

99 small turtles released in Huizhou "Turtle Bay"! Their birth has created a domestic NO.1

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The first batch of artificially bred sea turtles in China were reproduced and released in Huidong.

On the morning of the 16th, the first batch of 99 green sea turtles hatched through artificial breeding were released in the sea turtle spawning field in Huidong Sea Turtle National Reserve, the only sea turtle nature reserve on the continental shelf in the country.

This year, the all-artificial sea turtle breeding project undertaken by the Huidong Sea Turtle National Nature Reserve Administration has made a

major breakthrough. The artificially raised mother turtles laid their first nest of sea turtle eggs on May 28 this year, with a total of 99 eggs. On July 24, the first nest of sea turtle eggs hatched 91 sea turtles, marking the complete success of artificial reproduction of sea turtles in my country. This technology has also filled the gap in the field of artificial reproduction of sea turtles in China.

According to Ye Mingbin, a senior engineer of the reserve management bureau and person in charge of the sea turtle artificial breeding project, this year the reserve successfully induced 5 artificially raised broodstock to lay 19 litters, totaling 1547 eggs. At present, 639 hatchlings have been successfully hatched, with an average hatching rate of 48.1% and the highest hatching rate of 91.9%. Most of the 99 sea turtles released this time were the first batch of fully artificially bred sea turtles, all weighing about 400 grams.

5 parent turtles lay their eggs in a simulated spawning ground

The artificial breeding technology of sea turtles refers to the artificial incubation of sea turtle eggs laid by wild sea turtles and breeding them to sexual maturity. This process generally takes 20-30 years. Then through artificial induction, it lays eggs and hatches turtles. There are more than 30 adult sea turtles in the reserve, and the 5 parent turtles who lay eggs this year all weigh more than 180 kg.

In recent years, due to fishing, habitat destruction and environmental pollution, the population of sea turtles has declined sharply. Experts predict that the number of adult sea turtles in the South my country Sea is less than 2,000.



Artificial breeding turtles crawl to the sea.

However, the long migratory distance and maturity period of sea turtles and the difficulty of protection have led to extremely slow recovery of wild populations. Under these conditions, artificial reproduction is considered by the International Tortoise Survival Alliance (TSA) to be a feasible means and key technology for species preservation and resource restoration.

The all-artificial sea turtle breeding project of the Huidong Sea Turtle National Nature Reserve Administration started in 2008. The purpose is

to increase the number of sea turtles by overcoming artificial sea turtle breeding, and realize the gradual restoration of sea turtle populations through breeding and release.

At the initial stage of the project, the number of adult sea turtles raised in the reserve was relatively small, and the infrastructure was not sound. The research on artificial breeding technology encountered considerable difficulties.

"The biggest difficulty is to grasp the biological characteristics of sea turtles in the Huidong area. It is necessary to collect environmental information required for sea turtle growth, mating, and spawning, and to reconstruct the environment to simulate and reconstruct the sea turtles so that sea turtles can lay eggs smoothly." Ye Mingbin said. .

In May, a huge breakthrough was made in the artificial breeding technology of sea turtles. The five parent turtles lay their eggs in the artificially simulated spawning ground, and then the staff will move the turtle eggs to the centralized hatching area, and hatch them successfully under controlled temperature and humidity conditions.

However, the artificial hatching technology of sea turtles still faces the problem of unstable hatching rate. Professor Li Pipeng, chairman of the China Expert Group on Amphibious Crawling of the World Conservation Union (IUCN) and a doctoral supervisor at Shenyang Normal University, analyzed that this is mainly caused by the unstable fertilization rate of sea turtle eggs, and the fertilization rate is closely related to whether sea turtles are laying eggs for the first time. This year's turtles in Turtle Bay lay their eggs for the first time, so the fertilization rate, quality, and

quantity of eggs laid are relatively low. I believe this situation will increase in the future.



The first batch of artificially bred sea turtles are multiplied and released.

Thousands of turtles are expected to breed and release each year

Huidong Sea Turtle National Nature Reserve is located at the southern most tip of the Renping Peninsula in Huidong County, surrounded by the sea on three sides, with a core area of 18 square kilometers and an outer protection zone of more than 700 square kilometers. The coastal seabed of the protected area is sandy with a small amount of reefs, and the water depth is 5-15 meters. The water temperature in summer and autumn is about 28°C, and the salinity of sea water is about 32‰. The

beach is half-moon-shaped, with a gentle slope and fine sand, which is suitable for turtles to crawl, dig and lay eggs for reproduction.

According to Chen Hualing, an engineer of the reserve management bureau, the reserve has the only wild beach on my country's continental shelf where sea turtles come to lay eggs every year. It is about 1 km long and 300 meters at its widest point. Therefore, this place is also called "Turtle Bay" and is known as the last delivery bed of Shanghai turtles in mainland China.

On June 14, the only wild sea turtle in the reserve this year came ashore to lay eggs. By recognizing that the turtle carried electronic tags, the staff found that the turtle had visited the reserve twice to lay eggs in 2007 and 2012. After laying the first nest of sea turtle eggs, it came ashore every 15 days. As of September 1, it had laid a total of 817 sea turtle eggs in 6 nests, and more than 200 baby sea turtles have been hatched.

Every season when sea turtles lay eggs, the staff of the reserve will monitor the situation of sea turtles coming ashore to lay eggs through 10 infrared cameras installed in the sea turtle spawning grounds. For turtle eggs produced below the high tide line, the staff will transfer the turtle eggs to the nearest safe hatching beach for natural incubation.

But such manual intervention is far from enough. Before the conquest of artificial breeding technology, the number of sea turtles that came ashore every year was different, so the number of sea turtles that can return to the sea to supplement the population is not necessarily.



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Since the start of the project in 2008, the Administration has actively sought support from relevant departments, and under limited funds, resources, and funding conditions, it has mobilized major backbone forces to persistently carry out research.

“Artificial breeding of sea turtles can increase the number of sea turtles in a controlled and planned manner. After the technology is overcome, the offspring can be reproduced in batches. The number of sea turtles

returning to the ocean will increase every year.” Member of the IUCN Amphibious Crawling China Expert Group, Huidong Sea Turtle Country Said Gu Hexiang, director of the National Nature Reserve Management Bureau.

Ye Mingbin said that at present, the reserve has mastered the full set of technologies for the artificial breeding of sea turtles. He hopes that 10 to 20 sexually mature sea turtles will lay eggs each year, and the average hatch rate will increase to 50% or 60%.

Regarding the number of sea turtles that are reproduced and released each year, “there is no specific number at present, but conservatively predicts that thousands of small turtles can be guaranteed to reproduce and release each year than before.” Gu Hexiang said, as long as the adaptability of sea turtles to the natural environment is assessed to meet the requirements , The weight is more than four to five hundred grams, it can be multiplied and released.

This year, after this wild sea turtle lays its eggs for the last time, the staff installed satellite tracking equipment on its back. According to Ye Ming bin, the power of the device is expected to last for about one and a half years. According to the latest data monitored, the turtle is in the sea near Shanwei.

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The Turtle Academic Exchange Center was established

The Breakthrough Sea Turtle Artificial Breeding Technology Conference was held in Huidong Sea Turtle National Nature Reserve on the 16th,

and the Sea Turtle Academic Exchange Center was officially inaugurated on the same day. The center is committed to building an academic exchange platform for domestic and foreign sea turtle protection scholars and experts, and will hold regular academic conferences to exchange sea turtle protection experience and the latest research results.

In the afternoon of the same day, the center held the first sea turtle protection and management exchange meeting. Professor Liu Xiaofeng, a doctoral supervisor of Hohai University, shared the application of IoT technology and artificial intelligence technology in sea turtle protection during the exchange. Liu Xiaofeng said that the Internet of Things and artificial intelligence technology can be applied to two aspects: comprehensive data acquisition and intelligent processing of data to provide support for sea turtle protection. Modern technology and equipment can also reduce the workload of the workers in the reserve, and at the same time reduce the harm and impact of people on sea turtles during the protection process.

Dr. George H. Balazs, Vice Chairman of the IUCN Sea Turtle Expert Group who has visited the Sea Turtle Sanctuary 5 times, said in an interview that he is very happy to see the breakthrough in artificial reproduction technology in the Sea Turtle Sanctuary And achievements . It is hoped that the staff of the reserve can continue to explore in basic scientific research fields such as the identification of sea turtles. The establishment of the Turtle Academic Exchange Center was a surprise to him.

Dr. Wu Jiaen, vice chairman of the IUCN East Asia Expert Group and a sea turtle researcher in Hong Kong, said that he is very happy to witness

the tremendous breakthrough in artificial breeding in the sea turtle reserve. For the protection of sea turtles, it is necessary for ordinary people to participate, such as reducing the use of plastic products, and reducing the incidence of accidental eating or even death of sea turtles caused by plastic entering the sea. At the same time, she hopes that social groups, experts, and research institutes in various countries and regions can actively share the latest research results, complement each other, absorb more innovative technologies, optimize sea turtle conservation plans, and protect the stability and growth of sea turtle populations. The establishment of the Turtle Academic Exchange Center provides such a platform and opportunity.

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