

## ESTRATTO IN LINGUA INGLESE

### PRESENTATION OF THE MANUAL

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The present manual was created with the support of the European Initiative Programme INTERREG Italy-Slovenia 2000-2006. The administration of the Province of Rovigo devised the manual for a project supporting fishing tourism in the Po Delta, aiming at offering fishing and fish tourists a useful instrument of information on various levels, ranging from general information on the sea, the rivers, the sky, and navigation, to information on the Po Delta, the most important routes for fishing tourists, and the flora and fauna of the Delta, up to a more technical and targeted level of information for tourists concerning the different types of fishing.

#### HOW TO USE THE MANUAL, HOW TO LOOK UP THE CONTENTS

The structure chosen for the presentation of the subjects follows an alphabetical order, and offers an overview on all topics by matching similar and complementary information, therefore combining the advantages of an easier consultation with those of a more organic and efficient guide to knowledge.

#### WATER: its composition, the wetlands, aquaculture in the Po Delta

Of the total water resources of the planet (estimated to amount to 1,300,000,000 km<sup>3</sup>):

- 220,000 km<sup>3</sup> of surface water (inland lakes and rivers) represent 0.017% of all resources
- 1,270,000,000 km<sup>3</sup> of oceans represent 97.79% of all resources
- 4,000,000 km<sup>3</sup> of underground water (not more than 800 m) represent 0.31% of all resources
- 4,000,000 km<sup>3</sup> of deep water (not more than 800m) represent 0.31% of all resources
- 28,000,000 km<sup>3</sup> of polar icecaps represent 2.15% of all resources
- the water of rivers, torrents, of the active stratum of the soil, and of the atmosphere with its 80,000 km<sup>3</sup> represent 0.006% of all the water resources of the planet.

**Wetlands:** wetlands are lagoons, marshlands, swamps, ponds and those stretches of the sea that are not deeper than 6 m during low tide.

**Aquaculture:** the most representative production structure in the field of fishing and aquaculture is the Fishermen' Cooperative Consortium of the Polesine area with head offices in Scardovari, Via della Sacca 11. It was created thanks to the wish to collaborate expressed by the cooperatives of fishers working in the Province of Rovigo and currently counts around 1500 members, grouping 90% of the operators of the fishing sector of the Province. The activities carried out by the members of the Consortium are mollusc farming, which has been practiced for a very long time especially in the Scardovari Loop, and more recently clam farming.

#### ANCHOR: the functions of anchors, types of anchors

**The functions of anchors:** iron tool with hook-shaped arms which is cast on the seabed to stop boats thanks to the chain it is attached to.

**Types of anchors:** anchors with metal or wooden stock, without stock, for yachts, boats, special anchors, sea anchors, on-board anchors (see photos of different types of anchors from the older to the more modern ones).

**BOAT: small fishing boats, characteristic of boats for fishing tourism in the Delta, navigation with a fishing boat**

**Small boats for fishing in sheltered waters:** the figures represent small wooden boats or inflatable dinghies for fishing in sheltered waters that can be used with oars or small out-board motors.

**Characteristics of boats used for fishing tourism in the Delta:** the boats used are made of wood, they have a flat keel and are coated with fiberglass. They are 6 m long and 1.6 m wide, type-approved for fishing and for a maximum number of 3 people. Some fishermen have also a second craft for sea fishing, which is 12 m long already type-approved or waiting for type-approval by the Italian Naval Register; these boats can load 4-5 people besides the fisherman for amateur fishing. These crafts need a further type-approval to transport people for fishing tourism. There are about twenty professional fishermen's boats already type-approved for fishing tourism in the Delta.

The boats used for fishing tourism have to be type-approved and registered in the Italian Naval Register (RIINA) and have to have: medical supplies according to Decree No. 279 of 25/05/1988 of the Ministry of Health; life rescuing means according to articles 12, 13, 14, and 15 of the Ministry Decree of 22/06/1982; individual life rescuing means for children under 14 years of age. The boats will have to have a valid safety measures certificate. For the needs of the people on board, if not provided by the relevant dispositions of the fishing safety regulations, the boats authorised for fishing tourism have to have a VHF radiotelephone set, also of a portable kind, on board.

**Authorisation for tourist transport:** the authorisation to carry out fishing tourism is issued by the Head of the maritime District of the place where the craft is registered. According to article 5 of the decree No. 293 of 13/04/1999, in order to obtain the authorisation to carry out fishing tourism, the application has to be accompanied by the following documentation:

- 1- copy of the boat's safety measures;
- 2- copy of the stability test and/or copy of the occasional stability test;
- 3- copy of the safety measures, aiming exclusively at the carrying out of fishing tourism.

The District Head, at the moment of the issue of the authorisation, sets the maximum number of people that can be taken on board at 12, in compliance with the dispositions of the Italian Naval Register.

The authorisation to carry out fishing tourism has to be issued by the District Head within sixty days form the handing-in of the application.

**Use of crafts on the waterways of the Consortium:** the use of crafts on the waterways of the Consortium is allowed exclusively for crafts used by the Reclamation Consortium, for those used by the watch staff, as well as for those used by professional fishermen where professional fishing is allowed.

**Crafts and navigation:** according to Decree No. 29 of 13/04/1999 regulating fishing tourism activity, the tourist can be taken on board by shipowners of boats authorised to carry out local coast fishing within 6 miles, or close coast fishing within 20 miles. Moreover, these crafts, in order to be authorised to carry out fishing tourism in the period 1 November – 30 April, have to have accommodation facilities, even removable ones, for the shelter of the people on board.

**COMPASS: orientation with topographic map and compass, orientation without compass**

**Orientation with topographic map and compass:** topographic maps are designed so that the upper part always corresponds to the North. To orient the topographic map with the

compass, place the instrument on the map in the place where you find yourself. When the compass needle stops oscillating and points permanently towards the North, turn the map round until the vertical lines of the map grid (oriented in North-South direction) are parallel to the needle: the degrees marked on the crown of the compass show all the other directions.

**Orientation without compass:** at night: the North is indicated by the Pole Star. In the daytime: by means of the shadow of a stick, which enables to find the North and shows also the time. You plant a stick in the ground and follow the direction of its shadow, marking at intervals the point it reaches. As the day passes, the shadow gets shorter and shorter until it begins to grow longer again: this is when it is midday; the direction of the shadow points towards the North.

It is also possible to orient oneself using a watch: place it on the ground and put a thin stick vertically in the ground (a match, for example) where the hour hand is. Then turn the watch round until the shadow of the match is in line with the hour hand: the South is shown by the line that divides in halves the angle formed by the hour 12 direction and the time shown at that moment.

### HUNTING: regulations

Article 117 of the Italian Constitution sets out that the Regions have legislative power on, among other things, hunting and fishing in inland waters.

According to article 1 of Consolidation Act No. 1016 *"hunting is every act aiming at killing or catching game by means of weapons, animals or tools for this purpose"*.

Besides hunting in itself there is also bird-catching, that is the catching of wild birds alive through nets, birdlime, traps, etc..

According to article 2 of the Consolidation Act on hunting laws, "game" means alive and free mammal and birds, that is those that are not tended or simply looked after by man, with the exception of moles, shrews, dormice, mice and field voles.

To hunt it is necessary to have a special administrative authorisation, the "Shooting licence". This licence is valid for the whole national territory and has a validity of 6 years, besides it is subject to the payment of a tax on governative franchise. Only adults can have a shooting licence.

In the Delta, hunting is permitted out only in certain areas; the open season begins in September and finishes on 31<sup>st</sup> January of the following year. The species that can be hunted are marked in the hunting season calendar; they can vary according to the inspections carried out every year on the basis of the number of specimens of each species.

### CARTOGRAPHIES: maps, geographic projections

**Maps:** reduced, approximated and symbolic representations of the earth's surface. They are approximated because the earth's surface is spherical and it cannot be reproduced on a plane without being deformed. They are symbolic because the geographical elements are represented by symbols called prearranged signs.

A map is of course a reduced representation according to a certain ratio which is called Scale. There are two types of Scales. The Numerical (linear) Scale and the Graphic Scale.

The Numerical scale is expressed with a fraction (1:N), where the number represents the unit and the denominator N the number of times real distances are reduced on the map. For example, Scale 1:100,000 (Scale of one to a hundred thousand) means that a certain length measured on the map corresponds to 100,000 of the same lengths on the ground; that is, in practice, 1 cm on the map corresponds to 100,000 cm (1 Km) on the ground.

**Geographic projections:** there are two big categories of Projections: the real ones (obtained transporting the grid of parallels and meridians on an auxiliary surface applying geometrical principles) and the conventional ones (obtained according to empirical rules carrying out arbitrary modifications on the grid).

Mercator's projection: in this case the Meridians are equidistant parallel lines and the distances between the Parallels are increased in proportion with the parallelism of the Meridians, in order to reduce to the minimum the deformation of the Continents. Mercator's projection is isogonal (isos means the same and gónos angle), so it is very useful for nautical charts.

The Sailing Directions: nautical charts were first created in the 14<sup>th</sup> century and had a central wind rose and the cardinal points. 16 radiuses departed from the central rose, and on each one of them there was a smaller rose at the same distance from the others. The radiuses formed a thick grid.

The GIS's, acronym of Geographic Information System, are Information Technology tools that enable to manage, process, analyse and visualise space information, that is, georeferentiated information. Thanks to these tools it is possible to create information application and systems characterised by new methodologies for accessing and analysing space information. More than just a software for the creation of maps, it is a system for the managing of databases thanks to which data can be analysed and represented visually and distributions and trends can be visualised and shown both in a written and tabular way.

#### **CLIMATE: the climate of the Po Delta, the climate of the Delta in the various seasons**

The climate is the typical continental climate of the Po Plane with a high relative humidity rate in every season.

The thermo-pluviometric data of the 1959-1977 period, recorded by the station of Sadocca di Contarina, show how the Climate of the Po Delta is characterised by annual maximum temperatures of 16.9 °C, which can rise to 27.6 °C in July and 26.8 °C in August, while they fall to 5.3 °C in January and 6.2 °C in December.

The average minimum temperatures recorded in the same period show an annual average temperature of 10.1 °C with lowest points of +0.5 °C in January and peaks of 19.3 °C in July. Annual average rainfalls, according to the data of the 1961-1990 period, are around 683 mm; with monthly rain peaks of 81.5 mm in August and 73.6 mm in September and lowest points of 42.6 mm in February.

The climate of the Delta in the various seasons:

##### **Spring**

Changeable weather with frequent precipitations. In March and April the climate is cool and windy.

##### **Summer**

Hot and humid. Thunderstorms at the end of the season and some haze. The weather is generally good also because the area of the Delta has its own climate, which keeps away rainstorms and precipitations.

##### **Autumn**

Changeable weather with precipitations, first fog. September and October are mild and windy.

##### **Winter**

Cold and humid with few precipitations and frequent fog. In the colder days the fog solidifies transforming itself in white frost on the beds of reeds and on the sandbanks.

## TERRESTRIAL AND POLAR COORDINATES: Azimuth and distance, parallels and meridians. Parallel degrees, meridian degrees and sea miles

**Polar coordinates: Azimuth and distance.** The totality of the cardinal points and of the intermediated points forms the Wind Rose thanks to which the horizon can be subdivided into 32 or even 64 directions; these, though, are not enough to identify exactly the position of a point on the plane of the horizon; therefore the circle of the horizon is divided into 360 degrees and then the azimuth and the distance (polar coordinates) of the point under examination are calculated.

The Azimuth, from the Arab "as- sumut", direction, is the angle comprised between the vertical circle that passes through the planet one wants to establish the position of and the plane of the meridian of the point of observation.

The distance is the linear distance, expressed in Km, metres etc., between the point of observation and the point considered. When we know the azimuth and the distance of a place, its position on the horizontal plane is determined exactly.

**Parallels and meridians.** The Parallels are imaginary circles parallel to the Equator. Being traced on a sphere, their length is smaller than the equator and they get smaller and smaller going towards the Poles.

The Meridians are imaginary circles passing through the Poles, they all have more or less the same length. The Meridian circle is 40,009,152 m long.

The Parallels and the Meridians are traced at one degree's distance from one another.

As the Equator is a circle (round angle), therefore made of 360 degrees, then there are 180 Meridians (360 if we consider the semicircumferences) and 180 Parallels: 90 north and 90 south of the Equator.

Actually, owing to the fact that at the poles the Parallels are reduced to a point, the Parallels are 178. The fundamental Parallel (or Prime Parallel or Zero Parallel) is the Equator.

The fundamental Meridian (or Prime Meridian or Zero Meridian) is, conventionally, the Greenwich one: Greenwich is a suburb of London, where there is an old astronomic observatory.

**Parallel degrees, meridian degrees and sea miles.** Parallel degrees: as the Parallels are not all the same, the linear distance between a Meridian and the next (Parallel degree) is maximum at the Equator and gradually diminishes until it reaches zero at the Poles.

Meridian degrees: as the Meridians are all more or less the same, the linear distance between a Parallel and the next (Meridian degree) is almost unchanged for all Meridians and equals 111.121 Km on average. Actually, as the Earth is squashed at the Poles, between a Parallel and the next the distance varies slightly from a maximum of 111.680 Km to a minimum of 105.564 Km.

The 15<sup>th</sup> part of the equatorial degree, equalling 7,420 m, is the geographical mile.

The Sea Mile, or knot, is the 60<sup>th</sup> part of a Meridian degree at a latitude of 45° and equals 1,852 m.

## ITALIAN CODE OF NAVIGATION

The Code comprises 1331 articles, subdivided into four parts and in a kernel of preliminary dispositions.

The four parts are dedicated, respectively, to sea and inland navigation, air navigation, criminal and disciplinary, temporary and complementary dispositions. Examining the framework of the Code more closely, we see that the preliminary dispositions (articles 1-14) discipline the sources of the law of navigation, the limits of territorial waters and of the air space subject to the sovereignty of the State, the law which regulates the legal facts and relations

concerning navigation, and the jurisdiction as to collision, assistance, rescue and recovery in places not subject to the sovereignty of any State.

Book I of the 1<sup>st</sup> part (articles 15-231) regulates the administrative organs of navigation, the collective goods for navigation (maritime State property, harbour areas of inland navigation), the administrative activity, the police and the services in the harbours (i.e. steering, towing and port work), etc.

The contents of Book I of the 2<sup>nd</sup> part is similar and regulates (articles 687-847) the administrative organs of air navigation, the aviation State property, etc. Book II of the 1<sup>st</sup> part (articles 232-375) deals with ship building and property.

The Code is completed by the executive regulations concerning sea navigation.

## RIVER DELTAS

The delta is the region where a river deposits its mud and its slime before it flows into a lake or into the sea: it normally has a triangular shape due to the bifurcation of the river.

Delta is, in fact, the Greek name of the letter D, which has the shape of a triangle.

The big rivers which flow into the sea with a delta are: the NILE, the AMAZON RIVER, the MISSISSIPPI, the GANGES, the EUPHRATES, the DANUBE and the PO.

## THE PO DELTA

The Po Delta, notwithstanding the radical transformations undergone in the last 150 years, still offers territories of great naturalistic relevance, with the vastest complex of wetlands in Italy and some woodlands that testify the ancient presence of forrests in the Po Valley. There are six active branches of the Po that flow into the Adriatic Sea on the side of the province of Rovigo, that is:

*Goro Po*, the most southern branch, which marks the boundary with the Province of Ferrara.

*Gnocca or Donzella (Damsel) Po*

*Tolle Po*

*Pila Po*

*Maistra Po*

*Levante (Eastern) Po*

To these we can add the two Scirocco (South-eastern) and Tramontana (Northern) mouths that in fact are two short branches of the Po and together with the Pila Po, from which they branch off, form the farthest tip of the Delta towards the sea.

**The biotopes present:** (Battery Island); Territory of the former fishing valleys between Ca' Mello and Bonello; Ca' Mello Oasis; Bonello biotope; Nichetti wood in Ariano Polesine; fossil Dunes of Porto Viro and Rosolina; fossil Dunes of San Basilio, Grillara and Piano di Riva near Ariano Polesine; Holm of Santa Maria in Punta at the inlet of the Goro Po (Ariano Polesine).

**Some fishing tourism routes.** The routes suggested do not follow rigid schemes, but lay out 3-4 hour boat trips, during which the tourists can fish together with professional fishermen and take a closer look at the environment, the fauna, the flora and naturalistic emergency situations of the Delta.

The start is at 8:00 a.m. and the return at 12:00, in order to be able to cook any fish you have caught and stay at lunch with the fishermen's families.

### Route 1

This route starts from the "Boscolo" draining pump in Polesine Camerini (park your car in the parking under construction, given by ENEL to the Province of Rovigo) and winds along the branch of the Scirocco (South-eastern) Po. Stop at the cottage of the Scano Boa island,

given to the Province, to receive information and have lunch, visit to the Pila lighthouse and return to the sandpit of the starting point along the Pila Po.

#### **Route 2**

This route starts from the fisherman's house in the Ca' Mello Oasis (from the Scardovari Loop); park your car in the existing equipped area next to the Veneto Agricoltura pier, where there is a watching point. The route includes a stop at the fishermen's farms and a visit to the equipment for the mollusc farming activity, possibility of stopping and fishing (grey mullet, bass, eel etc.), transit through cane thickets and visit to the Gorino lighthouse to take a look at naturalistic beauties; possibility of learning more about mollusc farming and fishing techniques and of meeting the fishermen. Possible stop at the submerged sand bank of the loop and return to the fisherman's house.

#### **Route 3**

This route starts from the harbour in Scardovari, you can leave your car in the area next to the harbour. The route winds along the branch of the Tolle Po up to the Pila Po and includes a visit to the Pila lighthouse, arrival at the cottage of Scano Boa (from the Pila Po) and stop for lunch or for a film and an informative meeting on the flora and the fauna of the Delta. Return through the Basson lagoon, the Scirocco Po, the Canarin lagoon and the Bastimento (Vessel) branch up to the starting harbour.

#### **Route 4**

This route starts from the Youth Hostel and goes along the old river-bed of the Maistra Po, it includes a visit to the holms (with their internal lakes), arrival at the sea, visit of the closed valleys and of the rice-fields; return to the Maistra Po and stop at the Youth Hostel for lunch and overnight stay.

### *Some touristic routes for visits by car*

#### **Route No. 1 Woods, Valleys and Canals**

On this route it is possible to admire naturalistic places rich of avifauna typical of brackish areas, like the stretch that runs along the fishing valleys and the lagoon, to visit the holm-oak grove of the mouth of the river Adige and the pinewood of Rosolina Mare, the Botanic Garden of Porto Caleri, run by the Regional Forrest Ranger Corps, and other areas of great historic interest.

Once arrived at the Levante (Eastern) Harbour you can sail with a ferry up the Levante Po, the access of goods that, coming from the sea with big merchant ships, are then shipped upriver along the Po and the Canalbianco to the economically strong areas of the Po Valley. You can drive along the bank for almost its whole length on an unsurfaced road until you reach the 17<sup>th</sup> century court of Ca' Cappello.

The route, with its variants, leads up to Loreo, an important centre of the former Serenissima Republic the river Po meets where the Venetian Lagoon.

#### **Route No. 2 The road of the Valleys and of Reclamation**

This route along the southern Via delle Valli (Valley Road) is perhaps the one that mostly meets the requirements of the lovers of birdwatching and photonaturalism: big stretches of valley and lagoon waters, breathtaking sunsets, thousands of swans, geese and ducks in all the seasons, coots, herons, wading birds.

At the end of the Via delle Valli, for a stretch you carry on along the left bank of the Maistra Po, considered the most spectacular for the richness and variety of the bird population and vegetation that characterises it.

It is possible to continue along the bank of the Venice Po and admire wide holms inhabited by waders, or carry on along the Via della Bonifica (Road of Reclamation) in the now reclaimed Mea Valley, and notice the slow evolution process in the typology of rural hous-

es.

### **Route No. 3 The Ariano island and the old Roman road**

The stretch of the Goro Po interested by this route is the Porto Viro Cut, made by the Venetians at the beginning of the 17<sup>th</sup> century.

The branching takes place at Santa Maria in Punta, where what remains of the old village testifies life along the river in the past centuries together with old furnaces, which were once so numerous in this area that the most northern branch of the Po was named after them, Fornaci (Furnace) Po. From Taglio di Po you can reach Ca' Vendramin, where there is the Regional Museum of Land Reclamation.

Taking one of the alternative routes along old roads on ancient coastal dunes used since the times of the Romans and in the Middle Ages, you can come back to the Goro Po in San Basilio, an important archeological site with a nice exhibition of recent findings, or to Rivà, right in front of the old Mesola Castle on the Ferrara side of the Goro Po.

### **Route No. 4 The Maistra Po and the farthest part of the Delta**

Coming down from Ca' Venier along the right bank of the Venice Po, it is possible to admire the magnificence of the big river close to the Adriatic Sea. It is the same sensation that those who sailed up the first stretch of the Maistra Po, the main branch at the time, felt at the beginning of the 18<sup>th</sup> century. The importance of this branch at that time is testified not only by the name (maistra means main), but also by the width of the banks that are almost a Km apart from one another, more or less the distance that nowadays exists between the banks of the Venice Po.

Today the actual river-bed of the Maistra Po is little more than a hundred metres wide and what remains of the old river-bed has been covered with time by a lush vegetation, which has transformed it into an environment of incomparable beauty and awesomeness. Its gradually diminishing hydraulic importance has been counterbalanced by an exceptional increase in scientific interest because of its flora and fauna patrimony.

From the mouth of the river, going along the bank that runs along the valleys on the side of the sea, it is possible to reach the Boccasette beach and then Ca' Zuliani, up to the village of Pila, near the Pila lighthouse and take a look at the areas that have recently been advancing towards the sea: the farthest part Delta.

### **Route No. 5 From Ca' Tiepolo to the Polesine area of sighs**

From the village of Porto Tolle, the largest municipal district after Rome, it is possible, going along the left bank of the Goro Po or along the right bank of the Gnocca Po (or Donzella Po) to reach the most southern point of the Veneto Park of the Po Delta, called Polesine dei Sospiri (Polesine area of sighs).

In the most southern part of the Park it is possible to see, in a dissolved image of the vastness of the beds of reeds, the Goro lighthouse on the other side of the Po.

After a nostalgic crossing of the wobbly bridge of boats of Santa Giulia you reach the Donzella (Damsel) Island (apparently the name is referred to the charming daughter of the nobleman Farsetti) and then the Scardovari Loop, a majcal stretch of sheltered sea of great economic interest for local fishermen, who carry out the farming of mussels and clams in it.

Also the route coming back to Porto Tolle is very interesting, it follows the "lost branch" of the Ca' Mello Po, the terminal stretch of which is the Ca' Mello Oasis, where it is possible to admire hydraulic facilities which, sometimes in a curious way as in the case of Ponte Colpi, show the negative effects of a decade of methane extraction in the territory of the Delta.

### **Route No. 6 From Polesine Camerini to the Scardovari Loop**

The first stretch of this tour goes along the top of the bank of the village of Porto Tolle to



the Bridge of Ca' Dolfin and gives an elevated vision of the vast plane of the Delta countryside: on the one side cultivated fields with rigid geometries traced by the irrigation canals, on the other the Venice Po, a terraced river with hydraulic discharge heads some metres above the surrounding countryside, well visible with the naked eye.

It is possible to go along almost the whole perimeter of the Polesine Camerini island staying on the top of the banks that surround it. The stretch along the straightened bend of Volta Vaccari and the southern part of the Busa del Canarin and Busa Bastimento lagoon is very interesting from a naturalistic point of view.

Coming back on the provincial road, the tour continues towards the villages of Scardovari and Bonelli, with the characteristic fishermen's houses. In Barricata go on foot down to the new submerged sand bed which is developing naturally and closing more and more the Loop's mouth, cutting it off from the sea. Here the change of the waters is ensured by expert hydraulic engineering, which makes it possible to quicken and farm clams and mussels here.

### **Route No. 7 Paddling up to the island that's not there**

This tour is very particular, as it is addressed to canoeists and to those who use small boats, ideal for the shallow river beds of the lagoons.

A by now classic route: from the village of Pila al Basson you reach Scano Boa, where there is one of the last existing cottages built with cane which is now a fishermen's shelter and was in the past a common house of the people of the Delta, here you go through a narrow passage that takes you to the Punta Maistra lighthouse, you circumnavigate the Batteria island on the north-eastern side and then go up Busa Tramontana and get back to Pila.

### **The botanic garden of Porto Caleri**

In Porto Caleri a beach area of almost 24 hectares comprises dunes, depressions and lagoons, which the modelling forces of nature and biotic elements have created in over four centuries and that the Regional Forest Ranger Corps, with the contribution of the Department of Biology of the Padua University, has been able to valorise with shrewd cleaning up activities, the creation of didactic routes, the building of a Visitors' Centre.

## **THE FAUNA OF THE DELTA**

The Po Delta has a rich fauna and, being on the route of migratory bird, many species of swans, geese, ducks and waders transit and winter here.

In the last 50 years (since 1950) 344 bird species have been identified in the Delta, of which 86 of sedentary birds, 156 of nesting birds (of which 141 regular and 15 irregular), 281 of migratory birds (of which 255 regular and 26 irregular), and 185 of wintering birds (of which 144 regular and 41 irregular). Among the most important families there are: Pelecaniformes (Cormorant, Dabchick, Great crested grebe, Purple heron, Grey heron and Little egret); swans, geese and ducks (Greylag goose, Bean goose, White-fronted goose and Shelduck); rails (Water rail, Spotted crane, Crane); waders (Common snipe, Jack snipe, Black-tailed godwit, Sandpiper, Common Redshank, Curlew, Avocet, Black-winged stilt); birds of prey (Common buzzard).

### **RIVERS: characteristics**

The characteristics of a river are: the flow (quantity of water in  $m^3$  which passes through a section of a river every second), the outflow ratio (ratio between the flow and the quantity of water fallen on the hydrogeographic basin in form of rain or snow) and the regime (variation of the flow of a river determined by low water and floods: if the difference between the two flows is not relevant, the regime of the river is constant).

Along their course, from the sources to the mouth, the waters of a river carry out a triple action consisting in erosion, transportation and sedimentation. The rivers, depositing the debris, can fill seas and shallow lakes forming "alluvial" planes. Among these there are the Po Plane (once it was all Adriatic Sea), the Bengala plane, formed by the Gange and by the Brahmaputra, the mesopotamic plane, formed by the Tigris and the Euphrates. The length of a river depends in particular on the physical structure of the soil where it flows.

### THE RIVER PO

The Po, the ancient Eridanus, is the longest river in Italy, it rises at Crissolo, in Pian del Re (Plane of the King), at the foot of the Monviso mountain at an altitude of 2,022 m. It is over 650 Km long. Along its course, the Po receives water from 141 tributaries, the main ones are: Dora Riparia, Dora Baltea, Sesia, Tanaro, Bormida, Ticino, Olona, Adda, Taro, Oglio, Mincio, Secchia, Panaro. Its delta is 380 Km<sup>2</sup> wide and branches off in five mouths: Maistra Po, Pila Po, Tolle Po, Gnocca Po and Goro Po.

The hydrographic basin of the Po is the largest in Italy and has a surface of 74,970 km<sup>2</sup>.

The average flow of the Po is of approximately 1,560 m<sup>3</sup>/sec at the mouth, but it can even rise up to 8,900 m<sup>3</sup>/sec (Pontelagoscuro, June 1917). The maximum flow registered in Piacenza in November 1951 was of 12,800 m<sup>3</sup>/sec. In October 2000, the flow of the Po reached more than 13,000 m<sup>3</sup>/sec (Piacenza), exceeding the levels of 1951 which were matched in 1994.

### THE FLORA OF THE DELTA

As far as the flora is concerned, the Delta area is very rich: some of the stretches of the autochthonous woods have survived as in the Mesola Wood; holm-oaks, common oaks, poplars, ash trees, helms are very diffused together with hornbeams, privets, cornel trees and hawthorns.

Pinewoods of Roman origin and of the following periods can still be identified today. The oxbow lakes, the marshes, the canals, the expansion quarries welcome a very rich marsh vegetation, while the surface, especially if the water is still, is often covered by expanses of floating plants. The historical richness of the Delta is valorised by the presence of various fossil dunes, that extend parallel to the Romea State road; there are eight sand bars, corresponding to various ages that can be traced back to the Middle Ages, which create unusual natural environments, rare isolated woods and scrub areas in the middle of the countryside.

### THE SEA FLORA

At the boundary between earth and sea environment (coastline and supracoastline) the components of the flora are represented mainly by the so-called pioneer plants, that is plants that can adapt and resist in ecologically difficult or very changeable conditions (beach bindweed or marine bindweed, sea bells, sundrops, bulrush, juniper, ditch reed, tamarisk, false acacia, etc.).

In the more typically sea environment, especially on the lower levels (infracoastline and aroundcoastline), the flora is represented mainly by seaweed and secondarily by mushrooms, while the Phanerogamae are present only in two families belonging to the monocotyledonous Angiospermae.

### FISHING TOURISM: what is it?

According to article 3 of Legislative Decree No. 226 of 18/05/01, fishing tourism comprises all the activities connected to fishing, hospitality, catering, services, entertainment and culture aiming at the correct use of water ecosystems and of the resources of fishing, valorising the socio-cultural aspects of the fishermen's world.

### LATITUDE AND LONGITUDE: latitude and longitude of the Po Delta area

**latitude and longitude of the Po Delta area:** the Po Delta area and the plane between the river Adige and the Po are at a latitude of 45° 03' North and at a longitude of 12° 20' East.

**Latitude.** The latitude is the angular distance, measured in degrees and minutes (minutes = sixtieth part of a degree and seconds = sixtieth part of a minute), of a point from the Equator calculated on the meridian that passes through that point. The latitude corresponds to the magnitude of an angle having its vertex at the centre of the Earth, one side on the plane of the Equator and the other one passing through the given point; it can be North or South, according to whether the point is placed north (northern hemisphere) or south (southern hemisphere) of the Equator.

**Longitude.** The longitude of a point is the angular distance of said point from the Prime Meridian, measured in degrees and fractions of degrees. It is determined on the Parallels. The longitude corresponds to the magnitude of an angle having its vertex at the centre of the Earth, one side passing through the Prime Meridian and the other one passing through the given point; it can be East or West, according to whether the point is placed east or west of the Prime Meridian.

### INDUSTRIAL AND HISTORIC BUILDINGS IN THE PO DELTA

The most significant historic and industrial buildings, evidence of the working and economic activities of the recent past of the Po Delta territory are: the Pila lighthouse and ex military buildings belonging to it; Ca' Vendramin, Museum of Land Reclamation; the basin of the former connecting canal between the Goro Po and the Gnocca Po; dismantled draining pumps and still used ones with the belonging buildings; former sugar mill of Porto Tolle; Camerini Palazzo of Polesine Camerini; ESAV Palazzo of Boccasette; buildings on the Batteria island; old basin of Volta Grimana; Moceniga little church in Rosolina; rice cottages; furnaces.

### THE SEA: tides, tides and navigation

Tides are periodical rising (high tide) and declining (low tide) movements of the sea level. In the open oceans the difference between high and low tide is around 1.00 m; in shallow seas, near the coasts it can reach 2.00 m and in very narrow estuaries even 15-16.00 m.

Tides are more noticeable along flat coasts, because the waters come in onto the mainland for many km, as in the case of the Delta and the Venetian coasts.

Tides are caused by the pull of the Moon, and to a lesser extent, of the Sun.

Tides caused by the Sun are less evident, 2/5 of the ones of the Moon, owing to the distance of the Sun from the Earth, a distance that is 390 times more than the one of the Moon. We have high tide when the Moon passes the meridian of a place and low tide when the Moon passes on the meridian situated at 90° from the first.

The maximum intensity of the tide occurs when the Moon and the Sun are aligned with the Earth, because their pulling forces are summed together.

Tides occur every 24 hours and 50 minutes: the sea level rising phase lasts around 6 hours and a quarter, the same for the ebbing phase. Actually, there is always a certain delay

between the moment when the Moon is exactly over the meridian of a place and the moment when high tide is registered. To know this delay, called '**Port Hour**', is fundamental for ships that use high tide to get in and out of the ports.

**Tides and navigation.** In some seas, like the Mediterranean, tides are not very evident and therefore they do not influence navigation and port access, with some single exceptions. The populations of the Mediterranean coasts are not conscious of the importance of tides, to the extent that they hardly take this phenomenon into consideration.

### THE MEDITERRANEAN SEA: characteristics, the Adriatic Sea

**Characteristics.** The Mediterranean Sea is an intercontinental sea surrounded by Europe, Africa and Asia. Its surface measures approximately 2.5 million Km<sup>2</sup> and it is about 6,000 Km wide.

The Mediterranean is the "closed sea" par excellence and is connected to the west with the Atlantic Ocean through the Strait of Gibraltar, to the east with the Black Sea and the Sea of Marmara through the Dardanelles and the Bosphorus. The Suez Channel in the south connects the Mediterranean to the Red Sea.

**The Adriatic Sea.** The Adriatic Sea is a long half-closed basin with a more or less rectangular shape, between the Italian peninsula, Slovenia, Croatia, Montenegro and Albania; it fills the depression between the Apennines and the Dinaric Alps with a length of around 800 Km, an average width of 150 Km and a surface of 132,000 Km<sup>2</sup>. In the south it flows into the Ionian Sea through the Otranto Channel (70 Km).

### METEOROLOGY: weather forecast

If we divide the plane of the horizon in 4 quadrants of 90° each and pull within these quadrants other four equidistant intermediate lines, the horizon results divided into 8 winds of 45 degrees each, that in Italy are called Tramontana (North wind), Greco or Grecale (Northeast wind), Levante (East wind), Scirocco (Southeast wind), Ostro or Mezzogiorno (South wind), Libeccio (Southwest wind), Ponente (West wind) and Maestrale (Northwest wind).

In order to forecast short-term changes in weather conditions it is sufficient to observe the direction of the wind, the barometer and the sky, in particular the shape of the clouds and how they follow each another.

The *Tramontana* brings dry weather; the *Greco* or *Grecale* generally brings good, slightly cold weather; the *Scirocco* always brings humid and rainy weather. The *Levante*, the wind between the Greco and the Scirocco, varies, and therefore the barometer will tell us whether it is more likely to turn into Greco and bring good weather or into Scirocco and bring rain. The *Mezzogiorno* has more or less the same characteristics of the southern winds, that is it brings hot and rainy weather. The *Libeccio*, is a strong wind which is almost always connected to bad weather. The *Ponente*, especially when it is moderately strong, generally brings good and stable weather. The same for the *Maestrale*, which brings dry weather.

The observer should also keep in mind the development of temperatures, the movements of the clouds and especially the changes in the wind direction, as a depression is announced by the drop in pressure but also by the rise in temperatures and in relative humidity. In any case, thunderstorms are announced by signs such as the drop in pressure, accompanied by suffocating sticky heat; the sky is initially covered by ciruses, light very high white clouds that we think are made of very thin ice needles, the so-called "fleecy (or mackerel) sky", followed at a short distance by intermediate clouds and finally by characteristic cumulonim-

buses, which are dense, dark, thunderstorm clouds.

## SEA KNOTS

In the marine field the art of knotting is very developed. In fact, the number of knots created and used in this sector is extremely high.

All knots, from the most simple to the most complex, have in common certain basic elements:

- *bight*: rope folded in a U-shape;
- *turn*: turn of the rope so that the two parts overlap in the point of contact;
- *hitch*: continuation of the turn which is achieved taking the two extremities of the rope on the same side;
- *crossing*: it is obtained starting from a turn, slipping one of the extremities of the rope in the eye;
- *running rope*: extremity of the rope where the knot is tied;
- *sleeping rope*: part of the rope which is not used for the knot.

## DELTA REGIONAL PARK

A great contribute to the unique character of the environment of the Delta is surely given by the Delta Regional Park with its 12,000 hectare surface, created with the Veneto Regional Law No. 36 of 08/09/1997 and head offices in Ariano nel Polesine, Via G. Marconi 6, Tel. 0426/372202.

Besides, it must not be forgotten that also the Emilia Romagna Region established in 1988 its own regional park in the territories of the Provinces of Ravenna and Ferrara with head offices in Comacchio (Ferrara), Via Cavour 11, Tel. 0533/314003.

A real flora and fauna patrimony is present in this environment protected by these two parks, the one of the Veneto Region and the one of the Emilia Romagna Region.

The municipal districts of the Delta that are inside the park are all in the Province of Rovigo and are: Rosolina, Porto Viro, Ariano nel Polesine, Taglio di Po, Porto Tolle and, only partly, Adria, Loreo, Corbola and Papozze.

The areas within the boundaries of the park are: the main course of the river Po (Venice Po and Pila Po); the Dunes of Ariano Polesine (San Basilio Dunes) and of Porto Viro; 50% of the extension of the valleys of the Po Delta; the area south of the Pila Po, with the exclusion of the Basson Lagoon; the Ca' Mello Oasis and the Bonelli biotype; the Bacucco Area on the border with the Province of Ferrara; the area of the submerged banks, with the exclusion of their perimeter for a length of thirty metres.

## FISHING: fishing licences, fishing in inland waters and inland sea waters of the Province of Rovigo, off-limit areas, fishing of bivalve molluscs, prohibited fishing, use of baits or groundbaits, quantities allowed, tackle

### **Fishing licence.**

- 1) In Italy it is necessary to have a regular fishing licence. This is a renewable document, that cannot be transferred to other people and that the fisherman has to have always with him when he goes fishing.
- 2) The State, the Regions, the Town councils or the Provinces can restrict certain river stretches, torrents, canals, lake areas etc. through special laws that establish a "fishing preserve". To fish in these preserves it is necessary to have besides the licence also a special permit.
- 3) Every preserve is regulated by its own fishing norms. It is recommendable to go to a fish-

ing equipment shop in the area where one wants to go fishing and ask for the necessary informations on local norms or to obtain additional documents.

**Fishing in inland waters and inland sea waters in the Province of Rovigo.** The Regulation that disciplines fishing activity was passed by the Provincial Council of Rovigo under the No. 93/33474 on 27/11/1998 and subsequently modified with other regulations.

Fishing comprises all activities aiming at the capture of fish species, molluscs and/or shellfish.

Fishing is permitted in the ways and in the periods and with the tackle set out by the above mentioned Regulation.

The Province of Rovigo, as far as fishing is concerned, is divided into two areas:

the ZONA CIPRINICOLA (Cyprinid area, area B) which comprises all the waters from the borders with the Provinces of Verona and Mantova to the State road Romea;

the ZONA SALMASTRA (Brackish area, area C) which comprises all the waters on the other side of the State road Romea.

To the purposes of fishing, the inland waters of the Province of Rovigo within the B and C areas are classified in:

*main waters* (river Po and its branches, Adige, Tartaro, Canalbianco, Levante Po, Brondtolo Po, Loreo Canal, brackish water adduction and discharging canals to and from the Enel thermic power plant of Polesine Camerini),

*secondary waters* (all the inland waters not comprised in the main ones) and

*inland sea waters* (Caleri, Levante and Vallona lagoons, Barbamarco, Basson, Canarin, former Donzella Island and Scordovari loops, waters between the Pila Po and Busa Tramontana and waters between the Goro Po mouth and the outlet of the Donzella Po, which meet the sea in Bacucco).

**Off-limit areas.** It is forbidden to fish from the top of or underneath bridges. Moreover, fishing is forbidden at a distance under 10 m (calculated as the crow flies upstream, downstream, in front and at the back) from fish breeding stairs, trellises, hydraulic facilities, dams, draining pumps, gully-holes for the passage of supply waters, outlets of rivers, bridges, even if not finished, and their arches. The distance to be respected refers not only to the position of the fisherman, but also of the bait and of the fishing tackle used. (These prohibitions do not apply to disabled people with permanent limited walking ability, as long as the fishing activity does not entail any risk for road traffic).

**Bivalve mollusc fishing.** The amateur sport fisherman residing in the Province of Rovigo with "B" or "C" licence or fishing permit according to article 10 of Regional Law No. 19 of 28/04/98, is allowed to gather daily in lagoon waters where fishing is not prohibited, helping himself only with his hands, one kg of bivalve molluscs to be used exclusively as bait for the capture of fish.

**Prohibited fishing.** It is always forbidden to fish moving the river-beds or the lake-beds, using jerk fishing methods with fishing rod or hand line with ripper or other tackle and using light sources to attract fish. Moreover it is prohibited to fish with bare hands, with the exception of the case provided for by article 25 of the Provincial Regulation.

It is forbidden to use dynamite or other explosive, toxic or polluting materials as to kill and stun fish. It is moreover prohibited to use electric power, with the exception of the recovery of water animals in case of total and partial drying-up of basins and rivers and of scientific authorised fishing. It is forbidden to throw or spread in the water substances to benumb, stun or kill the fish.

**Use of baits or groundbaits: possible prohibitions.** It is permitted to use natural and artificial baits for fishing, with the exception of fish eggs or their imitation, blood and its

by-products, as well as animal entrails.

From 15<sup>th</sup> May to 30<sup>th</sup> June it is prohibited to use and keep in the place where one is fishing maize and other cereals and their by-products.

Each fisherman can hold and use for one day no more than 1 kg of flesh fly larva in main waters and no more than 0.5 kg in secondary waters, as well as 2 kg of groundbaits made of vegetable substances and animals in main waters and 1 kg in the secondary ones. For competitions and sport fishing events, the exceeding of the bait and groundbait quantities allowed has to be expressly set out in the authorizations.

The use of flesh fly larva is prohibited in inland sea waters.

The use of alive bait, with the exception of crucian for the sole fishing of sheatfish, is permitted exclusively with the use of autochthonous fish species present on the provincial territory, as identified in the Fish Chart.

**Quantities allowed.** The amateur sport fisherman can catch up to 5 kg of fish per day, even if belonging to different species, except for the case in which this limit is exceeded by the last fish caught.

### **Tackle.**

#### **Natural baits for fishing in freshwater**

There are various categories of natural baits:

small fish: daces, gobies, bleaks, loaches, minnow, small rudds;

amphibians: frogs, salamanders and newts;

earth insects and their larva; grasshoppers, beetles, dragonflies, mayflies, moths, caterpillars, white worms woodworms, honey larva, flesh fly larva, etc...;

water insects: various nymphs, dragonfly larva, midges, etc...;

shellfish: prawns;

worms: water worms, earthworms, millipedes;

molluscs: water slugs (snails), freshwater mussel or anodonts etc...;

#### **Artificial baits**

Artificial baits are in general small tools built artificially with the shape of all that, at the natural state, can be a bait: insects, larva, small fish, frogs, etc...

We mention some particular baits such as the "Cossack", a small artificial fish with a hook on its head used for trolling; spoons, used in casting; devons, fuse-shaped baits with small helical wings and a ripper like a tail; plugs, fuse-shaped baits with a ripper but without the little helical wings.

#### **Groundbaits or feeding**

Substances that are able to attract the fish by gradually dissolving in the water, used to lay out the fishing place.

Groundbaits are usually prepared with more or less consistent mixtures and compounds of various substances, according to the waters where one wants to fish and to the fish one wants to catch.

The main feeding substances are: bran, maize flower, wheat flower, corn, barley, cooked broad beans, boiled potatoes, grated bread, soft part of the bread, soft cheeses, grated cheese, silkworm chrysalis flower, minced worms, flesh fly larva.

### *The most common fishing techniques*

#### **Bottom fishing**

It is practised in calm waters, lakes, oxbow lakes or defiles. It can be used to fish almost all kinds of freshwater fish except from predators such as pike. This technique is particularly used to target fish such as eel, carp, tench and brown bullhead.

In bottom fishing the fishing line is kept on the bottom of the water by means of a leaden ballast, whose size depends on the current speed. While fishing in running waters a sinker shaped as a bar of soap has to be placed at the end of the fishing line and fixed with a pulley. In still waters instead it is better to use a sliding sinker which enables the line to slide easily, so that the fish rising to the bait will not perceive any resistance.

If you are aware of any obstacles lying on the bottom of the water, you are advised to use a rig with the hook placed before the sinker. The latter will settle onto the bottom and will avoid that the hook gets entangled.

Heavy fishing equipment is needed, namely casting rods and sound fishing reels. Friction has to be carefully regulated, as the preys are very often heavy and tenacious.

After casting, the sinker will drag the bail onto the bottom. Now draw a tight line and place the rod on the rod holder, so as to keep it in line with the water as long as possible.

### **Float fishing**

The float should have the following characteristics: Maximum sensitivity, minimum visibility for the fish and maximum visibility for the fisher. It is shaped as a fine-tipped antenna in case of still-water fishing and as a pear or a spinning top in case of current-water fishing, which requires greater stability.

It is advisable to use a float with a ballasted line only in case of strong current, as it is not suitable for stillwater fishing.

The sinker has to be placed so as to balance the float and keep it upright and plunged for at least four fifths of its length. The plummets have to be placed as close as possible to the float, so as to eliminate any obstacles that may hinder the fish's approach to the line. In rough waters it is advisable to use a series of little plummets of different size, instead of using a single plummet. The plummets' size should decrease from the surface to the bottom and they should be placed at a distance of 5 cm one from the other.

The rod has to be well-balanced. It shouldn't be either too stiff not too flexible.

Before starting fishing, you need to measure the water depth with a sounding line and check for any obstacle lying on the bottom. Afterwards the float is regulated so that the hook skims over the bottom. In running waters cast the line upriver and pull it gently against the stream, following the descending movement of the float, so that the bait can slide onwards.

The fish can take the bait at variable depths, therefore if, you do not perceive for a long time any attempt of the fish to bite, try to lower the bait and lift it up again by 5-10 cm until it you find the best position.

When the float starts vibrating and swinging just before sinking onto the bottom, it means that the fish has taken the bait. Now grip the rod firmly, twist your wrist and lift the rod.

If instead of sinking, the float lies in a horizontal position, it means that the fish tends to rise to the surface after having taken the bait. Strike immediately.

After stretching the line along the surface for as much as its length and the rod's length allow it, retrieve the line gently and cast it again upriver.

It is advisable to pre-bait the fishing area with the suitable baits. If no fish takes the bait for a long time, change your fishing area.

Make sure that the sun never shines behind your shoulders, as it would project your shadow onto the water. Keep at a certain distance from the bank.

### **Casting**

This fishing method consists in casting the line so as to place the bait (usually an artificial one) on the desired spot and retrieve soon after that.

Fish pay much attention to what happens around them and are sensitive to the glares and



the vibrations caused by small items flowing on the water. Predators in particular tend to chase and bite an object moving fast in the water in an unusual way.

The weight of the bait depends on the rod power and on the line section.

### **Trolling**

This fishing method is generally used in wintertime to target large predators. It requires casting equipment and a small dead fish used as a bait. The trolling rig consists in an oval sinker on which the nylon thread spins, which is fastened to the hook with two or three points and has to be fixed to the sinker. The hook is stuck into the head side, rather than in the tail.

Cast the bait upright till it falls onto the bottom and retrieve jerkily using the tip of your rod.

### **Paternoster line fishing**

This fishing technique is practised with a boat, to whose side a large reel is fixed. A 50- 100 m long line, called *paternoster line*, with a suitable sinker is wound around the reel. 5 to 20 brackets hung from the rod. They are some metres long and end with a spinning spoon.

Start dipping the paternoster line into the water about 20 metres away from the fishing area you have chosen, at the most suitable depth. The boat driver should regulate the speed so that the artificial baits simulate the movements of a shoal of living fish.

When the line starts being pulled down, it means that a fish has taken the bait and is now trying to get free. Now it is time to sail: rewind the line using the special handle situated on the upper part of the reel until the fish is at water level. Take the line with your hands and lift the fish aboard.

### **Fly fishing**

This technique involves the use of a line with a float mounted on its tip and a series of flies wound around a number of secondary hooks floating on the surface or just below it.

The equipment includes casting rods about 2.8 to 3 m long, with a 18-22/100 line ending with a float and a sinker. The artificial flies are mounted on 1-1,5 cm hooks and are placed at about 40 cm from the float, generally at a distance of 50 cm one from the other. The joint of the hook and the line has to form a right angle and this position has to be kept while fishing too, otherwise the fly proves inefficient.

The rod has to be kept so as to allow the line to be straight and the flies have to float on the surface or just below it.

When the rod is gently pulled down or a circle appears on the surface around the spot where the fly floated, it means that the fish has taken the bait. Strike immediately.

The best period to practice this fishing technique ranges from April to October, at dawn and in the late afternoon.

### **Nymph fishing**

Nymph fishing also consists in using a line with a series of hooks around which artificial baits (moths and nymphs) are wound but, unlike fly fishing, such baits are used to fish on the bottom of the water. The nymph line ends with a leaded float called *dead drift*. A number of hooks with artificial nymphs are mounted on the line. This system is also called *pesca a piombo lungo* (fishing with a long sinker).

### **An outline on sea fishing**

Two factors distinguish sea fishing from freshwater fishing: first the size and the characteristics of the fish and secondly the influence of tides on fish. In some areas, fish takes the bait more easily when the tide rises, in other areas the opposite is true.

Seagulls and other sea fowl diving into the sea show the presence of bait fish. Predators generally hunt on the bottom but run up when attracted by the remains of the fish they feed on.

Natural baits are used more frequently than artificial ones. The equipment includes casting rods, whose weight depends on the kind of fish to be targeted.

### **Surf casting**

Surf casting can be practised in a broad range of places.

rocky promontories, in the presence of sea tides;

mouth of a watercourse, with a high number of small fish dragged into salted water by the stream;

rocks, cliffs with rows of molluscs near the shore;

a tideway or channel more or less deep between the shore and the shallows created by the waves breaking against the coast;

the head of a rocky pier, especially when the tides fill and empty of water an internal bay.

## **PROFESSIONAL FISHERS AND FISHING TOURISM**

**Professional fishers.** The law considers professional fishers those fishers who fish in internal public waters and in private waters communicating with public waters and all those who fish in the above mentioned waters as their sole or main working activity.

Amateur or occasional fishers are those practising fishing in a different way from the one described above.

Sea fishers are professional fishers who carry out any activity aimed at capturing with any means species whose usual or natural habitat is the sea.

**Fishing tourism.** Fishing tourism is a new type of tourism aimed at establishing a contact with the environment and with the typical working activities which are carried out in that context. It is a new form of tourism in Italy, as there are no previous examples of it in this country.

It is the activity carried out by a single fisher or by groups of fishers - ship owners of local inshore fishing who take aboard people who are not crew members in order to carry out tourism and entertainment related activities.

**It is not carried out only by companies, ship owners or cooperatives, but also by professional fishers.** The opportunities that are currently available focus only on pleasure tourism: a one-day or more-day excursion along the course of the Po river and or in the Delta, always with a guide and with no reference to the working activities in the area, or a sea trip for recreational fishing or entertainment and sports fishing.

Thus it is not an opportunity offered to tourists by a fisher, but by an entrepreneur working in the tourist sector, by a ship owner taking on board people who are not members of his crew to carry out tourism-related and recreational activities.

**Laws on fishing tourism** According to the provisions of the parliamentary decree no. 293 dated 13<sup>th</sup> April 1999, only the following activities can be described as fishing tourism activities:

- activities related to sports fishing using the fishing methods envisaged and outlined in the fishing license.

Trawling is not allowed and trawlers having the equipment and the license for this kind of fishing are not allowed to use them. In order to practise fishing tourism, the fisher has to get off at the Maritime Department where the fishing boat is registered, get a certificate and have his trawling equipment sealed.

- tourism-related and recreational activities aimed at spreading information about the sea and fishing, such as inshore trips and professional-fishing observation, as well as refreshment on board or on land;

- activities aimed at enhancing coast environment on the basis of an authorization of the

Region for internal waters.

The fore-mentioned activities can be carried out all year round, when the weather conditions at sea are favourable and only during daytime, excepting for night activities undertaken within 6 sea miles only for those equipped with boats authorized to perform local coastal fishing and within 20 sea miles only for those equipped with boats authorized to perform inshore coastal fishing.

Boat owners are required to take back their passengers to the home port or to take them, if necessary, to another landing site of the department in question.

A maximum of 12 people can be embarked for fishing tourism activities.

Children under 14 years of age can be embarked only if accompanied by adults.

**Necessary authorizations to carry out fishing tourist activities.** In order to practise fishing tourism you need the authorization of the head of the sea department of the area in which the boat was registered. The application must be submitted along with the following documents: a) a copy of the boat security register; b) a copy of the stability test and/or a copy of the occasional stability test; c) a copy of the security register for the practice of fishing tourism only. The authorization for the exercise of the activity in question is released in the light of the security controls carried out by the subsidiary offices and the practical stability test carried out by the Italian Naval Registry (RIINA).

The security equipment envisaged by decree no. 293 dated 13<sup>th</sup> April 1999 includes life preserver, VHS, fire extinguishers and so on.

An insurance cover with a suitable policy against civil risks for the passengers is also necessary for fishers willing to undertake fishing tourist activities.

**Fishing tourism infrastructures.** There are 12 tourism berths along the Po river and in the Delta area.

There are also a number of typical fishing cottages (for example Cason Ravagnan in Valle Ca' Pisani and Casonetto di valle in Rosolina) where you can still eat - by prior booking only - newly caught fish. Other fishing cottages could be equipped to host tourists after some minor repairs.

## **FISH YOU CAN CATCH IN THE DELTA: characteristics, baits, fishing techniques, periods and places**

The species of fish which can be and are generally caught in the Delta from spring to late November are: bass, eel, plaice, grey mullet, sole and lagoon crayfish.

A precise minimum size is set for each fish under which fishing is not allowed.

Some thirty fish which can be caught in the Delta area are described below in alphabetical order, including the main fishing methods and fishing limits for each species.

Apart from freshwater fish, there are fish who can live both in freshwater and in salted water. They can swim into freshwater from the sea without being affected from it.

These fish are called *euryhaline* and fall into two categories: *anadromous* and *catadromous* fish.

*Anadromous fish.* This category includes sturgeon and twaite shad, which once a year migrate to freshwaters to lay eggs and then swim back to the sea.

*Catadromous fish.* An example or catadromous fish are eels, which settle down in freshwater at a young stage, then, after reaching the sexual maturity, swim back to the sea to breed and die soon after that.

There are also intrusive *euryhaline* fish (like mullet and plaice), which are classified as marine species and move continuously from and to freshwater.

There are also fish which migrate into freshwater only sometimes: bass, gilthead bream, rhombus, sole and some types of shellfish (mollusc and crustacean).

#### 1- ADRIATIC STURGEON (*Acipenser naccarii*)

**Order:** Acipenseriformes

**Family:** Acipenseridae

**Autochthonous species**

**Minimum size limit:** none

**Period in which fishing is not allowed:** All year round.

**Project for the rehabilitation of the populations of Adriatic sturgeon**

The Adriatic sturgeon, like the other autochthonous species of sturgeon (the beluga sturgeon and the common sturgeon) is a protected species because it is on the edge of extinction. Therefore the Provincial Administration of Rovigo and the Consortium of Fishers' Cooperatives of the Polesine Producers' Organization launched a project in the framework of the Territorial Fishing and Agriculture Agreement of Rovigo funded with CIPE resources aiming at repopulating and rehabilitating the Adriatic sturgeon in the Polesine water. Therefore Adriatic sturgeon fishing is strictly forbidden.

#### 2- BARBEL (*Barbus barbus plebejus*)

**Order:** Cypriniformes

**Family:** Cyprinidae

**Autochthonous species**

**Minimum size limit:** 20 cm

**Period in which fishing is not allowed:** from the 1<sup>st</sup> of May to the 15<sup>th</sup> of July

**Description:** It is greenish brown with black spots on the back and a golden hue on the flanks, while its belly is whitish. It can be up to 60 cm long and can weigh up to 4 kg.

**Baits:** Earthworms, tallow worms, prawns, caperers, mixes of cheese and meal of silkworm pupae. The best bait is the pearl larva.

**How it takes the bait:** the barbel bites firmly with two or three strikes, then swallows the bait.

**Fishing methods:** with fixed rods with a spinning float or bottom float fishing. Pre-baiting is advisable.

#### 3- BLEAK (*Alburnus alburnus alborella*)

**Order:** Cypriniformes

**Family:** Cyprinidae

**Genus:** Alburnus

**Autochthonous species**

**Minimum size limit:** none

**Period in which fishing is not allowed:** none

**Description:** Its back is greenish brown, while its belly and flanks are silvery. It can be up to 15 cm long and can weigh up to 20 gr. It feeds on micro organisms, maggots and insects. It attacks its preys firmly starting from the bottom.

It takes the bait all year round.

**Fishing methods:** Midwater float fishing, using pieces of earthworms and meat-fly larvae as baits mounted on two, three or more hooks smaller than 16-20; float fishing with live or artificial flies.

#### 4- BREAM (*Abramis brama*)

**Order:** Cypriniformes

**Family:** Cyprinidae

**Allochthonous species**

**Minimum size limit:** none

**Period in which fishing is not allowed:** none

**Description:** Its maximum length is 70 cm, while its maximum weight is 5-6 kg. It feeds on insect larvae, annelids, crustaceans and small molluscs.

5- BROWN BULLHEAD (*Ictalurus melas*)

**Order:** Siluriformes

**Family:** Ictaluridae

**Allochthonous species**

**Minimum size limit:** none

**Period in which fishing is not allowed:** none

**Description:** Its colour depends on its habitat. It is usually dark and purple on the back and light grey on the belly. Its fins are dark. It can be up to 45 cm and can weigh up to 1.5 kg.

**Fishing methods:** This fish is usually captured with line and float or bottom fishing

**Baits:** earthworm, red mud worm, meat-fly larvae, leeches, chicken bowels, small dead fish.

**How it takes the bait:** The brown bullhead takes the bait slowly. The sign that the fish has swallowed the bait is a series of slight movements of the float, before the latter sinks suddenly.

6-CARP (*Cyprinus carpio*)

**Order:** Cypriniformes

**Family:** Cyprinidae

**Allochthonous species**

**Minimum size limit:** 30 cm

**Period in which fishing is not allowed:** from the 15<sup>th</sup> of May to the 30<sup>th</sup> of June

**Description:** Colours change according to the carp's habitat. The carp's back is generally brown-olive and its flanks are yellow, the lower parts are light yellow. It can be up to 130 cm long and can weigh up to 45 kg.

**Fishing methods:** *Bottom fishing* is the most suitable technique.

**Baits:** earthworm mounted on the hook or vegetable mixtures made of thick maize porridge, potatoes etc. Other baits: meat-fly larvae, maize or corn seeds.

**How it takes the bait:** carp plays with the bait for some time, swimming around it with mistrust. It will swallow the bait only after having examined it thoroughly.

7-CHUB (*Leuciscus cephalus*)

**Order:** Cypriniformes

**Family:** Cyprinidae

**Autochthonous species**

**Minimum size limit:** 20 cm

**Period in which fishing is not allowed:** none

**Description:** Its eyes are golden yellow and large. Its back is greenish grey and its flanks are yellow-white and it has a silver belly.

It can measure up to 60 cm and weigh up to about 4-5 kg.

**How it takes the bait:** when it takes the bait, the float sinks very quickly. Strike immediately for your fish before the float re-emerges.

**Baits:** meat-fly larvae, red worms, caperers, larvae of every other type, insects (crickets, grasshoppers, may bugs, potato beetles, ladybirds, bees, etc.), lampreys and molluscs.

**Fishing methods:** float fishing; bottom fishing; on the surface and with natural insects; artificial fly fishing; casting.

### 8-DACE (*Chondrostoma genei*)

**Order:** Cypriniformes

**Family:** Cyprinidae

**Autochthonous species**

**Minimum size limit:** 15 cm

**Period in which fishing is not allowed:** from 15th April to 30th May

**Description:** Its back is greenish grey and its belly is silvery. Its fins are grey with red or orange shades. It can be up to 25 cm long and can weigh up to 330 gr.

**Fishing methods:** See chub.

### 9- DANUBE ROACH (*Rutilus pigus*)

**Order:** Cypriniformes

**Family:** Cyprinidae

**Autochthonous species**

**Minimum size limit:** 25 cm

**Period in which fishing is not allowed:** from the 1<sup>st</sup> of May to the 15<sup>th</sup> of July

**Description:** It has a greenish back, golden yellow flanks and a silver belly. It generally is up to 30-40 long and weighs up to 1-1.5 kg.

**Baits:** vegetal baits: bread, hemp seed, curly endive, thick maize porridge, maize. Animal baits: fly larvae, relatively small mud worms, meal larvae and caddis-flies. Artificial baits: hooks covered with coloured sheaths and small flies.

**Fishing methods:** float fishing.

### 10- EEL (*Anguilla anguilla*)

**Order:** Anguilliformes

**Family:** Anguillidae

**Autochthonous species**

**Minimum size limit:** none

**Period in which fishing is not allowed:** none

**Description:** Maximum length is 120-130 cm, female eel can sometimes reach a maximum length 220 cm. Eel can weigh up to 2,5 kg.

**Fishing methods:** Strong rods are to be used. The most efficient fishing method is to let the bait skim over the bottom.

It is advisable to start with long castings and continue with shorter castings when the eel approaches the bank, where it is easier for it to find some food. Earthworms are the best baits and need to be mounted on hooks from no. 7 to no. 4.

**How it takes the bait:** Eel takes the bait very firmly, pulling the tip strongly. Before *striking* you should wait for the eel to pull at least three times.

### 11- EUROPEAN ROACH (*Rutilus erythrophthalmus*)

**Order:** Cypriniformes

**Family:** Cyprinidae

**Autochthonous species**

**Minimum size limit:** none

**Period in which fishing is not allowed:** none

**Description:** Its colours are variable: its back is olive brown, its flanks are silvery white with a dark strip. Maximum length: 16-20 cm.

**Fishing methods:** common lines with red earthworms as baits.

## 12-FLATHEAD GREY MULLET (*Mugil cephalus*)

**Autochthonous species**

**Minimum size limit:** 20 cm

**Period in which fishing is not allowed:** none

**Description:** The flathead grey mullet has a slim figure, with a short and flat head, a double dorsal fin, the first of which has 4 thorny rays. Its background colour is silver grey with hues varying according to the species.

**Fishing methods:** 1. with rod and a line in running water (float fishing); 2. bottom fishing with anchored lines.

**Baits:** worms, bread or pasta, sardines.

## 13-FRESHWATER GOBY (*Padagogobius martensi*)

**Autochthonous species**

**Minimum size limit:** none

**Period in which fishing is not allowed:** none

**Description:** Its colours vary. It is generally brown-green, with a whitish or yellowish belly. It can have darker spots on the back and on the flanks. It can be up to 8-10 cm long and weigh up to 12-15 gr.

**Baits:** meat-fly larvae.

**Fishing methods:** midwater bottom fishing.

## 14-GOLDFISH (*Carassius auratus*)

**Order:** Cypriniformes

**Family:** Cyprinidae

**Allochthonous species**

**Minimum size limit:** none

**Period in which fishing is not allowed:** none

**Description:** in some cases it can be up to 45-50 cm long and weigh up to 1,8 kg.

Its colours range from golden grey to golden red.

**Fishing methods:** Goldfish can be captured with *bottom fishing* using light equipment.

**Baits:** worms, maggots or bread crumbs mounted on the hook as *flakes*.

## 15-GRAYLING (*Thymallus thymallus*)

**Order:** Clupeiformes

**Family:** Thymallidae

**Autochthonous species**

**Minimum size limit:** 35 cm

**Period in which fishing is not allowed:** from the last Monday of September to the first Saturday of March

**Description:** It is greenish brown on the back and silvery grey on the belly. Small black spots are visible on its flanks. It is generally 20 – 30 cm long and weighs about 250-300 gr.

**Baits:** insects, meat-fly larvae and other small-seized maggots.

**Fishing methods:** fly fishing, nymph fishing and casting.

## 16-GUDGEON (*Gobio gobio*)

**Order:** Cypriniformes

**Family:** Cyprinidae

**Autochthonous species**

**Minimum size limit:** none

**Period in which fishing is not allowed:** All year round.

**Description:** Its back is green-grey, its belly silvery white and it has grey spots on the flanks.

It can be up to 15 cm long and can weigh up to 100 kg.

**Baits:** tallow worms, red earthworms, meat-fly larvae.

**Fishing methods:** The rod shouldn't be too long, light or flexible. You can fish it with or without a float. If you use a float, cast the line and leave it drift for quite a long time before starting to retrieve it. When the fish takes the bait, the tip starts to move very nervously.

#### 17- ITALIAN NASE (*Chondrostoma soetta*)

**Order:** Cypriniformes

**Family:** Cyprinidae

**Autochthonous species**

**Minimum size limit:** 20 cm

**Period in which fishing is not allowed:** from the 1<sup>st</sup> of May to the 15<sup>th</sup> of July

**Description:** Its back is greenish grey with a silver hue on the flanks, which are covered with small black spots. Its belly is white. Maximum length: 45 cm; maximum weight: 1.5-2 kg.

**Baits:** earthworms, insects, larvae.

**Fishing methods:** float fishing; bottom fishing.

#### 18- LARGE-MOUTHED BLACK BASS (*Micropterus salmoides*)

**Order:** Perciformes

**Family:** Centrarchidae

**Allochthonous species**

**Minimum size limit:** none

**Period in which fishing is not allowed:** none

**Description:** Its back is brown - green and its belly is always whitish. A series of spots are visible on its flanks which can join and form a dark uninterrupted stripe. Maximum length: 60 cm; maximum weight: 3-4 kg.

**Fishing methods:** float fishing at different depths, with very thin rigs and a sensitive and light float, mounting a large black earthworm or other live baits. Do not strike too soon.

All kinds of casting can work, including artificial fly casting. In this case the fish tends to reject the bait immediately after biting. It is therefore better to strike immediately.

#### 19-LEAPING MULLET (*Liza saliens*)

#### 20-MOLLUSC

**Carpet shell clam.** Carpet shell clam is a mollusc whose shell is made up of two separated but identical parts, called valves (bi-valves), which are joined together with a ligament hinge. Each valve is oval, without any indents on the edge. It is characterized externally by concentric and radial circles marking the clam's growth and ending with a thicker edge.

**Veined rapa whelk.** Veined rapa whelk (*Rapana venosa*) is a large gastropod mollusc of the miricidae family, originally living in the Indopacific region. It has a beautiful spiral shell, which can be some centimetres long.

**Mussels.** Mussels are bi-valve molluscs (the shell is divided into two identical parts called valves). The mussel's shell is made of calcium carbonate, which the mussel absorbs directly from the sea water. This species can be up to 11 cm long. It reaches its market size (about 6 cm) in 14 months. Its average life expectancy is about 4 years. The external shell is black or violet - black. Its internal colour is pearly, while the edge of its pallium is violet or purple.

**Bivalve mollusc fishing** Excerpt from the Fishing regulation of the Rovigo province: "*in internal seawaters which are not characterized by fishing "sole rights", amateur and sports fishers living in the Rovigo province who own a fishing licence of type "B" or "C" or the authorization mentioned in art. 10 of Regional Law no. 19, dated 28th April 1998, are allowed to gather (using their hands only) in the lagoon areas where no fishing is practiced*



one kilogramme of bivalve molluscs per day to be used only as baits for fishing purposes”.

**21-MOSQUITOFISH (*Gambusia holbrooki*)**

**Order:** Cyprinodontiformes

**Family:** Poeciliidae

**Allochthonous species**

**Minimum size limit:** none

**Period in which fishing is not allowed:** none

**Description:** The background colour is greenish grey. Dark cross strips can be found on the caudal fin. In fertilized female fish a back spot is visible in the lower part of the belly. Maximum length: 3 cm for male, 7 cm for female. **It is not interesting for anglers.**

**22-PIKE (*Esox lucius*)**

**Order:** Clupeiformes

**Family:** Esocidae

**Autochthonous species**

**Minimum size limit:** 45 cm

**Period in which fishing is not allowed:** from the 1<sup>st</sup> of January to 15<sup>th</sup> of April

**Description:** It is generally brown or green, with yellow spots and a silver belly. It can reach a maximum length of 130 cm and weigh up to 25 kg.

**Baits:** The best bait is live fish: bleak, goldfish, little chub, goby.

**Fishing methods:** float fishing with a free line; float fishing with anchored line; casting, bottom fishing, trolling. The equipment should be very robust.

**How to lift it aboard:** On board it is advisable to use a gaff or a hook which has to be inserted under the pike's throat or in its gills in order to lift it aboard. Attention: never bring your fingers near the fish's mouth. It is advisable to kill the fish with some blows on its head and use a pike gag to remove the hook.

**23-PLAICE (*Pleuronectes flesus*)**

**Order:** Pleuronectiformes

**Family:** Pleuronectidae

**Autochthonous species**

**Minimum size limit:** 15 cm

**Period in which fishing is not allowed:** none

**Description:** It has a brown - olive colour, sometimes with dark, almost black spots. Its maximum length is 50 cm, but generally it doesn't exceed 35-40 cm.

**Baits:** earthworms or sea worms; meat-fly larvae.

**Fishing methods:** The most suitable technique is bottom fishing, but with some movements: the line has to be cast far off and you should let it fall onto the bottom, then start to retrieve it slowly. The best fishing times are night hours in spring and summer, until the beginning of the autumn.

**How it takes the bait:** When you realize that the line is slightly trembling and is heavier, it means that plaice has taken the bait. You have to strike with a broad movement and retrieve.

**24- PUMPKIN-SEED SUNFISH (*Lepomis gibbosus*)**

**Order:** Perciformes

**Family:** Centrarchidae

**Allochthonous species**

**Minimum size limit:** none

**Period in which fishing is not allowed:** none

**Description:** It has vivid colours, a brown-olive hue on its back, the flanks covered with red

spots and a yellow - red belly. It has a clear black spot near the head. It can be up to 25 cm long and can weigh up to 250 gr. It doesn't generally exceed 10-12 cm.

**Baits:** worms, insects, meat-fly larvae.

**Fishing methods:** float fishing with the bait skimming over the bottom.

25- RUDD (*Scardinius erythrophthalmus*)

**Order:** Cypriniformes

**Family:** Cyprinidae

**Autochthonous species**

**Minimum size limit:** none

**Period in which fishing is not allowed:** none

**Description:** Its back is greenish blue and its belly is silvery. Its fins are pale red. It can be up to 30 cm long and can weigh up to 1 kg.

**Baits:** meat-fly larvae, earthworm, bread flakes, thick maize porridge, insects, artificial flies.

**Fishing methods:** float fishing. Pre-baiting is advisable.

26-SAND SMELT (*Atherina rissoi*)

**Order:** Perciformes

**Family:** Atherinidae

**Description:** grey-green back, with light blue shades and small black spots. Its maximum length is 15 cm.

**Baits:** meat-fly larvae, parts of sea worms as well as of freshwater worms. It also likes bread crumbs.

**Fishing methods:** See bleak.

27- SHEAT-FISH (*Silurus glanis*)

**Order:** Siluriformes

**Family:** Siluridae

**Allochthonous species**

**Minimum size limit:** none

**Period in which fishing is not allowed:** none

**Description:** its background colour is dark and its belly is yellowish. Maximum length: 3-4 m; maximum weight: 400 kg. Its most striking characteristic is its anal fin which stretches along the entire belly.

28-TENCH (*Tinca tinca*)

**Order:** Cypriniformes

**Family:** Cyprinidae

**Autochthonous species**

**Minimum size limit:** 25 cm

**Period in which fishing is not allowed:** from the 15<sup>th</sup> of May to the 30<sup>th</sup> of June

**Description:** Its back is greenish brown, while its flanks and belly are yellowish.

It generally measures about 35-40 cm and weighs 5 kg. In some cases it can be up to 70 cm long and weigh up to 7 kg.

**Fishing methods:** bottom fishing, pre-baiting the fishing area with large earthworm mixtures, bread crumb, and silkworm pupae.

**Baits:** Tench is omnivorous. Suitable baits include: mud worms mounted in bunches; meat-fly larvae mounted in bunches and caperers.

29-THICK-LIPPED GREY MULLET (*Chelon labrosus*)

30-THICK-LIPPED GREY MULLET (*Liza ramada*)

31-TWAITE SHAD (*Alosa fallax nilotica*)

**Order:** Clupeiformes

**Family:** Clupeidae

**Autochthonous species**

**Minimum size limit:** 30 cm

**Period in which fishing is not allowed:** from the 15<sup>th</sup> of May to the 30<sup>th</sup> of June

**Description:** Its back is light blue, its flanks are silver green, and its belly is lighter. It can be up to 60 cm long.

**Fishing methods:** Twaite shad is fished with the technique of casting, using artificial baits.

**Baits:** all silver-coloured spinners are suitable (silvery objects attracts twaite shad), if possible use three-sided spinners or spinners with a hammered plate blade.

32- ZANDER (*Stizostedion lucioperca*)

**Order:** Perciformes

**Family:** Percidae

**Allochthonous species**

**Minimum size limit:** none

**Period in which fishing is not allowed:** none

**Description:** Its back is grey or green in colour, its flanks and belly are yellowish-white with black spots on the dorsal fins. Maximum length: 1 m; maximum weight: 15 kg.

**Baits:** bleak, European roach, live rudd; trawled artificial fish; waving spoons; live worms in bunches.

**Fishing methods:** float fishing; bottom fishing; casting.

**FIRST AID: emergency, first aid kit.**

In case of emergency at sea, call the following telephone number: **1530**

You should always have a first aid kit with you, as it can be useful in many occasions. It should contain for example:

a tube of sulphamidic powder

a tiny bottle of alcohol

a tiny bottle of tincture of iodine

a tiny bottle of ammonia or another substance against insect stings

a packet of compresses of sterilized gauze

two strips of 8-10 cm high hydrophilic gauze

a roll of 2.5 cm high sticking plaster

some aspirin tablets

some safety pins

one cannula for mouth-to-mouth resuscitation in case of drowning.

Advice in case of:

**Sunstroke:** in less severe cases, symptoms include giddiness, paleness and difficult breathing while in severe cases they include strong headache, giddiness, nausea, paleness, accelerated breathing, and dilated pupils. Help the injured lie down in a cool and shady place and take off most of his or her clothes. Sprinkle his or her face and chest with water and if possible put some ice of his or her head.

**Drowning** lay the injured down initially with his face downwards, then turn him or her sideways and put a support under his or her kidneys, so that his/her head and thorax are in a lower position. Clean the respiratory tract eliminating any sand or mud which obstruct them. Strip the thorax to perform the artificial respiration, loose all strings and start the artificial respiration; 1 - lift backward the head of the injured, keep the forehead firmly with a hand, put the other hand under the chin and press the lower jaw upwards; 2- breathe in deeply

then blow your air in the victim's lungs by pressing your lips on the victim's nose or mouth; 3 - remove your lips from the victim's nose or mouth and let the latter breathe, without loosening your grip on his/her head. This procedure has to be repeated 10-20 times per minute, that is to say every 3-5 seconds.

*Hook wounds:* if a hook penetrates into the flesh but not too deeply, use your fingers or, better, some tweezers to loosen the barb. If this procedure does not work, loosen the hook from its fastening and press so as to let the tip out, press the barb with the lead tweezers and pull it backwards. Before and after the operation it is necessary to disinfect the spot carefully with alcohol or tincture of iodine.

## TYPICAL DISHES

Many typical dishes of the Delta area belong to the classical cuisine of the Veneto region, with influences of the neighbouring Ferrara areas.

The main protagonist is rice, which in the past was even used by landowners to pay their workers. In the past rice was served mainly inside a broth, probably for saving reasons. Other typical rice dishes are: rice with "bisi" (peas), rice with potatoes, rice with pumpkin, rice with salad, rice with beans, rice with "bruscardoli" (hop), rice with "carletti" (a kind of grass growing on valley edges), rice with wild asparagus. Other typical rice dishes include rice with "luganeghe" (sausages) and rice with chicken liver for feast days.

### Fish dishes

Rice in fish broth, stewed eel, baked mussels with breadcrumbs, "saor" sardine, stewed cuttlefish, prawn with white wine, rice with large eel remaining, rice with eel.

## SATELLITES: Moon movements, lunar phases, stars

**Moon movements.** The moon performs a complete rotation around itself and, at the same time, a complete revolution around the Earth. Therefore it always turns the same side to the Earth. The "hidden side" of the Moon has been observed by space missions only.

The complete revolution tour of the Moon around the Earth (measured in comparison with the Stars) lasts 27 days, 7 hours and 11 seconds: this period is called "sidereal month".

The period of time between two identical and subsequent lunar phases, i.e. when the Moon returns to the same position in comparison with the Earth and the Sun, is called synodic (or lunation) month and lasts 29 days, 12 hours, 44 minutes and 3 seconds.

**Lunar phases.** The Moon has not its own light, but is illuminated by the Sun and during its revolution around the Earth it shows an illuminated area whose extent depends upon the mutual positions of Earth, Moon and Sun. There are four lunar phases, namely:

**New Moon:** the Moon is located between the Sun and the Earth and is not visible, because the side turned towards the Earth is completely dark.

**First Quarter:** around the seventh day after the New Moon, the Moon shows half of its illuminated side: it is turned Southwards at sunset.

**Full Moon:** as compared to the Earth, the Moon is turned opposite the Sun, thus it shows its whole illuminated side; it rises when the sun sets. From the New Moon to the Full Moon the Moon is waxing (or increscent) and the crescent of the illuminated part always faces west.

**Last Quarter:** after about 22 days from the New Moon, the Moon shows again half of its illuminated side. Now however it rises at about midnight and wanes; the crescent of the illuminated part faces east. After one more week the New Moon starts again.

**Stars.** About 6,000 Stars can be seen with the naked eye, while from 50,000 to 1000,000 Stars are visible with a good pair of binoculars. This number regards the whole celestial

sphere but in every instant only half of it is above the horizon. The best way to observe the Stars is on the seashore or off shore. You will be able to observe the sky with the naked eye or with the help of a pair of binoculars. In case of good visibility of our hemisphere, about 2,500 can be seen and even more with the help of a telescope. The closest Star to the Earth after the Sun is called *Proxima centauri*. Astral distances are measured in light years, that is to say the distanced covered by the light in one year, about 9,500 billion km.

### SAILING: types of sails, standing and running rigging

A sail is an outstretched cloth or cotton tool which is pulled by the wind and allows the boat to move.

#### **Types of sail.**

- lateen sail: it has never been used for pleasure boats while it is broadly used in fishing boats. It is supported by a long lateen yard which is hoisted with the halyard on a usually short and large mast;
- lugsail: it is used by small boats of the "optimist" class;
- spritsail: it is a quadrangular sail without a boom (a horizontal pole that is attached to the bottom of the after mast to hoist the spanker);
- fore-and-aft sail. it was the sail of the golden age and was used until the 30's on all pleasure boats. The upper part is supported by a lateen yard called gaff, hoisted with two halyards: a groove halyard and a gaff halyard, which is used to settle the gaff;
- Bermudian mainsail: it is particularly effective along the bowline.

**Standing and running riggings.** The term "rigging" designates all the devices (especially vegetal, synthetic or metal ropes, but also chains in some cases) situated on the ship's masts and sails.

Standing riggings hold up and support the masts while the ship rocks and allow the sails to resist the wind.

Running riggings are used to control (i.e. to brace, hoist, strike, brail up, etc.) the yards, the sails and other sail parts.

A rigging is said to be "clear" when it can be hauled or inserted without getting entangled.

### WINDS: origin, classification, anemometric scale

**Origin:** when the air warms up, its volume increases and it becomes less thick and rises, thus creating a low-pressure, cyclonic zone. Instead, when it cools up, it becomes heavier and thicker, thus creating a high-pressure, anticyclonic zone. These air masses form the winds. Winds move from high-pressure zones to low-pressure ones.

**Classification:** winds can be classified as constant (Trade winds or Trades), periodical (Monsoons, Breezes), variable local (Sirocco, Ghibli, Bora, Mistral), variable (North-west wind, North-east wind/Gregale, North wind, Southwest wind/Libeccio) and irregular cyclonic (Cyclones).

**Anemometric scales.** These scales are used to indicate the speeds of the wind and are: the Beaufort scale and the Issel scale. Both scales measure the wind speed at a height of 10 m from the earth on flat land. Winds range from calm (max. speed 0.5 km/h or 1m/sec) to strong (speed 50-61km/h) to typhoon (with speed exceeding 118km/h).

## GLOSSARY

### AFTERWORD

Fishing tourism, as previously said, is a new type of tourism aimed at establishing a contact with the environment and with the typical working activities which are carried out in that context.

Fishing tourism can be practised as a hobby or as a main working activity.

Fishing tourism activities are regulated in a decree stating that such activities can be carried out either by a single fisher or by a group of fishers, who take on board of their boats people who are not member of their crew for tourism and pleasure related activities.

The Po Delta is, indeed, an ideal area for fishing tourism, considering the variety of its water and land habitats in its 80 km<sup>2</sup> waters of its navigable river arms, in its 85 km<sup>2</sup> lagoons and 81 km<sup>2</sup> valleys, its infrastructures and beautiful landscapes and natural resorts.

The following nine municipalities are included in the area of the Po Delta and can therefore be involved in the launch and development of fishing tourism: Papozze, Adria, Loreo, Porto Viro, Rosolina, Corbola, Ariano, Taglio di Po and Porto Tolle, covering a total territorial surface of 786 km<sup>2</sup>.

As fishing is already practised in the Delta territories, landing wharfs, berths and other necessary fishing structures can already be found in the area.

Now the current maintenance conditions of such structures could be enhanced and new ones could be built.

### ATTACHMENT I

#### BERTHS AND EMBARKATION SITES, TOURIST OFFERS

*Wet docks, berths, nautical centres, nautical trips, sports fishing, hiring of bikes and canoes.*

### ATTACHMENT II

#### USEFUL INFORMATION AND TELEPHONE NUMBERS

CARABINIERI (Italian militia with police duties) Emergency Assistance

POLICE Call for Assistance

BREAKDOWN SERVICE A.C.I.

FIRE BRIGADE Emergency Assistance

FIRST AID/MEDICAL EMERGENCY

Adria Civil Hospital

Porto Viro First Aid

Basic medical service for Tourists - Rosolina Mare Surgery

Province of Rovigo – Tourism Service

Board of the Regional Park of Veneto for the Po Delta

Inquiry and tourist office (I.A.T.)

Consortium of the Pro loco of the Polesana Delta

### BIBLIOGRAPHY