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Thailand's Chula researchers culture "Global-Warming Resistant Corals" for the survival of marine ecosystems

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Researchers atÂ Chulalongkorn University'sÂ Aquatic Resources Research InstituteÂ have developed innovative methods to help corals adapt to global warming. Through artificial insemination and raising corals in high-temperature environments from birth, they aim to cultivate corals capable of withstanding rising sea temperatures. In addition, they have introducedÂ **cryopreservation techniques**Â to store coral sperm cells for future restoration.

Global warming, pollution, and human activities such as tourism and fishing have led to the widespread degradation of coral reefs. Scientists warn that if current trends continue, over 90% of global corals may become extinct within 30 years, threatening marine biodiversity and the global food chain.

Professor Dr. Suchana Chavanich,Â Marine Science Department, Faculty of Science, Chulalongkorn University, Deputy Director ofÂ the Aquatic Resources Research Institute, Chulalongkorn University, and Deputy Director ofÂ Chula Unisearch,Â and her team have been conducting coral breeding research since 2005. They found that corals raised in warmer water conditions (32-34 Â°C") since birth adapt better to global warming. These corals, calledÂ "Corals Against Global Warming,"Â have shown promising survival and reproductive rates after being released into the sea.

Corals naturally reproduce sexually and asexually, but these methods are slow and increasingly unreliable due to climate change. The team developed artificial insemination techniques, collecting coral eggs and sperm during full-moon spawning events. The fertilized embryos are raised on terra cotta bricks in nurseries for two years and then reintroduced into the ocean to grow for another three years. These corals are ready to spawn at age five, significantly improving survival rates.

However, this method is costly, with each coral embryo costing around $100 compared to $1 for the coral fragmentation technique. Despite the cost, the high resilience to bleaching makes the investment worthwhile.

To further ensure the survival of coral species, the team collaborated with Taiwanese scientists to apply cryogenic technology. Coral sperm has been successfully frozen for future use, while egg freezing is still being developed. This approach could allow for coral revival when ocean conditions improve.

Prof. Dr. Suchana emphasizes that coral conservation must be a collective effort involving reef restoration, pollution reduction, public awareness, and sustained funding. With coordinated action, the revival and long-term survival of coral ecosystems is still possible.