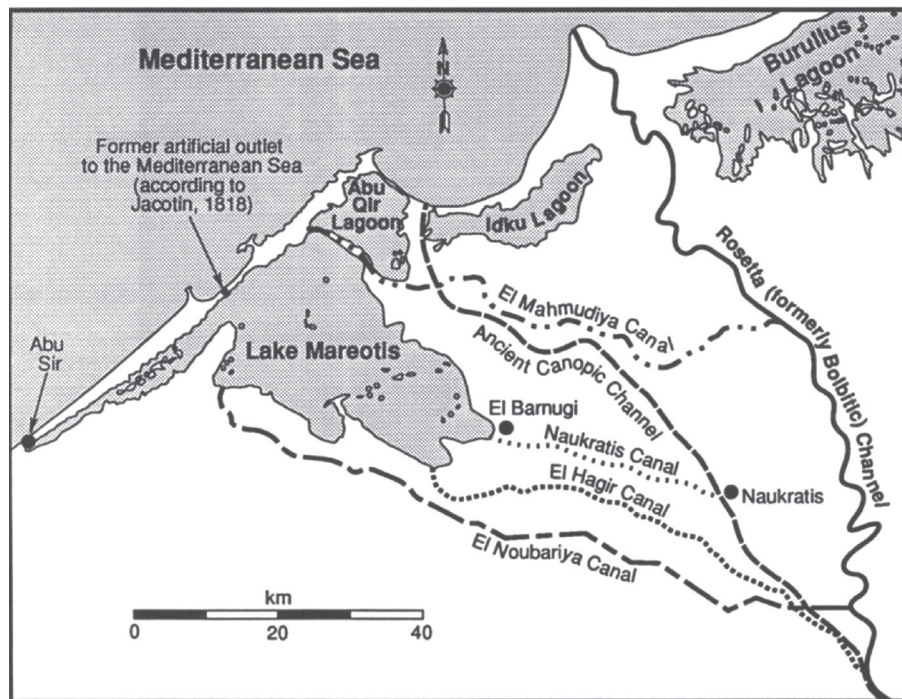


Figure (2): A map of north-western of Nile Delta showing Mareotis lagoon and the ancient Canopic branch, after Warne (1993)

This is indicated by what mentioned by Strabo (b. c. 64 BC & d. after 21 AD) who had come to Egypt within the Roman imperial era, and stated what he had seen at Mareotis as follows:

“From Schedia, as one sails towards Memphis, there are, on the right, a very large number of villages, extending as far as Lagoon Mareotis, among which is the village of Chabrias, as it is called; and, on the river, one comes to an Hermupolis, and then to Gynaecopolis Nome, and, next in order, to Momemphis and the Momemphitae Nome; but in the interval there are several canals which empty into Mareotis lagoon.”<sup>6</sup>

Actually the ruins of Marea, Taposiris and Phomotis still show inside Mareotis districts, In line with the statements of classical sources, that shows that there was a great human activity in the lagoon and its coasts specially in the port on Lagoon Mareotis, that was a very important place which played as a large trading center during the Ptolemaic and Roman Eras in Egypt. Its port, situated beside the Taposiris Magna and Plinthine settlement, made it easy for the traders in whole Egypt to connect with Alexandria through the canals which connected the Nile with the lagoon and others that connected Mareotis with Alexandria and the Mediterranean.<sup>7</sup>

<sup>6</sup> Strabo, *The Geography*, translated by H.L. Jones, L.C.L. no. 267, Cambridge, 1967), 73.; “Ἄπο δὲ Σχεδίας ἀναπλεύουσιν ἐπὶ Μέμφιν ἐν δεξιά μὲν εἰσι πάμπολλαι κῆμαι μέχρι τῆς Μαρείας λίμνης, ὧν ἐστὶ καὶ ἡ Χαβρίου κώμη καλουμένη. ἐπὶ δὲ τῷ ποταμῷ Ἐρμού πόλις ἐστίν. εἶτα Γυναικῶν πόλις καὶ νομὸς Γυναικοπολίτης. ἐφεξῆς δὲ Μώμεμφις καὶ Μώμεμφίτης νομὸς. μεταξύ δὲ διώρυγες πλείους εἰς τὴν Μαρεώτιν.” (Strab., 17.1.22.)

<sup>7</sup> Alan B. Lloyd, *A Companion to Ancient Egypt*, (Oxford: Wiley-Blackwell, 2010), 351ff.; H. I. Bell, "Alexandria" in *The Journal of Egyptian Archaeology*, Vol. 13, No. 3/4 (Nov., 1927), 171-184.; P.M. Fraser, *Ptolemaic Alexandria*, vol. I, 146.

This information is consistent with the following argument of Strabo:

“... the place (Alexandria) is washed by two seas, on the north by the Egyptian Sea, as it called, and on the south by lagoon Mareotis. This is filled by many canals from the Nile, both from above and on the sides, and through these canals the imports are much larger than those from the sea, so that the harbour on the lagoon was in fact richer than that on the sea; and here the exports from Alexandria also are larger than the imports; and anyone might judge, if he were at either Alexandria or Dicaearchia and saw the merchant vessels both at their arrival and at their departure, how much heavier or lighter they sailed thither or there from. And in addition to the great value of the things brought down from both directions, both into the harbour on the sea and into that one on lagoon, the salubrity of the air is also worthy of remark. And this likewise results from the fact that the land is washed by water on both sides and because of the timeliness of the Nile’s risings.”<sup>8</sup>

Additionally, Strabo mentioned the following data of a navigable canal as follows:

“Farther in there is a navigable canal, which extends to lagoon Mareotis. Now outside the canal there still left only a small part of the city.”<sup>9</sup>

In the previous quotation Strabo doesn’t mention the name of the canal that runs from Mareotis to the sea and ended at Cibotus (the Box), and Fraser assumed that that it was not Schedia.<sup>10</sup>

According to archaeological research Mareotis was famous of its agricultural activities, and its shores produced various products during Ptolemaic and Roman Eras; The District of the lagoon was filled by the fields of grapes, olives and fruits. And the quality of the grape harvest led to the increase and development of the wine industry in Mareotis, which was famous by its best known Mareotic wine, and Marea which was located at the south of the Lagoon was flourished by the wine industry and trade.<sup>11</sup>

Additionally, Athenaeus described that Mareotic wine gets its name from Lake Mariae in Alexandria, where at its district a very good grapes were grown, and he added that the wine which was extracting from these Mareotic grapes was excellent white wine with fine fragrance.<sup>12</sup>

<sup>8</sup> Strabo, L.C.L. no. 267, pp. 29,31.; "ἀμφίκλυστον τε γάρ ἐστι τὸ χωρίον δυοῖ πελάγεσι, τὴ μὲν ἀπὸ τῶν ἀρκτῶν τὴ Αἴγυπτίῳ λεγομένῳ τὴ δ' ἀπὸ μεσημβρίας τὴ τῆς λίμνης τῆς Μαρείας ἢ καὶ Μαρεώτις λέγεται: πληροὶ δὲ ταύτην πολλαῖς διώρυξιν ὁ Νεῖλος ἀνωθεν τε καὶ ἐκ πλαγίων, δι' ὧν τὰ εἰσκομιζόμενα πολλῶ πλείω τῶν ἀπὸ θαλάττης ἐστὶν ὥσθ' ὁ λιμὴν σιμναῖος ὑπήρχε πλουσιώτερος τοῦ θαλαττίου: ταύτη δὲ καὶ τὰ ἐκκομιζόμενα ἐξ Ἀλεξανδρείας πλείω τῶν εἰσκομιζομένων ἐστὶ: γνοίη δ' ἂν τις ἐν τε τῇ Ἀλεξανδρείᾳ καὶ τῇ Δικαιαρχείᾳ γενόμενος, ὁρῶν τὰς ὀκκάδας ἐν τε τῷ κατάπλω καὶ ἐν ταῖς ἀναγωγαῖς ὅσον βαρύτεραι τε καὶ κουφότεραι δεῦρο κάκεισε πλείοιεν. πρὶς δὲ τῷ πλούτῳ τῶν καταγομένων ἐκατέρωσε εἰς τε τὸν κατὰ θάλατταν λιμένα καὶ εἰς τὸν λιμναῖον καὶ τὸ εὐάερρον ἀξίον σημειώσεώς ἐστιν, ὃ καὶ αὐτὸ συμβαίνει διὰ τὸ ἀμφίκλυστον καὶ τὸ εὐκαιρον τῆς ἀναβάσεως τοῦ Νεῖλου." (Strab. 17.1.7.)

<sup>9</sup> Strabo, L.C.L. no. 267, pp. 39, 41.; " ἐνδοτέρῳ δὲ τούτου διώρυξ πλωτῆς μλχρη τῆς λίμνης τεταμένη τῆς Μαρεώτιδος. ἐξω μὲν οὖν τῆς διώρυγος μικρὸν ἐτι λείπεται τῆς πόλεως." (Strab. 17.1.10.)

<sup>10</sup> P. M. Fraser, *Ptolemaic Alexandria*, vol. I, 26, and vol. II, note 184.

<sup>11</sup> Anthony Hirst and Michael Silk, *Alexandria Real and Imagined*, (Cairo: The American University Press, 2004), 90.; Alan B. Lloyd, *A Companion to Ancient Egypt*, 351ff.; P.M. Fraser, *Ptolemaic Alexandria*, vol. I, 144.; Antony De Cosson, *Mareotis: Being a Short Account of the History and Ancient Monuments of the North-western Desert of Egypt and of Lake Mareotis*, (London: Coutry Life LTD, 1935), 39-40.

<sup>12</sup> Athenaeus, *Deinosophistae*, I, 33, d.

This has resulted in overcrowding population at the lagoon district contrary to what is currently being at Mareotis district, which is populated with little population and cultivate some fields there.<sup>13</sup>

Additionally, Strabo mentioned a very important natural impact that led to the presence of disease around the lake, especially in summer, this information was mentioned by Strabo as follows:

“For the others cities that are situated on lagoons have heavy and stifling air in the heat of summer, because the lagoons then become marshy along their edges because of the evaporation caused by the sun’s rays, and, accordingly, when so much filth-laden moisture rises, the air inhaled is noisome and starts pestilential diseases, whereas at Alexandria, at the beginning of summer, the Nile, being full, fills the lagoon also, and leaves no marshy matter to corrupt the rising vapours. At that time, also, the Etesian winds blow from the north and from a vast sea, so that the Alexandrians pass their time most pleasantly in summer.”<sup>14</sup>

The present geomorphologic studies assumed that the eastern part of the lagoon was larger than nowadays, and it stretched east and south east

as far as Canopus, which was connected with Mareotis lagoon.<sup>15</sup> But after the Ptolemaic and Roman Eras the lagoon suffered different natural impacts like flooding, draining, and damming. Moreover, the four earthquakes that and ground movements that occurred during the fourth century AD affected the Lagoon, and caused some destruction.<sup>16</sup> And later after the Arab Conquest of Egypt, and the insecure times of the medieval Sultans, most of the lagoon activities, which was flourishing there decreased, due to the demise of the Canopic branch, and no longer fills the lagoon with fresh water and mud, this transformation led the agriculture in the Lagoon’s region to become more dependent on rainfall.<sup>17</sup>

Until the 19 century AD, Mareotis was almost dried after the demise of the Canopic branch, and became unfit for navigation. until it turned into salt lagoon by the British, who filled it by sea water in 1801 AD, in order to siege the French in Alexandria.<sup>18</sup> Contrary to what had existed in the Ptolemaic and Roman Eras, for the lagoon was a navigation channel suitable for the transportation of goods and passengers between

<sup>13</sup> محمود الفلكي، رسالة عن الإسكندرية القديمة وضواحيها والجهات القريبة منها التي اكتشفت بالحفريات وأعمال سبر الغور والمسح وطرق البحث الأخرى، (الإسكندرية: دار النشر والثقافة، 1966)، 173.

<sup>14</sup> Strabo, L.C.L. no. 267, p. 31.; " αὐτὸν γὰρ ἄλλαι πόλεις αἰ ἐπὶ λιμνῶν ἰδρυμέναι βαρεῖς καὶ πνιγῶδες ἔχουσι τοὺς ἀέρας ἐν τοῖς καύμασι τοῦ θέρους: ἐπὶ γὰρ τοῖς χεῖλεσιν αἰ λίμναι τελματούνται διὰ τὴν ἐκ τῶν ἡλίων ἀναθυμίασιν: βορβορώδους οὖν ἀναφερομένης τοσαύτης ἰκμάδος, νοσώδης ὁ ἀήρ ἔλκεται καὶ λοιμικῶν κατάρχει παθῶν. ἐν Ἀλεξανδρείᾳ δὲ τοῦ θέρους ἀρχομένου πληρούμενος ὁ Νεῖλος πληροῖ καὶ τὴν λίμνην καὶ οὐδὲν ἐὰν τελματοῦδες τὸ τὴν ἀναφορὰν ποιήσον μοχθηρὰν: τότε δὲ καὶ οἱ ἐτησῖαι πνέουσιν ἐκ τῶν βορείων καὶ τοῦ τοσοῦτου πελάγους, ὥστε κάλλιστα τοῦ θέρους Ἀλεξανδρεῖς διάγουσιν." (Strab., 17.1.7.)

<sup>15</sup> Anthony Hirst and Michael Silk, Alexandria Real and Imagined, 231; P.M. Fraser, Ptolemaic Alexandria, (Oxford: The Clarendon Press, 1972), vol. I, 144.; Clément Flaux, Mena El-Assal, Nick Marriner, Christophe Morhange, Jean-Marie Rouchy, Ingeborg Soulié-Märsche, Magdy Torab, "Environmental changes in the Maryut lagoon, 1-12.

<sup>16</sup> Antony De Cosson, Mareotis, 40.

<sup>17</sup> P. M. Fraser, Ptolemaic Alexandria, (Oxford: The Clarendon Press, 1972), vol. I, 143.; G. W. Murray, " The Egyptian Climate: An Historical Outline" in The Geographical Journal, Vol. 117, No. 4 (Dec., 1951), 422-434.

<sup>18</sup> Clément Flaux, et.al., "Environmental changes in the Maryut", 1-12.; Mahmoud Riad, "Alexandria", 233-248.;

محمود الفلكي، رسالة عن الإسكندرية القديمة، 184 وما بعده

Alexandria and the whole towns of Egypt. Many results have shown through the archaeological and geological studies, that suggest late tectonic activity in Mareotis region, and they concluded their theory by the geological and archaeological evidence that was occurred in the region, such as Greco-Roman ruins and submerged elements. They assumed that these tectonic movements may have happened within the fourth and fifth centuries AD by four great earthquakes that affected Alexandria, and caused a vertical exodus in many areas around the Mediterranean.<sup>19</sup>

#### a. Human Impacts

During the reign of Pseumaticchus, Marea was a garrison and one can find this data within the following speech of Herodotus (b. c. 484 BC): "In the reign of Psammeticus there were garrisons posted at Elephantine on the side of the side of Ethiopia, at Daphnae of Pelusium on the side of Arabia and Assyria, and at Marea on the side of Libya."<sup>20</sup>

As previously argued that during the Ptolemaic and Roman Eras the shores of Mareotis lagoon was filled by various buildings and luxurious houses and villas, and its region was famous for its great agricultural life, which produced a plenty and variety of crops, all of these circumstances flourished the lagoon by several activities beside the agriculture as industry, trade and tourism. Additionally, at several points its eastern and southern circumference as trading routes for the goods that was transported from the Nile to Alexandria. Then the lagoons nature was

differed. For example, the Lagoon's district was abounded gradually, and the eastern section of the lagoon was dried and become a cultivated land, as a result of the decreasing of the lagoon's surface level. Moreover, the water level has continuously declined and left the eastern part of the lagoon dried up, accordingly this place was used for cultivation activities within small limits. And The lagoon became about a meter lower than in the Ptolemaic and Roman Eras, and the ancient harbors are high and dry at the present time.<sup>21</sup>

## 2- Sirbonis Σιρβωνίς λίμνη

#### a. Location and Circumference

Sirbonis – now called the Sabkhet el- Bardawil or Bardawil - is Egypt's second largest lagoon after El-Manzala. And it is a narrow coastal lagoon lies east of Pelusium on the northeastern border of Egypt, separated from the Mediterranean by only a narrow strip of land, west of Mount Casium.<sup>22</sup>

<sup>19</sup> Clément Flaux, et.al., "Environmental changes in the Maryut lagoon", 1-12.; Andrew G. Warne and Daniel Jean Stanley, Late Quaternary Evolution of the Northwest Nile Delta, 26-64.

<sup>20</sup> Herodotus, translated by A. D. Godly, L.C.L. no 117, (Cambridge, 1966), 309.; "Ψαμμητίχου βασιλέος φυλακαί κατέστησαν ἐν τε Ἐλεφαντίνη πρὸς Αἰθιοπῶν καὶ ἐν Δάφνησι τήσι Πηλουσίησι ἄλλη πρὸς Ἀραβίων τε καὶ Ἀσσυρίων, καὶ Μαρέῃ πρὸς Λιβύης ἄλλη." (Hdt. II. 30.)

<sup>21</sup> Andrew G. Warne and Daniel Jean Stanley, Late Quaternary Evolution of the Northwest Nile Delta, 26-64.; E. M. Forster, Alexandria, 266.

<sup>22</sup> William C. Hayes, " Most Ancient Egypt", 77-114.

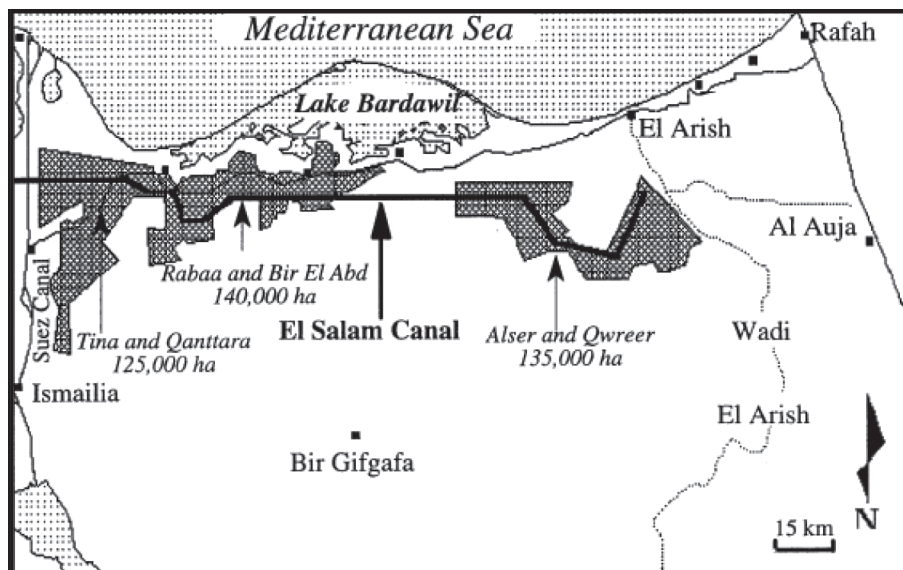


Figure (3): A map of north Sainai showing the location Bardawil (Sirbonis) lagoon. After: ElBana (2002)

Herodotus mentioned the location of Sirbonis lagoon in his speech about the length of the Egyptian northern coast as follows:

“Further, the length of the seacoast of Egypt itself is sixty “schoeni” of Egypt, that is, as we judge it to be, reaching from the Plinthinete gulf to the Serbonian marsh, which is under the Casian mountain—between these there is this length of sixty schoeni.”<sup>23</sup> Strabo identified its length by 200 stadia long, 50 stadia wide and he described it as a dangerous lagoon, because of its shallowness and seaquakes.<sup>24</sup>

Diodorus identified the nature of the Lagoon by describing its narrow area and intense depth.<sup>25</sup>

Additionally, the previous information was discussed by Strabo as follows:

<sup>23</sup> Herodotus, L.C.L. no 117, p. 28.; "αὐτίς δέ αὐτίς ἐστὶ Αἰγύπτου μήκος τὸ παρά θάλασσαν ἐξήκοντα σχοῖνοι, κατὰ ἡμῆς διαίρεόμεν εἶναι Αἰγύπτον ἀπὸ τοῦ Πλινθινήτεω κόλπου μέχρι Σερβωνίδος λίμνης, παρ' ἣν τὸ Κάσιον ὄρος τείνει: ταύτης ὧν ἀπο οἱ ἐξήκοντα σχοῖνοι εἰσὶ." (Hdt., II, 6.1)

<sup>24</sup> <http://referenceworks.brillonline.com/entries/brill-s-new-pauly/sirbonis-e1114160?s.num=8>

<sup>25</sup> Diod. Sic., I. 30.

<sup>26</sup> Strabo, The Geography, translated by H. L. Jones, L.C.L. no 241, (Cambridge, 1966), 279.; "καὶ αὐτὴ μὲν οὖν ἡ ἀπὸ Γάζης λυπρὰ πάσα καὶ [p. 1060] ἀμμώδης: ἐτι δὲ μάλλον τοιαύτη ἢ ἐφεξῆς ὑπερκειμένη, ἔχουσα τὴν Σερβωνίδα λίμνην παράλληλόν πως τῇ θαλάττῃ μικρὰν δίοδον ἀπολείπουσαν μεταξύ μέχρι τοῦ ἐκρήγματος καλουμένου, μήκος ὅσον διακοσίων σταδίων, πλάτος δὲ τὸ μέγιστον πενήκοντα: τὸ δὲ ἐκρηγμα συγκέχρωσται. εἴτα συνεχὴς ἄλλη τοιαύτη ἢ ἐπὶ τὸ Κάσιον, κάκειθεν ἐπὶ τὸ Πηλούσιον." (Strab., 16.II.32.)

<sup>27</sup> Strabo, L.C.L. no 241, p. 293.; "ἡ δὲ Σερβωνίς λίμνη πολλὴ μὲν ἐστὶ: καὶ γὰρ χιλίων σταδίων εἰρήκασί τινες τὸν κύκλον: τῇ μέντοι παραλία παρεκτέταται μικρῶ τι πλέον τῶν διακοσίων σταδίων μήκος ἐπιλαμβάνουσα." (Starb., 16.II.42.)



## b. Natural Impacts

### i. Depth and Surface

Strabo mentions Sirbonis depth as follows: "It is deep, to the very shore, and has water so very heavy that there no use for divers, and any person who walks into it and proceeds no farther than up to his navel is immediately raised a float. It is full of asphalt. The asphalt is blown to the surface irregular intervals from the midst of the deep, and with it raises bubbles, as though the water were boiling."<sup>28</sup> Then he added: "and the surface of the lake, being convex, presents the appearance of a hill. With the asphalts there arises also much soot, which though smokes, is imperceptible to the eye; and it tarnishes copper and silver and anything that glistens, even gold."<sup>29</sup>

### ii. Barathra or Waterholes<sup>30</sup>

Diodorus assumed that the lagoon was separated from the Mediterranean coast by a sandy strip, because of the Ecregma which was filled by sand over time as follows:

"...Serbonis offers unexpected perils to those who approach it in ignorance of its nature. For since the body of the water is narrow, like a ribbon, and surrounded on all sides by great duns, when there are constant south winds great quantities

of sand are strewn over it. This sand hides the surface of the water and makes the outline of the lagoon continuous with the solid land and entirely indistinguishable from it. For this reason many who were unacquainted with the peculiar nature of the place have disappeared together with the whole armies, when they wandered from the beaten road. For as the sand is walked upon it gives way but gradually, deceiving with a kind of malevolent cunning those who advance upon it, until, suspecting some impending mishap. They began to help one another only when it is no longer possible to turn back or escape. For anyone who has been sucked in by the mire cannot swim, since the slim prevents all movement of the body, nor is able to wade out, since he has no solid footing; for by reason of the mixing of the sand with the water and the consequent change in the nature of both it comes about that the place cannot be crossed either on foot or by boat. Consequently those who enter upon these regions are borne towards the depths and have nothing to grasp to give them help, since the sand along the edge slips in with them. These flats have received a name appropriate to their nature as we have described it, being called Barathra."<sup>31</sup>

<sup>28</sup> Strabo, L.C.L. no 241, p.293.; "ἀγχιβαθής, βαρύτατον ἔχουσα ὕδωρ, ὥστε μὴ δεῖν κολύμβου, ἀλλὰ τὸν ἐμβάντα καὶ μέχρι ὀμφαλοῦ εὐθύς ἐξαιρεσθαι: μεστὴ δ' ἐστὶν ἀσφάλτου: αὐτὴ δὲ ἀναφυσάται κατὰ καιροῦς ἀτάκτους ἐκ μέσου τοῦ βάθους μετὰ πομφολύγων ὡς ἀν ζέοντος ὕδατος:" (Starb., 16.2.42.)

<sup>29</sup> Strabo, L.C.L. no 241, p.293.; "κυρτουμένη δ' ἡ ἐπιφάνεια λόφου φαντασίαν παρέχει: συναναφέρεται δὲ καὶ ἀσβολος πολλή, καπνώδης μὲν πρὸς δὲ τὴν ὄψιν ἀδηλος, ὕψ' ἣς κατιούται καὶ χαλκὸς καὶ ἀργυρος καὶ πᾶν τὸ στιλπνὸν μέχρι καὶ χρυσοῦ." (Starb., 16.II.42.)

<sup>30</sup> *Dictionary of Greek and Roman Geography*, edited by William Smith, (1854), s. v. Barathra.

<sup>31</sup> Diodorus of Sicily, *The Library of History*, translated by C.H.Oldfather, L.C.L. no. 279, (Cambridge, 1968) 99. 101.; "ἐστὶ γὰρ ἀνά μέσον τῆς Κοίλης Συρίας καὶ τῆς Αἰγύπτου λίμνη τῶ μὲν πλάτει στενὴ παντελῶς, τῶ δὲ βάθει θαυμάσιος, τὸ δὲ μήκος ἐπὶ διακοσίους παρήκουσα σταδίους, ἢ προσαγορεῖται μὲν Σερβωνίς, τοῖς δ' ἀπίροις τῶν προσπελαζόντων ἀνεπίστους ἐπιφέρει κινδύνους. στενοῦ γὰρ τοῦ Ἰσχυροῦ ὄντος καὶ ταινία παραπλησίον, θινὸν τε μεγάλων πάντη περιεχυμένων, ἐπειδὴν νότοι συνεχεῖς πνεύσωσιν, ἐπιείεται πλήθος ἄμμου. αὐτὴ δὲ τὸ μὲν ὕδωρ κατὰ τὴν ἐπιφάνειαν ἀσημον ποιεῖ, τὸν δὲ τῆς λίμνης τύπον συμφυὴ τῆ χέρσω καὶ κατὰ πᾶν ἀδιάγνωστον. διὰ καὶ πολλοὶ τῶν ἀγνοούντων τῶν ἀδιότητα τοῦ τόπου μετὰ στρατευμάτων ὅλων ἠφανίσθησαν τῆς ὑποκειμένης ὁδοῦ διαμαρτόντες. ἢ μὲν γὰρ ἄμμος ἐκ τοῦ κατ' ὀλίγον πατουμένη τὴν ἐνδοσιν λαμβάνει, καὶ τοὺς ἀπιβάλλοντας ὡσπερ προνοία τινὶ πονηρὰ παρακρούεται, μέχρι ἀν ὅτου λαβόντες ὑπόνοιαν τοῦ συμβησομένου βοηθήσωσιν ἑαυτοῖς, οὐκ οὐσης ἐτι φυγῆς οὐδὲ σωτηρίας. ὁ γὰρ ὑπὸ τοῦ τέλματος καταπνόμενος οὔτε νήγεσθαι δύναται,

This natural phenomena caused by the wind that carries the sand and covered the water holes to become a geological phenomena that is called Barathra.<sup>32</sup>

Then he gave an example for this natural impact by saying the following:

“The King of the Persians assembled all his army and advanced against Egypt. As he came to the great marsh where are the Barathra or Pits, as they are called, he lost a portion of his army through his lack of knowledge of the region. Since we have discoursed earlier on the nature of the marsh and the peculiar mishaps which occur there in the first Book of our History, we shall refrain from making a second statement about it. Having passed through the Barathra with his army the King came to Pelusium.”<sup>33</sup>

Additionally, Polybius (b. c. 200 BC – d. c. 118) mentioned Artaxerxes’ expedition in Egypt as follows :

“ Having marched to Pelusium Ptolemy made his first halt in that town: and having been there joined by the stragglers, and having given out

their rations of corn to his men, he got the army in motion, and led them by a line of march which goes through the waterless region -called Barathra- skirting Mount Casius and the Marshes.”<sup>34</sup>

Plutarch (b. AD 46 – d. after 119) described the natural impacts of lagoon Sirbonis upon the troops of Ptolemy XII as follows:

“After this, Ptolemy tried to persuade Gabinius by a bribe of ten thousand talents to join him in an invasion of Egypt and recover the kingdom for him. But the greater part of the officers was opposed to the plan, and Gabinius himself felt a certain dread of the war, although he was completely captivated by the ten thousand talents. Antony, however, who was ambitious of great exploits and eager to gratify the request of Ptolemy, joined the king in persuading and inciting Gabinius to the expedition. But more than the war the march to Pelusium was feared, since their route lay through deep sand, where there was no water, as far as the Ecregma and the Serbonian marshes.”<sup>35</sup>

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παραιρουμένης τῆς ἰλύος τὴν τοῦ σώματος κίνησιν, οὐτ’ ἐκβήναι κατισχύει, μηδὲν ἔχων στερέμνιον εἰς ἐπίβασιν: μεμιγμένης γάρ τῆς ἄμμου τοῖς ὕγροϊς, καὶ διὰ τοῦτο τῆς ἐκατέρων φύσεως ἠλλοιωμένης, συμβαίνει τὸν τόπον μήτε πορευτὸν εἶναι μήτε πλωτὸν. διόπερ οἱ τοῖς μέρεσι τούτοις ἐπιβάλλοντες φερόμενοι πρὸς τὸν βυθὸν οὐδεμίαν ἀντίληψιν βοήθειας ἔχουσι, συγκατολισθανούσης τῆς ἄμμου τῆς παρά τὰ χεῖλη. τὰ μὲν οὖν προειρημένα πεδία τοιαύτην ἔχοντα τὴν φύσιν οἰκείας ἔτυχε προσηγορίας, ὀνομασθέντα Βάραθρα." (Diod. Sic., I. 30. 4-9)

<sup>32</sup> Paulys Realencyclopädie der Classischen Altertumawissenschaft, zweite Reihe, Fünfter Halbband, (Stuttgart: 1992), s.v. Sirbonis.

<sup>33</sup> Diodorus of Sicily, *The Library of History*, translated by C.H. Oldfather, L.C.L. no. 389, (Cambridge, 1963), 367.; "ὁ δὲ τῶν Περσῶν βασιλεὺς μετὰ τὴν ἄλωσιν τῆς Σιδώνος, παραγενομένων αὐτῶ τῶν συμμάχων ἐκ τε Ἀργούς καὶ Θηβῶν καὶ τῶν κατὰ τὴν Ἀσίαν Ἑλληνίδων πόλεων, ἀθροίσας πάσαν τὴν δύναμιν προήγεν ἐπὶ τὴν Αἴγυπτον. καταντήσας δ' ἐπὶ τὴν μεγάλην λίμνην, καθ' ἣν ἐστὶ τὰ καλούμενα Βάραθρα, μέρος τῆς δυνάμεως ἀπέβαλε διὰ τὴν ἀπειρίαν τῶν τόπων. περὶ δὲ τῆς κατὰ τὴν λίμνην φύσεως καὶ τοῦ περὶ αὐτὴν παραδόξου συμπτώματος προειρηκότες ἐν τῇ πρώτῃ βύβλῳ τὸ διλογεῖν περὶ τῶν αὐτῶν παρήσομεν." (Diod. Sic. , 16. 46, 5, 6.)

<sup>34</sup> Polybius, *Histories*, translated by Evelyn S. Shuckburgh, Perseus digital Library, <http://www.perseus.tufts.edu/hopper/text?doc=Perseus:text:1999.01.0234:book=5:chapter=80&highlight=casius> (accessed in 19 January 2016); "Πτολεμαῖος δὲ ποιησάμενος τὴν πορείαν ἐπὶ Πηλουσίου, τὸ μὲν πρῶτον ἐν ταύτῃ τῇ πόλει κατέξυξε, προσαναλαβὼν δὲ τοὺς ἐφελκομένους καὶ σιτομετρήσας τὴν δύναμιν ἐκίνει, καὶ προήγε ποιούμενος τὴν πορείαν παρά τὸ Κάσιον καὶ τὰ Βάραθρα καλούμενα διὰ τῆς ἀνύδρου." (Polyb., V. 80.)

### iii. Sea Impacts

Strabo mentioned an example for sea impacts upon Sirbonis as follows:

“Egypt too was formerly covered by sea as far as the marshes near Pelusium, Mount Casius, and the Lagoon Sirbonis. Even at the present time, when salt is being dug in Egypt, the beds are found under layers of sand and mingled with fossil shells, as if this district had formerly been under water, and as if the whole region about Casium and Gerrha had been shallows reaching to the Arabian Gulf. The sea afterwards receding left the land uncovered, and the Lagoon Sirbonis remained, which having afterwards forced itself a passage, became a marsh.”<sup>36</sup>

### 3- Conclusion:

In regard to Classical sources one can find various information, and draw a lot of detailed data in various aspects of life in Egypt during Ptolemaic and Roman eras. Therefore this study specialized in examining and analyzing the reported data of classical sources concerning natural and human impacts on Mareotis and Sirbonis between the Ptolemaic and Roman eras.

In summary it shows in the light of Classical

sources the most natural and human impacts that happened during these eras and affected the nature and human activities in both lagoons.

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<sup>36</sup> Strabo, *The Geography*, translated by H.L. Johns, L.C.L. no 49, (Cambridge, 1969), 185.; "τὴν τε Αἴγυπτον τὸ παλαιὸν θαλάττῃ κλύζεσθαι μέχρι τῶν ἐλών τῶν περὶ τὸ Πηλοῦσιον καὶ τὸ Κάσιον ὄρος καὶ τὴν Σερβωνίδα λίμνην: ἐτι γοῦν καὶ νῦν κατὰ τὴν Αἴγυπτον τῆς ἀλμυρίδος ὀρυττομένης ὑψάμμους καὶ κογχυλιώδεις εὐρίσκεσθαι τοὺς βόθρους, ὡς ἂν τεθαλαττωμένης τῆς χώρας καὶ τοῦ τόπου παντὸς τοῦ περὶ τὸ Κάσιον καὶ τὰ Γέρρα καλούμενα τεναγίζοντος, ὥστε συνάπτειν τῷ τῆς Ἐρυθρᾶς κόλπῳ: ἐνδοῦσης δὲ τῆς θαλάττης ἀνακαλυφθῆναι, μεῖναι δὲ τὴν Σερβωνίδα λίμνην, εἴτ' ἐκτραγῆναι καὶ ταύτην ὥστε ἐλώδη γενέσθαι." (Strab., I. III.4)

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