ANNEX 1

Marine Fauna and Flora in Palm Islands Nature Reserve

All the data below are extracted from an unpublished pioneer report of Ghazi Bitar (Ph.D., Oceanography) based on several diving's between August and November 2000.

A.1) <u>Fish community</u>:

A total of 27 fish species were recorded during the above period. They belong to 15 families:

1- **Sparidae**: *Oblada melanura, Boops boops, Dentex dentex, Diplodus cervinus, Diplodus sargus, Diplodus vulgaris.*

2- **Labridae**: *Thalassoma pavo, Coris julis, Symphodus mediterraneus, Symphodus tinca.*

3- **Scaridae**: *Sparisoma cretense.*

4- **Serranidae**: *Serranus cabrilla, S. scriba, Mycteroperca rubra, Epinephelus marginatus.*

5- **Holocentridae**: *Sargocentrum rubrum.*

6- **Siganidae**: *Siganus luridus, S. rivulatus.*

7- **Pempheridae**: *Pempheris vanicolensis.*

8- **Scorpaenidae**: *Scorpaena maderensis.*

9- **Monacanthidae**: *Stephanolepis diaspros.*

10- **Pomacentridae**: *Chromis chromis*

11- **Mugilidae** : Muges n.d.

12- **Muraenidae** : *Muraena helena*

13- **Gobiidae** : Gobius n.d.

14- **Balistidae** : *Balistes carolinensis*

15- **Echeneidae**: *Remora sp.*

Out of which 3 families are best represented: Sparidae (6 species), Labridae (4 species) and Serranidae (4 species). The inventory encompasses 5 lessepsian species of indopacific origin: ***Siganus luridus, S. rivulatus, Sargocentrum rubrum, Pempheris vanicolensis & Stephanolepis diaspros.***

Four families are not part of the Mediterranean fauna: Holocentridae, Siganidae, Pempheridae, Monacanthidae.

One species ***Epinephelus marginatus*** is threatened (near threatened in the Red Data List of IUCN, 2000) and figures on the list of species to be protected in the Mediterranean.

One species ***Mycteroperca rubra*** is listed under the rubric "Data deficient" of the Red Data List of IUCN, 2000.

Seven dominant and abundant species are of halieutic importance: ***Siganus luridus, S. rivulatus, Sargocentrum rubrum, Oblada melanura, Diplodus sargus, D. vulgaris*** and ***Chromis chromis.*** Of which 3 species are lessepians. The two Siganidae are well known by the researcher since 35 years ago.

A.2) <u>Benthic flora</u>:

Due to the fact that the period of the contract is placed outside the vegetative season, it is normal to record a small number of vegetal species (Algae and Phanerogams).

For the benthos flora, it is noticed that:

A total of 25 species are recorded and distributed as follows:

a- Red Algae (12 species): ***Neogoniolithon brassica-florida, Goniolithon byssoides, Tenarea tortuosa, Corallina elongata, Jania sp., Peyssonnelia squamaria, Peyssonnelia spp., Lithophyllum incrustans, Mesophyllum lichenoides, Lithothamnion lenormandi, Pseudolithophyllum expansum, Lobophora variegata .***

b- Brown Algae (9 species): ***Dictyopteris polypodioides, Dilophus sp., Cystoseira compressa, Cystoseira sp., Padina pavonica, Padina boergesenii, Sargassum vulgare, Stypocaulon scoparium, Stypopodium schimperi.***

c- Green Algae (3 species) : ***Enteromorpha intestinalis, Enteromorpha sp., Valonia utricularis.***

d- Phanerogamous (1 species): ***Cymodocea nodosa***.

This floristic inventory shows that:

- The red algae are the most dominant group followed by brown algae.
- Nearly all the red algae are calcareous and perennant species.
- The presence of two endemic species to the east Mediterranean area: ***Goniolithon byssoides*** *and* ***Tenarea tortuosa***. In addition, they are limited in Lebanon to the El-Nakhl Island Protected Area.
- Lessepians are represented by two species: ***Padina boergesenii*** and ***Stypopodium schimperi***.
- Absence of pollution indicator species.
- Absence of ***Posidonia oceanica*** not only from the reserve but also from Lebanon. This species is providing grasslands in other localities of the Mediterranean.

A.3) <u>The benthic fauna:</u>

A total of 64 species are identified. They are distributed on 9 zoological groups:

The examination of the list above shows:

- The presence of 11 Lessipian species: ***Macrorhynchia philippina, Pseudoneris anomala, Lysidice natalensis, Hydroides minax, Spirobranchus tetraceros, Brachidontes pharaonis, Pinctada radiata, Malleus regulus, Strombus decorus, Synaptula reciprocans, Phallusia nigra.***
- The presence of one exotic species: ***Herdmania momus***.
- The presence of clean water indicator species: ***Syllis prolifera, Perinereis cultrifera.***
- The two gastropod ***Vermetus triquetrus*** and ***Dendropoma petraeum*** contribute to the formation of vermet platforms, which characterise the Lebanese coast and form part of the national natural heritage. The scientific community proposes these two species to be listed among the protected species since the platforms are destroyed by human activities.

A.4) <u>Turtles:</u>

The only breeding species found on El-Nakhl Island Protected Area is the Loggerhead Turtle ***Caretta caretta,*** with 37 nests mainly on Rabbit island. The Green Turtle ***Chelonia mydas*** was found as winterer in the surrounding water. According to the Management Team reports, the number of loggerhead's nests increased from 3 in 1997 to 7 in 1998 and 30 in 1999. Such progress reflects clearly the positive impact of management on El-Nakhl Island Protected Area.

The sandy beaches were periodically cleaned from organic wastes and physical barriers (e.g. wood, tyres and bottles brought by sea currents).

A.5) Conclusion

The study has revealed the presence of 116 species. Out of which, 18 are Lessipian, 2 endemic, 1 exotic and 4 threatened species.

The list is not complete and further study will certainly bring supportive data to satisfy the objectives of the project. But the seasonal aspect of communities, which can be monitored outside the life span of the project, is also of high importance. However, the present pioneer study should be used as a benchmark for any future monitoring.