BOOKS: FISHERIES

Of Tuna and *Tonnaroti*

Barbara A. Block

Giant bluefin tuna have inspired fishers, scientists, poets, and painters for over 4000 years. Their sheer size, power, and endurance, and the warmth of their bodies compared with their environment, provoke an intensity of interest that few other fish engender. Aristotle was fascinated by bluefin migrations, Plutarch described their schooling behavior as a way "to stay together for the love of one another," and the Phoenicians stamped coins with images of bluefin.

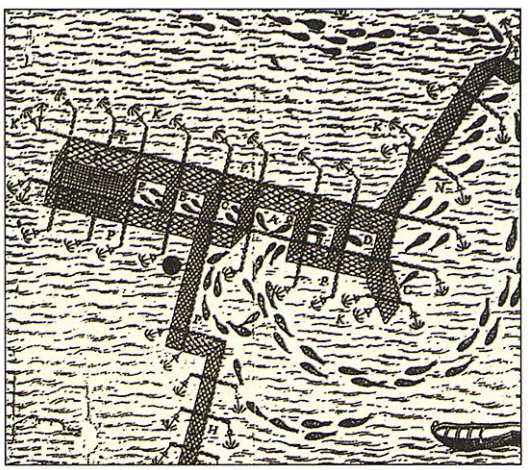
Bluefin tuna are distributed worldwide, with three separate species recognized from the Atlantic, Pacific, and Southern oceans. All bluefins share similar life-history traits involving extensive migrations and localized spawning areas. Giant bluefin have few predators except for man, and for millennia bluefin tuna fishing was limited to coastal or island subsistence fisheries and small-scale commercial ventures using nets, traps, or harpoons. But in the late 1960s, fishing effort on the high seas increased dramatically and declining catches forced many of the local trap fisheries in the Mediterranean to close down. Then in the 1980s, the value of premium, fat-laden bluefin rose sharply as the flesh became a delicacy on the Japanese sashimi market. Individual bluefin became so valuable that they traveled air freight in insulated coffins to Japan.

Mattanza
Love and Death in the Sea of Sicily
by Theresa Maggio

Perseus, Cambridge, MA, 2000. 279 pp. $25, C$37.95, £17.50. ISBN 0-7382-0269-X.

The fish lottery began. Fishermen were richly rewarded for individual tuna in this gold rush. In the past five years, combined Atlantic and Mediterranean landings of bluefin tuna have reached historic highs. Today, individual giant bluefin can sell for as much as $45,000, making this fish among the most valuable animals on Earth. Their value will increase further as the supply declines. Populations of Atlantic and Southern bluefin tuna have been reduced substantially despite internationally coordinated fishery resource management.

Whether the Atlantic bluefin can survive is the question posed by Theresa Maggio's *Mattanza*. Maggio, a travel writer who once worked at the Los Alamos National Laboratory, traces the relationship between man and bluefin from archeological hieroglyphics and ancient records of early historians down to the present day. She remarks that "the bluefin were to both modern and ancient Mediterranean people what the buffalo was to the American Plains Indians. An annual miracle, a rich source of food that required cooperative hunting among human populations." Fascinated with the beauty and mystery of the bluefin tuna, and their importance to her forebears, Maggio embarks on an examination of the cultural roots of the elaborate rituals required to capture them.



Tuna trap. Antonio Bova's 1761 engraving of a *tonnara* at Tràpani, Sicily.

On the island of Favignana, off the west coast of Sicily, every spring for more than a thousand years men have set huge complicated nets, called *tonnaras*, to catch the migrating tuna. This ancient ritual involves not only elaborate undersea traps—nets arranged (and named) like a city, with gates, tunnels, atria, and courtyards—but also a hierarchy of expertise, knowledge learned only from senior fishermen. Songs, chants, and occasional pleas to various saints, mythological characters, and gods set the pace and define the situations and status of these amazing nets. The tuna arrive during their annual spring migrations to spawn like "a phalanx of men who march in rank and swim innumerable, inside the nets." The ritual culminates in the violence of the *mattanza*, the one-by-one killing of the tuna trapped in the last room, called the chamber of death.

Maggio observed the annual setting of Favignana's *tonnara* for a decade. She captures the rich traditions of this isolated community through the eyes of a travel reporter who is also the granddaughter of Sicilian immigrants. She recounts her own story of capture and release and simultaneously provides a brief account of the former abundance of Atlantic bluefin and their decline in the Mediterranean. Bluefin once filled the trap nets of the Phoenician and Roman empires. Many generations of humans were sustained and enriched by annual harvests of tuna from Egypt and Turkey to the Atlantic. Towns throughout southern Europe bear the Latin name *cete*, which means "giant," where *tonnara* sites formerly flourished. In Portugal the traps were called *amracoes*, in Spain, *almandrabas*, in France, *madragues*. Today, only a few of these traps remain. As I read Maggio's inspired account, I recognized my own passion for these fish and found myself moved by her often personal "exposé"—a plea for the future not only of the fish but also of the people who are dependent upon them.

I read *Mattanza* while on a research cruise in the Gulf of Mexico, the spawning ground of a smaller group of Atlantic bluefin. In the west Atlantic, a 50-year cycle of fishery development has occurred: first sport, then intense commercial fishing. These fisheries have peaked and declined in my own lifetime, a pace that reflects our society's accelerating efficiency in ecological disruption. Attempts to learn what these bluefin do once they become giants have evolved into an expensive, yet highly successful art form. Researchers can now use a new electronic technology, a pop-up satellite archival tag, to essentially follow the fish on their migrations. As Maggio indicates, only such tracking can provide answers to the mysteries of where these fishes travel, spawn, or feed. Results of these studies will provide information critical to solving the current management crisis.

The book also prompts new research questions. How long have the bluefin tuna been in the Mediterranean or the Gulf? Why have bluefin tuna colonized these places? How did ancestral bluefin tuna survive the recent and earlier Ice Ages? How did generations of fish evade and adapt to long-term human predation?

Mattanza is a journal of essays touched with a romantic flavor. It combines the natural history of the Atlantic bluefin with human history and traditions. The passion that people have for bluefin tuna has a rich past, and it deserves a story as justly and personally told as this one is. Few fish

CREDIT: FROM *MATTANZA*

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have been as important to Western civilization for such a long time. Maggio prompts the reader to wonder why we are doing so little now to conserve tuna for future generations. Perhaps her account will enlighten more of us with the need for an immediate solution for bluefin tuna conservation, especially in Europe, so that the Atlantic bluefin does not meet the fate of the buffalo or the *tonnaroti*.

A DAY OUT: ECOLOGY

Wet and Wild

Sandra Knapp

Forty-seven percent of the world's population currently lives in cities, and by 2030 more than sixty percent will be urban dwellers. As commerce and culture become more globalized, natural habitats become more remote for most of us. Even the countryside is becoming ever increasingly managed, with agribusiness often dictating how habitats are constituted. Many of today's children, although fascinated by animals and wildlife on television, have never seen a truly "natural" habitat.

How fitting then that Britain's Wildfowl and Wetlands Trust (WWT) constructed its Wetland Centre along the River Thames four miles from the center of London, rather than in a more "pristine" habitat elsewhere. Covering 105 acres on the site of a redundant reservoir system, the Centre is Europe's largest urban wetlands reconstruction project. The WWT has created a complex wetlands habitat through a massive recycling project that converted four concrete reservoirs into a series of lakes and ponds. This environmental awareness is reflected throughout the site, which includes sections on sustainable and water-efficient gardening. One looks more like something one might find in New Mexico than in central London—although with global warming, who knows? On a sunny summer weekend I took several children (*1*) to see how a group of urban dwellers felt about such a potentially innovative installation.

The Wetland Centre is divided into three principal parts, the Peter Scott Visitor Centre and two path systems. The Visitor Centre houses a lecture theater with a multimedia show, an art gallery dedicated to the work of wildlife artists, a Discovery Centre aimed primarily at children, and an observatory that overlooks the main lake. The observatory, an enormous glass-fronted room, is perfect for those unable to walk the path systems. Silhouettes and drawings of the common birds allow visitors not already keen birders to begin identifying what they see, and a few computers have games and information on wildfowl migration. The Discovery Centre introduces children and others to the importance of wetlands, a theme that could have been more integrated throughout the site. If tropical rainforests are Earth's lungs, then rivers and wetlands are its blood, as essential to survival and as threatened with destruction. My team felt that if visitors didn't go to the Discovery Centre first, they would miss some of the points—as we did by going for the outside bits first. All agreed, however, that the "Wetlab" upstairs was great. As a biologist, I particularly loved the people-watching activity in which children are encouraged to view other visitors in the courtyard below with a telescope (just as they had watched birds earlier on) and record their plumage, family groups, and behavioral interactions. Such a subtle and clever way of showing humans as another species is definitely worth repeating elsewhere.

The Wetland Centre
The Wildfowl and Wetlands Trust
Queen Elizabeth's Walk, London SW13 9SF.
www.wetlandcentre.org.uk

Reservoir recycled. The former Barn Elms reservoirs have been replaced by a complex of wetland habitat.

It is outside, however, that the Wetland Centre truly shines. The two path systems are nonintersecting and lead visitors through the site. One (Wildside), a kind of "wetlands zoo," offers a lightning tour of the world's wetlands with samples of areas as diverse as Spitzbergen, Hawaii, and tropical Africa. A few wildfowl species are displayed in each zone. Because the zones themselves are quite small, the ducks and geese can be seen close up, which is excellent for those without binoculars. Computer touchscreens allow exploration of issues about each habitat, but they were never more interesting than the creatures themselves. A truly wild area beyond the "zoo" features British wetlands. This series of small ponds and reed beds allows visitors to get quite close to nesting birds. Explanatory signs—refreshingly nontechnical, but still with correct scientific names—identified the area's plants and occasionally its animals too. My team preferred the native habitat, and the hide at the end of the road, to the zoo and even to the other main path (Waterlife).

Waterlife was the path we thought we would most enjoy because near its beginning it featured pond-dipping, a favorite childhood occupation. The area devoted to this activity, however, was disappointingly small, and dippers were not allowed more than one or two goes with a rather large-meshed net. This may have been because we went at the end of the day; keen pond-dippers should go early. The hides, including the multistory Peacock Tower, were a bigger hit. We spent hours watching lapwings dive-bombing crows, ducks leading their broods along the pond margins, coots tending their nests, and swans gracefully swimming to and fro. It was enjoyable to hear a group of children, all of whom grew up in London (albeit with at least some experience of the countryside), discuss with such vigor and enthusiasm the identities and behaviors of the birds they were watching. The birds we saw are not exotic or necessarily rare, but conservation begins with the commonplace and in our own backyards.

The verdict of the team? "Great, let's go again!" Their resounding approval made it plain to me that every big city with a river needs a place like this.

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Notes

1. My review team consisted of Philippa De Lacey and Alfred, Isabel, Victor, and Jim Mallet.

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