

# South Bay Salt Pond Restoration Project

## 南灣鹽灘復育計畫

Restoring the Wild Heart of the South Bay

恢復南灣的荒野中心



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**South Bay Salt Pond Restoration Project** 南灣鹽灘復育計畫

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## Why Restore the Wild Heart of the South Bay? 為什麼要恢復南灣的荒野中心？

Over the last century San Francisco Bay has lost more than 85% of its tidal wetlands. These important habitats serve as giant filters removing toxic pollution and nutrient runoff that otherwise impact the Bay's fragile ecosystem. Historically, Bay wetlands also served as natural sponges protecting communities from tidal flooding by absorbing and slowly releasing storm water. They also help to capture atmospheric carbon and store it for long periods of time and help protect against the effects of sea level rise. Each year, the Bay's remaining tidal marshes pulse with thousands of migrating and resident birds, fish and other species who rely on these wetlands to forage, rest, and raise their young. 在過去這一世紀，舊金山南灣已經失去了超過85%的潮間濕地。這些重要的棲息地作為巨大的過濾器去除了有毒污染並阻止養料逕流，否則南灣脆弱的生態系統就會受到影響。從歷史上來看，南灣濕地還能當作天然海綿吸收與緩慢釋放暴風雨水，從而保護社區不受潮汐洪水的侵襲。它們還能協助捕捉大氣中的碳並且儲存很長的時間，以及協助防止海平面上升的影響。每一年，隨著南灣的殘餘潮沼起伏帶來的成千上萬的候鳥和留鳥、魚類和其他物種，都依靠這些濕地覓食、休息並餵養年幼物種。

Unfortunately our region's vital wetland network has been seriously compromised as we have drained and diked land near the Bay for farming, urban development and salt production. We have witnessed a dramatic decline in marsh-dependent species like the salt marsh harvest mouse and the California clapper rail, both of which are currently threatened with extinction. The loss of tidal wetlands has also contributed to decreased water quality in the Bay and increased the risk of local flooding. 不幸的是，本區域的重要濕地網絡已遭到嚴重損害，起因於我們為了養殖、城市發展和產鹽，在靠近南灣的土地進行排水和築堤。我們已經目睹了與濕地相互依賴的物種大幅減少，例如沼巢鼠和加州長嘴秧雞，兩者目前都受到滅絕的威脅。潮間濕地的喪失也導致降低南灣的水質並增加當地的洪水風險。

The South Bay Salt Pond Restoration Project will help reverse these trends by improving the health of San Francisco Bay for years to come. By restoring over 15,000 acres of former industrial salt ponds to a thriving wetland ecosystem, we are working to reconnect the Bay and its residents to the natural processes that sustain and enhance life in our region. 南灣鹽灘復育計畫將有助於扭轉這種趨勢，憑藉著在未來幾年改善舊金山灣的健康情形。經由將 15,000 英畝的前工業鹽灘恢復成蓬勃發展的濕地生態系統，我們正在努力將南灣及其居民透過自然的過程重新連接，以維持和提高在本區域的生活。

## **Project History 計畫的歷程**

under the leadership of Senator Diane Feinstein, the South Bay Salt Ponds were purchased in 2003 from Cargill, Inc. The 15,000-acre purchase represents the largest single acquisition in a larger campaign to restore 40,000 acres of lost tidal wetlands to San Francisco Bay. The property is divided into three distinct salt pond complexes: the Ravenswood ponds on the West shore of the Bay near Menlo Park, the Alviso ponds in extreme South Bay, and the Eden Landing Ponds along the East Bay Shoreline near Hayward. Funds for the purchase and the subsequent stewardship and environment planning were provided by state and federal resources agencies and several private foundations, including the William and Flora Hewlett Foundation, the Gordon and Betty Moore Foundation, and the David and Lucile Packard Foundation.

在參議員黛安·范士丹(Diane Feinstein)的領導下，於 2003 年向嘉吉公司(Cargill, Inc.)購買南灣鹽灘。在更大規模的行動中，15,000 英畝代表的是最大的單次購地，以恢復舊金山灣失去的 40,000 英畝潮間濕地。該筆地產分為三處不同的鹽灘綜合設施：靠近門洛帕克(Menlo Park)位於南灣西海岸的雷文斯伍德(Ravenswood)鹽灘、位於南灣末端的愛維索(Alviso)鹽灘，與靠近海沃德(Hayward)沿著東灣海岸線的 Eden Landing 鹽灘。由州和聯邦資源機構和若干私人基金會提供資金用於購地與後續的管理和環境規劃，包括威廉和弗洛拉·休利特(William and Flora Hewlett)基金會、戈登和貝蒂·摩爾(Gordon and Betty Moore)基金會與大衛和露西爾·帕卡德(David and Lucile Packard)基金會。



### P3

Restoration will be implemented in phases 分階段實施復育工作

Amount of Tidal Marsh 潮間濕地的數量

More Tidal Habitats (approx. 90% of the Project ponds) 更多潮間棲息地 (約為計畫鹽灘的 90%)

More Managed Pond Habitats (approx. 50% of the Project ponds) 更多經營鹽灘棲息地 (約為計畫鹽灘的 50%)

2008 2008 年

Time 時間

2058 2058 年

### **Adaptive management : Learning As We Go 適應性管理:從做中學**

Restoring tidal marsh habitat will take decades to complete, and we do not know exactly what the end result will be. One thing we do know is that the final Project will include a combination of tidal marsh and managed pond habitats. In the graphic above, the balance of habitats shifts from managed ponds to tidal marshes over time. We expect to achieve 50% tidal habitats and 50% managed ponds by the year 2030 and then begin working toward 90% tidal marshes, if we can balance the needs of waterbird species. 復育潮間沼澤棲息地將需要數十年的時間才能完成，而且我們無法確切知道最終的結果會如何。我們所知道的一件事就是最終的計畫將包括潮間沼澤和經營鹽灘棲息地相結合。在上圖中，棲息地遷移的平衡是隨著時間推移，從經營鹽灘遷移到潮間沼澤。我們預計在 2030 年達到 50% 潮間棲息地和 50% 經營鹽灘，如果我們能夠平衡水鳥種類的需求，就開始努力朝向 90% 潮間沼澤的目標。

As wetland habitats develop, our understanding of how to restore and manage these areas will also improve. Adaptive management-the process of capturing lessons learned on the ground and folding them into future management practices- is playing a critical role in determining which combination of habitats provides the best environment for resident and migrating species of birds, fish and other wildlife. Science is the key to our adaptive management program. Each year, our scientists monitor and evaluate new data on everything from mercury accumulation and sediment dynamics to the impact of trail use on birds. This information guides management decisions and future restoration, public access, and flood risk management decisions. 由於濕地棲息地的發展，我們對於認知如何復育和管理這些區域也將獲得改善。適應性管理-在基礎上獲取經驗教訓的過程，並摻入未來的管理措施-在確定何種棲息地的組合可以對居民與遷徙鳥類、魚類和其他野生

動物的物種提供最好的環境，將可發揮關鍵的作用。科學是適應性管理計畫的關鍵，我們的科學家每一年都會監測和評估一切的新數據，包括從汞的積累和沉澱物動態一直到步道使用對鳥類的影響。這些資訊指引管理決策和未來的復育、公眾使用以及洪水風險管理決策。

Early important results of our research include the following findings: 我們的早期重要研究成果包括以下幾項結論:

- Restoration sites at the Island Ponds (A19, A20, and A21) and Pond A6 are accumulating sediment more rapidly than expected 鹽灘島的復育現場（A19、A20 和 A21）和鹽灘 A6 要比預期更快速地積累沉澱物

#### P4

- The Island Ponds are showing significant plant colonization in less than five years 鹽灘島在五年內出現明顯的植物移植
- Monitoring shows an increase in native fish inside newly restored areas and in adjacent creeks and sloughs 在新近復育的區域裡面與鄰近的溪流和泥坑，監測顯示原生魚類呈現增加
- Newly created nesting island in Pond SF2 supported over 150 nesting pairs of shorebirds in their first year 在鹽灘 SF2 新建造的築巢島，維持超過 150 對濱鳥在此度過第一年的生計
- Changes in pond management are improving water quality and increasing the numbers of dabbling ducks and shorebirds in the project area 鹽灘管理的改變改善了水質，並增加計畫區域內淺水鴨和濱鳥的數量
- Satellite imagery is effective in tracking large-scale vegetation shifts 衛星圖像可以有效追蹤大型植被的變化

For more information about the results of recent scientific work, please visit the Science page of the Project website: 更多新近科學工作成果的相關資訊，請瀏覽計畫網站的科學頁面:

[www.southbayrestoration.org/science/](http://www.southbayrestoration.org/science/).

**Habitat Restoration 棲息地復育**

The Project will provide a mix of wetland habitats including: 該計畫將提供混合的濕地棲息地，包括：

Salt marsh harvest mouse 沼巢鼠

California clapper rail 加州長嘴秧雞

Salt marsh bird's beak 鹽沼地鳥喙

Western snowy plover 環頸鴉

Chinook salmon 大鱈魚

**Tidal Marsh 潮間沼澤**

Tidal marshes are actually a range of habitat zones including heavily vegetated marsh plans, open mudflats and slough channels. Together, these zones provided habitat for a variety of fish and wildlife including the salt marsh harvest mouse and the California clapper rail, both of which are currently threatened with extinction. The rich mudflats of the tidal marsh create important feeding zones for willets and other shorebirds. The winding sloughs and channels that cut through the marsh serve as protective nursery areas for young fish including leopard sharks and steelhead. 潮間沼澤實際上是一系列的棲息地區域，包括大量沼澤植被計畫、開放的淤泥灘和泥坑渠道。總之，這些區域為各種魚類和野生動物提供棲息地，包括沼巢鼠和加州長嘴秧雞，這兩者目前都受到滅絕的威脅。潮間沼澤含有的豐富淤泥，為鷗類和其他濱鳥創造重要的覓食區。彎曲的泥坑和渠道切割通過沼澤作為年幼魚類的保護育苗區，包括豹紋鯊和虹鱒。

**Managed Ponds 經營鹽灘**

These shallow- and deep-water ponds will be managed to provide different depths and salinities for migrating shorebirds like the western sandpiper. For these species, the Bay Area is a critical stop along the Pacific Flyway, which runs from Alaska to Argentina. Managed ponds provide excellent habitat for feeding and resting. Dry pond bottoms and islands within the ponds also provide important nesting habitat for species such as the threatened western snowy plover. 對這些淺海和深海鹽灘進行管理將為遷徙濱鳥提供不同的深度和鹽度，如西濱鷗。對於這些物種，灣區是沿太平洋遷徙路線的重要停靠站，該路線從阿拉斯加延伸到阿根廷。鹽灘管理提供了覓食和休息的優良棲息地。鹽灘內的乾燥鹽灘底部和島嶼也對某些物種提供了重要的築巢棲息地，如瀕危環頸鴉。

### Recreation and Public Access 休閒及公共使用

The Project is building trails, viewing platforms, and interpretive display at all three pond complexes. Come to walk, bike, boat, or view wildlife, and see the progress of the restoration. The maps on the back of this brochure show the locations of built and planned trails and other amenities. For up-to-date information or directions to the ponds, please visit the Project website at 該計畫於所有三處鹽灘綜合設施，正在興建步道、觀景平台和解說看板，提供前來散步、騎自行車、划船或觀賞野生動物，並查看復育的進度。這本小冊子背面的地圖顯示建造和規劃步道與其他設施的位置。更多最新的鹽灘相關資訊或方位，請瀏覽以下計畫網站

[www.southbayrestoration.org/visit-the-ponds/](http://www.southbayrestoration.org/visit-the-ponds/).

### Flood Risk Management 洪氾風險管理

The tidal wetlands that once circled the edge of the Bay served as natural buffers against flood events. Once established, wetlands act as giant sponges, absorbing floodwater during storm events and slowly releasing it back into the Bay. 曾經環繞著南灣邊緣的潮間濕地可以作為抵抗洪水的自然緩衝區。濕地一旦建立後就具有巨型海綿的作用，吸收暴雨中的洪水，再慢慢地釋出回到南灣。

Although it will take decades for restored tidal wetlands to develop, we are committed to maintaining flood protection in the South Bay. This task will be accomplished in the near term by maintaining a portion of the levees that Cargill and its predecessors originally built for salt making purposes. Over the years, these levees have provided *de facto* flood protection for communities in the South Bay, like Alviso, which sits twelve feet below sea level. The Project is also partnering with the U.S. Army Corps of Engineers and local flood control agencies to design a comprehensive flood control plan integrated with habitat restoration for the South Bay shoreline. 儘管恢復潮間濕地的發展需要幾十年的時間，我們仍致力於南灣防洪的維護。我們將在短期內經由維護一部分的防洪堤實現這項任務，那是嘉吉公司及其前身作為製鹽用途的原建物。多年來，這些防洪堤在南灣為社區提供了實際防洪功能，例如位於海平面以下 12 英尺的愛維索。該計畫還有與美國陸軍工兵團與當地洪水調節部門合作，以設計全面的洪水調節計畫並與南灣海岸線的棲息地復育進行整合。



**Absorbing the Effect of Sea Level Rise in the Bay Area 吸收南灣地區海平面上升的影響**

The Restoration Project will provide a critical habitat buffer against the effects of global climate change and sea level rise. The following questions and answers discuss the ways in which this protection happens. 復育計畫將提供重要的棲息地緩衝，以對抗全球氣候變遷和海平面上升的影響。以下的問題及答案將探討此種保護是如何產生。

**Q. How do tidal marshes or wetlands help protect against flooding? 問:潮間沼澤或濕地如何有助於防止洪水?**

A. Tidal marshes and wetlands act as giant sponges, absorbing floodwaters during storms and then slowly releasing it back into the Bay. They protect the levees which shield inland areas from damaging storm waves and tidal surge. They also increase the flood-carrying capacity of local creeks by scouring channels and reestablishing their connection to historic flood plain. 答:潮間沼澤和濕地充當巨型海綿，吸收暴風雨中的洪水，然後再慢慢地釋出回到南灣。他們保護防洪堤，使得內陸地區避免遭受到破壞性風浪和潮汐大浪。經由沖洗渠道並重建與歷史沖積平原的連接，他們也增強當地溪流的洪水承載能力。

**Q. How do tidal marshes or wetlands help protect against sea level rise? 問:潮間沼澤或濕地如何有助於防止海平面上升?**

A. As sea level rises, the tides will get higher as well. These tides will import and deposit more sediment, which will settle in and become the base for tidal marsh plants. This created a new shoreline with a higher elevation, which help offset the effect of sea level rise. 答:由於海平面上升，潮汐也同樣地上升。這些潮汐將帶進與沉澱更多的沉積物，而且將沉澱下來並成為潮汐沼澤植物的基地。如此創造了較高高度的全新海岸線，將有助於抵消海平面上升的影響。

**Q. Will sea level rise cover restored tidal marshes? 問:請問海平面上升是否會涵蓋復育的潮間沼澤?**

A. Tidal marshes are able to keep up with sea level rise as they age, as long as there is sediment available. Though there is a lot of sediment in the system now that makes it likely that new tidal marshes will keep pace with changing sea level conditions in the near future, we are uncertain about the long term. If we wait too long to restore tidal marshes, it might be too late. The sooner we restore the salt ponds into tidal marshes and wetlands, the better chance they will have to establish themselves and grow as sea

level rises. 答:只要有沉積物可用,潮間沼澤便能夠隨著逐漸老化而跟隨上海平面上升。雖然目前系統中有大量的沉積物,使得新的潮間沼澤在不久的將來跟上變化中海平面條件的步伐成為可能,但是我們對於長期仍無法確定。如果等待復育潮間沼澤的時間過長,就有可能為時已晚。我們越快將鹽灘恢復為潮間沼澤和濕地,在海平面上升時,他們就有更好的機會可以自我建構與生長。

**Q. Do tidal marshes or wetland help reduce future climate change? 問:潮間沼澤或濕地是否有助於減少未來氣候變遷?**

A. Tidal marshes are among the most biologically productive systems on the planet. The plants that grow there capture and store large amounts of carbon. Exactly how much of this carbon sequestration occurs is still being studied, but there is no doubt it is a significant amount. 答:潮間沼澤是這個星球上最具有生物生產力的系統。生長在那裡的植物捕獲和儲存大量的碳,究竟發生多少數量的這種碳封存還尚待研究,但毫無疑問地這是重大數量。



## Goals of the Restoration Project 復育計畫的目標

### Habitat 棲息地

Restore and enhance a mix of wetland habitats 恢復和增強濕地棲息地的混合

### Recreation and Public Access 休閒及公共使用

Provide wildlife-oriented recreation and public access 提供以野生動物為導向的休閒及公共使用

### Flood Risk Management 洪氾風險管理

Improve flood risk management in the South Bay 提高在南灣的洪氾風險管理

### Working Together 一起合作

A broad coalition of agency staff, scientists and members of the public worked for five years to develop the Restoration Project and the Adaptive Management Plan (AMP) that guides and tracks its implementation. The Project and AMP serve as blueprints for habitat restoration, flood protection, and the construction of new trails, viewing platforms and other public access amenities along the edge of the Bay. Project partners and members of the public have completed a first phase of restoration actions; they are now collaborating on carrying out the next phases of this historic Project. 廣泛結合機構工作人員、科學家和公眾成員一起工作五年，以發展復育計畫和適應性管理計畫（Adaptive Management Plan，AMP），指導並追蹤其執行情況。以該計畫與 AMP 作為藍圖，用於棲息地復育、防洪，以及建造新步道、觀景平台與沿著南灣邊緣的其他公共使用設施。計畫夥伴及公眾成員已經完成了第一階段的復育行動；他們現在正共同合作執行此一歷史性計畫的下一個階段。

The Project's Stakeholder Forum serves as the main conduit for public participation. The Forum meets regularly in three geographic - based Restoration Working Groups - one for each of the three pond complexes. 該計畫的利益相關者論壇提供公眾參與的主要管道。該論壇在三處以地域 - 為基礎的復育工作小組 - 於三處鹽灘綜合設施其中之一定期召開會議。

You are welcome to attend these meeting. For more information about upcoming Working Group meeting locations and agendas, please visit the Events and Meetings section of the Project website at 歡迎您來參加這些會議，對於即將舉行的工作小組會議地點和議程更多的相關資訊，請瀏覽計畫網站關於活動和會議的部分 [www.southbayrestoration.org/events/](http://www.southbayrestoration.org/events/).

## What is the South Bay Salt Pond Restoration Project? 什麼是南灣鹽灘復育計畫?

The South Bay Salt Pond Restoration Project is the largest tidal wetland restoration effort on the West Coast. The Project will restore 15,100 acres of former industrial salt ponds to a rich mosaic of wetland habitats. 南灣鹽灘復育計畫是在西海岸最大的潮間濕地生態復育工作。該計畫將復育 15,100 英畝前工業鹽灘，成為濕地棲息地的豐富裝飾。

The Project will also open up new areas of the South Bay shoreline to millions of local residents and visitors and provide critical new habitat for fish and birds and other wildlife, as well as needed flood protection for Silicon Valley. 該計畫還將對數百萬當地居民和遊客開啟南灣海岸線的新區域，並為魚類和鳥類及其他野生動物提供重要的全新棲息地，還有矽谷(Silicon Valley)所需要的防洪。

This unprecedented restoration effort, in the middle of a major urban center, will transform a landscape the size of Manhattan into a thriving wetland ecosystem- thus restoring the wild heart of the South Bay for this and future generations. 此項前所未有的復育工作，在一個主要城市中心的中間地帶，將改造曼哈頓(Manhattan)那種規模的景觀，成為一個繁榮的濕地生態系統-從而為這個世代和我們的後代恢復南灣的荒野中心。

## How to Get Involved 如何參與

### Visit the Ponds 參觀鹽灘

You can get a closer look at what's happening on the ground by visiting the ponds at one of the sites indicated on the maps inside this brochure or by taking a guided tour. For more information about public tours, work days and other events, please visit the Events and Meetings section of the Project website at [www.southbayrestoration.org/events/](http://www.southbayrestoration.org/events/). For information about regularly scheduled public tour of the project, you can call the Don Edwards San Francisco Bay National Wildlife Refuge Environmental Education Center at 408-262-5513 (x106) or visit the Refuge's website at [www.fws.gov/desfbay/](http://www.fws.gov/desfbay/). 你可以透過這本小冊子裡面的地圖所指示的地點之一或參加導覽的方式來參觀鹽灘，以便更仔細查看現場發生的事情。有關公眾參觀、上班日和其他活動的更多資訊，請瀏覽計畫網站有關活動和會議的部分 [www.southbayrestoration.org/events/](http://www.southbayrestoration.org/events/) 有關該計畫的定期排定參觀資訊，您可以撥打唐·愛德華茲舊金山灣國家野生動物保護區環境教育中心的電話(Don Edwards San Francisco Bay National Wildlife Refuge Environmental Education Center) 408-262-5513 (x106) 或瀏覽保護區的網站 [www.fws.gov/desfbay/](http://www.fws.gov/desfbay/).

### Attend a Working Group Meeting 參加工作小組會議

Want to learn the latest about trail design or species studies or meet some of the land managers? Come to a Stakeholder Forum or Working Group meeting. The meeting schedule varies depending on the degree of activity at each pond complex. All of these meetings are open to the public and you are invited to attend. For details on the next meeting or to read minutes from previous meetings please check the Events and Meetings section of our website. 想了解最新關於步道設計或物種研究或與某位土地管理者會面嗎？請前往利益相關者論壇或工作小組會議。會議時程表的變動取決於每處鹽灘設施的活動程度。所有這些會議都對公眾開放，您也獲邀參加。關於下一次會議的細節，或者讀取前幾次的會議紀錄，請瀏覽我們的網站關於活動和會議的部分。

### Volunteer or Become a Docent 志工或成為解說員

In addition visiting the ponds or attending workshops or meetings, there are other ways to get involved. The Don Edwards San Francisco Bay National Wildlife Refuge has a docent training program. Docents are individuals who lead public programs and tours to introduce the restoration project and its natural and cultural resources. To find out how you can become involved, call the Refuge at 408-262-5513 (x106) and ask about the Salt Pond Tour Decent Program. Also, some project partners have volunteer opportunities, For example, Save The Bay ([www.savesfbay.org](http://www.savesfbay.org)) operates volunteer marsh restoration programs at the Eden Landing and Ravenswood ponds.

[www.southbayrestoration.org](http://www.southbayrestoration.org) 除了參觀鹽灘或參加研討會或會議，還有其他的參與方式。唐·愛德華茲舊金山灣國家野生動物保護區備有解說員培訓計畫。解說員是領導公共計畫的個人並導覽介紹復育計畫及其自然和文化資源。要了解如何才能參與，請撥打保護區的電話 408-262-5513 (x106)，並詢問有關鹽灘導覽解說員專案。此外，某些計畫合作夥伴提供志工服務的機會，例如，拯救灣

([www.savesfbay.org](http://www.savesfbay.org)) 在 Eden Landing 和雷文斯伍德鹽灘進行沼澤復育志工專案。[www.southbayrestoration.org](http://www.southbayrestoration.org)

(背面)P1

**South Bay Salt Pond Restoration Project 南灣鹽灘復育計畫**

Restoring the Wild Heart of the South Bay 恢復南灣的荒野中心



## P2

### RAVENSWOOD

#### How to Get There 如何到那裡

There Ravenswood Ponds are best visited at the west end of the Dumbarton Bridge P1 or from trails in and around Bayfront Park P2. 最好是在敦巴頓橋(Dumbarton Bridge )P1 的西端或是從步道內部和海灣公園(Bayfront Park)P2 周圍參觀雷文斯伍德鹽灘。

#### West end of the Dumbarton Bridge: 敦巴頓橋西端:

From Highway 101 exit east on Highway 84. Just before the bridge, a frontage road exit to the right leads to a parking lot along the side of the bridge and next to the Ravenswood Pond. From Interstate 880, exit west on Highway 84. Cross the Dumbarton Bridge, take the frontage road exit right, and follow the road to the right under the bridge to the parking area. 從 101 號高速公路出口朝東往 84 號高速公路，在大橋正前方就有向右且臨馬路的出口，引導至沿著橋邊的停車場，旁邊就是雷文斯伍德鹽灘。從 880 號州際公路出來，往西到 84 號高速公路，跨越敦巴頓橋，走臨馬路出口向右，並沿著橋下的道路右側走到停車場。

**Bayfront Park in Menlo Park:** From Highway 101, take the Marsh Road exit in Menlo Park and head towards the Bay. At the end of the road, past Bayfront Expressway, is the entrance to Bayfront Park. 位於門洛帕克的海灣公園:從 101 號高速公路，選擇位於門洛帕克的沼澤路出口並朝南灣。在道路的盡頭，過了海灣高速公路，就是海灣公園的入口。

For more directions and information, see the Project website at 欲了解更多指示和資訊，請參閱計畫網站 [www.southbayrestoration.org/visit-the-ponds/](http://www.southbayrestoration.org/visit-the-ponds/).

## P3

### EDEN LANDING

#### How to Get There 如何到那裡

The best way to see Eden Landing is to visit the newly-opened segment of the Bay Trail near Eden Landing Road P. 觀賞 Eden Landing 最好的方式，就是參觀新開闢南灣步道靠近 Eden Landing 路 P 的路段。

Bay Trail at Eden Landing Road: From Highway 92 in Hayward, exit at Clawiter/Eden Landing and go south of the highway on Eden Landing Road to the end near the intersection with Arden Road. Look for the gate into the staging area with parking for 58 vehicles. 位於 Eden Landing 路的南灣步道:從海沃德的 92 號高速公路，出口在 Clawiter/Eden Landing 並且由 Eden Landing 路的高速公路往南直到雅頓路交叉口附近的終點。找到進入臨時區域的大門，該處可以停放 58 輛車。

For more directions and information, see the Project website at 欲了解更多指示和資訊，請參閱計畫網站 [www.southbayrestoration.org/visit-the-ponds/](http://www.southbayrestoration.org/visit-the-ponds/).





## P4

### What's Been Done? 完成了哪些事項？

The map (left) shows the actions that are part of the long-term vision for restoration at Eden Landing. The red flags on the map show the recently completed project actions under Phase One (2008-2014). These actions included: 在 Eden Landing 進行復育，左圖代表長期願景的一部分行動。地圖上的紅色標記代表近期完成的第一階段（2008-2014 年）計畫行動。這些行動包括：

- Restored 630 acres of tidal habitat for endangered species at Ponds E8A, E8X, & E9 在鹽灘 E8A、E8X 和 E9，為瀕危物種復育 630 英畝的潮間棲息地
- Created 230 acres of pond habitat for a variety of bird species including phalaropes and eared grebes at Ponds E12&E13 在鹽灘 E12 & E13，為各種鳥類創造 230 英畝的鹽灘棲息地，包括有瓣足鷗和黑頸鸕鶿
- Built 3.8 miles of new trails 建造 3.8 英里新步道
- Built an interpretive site with raised walkways and viewing platform overlooking the remnants of the historic salt work in Pond E13 建造備有隆起的人行道和觀景平台的解說地點，可以俯瞰位於鹽灘 E13 歷史悠久的製鹽工作遺跡
- Created a kayak launch at Mt. Eden Creek 在 Eden 山溪開發橡皮艇下水

### What's Next? 下一個步驟該怎麼做？

The next steps are being planned now. Project goals and likely actions under Phase Two (2013 and later) are labeled with black flags and include: 目前正在規劃下一個步驟。第二階段的計畫目標和可能的行動（2013 年以後）都貼上黑色的標記，包括：

- Opening several of the large ponds on the southern side of Eden Landing to tidal flows 對位於 Eden Landing 南區的幾處大鹽灘開放潮汐流動
- Developing a comprehensive strategy for long-term flood protection in adjacent portions of Alameda County 對於阿拉米達郡(Alameda County)相鄰的部分，制定全面性的長期防洪策略
- Implementing a segment of the Bay Trail spine along the eastern edge of Eden Landing and other public access features 沿著 Eden Landing 東部邊緣和其他公共使用功能，鋪設南灣步道隆起的區段

## P5

### What's Been Done? 完成了哪些事項?

The map (above) shows the actions that are part of the long-term vision for restoration at Ravenswood. The red flags on the map show the recently completed project actions in Phase One (2008-2014). These actions included: 在雷文斯伍德進行復育，上圖代表長期願景的一部分行動。地圖上的紅色標記代表近期完成的第一階段（2008-2014 年）計畫行動。這些行動包括：

- Enhanced 240 acres of pond habitat for nesting and resting shorebirds, including western snowy plovers, at Pond SF2 在鹽灘 SF2，為築巢和棲息濱鳥改善 240 英畝的鹽灘棲息地，其中包括環頸鴉
- Constructed 0.7 miles of trail south of the west end of the Dumbarton Bridge 建造敦巴頓橋西端往南 0.7 英里的步道
- Created interpretive displays and build two new viewing platforms near pond habitat and existing tidal marsh area immediately south of the Dumbarton Bridge 於接近鹽灘棲息地和緊鄰敦巴頓橋南邊的現有潮間沼澤區，製作解說看板並建造兩處新的觀景平台
- Constructed a viewing area and interpretive station at Bayfront Park 在海灣公園建造觀賞區域和解說站

### What's Next? 下一個步驟該怎麼做？

The next steps are being planned now. Project goals and likely actions under Phase Two (2013 and later) are labeled with black flags and include: 目前正在規劃下一個步驟。第二階段的計畫目標和可能的行動（2013 年以後）都貼上黑色的標記，包括：

- Opening Pond R4 to tidal action so that it can transition to marsh 對鹽灘 R4 開放潮汐作用讓鹽灘 R4 可以轉變成沼澤
- Improving the quality and diversity of the managed pond habitat at R5 and S5 for shorebirds, waterfowl, and other species 在 R5 和 S5，為濱鳥、水鳥和其他物種提高經營鹽灘棲息地的質量和多樣性
- Adding recreational trail(s) and interpretive signage at viewpoints 在景點增加休閒步道和解說看板
- Addressing flood risk control needs by enhancing or creating berms or levees 經由增強或建造護堤或防洪堤以應付調節洪氾風險的需求

**Alviso****How to Get There 如何到那裡**

The best way to visit the Alviso Ponds is to take advantage of the Bay Trail P1 or visit either the Alviso Marina County Park P2 or the Refuge's Environmental Education Center in Alviso P3. 參觀愛維索鹽灘最好的方式就是利用取道南灣步道 P1，或是參觀愛維索濱海郡公園 P2 或位於愛維索 P3 的保護區環境教育中心。

**Bay Trail:** From Highway 101, exit at Amphitheatre Parkway in Mountain View. Turn north on Shoreline Boulevard toward the Shoreline Park entrance. Parking is available at Mountain View Shoreline Park and Shoreline Amphitheater overflow lots. **南灣步道:**從 101 號高速公路，出口在山景城(Mountain View)的露天劇場大道。在海岸大道轉北朝向海岸公園入口處。山景城海岸公園可供停車以及海岸露天劇場有極多的停車位。

**Alviso Marina County Park:** From I-880 or Highway 101, exit on Highway 237 toward Alviso. Turn north onto First Street. Continue on First Street to Gold Street which turns left and becomes Elizabeth Street. Turn right onto Hope Street and go over the bridge to the Marina. **愛維索濱海郡公園:**從 I-880 或 101 號高速公路，出口在 237 號高速公路往愛維索。轉北到第一街，繼續在第一街直到黃金街，在那裡左轉變成伊麗莎白街。右轉到希望街再過橋就到達碼頭。

**Environmental Education Center:** From I-880 or Highway 101, exit on Highway 237 toward Alviso. Turn north onto Zanker Road. Take Zanker Road, which becomes Los Esteros, to the Environmental Education Center entrance road, which is a sharp right turn off Los Esteros at Grand Boulevard. **環境教育中心:**從 I-880 或 101 號高速公路，出口在 237 號高速公路往愛維索。轉北到 Zanker 路。選擇的 Zanker 路接著會變成 Los Esteros，在格蘭大道大幅度右轉離開 Los Esteros 直到到達環境教育中心入口的道路。

For more directions and information, see the Project website at 欲了解更多指示和資訊，請瀏覽計畫網站 [www.southbayrestoration.org/visit-the-ponds/](http://www.southbayrestoration.org/visit-the-ponds/).

## P7

### What's Been Done? 完成了哪些事項？

The map (left) shows the actions that are part of the long-term vision for restoration at Alviso. The red flags on the map show the recently completed project actions under the Initial Stewardship Plan (2006-2008) and Phase One (2008-2014). These actions included: 在愛維索進行復育，圖左代表長期願景的一部分行動。地圖上的紅色標記代表根據初步管理計畫（2006-2008年）和第一階段（2008-2014年）於近期完成的計畫行動。這些行動包括：

- Enhanced 240 acres of shallow pond habitat (Pond A16) with 12 new nesting islands for migrating shorebirds, such as avocets and stilts 為遷徙濱鳥改善 240 英畝的淺鹽灘棲息地（鹽灘 A16）連同 12 處全新築巢島，例如反嘴鷗和高蹺鴿這些鳥類
- Connected over 2,600 acres of ponds to the Bay, creating new tidal marsh for endangered species (Ponds A6, A17, A19, A20, and A21) and shallow water habitat for shorebirds, pelicans, cormorants, and duck (Ponds A5, A7, A8 and A16) 將 2600 英畝以上的鹽灘連接到南灣，為瀕危物種創造出全新的潮間濕地（鹽灘 A6、A17、A19、A20 和 A21），以及為濱鳥、鵜鶘、鷗鷺和野鴨創造淺水棲息地（鹽灘 A5、A7、A8 和 A16）
- Opened 2.5 miles of new Bay Trail between Mountain View's Shoreline Park and Sunnyvale 在山景城的海岸公園和桑尼維爾(Sunnyvale)之間，開放 2.5 英里的新南灣步道

### What's Next? 下一個步驟該怎麼做？

The next steps are being planned now. Project goals and likely actions under Phase Two (2013 and later) are labeled with black flags and include: 目前正在規劃下一個步驟。第二階段的計畫目標和可能的行動（2013 年以後）都貼上黑色的標記，包括：

- Opening Ponds A1 and A2W to tidal flows to begin their conversion to tidal marsh 對鹽灘 A1 和 A2W 開放潮汐流動，開始進行轉換成潮汐沼澤
- Developing a comprehensive strategy for long-term flood protection in adjacent portions of Mountain View and Santa Clara County 對於山景城和聖克拉拉郡 (Santa Clara County) 相鄰的部分，制定全面性的長期防洪策略
- Adding trails along inland side of ponds and/ or along the lateral levees 沿著鹽灘內陸側和/或沿著橫向的防護堤而增建步道
- Modifying previous restoration actions at Ponds A19, A20, and A21 to speed their conversion to tidal marsh 修改鹽灘 A19、A20、A21 先前的復育行動，以加速其轉化為潮沼

**In addition**, the U.S. Army Corps of Engineers is leading the South San Francisco Bay Shoreline Study, which is planning to build a flood control levee to protect the Town of Alviso, the San Jose/ Santa Clara County Water Pollution Control Plant and other infrastructure. The flood protection that will be provided by this levee will also allow restoration of the salt ponds on the Bay side of it. 此外，美國陸軍工兵團領導南舊金山灣海岸線的研究，此項計畫是為了建造洪水調節堤道以保護愛維索鎮、聖荷西(San Jose)/聖塔克拉拉郡水污染控制廠和其他基礎設施。由此防洪堤提供的防洪措施也將容許在南灣這邊進行鹽灘的復育。



## How to use these maps 如何使用這些地圖

**1** The areas outlined on this aerial photo of the South Bay Area are the three Project pond complexes: Ravenswood, Alviso, and Eden Landing. See the blue boxes for directions to each. 此南灣地區航拍照片描繪的區域為三處計畫鹽灘綜合設施:雷文斯伍德、愛維索和 Eden Landing。有關個別方位請參考藍色框。

**2** The aerial photo shows the ponds as they were in 2011. Some contain open water (green), while others are dry, crusted areas (white), and others are high salinity ponds that are red due to algae growth. 空拍照片顯示 2011 年當時的鹽灘, 某些包含了開放水域 (綠色), 有些則是乾燥、裂紋的區域 (白色), 以及其他高鹽度鹽灘由於藻類生長而呈現紅色。

**3** See what we've accomplished and our long-term vision in the inset maps of each pond complex. Each shows the completed and planned habitat restoration, the existing and anticipated trails and public access facilities, and the planned levee improvements or additions. 在每處鹽灘綜合設施的插頁地圖, 可以看到我們取得的成就與長遠願景。分別顯示了已完成的和規劃的棲息地復育、現有和預計的步道和公眾使用設施, 以及規劃防洪堤道的改善或增建。

**4** The legend below shows the symbols and icons used in the maps. Note that not every symbol and icon appears in every map. 下面的圖例代表地圖中使用的符號和圖像。請注意, 每個地圖不一定會出現每種符號和圖像。

### **Legend 圖例**

Project Area 計畫區域

#### **Planned Restoration Status 規劃復育狀態**

Future Upland Transition Area 未來的高地過渡區

Current Managed Pond 目前的經營鹽灘

Current Muted Tidal 目前忽略潮汐

Future Tidal Marsh Habitat 未來的潮間沼澤棲息地

Current Tidal Marsh Habitat 目前的潮間沼澤棲息地

Seasonal pond 季節性鹽灘

#### **Recreational Trails 休閒步道**

Completed Project Trail 已完成的計畫步道

Existing Trail 現有步道

Existing Bay Trail Segment 現有南灣步道區段

Proposed Trail 提議步道

Proposed Bay Trail Segment 提議南灣步道區段

**Other Recreational Opportunities 其他休閒機會**

Environmental Education Center 環境教育中心

Fishing 釣魚

Hiking 健行

Historic Site 歷史遺址

Hunting 狩獵

Interpretive Trail/ Signage 解說步道/看板

Kayak Launch 橡皮艇下水

Parking 停車

Viewing Opportunity 觀賞機會

**Flood Protection 防洪措施**

Existing Levee 現有的防洪堤道

Future Levee 未來的防洪堤道

High Ground 高地

**Completion Status 完成狀態**

What's Been Done 完成了哪些事項

What's next 下一個步驟該怎麼做

