CHINA

China unveils first deep-sea testing site

Base to boost equipment research and drive growth of marine economy

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China unveiled its first deep-sea testing site in Hainan province on Sunday, which was World Oceans Day, to boost the research and development of deep-sea equipment and drive the growth of the marine economy, officials said.

"Deep-sea regions are crucial strategic resource areas for countries around the world, and deep-sea manufacturing stands as the linchpin for advancing deep-sea exploration and exploitation," Cui Xiaojian, deputy director of the Hainan Provincial Oceanic Administration, said in Haikou, the provincial capital.

Deep-sea regions are renowned for their abundant mineral, biological and energy resources. The testing site, located about 200 kilometers southeast of Sanya in Hainan, sits at water depths between 1,300 and 1,500 meters across 400 square km. Cui said the site will feature an integrated service platform encompassing technology research and development, testing verification, industrial incubation and certification evaluation.

"By closely aligning with diverse application scenarios reflecting real-world demands, this initiative strives to catalyze deep-sea industrial upgrades, hasten the development of new high-quality productive forces in the marine sector, and inject new momentum into the high-quality development of the marine economy," Cui said.

Hainan administers around two-thirds of China's ocean area, covering 2 million sq km. With tropical marine depths averaging over 1,200 meters, it offers unique and strategically scarce resources nationwide, characterized by high pressure and low temperatures, Cui said.

The establishment of the new deep-sea testing site in Hainan, along with existing sites in Shandong, Zhejiang and Guangdong provinces, represents a comprehensive national layout of marine testing sites spanning north, east and south, covering areas from shallow seas to deep oceans, said Chu Jun, deputy director of the marine early warning and monitoring division of the Ministry of Natural Resources.

The layout took into account the locations and characteristics of each marine area and acts as a pivotal bridge for translating marine scientific and technological achievements into tangible products. This approach also provides essential support for the collaborative development and sharing of marine resources, facilitating the building of a strong maritime nation, Chu said.

"Many maritime enterprises and institutions in our country have introduced novel equipment and products, necessitating immediate sea-based performance testing," Chu said. "The construction of marine testing sites can provide the requisite environment and conditions for relevant enterprises and institutions to test their deep-sea equipment, so they could play a leading role in fostering the growth of the marine economy.

"As the only deep-sea testing site, the new one can facilitate scientific research, the development of investigative equipment and the exploration of renewable energy resources in the deep sea," he said.

Splash sendoff

Yangyang, a young female rough-toothed dolphin, is released back into the sea 70 kilometers from Sanya, Hainan province, on Sunday. Measuring 2.12 meters in length, Yangyang was rescued on April 24 after being found stranded in Sanya. She later underwent treatment at Haichang Ocean Park in Sanya. After over a month of rehabilitation, experts deemed her fit for release on May 30. YUAN YONGDONG / FOR CHINA DAILY

Findings of first autumn Antarctic expedition released

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In an unprecedented autumn expedition to Antarctica, scientists observed a significant surge in small planktonic organisms in the deep and bottom layers of the ocean, a stark contrast to their typical presence in the upper ocean during spring and summer.

Researchers said the rich, balanced distribution of water properties and planktonic life in the vertical layers of the ocean was especially striking in the polynya area — the "ice-making factory" of Antarctica — located in the Ross Sea.

The findings underscore the profound impact of intense deep convection activities driven by strong ice formation processes in the polynya, an area of unfrozen sea within a large patch of ice, during the cold season. These activities shape the physical properties of seawater and influence biological distribution and overwintering processes, scientists said.

The observations came from the first-ever human expedition to Antarctica in its autumn season, during which researchers collected more than 3,000 chemical analysis samples and 2,500 biological analysis samples. The results were presented by scientists from Shanghai Jiao Tong University at a news briefing on Friday.

During the transition from March to April, when Antarctic productivity sharply declined, about 50 researchers from nine countries — China, the United States, the United Kingdom, Australia, New Zealand, Norway, South Korea, Malaysia and Thailand — braved extreme temperatures from -20 C to -28 C in the autumnal Ross Sea. They conducted continuous observations for 20 days.

Their work was part of China's 41st Antarctic expedition and marked the first multinational collaborative research focused on the autumnal ecosystem of the Antarctic marginal seas. The initiative was led by the School of Oceanography at Shanghai Jiao Tong University and the Polar Research Institute of China.

Zhou Meng, dean of the school and a veteran of 14 Antarctic and 10 Arctic expeditions, highlighted the rarity of Antarctic research beyond the summer season, citing challenges posed by extreme climate and complex marine conditions. The lack of observational data available during autumn and winter meant that there was limited human understanding of natural processes around those seasons, scientists said.

"When we reached Antarctica in early spring during previous expeditions, we saw that 99 percent of the biomass had disappeared, so there always existed this curiosity about what happened in autumn and winter," Zhou said.

The Ross Sea plays a pivotal role in Antarctic studies, serving as a crucial site for the generation of the densest water mass in the Southern Ocean, known as Antarctic Bottom Water.

This region significantly influences global heat and salt circulation and climate patterns, scientists said.

"Moreover, the Ross Sea stands out as one of the most biologically productive areas in the Southern Ocean, boasting abundant marine resources vital for ecosystem functioning," Zhou said. "The high productivity and deep water formation processes make the Ross Sea a hotspot for the burial of organic carbon in the deep sea."

Zhang Zhaoru, assistant chief scientist of the research and a professor at the school, said the deep convection processes in the polynya during the windy autumn period can effectively transport surface ocean particles to deeper layers. This process may play a crucial role in carbon burial, she said.

The team's research also identified warm signals of deep water intrusion and cold signals of ice shelf meltwater in the polynya, processes instrumental in the generation of Antarctic Bottom Water driven by deep ocean convection.

Furthermore, the team observed significant differences in nutrient concentrations in the polynya compared with other marine regions, indicating active biological processes before their expedition.

"These unique ecological processes in the polynya area of the Ross Sea provide essential observations for a comprehensive understanding of the biogeochemical cycles in the Antarctic marginal sea," Zhou said.

Scientists said an active "dark ecosystem" exists in the Antarctic marginal sea during the autumn and winter seasons, lasting as long as eight to nine months. This ecosystem encompasses various organisms, including krill, fish, birds and mammals.

"Our discoveries and ongoing explorations will help answer scientific questions: Where do the organic matter and energy driving the marine biosphere in the dark ecosystem of the Antarctic autumn and winter seasons come from? How do processes such as ice formation, deep convection and mixing impact the transport of marine organisms and vertical carbon flux? Which processes in winter determine the population structure of planktonic organisms, influencing productivity in the following spring season?" Zhou said.

The research team said its work enhances the international community's understanding of the adaptation and survival strategies of key biological groups and ecosystems in the challenging dark environment of the Southern Ocean during autumn. The team's efforts also offer valuable experience for future Antarctic expeditions in winter.

Report seeks unity for global ocean governance

By ZHENG ZHENG in Shanghai
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A new report released on Sunday at Shanghai Maritime University on World Oceans Day calls for extensive international collaboration in marine sustainable development, ecological protection and technological innovation.

The report, titled "A Maritime Community with a Shared Future and Sustainable Ocean Development — Joint Actions of China and Its Global Partners", outlines a framework to tackle critical issues in global ocean governance and provides Chinese perspectives on maritime development and security.

Chu Beiping, president of Shanghai Maritime University, emphasized the severe challenges confronting the world's oceans.

"The concept of a 'Maritime Community with a Shared Future' proposed by China provides new insights into global ocean governance, and SMU will continue to contribute to ocean sustainable development," Chu said.

The report summary was presented in both Chinese and English by Xie Xi, deputy dean of the university's National Ocean Research Institute, and Zhang Yan, dean of the College of Foreign Languages.

"The oceans, with their immense strategic value and development potential, have become a focal point of great power competition," Xie stated. "While marine economies are increasingly important globally, there are significant disparities between nations and regions. Additionally, ocean health faces unprecedented threats from environmental degradation."

The report identifies several key pathways for sustainable maritime development, including technological innovation, shared governance rules, cultural exchange and maritime security measures.

Awni Behnam, honorary president of the International Ocean Institute, endorsed the report, stressing the importance of multilateralism and international law in ocean governance.

"As this report highlights, we are entering an era of shared responsibility," Behnam said. "The challenges we face, from marine ecosystem degradation to resource access disparities, transcend national boundaries and require collective action."

Xie explained that the report systematically communicates China's ocean governance concepts and policy proposals to the international community. It demonstrates China's thinking and responsibility regarding global ocean governance issues while incorporating traditional Chinese cultural wisdom to address contemporary global challenges.

The National Ocean Research Institute of SMU, the university itself and the Universities Research Association for International Communication on Maritime Affairs jointly released the report. Maritime experts, scholars, representatives of organizations and students from over 20 countries participated in the launch, discussing global ocean governance and sustainable development.

Wang Zhongcheng, a professor at SMU, highlighted advances in green ship power technology as crucial for the shipping industry's low-carbon transformation.

Thong Viro, deputy director general of the Administration and Harbor of Sihanoukville Autonomous Port in Cambodia, discussed port and shipping cooperation between the two countries and proposed further cooperation initiatives.

Rizka Ardya, representing Frontier Logistics Indonesia, underscored the Chinese shipping industry's contribution to global economic development.

Crowds can 'trade' at beer exchange in Qingdao

By ZHAO RUIXUE in Jinan
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A newly opened beer consumption facility in Qingdao, Shandong province, has become a social media sensation with its innovative "beer stock market" concept, drawing massive crowds for a unique drinking experience in the city renowned for its brewery brand.

The Qingdao Beer Exchange, located on the Taidong pedestrian street, features a 3-meter-tall, 360-degree smart beer column. Visitors can taste 10 beer flavors and watch price fluctuations, directly influenced by their purchases, on a large circular screen in real time.

Launched during the Dragon Boat Festival holiday, which ran from May 31 to June 2, the exchange saw a daily average of more than 10,000 visitors and single-day sales exceeding 1.2 million milliliters of beer during the period, injecting new energy into Qingdao's cultural and tourism market.

With 30 taps, the exchange offers a rich selection of beers, including classic Tsingtao brews such as original draft and pure draft, as well as fruit-infused options such as lychee, peach and passion fruit. Each beer's price fluctuates like a stock would do at the exchange.

A dynamic circular display above the facility flashes real-time prices and sales data.

"The process is simple yet thrilling — grab a cup, scan the QR code, pour your beer and watch the market shift instantly," said Gao Ming, a local resident who tried the experience with her friends. "It's like being a beer trader."

Li Chao, who is responsible for the project, explained that the system recalculates prices every 10 minutes based on demand.

"Just like in a real stock market, popular beers see price surges, while less-purchased ones dip," Li added.

There is a 10 percent daily price fluctuation limit for both rising and falling prices, ensuring fairness and transparency for customers. Rising prices turn red, and falling ones turn blue. At the start of each business day, prices are reset to a base price.

Based on the operations of the past week, the facility operator considers reducing the base price and expanding the daily price rising and falling limit of the daily price to 20 percent, Li said.

During the Dragon Boat Festival, fruity brews such as passion fruit and lychee emerged as the most popular options, consistently hitting their price ceilings, while all beers remained reasonably priced between 7 yuan (97 cents) and 15 yuan per cup.

The idea for the exchange was born after Li's team observed self-serve beer dispensers in other cities.

People line up for draft beer at the Qingdao Beer Exchange facility in Qingdao, Shandong province, on June 1. A screen above the facility flashes real-time prices and sales data. HE YI / FOR CHINA DAILY

"We wanted something more interactive with customers that also resonated with Qingdao's identity as China's beer capital," she said.

After finalizing the idea in April, they designed and built the structure in 25 days, launching the project in time for the festival.

"The circular screen flashing live data creates an immersive trading-floor vibe, allowing customers to play 'investors' while enjoying their drinks," Li said.

Guo Qiang, deputy director of the Taidong pedestrian street management committee, called the project a creative fusion of Qingdao's century-old beer heritage and modern consumption trends.

"The Qingdao Beer Exchange is a key extension of our 'Beer IP' strategy, aligning with our vision for a smarter, more distinctive, and youth-friendly commercial hub," Guo said.

Tsingtao Brewery Co, China's earliest beer production enterprise based in Qingdao, achieved product sales volume of 7.54 million kiloliters last year. Tsingtao's brand value reached 264.68 billion yuan, ranking first in the Chinese beer industry, according to the company's annual performance report.