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## **STRUCTURAL SURVEY OF GOMISHAN INTERNATIONAL LAGOON USING COASTAL AND MARINE ECOLOGICAL CLASSIFICATION STANDARD**

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**Key Words:** habitat classification, CMECS, gomishan lagoon, caspian sea

### **Introduction**

due to resource management and habitat conservation goals ecologically classification of Gomishan wetland located in the south east of Caspian Sea was performed. For achieving this CMECS (Coastal Marine Ecological Classification Standard) were used and habitats of the study area was identified and classified according to CMECS classifiers and modifiers. Coastal wetlands are among the most complex environments in the transitional zone located between terrestrial ecosystems and adjacent seas. There is an increasing need for classification of coastal and marine system due to resource management and habitat conservation goals. Many classification systems have been developed for regional or local applications [1].

The Coastal Marine Ecological Classification Standard (CMECS) provide a universally accepted standard classification for coastal and marine habitats [2].

The goal of CMECS is to classify ecological and habitat units within a simple standard format that uses a common terminology.

### **Materials and methods**

Gomishan International lagoon is located in south eastern corner of Caspian Sea and stretching in north- south direction (Fig. 1).

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Fig. 1) The study area

For habitat mapping a Geographic Information Systems (GIS) approach was used (ESRI, 2004, ArcGIS Version 9.3). Data layers include surface geology component (SGC), biotic cover component (BCC) and geoform component (GFC). In order to making GIS maps for these three components of CMECS georeferencing of satellite image using Ground Control Points (GCP) was done. PAN image from HRVIR sensor of SPOT satellite was used in order to procure source data and shape files of GIS and to draw more detailed habitat maps.

### Results

From the view point of surface geology Gomishan lagoon comprises unconsolidated bottom (Code:UB) and its sediments divided into two groups: mud or silty and organic sediments with ES.0\_s:UB.3 and ES.0\_s:UB.4 codes, respectively (Fig. 2).

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Fig. 2) Classified Map of Gomishan wetland Applying CMECS Surface Geology Component

On this basis of BCC classifiers three different environmental zones (emergent wetland, aquatic bed and faunal bed) were recognized and coded as [ES.0\_b:EM.1], [ES.0\_b:AB.3] and [ES.0\_b: fb.2] (Fig. 3).

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Fig. 3) Gomishan BCC Map

CMECS has divided geoformal components into natural and anthropogenic (man-made) categories. The Caspian sea belongs to natural geoform, in which has the characteristics of an enclosed sea, so that it receives the code: g:11.n.SInf. Gomishan lagoon inlets and sand bar have coded as g:11.g and g:11.m/f respectively. Dredged channel as an anthropogenic geoform has code as a-dg. Fig. 5 shows the coded station in respect to their geoform codes.

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Fig. 4) Gomishan GFC Map

## Discussion

The urgency of the need for an ecological classification standard for coastal and marine systems increases as marine habitat hazards grow [3, 4].

The components of CMECS represent a way of organizing information to describe different aspects of the coastal and marine environment. Coastal human population growth and the Caspian Sea level fluctuations are the main threads which Gomishan lagoon faces. In addition different sources of pollution enter the lagoon through river and Caspian Sea. Previous investigations have confirmed high ecological values of Gomishan wetland.

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