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长山群岛候鸟栖息地
Changhai Archipelago Migratory Bird Habitat

青年气候行动与海岛生物多样性保护白皮书

A YOUTH ACTION WHITE PAPER ON CLIMATE ADAPTATION AND BIODIVERSITY

大连市青年公益事业发展促进会
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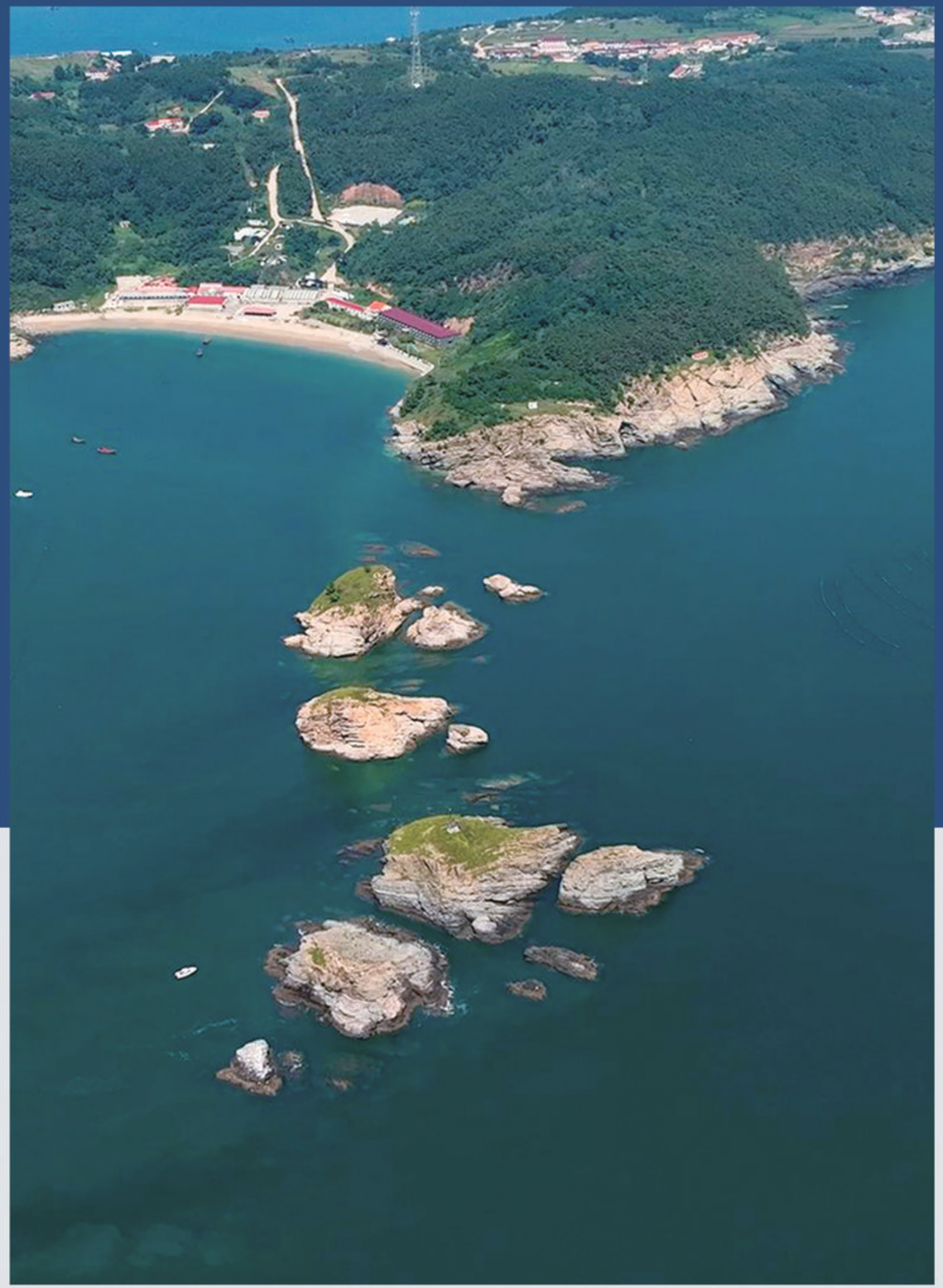
October 2026 · Dalian



哈仙岛五虎石栖息地 | Wuhushi Rock Habitat on Haxian Island



黑脸琵鹭 | Black-faced Spoonbill

长山群岛候鸟栖息地

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世界自然遗产 × 气候适应 × 青年行动

World Natural Heritage × Climate Adaptation × Youth Action

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摘要 Executive Summary

长山群岛位于辽东半岛东侧、黄海北部海域，是东亚—澳大利西亚候鸟迁飞区的关键海上驿站。2026 年 7 月 27 日，第 48 届联合国教科文组织世界遗产委员会会议审议通过“中国黄（渤）海候鸟栖息地”世界自然遗产边界调整项目，长山群岛候鸟栖息地作为扩展单元成功纳入世界自然遗产名录，涵盖广鹿岛矾坨子、格仙岛头坨子、大耗子岛、蛇蛸岛南部岩礁带四大核心组成部分，总面积 4962.62 公顷。其全球突出普遍价值在于：承载全球超过 90% 的黄嘴白鹭繁殖种群，并以繁殖、停歇、越冬三类功能在同一岛群内的空间叠加，填补我国北方海岛候鸟繁育与海洋哺乳动物协同监测的长期空白。

The Changhai Archipelago lies east of the Liaodong Peninsula in the northern Yellow Sea, serving as a critical maritime staging post on the East Asian–Australasian Flyway. On 27 July 2026, the 48th session of the UNESCO World Heritage Committee approved the minor boundary modification of the World Natural Heritage property “Migratory Bird Sanctuaries along the Coast of the Yellow Sea–Bohai Gulf of China”, through which the Changhai Archipelago Migratory Bird Habitat was inscribed on the World Heritage List as an extension component. It comprises four core parts — Fantuozi, Guanglu Island; Toutuozi, Gexian Island; Dahaodao Island; and the southern rocky shore zone of Bashao Island — with a total area of 4,962.62 ha. Its Outstanding Universal Value rests on the fact that it supports more than 90% of the world’s breeding population of the Chinese Egret, and on the spatial co-location of breeding, stopover and wintering functions within a single island group, which fills a long-standing gap in the coordinated monitoring of island-nesting migratory birds and marine mammals in northern China.

遗产身份的确立，意味着保护责任的升级。世界自然遗产认定的是长山群岛的过去与现在，而决定其未来状态的，是能否在下一个十年建立起持续、可核验的在地观测与社会参与能力。专业保护体系已构筑起管理主干，但公众数据的系统性缺口、气候叙事的缺位与社区转化不足，仍制约着遗产地保护从“管得住”走向“可持续”。青年并非这一体系的替代者，而是其延伸与放大器：以公民科学的规范方法补充观测密度，以教育与艺术传播把远距离的生态价值转化为可感知的公共议题，以社区协同把保护要求嵌入海岛日常生计。

The conferral of heritage status marks an escalation of responsibility. What World Natural Heritage recognition certifies is the past and present of the Changhai Archipelago; what will determine its future condition is whether, over the next decade, a local capacity for continuous and verifiable observation and social participation can be built. A professional conservation system has already established the management backbone, yet systematic gaps in public data, the absence of a climate narrative and insufficient community conversion continue to hold the site back from being effectively guarded to being sustainably sustained. Youth are not a substitute for this system; they are its extension and amplifier — supplementing observation density through disciplined citizen-science methods, translating distant ecological value into a tangible public issue

through education and art-based communication, and embedding conservation requirements into island livelihoods through community engagement.

本白皮书是一份面向未来的行动文本。大连市青年公益事业发展促进会作为《联合国气候变化框架公约》（UNFCCC）观察员机构，在 COP31 上把长山群岛作为“气候适应 × 生物多样性 × 青年行动”的中国地方样本对外呈现，并提出“长海青年气候守护站”倡议。围绕志愿协同、公民科学观测、气候教育与艺术传播、低碳文旅与观鸟经济、社区协同、国际叙事六条行动线，本白皮书给出可操作的方法、边界与阶段性安排：所有行动均以不干扰鸟类、不替代执法、不脱离社区为前提，以公开、可复制、可核验为原则，呼应《昆明—蒙特利尔全球生物多样性框架》的目标方向。

This white paper is a forward-looking action text. The Dalian Youth Public Welfare Development Promotion Association (YCCDL), an observer organisation to the United Nations Framework Convention on Climate Change (UNFCCC), presents the Changhai Archipelago at COP31 as a Chinese local case of “climate adaptation × biodiversity × youth action”, and launches the Changhai Youth Climate Guardians initiative. Structured around six action lines — volunteer coordination, citizen science observation, climate education and art-based communication, low-carbon tourism and the birdwatching economy, community engagement, and global storytelling — the paper sets out operational methods, boundaries and phased arrangements. Every action is premised on not disturbing birds, not substituting for enforcement and not operating apart from the community, and follows the principles of openness, replicability and verifiability, echoing the direction set by the Kunming-Montreal Global Biodiversity Framework.

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第一章　背景：为什么是长山群岛

Chapter 1　Background: Why the Changhai Archipelago

1.1 区位与迁飞通道定位

1.1 Location and the Flyway

长山群岛隶属辽宁省大连市长海县，位于辽东半岛东侧、黄海北部海域，东与朝鲜半岛隔海相望，西南与山东庙岛群岛相对。长海县由 195 个岛、礁、坨组成，陆域面积 142 平方公里，海域面积 10324 平方公里，是东北地区唯一的海岛县，也是全国唯一的海岛边境县。海域面积远大于陆域面积，意味着县域治理的主要对象是海洋而非陆地：保护行动的工作界面必然落在海岸带、岛礁与潮间带。

The Changhai Archipelago belongs to Changhai County, Dalian City, Liaoning Province. It lies east of the Liaodong Peninsula in the northern Yellow Sea, facing the Korean Peninsula across the sea to the east and the Miaodao Archipelago of Shandong to the south-west. Changhai County consists of 195 islands, reefs and shoals, with a land area of 142 km² and a sea area of 10,324 km². It is the only island county in north-east China and the only island border county in the country. Its sea area greatly exceeds its land area, which means that the principal object of county-level governance is the sea rather than the land: the working interface of conservation necessarily falls on the coastal zone, the islands and reefs, and the intertidal zone.

从全球候鸟迁徙格局来看，长山群岛地处东亚—澳大利西亚候鸟迁飞区（East Asian–Australasian Flyway, EAAF）的关键节点。该迁飞区是全球受威胁水鸟物种最为集中的迁飞通道之一，也是《东亚—澳大利西亚迁飞区伙伴关系》（EAAFP）与《保护野生动物迁徙物种公约》（CMS）框架下国际合作的重点区域。中国黄（渤）海候鸟栖息地正是这条通道上最重要的潮间带滩涂与海岛补给枢纽，而长山群岛作为北黄海深处的岛群，为跨越渤海和黄海的候鸟提供了长途迁飞中不可替代的繁殖地、停歇地和越冬地。

In the global pattern of bird migration, the Changhai Archipelago sits at a key node of the East Asian–Australasian Flyway (EAAF). This flyway is among the world's most concentrated migration corridors for threatened waterbird species, and is a focus of international cooperation under the East Asian–Australasian Flyway Partnership (EAAFP) and the Convention on Migratory Species (CMS). The Migratory Bird Sanctuaries along the Coast of the Yellow Sea–Bohai Gulf of China are precisely the most important intertidal mudflat and island refuelling hub on this corridor, while the Changhai Archipelago, as an island group deep in the northern Yellow Sea, provides irreplaceable breeding, stopover and wintering grounds for birds crossing the Bohai Sea and the Yellow Sea.

从生态区划上看，长山群岛位于古北界，兼具大陆性气候与海洋性气候的双重影响。这种地理和气候过渡性，使该区域鸟类群落兼有南北种类：它既是东北亚候鸟南下的能量补给站，也是南方候鸟北返时的重要繁殖场所，在东亚—澳大利西亚迁飞区中承担着“海上驿站”的功能。迁飞区保护的关键在于站点网络的完整性；长山群岛的价值，正在于它同时提供繁殖、停歇与越冬三类功能，使同一片岛群能够服务不同季节、不同种群的迁徙需求。

In terms of ecological regionalisation, the Changhai Archipelago lies within the Palearctic realm and is shaped by both continental and maritime climatic influences. This geographical and climatic transitional character gives the regional bird community a mixture of northern and southern species: the islands serve both as an energy refuelling station for north-east Asian birds moving south and as an important breeding ground for southern species returning north, functioning as a "maritime staging post" within the East Asian–Australasian Flyway. What matters in flyway conservation is the completeness of the site network. The value of the Changhai Archipelago lies precisely in the fact that it provides breeding, stopover and wintering functions simultaneously, enabling a single island group to serve the migration needs of different populations in different seasons.

1.2 海岛气候与生态基底

1.2 Island Climate and Ecological Foundations

遗产地所在的长山岛群属近陆岛，具有大陆性及海洋性影响的双重气候特点，夏无酷暑、冬无严寒。参考科学考察报告数据，长山群岛年均降水量 584.1 毫米，降水集中在夏季，春、夏季降水量占全年的 60%—70%；年平均风速 5—6 米/秒，昼夜风向随海陆温差交替变化。稳定的海岛气候为海岛植被、海洋生物和候鸟栖息提供了环境基底；而降水的高度季节集中与常态化的海陆风交替，也构成观测作业必须适应的基本约束。

The Changshan island group in which the property is located consists of near-shore islands with a dual continental and maritime climate: summers are free of extreme heat and winters free of severe cold. According to the scientific survey report, mean annual precipitation in the Changhai Archipelago is 584.1 mm, concentrated in summer, with spring and summer precipitation accounting for 60%–70% of the annual total; mean annual wind speed is 5–6 m/s, and wind direction alternates between day and night in response to land–sea temperature differences. This stable island climate provides the environmental basis for island vegetation, marine life and bird habitat. At the same time, the pronounced seasonal concentration of rainfall and the regular alternation of land and sea breezes constitute a basic constraint to which field observation must adapt.

遗产地的生态基底由以下要素共同构成：

The ecological foundations of the property are constituted jointly by the following elements:

- 岛礁系统：以基岩岛为主，陡峭海蚀崖为海鸟提供天然巢穴，并在空间上隔离人为干扰。

  Island and reef system: dominated by bedrock islands, whose steep sea cliffs provide natural nest sites and spatially buffer human disturbance.

- 岩滩与潮间带：岩礁潮间带占海岸线约 63%，藤壶、贻贝等附着生物为海鸟提供食物来源和筑巢基质。

  Rocky shores and intertidal zones: rocky intertidal habitats account for about 63% of the coastline; sessile organisms such as barnacles and mussels supply food resources and nesting substrate for seabirds.

- 浅海湿地：覆盖永久性浅海水域、海草层、岩石性海岸、沙滩砾石滩等多种湿地类型，为涉禽提供觅食场。

  Shallow marine wetlands: encompassing permanent shallow marine waters, seagrass beds, rocky coasts and sandy and gravel beaches, these wetland types provide feeding grounds for wading birds.

- 海岛原生植被：据科考报告，遗产地及缓冲区内共有陆生高等植物 166 种，分属 52 科 130 属，以黑松、紫穗槐、白杜、三裂绣线菊等为代表，为鸟类提供隐蔽与繁殖场所。

  Native island vegetation: according to the scientific survey report, the property and its buffer zone contain 166 species of higher terrestrial plants, belonging to 52 families and 130 genera and represented by Japanese black pine, Amorpha fruticosa, Euonymus maackii and Spiraea trilobata, providing cover and breeding habitats for birds.

植物与海洋生物共同支撑了完整的岛—海物质循环。海草床主要分布在獐子岛和海洋岛附近海域，大叶藻为绝对优势物种；浮游植物属于北太平洋暖温带区系，春季和秋季出现两次总量高峰，为候鸟提供丰富的饵料基础。海草床同时是典型的蓝色碳汇系统，其固碳与净化水质的功能与《昆明—蒙特利尔全球生物多样性框架》的目标方向一致；对其长期观测应纳入公民科学固定样区的设计，而非仅作为背景资料。

Plants and marine organisms together sustain a complete island–sea material cycle. Seagrass beds are distributed mainly in the waters around Zhangzi Island and Haiyang Island, where eelgrass is the absolutely dominant species. Phytoplankton belongs to the warm-temperate North Pacific flora and shows two annual biomass peaks, in spring and autumn, providing a rich prey base for migratory birds. Seagrass beds are at the same time a typical blue carbon sink, whose functions of carbon sequestration and water purification are consistent with the direction set by the Kunming-Montreal Global Biodiversity Framework; their long-term observation should therefore be built into the design of fixed citizen-science sample plots.

1.3 四大组成部分及其生态功能

1.3 The Four Components and Their Ecological Functions

2026 年纳入世界遗产的边界调整方案，将原 11 处组成部分优化整合为 4 处，总面积 4962.62 公顷（遗产区 2803.41 公顷，缓冲区 2159.21 公顷）。整合依据各单元的生态功能与代表性进行归并，以减少管理碎片化、提升保护单元的空间连续性。四大组成部分因此各有明确的生态功能定位，又构成功能互补的整体：繁殖种群承载、水鸟越冬、猛禽停歇与海洋哺乳动物协同保护四类功能在同一遗产地内形成闭环。

The boundary modification approved in 2026 consolidated the previous eleven components into four, with a total area of 4,962.62 ha (2,803.41 ha of property and 2,159.21 ha of buffer zone). Units were merged according to their ecological function and representativeness, so as to reduce management fragmentation and improve the spatial continuity of conservation units. The four components therefore each carry a clear ecological function while together forming a complementary whole — the breeding-population stronghold,

waterbird wintering, raptor stopover and coordinated marine-mammal conservation functions close a loop within a single property.

(1) 广鹿岛矾坨子——全球黄嘴白鹭核心繁殖地

(1) Fantuozi, Guanglu Island — the global core breeding ground of the Chinese Egret

矾坨子位于广鹿岛西南部，是黄嘴白鹭全球最大繁殖种群的承载地，享有“中国黄嘴白鹭之乡”的美誉。这里是暗绿背鸬鹚、海鸬鹚、黑尾鸥等鸟类的繁殖地及越冬地，凤头䴙䴘、红胸秋沙鸭、鹊鸭等水鸟亦在此越冬。黄嘴白鹭繁殖种群占全球种群 90% 以上，这意味着该地点一旦发生种群波动，将直接反映为全球层面的种群变化，使矾坨子在系列遗产地中具有不可替代的价值，也必须适用最严格的干扰管控原则。

Fantuozi lies in the south-west of Guanglu Island and carries the world’s largest breeding population of the Chinese Egret, earning it the reputation of the “home of the Chinese Egret in China”. It is also a breeding and wintering area for species such as the Japanese Cormorant, Pelagic Cormorant and Black-tailed Gull, while waterbirds including the Great Crested Grebe, Red-breasted Merganser and Common Goldeneye winter here. The breeding population of the Chinese Egret here accounts for more than 90% of the global population. This means that any population fluctuation at the site is directly reflected as a change at the global level, giving Fantuozi an irreplaceable value within the serial property and requiring the strictest application of disturbance-control principles.

(2) 格仙岛头坨子——黑脸琵鹭与猛禽的北方家园

(2) Toutuozi, Gexian Island — northern home of the Black-faced Spoonbill and raptors

头坨子位于大长山岛西草坨子与广鹿岛格仙岛、哈仙岛、瓜皮岛交汇处，是黑脸琵鹭的重要繁殖栖息地，也是蛎鹬、海鸬鹚等鸟类的重要繁殖地。红胸秋沙鸭、长尾鸭、鹊鸭、红头潜鸭等在此越冬，红隼、雀鹰、黑尾鸥、暗绿背鸬鹚等众多鸟类在此迁徙停歇。头坨子拥有较大的连续保护单元，提升了生态系统的完整性；其独特价值在于繁殖、越冬与迁徙停歇三类功能在同一空间内叠加。

Toutuozi lies at the confluence of Xicaotuozi on Da Changshan Island and Gexian, Haxian and Guapi islands in the Guanglu Island area. It is an important breeding habitat for the Black-faced Spoonbill and an important breeding area for species such as the Eurasian Oystercatcher and Pelagic Cormorant. Red-breasted Merganser, Long-tailed Duck, Common Goldeneye and Common Pochard winter here, while numerous species including Common Kestrel, Eurasian Sparrowhawk, Black-tailed Gull and Japanese Cormorant stop over during migration. Toutuozi contains a relatively large continuous conservation unit, which enhances ecosystem integrity. Its distinctive value lies in the co-location of breeding, wintering and migration-stopover functions within a single space.

(3) 大耗子岛——水鸟越冬与猛禽停歇的森林岛

(3) Dahaodao Island — forested island for wintering waterbirds and raptor stopover

大耗子岛位于獐子岛南部，拥有相对完整的乔、灌、草植被层次。林中栖息着多种猛禽和林鸟，是海鸬鹚、西伯利亚银鸥、白腰雨燕、黑尾鸥、暗绿背鸬鹚等鸟类的重要繁殖栖息地和越冬地。完整的森林生态系统为秋季南迁的猛禽提供了隐蔽停歇和能量补充的场所；对猛禽而言，迁徙途中可供安全停歇的林地节点往往比觅食地更为稀缺。

Dahaodao Island lies south of Zhangzi Island and retains a relatively complete vegetation structure of trees, shrubs and herbs. Its woods host a range of raptors and forest birds, and it is an important breeding habitat and wintering area for the Pelagic Cormorant, Siberian Gull, Pacific Swift, Black-tailed Gull and Japanese Cormorant. The intact forest ecosystem provides cover, rest and refuelling for raptors moving south in autumn. For raptors, safe woodland stopover nodes along the migration route are often scarcer than foraging areas.

(4) **蛇蛸岛南部岩礁带——海鸟与海洋哺乳动物共享的家园**

(4) The southern rocky shore zone of Bashao Island — a shared home for seabirds and marine mammals

蛇蛸岛南部岩礁带位于小长山岛东部，植被条件丰富，为多种林鸟提供了繁殖与过境停歇环境。这里是金雕等大型猛禽的迁徙觅食场所，也是海鸬鹚、暗绿背鸬鹚等鸟类的重要繁殖地。同时，遗产地海域还是西太平洋斑海豹等海洋哺乳动物的洄游、栖息与觅食海域，维系着其繁育种群。洄游、栖息、觅食与繁育种群的维系在同一海域叠加，使蛇蛸岛成为候鸟与海洋哺乳动物协同保护的重要空间，也为“海岛—海洋”一体化监测提供了最具代表性的场景。

The southern rocky shore zone of Bashao Island lies east of Xiao Changshan Island. Its rich vegetation provides breeding and passage-stopover conditions for a variety of forest birds. It is a migratory foraging area for large raptors such as the Golden Eagle, and an important breeding area for species including the Pelagic Cormorant and Japanese Cormorant. The waters of the property are also areas of migration, resting and foraging for marine mammals such as the Western Pacific spotted seal, sustaining its breeding population. The superposition of migration, resting, foraging and the maintenance of the breeding population within the same waters makes Bashao Island an important space for the coordinated conservation of migratory birds and marine mammals, and offers the most representative setting for integrated island–sea monitoring.

1.4 世界自然遗产身份的正确表述

1.4 Correct Usage of the World Natural Heritage Designation

在国际传播中，必须准确使用以下表述，避免出现“非物质文化遗产”与“世界自然遗产”混淆的问题。术语的准确并非单纯的编辑规范问题，它直接关系到遗产地在国际语境中的法律地位与保护义务。

In international communication, the following formulations must be used accurately, so as to avoid conflating “intangible cultural heritage” with “World Natural Heritage”. Terminological accuracy is not merely an editorial convention; it bears directly on the legal standing of the property in international contexts and on the conservation obligations attached to it.

- 资格类型：长山群岛候鸟栖息地属于世界自然遗产（World Natural Heritage），而非非物质文化遗产。它是以“中国黄（渤）海候鸟栖息地”系列遗产的边界调整（Minor Boundary Modification）方式新增的组成部分。

  Type of status: the Changhai Archipelago Migratory Bird Habitat is a World Natural Heritage property, not intangible cultural heritage. It was added as a component through a minor boundary modification to the serial property “Migratory Bird Sanctuaries along the Coast of the Yellow Sea–Bohai Gulf of China”.

- 时间节点：2026 年 7 月 27 日，第 48 届世界遗产委员会会议在韩国釜山审议通过边界调整项目。

  Timing: on 27 July 2026, the 48th session of the World Heritage Committee, meeting in Busan, Republic of Korea, approved the boundary modification project.

- 纳入方式：不是新申报一项独立世界遗产，而是对已列入《世界遗产名录》的系列遗产进行范围调整。

  Mode of inclusion: this is not the nomination of a new, standalone World Heritage property, but a modification to the extent of a serial property already inscribed on the World Heritage List.

- 与长海号子的区别：长海号子是 2011 年列入第三批国家级非物质文化遗产名录的渔家传统音乐；它与候鸟栖息地分属 UNESCO 两个不同体系，不可混称。

  Distinction from Changhai Haozi: Changhai Haozi, a traditional fishing music, was inscribed in 2011 on the third batch of China’s national intangible cultural heritage list. It and the migratory bird habitat belong to two distinct UNESCO systems and must not be referred to interchangeably.

上述四项表述构成本白皮书对外传播的统一口径。凡涉及展陈、媒体与边会发言的文本，均应以本节措辞为准。

These four formulations constitute the standard wording for all external communication of this white paper. Exhibition texts, media materials and side-event statements should all follow the wording of this section.

第二章　为什么需要青年行动

Chapter 2　Why Youth Action Is Needed

2.1 保护管理已有体系

2.1 Existing conservation and management systems

长山群岛候鸟栖息地已形成相对完整的保护管理架构：属地政府与相关管理部门承担巡护执法、疫病监测、栖息地修复等日常管理职能，构成制度性保障；科研院所与专业机构持续开展物种调查、环志与卫星追踪研究，提供科学基底；遗产地周边的社区与渔民群体则以代际传承的方式维系着与海鸟共存的渔猎文化，构成非正式但真实的地方性约束。

The Changhai Archipelago Migratory Bird Habitat is already served by a relatively complete conservation and management architecture, and it is worth stating at the outset that this architecture works. It rests on three pillars that support one another. Local government and the competent authorities carry out day-to-day management — patrols and law enforcement, disease surveillance, habitat restoration — and in doing so provide the institutional guarantee. Research institutes and specialised agencies conduct sustained species surveys, bird ringing and satellite tracking, supplying the scientific basis on which every management decision depends. Communities and fishing households around the property maintain, through intergenerational transmission, a fishing and hunting culture of coexistence with seabirds, which forms an informal but nonetheless real layer of local constraint. Each pillar has a distinct role, and none can be substituted for another.

这套体系是有效的，但其效能高度集中于“专业力量”一端。世界自然遗产的认定对治理结构提出了更高要求：一处遗产地的长期保护，不能仅由机构与专家支撑，还必须建立在地理邻近的公众共识之上。长山群岛常住人口规模有限，本地青年持续外流，外来访客又以夏季旅游为主，流动性高、停留期短，对候鸟保护缺乏稳定的参与路径。制度与技术的能力已经具备，社会基础却相对薄弱——这是必须正视的结构性短板。

This system works, but its effectiveness is heavily concentrated at the “professional” end. Inscription as a World Natural Heritage property raises the bar for governance in ways that go beyond paperwork: the long-term protection of a property cannot rest on institutions and experts alone, however competent they may be. It must also be anchored in a public consensus held by those who live closest to it, because it is their daily behaviour — not the annual inspection report — that determines what happens on the ground. Here the Changhai Archipelago faces a specific difficulty. The resident population is limited, young people continue to move away in search of education and employment, and visitors are overwhelmingly summer tourists: highly mobile, short-staying, and without any stable route into migratory bird conservation. Institutional and technical capacity is therefore in place while the social foundation remains thin. That asymmetry between the two is the structural weakness we must confront, and it sets the terms for everything that follows.

2.2 三个缺口：公众数据 / 气候叙事 / 社区转化

2.2 Three gaps: public data / climate narrative / community conversion

在实地调研与深度访谈的基础上，我们认为当前保护体系存在三个彼此关联、又彼此强化的缺口。它们并非既有职能的失效，而是既有职能无暇覆盖的空白地带——恰恰在这些位置上，青年组织能够形成增量而不造成职能重叠。

Drawing on field research and in-depth interviews with managers, researchers and residents, we identify three gaps in the current conservation system — gaps that are interlinked and that reinforce one another. It is important to be precise about what these gaps are not. They are not failures of existing mandates, and we do not present them as criticism of the authorities and institutions that carry those mandates. They are simply spaces that existing mandates have neither the staff nor the remit to cover. It is precisely in these spaces that a youth organisation can add value, precisely because nothing there is being duplicated and no one else's authority is being claimed.

缺口一：公众数据缺口

Gap 1: The public data gap

长山群岛已积累扎实的专业科考数据：遗产地记录鸟类 140 余种，长海全域记录 255 种；迁徙季水鸟数量超过 10 万只；黄嘴白鹭成鸟超过 2500 只，其中矾坨子超过 1500 只；黑脸琵鹭 2026 年种群数量接近 60 只。这些数据构成了遗产地突出普遍价值认定的科学基础。

The Changhai Archipelago already rests on a solid body of professional survey data: over 140 bird species recorded in the property and 255 across Changhai County as a whole; more than 100,000 waterbirds during the migration season; over 2,500 adult Chinese Egrets, of which over 1,500 are found at Fantuozi; and a Black-faced Spoonbill population approaching 60 individuals in 2026. These figures are not decorative. They underpin the recognition of the property's Outstanding Universal Value, they establish the baseline against which future change will be measured, and they give managers a defensible reference point when difficult trade-offs have to be made.

但这类数据在采集方式上是“精英科考式”的：调查频次低、时间窗口固定、覆盖点位有限，本质上是对种群状态的周期性切片。候鸟到达与离开的时间逐日变化，极端天气下的种群波动、普通游客偶然目击的珍稀物种，这些高频、零散却极具价值的信息几乎没有渠道进入保护管理体系。公民科学的意义不在于取代专业监测，而在于把数据采集频次从“每季一次”提升到“每天多次”，用时间分辨率的补足换取管理响应的提前量。

The limitation lies not in the quality of this data but in how it is collected. It is “elite expedition” data: low survey frequency, fixed time windows, limited site coverage — essentially periodic snapshots of population status rather than a continuous record of what is happening. Yet the phenomena that matter most to a manager are continuous. Arrival and departure dates shift day by day; population fluctuations under extreme weather, and chance sightings of rare species by ordinary visitors, are all high-frequency, fragmentary pieces of information that are nonetheless highly valuable. Almost none of them currently reach the conservation management system, because no channel exists to carry them. Citizen science is not meant to replace professional monitoring, and it cannot. It is meant to raise the frequency of data collection from “once a

season" to "several times a day", trading finer temporal resolution for earlier management response. Its output is leads and trends; the final judgement remains, as it should, with the professional institutions.

缺口二：气候叙事缺口

Gap 2: The climate narrative gap

公众对长山群岛的认知，大多停留在"看海、吃海鲜、坐船"的旅游叙事层面。候鸟保护在本地传播中长期以物种知识科普为主——辨识鸟种、讲述习性、介绍保护级别——缺少与气候变化、海洋碳汇、生态廊道、绿色低碳生活方式之间的叙事连接。

Public perception of the Changhai Archipelago remains largely framed by tourism: "see the sea, eat seafood, take a boat." This is not a trivial framing problem; it determines what visitors expect, what residents think they are selling, and what policymakers believe the islands are for. Local communication about migratory bird conservation has long centred on species literacy — identifying birds, describing habits, explaining protection categories — and this work has real value. What it lacks is any narrative connection to climate change, ocean carbon sinks, ecological corridors, or low-carbon lifestyles. Species knowledge tells people what is there; it does not tell them why it concerns them.

世界自然遗产的新身份本应成为一次叙事重塑的契机，但目前多数公众并不清楚"世界自然遗产"意味着什么，也不理解候鸟保护与自身低碳行为之间存在何种关联。气候教育的任务即是再讲一遍鸟类百科，更是建立"气候—海洋—候鸟—人类生活"的完整因果链：让公众理解海洋升温如何改变鱼类分布、物候错配如何影响繁殖成败、海草床的固碳功能与减排目标如何相互支撑，从而使低碳选择从抽象倡导转化为与身边物种直接相关的具体行动。

The new status of World Natural Heritage should be an opportunity to reset that narrative. In practice, however, most members of the public still do not know what "World Natural Heritage" actually means — they hear a prestigious label without understanding the obligations it carries — nor can they say how migratory bird conservation relates to their own low-carbon choices. The task of climate education is therefore not to repeat an ornithological encyclopaedia to an audience that has already stopped listening. It is to build a complete causal chain — climate, ocean, migratory birds, human life — so that people understand how ocean warming shifts fish distribution, how phenological mismatch undermines breeding success, and how the carbon sequestration of seagrass beds reinforces mitigation goals. Once that chain is visible, a low-carbon choice ceases to be an abstract exhortation issued by distant authorities and becomes a concrete action with consequences for the species on the shoreline next door.

缺口三：社区转化缺口

Gap 3: The community conversion gap

遗产地周边的社区与渔民是保护体系中最前端的利益相关者，日常生产活动与鸟类栖息高度重叠，却也是从生态保护中获得经济回报最有限的一群人。观鸟旅游尚未形成产品体系

与客源组织能力，生态友好型海产品牌未被开发，渔家乐缺少低碳转型所需的技术路径与市场通道。

Communities and fishing households around the property are the front-line stakeholders of the conservation system, in the most literal sense: their daily productive activities overlap in space and time with bird habitat, so that whatever they do is either compatible with conservation or in tension with it. They are also the group that derives the least economic return from ecological protection. Birdwatching tourism has not yet been developed into a structured product with organised visitor flows; bird-friendly seafood branding remains unexplored; and fishery-based homestays lack both the technical pathway and the market access that a low-carbon transition would require. For these households, protection currently registers as a set of constraints rather than a set of opportunities.

保护不能只靠情怀。若社区无法从生态保护中获得可持续收益，保护动力就会随宣传热度的消退而衰减，甚至转化为抵触。青年组织在此可以发挥连接作用：把生态价值转译为具体的社区收益路径，协助对接客源、传播渠道与认证资源。这种连接不是替代政府的产业政策职能，而是在政策与市场之间补上转化的最后一公里。

Conservation cannot run on sentiment alone, and it is dishonest to pretend otherwise. If communities cannot derive sustainable benefits from protecting nature, their motivation will fade as soon as the publicity cycle cools — and faded motivation can harden into active resistance, which is far worse than indifference. A youth organisation can act as a connector here, not as a planner or a regulator: translating ecological value into concrete pathways of community benefit, and helping to match local actors with visitors, communication channels and certification resources that already exist but have never been brought together. This is not a substitute for the industrial policy functions of government. It is the last mile of conversion between policy intent and market reality, and it is a role that suits an organisation whose main assets are people, networks and time.

2.3 青促会能补的位置与边界

2.3 Where YCCDL can contribute — and where its boundaries lie

作为《联合国气候变化框架公约》观察员机构，大连市青年公益事业发展促进会（青促会，YCCDL）对自身的定位是协同者、放大器与连接器。观察员身份给予我们参与国际议程的机会，也意味着必须以更高的纪律标准界定自身行为边界。

As an observer organisation to the United Nations Framework Convention on Climate Change (UNFCCC), the Dalian Youth Public Welfare Development Promotion Association (YCCDL) defines its own role in deliberately modest terms: coordinator, amplifier and connector. We coordinate with existing management capacity rather than building parallel structures; we amplify the scientific output of professional institutions rather than producing our own; and we connect communities, young people and international platforms that would otherwise not meet. Observer status gives us access to the international agenda and a

voice within it. It also brings an obligation, because the credibility that makes that voice worth hearing depends entirely on discipline in defining the boundaries of our own action.

我们能做的

What we do

- 建立青年志愿协同网络，为巡护、宣教、数据采集补充人力；

  Build a youth volunteer coordination network that supplements the manpower available for patrols, outreach and data collection, working always under the direction of the managing authority;

- 发起公民科学观测项目，以标准方法补充高频次鸟情记录；

  Launch citizen science observation programmes that supplement bird records at high frequency, using standardised methods so that the resulting data can be compared and checked;

- 开发气候教育课程与艺术传播产品，把世界自然遗产讲成青年听得懂的故事；

  Develop climate education curricula and art-based communication products that translate the concept of World Natural Heritage into stories young audiences can actually grasp;

- 推动低碳观鸟文旅试点，协助社区对接客源与认证资源；

  Pilot low-carbon birdwatching tourism and help communities connect with visitor flows and certification resources on fair commercial terms;

- 在 COP3 等国际平台讲述长山群岛案例，拓展国际合作资源。

  Present the Changhai Archipelago case at COP and other international platforms, in order to broaden the cooperation resources available to the property.

我们不做的

What we do not do

- 不替代执法。我们不参与对违法行为的处罚，不介入保护区核心区的管理决策。

  No substitute for enforcement. We take no part in penalising illegal acts, we do not conduct enforcement patrols under our own authority, and we do not intervene in management decisions concerning the core zone of the protected area.

- 不介入专业物种干预。鸟类救助、栖息地工程等专业处置由主管部门与专业机构实施，我们只做观测、记录与报告。

  No involvement in professional species intervention. Bird rescue, habitat engineering, veterinary treatment and other specialist operations remain with the competent authorities and professional agencies; we only observe, record and report.

- 不自称科研结论。公民科学数据一律注明“公众观测”性质，不混同于专业科考数据，也不用于独立发布物种结论。

No claim to scientific conclusions. Citizen science data is always labelled as "public observation", is never conflated with professional survey data, and is never used to publish independent species findings or population estimates under our own name.

- 不脱离社区。任何行动设计均须经社区知情与同意，不做脱离本地的"飞地式"宣传。

  No action detached from the community. Every action design requires community awareness and consent before it begins; we do not conduct "enclave-style" advocacy that visits a place, extracts a story and leaves nothing behind.

上述边界是协同关系得以长期成立的前提。唯有边界清晰，管理部门、科研机构与社区才可能把青年组织视为可预期的合作方。

These boundaries are not a gesture of self-restraint, and we do not present them as modesty for its own sake. They are the precondition for a durable collaborative relationship. Only with clearly drawn boundaries can management authorities, research institutions and communities regard a youth organisation as a predictable partner — one whose behaviour can be anticipated in advance rather than discovered after the fact. Predictability is what makes delegation possible, and delegation is what allows volunteers to be useful at all.

第三章　生态底图：长山群岛的价值要素

Chapter 3　The ecological baseline: elements of value in the Changhai Archipelago

3.1 气候与湿地类型

3.1 Climate and wetland types

3.1.1 气候特征

3.1.1 Climatic characteristics

长山群岛地处温带海洋性季风气候区，受黄海水体调节，呈现出冬无严寒、夏无酷暑、温差较小的海岛气候特征。结合科学考察报告数据，本区域多年平均降水量 584.1 毫米，降水集中于夏季，春、夏两季降水量占全年的 60%—70%；年平均风速 5—6 米/秒，风向受海陆热力差异影响呈现昼夜交替变化。

The Changhai Archipelago lies within a temperate maritime monsoon climate zone. Moderated throughout the year by the water mass of the Yellow Sea, it exhibits a distinctly insular climate: no severe winter cold, no intense summer heat, and a narrow annual temperature range compared with the mainland just across the water. According to the Scientific Survey Report, mean annual precipitation in the area is 584.1 mm, concentrated in summer, with spring and summer together accounting for 60%–70% of the annual total. Mean annual wind speed is 5–6 m/s, and wind direction alternates between day and night under the influence of the land–sea thermal contrast — a rhythm that sailors and fishermen on the islands have long read as part of the working day.

这一气候背景对候鸟保护具有双重意义。一方面，温和稳定的海岛气候为鸟类提供了相对可靠的繁殖与越冬环境，降低了极端低温造成的直接死亡风险；另一方面，全球变暖正在改变东亚—澳大利西亚迁飞区的大气环流模式，导致春季物候提前、极端天气事件频发。近年观测显示，黄海北部海域春季升温速度加快，候鸟到达时间与昆虫高峰期之间的错配风险随之上升。气候变化与生物多样性丧失相互加剧，已成为 IPCC 与 IPBES 共同关注的议题。这意味着，长山群岛不仅是一个需要保护的生态空间，更是一个需要持续监测气候变化影响的哨点——青年公民科学所采集的物候与行为记录，正是这一哨点功能最基础的组成部分。

This climatic background carries a dual significance for migratory bird conservation, and the two sides of it pull in opposite directions. On the one hand, a mild and stable insular climate offers birds a relatively reliable environment for breeding and overwintering, lowering the risk of direct mortality from extreme cold and allowing some species to remain through winter that could not do so inland. On the other hand, global warming is altering atmospheric circulation patterns across the East Asian–Australasian Flyway, advancing spring phenology and increasing the frequency of extreme weather events. Recent observations indicate accelerated spring warming in the northern Yellow Sea, which raises the risk of mismatch between bird arrival dates and the peak abundance of the insect prey on which chicks depend — a mismatch that cannot be corrected by the birds once the season is under way. That climate change and biodiversity loss reinforce one another, rather than running in parallel, has become a shared concern of the IPCC and IPBES. The implication for the Changhai Archipelago is that it is not merely a space requiring protection; it is a sentinel that requires continuous monitoring of climate impacts. The phenological and behavioural records gathered

through youth citizen science are the most elementary component of that sentinel function, and they are the one component that can be sustained year after year.

3.1.2 湿地类型

3.1.2 Wetland types

参照《湿地公约》分类系统，遗产地及周边海域涵盖以下湿地类型：

Classified against the Ramsar Convention classification system for wetland types, the property and its surrounding waters encompass the following categories:

湿地类型 / Wetland type	主要分布 / Distribution	生态功能 / Ecological function
永久性浅海水域 *Permanent shallow marine waters*	各岛周边潮下带 *Subtidal zones around the islands*	水鸟觅食、海洋动物洄游通道 *Foraging for waterbirds; migration corridor for marine fauna*
海草床 *Seagrass beds*	獐子岛、海洋岛附近海域 *Waters off Zhangzi Island and Haiyang Island*	初级生产、底栖生物栖息、碳汇 *Primary production; habitat for benthic organisms; carbon sink*
岩石性海岸 *Rocky shores*	矾坨子、头坨子、蛇蛸岛等 *Fantuozi, Toutuozi, Bashao Island and others*	海鸟筑巢、停歇、躲避天敌 *Nesting, roosting and refuge from predators for seabirds*
沙滩与砾石滩 *Sand and gravel beaches*	各岛岸线 *Shorelines of the islands*	涉禽觅食、休憩 *Foraging and resting for waders*
砂质海岸 *Sandy shores*	大长山岛局部 *Parts of Da Changshan Island*	两栖动物与水鸟活动 *Habitat for amphibians and waterbirds*

其中，岩石性海岸是长山群岛最具特色的湿地类型。陡峭的海蚀崖壁为黄嘴白鹭、暗绿背鸬鹚等海鸟提供了天然的巢穴平台；崖壁的隔离性有效降低了陆生天敌的可达性，这一条件在黄海沿岸以滩涂为主的其他候鸟栖息地中十分罕见。遗产地海岸线中岩石质岸线占比较高，为岛屿繁殖海鸟提供了不可替代的筑巢基质。岩石性海岸的巢址资源高度不可再生，一旦崖体风化或崩塌，可供选择的替代巢位极为有限，因此保护重点在于维持岸线自然状态，而非事后修复。

Of these categories, rocky shores are the most distinctive wetland type in the Changhai Archipelago, and the one that most directly explains why this property matters. Steep sea cliffs provide natural nest platforms for seabirds such as the Chinese Egret and the Japanese Cormorant, while their vertical isolation sharply reduces the accessibility of terrestrial predators — a condition that is rare among the other migratory bird habitats along the Yellow Sea coast, which are overwhelmingly mudflat-based and therefore far more exposed. Rocky coastline accounts for a relatively high share of the property's shoreline, supplying nesting substrate for island-breeding seabirds that cannot be replaced elsewhere. Nest-site resources on rocky shores are also highly non-renewable: once a cliff face weathers or collapses, the alternative nest sites available to a colony are extremely limited, and birds cannot simply move a few hundred metres inland as they might on a mainland wetland.

Protection of this wetland type must therefore focus on maintaining the natural condition of the shoreline in the first place, rather than on restoration after the damage has been done.

3.1.3 海岛生态系统的脆弱性

3.1.3 Vulnerability of island ecosystems

海岛生态系统具有高度的脆弱性与不可逆性，长山群岛并不例外。其成因是面积、结构、气候暴露度与物质输运条件的叠加，具体表现为四个方面。

Island ecosystems are characterised by high vulnerability and low reversibility, and the Changhai Archipelago is no exception to that general rule. The underlying causes are not mysterious: they lie in the combined effect of limited area, simplified structure, high climatic exposure and the way materials are transported by currents around an island. In practice these causes express themselves in four respects.

第一，岛屿面积有限，物种栖息空间存在硬边界。四大组成部分均为面积有限的岛礁，一旦核心繁殖区受到干扰，鸟类缺乏向内陆退避的空间，只能选择弃巢或暴露于风险之中，缓冲余地接近于零。

First, island area is limited and habitat space therefore has a hard boundary. All four component parts of the property are small islands and reefs, and smallness is not a detail here — it is the defining constraint. Once a core breeding area is disturbed, birds have no inland space to retreat into; they can only abandon their nests or remain exposed to the risk that caused the disturbance in the first place. The margin for buffering is effectively zero.

第二，食物链短而敏感。海岛生态系统的营养级结构相对简单，在“浮游植物—底栖生物—鱼类—海鸟”这条链条上，任一环节的波动都可能迅速传导至海鸟的繁殖成功率。

Second, the food chain is short and therefore sensitive. The trophic structure of island ecosystems is comparatively simple, and simplicity in this context means speed of transmission rather than robustness. Along the chain from phytoplankton to benthic organisms to fish to seabirds, a fluctuation at any single link can be transmitted rapidly to the breeding success of seabirds, with few intermediate pathways to absorb the shock.

第三，应对极端气候的能力有限。风暴潮、台风路径变化、海平面上升等气候风险对低海拔岛礁的冲击是直接的，岛屿无法像大陆栖息地那样依靠广阔腹地提供空间缓冲。

Third, the capacity to cope with extreme climate is limited. Storm surges, shifts in typhoon tracks and sea-level rise strike low-lying islands and reefs directly, with nothing standing in front of them. Islands cannot draw on a vast hinterland for spatial buffering as continental habitats can, nor can their populations simply shift inland as conditions change.

第四，污染与垃圾的汇集效应。海洋垃圾与船舶排污在海流与地形共同作用下容易在岛礁区聚集，直接影响巢址质量与幼鸟存活率。这一问题必须与陆源和海上污染源的控制协同解决。

Fourth, pollution and debris accumulate rather than disperse. Under the combined action of currents and topography, marine litter and vessel discharges tend to collect around island and reef areas instead of being carried away, and this directly affects nest-site quality and chick survival. Because the material arrives from outside, this problem cannot be solved on the islands alone; it must be addressed jointly with the control of land-based and sea-based pollution sources.

上述脆弱性共同指向一个结论：世界自然遗产的认定不是保护工作的终点，而是更高标准管理的起点。对青年行动而言，志愿热情必须转化为更严格的现场纪律，每一次进入与记录都须以不增加系统负荷为前提。

Taken together, these four vulnerabilities point to a single conclusion: inscription on the World Heritage List is not the endpoint of conservation but the starting point of a higher standard of management, with correspondingly less room for error. For youth action, the practical meaning is unambiguous. Volunteer enthusiasm is a resource, but on its own it is also a risk; it has to be converted into stricter field discipline. Every entry into a site and every record made there must be premised on adding no additional load to a system that already has very little slack.

3.2 植物与植被系统

3.2 Plant and vegetation systems

3.2.1 陆生植物概况

3.2.1 Terrestrial flora

据科学考察报告，遗产地及缓冲区内共记录陆生高等植物 166 种，隶属 52 科 130 属。代表性科属包括松科的黑松、豆科的紫穗槐、卫矛科的白杜、蔷薇科的三裂绣线菊等。这一区系组成反映出暖温带海岛特征，与辽东半岛大陆植物区系存在明显亲缘关系。

According to the Scientific Survey Report, 166 species of higher terrestrial plants have been recorded within the property and its buffer zone, belonging to 52 families and 130 genera. Representative taxa include Japanese black pine (Pinaceae), Amorpha fruticosa (Fabaceae), Euonymus maackii (Celastraceae) and Spiraea trilobata (Rosaceae). This floristic composition reflects a warm-temperate insular character and shows clear affinity with the flora of the adjacent Liaodong Peninsula mainland, as one would expect of islands that were connected to the mainland during periods of lower sea level and that continue to receive diaspores across a narrow stretch of water.

海岛植被在空间上呈现明显的垂直分带与水平分异：

Island vegetation shows marked vertical zonation and horizontal differentiation, which together create the microhabitats that birds actually use:

- 高处：以黑松为代表的常绿针叶林与灌丛，为猛禽提供停歇与繁殖生境；

Upper slopes: evergreen coniferous forest and scrub dominated by Japanese black pine, providing roosting and breeding habitat for raptors, which require elevated perches and cover;

- 中坡：落叶阔叶灌丛与草丛混合分布，为林鸟提供巢址与隐蔽条件；

  Mid-slopes: a mosaic of deciduous broadleaf scrub and grassland, supplying nest sites and cover for woodland birds;

- 低处与岸线：盐生植物群落与草本植物带，直接为部分水鸟提供食物源。

  Lower slopes and shoreline: halophytic communities and herbaceous belts that directly supply food resources for some waterbirds and stabilise the transition to the intertidal zone.

植被质量直接决定鸟类群落结构。大耗子岛拥有相对完整的乔—灌—草垂直层次，因而能够支撑猛禽与林鸟的繁殖需求；而部分岛屿因历史放牧与人为干扰，植被层次趋于简单，鸟类多样性明显偏低。这一对比说明，植被恢复是栖息地质量提升的基础性工程：结构先于数量，层次决定承载力。

Vegetation quality directly determines the structure of bird communities, and the relationship runs through structure rather than through species counts. Dahaodao Island retains a relatively intact tree–shrub–herb vertical structure and can therefore support the breeding requirements of both raptors and woodland birds, since different breeding guilds occupy different layers of the same slope. On some other islands, historical grazing and human disturbance have simplified the vegetation structure, and bird diversity there is markedly lower even though the island area is comparable. The contrast is instructive: vegetation recovery is the foundational engineering of habitat improvement. Structure precedes numbers, and stratification determines carrying capacity.

3.2.2 海草床与海洋植物

3.2.2 Seagrass beds and marine plants

海草床是长山群岛近岸海域重要的初级生产者。科考结果显示，獐子岛与海洋岛附近海域发育有海草床，大叶藻为绝对优势种。海草床不仅为底栖生物提供栖息基质，还承担以下功能：

Seagrass beds are important primary producers in the coastal waters of the Changhai Archipelago, and they support a food web that reaches well beyond the plants themselves. Survey results show seagrass beds developing in the waters off Zhangzi Island and Haiyang Island, with eelgrass (Zostera marina) as the overwhelming dominant species. Seagrass beds provide habitat substrate for benthic organisms and, in addition, perform the following functions:

- 为小鱼、虾、蟹提供育幼场所，间接构成海鸟的食物基础；

  Provide nursery habitat for small fish, shrimps and crabs, indirectly forming the food base on which seabirds depend during the breeding season;

- 固定沉积物，减缓波浪对岸线的侵蚀；

Stabilise sediments and reduce wave erosion of the shoreline, protecting the very cliffs and beaches on which birds nest;

- 高效固碳，单位面积海草床的碳埋藏速率远高于陆地森林，是典型的蓝色碳汇。

  Sequester carbon efficiently, with carbon burial rates per unit area far exceeding those of terrestrial forest — a classic blue carbon sink, and one of the few ecosystem types where conservation and mitigation objectives coincide exactly.

将海草床保护纳入气候行动叙事，是长山群岛区别于一般鸟类保护区的独特价值维度，也是本白皮书将气候与生物多样性并置的生态学依据：同一片海草床既是水鸟食物网的基础环节，又是可核算的碳汇单元，保护投入因此同时产生生物多样性效益与气候效益——这正是《昆明—蒙特利尔全球生物多样性框架》与气候议程寻求协同的现实落点。

Bringing seagrass bed protection into the climate action narrative is the distinctive value dimension that sets the Changhai Archipelago apart from an ordinary bird reserve. It is also the ecological rationale for placing climate and biodiversity side by side in this white paper rather than treating them as separate chapters: the same seagrass bed is simultaneously a foundational link in the waterbird food web and an accountable carbon sink unit, so a single conservation investment generates biodiversity and climate benefits at the same time. This "double dividend" is exactly the kind of practical synergy that the Kunming-Montreal Global Biodiversity Framework and the climate agenda are both seeking, and it is unusually easy to demonstrate on the ground.

3.2.3 外来物种与生态风险

3.2.3 Alien species and ecological risk

海岛生态系统的封闭性决定了外来物种一旦建立种群，往往造成难以逆转的灾难性后果。与大陆不同，岛屿缺乏可供本地物种退避的空间，也缺少能够抑制入侵者的天敌与竞争者。风险主要来自几条通道：随苗木与绿化材料引入的非本地观赏植物，随养殖活动逃逸的外来水生生物，以及随船舶、货运与旅游人流无意携带的各类小型生物。

The closed nature of island ecosystems means that once an alien species establishes a population, the consequences are often catastrophic and, for practical purposes, irreversible. Islands differ from continents in two decisive respects. They offer no space into which native species can retreat as an invader spreads, and they lack the predators, parasites and competitors that on the mainland usually keep a newcomer in check. Risk arrives through several identifiable pathways, all of them linked to human activity: non-native ornamental plants introduced with seedlings and landscaping material, alien aquatic organisms escaping from aquaculture facilities, and a range of small organisms carried unintentionally by vessels, freight and tourist flows. Because these pathways are economic and social rather than biological, they cannot be closed by conservation measures alone.

外来物种风险还具有明显的滞后性：从传入、归化到种群爆发之间往往存在较长的时间差，等到危害显现时，根除成本已远高于早期处置成本。因此，国际通行的管理原则是预防优先、早期发现与快速响应并重。

Alien species risk also displays a pronounced time lag, and this is what makes it easy to underestimate. A considerable interval usually separates introduction, naturalisation and eventual population outbreak; during that interval the species may be present at low density and appear harmless. By the time damage becomes visible, eradication costs are already far higher than the cost of early intervention would have been, and in many island cases eradication is no longer feasible at any price. The internationally accepted management principle therefore prioritises prevention, while combining early detection with rapid response as the second line of defence.

青年公民科学在这一环节具有独特的位置——志愿者活动频次高、覆盖范围广，最容易在岸线附近发现新出现的植物群落和异常动物个体。但观测者只负责发现、定位与上报，物种鉴定与处置决策由专业机构作出，志愿者不得自行采集、移栽、放生或清除任何个体，以免造成二次扩散。

Youth citizen science occupies a distinctive niche at precisely this point in the sequence. Volunteers operate frequently and across a wide area, and they are therefore the people most likely to notice a newly appearing plant community or an anomalous individual animal near the shoreline — the earliest visible signal that something has arrived. The division of labour must, however, remain strict. Observers are responsible only for detection, geolocation and reporting; species identification and any decision on response rest with professional agencies. Volunteers must not collect, transplant, release or remove any organism on their own initiative, however well-intentioned, because ill-judged removal is itself a common cause of secondary spread.

3.3 动物资源与受胁物种

3.3 Animal resources and threatened species

3.3.1 鸟类资源总体构成

3.3.1 Overall composition of bird resources

鸟类是遗产地生态价值的核心载体。截至科学考察报告定稿期，遗产地共记录鸟类 140 余种，长海全域记录鸟类 255 种。这一数量在黄海北部岛屿群中位居前列，且包含多个全球性受胁物种和国家级保护物种。前者对应遗产地范围，后者对应长海全域，含历史记录与长期监测的累积结果。

Birds are the core vehicle of the property's ecological value; everything else in this chapter matters largely because of what it does for birds. As of the finalisation of the Scientific Survey Report, over 140 bird species have been recorded in the property and 255 across Changhai County. This count ranks among the highest for island groups in the northern Yellow Sea, and — more important than the total — it includes a number of globally threatened species and nationally protected species. The two figures should be read

carefully rather than compared: the first corresponds to the property, the second to Changhai County as a whole, and includes historical records together with the cumulative results of long-term monitoring.

按居留型划分：

By residence type, the avifauna is structured as follows:

居留型 / Residence type	典型物种 / Typical species	生态角色 / Ecological role
留鸟 *Resident*	大山雀、喜鹊、雉鸡等 *Great Tit, Eurasian Magpie, Common Pheasant, etc.*	维持全年生态系统稳定 *Maintaining ecosystem stability year-round*
夏候鸟 *Summer visitor*	黄嘴白鹭、黑脸琵鹭、暗绿背鸬鹚、海鸬鹚、黑尾鸥 *Chinese Egret, Black-faced Spoonbill, Japanese Cormorant, Pelagic Cormorant, Black-tailed Gull*	繁殖季核心保护对象 *Core conservation targets of the breeding season*
冬候鸟 *Winter visitor*	红胸秋沙鸭、长尾鸭、鹊鸭、红头潜鸭、西伯利亚银鸥 *Red-breasted Merganser, Long-tailed Duck, Common Goldeneye, Common Pochard, Siberian Gull*	越冬期水鸟资源 *Waterbird resource of the wintering period*
旅鸟 *Passage migrant*	多种鸻鹬类、猛禽 *Various shorebirds (plovers and sandpipers), raptors*	春、秋迁徙季经停补给 *Stopover refuelling during spring and autumn migration*

其中，大耗子岛记录的西伯利亚银鸥、暗绿背鸬鹚繁殖群体，蛇蛸岛记录的金雕活动，以及头坨子的黑脸琵鹭繁殖群，构成了遗产地受胁鸟类保护的核心清单。四类居留型在同一空间内依次接力，意味着保护管理必须全年无间断：任一季节的缺位都会在迁飞区链条上留下缺口。青年观测安排亦应据此按季节配置，而非集中于观感最佳的时段。

Among these, the breeding groups of Siberian Gull and Japanese Cormorant recorded on Dahaodao Island, Golden Eagle activity recorded on Bashao Island, and the Black-faced Spoonbill breeding group at Toutuozi together constitute the core list of threatened bird conservation in the property. The four residence types take their turn within the same limited space, one replacing another as the year advances, and this relay has a direct management consequence: protection must be continuous throughout the year. A lapse in any single season leaves a gap in the flyway chain as a whole, because the birds present in April are not the birds present in January and both are part of the same population. Youth observation schedules should likewise be configured by season, rather than concentrated in the period that happens to offer the best viewing.

3.3.2 国家级保护物种

3.3.2 Nationally protected species

遗产地内分布有多种国家一级、二级重点保护野生动物，形成了完整的保护物种谱系：

A range of Class I and Class II nationally protected wild animals occur within the property, forming a complete spectrum of protected species rather than a list of isolated rarities:

国家一级保护野生动物方面，黄嘴白鹭是遗产地最具全球保护意义的旗舰物种，其繁殖种群占全球种群 90% 以上；黑脸琵鹭是全球性受胁物种，在头坨子维持繁殖种群；金雕作为大型猛禽，在蛇蛸岛及周边海域活动觅食；西太平洋斑海豹是国家一级保护海洋哺乳动物，在遗产地周边海域完成洄游、栖息与觅食过程，维系着渤海与黄海北部种群之间的联系。

Among Class I nationally protected animals, the Chinese Egret is the flagship species of greatest global conservation significance in the property, its breeding population accounting for over 90% of the global population — a concentration that makes the fate of the species and the fate of this coastline effectively the same question. The Black-faced Spoonbill, a globally threatened species, maintains a breeding population at Toutuozi. The Golden Eagle, a large raptor, forages in and around Bashao Island. The Western Pacific spotted seal, a Class I protected marine mammal, completes its migration, resting and foraging in the waters around the property, sustaining the link between the populations of the Bohai Sea and the northern Yellow Sea.

国家二级保护野生动物方面，多种猛禽如红隼、雀鹰及鸮形目鸟类在岛屿上繁殖或迁徙停歇，构成完整的猛禽保护序列。此外，遗产地内分布有多样的海洋生物资源和两栖爬行动物，共同构成岛—海复合生态系统的底层支持。保护谱系覆盖多个营养级，成效评估因此不能只看单一旗舰物种。

Among Class II nationally protected animals, several raptors — including Common Kestrel, Eurasian Sparrowhawk and owls (Strigiformes) — breed on the islands or stop over during migration, forming a complete raptor conservation sequence from small falcons to large owls. In addition, the property supports diverse marine biological resources and amphibian and reptile species that together provide the basal support of the island–sea composite ecosystem. This spectrum spans multiple trophic levels, from apex predators to basal forage organisms, which means that conservation effectiveness cannot be judged by the fortunes of a single flagship species however well that species is doing.

保护类别 / Taxon group	代表性物种 / Representative species	保护等级 / Protection status	在遗产地中的角色 / Role in the property
鸟类 *Birds*	黄嘴白鹭 *Chinese Egret*	国家一级、全球易危（VU） *Class I nationally protected; globally Vulnerable (VU)*	核心繁殖旗舰物种 *Flagship core breeding species*
鸟类 *Birds*	黑脸琵鹭 *Black-faced Spoonbill*	国家一级、全球濒危（EN） *Class I nationally protected; globally Endangered (EN)*	核心繁殖物种 *Core breeding species*
鸟类 *Birds*	金雕 *Golden Eagle*	国家一级 *Class I nationally protected*	迁徙与觅食 *Migration and foraging*
海洋哺乳动物 *Marine mammals*	西太平洋斑海豹 *Western Pacific spotted seal*	国家一级 *Class I nationally protected*	洄游、栖息、觅食 *Migration, resting and foraging*

鸟类 *Birds*	红隼、雀鹰等猛禽 *Common Kestrel, Eurasian Sparrowhawk and other raptors*	国家二级 *Class II nationally protected*	繁殖与迁徙停歇 *Breeding and migratory stopover*

3.3.3 海洋哺乳动物与海龟

3.3.3 Marine mammals and sea turtles

西太平洋斑海豹是遗产地海洋生物保护的另一张名片。斑海豹在冬季沿黄海北部海域洄游，于长山群岛周边停歇、栖息、觅食，维系着繁育种群的连通性。需要特别强调的是：在一切表述中应坚持“洄游、栖息、觅食、维系繁育种群”的准确口径，不得使用“在长海产仔”等未经科考验证的表述。这一口径纪律适用于白皮书全文、展陈文本与志愿者培训材料。

The Western Pacific spotted seal is another signature species of marine conservation in the property, and the one that most clearly connects the islands to the wider sea. In winter the seals migrate along the northern Yellow Sea and stop, rest and forage around the Changhai Archipelago, maintaining the connectivity of the breeding population across its range. One point must be stressed, because it is a matter of accuracy rather than emphasis. All statements about this species should adhere strictly to the formulation “migration, resting, foraging, and maintaining the breeding population”, and must not use unverified expressions such as “giving birth in Changhai”, which go beyond what the scientific survey has established. This discipline applies to the entire white paper, to exhibition texts and to volunteer training materials alike.

海洋生态系统的完整性还涉及多种鱼类、甲壳类和头足类动物，它们是海鸟与斑海豹共同的食物基础。因此，保护长山群岛的候鸟，不能只盯住岛上的巢穴，还要守护整个岛—海生态系统的生产力链条。这也解释了为何遗产地的价值认定必须包含海域。

The integrity of the marine ecosystem also depends on a variety of fish, crustacean and cephalopod species that form the shared food base of both seabirds and spotted seals — the two groups are, in effect, competing for the same production. Protecting the migratory birds of the Changhai Archipelago therefore cannot mean watching only the nests on the islands; it must mean safeguarding the productivity chain of the entire island–sea ecosystem that feeds those nests. This is also why the value of the property had to be recognised as including its marine area rather than being limited to the land.

3.4 鸟类群落结构与季节动态

3.4 Bird community structure and seasonal dynamics

3.4.1 季节动态总体格局

3.4.1 Overall pattern of seasonal dynamics

长山群岛鸟类的季节动态与东亚—澳大利西亚迁飞区的整体节律高度一致，呈现出清晰的四季轮换特征。

The seasonal dynamics of birds in the Changhai Archipelago are closely aligned with the overall rhythm of the East Asian–Australasian Flyway. The islands do not have their own calendar; they keep the calendar of the flyway, and this shows in a clear four-season rotation in which each season brings a different assemblage of species and demands a different management response.

春季迁徙期（3 月—5 月）。首批水鸟自南方越冬地北返，部分鸻鹬类在岛礁停歇补充能量后继续北上；黄嘴白鹭、黑脸琵鹭等繁殖鸟陆续抵达繁殖地，争夺巢位并开始求偶配对。这一时期是监测繁殖种群基数、评估越冬存活率的关键窗口，抵达时间本身即是物候信号。

Spring migration (March–May). The first waterbirds return north from their southern wintering grounds; some shorebirds (plovers and sandpipers) refuel on the islands and reefs before continuing north, while breeding species such as the Chinese Egret and Black-faced Spoonbill arrive at their breeding sites to contest nest sites and begin courtship and pair formation. This period is the critical window for monitoring the breeding population baseline and for assessing overwinter survival, since the birds that fail to return are the ones that died. Arrival timing is itself a phenological signal, and systematic recording of first-arrival dates is one of the simplest and most valuable contributions that volunteers can make.

繁殖期（5 月—7 月）。繁殖鸟进入筑巢、产卵、孵化与育雏阶段。核心繁殖岛实行严格的人为管控，确保繁殖行为不受到陆上干扰。这一时期保护的重点是巢址稳定性与幼鸟存活率，也是观测约束最严格的时段。

Breeding season (May–July). Breeding birds move through the full sequence of nest building, egg laying, incubation and chick rearing. Core breeding islands are placed under strict human access control during this period, to ensure that breeding behaviour is not disturbed from land. Conservation priorities are nest-site stability and chick survival, and it is also the period when constraints on observation are at their strictest: the same presence that is harmless in October can be decisive in June.

秋季迁徙期（9 月—11 月）。繁殖结束后的成鸟与当年幼鸟陆续南迁。黄嘴白鹭等物种在离开繁殖地前需要大量取食以积累脂肪，为跨海飞行储备能量。秋迁期是当年繁殖成效的检验期，也是水鸟数量达到全年峰值的时期；迁徙季水鸟数量可超过 10 万只，构成遗产地最具视觉冲击力的生态景观。幼鸟比例是判断当年繁殖成效的直接指标。

Autumn migration (September–November). Adults and the juveniles of the year depart southward once breeding is complete. Species such as the Chinese Egret must feed intensively before leaving the breeding grounds, accumulating the fat reserves that a long sea crossing requires. Autumn migration is the period that tests the year's breeding outcome, and it is the time when waterbird numbers reach their annual peak; over 100,000 waterbirds may be present during the migration season, forming the most visually striking ecological spectacle the property has to offer. The proportion of juveniles in the flock is a direct indicator of the year's breeding success, and is therefore the single most informative figure that a systematic observer can record.

越冬期（12 月—次年 2 月）。以红胸秋沙鸭、鹊鸭、长尾鸭、红头潜鸭等雁鸭类水鸟为主要种群。大耗子岛及周边海域承担越冬水鸟的食物供给与庇护功能，是冬季巡护的重点区域。冬季食物可得性下降、能量消耗上升，此时的巡护价值在于及时发现与报告风险。

Wintering period (December–February). The dominant populations are waterfowl such as Red-breasted Merganser, Common Goldeneye, Long-tailed Duck and Common Pochard. Dahaodao Island and the surrounding waters provide food and shelter for overwintering waterbirds, and are therefore a priority area for winter patrols. Conditions are hardest at this season: food availability falls while the energy cost of keeping warm rises, and the value of patrols lies in the timely detection and reporting of risk rather than in the pleasure of the outing.

3.4.2 繁殖鸟群落

3.4.2 Breeding bird communities

繁殖鸟是遗产地全球价值的核心承载者。矾坨子以黄嘴白鹭为核心繁殖种，同时支持暗绿背鸿鹳、黑尾鸥等海鸟的密集繁殖；头坨子以黑脸琵鹭繁殖为旗舰，同时承载蛎鹬、海鸿鹳等物种繁殖；大耗子岛和蛇蛸岛则为林鸟与海鸟提供多样化的繁殖微生境。

Breeding birds are the core bearers of the property's global value; it is the act of breeding here, not the act of passing through, that makes the Changhai Archipelago irreplaceable. Fantuozi centres on the Chinese Egret as its core breeding species while also supporting dense breeding by seabirds such as the Japanese Cormorant and Black-tailed Gull. Toutuozi takes Black-faced Spoonbill breeding as its flagship and also carries breeding by species such as the Eurasian Oystercatcher and Pelagic Cormorant. Dahaodao Island and Bashao Island provide diverse breeding microhabitats for woodland birds and seabirds, adding structural variety to a property that would otherwise be defined by cliff-nesting species alone.

繁殖鸟群落对干扰极为敏感。研究表明，人类活动距离巢区过近会导致成鸟弃巢、幼鸟死亡率上升等连锁后果，且这种影响在繁殖密集期会被成倍放大。因此，繁殖季“不登核心岛”必须成为所有青年行动的硬性纪律：核心繁殖岛一律不进入，观测以远距离岸基或船上目视为主。

Breeding bird communities are extremely sensitive to disturbance, and the sensitivity is greatest exactly when a colony is most spectacular to watch. Research shows that human activity in close proximity to nest areas triggers chain effects — nest abandonment by adults, elevated chick mortality, increased predation on unattended nests — and that such impacts are multiplied during periods of dense breeding, when a single disturbance affects many pairs at once. The no-landing rule on core breeding islands must therefore be a hard discipline for all youth action during the breeding season. Core breeding islands are not entered at all; observation is conducted primarily by long-range shore-based or vessel-based visual survey, and no exception is made for the quality of the photograph.

3.4.3 越冬鸟群落

3.4.3 Wintering bird communities

越冬鸟群落的代表性物种以雁鸭类为主。浅海海域为潜水鸭类提供觅食条件，岩礁区则为部分海鸟提供夜间栖息场所。冬季的极端低温与海冰扩展可能压缩可用觅食区面积，此时的种群状态最为脆弱。青年志愿者的越冬期巡护应重点关注天气突变之后的鸟类状态。

Wintering bird communities are dominated by waterfowl, and the species present are largely different from those that define the breeding season. Shallow marine waters provide foraging conditions for diving ducks, while rocky reef areas offer night roosts for some seabirds — the two habitat types together cover the daily cycle of feeding and resting. Extreme low temperatures and the expansion of sea ice in winter can compress the area available for foraging, concentrating birds into whatever open water remains; population condition is at its most fragile at this time. Youth volunteer patrols during the wintering period should focus above all on bird condition in the days immediately following abrupt weather changes, when mortality and distress are most likely to appear.

3.4.4 猛禽通道

3.4.4 Raptor flyway

长山群岛还是猛禽迁徙的重要通道。春秋迁徙期，红隼、雀鹰、苍鹰等猛禽利用岛屿作为跨越海域的跳板；金雕作为顶级捕食者，在蛇蛸岛及邻近岛屿频繁活动。猛禽依赖上升气流完成长距离滑翔，海岛地形所产生的局地气流使其天然成为通道节点。

The Changhai Archipelago is also an important corridor for raptor migration, a function that is easy to overlook because raptors do not gather here in the way that waterbirds do. During the spring and autumn migration seasons, raptors such as Common Kestrel, Eurasian Sparrowhawk and Northern Goshawk use the islands as stepping stones across the sea, while the Golden Eagle, an apex predator, is frequently active on Bashao Island and the neighbouring islands. The reason is aerodynamic as much as geographic: raptors depend on updraughts for long-distance gliding and cannot flap across open water indefinitely, and the local airflow generated by island terrain makes these islands natural corridor nodes along the crossing.

猛禽处于食物链顶端，其种群状况可综合反映整个生态系统的健康度：猎物丰度、栖息地连通性与人为干扰强度的变化，都会通过猛禽的出现频次与停留时长间接显现。因此，猛禽观测应作为青年公民科学的核心记录类群之一，并采用标准化的计数时段与路线。同时，猛禽对巢区干扰更为敏感，观测须保持更远距离。

As apex predators, raptors reflect the health of the entire ecosystem in an integrated way, which makes them efficient indicators as well as compelling subjects. Changes in prey abundance, in habitat connectivity and in the intensity of human disturbance all show indirectly through raptor occurrence frequency and through how long individuals stay. Raptor observation should therefore be one of the core recording groups in youth citizen science, using standardised counting periods and routes so that figures remain comparable from year to year. Raptors are also more sensitive than most birds to disturbance near the nest, so observation must be conducted from a greater distance and must never be allowed to become a search for nest sites.

3.5 关键物种种群数据

3.5 Population data for key species

3.5.1 黄嘴白鹭

3.5.1 Chinese Egret

黄嘴白鹭是长山群岛世界遗产价值的核心物种。全球黄嘴白鹭种群数量总体有限且分布极不均衡，长山群岛承担着全球最主要繁殖种群的保护任务。综合历年观测结果，近年来遗产地黄嘴白鹭成鸟数量超过 2500 只，矾坨子作为核心繁殖岛，成鸟数量超过 1500 只。科考报告形成的长序列数据显示，该区域黄嘴白鹭种群总体呈现波动中维持并趋好的态势。

The Chinese Egret is the core species underpinning the World Heritage value of the Changhai Archipelago. Its global population is limited in size and highly uneven in distribution, and the Changhai Archipelago carries the responsibility of protecting the world's principal breeding population — a responsibility that cannot be transferred to any other site. Synthesising observations over the years, the number of adult Chinese Egrets in the property in recent years exceeds 2,500, with Fantuozi, as the core breeding island, holding over 1,500 adults. The long time series generated by the Scientific Survey Report shows that the population in this area has generally held stable amid fluctuation, with a trend towards improvement — which is the most that can honestly be claimed, and also the most that could reasonably be hoped for.

黄嘴白鹭的保护价值不仅在于其受威胁状态，更在于它作为滨海湿地食物链中上层物种的指示作用。其种群稳定意味着三个条件同时成立：繁殖栖息地质量可靠、附近觅食海域生产力充足、人为干扰处于可控范围。反过来，种群若出现显著下降，则意味着滨海生态系统中出现了我们尚未完全理解的问题——可能是饵料鱼资源的变动，也可能是繁殖微生境的退化。

The conservation value of the Chinese Egret lies not only in its threatened status — though that status alone would justify attention — but also in its role as an indicator species in the middle and upper tiers of the coastal wetland food chain. A stable population means that three conditions hold simultaneously: breeding habitat quality is reliable, productivity in the nearby foraging waters is sufficient, and human disturbance is within manageable limits. Conversely, a marked decline would mean that something in the coastal ecosystem is happening that we do not yet fully understand: possibly a shift in forage fish resources, possibly degradation of the breeding microhabitat, possibly both. The value of an indicator species is that it registers the problem before the mechanism is known.

3.5.2 黑脸琵鹭

3.5.2 Black-faced Spoonbill

黑脸琵鹭是全球性受胁物种，其全球种群量仅有数千只，繁殖地分布高度集中。2026 年监测显示，黑脸琵鹭在长海种群数量接近 60 只。十余年来全球黑脸琵鹭种群整体呈恢复趋

势，但繁殖地仍高度集中于少数地点，一次局部的极端事件就足以抹去多年累积的增量。因此，繁殖分布区的拓展对于物种的长期安全至关重要。

The Black-faced Spoonbill is a globally threatened species whose global population numbers only a few thousand individuals and whose breeding sites are highly concentrated. Monitoring in 2026 recorded a population of close to 60 individuals in Changhai. Over the past decade or so the global population has shown an overall recovering trend, which is genuine cause for encouragement — but breeding remains concentrated in a handful of locations, and concentration carries a specific danger: a single localised extreme event, a disease outbreak or a severe storm at the wrong moment, can wipe out the gains accumulated over many years. Expanding the breeding range is therefore critical to the long-term security of the species, not merely desirable.

长山群岛在黑脸琵鹭保护格局中的战略意义正在于此：这里提供了距离传统繁殖地相对偏远、但生态条件良好的适宜繁殖生境。保护长海种群，相当于为整个物种增加了一道防灾备份，也为不同繁殖群体之间的基因交流保留了通道。

This is precisely the strategic significance of the Changhai Archipelago within the conservation architecture for the Black-faced Spoonbill. It offers suitable breeding habitat that is relatively distant from the traditional breeding sites — distance that functions as insurance, since the same storm is unlikely to strike both — while still being ecologically sound. Protecting the Changhai population amounts to adding a disaster-prevention backup for the species as a whole, and to keeping a channel open for genetic exchange between breeding groups that would otherwise be isolated from one another.

3.5.3 迁徙季水鸟总量

3.5.3 Total waterbirds in the migration season

长海全域在迁徙季节的水鸟总数超过 10 万只。这一数量级使长山群岛具备成为东亚—澳大利西亚迁飞区重要监测站点的条件。需要说明的是，10 万只以上水鸟并非集中在单一岛礁，而是分布在岛屿间海域、潮间带和近岸水域，形成了一个分散而连通的水鸟利用网络。保护的单元因此不是某一处滩涂或某一座岛，而是整个网络的连通性。

The total number of waterbirds across Changhai County during the migration season exceeds 100,000. An order of magnitude of this kind is what qualifies the Changhai Archipelago to become an important monitoring site within the East Asian–Australasian Flyway, where large concentrations at a small number of nodes are what make flyway-scale assessment possible at all. One qualification matters, however, and it has direct management implications: these waterbirds are not concentrated on a single island or reef. They are distributed across the waters between islands, the intertidal zone and nearshore waters, forming a dispersed yet connected network of waterbird use. The unit of protection is therefore not a particular mudflat or a particular island, but the connectivity of the network as a whole, since the loss of one node reduces what the remaining nodes can support.

3.5.4 斑海豹

3.5.4 Spotted seal

西太平洋斑海豹是国家一级保护动物。长山群岛海域是斑海豹在中国黄海北部的重要活动区域，是其洄游、栖息与觅食的重要场所，对于维系其繁育种群具有不可替代的作用。

The Western Pacific spotted seal is a Class I nationally protected animal. The waters of the Changhai Archipelago are an important area of activity for the species in the northern Yellow Sea of China — an important site for its migration, resting and foraging, and irreplaceable in maintaining its breeding population.

斑海豹的保护对青年行动的启示在于：候鸟保护不能局限于“鸟”，而必须以完整的海洋生态系统为对象。岛—海协同管理，是长山群岛区别于内陆湿地保护的显著特征——内陆湿地可以划定边界并在边界内解决问题，海岛则必须与边界之外的水体、渔业活动与航运共同治理。

The conservation of the spotted seal carries a clear lesson for youth action, and it is the lesson that most needs to be carried into the design of our programmes. Migratory bird protection cannot be confined to “birds”; it has to take the entire marine ecosystem as its object, because the birds are only the visible expression of a production system that operates mostly underwater. Island–sea coordinated management is the distinguishing feature of the Changhai Archipelago relative to inland wetland conservation. An inland wetland can be delineated and, to a reasonable degree, managed within its own boundary. An island cannot: it must be governed jointly with the waters, the fisheries and the shipping that lie beyond that boundary and that determine what happens inside it.

3.5.5 主要物种数据汇总

3.5.5 Summary of key species data

指标 / Indicator	数值 / Value	数据说明 / Data notes
遗产地鸟类记录数 *Bird species recorded in the property*	140 余种 *Over 140 species*	以科学考察报告为准 *As per the Scientific Survey Report*
长海全域鸟类记录数 *Bird species recorded across Changhai County*	255 种 *255 species*	含历史记录与长期监测 *Including historical records and long-term monitoring*
迁徙季水鸟总量 *Total waterbirds in the migration season*	超 10 万只 *Over 100,000*	春季与秋季迁徙期水平 *Levels during spring and autumn migration*
黄嘴白鹭成鸟总量 *Total adult Chinese Egrets*	超 2500 只 *Over 2,500*	涵盖四个组成部分 *Covering the four component parts*
其中：矾坨子黄嘴白鹭成鸟 *Of which: adult Chinese Egrets at Fantuozi*	超 1500 只 *Over 1,500*	全球核心繁殖地 *Global core breeding site*
黑脸琵鹭（2026 年） *Black-faced Spoonbill (2026)*	近 60 只 *Close to 60*	头坨子繁殖种群 *Breeding population at Toutuozi*
陆生高等植物 *Higher terrestrial plants*	166 种 *166 species*	52 科 130 属 *52 families, 130 genera*
遗产地总面积 *Total area of the property*	4962.62 公顷 *4,962.62 ha*	遗产区 2803.41 + 缓冲区 2159.21 *Heritage zone 2,803.41 + buffer zone 2,159.21*

第四章　青年行动框架：六条行动线

Chapter 4　Youth Action Framework: Six Action Lines

在这些约束条件下，青年究竟能做什么、应当怎么做。我们把青年可以承担的工作整合为六条行动线：志愿协同机制、公民科学观测、气候教育与艺术传播、低碳文旅与观鸟经济、社区协同、COP31 国际叙事。

Given these constraints, what can young people actually do, and how should they do it. We organise the work that youth can legitimately carry into six action lines: volunteer coordination, citizen science observation, climate education and art-based communication, low-carbon tourism and the birdwatching economy, community engagement, and global storytelling for COP31.

六条行动线是一套相互支撑的完整框架：志愿协同提供组织底座；公民科学提供数据基础；气候教育提供公众认知；低碳文旅提供可持续收益；社区协同提供在地合法性；国际叙事提供合作资源。缺任何一条，框架都会失稳。

The six lines form an integrated framework in which each element supports the others. Volunteer coordination provides the organisational base; citizen science provides the data foundation; climate education and art-based communication build public understanding; low-carbon tourism and the birdwatching economy generate sustainable returns; community engagement secures local legitimacy; global storytelling mobilises partnership resources. Remove any one of them and the framework loses its stability.

青年行动的空间不在于“做得多”，而在于“做得对”：所有设计都以不制造新的生态代价为前提。第一条，不进入核心繁殖岛——繁殖季节尤为严格，观测与教育活动只能在岸线以外或经指定区域开展，不得缩短安全距离或进入巢区。第二条，不干扰野生动物——禁止诱饵、声音回放、投食、追逐等任何改变动物自然行为的方法。第三条，不替代专业管理——青年组织只做协同、记录、传播与转化，数据及时移交正规管理机构，发现异常情况或疑似违法行为时只记录、只报告，不在现场处置。

Before turning to the detail, three inviolable bottom lines must be established. The scope for youth action is defined not by how much is done but by whether it is done correctly: every element of the design is premised on creating no new ecological cost. First, no entry onto core breeding islands. The rule is strictest during the breeding season; observation and educational activity must be conducted from beyond the shoreline or within designated areas, with no shortening of the required distance and no entry into nesting areas. Second, no disturbance of wildlife. Bait, sound playback, feeding, chasing and any other method that alters an animal's natural behaviour are prohibited; a practical test applies — if observation causes an animal to change what it was doing, the line has been crossed. Third, no substitution for professional management. A youth organisation coordinates, records, communicates and translates. Data are transferred promptly to the competent authority, and where anomalies or suspected violations are found, volunteers record and report only, neither intervening on site nor making management judgements of their own.

三条底线在后续各节中会反复出现，它们是同一套逻辑的不同侧面。原则只有一条：先不伤害，再谈成绩。

These three bottom lines recur throughout the sections that follow; they are different facets of a single logic. There is only one principle: first do no harm, then speak of results.

4.1 青年志愿协同机制

4.1 Youth Volunteer Coordination Mechanism

行动目标

Objective

建立一支有组织、懂纪律、可持续的青年志愿队伍，成为长山群岛保护管理中可靠的补充力量。我们的目标不是追求志愿者数量，而是建立一个可长期运转、每年稳定保留核心成员的协同网络；“补充”意味着不承接管理职责，只在专业力量难以覆盖的时段提供人力。

The objective is to build an organised, disciplined and sustainable youth volunteer team that serves as a reliable complement to the management of the Changhai Archipelago. The goal is not to increase the number of volunteers but to establish a coordination network that operates over the long term and retains its core members year after year. “Complement” means that volunteers do not assume management responsibilities but provide manpower during the periods that professional capacity cannot cover.

队伍构成

Team Composition

首期计划招募核心青年志愿者 10 人，重点面向大连高校生态学、海洋科学、传播学、旅游管理等相关专业学生，也向当地海岛青年开放报名。前者关乎识别、记录与传播的专业能力，后者关乎对潮汐、航路与地方关系的熟悉。核心志愿者须承诺至少参与 12 个月，完成基础培训并通过考核。

The first intake plans to recruit 10 core youth volunteers, drawing mainly on students in ecology, marine science, communication and tourism management at universities in Dalian, while also opening applications to young people from the islands themselves. The former brings professional capacity in identification, recording and communication; the latter brings familiarity with the tides, the shipping routes and local relationships. Core volunteers commit to a minimum term of 12 months, complete basic training and pass assessment.

在核心队伍之外，再建立一个外围志愿者池，成员可来自大学社团、企业志愿服务队和社会公众。他们不必长驻海岛，但可在迁徙季与活动期提供短期人力支持。核心志愿者负责组织、带教与质量控制，外围志愿者负责执行具体任务。

A pool of associate volunteers is established alongside the core team. Members may come from university societies, corporate volunteer teams or the general public. They need not reside on the islands, but they can provide short-term manpower during migration seasons and event periods. Core volunteers organise, mentor and control quality, while associate volunteers carry out specific tasks; the latter may move into the core team after training and assessment.

培训体系

Training System

志愿者上岗前必须完成三项培训并通过考核。培训不是形式性的前置环节，而是质量控制的第一步：未经培训产生的记录，不进入本白皮书的数据体系。

All volunteers must complete three training modules and pass assessment before taking up duties. Training is not a procedural formality but the first step in quality control: records produced by untrained observers, however detailed, are not admitted into the data system of this white paper.

一是生态认知培训。内容包括遗产地四大组成部分及其价值，黄嘴白鹭、黑脸琵鹭、金雕、斑海豹等关键物种的识别特征与生态学习性，以及东亚—澳大利西亚候鸟迁飞区连接 22 个国家的全球背景。

The first module is ecological literacy. It covers the four components of the property and their values; the identification features and ecological habits of key species including the Chinese Egret, Black-faced Spoonbill, Golden Eagle and Western Pacific spotted seal; and the global context of the East Asian–Australasian Flyway, which links 22 countries. Volunteers must be able both to identify a species and to explain it to a member of the public.

二是安全与行为规范培训。涵盖海上与岛上安全（潮汐、风浪、船乘、陡崖、湿滑岩礁）、野生动物近距离接触的禁止事项、废弃物处理与紧急情况应对。培训结束时须签署行为承诺书。

The second module covers safety and the code of conduct. It addresses safety at sea and on the islands (tides, wind and waves, vessel boarding, cliffs, slippery rocks), prohibitions on close contact with wildlife, waste handling and emergency response. Uncertainty in an island environment is considerably greater than on the mainland, and safety is a precondition for all action. At the end of the training each volunteer signs a code-of-conduct pledge.

三是数据采集方法培训。包括观测样线的设置原理与走法、鸟类识别与计数方法、表格填写标准、照片拍摄要求与数据上传流程。样线法的要义在于“固定”：路线、节奏、记录区间与时段一经确定便不再变动，使不同日期、不同人员获得的记录可以相互比较。公民科学数据的价值不取决于单条记录是否精确，而取决于整套记录能否被复核与重复获得。

The third module covers data collection methods: the principles and practice of establishing observation transects, methods for bird identification and counting, standards for completing record forms, requirements for photography, and the data upload procedure. The essence of the line transect method is fixity: once the route, pace, recording interval and time window are set they do not change, so that records obtained on different dates and by different people can be compared. The value of citizen science data does not rest on whether any single record is precise but on whether the whole set can be verified and reproduced.

培训完成后，志愿者按季度轮值上岗。春秋迁徙期是核心工作时段，每周末至少安排一组开展岸线观测；繁殖期严格执行“远岸不登岛”原则，仅在指定点位开展望远镜远距离观测；冬季根据天气条件安排不定期巡护。每次上岗均须完成记录交接与初步校核。

After training, volunteers serve on a quarterly rotation. The spring and autumn migration seasons are the core working periods, with at least one team conducting shoreline observation every weekend. During the breeding season the principle of no landing is applied strictly and observation is limited to telescopes at designated points. In winter, irregular patrols are arranged according to weather conditions. Every duty session ends with a handover of records and an initial check.

协同机制

Coordination Mechanism

大连市青年公益事业发展促进会（青促会）与属地管理部门建立常态化联络机制：行动前通报计划，行动中只作记录，发现异常立即报告。志愿者不直接接触核心管理区域；一旦发现异常情况或疑似违法行为，记录时间、位置与现场状况并第一时间报告，不在现场自行处置。

The Dalian Youth Public Welfare Development Promotion Association (YCCDL) maintains a regular liaison mechanism with the local management authority: notify plans before action, record only during action, report anomalies immediately. Volunteers do not enter core management areas. When an anomaly or suspected violation is found, they record the time, location and conditions on site and report at once, neither handling the matter themselves nor entering into direct confrontation with the parties involved.

同时建立信息共享机制。观测数据经整理后定期提交给相关科研单位和管理方，用于补充专业监测的频次缺口——专业调查的优势在精度与权威性，公民科学的优势在时间分辨率与覆盖范围，二者互补而非替代。所有使用志愿者数据的报告、图表与传播材料，必须注明数据来源性质，不冒充科考结论。

A data-sharing mechanism operates alongside this. Compiled observations are submitted periodically to relevant research institutions and to the management authority, helping to fill the frequency gap in professional monitoring. Professional survey offers precision and authority; citizen science offers temporal resolution and coverage. The two are complementary, not substitutable. Every report, chart or communication product drawing on volunteer data must state the nature of that source and must not pass it off as a scientific survey conclusion.

2026 年第四季度要做的三件事

Three Tasks for the Fourth Quarter of 2026

□ 发布核心志愿者招募公告，明确服务周期、培训安排、基本保障与退出机制。

Publish the core volunteer recruitment announcement, specifying the service term, training arrangements, basic support and exit mechanism.

□ 完成首批 10 人遴选与三项培训，签署行为承诺书，发放志愿者标识。

Complete the selection of the first cohort of 10 core volunteers and the three training modules; sign the code-of-conduct pledges and issue volunteer identification.

□ 与属地管理部门完成一次工作对接，确定 2027 年春迁期共同巡护计划与信息通报流程。

Hold a working session with the local management authority to agree the joint patrol plan and information reporting procedures for the spring migration season of 2027.

4.2 公民科学观测

4.2 Citizen Science Observation

行动目标

Objective

建立一套低门槛、高频率、可复核的公民科学观测网络，让长山群岛的鸟类动态从每年几次专业调查留下的离散切片，变成每周多次、贯穿全年的常态化记录。三者相互制约：门槛要低，才能支撑长期的高频参与；频率要高，才能捕捉迁徙峰期与极端天气前后的短时变化。公民科学的目标不是取代专业调查，而是填补其间的空白。

The objective is to establish a citizen science observation network that is low-threshold, high-frequency and verifiable, so that bird dynamics in the Changhai Archipelago cease to be a set of scattered snapshots from a few professional surveys each year and become a continuous record produced several times a week throughout the year. The three attributes are mutually constraining. The threshold must be low if high-frequency participation is to be sustained. The frequency must be high if short-lived changes at migration peaks and around extreme weather are to be captured. And precisely because observers are not professionals, verifiability must be built into the method itself. The purpose of citizen science is not to replace professional survey but to fill the gaps between surveys.

观测内容

Observation Content

观测记录优先覆盖六类信息：

Observation records prioritise six categories of information:

1. 鸟类种类与数量。围绕选定样线记录所有观察到的鸟类，重点记录国家一级、二级保护物种与全球受胁物种，同时不忽略常见种的数量变化。

Species and abundance. Record all birds observed along the selected transect, with priority given to species under national first-class and second-class protection and to globally threatened species, while also tracking changes in the numbers of common species, whose fluctuations often say more about overall environmental condition.

2. 行为记录。包括觅食、停歇、求偶、筑巢、育雏等；繁殖行为记录须遵守距离规则，使用望远镜远距离观察，不使用任何诱导手段。

Behaviour. Record foraging, roosting, courtship, nest building and chick rearing. Records of breeding behaviour are subject to the distance rules: observation is carried out with telescopes at long range, with no form of attraction or inducement. Behavioural information is the direct basis for determining habitat function.

3. 物候记录。记录首批候鸟到达日、首批繁殖鸟离岛日，以及极端天气前后的鸟类活动变化。物候数据对研究气候变化影响具有直接价值。

Phenology. Record the arrival date of the first migratory birds, the departure date of the first breeding birds, and changes in bird activity before and after extreme weather. Phenological data are of direct value for climate change research, since interannual shifts in the timing of migration and breeding are among the most legible biological responses to changing temperature.

4. 外来物种观察。记录岸线附近新出现的植物或动物物种，特别是非本地物种；志愿者负责发现与报告，鉴定与处置交由专业机构完成。

Alien species. Record plants or animals newly appearing along the shoreline, particularly non-native species, so as to provide early clues for ecological risk assessment. Volunteers detect and report; identification and any response rest with professional institutions.

5. 废弃物与污染记录。记录观测中发现的塑料垃圾、废弃渔网、油污等情况，作为环境治理与后续清洁行动的参考信息。

Waste and pollution. Record plastic litter, discarded fishing nets, oil residues and similar findings encountered during observation, as reference information for environmental management and for planning subsequent community clean-up work.

6. 水文气象信息。记录当日天气、风向、风力、潮位，并使用统一格式留档；环境变量影响鸟类的可见度与行为，缺少这些信息，数量与行为的差异便无从解释。

Hydro-meteorological conditions. Record the day's weather, wind direction, wind force and tidal level in a standardised format. These variables affect both the detectability and the behaviour of birds; without them, differences in counts and behaviour cannot be interpreted.

观测点位与频率

Observation Sites and Frequency

观测点位设在核心区外、不影响鸟类活动的位置，每个组成部分至少设置两处。选点遵循三项原则：不进入核心繁殖岛、不遮挡鸟类视线、便于志愿者安全到达。点位由青促会与

专业机构共同确定并向志愿者现场标定；一经确定即保持固定，以保障时间序列的可比性，确需调整时须记录原因与时间。

Observation points are located outside the core zone, in positions that do not affect bird activity, with at least two points in each component of the property. Site selection follows three principles: no entry onto core breeding islands, no obstruction of the birds' line of sight, and safe, convenient access for volunteers. The first two protect the birds; the third protects the people. Sites are determined jointly by YCCDL and professional institutions and marked out for volunteers on the ground. Once fixed they remain fixed, so that the time series stays comparable. Where adjustment is genuinely necessary, the reason and date are recorded and a break in the series is flagged, so that it is not misread as a change in bird numbers.

观测频率随物候节律分时段设定：鸟类活动最集中、变化最剧烈的时段加密，相对平稳的时段降低强度。

Observation frequency is set by phenological period, following the rhythm of the bird year: intensified when bird activity is most concentrated and most variable, reduced when conditions are relatively stable.

时段 / Period	月份 / Months	观测频率 / Frequency	观测方式与说明 / Method and notes
春迁期 *Spring migration*	3 月—5 月 *March–May*	每周两次，每周六、周日各一次 *Twice weekly, on Saturday and Sunday*	定点观测，每次不少于 1 小时 *Fixed-point observation, no less than one hour per session*
繁殖期 *Breeding season*	6 月—7 月 *June–July*	每月两次 *Twice monthly*	岸线远距离观测，严格执行“远岸不登岛” *Distant shoreline observation; no landing, strictly applied*
秋迁期 *Autumn migration*	9 月—11 月 *September–November*	每周两次 *Twice weekly*	定点观测 *Fixed-point observation*
冬季 *Winter*	12 月—2 月 *December–February*	每月一次 *Once monthly*	巡护性观察，视天气条件安排 *Patrol observation, arranged according to weather conditions*

数据管理与质量

Data Management and Quality

所有记录使用统一表格填写，拍照须注明时间与点位。数据按月汇总，经核心志愿者审核后存档，同时报送管理部门和合作科研机构。每一条数据均标明“公民科学观测”属性，与专业科考数据分开存放、分开使用。

All records are entered on a standardised form, and photographs must carry time and location. Data are compiled monthly, reviewed by core volunteers, archived, and forwarded to the management authority and partner research institutions. Every record is tagged with its “citizen science observation” provenance and is

stored and used separately from professional scientific survey data, so that the two are never confused in reporting.

为保障数据质量，每年进行一次方法复核培训。观测启动后，每季度与专业机构的同区域监测结果进行对比，分析偏差来源，持续校准观测标准——主要针对识别偏差（种类误判）、计数偏差（重复或遗漏）与时机偏差（时段不一致）三类。凡方法明显违规或信息无法核实的数据，不进入汇总，也不用于任何对外发布。

To safeguard data quality, a methodological refresher is held once a year. Once observation begins, results are compared each quarter with those of professional institutions monitoring the same area; sources of divergence are analysed and observation standards are continually recalibrated. Calibration targets three common forms of bias: identification bias, or species misidentification; counting bias, through double counting or omission; and timing bias, arising from inconsistent observation windows. Data produced in clear breach of method, or that cannot be verified, are excluded from compilation and are not used in any external publication: a gap is preferable to a conclusion supported by uncertain data.

2027 年要完成的目标

Targets for 2027

2027 年的目标按三个物候时段递进设定：

Targets for 2027 are set progressively across three phenological periods, each matched to a concrete deliverable:

1. 春迁期：完成第一轮完整样线观测，形成覆盖四大组成部分的动态记录底稿。

Spring migration: complete the first full cycle of transect observation and produce a dynamic baseline record covering all four components of the property.

2. 繁殖期：完成首轮不登岛繁殖鸟计数，记录繁殖巢区活动的远岸观测数据。

Breeding season: complete the first round of no-landing counts of breeding birds, recording distant-shore observations of activity in nesting areas.

3. 秋迁期：发布首份《青年观测简报》，内容包括种类统计、数量趋势、物候特征、异常记录和观测质量说明。

Autumn migration: publish the first issue of Youth Observation Briefing, covering species counts, abundance trends, phenological characteristics, anomaly records and a statement on observation quality.

4.3　气候教育与艺术传播

4.3　Climate Education and Art-Based Communication

行动目标

Objective

气候教育的目标，是让长海县的儿童、青少年与公众理解：候鸟保护不是一项孤立的动物保护工作，而是气候变化背景下沿海社区需要共同承担的责任。迁徙物种的处境，是气候系统变化最直观的指示器之一——当迁飞时间、路线与栖息地质量同时发生偏移，受到影响的绝不止某一个物种，而是整条迁飞通道上的生态关系，以及依赖这条通道的沿岸社区。世界自然遗产这一身份，应当被转化为气候教育的入口而非终点。

The objective of climate education is to help children, young people and the wider public in Changhai County understand that migratory bird protection is not an isolated exercise in animal conservation, but a responsibility that coastal communities must share under a changing climate. The condition of migratory species is among the most legible indicators of a shifting climate system: when timing, routes and habitat quality all move at once, what is affected is never a single species alone, but the ecological relationships along an entire flyway and the coastal communities that depend on it. World Natural Heritage status should therefore be converted into an entry point for climate education rather than treated as its conclusion.

叙事转换

Shifting the Narrative

长期以来，长海的自然教育主要回答“这里有什么鸟”——一份名录、一组识别特征、一次观鸟体验。这类知识是必要的起点，却无法解释种群为何波动、栖息地为何退化、保护为何与每个人的日常选择相关。我们在此基础上增加一条因果叙事线：气候如何影响鸟，鸟如何向我们提示气候正在变化，以及我们能够采取什么行动减缓这种变化。三个追问首尾相衔，把静态的物种知识转化为动态的责任叙事。

Nature education in Changhai has long answered a single question: what birds are found here. The answer comes as a species list, a set of identification features, and one guided outing. Such knowledge is a necessary starting point, but it cannot explain why populations fluctuate, why habitats degrade, or why conservation is connected to the everyday choices of ordinary people. We therefore add a causal narrative line: how climate affects birds, how birds signal back that the climate is changing, and what we can do to slow that change. The three questions form a closed loop, turning static species knowledge into a dynamic narrative of responsibility.

四条故事线构成这一叙事转换的骨架：

Four storylines form the backbone of this narrative shift:

1. 候鸟为什么要迁徙？因为它们依赖的季节性资源正在因气候变化发生位移。迁徙不是一种习性偏好，而是对资源时空分布的长期适应；一旦这种分布被打乱，迁徙本身就成为风险的载体。

   Why do migratory birds migrate? Because the seasonal resources they depend on are being displaced by climate change. Migration is not a matter of preference; it is a long-evolved adaptation to the spatial and

temporal distribution of resources. Once that distribution is disrupted, migration itself becomes a carrier of risk.

2. 长山群岛为什么重要？因为这里是迁飞路线上的关键补给站。补给一旦失效，损失不只是长海本地的鸟群，而是整条迁飞通道上的种群存续。

Why does the Changhai Archipelago matter? Because it is a critical refuelling station on the flyway. If refuelling fails here, the loss is not confined to the birds of Changhai; it extends to the survival of populations along the entire migratory route.

3. 我们的日常生活和鸟有什么关系？减少塑料使用、低碳出行、少吃过度捕捞的海鲜、参与社区清洁——这些看似与候鸟无关的选择，最终都会汇入它们的生存环境。

What does our daily life have to do with birds? Using less plastic, travelling low-carbon, avoiding overfished seafood, joining community clean-ups: choices that seem unrelated to migratory birds eventually flow into the very environment on which those birds depend.

4. 世界自然遗产意味着什么？意味着长山群岛适用的是全球通行的保护标准，也意味着本地青年承担一份示范责任：把一个地方性的保护实践，做成可供世界参照的样本。

What does World Natural Heritage status mean? It means the Changhai Archipelago is held to protection standards applied worldwide, and it means local youth carry a demonstrative responsibility: to turn a place-based conservation practice into a sample that the world can learn from.

课程与活动

Curriculum and Activities

面向学校，设计“气候—海洋—候鸟”主题课程包，结合大连中小学自然课、美术课和语文课。三门学科各承担不同功能：自然课建立科学认知，美术课承载情感与表达，语文课训练叙事与写作。每套课程包含教师手册、学生任务单和配套物料，分别回答“教什么”“学什么”“做什么”，整体强调动手与观察。

For schools, we will design a “climate–ocean–migratory birds” curriculum package aligned with science, art and language classes in Dalian primary and secondary schools. Each subject carries a distinct function: science builds cognitive understanding, art carries emotion and expression, and language trains narrative and writing. Each package contains a teacher's manual, student task sheets and supporting materials, answering respectively what to teach, what to learn and what to do. The emphasis throughout is on hands-on work and observation.

面向社区，组织“候鸟季”主题活动，包括观鸟导赏、海滩清洁、自然创作工作坊和家庭低碳挑战。活动全部免费开放，优先服务本地家庭。世界遗产地的教育收益，应当首先回到承担保护成本的社区身上。

For communities, we will organise a “Migratory Bird Season” programme of activities: guided birdwatching, beach clean-ups, nature-based creative workshops and household low-carbon challenges. All

activities are free of charge and give priority to local families. The educational benefits of a World Heritage site should return first to the community that bears the costs of protection.

面向更广区域，制作短视频和图文内容，以「长海青年气候守护站」为统一话题标签，记录青年志愿者在岛上的真实工作场景，邀请鸟类摄影爱好者分享规范的观测影像。而“规范”二字是硬约束：所有影像分享都须遵守不干扰、不诱拍的伦理边界，传播不得越过保护底线。

For a wider audience, we will produce short videos and illustrated features under the unified hashtag of the Changhai Youth Climate Guardians, documenting the real working scenes of young volunteers on the islands and inviting bird photographers to share observation imagery taken in accordance with accepted standards. The word “standards” is a hard constraint: all shared imagery must respect the ethical boundary of non-disturbance and no baiting, and communication must never cross the protection bottom line.

四联漫画候鸟季

Four Comics Contest: Migratory Bird Season

为激发儿童参与，2026 年第四季度启动“四联漫画候鸟季”征稿活动。四联漫画以四格画面讲述完整故事，天然对应“起、承、转、合”的叙事节奏，创作门槛低，适合儿童在有限画面内完成一次完整的因果表达。征稿主题围绕“一只候鸟的长海之旅”“我家的低碳一天”“假如我是一片海草床”等展开。绘画这一媒介的意义在于：它不依赖文字能力，也不依赖语言表达，因而能够跨越年龄与语言的双重障碍。

To stimulate children's participation, the Four Comics Contest: Migratory Bird Season call for entries will be launched in the fourth quarter of 2026. A Four Comics Contest tells a complete story in four frames, naturally following the rhythm of opening, development, turning point and resolution. The threshold for entry is low, and the form suits children who can complete a full causal narrative within a limited number of frames. Themes centre on “A migratory bird's journey through Changhai”, “One low-carbon day in my family” and “If I were a seagrass bed”, among others. The significance of drawing as a medium is that it depends on neither literacy nor verbal fluency, and can therefore cross the double barrier of age and language.

计划在 2027 年春季结束征稿，儿童节前后完成评选与展览。优秀作品将用于 COP31 后续传播资料和社区公共空间展示，让儿童真正参与到遗产地的全球叙事中。

The call for entries is scheduled to close in spring 2027, with judging and exhibition completed around Children's Day. Outstanding works will be used in COP31 follow-up communication materials and displayed in community public spaces, enabling children to take genuine part in the global narrative of the heritage site.

2026 年第四季度要做的三件事

Three Priorities for the Fourth Quarter of 2026

1. 完成课程包初步框架设计，与本地两所学校建立试点合作意向。

Complete the initial framework design of the curriculum package and establish pilot cooperation intentions with two local schools.

2. 发布四联漫画候鸟季征稿通知，明确面向群体、主题要求、截止时间、评选规则与展示计划。

Issue the call for entries for the Four Comics Contest: Migratory Bird Season, specifying the target groups, thematic requirements, deadline, judging rules and exhibition plan.

3. 在青促会公开平台开设气候教育专栏，发布首篇以“世界自然遗产×气候行动”为主题的长文。

Launch a climate education column on the Association's public platform and publish the first long-form article under the theme “World Natural Heritage × Climate Action”.

4.4 低碳文旅与观鸟经济

4.4 Low-Carbon Tourism and the Birdwatching Economy

行动目标

Objective

在严格保护鸟类的前提下，让观鸟旅行成为长海县新的低碳产业增长点，使本地社区从生态保护中获得直接经济收益，从而形成保护与发展的正向循环。这一目标的逻辑次序不能颠倒：严格保护是前置约束而非可交易的成本，经济收益必须留在本地而非外流，而收益的可见性又反过来强化社区的保护意愿。

Subject to strict protection of birds, the objective is to make birdwatching travel a new low-carbon growth sector for Changhai County, so that local communities derive direct economic benefit from ecological protection and a virtuous circle between conservation and development takes shape. The logical order here cannot be reversed: strict protection is a binding precondition rather than a tradable cost; economic returns must stay local rather than leak outward; and the visibility of those returns in turn reinforces the community's willingness to protect.

观鸟线路设计

Birdwatching Route Design

设计 3 条青年观鸟体验线路。四条通用约束先于体验设计而存在：空间上避开核心繁殖岛，方式上限于陆域或浅海船乘，规模上限定人数，时间上规定停留时长。约束不是对体验的削减，而是体验得以长期存在的前提——一旦鸟类因干扰而弃用栖息地，线路本身也就失去了内容。

Three youth birdwatching experience routes will be designed. Four general constraints precede the design of any experience: core breeding islands are avoided in space; access is limited to land-based or inshore boat modes; group size is capped; and dwell time is prescribed. These constraints are not a subtraction from the

experience but the condition of its survival: once birds abandon a habitat because of disturbance, the route has nothing left to show.

线路 / Route	路线与方式 / Route and mode	内容与看点 / Focus
线路一 *Route 1*	大长山岛—广鹿岛岸线线，以陆域望远镜观测为主 *Da Changshan Island – Guanglu Island shoreline route; primarily land-based telescope observation*	远眺矾坨子繁殖岛，可结合渔家文化体验 *Distant viewing of the Fantuozi breeding island, combinable with fishing-community cultural experience*
线路二 *Route 2*	格仙岛头坨子周边岸线线 *Shoreline route around Toutuozi, Gexian Island*	以黑脸琵鹭观测为亮点，配合湿地科普讲解 *Black-faced Spoonbill observation as the centrepiece, supported by wetland interpretation*
线路三 *Route 3*	小长山岛—蛇蛸岛近海船乘线 *Xiao Changshan Island – Bashao Island inshore boat route*	以海上船乘方式远距离观测海鸟和斑海豹活动；船乘距离、发动机噪音和停留时间均有限制 *Distant observation of seabirds and the Western Pacific spotted seal from a vessel; boat distance, engine noise and dwell time all subject to limits*

每条线路配置一名本地向导和一名青年志愿者。向导负责安全与当地文化讲解，志愿者负责生态记录与行为引导。这一双角色分工兼顾两种合法性：本地向导带来在地知识与社区信任，青年志愿者带来生态专业性与行为约束。所有团队出发前必须接受“无痕观鸟”守则培训，使规则在踏上岸线之前就被理解，而不是在违规行为发生之后才被追认。

Each route is staffed with one local guide and one youth volunteer. The guide is responsible for safety and local cultural interpretation; the volunteer handles ecological recording and behavioural guidance. This pairing secures two kinds of legitimacy at once: the local guide brings place-based knowledge and community trust, while the youth volunteer brings ecological expertise and behavioural discipline. Every group must receive leave-no-trace birdwatching training before departure, so that the rules are understood before anyone sets foot on the shoreline rather than being invoked after a violation has occurred.

低碳运营标准

Low-Carbon Operating Standards

观鸟运营全程践行低碳原则。五项标准分别覆盖交通、耗材、废弃物、消费与信息五个环节，构成一次旅行全过程的碳与废弃物管理闭环。它们的共同特点是可观察、可核查。

Low-carbon principles are applied throughout birdwatching operations. The five standards cover transport, consumables, waste, consumption and information respectively, forming a closed loop of carbon and waste management across an entire trip. Their shared characteristic is that they are observable and verifiable.

1. 交通替代。鼓励游客乘坐公共交通抵达皮口港，再乘公共轮渡上岛，减少自驾和快艇使用。

Transport substitution. Visitors are encouraged to reach Pikou Port by public transport and continue to the islands on public ferries, reducing private car and speedboat use.

2. 塑料减量。倡导游客自带水壶与餐具，线路中不提供一次性瓶装水和塑料包装食品。

Plastic reduction. Visitors are encouraged to bring their own bottles and tableware; single-use bottled water and plastic-packaged food are not provided on the routes.

3. 垃圾带离。所有观鸟过程不产生滞留垃圾，队伍统一执行“进来多少，带走多少”。

Carry-out waste. No birdwatching activity leaves waste behind; every group applies the rule “bring in what you take out”.

4. 本地消费。观鸟团餐食优先采购本地渔获和农产品，住宿优先选择经低碳认证或承诺遵守环保约定的渔家乐，让旅游支出直接留在社区。

Local consumption. Group meals give priority to locally caught seafood and agricultural produce; accommodation gives priority to fishing-family guesthouses that hold low-carbon certification or have committed to environmental agreements, keeping tourism spending inside the community.

5. 信息低耗。导览材料采用电子版，减少纸质印刷。确需印刷的材料使用再生纸。

Low-consumption information. Interpretation materials are delivered in electronic form to cut paper printing; where printing is unavoidable, recycled paper is used.

候鸟友好海产品牌

The Bird-Friendly Seafood Brand

与本地渔业合作社探讨建立“候鸟友好海产品”认证试点。认证标准包括：捕捞方式对海鸟和海洋哺乳动物无直接伤害、不使用有害渔具、遵守休渔期规定、生产地邻近候鸟栖息地的渔户可获得优先合作。这一机制的设计逻辑是正向激励而非惩戒门槛。通过它，渔民从保护中获益，社区逐步建立起“保护候鸟就是保护渔获”的认同，保护的外部效益由此被内部化。

With local fishery cooperatives, we will explore a pilot certification scheme for Bird-Friendly Seafood. The certification criteria are: fishing methods that cause no direct harm to seabirds and marine mammals; no use of harmful gear; compliance with closed fishing seasons; and priority cooperation for fishing households whose production areas lie close to migratory bird habitat. The design logic of this mechanism is positive incentive rather than punitive threshold. Through it, fishers gain from protection, the community gradually builds the understanding that protecting migratory birds means protecting the catch, and the external benefits of conservation are internalised.

2027 年的启动计划

Launch Plan for 2027

2027 年春迁期试运营第一条岸线观鸟线路，每天限定 2 个团队、每团不超过 10 人，运营期间持续收集鸟类干扰情况并不断优化规则。若无明显负面扰动，再在秋迁期开放第二条

线路。首期运营数据将用于编写《长海低碳观鸟操作手册》，供后续推广使用。先试后扩的节奏由一项硬指标把守：干扰监测结果，而不是市场热情，决定线路能否扩容；手册则把一期积累的经验固化为可复制的制度。

In the spring migration season of 2027, the first shoreline birdwatching route will be trial-operated with a limit of 2 groups per day and no more than 10 people per group. Throughout the trial, data on bird disturbance will be collected continuously and the rules refined accordingly. If no significant negative disturbance is observed, a second route will open in the autumn migration season. Data from the first operating period will be used to compile the Changhai Low-Carbon Birdwatching Operational Manual for subsequent rollout. The pace of "trial first, expand later" is governed by one hard indicator: disturbance monitoring results, rather than market enthusiasm, determine whether routes can be expanded. The manual converts the experience of the first phase into a replicable system.

4.5 社区协同

4.5 Community Engagement

行动目标

Objective

让长海县社区居民从遗产保护的旁观者转变为参与者、受益者和传播者。三种身份层层递进：参与产生经验，受益产生动力，传播产生合法性。社区协同的成败，决定了长山群岛保护能否长期持续——世界遗产的保护要求最终要落在日常生活的层面。

The objective is to move residents of Changhai County from being bystanders to heritage protection to being participants, beneficiaries and communicators. The three roles are cumulative: participation generates experience, benefit generates motivation, and communication generates legitimacy. The success or failure of community engagement determines whether protection of the Changhai Archipelago can be sustained over the long term, because the requirements of World Heritage protection ultimately land at the level of daily life.

建立社区联络人网络

Building a Community Liaison Network

在大长山岛、广鹿岛、獐子岛等主要岛屿各发展一名社区联络人，优先邀请在本地有声望的渔民、教师、民宿经营者或村干部担任。联络人负责帮助青促会了解社区需求，传递保护信息，组织社区活动，是一个双向而非单向的角色——既把社区的声音传上来，也把保护的信息送下去。

One community liaison will be developed on each of the main islands, including Da Changshan Island, Guanglu Island and Zhangzi Island, with priority given to respected local fishers, teachers, guesthouse operators or village cadres. Liaisons help the Association understand community needs, pass on conservation

information and organise community activities. It is a two-way rather than one-way role, carrying the community's voice upward and conservation information downward.

青促会不与联络人建立雇佣关系，而是通过提供培训资源、活动物料、宣传支持等方式形成平等合作关系。不作雇佣，是为了避免把社区声音机构化、进而削弱其在邻里眼中的独立性与可信度。

The Association does not enter into an employment relationship with liaisons, but builds an equal cooperative relationship by providing training resources, activity materials and communication support. Avoiding employment prevents community voices from being institutionalised and thereby weakened in the eyes of neighbours.

共同行动

Joint Action

与社区联合开展三类活动：

Three categories of activity will be carried out jointly with the community:

1. 海岸清洁。组织渔民间歇性出海清理废弃渔网和漂浮垃圾，重点清理岸线附近的海洋垃圾堆积带。每一次清洁活动记录重量和构成，形成数据档案。记录重量与构成，则使一次清洁行动转化为可比对的环境数据。

Coastal clean-up. Fishers are organised to make periodic trips to remove discarded fishing nets and floating waste, focusing on accumulation zones near the shoreline. The weight and composition of each clean-up are recorded to build a data archive. Recording weight and composition turns a clean-up into comparable environmental data.

2. 传统知识记录。邀请年长渔民讲述过去几十年海岛鸟类、海兽和渔汛的变化，以口述史方式留存，为气候叙事提供在地证据。渔民观察到的事件有时比仪器更早揭示生态系统的变化。

Traditional knowledge documentation. Elderly fishers are invited to recount changes over past decades in island birds, marine animals and fishing seasons, preserved as oral history and providing place-based evidence for the climate narrative. What fishers observe sometimes reveals ecosystem change earlier than instruments do.

3. 文化共建。将候鸟元素融入渔家传统文化活动，组织渔民画、海岛剪纸、民俗故事创作，形成具有本地特色的生态文创，通过这些作品对外讲述长山群岛的故事。文创作品同时为社区开辟一条与文化身份相符的收益渠道。

Cultural co-creation. Migratory bird motifs are woven into traditional fishing-community cultural activities, organising fisher painting, island paper-cutting and folk story creation, producing eco-cultural products with local character through which the story of the Changhai Archipelago is told outward. The resulting products also open an income channel consistent with the community's cultural identity.

冲突协调

Conflict Mediation

在观鸟线路和水产品牌推进过程中，难免出现与现有渔业活动的协调问题。青促会将建立反馈渠道，任何观鸟活动对社区生产造成不便时，社区联络人都可以通过渠道直接反映，青促会将在最短时间内调整活动安排。渠道的设计要点是低门槛、直达、有回应时限。

As birdwatching routes and the seafood brand advance, coordination problems with existing fishing activities are unavoidable. The Association will establish a feedback channel through which any community liaison can report directly when a birdwatching activity causes inconvenience to community production; the Association will adjust arrangements in the shortest possible time. The channel must be low-threshold, direct and bound by a response deadline.

对鸟类与渔业活动之间的冲突，如鸬鹚捕食养殖鱼苗等问题，不自行判断，而是记录情况并邀请专业机构研究解决方案。我们的原则是：保护鸟类的目标不靠损害渔民利益实现，而是寻找共同利益。

Where birds and fishing activities conflict — for instance, cormorants preying on farmed fry — we do not make our own judgement. We record the situation and invite professional institutions to study solutions. Our principle is that the goal of protecting birds is not achieved by damaging fishers' interests, but by identifying shared interests.

2026 年第四季度要做的三件事

Three Priorities for the Fourth Quarter of 2026

1. 完成社区联络人遴选，建立首期联络人名册并举行线上见面会。

   Complete the selection of community liaisons, establish the first liaison roster and hold an online introductory meeting.

2. 与任一岛屿村委或合作社确认 2027 年春季海岸清洁活动的合作意向。

   Confirm cooperation intentions for a spring 2027 coastal clean-up with a village committee or cooperative on one of the islands.

3. 启动第一位老渔民口述史访谈，完成文字整理初稿。

   Begin the first oral history interview with an elderly fisher and complete a first written draft.

4.6　COP31 国际叙事

4.6　Global Storytelling at COP31

行动目标

Objective

在 2026 年 11 月土耳其安塔利亚 COP31 上，以准确的遗产身份、扎实的行动数据和鲜明的青年视角，将长山群岛案例推向国际舞台，同时为后续国际合作建立联系网络。三项资产缺一不可：身份提供可信度，数据提供说服力，青年视角提供辨识度。

At COP31 in Antalya, Türkiye, in November 2026, the objective is to bring the Changhai Archipelago case onto the international stage with an accurate heritage identity, solid action data and a distinct youth perspective, while building a network of contacts for future international cooperation. All three assets are indispensable: identity provides credibility, data provides persuasiveness, and the youth perspective provides recognisability.

展位呈现

Booth Presentation

青促会作为 UNFCCC 观察员机构，在 COP31 现场设置展位。展位空间有限，因此内容设计遵循“少而精”原则。

As an observer organisation to the UNFCCC, the Association will set up a booth at COP31. Booth space is limited, so content design follows the principle of “less but better”.

展位核心物料包括：

Core booth materials include:

1. 一块主背板，用简洁图文展示长山群岛四大组成部分与世界自然遗产边界调整信息，突出“气候适应×生物多样性×青年行动”的关键词。背板承担的是十秒内完成自我说明的任务，因此信息必须层级分明、可远读。

A main backdrop presenting, in concise text and graphics, the four components of the Changhai Archipelago and the World Natural Heritage minor boundary modification, highlighting the key terms “climate adaptation × biodiversity × youth action”. The backdrop must explain the case within ten seconds, so its information has to be clearly layered and readable from a distance.

2. 一个循环播放短视频，内容为青年志愿者的真实工作场景、候鸟迁徙画面和社区活动，时长控制在 3 分钟内，提供中英文字幕。

A short video on loop, showing youth volunteers at work, migratory birds in flight and community activities, kept within 3 minutes and provided with Chinese and English subtitles.

3. 一摞三折页，中英对照。重点内容包括：长山群岛遗产信息、六条行动线简介、公民科学简要数据、「长海青年气候守护站」倡议内容和联系方式。三折页文案见附录 C。

A stack of tri-fold leaflets in Chinese and English, covering the heritage information of the Changhai Archipelago, an introduction to the six action lines, summary citizen science data, the Changhai Youth Climate Guardians initiative and contact details. The leaflet text is given in Appendix C.

4. 一套四联漫画展示，选取候鸟季征稿优秀作品，向国际观众呈现中国海岛儿童对气候变化和候鸟保护的独特表达。漫画是一种跨越语言障碍的沟通工具。在充斥图表与术语的会场里，儿童的手绘画面反而具有最强的穿透力。

A Four Comics Contest display featuring outstanding works from the Migratory Bird Season call for entries, presenting to international audiences the distinctive expression of children from China's islands on climate change and migratory bird protection. Comics are a communication tool that crosses language barriers. In a venue crowded with charts and terminology, children's hand-drawn images have the strongest penetrating power.

5. 一个透明数据瓶，装满写着观鸟记录编号的小纸条，象征公民科学积累的数据，参观者可取走一张作为纪念。

A transparent Data Bottle filled with paper slips bearing birdwatching record numbers, symbolising the data accumulated through citizen science; visitors may take one slip as a souvenir.

边会发言要点

Side Event Talking Points

视机会申请边会发言活动，发言提纲如下：

Depending on available opportunities, we will apply for a side event speaking slot. The outline is as follows:

1. 开场以“长山群岛：青年如何把一个世界自然遗产变成行动实验室”为题。

The opening is titled “The Changhai Archipelago: How Youth Turn a World Natural Heritage Site into an Action Laboratory”.

2. 第一部分介绍长山群岛价值与边界调整事实。事实先行，让后续的一切主张都有可核查的落点。

The first part presents the values of the Changhai Archipelago and the facts of the boundary modification. Facts come first, so that every later claim has a verifiable anchor.

3. 第二部分介绍青年行动的三个缺口判断。

The second part sets out three gap assessments behind the youth action.

4. 第三部分重点介绍公民科学和社区协同的进展。两者分别回答“我们如何知道”与“我们为何被接纳”。

The third part focuses on progress in citizen science and community engagement. Together they answer how we know what we know, and why we are accepted here.

5. 第四部分提出「长海青年气候守护站」倡议，邀请全球青年网络参与跨区域候鸟保护数据共享和气候教育伙伴计划。

The fourth part puts forward the Changhai Youth Climate Guardians initiative, inviting global youth networks to join cross-regional migratory bird data sharing and a climate education partnership programme.

发言控制在 500 字左右核心内容，详细版本可根据现场情况调整，整体传达“我们不是来报告成果的，是来邀请合作的”的姿态。

The core content is kept to around 500 characters, with a longer version adaptable to the setting. The overall stance conveyed is: we are not here to report results, we are here to invite cooperation.

「长海青年气候守护站」倡议文本

Text of the Changhai Youth Climate Guardians Initiative

倡议核心内容如下：气候变化正在改变候鸟迁飞的时间、路线与栖息地质量，青年作为未来的守护者，应主动承担跨区域数据共享、公众教育和低碳转型的责任。我们邀请全球青年组织和青年行动者，在世界各候鸟迁飞区建立同样的守护站，按照统一标准记录候鸟动态，分享气候变化对迁徙生态影响的观察。2027 年至 2028 年，优先推动在东亚—澳大利西亚迁飞区范围内建立至少 5 个青年守护站伙伴点。

The core text of the initiative reads as follows. Climate change is altering the timing, routes and habitat quality of migratory bird migration. As the guardians of the future, young people should take the initiative in cross-regional data sharing, public education and low-carbon transition. We invite youth organisations and young activists worldwide to establish guardian stations of the same kind in migratory bird flyways everywhere, to record bird dynamics against common standards and to share observations of how climate change affects migratory ecology. From 2027 to 2028, priority will be given to establishing at least 5 partner youth guardian station sites within the East Asian–Australasian Flyway.

倡议不接受任何以保护之名干扰鸟类的行为，不参与任何商业化诱拍和放生式宣传。守护站的核心标准是科学、真实、可持续。三条标准各有指向：科学约束方法，真实约束表述，可持续约束节奏——缺其一，守护站便退化为空洞的符号。

The initiative accepts no behaviour that disturbs birds in the name of protection, and takes no part in commercialised bait photography or release-style publicity. The core standards of a guardian station are scientific, truthful and sustainable. Each standard points somewhere specific: scientific governs method, truthful governs expression, and sustainable governs pace. Without any one of them, a guardian station degenerates into an empty symbol.

2026 年第四季度要做的三件事

Three Priorities for the Fourth Quarter of 2026

1. 完成展位设计方案和三折页排版定稿，完成中英文校对。

   Finalise the booth design and the tri-fold leaflet layout, and complete Chinese–English proofreading.

2. 完成 COP31 参会注册及展位申请，确认场地搭建时间与服务条件。

   Complete COP31 registration and the booth application, and confirm the build-up schedule and service conditions of the venue.

3. 开展三次内部演练，分别测试展位接待流程、三分钟英文讲解和问答应对。

Run three internal rehearsals, testing respectively the booth reception process, the three-minute English introduction and question-and-answer handling.

第五章　COP31 呈现方案与长海倡议

Chapter 5　The COP31 Presentation Plan and the Changhai Initiative

5.1 会议信息与战略定位

5.1 Conference Information and Strategic Positioning

5.1.1 COP31 基本信息

5.1.1 Basic Information on COP31

第三十一届联合国气候变化大会（COP31）将于 2026 年 11 月 9 日至 20 日在土耳其安塔利亚举行，大会主题为「对话·共识·行动」（Dialogue. Consensus. Action.）。本届大会是在全球气候治理进入“后巴黎”全面落实期的一次关键会议，国际社会期待看到从承诺到执行的实质性进展。对话、共识、行动三个词构成一条递进的链条：对话产生共识，共识落到行动，而行动需要有具体的地方作为发生的场所。

The 31st Conference of the Parties to the UNFCCC (COP31) will be held in Antalya, Türkiye, from 9 to 20 November 2026, under the theme "Dialogue. Consensus. Action." This session comes at a critical moment, as global climate governance enters the full implementation phase following Paris; the international community expects to see substantive progress from commitment to delivery. The three words form a progressive chain: dialogue produces consensus, consensus lands in action, and action needs a concrete place in which to occur.

大连市青年公益事业发展促进会（青促会，YCCDL）作为《联合国气候变化框架公约》（UNFCCC）观察员机构，计划全程参与 COP31，并以「长海青年气候守护站」为主题，在大会现场设置展位，向国际社会呈现中国海岛青年在气候适应与生物多样性协同保护中的具体行动。观察员身份带来的是参与的权利而非发言的特权，我们将把它用在一处：把一个具体的海岛案例，讲成可供他人复制的方法。

The Dalian Youth Public Welfare Development Promotion Association (YCCDL), an observer organisation to the United Nations Framework Convention on Climate Change (UNFCCC), plans to participate in COP31 throughout, and to set up a booth at the venue under the theme of the Changhai Youth Climate Guardians, presenting to the international community the concrete actions of young people from China's islands in the joint pursuit of climate adaptation and biodiversity conservation. Observer status confers a right to participate rather than a privilege to speak, and we will spend it on one thing: telling a specific island case as a method that others can replicate.

5.1.2 战略定位

5.1.2 Strategic Positioning

我们在 COP31 上的传播目标不是“展示成绩”，而是“寻找伙伴”。围绕这一目标，所有呈现内容都将服务三个核心信息：

Our communication goal at COP31 is not to "show results" but to "find partners". Around this goal, all presentation content serves three core messages:

1. 信息一：气候与生物多样性是同一场战斗。 长山群岛的候鸟保护不仅是物种保护问题，更是气候变化适应问题。候鸟物候变化、海平面上升、极端天气对海岛栖息地的冲击，都是气候危机的直接体现。我们以长山群岛为样本，呈现气候与生物多样性的协同解决方案。把两个议程分开处理，是过去多年治理实践中最昂贵的失误之一。

Message one: climate and biodiversity are the same battle. Protecting migratory birds in the Changhai Archipelago is not only a species conservation issue; it is equally an issue of climate change adaptation. Shifts in bird phenology, sea level rise and the impact of extreme weather on island habitats are all direct manifestations of the climate crisis. Using the Changhai Archipelago as a sample, we present a joint climate–biodiversity solution. Treating the two agendas separately has been one of the most costly errors of governance practice in recent years.

2. 信息二：青年不是旁观者，而是行动者。 我们不空谈“青年是未来的主人”，我们展示青年此时此地正在做的事：每周记录候鸟数据、组织海岸清洁、推动观鸟减排、进入学校开展气候教育。每一件具体的小事，构成青年的行动宣言。宣言由事实写成，因此不需要感叹号。

Message two: youth are not bystanders but actors. We do not repeat the empty phrase that young people are the masters of the future; we show what young people are doing here and now: recording bird data every week, organising coastal clean-ups, pushing for emission reductions in birdwatching, delivering climate education in schools. Each concrete small act composes the youth declaration of action. The declaration is written in facts, and therefore needs no exclamation mark.

3. 信息三：地方行动可以成为全球网络。 长山群岛是一个具体的、有限的地方，但东亚—澳大利西亚迁飞区连接着 22 个国家。我们希望以长山群岛为起点，邀请全球青年在最需要的海岸线上建立守护站，共享数据、共用方法、共担责任。地方的有限性不构成局限，恰恰是可复制性的来源。

Message three: local action can become a global network. The Changhai Archipelago is a specific and bounded place, but the East Asian–Australasian Flyway connects 22 countries. We hope to start from the Changhai Archipelago and invite young people worldwide to establish guardian stations on the coastlines that most need them, sharing data, sharing methods and sharing responsibility. The boundedness of a place is not a limitation; it is precisely the source of replicability.

5.1.3 与第 48 届世界遗产委员会决议的衔接

5.1.3 Linkage with the Decision of the 48th Session of the World Heritage Committee

2026 年 7 月 27 日，第 48 届世界遗产委员会会议在韩国釜山审议通过「中国黄（渤）海候鸟栖息地（第一期）」世界自然遗产边界调整项目，长山群岛候鸟栖息地正式纳入世界遗

产体系。这一事件为 COP31 上的叙事提供了坚实的科学和政治依据：科学上，它确认了这一地点的全球性价值；政治上，它表明保护承诺已经转化为具有国际约束力的身份。

On 27 July 2026, the 48th session of the World Heritage Committee, meeting in Busan, Republic of Korea, approved the World Natural Heritage minor boundary modification for the Migratory Bird Sanctuaries along the Coast of the Yellow Sea–Bohai Gulf of China (Phase I), formally bringing the Changhai Archipelago Migratory Bird Habitat into the World Heritage system. This event provides a solid scientific and political basis for the narrative at COP31: scientifically, it confirms the global value of this place; politically, it shows that a conservation commitment has been converted into an internationally binding status.

我们在所有对外材料中，将准确使用这一时间背景，明确「世界自然遗产」「边界调整」「2026 年 7 月 27 日」三个关键事实，并将世界遗产保护与气候行动紧密关联，避免将两者叙述为彼此无关的事务。术语的准确是一种纪律：一旦表述松动，就会在专业听众面前同时损失可信度与合作机会。

In all external materials, we will use this time reference accurately, stating clearly the three key facts of World Natural Heritage, minor boundary modification and 27 July 2026, and linking World Heritage protection closely with climate action, avoiding any description of the two as unrelated matters. Accuracy in terminology is a discipline: once the wording loosens, credibility and cooperation opportunities are lost simultaneously in front of a professional audience.

5.2 展位呈现设计

5.2 Booth Design

5.2.1 展位空间概述

5.2.1 Booth Space Overview

COP31 展位空间有限，我们将采用「少而精」的设计原则，以一面主视觉背板、一个视频循环播放区、一张资料台、一个互动装置为核心要素，营造紧凑、清晰、有记忆点的展示空间。四个要素各司其职：背板负责远距离吸引，视频负责中距离停留，资料台负责近距离交流，互动装置负责留下记忆。

COP31 booth space is limited, so we will adopt the design principle of "less but better", built around one main visual backdrop, one looping video area, one information desk and one interactive installation, creating a compact, clear and memorable display space. The four elements each have a role: the backdrop attracts from a distance, the video holds attention at medium range, the information desk supports close conversation, and the interactive installation leaves a memory.

展位总面积控制在 9 至 12 平方米。地面铺设浅灰色地毯，降低视觉噪音；主背板采用深蓝色基调，寓意海洋与夜空，配以金色线条勾勒候鸟迁徙路线，呼应世界遗产与气候行动的

双重主题。在有限的面积里，色彩与线条承担了分区的功能：参观者不需要阅读指示牌，就能判断该在哪里停下、从哪里开始看。

The total booth area is kept within 9 to 12 square metres. The floor is laid with light grey carpet to reduce visual noise; the main backdrop uses a deep blue base, evoking ocean and night sky, with gold lines tracing migratory bird routes, echoing the dual themes of World Heritage and climate action. Within a limited footprint, colour and line perform the function of zoning: visitors can tell where to stop and where to begin without reading a sign.

5.2.2 主背板内容

5.2.2 Main Backdrop Content

主背板尺寸建议为 3 米×2.4 米，中英对照，信息层级分明。中英并置不是重复，而是让不同语言的观众在同一视距内获得同等的信息起点。

The recommended size of the main backdrop is 3 m × 2.4 m, bilingual in Chinese and English, with clearly layered information. Placing the two languages side by side is not duplication; it gives audiences of different languages an equal information starting point at the same viewing distance.

标题区 / Title zone： CHANGHAI YOUTH CLIMATE GUARDIANS | 长海青年气候守护站。标题采用中英并列、英文在前的排布，使国际观众在远距离最先捕获的是品牌名，而非一段需要翻译的地名。

Title zone: CHANGHAI YOUTH CLIMATE GUARDIANS | Changhai Youth Climate Guardians. The title places Chinese and English side by side with English first, so that what international audiences capture at a distance is the brand name rather than a place name awaiting translation.

副标题区 / Subtitle zone： 候鸟迁徙与海岛气候适应的地方青年行动 | Local Youth Action for Migratory Birds and Island Climate Adaptation。副标题承担解释功能：它用一句话回答“这是什么”，使标题不至停留在口号层面。

Subtitle zone: 候鸟迁徙与海岛气候适应的地方青年行动 | Local Youth Action for Migratory Birds and Island Climate Adaptation. The subtitle performs the explanatory function: in one sentence it answers what this is, preventing the title from remaining at the level of a slogan.

核心信息区 / Core information zone： 从左至右排列三个板块，形成“位置—身份—行动”的阅读顺序，与观众自左向右的视线习惯一致。

Core information zone: three panels arranged from left to right, forming a reading order of location, identity and action that matches the left-to-right habit of the viewer's eye.

板块一：长山群岛在哪里。一张简洁的黄海区位示意图，标注长山群岛与东亚—澳大利西亚迁飞区的关系，配文「中国黄海北部群岛，东亚—澳大利西亚迁飞区关键海上驿站」。先行解决空间定位，是因为后续所有数据都需要一个地理坐标才能被理解。

Panel one: Where is the Changhai Archipelago. A concise location map of the Yellow Sea marking the relationship between the Changhai Archipelago and the East Asian–Australasian Flyway, captioned "An archipelago in the northern Yellow Sea of China; a key maritime stopover on the East Asian–Australasian Flyway". Spatial location is settled first because every subsequent figure needs a geographical coordinate to be intelligible.

板块二：世界遗产新身份。标注「2026 年 7 月 27 日列入世界自然遗产」，并列出代表物种图标与数据：黄嘴白鹭成鸟超 2500 只；黑脸琵鹭 2026 年近 60 只；迁徙季水鸟超 10 万只；遗产地总面积 4962.62 公顷。文字注明「通过中国黄（渤）海候鸟栖息地（第一期）边界调整列入」。数据与身份并列呈现，是用数字为身份背书。

Panel two: A new World Heritage identity. Marked "Inscribed as World Natural Heritage on 27 July 2026", with icons and figures for representative species: over 2,500 adult Chinese Egrets; close to 60 Black-faced Spoonbills in 2026; over 100,000 waterbirds during the migration season; total heritage site area 4,962.62 hectares. The text notes inscription "through the minor boundary modification of the Migratory Bird Sanctuaries along the Coast of the Yellow Sea–Bohai Gulf of China (Phase I)". Presenting data alongside status means using numbers to underwrite the identity.

板块三：青年在行动。以图标方式呈现六条行动线：志愿协同、公民科学、气候教育、低碳文旅、社区协同、国际叙事。每个图标配一句简短说明，例如「每周记录候鸟动态」「走进学校讲气候故事」。底部配以一句话总结：「我们不只是守护这片海，我们在守护一条连接 22 个国家的生命航线。」图标化的处理让六条线在数秒内被整体接收，而收尾的一句话把地方性重新接回全球尺度。

Panel three: Youth in action. Icons present the six action lines: volunteer coordination, citizen science, climate education, low-carbon tourism, community engagement and global storytelling. Each icon carries a short caption, for example "Recording bird dynamics every week" and "Bringing climate stories into schools". A closing line runs along the bottom: "We are not only guarding this sea; we are guarding a living route that connects 22 countries." The icon-based treatment lets all six lines be absorbed within seconds, while the closing line reconnects the local to the global scale.

5.2.3 视频内容

5.2.3 Video Content

循环播放视频控制在 3 分钟以内，中英文字幕。分三个章节，构成"鸟—人—邀请"的递进结构：先让观众看见对象，再看见做这件事的人，最后看见自己可以加入的位置。

The looping video is kept within 3 minutes, with Chinese and English subtitles. It is divided into three chapters forming a progression of bird, people and invitation: first the audience sees the subject, then the people doing the work, and finally the place where they themselves could join.

第一章「鸟的旅程」（约 60 秒）：以候鸟迁徙的空中视角为线索，展现候鸟飞越黄海抵达长山群岛的画面。采用实景素材与手绘动画结合的方式呈现迁徙路线，配以海浪声与鸟鸣。实景保证可信，手绘补足无法拍摄的尺度——二者结合，才能在有限时长内同时交代真实感与全局感。

Chapter one, "The Birds' Journey" (about 60 seconds): following an aerial perspective of migration, showing birds crossing the Yellow Sea to reach the Changhai Archipelago. Live footage is combined with hand-drawn animation to present the migration route, accompanied by the sound of waves and bird calls. Live footage secures credibility; hand-drawn animation supplies the scale that cannot be filmed. Only together can the film convey both authenticity and a sense of the whole within a limited running time.

第二章「岛上的青年」（约 90 秒）：记录青年志愿者实际操作的真实画面。包括：志愿者在岸线架设望远镜计数、填写观测记录表、清理海滩废弃渔网、在学校为儿童讲解候鸟知识、与渔民交谈的场景。全程使用同期声，不配解说词，保留真实工作环境中海浪、脚步、对话的声音细节。不配解说词是刻意的克制：让画面自己说话，比旁白宣称"我们很努力"更有说服力。

Chapter two, "Youth on the Islands" (about 90 seconds): real footage of youth volunteers at work, including setting up telescopes and counting along the shoreline, filling in observation record sheets, removing discarded fishing nets from beaches, explaining migratory birds to children at school, and talking with fishers. Actual sound is used throughout with no narration, preserving the sonic detail of waves, footsteps and conversation in a real working environment. The absence of narration is deliberate restraint: letting the images speak is more persuasive than a voiceover claiming how hard we work.

第三章「守护站的邀请」（约 30 秒）：以简洁字幕形式呈现核心呼吁：「你的海岸线，也需要一个守护站。Join the Changhai Youth Climate Guardians.」随后展示二维码与联系方式。结尾只给一个动作指令，避免在同一屏上并列多个请求而稀释行动意愿。

Chapter three, "An Invitation from the Guardian Station" (about 30 seconds): the core appeal appears as concise subtitles — "Your coastline needs a guardian station too. Join the Changhai Youth Climate Guardians." — followed by a QR code and contact details. The ending gives one single call to action, avoiding several requests crowded onto one screen that would dilute the willingness to act.

视频使用的所有素材必须真实，不使用 AI 生成替代性画面。涉及渔民和社区居民的镜头需提前获得出镜同意。真实性是这部影片唯一不可替代的资产：一旦观众怀疑画面被合成，前面所有数据都会被重新审视。

All footage used in the video must be authentic; no AI-generated substitute imagery is used. Shots involving fishers and community residents require prior consent to appear. Authenticity is the film's only irreplaceable asset: once viewers suspect the images were synthesised, every figure presented earlier comes under renewed scrutiny.

5.2.4 资料台与物料

5.2.4 Information Desk and Materials

资料台摆放三种核心物料，分别对应三种不同深度的参观者。物料的设计逻辑是分层：轻的给所有人，重的给有意向的人，可带走的给愿意记住的人。

The information desk holds three core materials, corresponding to three different depths of visitor. The design logic is layered: the light one for everyone, the substantial one for those with interest, and the takeaway one for those willing to remember.

一是白皮书正文（中英文版各一册），用于深度交流时赠予有合作意向的机构和个人。印制数量控制在 100 册以内，避免浪费。限量并非惜售，而是让每一册都对应一次真实的对话。

First, the white paper itself (one copy each in Chinese and English), presented during in-depth exchanges to institutions and individuals with cooperation interest. Printing is kept within 100 copies to avoid waste. The limit is not reluctance to distribute but a way of matching each copy to a genuine conversation.

二是三折页（中英对照），作为主要分发资料，数量 500 份。三折页内容详见附录 C。它是展位与外界之间成本最低、覆盖最广的接触面。

Second, the tri-fold leaflet (Chinese–English bilingual), the main distribution material, with 500 copies. Its content is detailed in Appendix C. It is the lowest-cost and widest-reaching contact surface between the booth and the outside.

三是「数据瓶」互动装置。选择一只透明玻璃瓶，瓶内装数百张折叠小纸条，每张纸条上写有公民科学记录编号及对应观测记录关键词，例如「2027 春迁-016-黄嘴白鹭-12 只」「2027 秋迁-088-黑脸琵鹭-4 只」。参观者可随机取走一张作为纪念。这一装置以最直观的方式传播公民科学理念，也让参观者带走一份来自长山群岛的具体记忆。编号的意义在于它指向一条真实存在的记录：参观者拿走的不是纪念品，而是一次观测的坐标。

Third, the "Data Bottle" interactive installation. A transparent glass bottle holds several hundred folded slips, each bearing a citizen science record number and the corresponding observation keywords, for example "2027 spring migration-016-Chinese Egret-12 individuals" and "2027 autumn migration-088-Black-faced Spoonbill-4 individuals". Visitors may take one slip at random as a souvenir. This installation communicates the idea of citizen science in the most direct way, and lets visitors carry away a concrete memory of the Changhai Archipelago. The point of the record number is that it refers to a record that really exists: what the visitor takes away is not a souvenir but the coordinate of an observation.

5.2.5 接待流程与人员配置

5.2.5 Reception Protocol and Staffing

展位配备青年志愿者 4 名，分为两组轮值，每组 2 人。每组含中文讲解 1 名、英文讲解 1 名。志愿者需提前完成培训，内容包括：白皮书核心内容、遗产地生态数据、展位物料的英文表述、COP31 现场情况、常见问题应答。语言分工与轮值安排共同服务于一个目标：展位在整个会期内始终保持可被问询的状态。

The booth is staffed by 4 youth volunteers, divided into two rotating pairs of 2. Each pair includes one Chinese-speaking and one English-speaking presenter. Volunteers must complete training in advance covering the core content of the white paper, ecological data of the heritage site, English expressions for booth materials, conditions at the COP31 venue, and responses to frequently asked questions. The language split and the rotation together serve one goal: that the booth remains open to enquiry throughout the conference.

接待流程分为三个层级，以参观者的停留意愿而非身份作为分流依据：

The reception process has three tiers, differentiated by the visitor's willingness to linger rather than by their status:

1. 快速浏览层（30 秒）：仅浏览主背板或取走三折页的参观者。志愿者微笑示意，不做强行介绍，主动递上三折页并简单说明「这里展示的是中国长山群岛青年候鸟保护行动，欢迎取阅」。克制的接待本身就是尊重，也是把有限人力留给真正需要对话的人。

   Quick glance tier (30 seconds): visitors who only look at the main backdrop or take a leaflet. Volunteers offer a smile, make no forced introduction, hand over a leaflet and say briefly: "This presents youth migratory bird protection action in the Changhai Archipelago, China; please feel free to take one." Restraint in reception is itself a form of respect, and it reserves limited human capacity for those who genuinely want conversation.

2. 标准交流层（3—5 分钟）：对展位内容表现出兴趣并停留的参观者。志愿者按「我们是做什么的—我们在哪里做—我们为什么做—我们邀请你做什么」四段式结构介绍，重点讲述公民科学数据和守护站倡议。固定结构的作用，是保证不同志愿者讲出的内容基本一致，避免信息随人而异。

   Standard exchange tier (3–5 minutes): visitors who show interest and stay. Volunteers present in a four-part structure — what we do, where we do it, why we do it, and what we invite you to do — focusing on citizen science data and the guardian station initiative. The fixed structure ensures that different volunteers convey substantially the same content, preventing the message from varying from person to person.

3. 深度洽谈层（10 分钟以上）：对合作有明确意向的机构或个人。由负责国际事务的成员接待，使用白皮书作为洽谈文本，介绍守护站伙伴计划具体的合作方式与时间表，记录对方联系方式与意向，约定会后跟进。这一层的产出不是介绍，而是会后可执行的下一步。

In-depth discussion tier (over 10 minutes): institutions or individuals with clear cooperation interest. Received by the member responsible for international affairs, using the white paper as the discussion text, presenting the concrete cooperation modalities and timeline of the guardian station partnership programme, recording contact details and interest, and agreeing on post-conference follow-up. The output of this tier is not an introduction but an actionable next step after the conference.

5.2.6 COP31 主题日的呼应

5.2.6 Echoing the COP31 Thematic Days

大会主题「对话·共识·行动」将贯穿展位运营全程。我们将根据大会日程调整展位侧重点，使同一块展位在不同日期呈现出不同的切面。这种调整不是内容的更换，而是同一套内容在不同议题光照下的重新聚焦。

The conference theme "Dialogue. Consensus. Action." runs through the entire operation of the booth. We will adjust the booth's emphasis according to the conference agenda, so that the same booth presents a different facet on different days. This adjustment is not a change of content but a refocusing of the same content under the light of different agenda topics.

- 11 月 10 日「青年与未来一代日」前后，展位重点呈现青年志愿协同机制与四联漫画活动；

  Around 10 November, "Youth and Future Generations Day", the booth highlights the youth volunteer coordination mechanism and the Four Comics Contest activity;

- 11 月 12 日「海洋与海岸带日」（视大会议程安排）前后，展位重点呈现海草床蓝碳和斑海豹保护内容；

  Around 12 November, "Ocean and Coastal Zone Day" (subject to the conference agenda), the booth highlights seagrass bed blue carbon and the protection of the Western Pacific spotted seal;

- 11 月 17 日「生物多样性与气候日」前后，展位重点呈现公民科学观测和生态底图数据。

  Around 17 November, "Biodiversity and Climate Day", the booth highlights citizen science observation and ecological baseline data.

配合大会主题日活动，志愿者讲解时应有意识地将长山群岛的具体内容与大会议程议题连接，使参观者理解「长山群岛不是一个孤立的案例，而是气候议程中一个具体的地方注脚」。地方注脚的价值在于：它让宏议程有了可核查的落点，也让与会者在离开会场后仍能想起一个具体的地名。

In line with the thematic days, volunteers should consciously connect the concrete content of the Changhai Archipelago with the conference agenda topics when presenting, so that visitors understand that "the Changhai Archipelago is not an isolated case, but a specific local footnote in the climate agenda". The value of a local footnote is that it gives a grand agenda a verifiable anchor, and leaves participants, long after they exit the venue, still able to recall one concrete place name.

5.3 边会发言稿

5.3 Side Event Speaking Notes

5.3.1 边会信息

5.3.1 Side Event Information

青促会计划在 COP31 期间申办一场边会，或以观察员身份参与生物多样性相关主题的边会。如获得发言机会，将使用以下核心发言稿。发言稿提供两个版本：500 字精炼版用于 5 分钟发言，1200 字扩展版用于 15 分钟专题讨论。两版共享同一事实口径，可按现场议程与时长灵活取用。

The Dalian Youth Public Welfare Development Promotion Association (YCCDL) plans to convene a side event during COP31, or to take part in biodiversity-themed side events in its capacity as an observer organisation. Should a speaking slot be granted, the core remarks set out below will be delivered. Two versions are provided: a condensed version of about 500 Chinese characters for a five-minute intervention, and an extended version of about 1,200 characters for a fifteen-minute panel discussion. Both rest on the same factual basis and can be adapted to the agenda and the time available.

5.3.2 精炼发言稿

5.3.2 Condensed Speaking Notes

长山群岛刚刚经历了一件重要的事。2026 年 7 月 27 日，它正式载入联合国教科文组织世界自然遗产名录。这片群岛面积 4962.62 公顷，是东亚—澳大利西亚迁飞区上的关键驿站：全球超过 90% 的黄嘴白鹭在这里繁殖，迁徙季有超过 10 万只水鸟在此停歇补给。

Something important has just happened to the Changhai Archipelago. On 27 July 2026, it was inscribed on the UNESCO World Heritage List as a World Natural Heritage site. The archipelago covers 4,962.62 hectares. It is a critical staging area on the East Asian–Australasian Flyway. More than 90 per cent of the world's Chinese Egrets breed here. And in migration season, more than 100,000 waterbirds rest and refuel on these islands.

但我们来到 COP31，不是为了报告这个好消息。我们是为了提出一个问题。世界自然遗产的身份，给长山群岛带来了荣誉，也带来了更高的保护标准。那么，面对气候变化的冲击，谁来守护这片栖息地的未来?

But we have not come to COP31 to announce good news. We have come to ask a question. World Natural Heritage status brings honour to the Changhai Archipelago. It also brings a higher standard of protection. So we ask: under the pressure of a changing climate, who will safeguard the future of this habitat?

我们的答案是：青年可以，而且青年已经在行动。过去一年，我们组建了 10 人核心青年志愿队，在迁徙季每周开展公民科学观测，积累了第一手的记录。我们走进学校开设气候教育课程，让孩子们用四联漫画画出对候鸟的情感。我们设计低碳观鸟线路，让旅游收益流向保护地周边的社区。我们和渔民一起清理海岸，记录他们几十年来亲眼所见的海鸟与海洋变化。

Our answer is this. Young people can — and young people already are. Over the past year we built a core youth volunteer team of ten. Every week of the migration season, they run citizen science surveys, and they have built up a first-hand body of records. We go into schools and run climate education classes, where children draw Four Comics Contests about how they feel towards migratory birds. We design low-carbon birdwatching routes, so that tourism revenue reaches the communities that neighbour the protected area. We clean the coastline shoulder to shoulder with fishers, and we write down what they have seen change in seabirds and in the sea over several decades.

我们也清楚青年的边界。我们不替代执法，不干预专业科研，不越过生态红线。我们做的是公众参与、数据补充、社区连接与国际合作。

We are also clear about our limits. We do not replace law enforcement. We do not interfere with professional research. We do not cross the ecological red line. What we do is this: we engage the public, we fill the gaps in the data, we connect communities, and we cooperate across borders.

所以今天，我们在这里正式发出邀请：邀请全球青年组织，在各自国家的候鸟迁飞区建立青年气候守护站，按照统一标准记录候鸟动态，共享气候变化的生态观察。2027 至 2028 年，我们希望率先在东亚—澳大利西亚迁飞区推动建立至少 5 个伙伴守护站。

So today, from this podium, we make an open invitation. To youth organisations everywhere: establish youth climate guardian stations on the flyways of your own countries. Record bird movements to a shared standard. Share what you observe as the climate reshapes the ecology of migration. Between 2027 and 2028, we hope to see at least five partner guardian stations established, starting along the East Asian–Australasian Flyway.

长山群岛很小，迁飞区却很长。我们相信，只要每一段海岸线上都有青年在行动，这些分散的点，就能连成一张守护生命航线的全球网络。

The Changhai Archipelago is small. The flyway is not. We believe that if young people are acting on every stretch of that coastline, scattered points will join up — into a global network that guards the routes of life itself.

谢谢大家。

Thank you.

5.3.3 扩展发言稿

5.3.3 Extended Speaking Notes

这是中国黄海北部的长山群岛。它由 195 个岛、礁、坨组成，陆域面积 142 平方公里，海域面积超过 1 万平方公里。在东亚—澳大利西亚迁飞区上，它是候鸟跨越黄海时最重要的海上驿站之一。

This is the Changhai Archipelago, in the northern Yellow Sea. It is made up of 195 islands, reefs and rocks, with a land area of 142 square kilometres and a sea area of more than 10,000 square kilometres. On the East Asian–Australasian Flyway, it is one of the most important maritime staging areas for birds crossing the Yellow Sea.

2026 年 7 月 27 日，第 48 届世界遗产委员会会议在韩国釜山审议通过一项边界调整项目，长山群岛候鸟栖息地正式纳入「中国黄（渤）海候鸟栖息地」世界自然遗产。新增遗产地总面积 4962.62 公顷，包含四个组成部分：广鹿岛矾坨子，全球黄嘴白鹭核心繁殖地；格仙岛头坨子，黑脸琵鹭与猛禽的栖息地；大耗子岛，水鸟越冬的林岛；蛇蛸岛南部岩礁带，海鸟与斑海豹共享的家园。

On 27 July 2026, at its 48th session in Busan, the World Heritage Committee approved a minor boundary modification. With that decision, the Changhai Archipelago Migratory Bird Habitat became part of the World Natural Heritage property known as the Migratory Bird Sanctuaries along the Coast of the Yellow Sea–Bohai Gulf of China. The newly added area covers 4,962.62 hectares, in four components. Fantuozi, Guanglu Island — the global core breeding ground of the Chinese Egret. Toutuozi, Gexian Island — habitat for the Black-faced Spoonbill and for raptors. Dahaodao Island — a wooded island where waterbirds overwinter. And the southern rocky shore zone of Bashao Island, shared home of seabirds and the Western Pacific spotted seal.

这份新身份让我们自豪，更让我们感到责任在肩。世界遗产的认定，是对长山群岛长期保护工作的肯定；它同时意味着，国际社会对这片栖息地提出了更高的保护标准。而气候变化，正让这份要求变得前所未有的紧迫。

This new status makes us proud. It also makes us responsible. Inscription recognises the long years of protection work on the Changhai Archipelago. At the same time it raises the bar, because the international community now expects more from this habitat. And climate change is turning that expectation into something more urgent than ever.

我们观测到的变化正在累积：春季物候提前，候鸟抵达时间与繁殖窗口的对应关系正在改变；极端天气与海平面上升，对低海拔岛礁的威胁在上升；海洋垃圾与塑料污染在岸线持续累积。面对这些压力，仅靠传统巡护与执法已经不够。我们需要更多人参与、更高频次的观测，需要社区从保护中获益，也需要国际社会共享经验与数据。

The changes we observe are accumulating. Spring phenology is arriving earlier, and the fit between arrival time and the breeding window is shifting. Extreme weather and rising seas put low-lying islands and reefs at growing risk. Marine debris and plastic pollution keep building up along the shoreline. Against pressures like these, patrols and enforcement alone are not enough. We need more people involved. We need observation at higher frequency. We need communities to benefit from protection. And we need the international community to share both experience and data.

正是在这样的背景下，我们发起了「长海青年气候守护站」行动。

This is the context in which we launched Changhai Youth Climate Guardians.

过去一年，我们组建了首批 10 人核心青年志愿队，完成生态认知、安全规范、数据采集三项培训。迁徙季里，志愿队每周在预设样线上开展公民科学观测，记录鸟类的种类、数量、行为与物候信息。这些数据与专业科考数据分开管理，但我们相信，高频的公众记录，是对低频专业调查的重要补充。

Over the past year we formed our first core youth volunteer team, of ten members. Every one of them completed three modules of training: ecological awareness, safety protocols and data collection. In migration season, the team walks preset transects every week, recording species, numbers, behaviour and phenology. We keep these records separate from professional scientific survey data. But we believe that high-frequency public observation is a real complement to low-frequency professional surveys.

我们走进学校，把气候科学、海洋生态与候鸟保护编织进同一门课程，制作了适合青少年的课程包。我们发起「四联漫画候鸟季」，邀请孩子们用四格漫画表达对候鸟与气候的观察。孩子们的想象力超出了我们的预期：有孩子画了候鸟飞到城市上空却找不到湿地的故事，有孩子画下自己乘坐太阳能船去观鸟的场景。这些作品让气候教育从知识传递，变成了情感连接。

We go into schools. We bring climate science, marine ecology and bird conservation into a single course, and we have built a teaching package suited to teenagers. We launched the Four Comics Contest: Migratory Bird Season, asking children to express what they observe about birds and about the climate in four frames. Their imagination exceeded our expectations. One child drew a bird arriving over a city and finding no wetland left. Another drew themselves setting out to watch birds from a solar-powered boat. Work like this turns climate education from the transfer of knowledge into the forging of an emotional bond.

我们推动低碳观鸟文旅。这不是传统的旅游开发，而是有严格规则的小规模、深体验自然观察活动：每团不超过 10 人，不进入核心繁殖岛，不使用诱饵和声音回放，交通优先选择公共交通，所有垃圾带离。我们正与本地渔业合作社探讨「候鸟友好海产品」认证，希望让渔民从保护中直接获益。

We are promoting low-carbon birdwatching tourism. This is not conventional tourism development. It is small-scale, in-depth nature observation under strict rules: no more than ten people per group, no landing on

core breeding islands, no decoys and no playback, public transport preferred, and all waste carried out. We are also discussing a Bird-Friendly Seafood certification with local fishery cooperatives, so that fishers gain directly from protection.

我们走进社区。与海岛联络人一起组织海岸清洁，记录废弃渔网与漂浮垃圾的数量和构成。我们请老渔民讲述几十年间海鸟与海洋的变化，用口述史的方式，保存那些仪器从未记录过的生态记忆。

And we work in communities. Together with community liaisons on the islands, we organise coastal clean-ups and record the volume and composition of discarded fishing nets and floating debris. We ask veteran fishers to tell us how the seabirds and the sea have changed across decades. Through oral history, we preserve ecological memory that no instrument has ever recorded.

当然，我们清楚青年的边界。我们不替代执法机关，不进入核心繁殖区，不干预物种的专业管理，不把公民数据包装成学术成果。我们的角色是连接器：连接公众与科学，连接社区与保护，连接地方与全球。

Of course, we know where youth action has to stop. We do not replace enforcement agencies. We do not enter core breeding zones. We do not interfere with professional species management. We do not dress up citizen data as academic results. Our role is to be a connector: between the public and science, between communities and conservation, between the local and the global.

正是基于这样的认知，我们在这里正式提出「全球青年气候守护站伙伴计划」。我们邀请全球青年组织，在各自国家的迁飞区建立守护站，用统一的方法记录候鸟动态，分享气候变化对迁徙生态的影响。2027 至 2028 年，我们希望率先在东亚—澳大利西亚迁飞区建立至少 5 个伙伴守护站。

It is precisely because of this that we are formally proposing the Global Youth Climate Guardian Station Partnership Programme. We invite youth organisations worldwide to establish guardian stations on the flyways of their own countries, to record bird movements using shared methods, and to share what climate change is doing to migratory ecology. Between 2027 and 2028, we hope to establish at least five partner guardian stations, beginning along the East Asian–Australasian Flyway.

长山群岛很小，候鸟的航线却很长。我们相信，如果每一条航线的海岸线上都立着青年守护站，这些星星点点的守护，终将连成一张保护生命航线的全球网络。

The Changhai Archipelago is small. The migration routes are long. We believe that if a youth guardian station stands on the coastline of every one of those routes, these scattered points of care will one day join together — into a single global network that protects the routes of life.

让我们从今天开始行动。

Let us begin today.

谢谢大家。

Thank you.

5.4 「长海青年气候守护站」倡议书

5.4 Changhai Youth Climate Guardians Initiative

5.4.1 中文倡议书

5.4.1 Chinese Version

长海青年气候守护站倡议书

Changhai Youth Climate Guardians Initiative

气候变化正在改变候鸟迁飞的时间、路线与栖息地质量。作为东亚—澳大利西亚迁飞区的重要驿站，中国长山群岛候鸟栖息地于 2026 年列入世界自然遗产名录。荣誉带来了更高的保护标准，也发出了一份更迫切的行动邀请。

Climate change is altering the timing, the routes and the habitat quality of migratory bird movements. The Changhai Archipelago Migratory Bird Habitat in China, a critical staging area on the East Asian–Australasian Flyway, was inscribed on the World Heritage List in 2026. Honour brings a higher standard of protection. It also brings a more urgent invitation to act.

我们，大连市青年公益事业发展促进会，作为联合国气候变化框架公约观察员机构，在此发起「长海青年气候守护站」倡议。

We, the Dalian Youth Public Welfare Development Promotion Association (YCCDL), an observer organisation to the United Nations Framework Convention on Climate Change (UNFCCC), hereby launch the Changhai Youth Climate Guardians Initiative.

我们相信：

We believe that:

第一，气候与生物多样性是同一场战斗。候鸟的困境，就是气候危机的警报。

First, climate and biodiversity are one single struggle. The plight of migratory birds is an alarm bell for the climate crisis.

第二，青年不是未来的守护者，而是此刻的行动者。公民科学、社区服务、低碳行动，这些事青年现在就能做。

Second, young people are not guardians of the future; they are actors of the present. Citizen science, community service, low-carbon action — these are things young people can do now.

第三，地方行动可以连接全球。一条迁飞线连接着 22 个国家，每一个国家都需要自己的守护站。

Third, local action can reach the globe. One flyway connects 22 countries, and every one of them needs a guardian station of its own.

我们承诺：

We commit to:

在长山群岛建立青年气候守护站，按照科学方法持续观测候鸟动态，记录气候变化的生态影响，定期发布《青年观测简报》。

Establishing a youth climate guardian station in the Changhai Archipelago, monitoring migratory bird dynamics through scientific methods, documenting the ecological impacts of climate change, and publishing regular editions of the Youth Observation Briefing.

以不干扰为前提开展一切行动：不进入核心繁殖岛，不使用诱饵、声音回放、投食、追逐等干扰手段。

Conducting every action on a non-disturbance basis: no entry to core breeding islands; no decoys, playback calls, baiting, chasing or any other disturbance technique.

与属地管理部门、科研机构和社区建立协作关系；公民科学数据标明公众观测性质，与专业科考数据分开管理。

Building working relationships with the local authorities, research institutions and communities; labelling citizen science data as public observation and managing it separately from professional scientific datasets.

推动气候教育走进学校和社区，让世界自然遗产成为公众理解气候变化的入口。

Bringing climate education into schools and communities, so that World Natural Heritage status becomes an entry point for public understanding of climate change.

发展低碳观鸟文旅，让社区从生态保护中获得可持续收益。

Developing low-carbon birdwatching tourism, so that communities receive lasting benefits from ecological protection.

我们邀请：

We invite:

全球青年组织与青年行动者，在各自国家的候鸟迁飞区建立青年气候守护站，按照统一标准记录候鸟动态，分享气候变化对迁徙生态影响的观察。

Youth organisations and young activists around the world — establish youth climate guardian stations on the migratory flyways of your own countries. Record bird movements to a common standard. Share your observations of how climate change is affecting migratory ecology.

2027 年至 2028 年间，我们希望率先在东亚—澳大利西亚迁飞区推动建立至少 5 个伙伴守护站。

Between 2027 and 2028, we aim to see at least five partner guardian stations established, starting along the East Asian–Australasian Flyway.

守护站的核心标准是科学、真实、可持续。我们拒绝任何以保护之名干扰鸟类的行为，拒绝商业化诱拍，拒绝虚假叙事。

The core standards of a guardian station are science, truth and sustainability. We reject every act that disturbs birds in the name of protection. We reject commercialised bait photography. We reject false narratives.

候鸟不需要夸奖，它们需要安全的航线。让我们用行动，为它们守住这条跨越南海、黄海、东海与太平洋的生命航线。

Migratory birds do not need our praise. They need safe flight paths. Let us act — and hold open this lifeline across the South China Sea, the Yellow Sea, the East China Sea and the Pacific Ocean.

大连市青年公益事业发展促进会（YCCDL）

Dalian Youth Public Welfare Development Promotion Association (YCCDL)

2026 年 11 月

November 2026

土耳其，安塔利亚

Antalya, Türkiye

5.4.2 英文倡议书

5.4.2 English Version

Changhai Youth Climate Guardians Initiative

Climate change is altering the timing, the routes and the habitat quality of migratory bird movements. The Changhai Archipelago Migratory Bird Habitat, a critical staging area on the East Asian–Australasian Flyway, was inscribed as a UNESCO World Natural Heritage site in 2026 through the minor boundary modification of the Migratory Bird Sanctuaries along the Coast of the Yellow Sea–Bohai Gulf of China. This recognition brings higher conservation standards. It also brings a more urgent call to act.

We, the Dalian Youth Public Welfare Development Promotion Association (YCCDL), an observer organisation to the United Nations Framework Convention on Climate Change (UNFCCC), hereby launch the Changhai Youth Climate Guardians Initiative.

We believe that:

First, climate and biodiversity are one single struggle. The plight of migratory birds is an alarm bell for the climate crisis.

Second, young people are not guardians of the future; they are actors of the present. Citizen science, community service, low-carbon action — these are things young people can do now.

Third, local action can reach the globe. One flyway connects 22 countries, and every one of them needs a guardian station of its own.

We commit to:

Establishing a youth climate guardian station in the Changhai Archipelago, monitoring migratory bird dynamics through scientific methods, documenting the ecological impacts of climate change, and publishing regular editions of the “Youth Observation Briefing”.

Conducting every action on a non-disturbance basis: no entry to core breeding islands; no decoys, playback calls, baiting, chasing or any other disturbance technique.

Building working relationships with the local authorities, research institutions and communities; labelling citizen science data as public observation and managing it separately from professional scientific datasets.

Bringing climate education into schools and communities, so that World Natural Heritage status becomes an entry point for public understanding of climate change.

Developing low-carbon birdwatching tourism, so that communities receive lasting benefits from ecological protection.

We invite:

Youth organisations and young activists around the world — establish youth climate guardian stations on the migratory flyways of your own countries. Record bird movements to a common standard. Share your observations of how climate change is affecting migratory ecology.

Between 2027 and 2028, we aim to see at least five partner guardian stations established, starting along the East Asian–Australasian Flyway.

The core standards of a guardian station are science, truth and sustainability. We reject every act that disturbs birds in the name of protection. We reject commercialised bait photography. We reject false narratives.

Migratory birds do not need our praise. They need safe flight paths. Let us act — and hold open this lifeline across the South China Sea, the Yellow Sea, the East China Sea and the Pacific Ocean.

Dalian Youth Public Welfare Development Promotion Association (YCCDL)

November 2026

Antalya, Türkiye

5.5 国际协作路线图

5.5 International Collaboration Roadmap

5.5.1 2026—2027 年国际合作优先事项

5.5.1 International Cooperation Priorities, 2026–2027

COP31 的闭幕不是国际合作的终点，而是长山群岛叙事进入国际公共领域的起点。会议之后，合作将由一次性的现场呈现转为常态化推进：以数据建立信任，以方法支撑复制，以网络承载连接，以传播吸引同行。四条线索彼此咬合，构成 2026—2027 年国际合作的基本框架：

The close of COP31 is not the end of international cooperation; it is the point at which the Changhai story enters the international public sphere. After the conference, cooperation shifts from a one-off presentation to sustained engagement: data builds trust, methodology enables replication, networks carry connection, and communication attracts peers. The four lines interlock, forming the basic framework for international cooperation in 2026–2027:

一是数据共享。将青年公民科学观测形成的「物种—日期—数量」三元组数据以开放格式整理，与迁飞区伙伴共享；共享前完成口径核对与敏感信息审查，涉及繁殖地精确位置与敏感时段的内容一律不予公开。首期共享范围为 2027 年春迁期观测数据。

First, data sharing. The "species–date–count" triples generated by youth citizen science observation will be compiled in an open format and shared with partners across the East Asian–Australasian Flyway (EAAF). Before release, records are checked against the data conventions set out in this white paper and reviewed for sensitivity; information on the precise location of breeding sites or on sensitive periods will not be disclosed. The first release covers observation data from the 2027 spring migration season.

二是方法输出。编写《青年气候守护站操作手册》，涵盖观测样线设置、记录表格模板、数据质量控制、安全规范与社区沟通要点，向伙伴守护站提供。手册定位为可移植的最小工具包：伙伴站可依本地物种组成与管理要求作适配，数据字段与安全底线则保持一致，以保证跨站点数据可比。

Second, methodology transfer. The Youth Climate Guardian Station Operational Manual will be compiled, covering the design of observation transects, recording templates, data quality control, safety protocols and community engagement essentials, and made available to partner guardian stations. The manual is conceived as a portable minimum toolkit: partners may adapt it to local species assemblages and management requirements, while data fields and safety baselines remain uniform so that records stay comparable across sites.

三是伙伴网络。依托 UNFCCC 观察员渠道和国际候鸟保护网络，优先与日本、韩国、菲律宾、澳大利亚等迁飞区沿线国家的青年组织建立联系，推动首批伙伴守护站落地。伙伴的选择以迁飞区连通性与对方的持续行动能力为主要考量，判断标准是能否形成稳定的年度观测与互访节奏，而非站点数量。

Third, the partner network. Working through the UNFCCC observer channel and international migratory bird conservation networks, YCCDL will give priority to establishing contact with youth organisations in flyway countries including Japan, the Republic of Korea, the Philippines and Australia, and will advance the first partner guardian stations towards operation. Partners are selected mainly on flyway connectivity and sustained capacity; the test is whether a stable annual rhythm of observation and exchange can be established, not how many stations exist.

四是联合传播。将四联漫画优秀作品与《青年观测简报》纳入统一的国际传播体系，向《拉姆萨尔湿地公约》、世界遗产中心相关会议提交青年行动案例。传播材料中英双语同步产出，并标注数据的公民科学性质与采集主体，避免被误读为官方监测结论。

Fourth, joint communication. Outstanding works from the Four Comics Contest: Migratory Bird Season and the Youth Observation Briefing will be brought into a single international communication system and submitted as youth action cases to meetings under the Ramsar Convention on Wetlands and to the World Heritage Centre. Materials are produced in Chinese and English in parallel and state their citizen science provenance and who collected the data, so that international readers do not mistake them for official monitoring results.

5.5.2 长海倡议的长期愿景

5.5.2 Long-Term Vision of the Changhai Initiative

以 2026 年 COP31 为起点、以 2028 年底为节点，用三年时间把试点中已验证的做法沉淀为稳定运行的机制，使长山群岛的青年行动从零散活动转向可预期的年度节奏。届时力争实现以下目标:

Taking COP31 in 2026 as the starting point and the end of 2028 as the checkpoint, three years will allow practices already validated in the pilot to settle into a stable operating mechanism, moving the Changhai youth initiative from scattered activities towards a predictable annual rhythm. By then we aim to achieve the following:

- 至少 5 个迁飞区伙伴守护站投入运行，形成常态化的观测与互访机制；

  At least five flyway partner guardian stations in operation, with a regular rhythm of observation and exchange

- 长山群岛青年观测简报实现每年两期稳定发布，春迁与秋迁各有一次公开输出；

  The Changhai Youth Observation Briefing published steadily at two issues per year, with one public release each for spring and autumn migration

- 核心志愿队从 10 人扩大至 30 人，外围志愿者达到 100 人，并形成以老带新的传承结构；

  The core volunteer team expanded from 10 to 30 members and associate volunteers reaching 100, with a mentoring structure in which experienced members coach new ones

- 低碳观鸟线路从 3 条扩展到 5 条，年接待量稳定在 500 人次以内，以承载力而非客流量为考核口径；

  Low-carbon birdwatching routes expanded from three to five, with annual visitation held within 500 person-times and carrying capacity, not visitor volume, used as the assessment yardstick

- 「候鸟友好海产品」认证完成首批试点评估，形成可对外发布的评估结论；

  The first pilot assessment of the Bird-Friendly Seafood certification completed, yielding conclusions that can be released publicly

- COP32 上，长山群岛案例作为迁飞区青年守护站网络的代表性样本，进行成果发布。

  The Changhai case presented at COP32 as a representative example of the flyway youth guardian station network

这些目标不是彼此孤立的指标清单，而是同一机制的不同侧面：站点是载体，简报是产出，队伍是能力，线路是约束，认证是延伸，发布是检验。共同指向只有一个——让长山群岛成为一个可复制、可传授、可被他人接手的青年气候行动范式，而不仅仅是一个称号。

These targets are not an isolated list of indicators but different facets of one mechanism: stations are the vehicle, briefings the output, the volunteer team the capacity, the routes the constraint, certification the extension, and publication the test. They point in a single direction: to make the Changhai Archipelago a youth climate action paradigm that can be replicated, taught and handed on to others — not merely a title.

第六章　12 个月落地路线图

Chapter 6　The 12-Month Implementation Roadmap

本章将前述六条行动线转化为可执行、可检查、可追溯的 12 个月时间表，时间范围从 2026 年 10 月（COP31 筹备冲刺期）到 2027 年 12 月（首期行动闭环），并对 2028 年作出展望。所谓可执行，是指每项任务都有责任主体与完成节点；可检查，是指每个阶段都设有里程碑清单；可追溯，是指每项产出都留有记录与归档路径。路线图不是静态排期表，将随试点结果滚动修订。

This chapter translates the six action lines described above into an executable, verifiable and traceable 12-month schedule. It runs from October 2026, the final sprint of COP31 preparation, to December 2027, when the first action cycle closes, and looks ahead to 2028. Executable means every task has an owner and a deadline; verifiable means each phase carries a milestone checklist; traceable means every output is recorded and archived along a defined path. The roadmap is not a static schedule and will be revised on a rolling basis in light of pilot results.

整个路线图遵循四个原则：

The roadmap as a whole follows four principles:

- 一、先培训后上岗。核心志愿者必须完成全部三项培训并签署行为承诺书后方可参与实地工作，培训完成情况构成上岗资格的前置条件。

  First, training before deployment. Core volunteers must complete all three training modules and sign the code of conduct before taking part in field work; completion of training is a precondition for deployment.

- 二、先试点后扩展。任何涉及社区、游客或岸线的新行动，先小范围试运行，评估确认无负面扰动后再行扩大，试运行结论书面留档作为扩容依据。

  Second, pilot before scale-up. Any new action involving communities, visitors or the shoreline is trialled on a small scale first and expanded only after evaluation confirms no adverse disturbance; pilot conclusions are documented in writing and serve as the basis for expansion.

- 三、数据先行。所有行动尽可能产出可记录、可共享的数据，避免「活动热闹但没有积累」；数据的连续性与可用性，才是评价的主要依据。

  Third, data first. Every action is designed, as far as possible, to generate recordable and shareable data, avoiding the trap of busy events that leave nothing behind. The continuity and usability of data, rather than the scale of an activity, are the principal measures of success.

- 四、有所不为。繁殖季不登核心岛、不干扰野生动物、不替代专业管理，三条红线贯穿全程，且不因任何阶段性目标而松动。

  Fourth, knowing what not to do. No landing on core breeding islands during the breeding season, no disturbance of wildlife, and no substitution for professional management: these three red lines run through the entire roadmap and are not relaxed for any interim target.

6.1 阶段一：COP 前准备期（2026 年 10 月—11 月）

6.1 Phase 1: Pre-COP Preparation Period (October–November 2026)

核心目标

Core Objective

在 COP31 开幕前完成白皮书定稿、志愿队组建、教育活动启动和展位筹备四件大事。四者互为支撑：白皮书提供叙事与统一的数据口径，志愿队提供现场人力，教育活动提供面向公众的故事素材，展位提供国际呈现的物理载体。

Before COP31 opens, four tasks must be completed: finalising the white paper, forming the volunteer team, launching the education activity, and preparing the exhibition booth. The four reinforce one another: the white paper supplies the narrative and a unified data convention, the volunteer team supplies field capacity, the education activity supplies story material for the public, and the booth supplies the physical platform for international presentation.

具体行动与里程碑

Actions and Milestones

【10 月上旬】白皮书定稿。 完成《长山群岛候鸟栖息地青年气候行动白皮书》文字终审，确认封面排版，统一全书数据口径，并同步完成英文版校对。定稿版印制 100 册，用于 COP31 深度交流。

[Early October] Finalising the white paper. The final text review of the Changhai Archipelago Migratory Bird Habitat Youth Climate Action White Paper is completed, the cover layout confirmed, data conventions unified across the volume, and the English version proofread in parallel. One hundred copies of the final edition are printed for in-depth exchange at COP31.

【10 月中旬】核心志愿者招募发布。 在大连高校、本地社群和线上平台同步发布招募公告，招募人数 10 人。公告明确：服务期 12 个月、需完成三项培训、参与春秋迁季轮值、无酬但提供培训与装备。

[Mid-October] Launching core volunteer recruitment. Recruitment announcements are released simultaneously through universities in Dalian, local community networks and online platforms, for ten positions. The announcement states clearly a 12-month service period, the requirement to complete three training modules, participation in spring and autumn migration rosters, and the unpaid nature of the role with training and equipment provided.

【10 月下旬】完成首轮遴选与培训。 候选人进入一轮面试，遴选标准包括：时间保障、生态基础、团队协作意愿、对海岛的了解或热情。首期培训分两日集中完成，课程为：生态认知培训（白天）、安全与行为规范培训（夜间）、数据采集方法实操（次日野外）。

[Late October] First round of selection and training. Candidates enter a single round of interviews. Selection criteria include availability of time, basic ecological knowledge, willingness to work in a team, and familiarity with or enthusiasm for island life. The first training is delivered intensively over two days:

ecological awareness training (daytime), safety and code-of-conduct training (evening), and hands-on data collection methods in the field (the following day).

【10 月下旬】四联漫画候鸟季启动征稿。 面向 6—15 岁儿童，征稿主题为「一只候鸟的长海之旅」「我家的低碳一天」「假如我是一片海草床」。截稿日期为 2027 年 5 月 31 日。征稿通知通过学校渠道和线上平台发布。

[Late October] Launching the call for entries for the Four Comics Contest: Migratory Bird Season. The call is open to children aged 6–15, with three themes: "A Migratory Bird's Journey through Changhai", "One Low-Carbon Day in My Family", and "If I Were a Seagrass Bed". The deadline is 31 May 2027. The announcement is distributed through school channels and online platforms.

【11 月上旬】COP31 筹备冲刺。 完成展位设计定稿、三折页印刷 500 份、视频剪辑终版、数据瓶制作。志愿者完成展位接待演练三轮，英文讲解员完成一对一模拟考核。

[Early November] Final sprint towards COP31. The booth design is finalised, 500 tri-fold leaflets printed, the video edit completed in its final version, and the Data Bottle produced. Volunteers complete three rounds of booth reception drills and English-language presenters complete one-to-one simulated assessments.

【11 月 9 日—20 日】COP31 现场呈现。 展位运营两周，完成至少 200 人次深度交流，收集合作伙伴联系信息。边会发言按精炼版执行，现场问答以白皮书已有口径为限。

[9–20 November] On-site presentation at COP31. The booth operates for two weeks, completing at least 200 in-depth exchanges and collecting contact details of potential partners. Side event remarks follow the condensed script, and questions from the floor are answered strictly within the conventions already set out in the white paper.

【11 月下旬】COP31 总结。 返回大连后撰写参会总结报告，内容包括：交流机构清单、合作意向分级、现场照片存档、经验与问题清单。总结报告内部传阅并向有关支持单位通报。

[Late November] COP31 debriefing. After returning to Dalian, a conference debriefing report is written, covering the list of organisations engaged, a graded list of cooperation intentions, an archive of on-site photographs, and a list of lessons and problems. The report is circulated internally and shared with relevant supporting organisations.

阶段一里程碑检查清单

Phase 1 Milestone Checklist

□ 白皮书正式印制完成

White paper printed and bound

□ 10 名核心志愿者完成培训并签署承诺书

Ten core volunteers trained, with the code of conduct signed

□ 四联漫画征稿通知公开发布

Call for entries for the Four Comics Contest publicly released

□ COP31 展位投入运营并完成接待任务

COP31 booth in operation and reception tasks completed

□ 参会总结报告完成

Conference debriefing report completed

6.2 阶段二：春迁观测试点期（2027 年 3 月—5 月）

6.2 Phase 2: Spring Migration Observation Pilot (March–May 2027)

核心目标

Core Objective

完成公民科学观测网络的首轮实战运行，启动低碳观鸟线路试运营，为全年观测体系奠定数据基线。本阶段的重点不是数据规模，而是流程能否跑通：样线能否稳定到达、记录能否按时提交、审核能否形成闭环。基线确立之后，秋迁与后续年度的数据才具备可比性。

Complete the first operational run of the citizen science observation network, launch the trial operation of low-carbon birdwatching routes, and establish the data baseline for the year-round observation system. The priority here is not the volume of data but whether the workflow functions: whether transects can be reached reliably, whether records are submitted on time, and whether review forms a closed loop. Once the baseline is set, data from the autumn migration and from later years become comparable.

具体行动与里程碑

Actions and Milestones

【2 月中旬】春迁动员培训。 核心志愿者集中复盘冬季准备情况，确认样线点位置、记录表格和轮值表。新加入的候补志愿者可同步参与培训，作为人员备份。

[Mid-February] Spring migration mobilisation training. Core volunteers review winter preparations together and confirm transect point locations, recording forms and the duty rota. Newly added reserve volunteers may join the training at the same time, serving as backup personnel.

【2 月下旬】样线踏勘验证。 与属地管理部门沟通后，对预设点位进行一次实地踏勘，核验样线的可达性、安全性和观测视线质量。踏勘结论形成书面记录，需调整的样线在本阶段内修正完毕。

[Late February] Transect field verification. After consultation with the local management authority, a field visit is made to the preset points to verify accessibility, safety and the quality of sightlines for observation. The findings are recorded in writing, and any transect requiring adjustment is revised within this phase.

【3 月第一周】春迁观测正式启动。 观测频率为每周六、周日各一次，每处点位每次不少于 1 小时。首批记录从候鸟先头部队到达情况开始，标注首见日期与集群规模变化，为全年物候序列确立起点。

[First week of March] Spring migration observation officially begins. Observation takes place once on Saturday and once on Sunday each week, with a minimum of one hour per point per session. The first records start with the arrival of the leading groups of migrants, noting first-observation dates and changes in flock size, thereby establishing the starting point of the year's phenological series.

【3 月—5 月】每周数据按时汇总。 数据由核心志愿者每周提交，经审核后存档并报送管理部门备案。数据不对外公开发布，避免干扰或泄露敏感繁殖信息，对外引用须待年度简报统一口径后释出。

[March–May] Weekly data compiled on schedule. Data are submitted weekly by core volunteers, reviewed, archived and filed with the management authority. The data are not released publicly, to avoid disturbance or the disclosure of sensitive breeding information; external citation is permitted only after the annual briefing has established a unified convention.

【4 月中旬】首条低碳观鸟线路试运营。 选择大长山岛—广鹿岛岸线投入试运行。每天限 2 个团、每团不超过 10 人，配备一名本地向导和一名青年志愿者。出发前全体游客签署无痕观鸟守则。

[Mid-April] Trial operation of the first low-carbon birdwatching route. The shoreline route from Da Changshan Island to Guanglu Island is put into trial operation. Two groups per day are permitted, with no more than ten people per group, each accompanied by one local guide and one youth volunteer. All visitors sign the leave-no-trace birdwatching code before departure.

【5 月上旬】社区海岸清洁首次联合行动。 与社区联络人共同组织春季海岸清洁，参与人数目标 30 人以上。清洁记录垃圾重量与构成，形成第一份海岸垃圾基线档案，为秋冬季第二次清洁提供对照基准。

[Early May] First joint community coastal clean-up. The spring coastal clean-up is organised jointly with community liaisons, with a target of more than 30 participants. The weight and composition of collected waste are recorded, producing the first baseline file on coastal litter and providing a reference point for the second clean-up in autumn.

【5 月下旬】春迁观测季复盘。 汇总整个春迁期的种类、数量、物候数据，并与专业机构同区域监测结果做初步比对。比对的目的不是校验精度，而是识别系统性偏差；复盘结果用于调整秋迁期观测方案。

[Late May] Review of the spring migration observation season. Species, counts and phenological data from the whole spring migration period are compiled and compared preliminarily with monitoring results from professional institutions in the same area. The purpose of the comparison is not to validate accuracy but to identify systematic bias; the review findings are used to adjust the autumn observation plan.

阶段二里程碑检查清单

Phase 2 Milestone Checklist

□ 全部样线完成踏勘并投入运行

All transects surveyed and in operation

□ 春迁期每周观测数据完整存档

Weekly spring migration observation data fully archived

□ 低碳观鸟线路一号线完成试运营并形成评估报告

Low-carbon birdwatching Route 1 trialled, with an evaluation report produced

□ 第一次社区海岸清洁完成并形成数据记录

First community coastal clean-up completed, with data recorded

□ 春迁期复盘报告定稿

Spring migration review report finalised

6.3 阶段三：繁殖季不登岛协同期（2027 年 6 月—8 月）

6.3 Phase 3: Breeding-Season No-Landing Coordination Period (June–August 2027)

核心目标

Core Objective

在繁殖关键期严格落实「不登核心岛」红线，以远岸观测和公众教育为主，确保繁殖鸟类不受额外人为干扰。本阶段把人力从岸线转向社区与学校：繁殖季既是鸟类最脆弱的时段，也是公众最容易理解保护逻辑的时段，因此它同时是休整期与教育窗口期。

During the critical breeding period, the red line of no landing on core breeding islands is strictly enforced, with offshore observation and public education as the main activities, ensuring that breeding birds are subject to no additional human disturbance. This phase shifts effort from the shoreline to communities and schools: the breeding season is both the period when birds are most vulnerable and the moment when the logic of

protection is most readily understood by the public, making it at once a period of restraint and a window for education.

具体行动与里程碑

Actions and Milestones

【6 月】繁殖鸟远岸计数。 志愿者在指定远岸点位进行定期的繁殖鸟数量观察，记录繁殖巢区的宏观活动信息。所有观测保持安全距离，不使用任何诱导手段，包括声诱与投食；观鸟线路在本阶段同步停运。

[June] Offshore counts of breeding birds. Volunteers conduct regular counts of breeding birds at designated offshore points, recording macro-level activity in the breeding colony area. All observation is conducted at a safe distance and no inducement of any kind is used, including acoustic lures and feeding; the birdwatching route is suspended over the same period.

【6 月—8 月】气候教育进社区与进学校。 利用暑期时间，在长海县社区和学校开展「气候—海洋—候鸟」主题工作坊。目标完成 6 场线下活动，覆盖儿童和家庭至少 120 人次。课程内容与四联漫画征稿主题相衔接。

[June–August] Climate education in communities and schools. Using the summer holiday period, workshops on the theme "Climate–Ocean–Migratory Birds" are delivered in communities and schools in Changhai County. The target is six offline sessions reaching at least 120 participations by children and families. Course content is aligned with the themes of the Four Comics Contest call for entries.

【7 月】观鸟线路停运评估。 夏季为繁殖高峰，观鸟线路一号线暂停载客运营。利用停运期开展线路评估，收集春季试运营的干扰数据并制作首版《长海低碳观鸟操作手册》初稿，明确人数上限、垃圾带离、向导配置与安全距离的实操要求。

[July] Evaluation during suspension of the birdwatching route. Summer is the peak of the breeding season, so Route 1 suspends visitor operations. The suspension period is used to evaluate the route, to collect disturbance data from the spring trial, and to produce the first draft of the Changhai Low-Carbon Birdwatching Operational Manual, setting out operational requirements on visitor caps, carrying out waste, guide staffing and safe distances.

【7 月中旬】四联漫画评审启动。 征稿截止后，组织评审委员会对投稿作品进行评选。评审标准包括创意表达、主题契合、画面叙事完整性。评选结果在儿童节前后公布并举办展览（顺延至暑期）。

[Mid-July] Four Comics Contest judging begins. After the submission deadline, a judging panel is convened to review the entries. Criteria include creative expression, fit with the theme, and completeness of visual storytelling. Results are announced around Children's Day and an exhibition is held (postponed to the summer holiday).

【8 月】志愿者中期评估。 核心志愿者进行年中考核，评估参与度、数据质量、团队协作和技能成长。考核结果用于确定下半年的职责分工。

[August] Mid-term volunteer assessment. Core volunteers undergo a mid-year review assessing participation, data quality, teamwork and skills development. The results determine division of responsibilities for the second half of the year.

【8 月下旬】秋迁准备。 完成秋迁期志愿者排班，补充消耗装备，修订观测记录表模板，组织一次秋迁前培训。修订依据为春迁期复盘结论，重点补足春迁中暴露的记录缺项与报送延迟问题。

[Late August] Preparation for autumn migration. The volunteer rota for the autumn migration period is completed, consumable equipment replenished, the observation recording template revised, and one pre-autumn training session organised. Revisions follow the conclusions of the spring review, focusing on the recording gaps and submission delays exposed during spring.

阶段三里程碑检查清单

Phase 3 Milestone Checklist

□ 繁殖季全周期零登岛违规记录

Zero recorded violations of the no-landing rule throughout the breeding season

□ 繁殖鸟远岸观测数据完整存档

Offshore breeding bird observation data fully archived

□ 6 场社区 / 学校气候教育活动完成

Six climate education sessions delivered in communities and schools

□ 观鸟线路一号线评估报告定稿

Evaluation report for birdwatching Route 1 finalised

□ 四联漫画评审完成并公布结果

Four Comics Contest judging completed and results announced

□ 秋迁观测准备就绪

Autumn migration observation ready to begin

6.4 阶段四：秋迁首报发布期（2027 年 9 月—11 月）

6.4 Phase 4: Autumn Migration and First Report Release (September–November 2027)

核心目标

Core Objective

完成秋冬迁观测季，发布第一份《青年观测简报》，将一年的行动成果转化为可供国际传播的公开文本。本阶段的关键动作是「收口」：把分散在每周记录中的数据汇总为可引用的年度口径，把试点经验固化为可对外说明的规则。

Complete the autumn–winter migration observation season and publish the first Youth Observation Briefing, converting a year of action into a public text suitable for international communication. The decisive move here is closure: aggregating data scattered across weekly records into a citable annual convention, and consolidating pilot experience into rules that can be explained externally.

具体行动与里程碑

Actions and Milestones

【9 月】秋迁观测全面启动。 恢复每周两次定点观测频率。秋迁季是水鸟总量峰值期，观测覆盖范围适当扩展至可安全到达的近岸点位；点位调整须与属地管理部门沟通后执行。

[September] Autumn migration observation fully launched. The frequency of twice-weekly fixed-point observation resumes. Autumn migration is the period of peak waterbird totals, so coverage is extended appropriately to nearshore points that can be reached safely; any change of points is made only after consultation with the local management authority.

【9 月—11 月】观鸟线路秋迁运营。 一号线恢复运营，评估试运结果后决定是否在 10 月中旬开放二号线（格仙岛头坨子周边岸线）。每条线路持续执行人数上限和垃圾带离规则，不因需求增加而放宽容量约束。

[September–November] Autumn operation of birdwatching routes. Route 1 resumes operation, and a decision on whether to open Route 2 (the shoreline around Toutuozi, Gexian Island) in mid-October is taken after evaluating the trial results. Visitor caps and the carry-out-your-waste rule continue to apply on every route, and capacity limits are not relaxed in response to demand.

【10 月】社区第二场海岸清洁。 结合秋季候鸟高峰，组织第二场海岸清洁活动，目标清理岸线不少于 1 公里。垃圾数据与春季数据对比，形成年度变化的初步判断。

[October] Second community coastal clean-up. Timed to coincide with the autumn migratory peak, a second coastal clean-up is organised with a target of cleaning no less than one kilometre of shoreline. Waste data are compared with the spring data to form a preliminary judgement on change over the year.

【11 月上旬】《青年观测简报》定稿。 首期简报内容包括：全年观测概况、迁徙季种类与数量统计、物候特征记录、外来物种观察、废弃物数据、分析与展望。简报标署「公民科学观测·公众数据」性质，注明数据来源于青促会青年志愿队。

[Early November] Finalising the Youth Observation Briefing. The first issue covers: an overview of the year's observation, statistics on species and counts during the migration seasons, phenological records,

observations of alien species, waste data, and analysis and outlook. The briefing is labelled as "citizen science observation · public data" and states that the data come from the YCCDL youth volunteer team.

【11 月下旬】年度复盘与国际对接。 COP31 结束后一周年之际，与潜在国际伙伴进行线上回访，分享《青年观测简报》及一年行动成果，并征询伙伴对数据格式与方法手册的反馈。

[Late November] Annual review and international follow-up. Marking the first anniversary of the close of COP31, online follow-up meetings are held with potential international partners to share the Youth Observation Briefing and the year's results, and to solicit partner feedback on data formats and the methodology manual.

【12 月】年度总结与 2028 年规划。 核心志愿者全体参加年度总结会，审议全年数据与活动完成情况，讨论 2028 年扩容方案。

[December] Annual review and 2028 planning. All core volunteers attend the annual review meeting, which examines the year's data and the completion of activities and discusses the 2028 expansion plan.

阶段四里程碑检查清单

Phase 4 Milestone Checklist

□ 秋迁期观测数据完整存档

Autumn migration observation data fully archived

□ 第一份《青年观测简报》正式发布

First Youth Observation Briefing officially published

□ 观鸟线路一、二号线完成全年运营评估

Full-year operational evaluation completed for birdwatching Routes 1 and 2

□ 第二次社区海岸清洁完成

Second community coastal clean-up completed

□ 年度总结报告完成，2028 年规划启动

Annual review report completed and 2028 planning under way

6.5 阶段五：2028 年展望与扩容期（2028 年 1 月—12 月）

6.5 Phase 5: Outlook and Expansion Period (January–December 2028)

核心目标

Core Objective

在 12 个月路线图完成后，将已验证的行动模式扩大规模、深化合作、提升国际可见度，为 COP32 成果发布做好准备。扩容遵循同一逻辑：先有数据与流程的成熟度，再有人力与网络的扩张。

Once the 12-month roadmap is complete, the validated action model is scaled up, cooperation deepened and international visibility raised, in preparation for the release of results at COP32. Expansion follows the same logic: maturity of data and process comes first, growth of human resources and networks second.

主要方向

Main Directions

一、志愿队伍扩容。核心志愿者从 10 人扩展到 30 人，建立小组长制度；外围志愿者池扩大至 100 人，覆盖大连市区、长海本地和网络社群，形成核心—外围两级结构。

First, expanding the volunteer force. The core volunteer team grows from 10 to 30 members, with a team-leader system introduced. The pool of associate volunteers expands to 100, covering Dalian urban districts, Changhai County itself and online communities, forming a two-tier core–associate structure.

二、观测网络加密。观测样线从试点点位扩展至覆盖更多岸线段，启动 2028—2029 年长序列数据积累工程。长序列的价值在于识别趋势而非记录单次峰值，因此点位、频次与记录字段此后保持稳定。

Second, densifying the observation network. Observation transects extend from the pilot points to cover more shoreline segments, launching a long-term data series for 2028–2029. The value of a long series lies in identifying trends rather than recording single peaks, so points, frequency and recording fields are kept stable thereafter.

三、品牌与国际合作。「候鸟友好海产品」完成首批试点评估，形成可对外发布的评估报告。迁飞区伙伴守护站从意向转为实际运行状态。

Third, branding and international cooperation. The Bird-Friendly Seafood certification completes its first pilot assessment, producing an evaluation report that can be released publicly. Flyway partner guardian stations move from intention to operation.

四、文化产品沉淀。四联漫画优秀作品集完成编辑，转化为 COP32 传播物料。口述史访谈从 1 位扩展至 5 位渔民，形成正式出版物初稿。

Fourth, consolidating cultural products. The collection of outstanding Four Comics Contest works is edited and converted into communication materials for COP32. Oral history interviews expand from one to five fishers, producing the first draft of a formal publication.

五、COP32 发布准备。2028 年 11 月前编写成果报告《长山群岛青年气候守护站：第一年行动评估》，作为 COP32 现场发布的核心文本。

Fifth, preparation for the COP32 release. Before November 2028, the results report Changhai Youth Climate Guardians: First-Year Action Assessment is compiled as the core text for on-site release at COP32.

附录 A　术语表

Appendix A　Glossary

本附录汇总白皮书中使用的中英文术语与关键表述，供读者快速查找和统一口径使用。术语的中文表述以本白皮书正文为准，英文对应以本表为准；同一术语在正文、图表与对外材料中不应出现第二种译法。

This appendix brings together the Chinese and English terms and key expressions used in the white paper, allowing readers to locate them quickly and apply them consistently. The Chinese usage follows the main text of this white paper and the English equivalents follow this table; no single term should carry a second rendering across the text, figures or external materials.

中文术语 / Chinese term	说明 / Description	*English term*
青促会	大连市青年公益事业发展促进会	*Dalian Youth Public Welfare Development Promotion Association (YCCDL)*
COP31	第三十一届联合国气候变化大会	*the 31st Conference of the Parties to the UNFCCC (COP31)*
UNFCCC	联合国气候变化框架公约	*United Nations Framework Convention on Climate Change (UNFCCC)*
UNESCO	联合国教育、科学及文化组织	*United Nations Educational, Scientific and Cultural Organization*
世界遗产委员会	联合国教科文组织世界遗产委员会	*The World Heritage Committee*
世界自然遗产	指符合自然遗产标准的遗产地	*World Natural Heritage*
边界调整	对已列入名录的系列遗产进行范围调整	*Minor Boundary Modification*
中国黄（渤）海候鸟栖息地	已列入世界自然遗产名录的系列遗产	*The Migratory Bird Sanctuaries along the Coast of the Yellow Sea–Bohai Gulf of China*
长山群岛候鸟栖息地	通过边界调整纳入世界遗产的组成部分	*Changhai Archipelago Migratory Bird Habitat*
东亚—澳大利西亚迁飞区	连接东亚和澳大利亚的候鸟迁飞区	*East Asian–Australasian Flyway (EAAF)*
遗产区	世界遗产的核心保护范围	*Core zone / Heritage zone*
缓冲区	环绕遗产区的外围保护带	*Buffer zone*
矾坨子	广鹿岛西南部岛礁，黄嘴白鹭核心繁殖地	*Fantuozi*
格仙岛头坨子	黑脸琵鹭与猛禽繁殖停歇地	*Toutuozi of Gexian Island*
大耗子岛	水鸟越冬与猛禽停歇林岛	*Dahaodao Island*
蛇蛸岛南部岩礁带	海鸟、林鸟与斑海豹共享栖息地	*Southern rocky shore zone of Bashao Island*
黄嘴白鹭	国家一级保护动物，全球易危物种	*Chinese Egret*
黑脸琵鹭	国家一级保护动物，全球濒危物种	*Black-faced Spoonbill*
金雕	大型猛禽，国家一级保护动物	*Golden Eagle*

西太平洋斑海豹	海洋哺乳动物，国家一级保护动物	*Western Pacific spotted seal*
繁殖岛	海鸟繁殖核心区域，繁殖季禁止登岛	*Breeding island*
不登核心岛	繁殖季严禁进入核心繁殖岛的原则	*No-landing rule on core breeding islands*
公民科学	公众参与科学数据采集的活动	*Citizen science*
数据瓶	展位互动装置	*Data bottle*
气候适应	针对气候变化影响的调整与应对	*Climate adaptation*
蓝色碳汇	海洋生态系统固定的碳	*Blue carbon sink*
海草床	近岸海域栖息的草本植物群落	*Seagrass bed*
观鸟经济	以观鸟活动为载体的文旅经济	*Birdwatching economy*
低碳文旅	减少碳排放的旅游方式	*Low-carbon tourism*
无痕观鸟	不对鸟类产生干扰的观鸟守则	*Leave-no-trace birdwatching*
四联漫画	儿童四格漫画创作活动	*Four Comics Contest*
青年气候守护站	青年行动网络节点	*Youth Climate Guardian Station*
《青年观测简报》	青年公民科学数据年度报告	*Youth Observation Briefing*
候鸟友好海产品	拟探索的生态友好海产品认证	*Bird-friendly seafood certification*
科学考察报告	长山群岛候鸟栖息地科学考察报告	*Scientific Survey Report*
管理规划	长山群岛候鸟栖息地管理规划	*Management Plan*
长山群岛	辽东半岛东侧黄海北部岛群	*Changhai Archipelago*
长海县	长山群岛所在行政区县	*Changhai County*
黄海	中国与朝鲜半岛之间的半封闭海域	*Yellow Sea*
渤海	中国北部内海	*Bohai Sea / Bohai Gulf*
海岸带	陆地与海洋交互作用的地带	*Coastal zone*
潮间带	高潮线与低潮线之间的区域	*Intertidal zone*
迁徙停歇地	候鸟迁徙途中停歇补给场所	*Stopover site*
迁徙期	春季北迁与秋季南迁的时段	*Migration season*
繁殖种群	在特定区域繁殖的鸟类种群	*Breeding population*
全球易危	世界自然保护联盟红色名录易危等级	*Vulnerable (VU)*
全球濒危	世界自然保护联盟红色名录濒危等级	*Endangered (EN)*
生态红线	生态保护的最低底线和不可逾越的边界	*Ecological red line*
口述史	以访谈记录的个人历史记忆	*Oral history*
利益相关者	与保护地相关的各类群体	*Stakeholder*
社区联络人	青促会与社区之间的沟通联系人	*Community liaison person*
伙伴守护站	响应倡议建立的国际青年守护站	*Partner guardian station*

附录 B　数据来源与口径说明

Appendix B　Data Sources and Data Conventions

本白皮书的数据与信息主要来源于以下文件和渠道，所有数据均经过口径核对，重要数据标注来源与监测时间；凡无法回溯至原始出处的内容，一律归入行动计划类表述，不作为事实性结论使用。

The data and information in this white paper come principally from the following documents and channels. All data have been checked against the conventions set out below, and key data are annotated with their source and monitoring time. Any content that cannot be traced back to an original source is presented as an action plan rather than as a factual finding.

B.1 主要数据来源

B.1 Principal Data Sources

- 一、《长山群岛候鸟栖息地科学考察报告》——作为本白皮书生态底图、关键物种数据、湿地类型和植物资源的主要依据。该报告为专业机构编制的科学考察成果，覆盖长山群岛候鸟栖息地的自然地理、生态系统、物种多样性、受胁物种和保护管理现状。

  First, the Scientific Survey Report on the Changhai Archipelago Migratory Bird Habitat — the principal basis for the ecological baseline map, key species data, wetland types and plant resources in this white paper. The report is the product of a scientific survey compiled by a professional institution and covers the physical geography, ecosystems, species diversity, threatened species and conservation management status of the Changhai Archipelago Migratory Bird Habitat.

- 二、《长山群岛候鸟栖息地管理规划》——用于确认四大组成部分边界、功能定位、管理措施和保护管理架构。白皮书中涉及的「遗产区 / 缓冲区划分」「繁殖岛管控原则」等内容以该规划为依据。

  Second, the Management Plan for the Changhai Archipelago Migratory Bird Habitat — used to confirm the boundaries, functional positioning, management measures and conservation management structure of the four component parts. Content in this white paper concerning the division between the heritage zone and the buffer zone, and the principles for controlling access to breeding islands, is based on this plan.

- 三、青促会内部工作文件与志愿者记录——用于叙述青年志愿队组建、公民科学观测流程、社区活动安排和 COP31 筹备计划。此类信息以行动计划为主，不代表既有科研成果，亦不构成对实施结果的承诺。

  Third, internal working documents and volunteer records of YCCDL — used to describe the formation of the youth volunteer team, citizen science observation procedures, community activity arrangements and COP31 preparation plans. Such information consists mainly of action plans; it does not represent existing scientific results and does not constitute a commitment as to outcomes.

- 四、世界遗产委员会公开信息——用于确认 2026 年 7 月 27 日边界调整决议的审议主体、时间节点和遗产地名称表述。具体决议文本以 UNESCO 官方公布的信息为准。

  Fourth, public information of the World Heritage Committee — used to confirm the body that considered the minor boundary modification decision of 27 July 2026, the timing, and the wording used for the name of the heritage site. The specific decision text follows the information officially published by UNESCO.

- 五、惯例出版物《长山群岛志》等相关地方文献——用于补充长山群岛区位、历史和文化背景信息。

  Fifth, customary publications such as the Annals of the Changhai Archipelago and other relevant local literature — used to supplement information on the location, history and cultural background of the Changhai Archipelago.

B.2 数据口径说明

B.2 Data Conventions

为保障本白皮书的严谨性，所有关键数据严格遵循以下口径；正文、图表与对外材料统一执行，不得各行其是。

To safeguard the rigour of this white paper, all key data strictly follow the conventions below. They are applied uniformly across the main text, figures and external materials, and no deviation is permitted.

遗产地面积。 白皮书统一使用「总面积 4962.62 公顷（遗产区 2803.41 公顷，缓冲区 2159.21 公顷）」的表述。任何对外材料不得擅自拆分或更改数据。

Heritage site area. *The white paper consistently uses the formulation “a total area of 4,962.62 hectares (heritage zone 2,803.41 hectares, buffer zone 2,159.21 hectares)”. No external material may split or alter these figures without authorisation.*

鸟类物种数。 使用两个层级：

Number of bird species. *Two levels are used:*

- 遗产地记录鸟类 140 余种（仅指列入遗产范围的四大组成部分的记录数）；

  More than 140 bird species recorded in the heritage site (referring only to records from the four component parts inscribed within the heritage boundaries)

- 长海全域记录鸟类 255 种（指长海县全域的历史记录与监测记录之和）。

  255 bird species recorded across the whole of Changhai (referring to the sum of historical records and monitoring records for the entire area of Changhai County)

两个数字适用场景不同，使用时必须标注清楚是「遗产地」还是「长海全域」，不得混用。

The two figures apply in different contexts. Whenever they are used, it must be stated clearly whether the reference is to the heritage site or to the whole of Changhai; the two must not be used interchangeably.

迁徙季水鸟数量。白皮书使用「迁徙季水鸟超 10 万只」的表述。该数据为迁徙高峰期的种群规模估算，而非精确清点数。对外传播时建议保留「超过」和「迁徙季」两个限定词。

Number of waterbirds in the migration season. *The white paper uses the formulation “over 100,000 waterbirds in the migration season”. This figure is an estimate of population size at the migration peak, not an exact count. In external communication, both qualifiers — “over” and “migration season” — should be retained.*

黄嘴白鹭种群数量。白皮书统一使用「成鸟超 2500 只（其中矾坨子超 1500 只）」的表述。该数据为近年综合监测结果，不代表单次同步清点数量。论文和正式报告中若要引用具体年份数据，必须回溯原始科考报告的年份序列。

Chinese Egret population size. *The white paper consistently uses the formulation “over 2,500 adult birds (of which over 1,500 at Fantuozi)”. This figure is the result of integrated monitoring in recent years and does not represent a single synchronised count. Where a specific year's data is cited in papers or formal reports, the year series of the original scientific survey report must be traced back.*

黑脸琵鹭。白皮书使用「2026 年近 60 只」的表述。由于黑脸琵鹭是全球性受胁物种且处于动态变化中，对外传播时务必注明监测年份「2026 年」，不得移除年份后缀。

Black-faced Spoonbill. *The white paper uses the formulation “nearly 60 individuals in 2026”. Because the Black-faced Spoonbill is a globally threatened species subject to ongoing change, the monitoring year “2026” must be stated in external communication; the year suffix may not be removed.*

斑海豹。白皮书统一使用「西太平洋斑海豹在遗产地海域洄游、栖息、觅食，维系繁育种群」的表述。严禁使用「在长海产仔」或类似未经科考报告支持的表述。

Spotted seal. *The white paper consistently uses the formulation “the Western Pacific spotted seal migrates, rests and forages in the waters of the heritage site, sustaining its breeding population”. The expression “giving birth in Changhai” and similar formulations not supported by the scientific survey report are strictly prohibited.*

B.3 地图与图表使用规范

B.3 Standards for the Use of Maps and Figures

白皮书配图均需标注数据来源和编制单位。图中涉及保护区边界、四大组成部分范围等内容时，须以上级主管部门公布的最新边界矢量数据为准，不得使用示意性边界替代；示意图如确需使用，应在图注中明确标注「示意」。

All figures in the white paper must be annotated with their data source and the compiling organisation. Where a figure shows protected area boundaries or the extent of the four component parts, the latest boundary vector data published by the competent higher-level authority shall prevail, and indicative boundaries may not be used as a substitute. Where a schematic map is genuinely necessary, it must be clearly labelled "schematic" in the figure note.

B.4 局限性说明

B.4 Statement of Limitations

本白皮书属于青年行动框架文本，而不是科学考察报告。以下内容不在本白皮书的承诺范围内：

This white paper is a youth action framework rather than a scientific survey report. The following are outside the scope of what it undertakes to provide:

- 不提供未经科考报告核实的精确鸟类个体数；

  It does not provide exact individual bird counts that have not been verified by the scientific survey report

- 不提供涉及繁殖地精确坐标的敏感信息；

  It does not provide sensitive information involving the precise coordinates of breeding sites

- 不提供关于气候变化的定量预测模型；

  It does not provide quantitative predictive models on climate change

- 不充当遗产地管理部门的官方文件，仅代表青年组织的倡议和行动规划。

  It does not serve as an official document of the heritage site management authority, representing only the initiative and action plan of a youth organisation

如有读者需要引用精确数据，请以原始科考报告和官方发布信息为准。

Readers who need to cite precise data should refer to the original scientific survey report and officially published information.

附录 C　COP31 展位三折页文案（中英对照）

Appendix C　COP31 Exhibition Tri-fold Leaflet Copy (Chinese–English)

封面 / Cover

中文

守护候鸟，就是守护气候未来。

长海青年气候守护站

中国·大连·长山群岛

English

Protect migratory birds, protect a liveable climate.

Changhai Youth Climate Guardians

Changhai Archipelago, Dalian, China

内页第一面 / Inside Panel 1

中文

长山群岛：迁飞路上的关键驿站

2026 年 7 月 27 日，长山群岛候鸟栖息地以边界调整方式正式列入《世界遗产名录》，成为中国黄（渤）海候鸟栖息地世界自然遗产的组成部分。

总面积：4962.62 公顷

四大组成部分：

- 广鹿岛矾坨子——黄嘴白鹭全球核心繁殖地
- 格仙岛头坨子——黑脸琵鹭与猛禽的家园
- 大耗子岛——水鸟越冬的森林岛
- 蛇蛸岛南部岩礁带——海鸟与斑海豹的共享栖息地

English

Changhai Archipelago: a vital stopover on the East Asian–Australasian Flyway.

On 27 July 2026, the Changhai Archipelago Migratory Bird Habitat was inscribed on the World Heritage List through a minor boundary modification, becoming part of the World Natural Heritage property, the Migratory Bird Sanctuaries along the Coast of the Yellow Sea–Bohai Gulf of China.

Total area: 4,962.62 ha

Four components:

- Fantuozi, Guanglu Island — global core breeding ground of the Chinese Egret
  Toutuozi, Gexian Island — home of the Black-faced Spoonbill and raptors
- Dahaodao Island — forested island for wintering waterbirds
  the southern rocky shore zone of Bashao Island — shared habitat for seabirds and the Western Pacific spotted seal

内页第二面 / Inside Panel 2

中文

关键数据

- 遗产地记录鸟类 140 余种
- 长海全域记录鸟类 255 种
- 迁徙季水鸟超 10 万只
- 黄嘴白鹭成鸟超 2500 只（矾坨子超 1500 只）
- 黑脸琵鹭 2026 年近 60 只
- 海草床：蓝色碳汇的重要组成

English

Key numbers

- Over 140 bird species recorded within the heritage property
  255 bird species across Changhai County
- Over 100,000 waterbirds during migration season
  Over 2,500 adult Chinese Egrets (over 1,500 at Fantuozi)
- Nearly 60 Black-faced Spoonbills in 2026
  Seagrass beds: a key component of blue carbon sinks

内页第三面 / Inside Panel 3

中文

青年在行动：六条行动线

- 志愿协同——首批 10 人核心青年志愿队
- 公民科学观测——每周候鸟观测，数据开放共享
- 气候教育与艺术传播——走进学校、社区与家庭
- 低碳文旅与观鸟经济——无痕观鸟，社区共赢
- 社区协同——与渔民共护海岸
- 国际叙事——在 COP31 向世界发出邀请

English

Youth in action: six action lines

- Volunteer coordination — a first cohort of 10 core youth volunteers

  Citizen science observation — weekly bird surveys, open and shared data

- Climate education and art-based communication — reaching schools, communities and families

  Low-carbon tourism and the birdwatching economy — leave-no-trace birdwatching, shared community benefit

- Community engagement — protecting the coast together with fishers

  Global storytelling — an invitation to the world at COP31

内页第四面 / Inside Panel 4

中文

邀请你：成为全球青年气候守护站

气候变化正在改变候鸟的迁飞时间、路线与栖息地质量。我们邀请全球青年组织在各自国家的迁飞区建立守护站，按统一标准记录候鸟动态，共享气候变化的生态观察。

2027—2028 年目标：在东亚—澳大利西亚候鸟迁飞区建立至少 5 个伙伴守护站。

守护站标准：科学、真实、可持续。

English

Join us: become a Youth Climate Guardian Station

Climate change is altering the timing, routes and habitat quality of migratory birds. We invite youth organisations worldwide to establish guardian stations along the flyways in their own countries, record bird movements to shared standards, and exchange observations of climate-driven ecological change.

2027–2028 goal: at least 5 partner guardian stations across the East Asian–Australasian Flyway.

Station standard: science, truth, sustainability.

封底 / Back Cover

中文

长海青年气候守护站

邮箱：hello@youthdalian.org（示意）

大连市青年公益事业发展促进会

联合国气候变化框架公约观察员机构

English

Changhai Youth Climate Guardians

Email: hello@youthdalian.org (illustrative)

Dalian Youth Public Welfare Development Promotion Association

An observer organisation to the United Nations Framework Convention on Climate Change (UNFCCC)