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considered minor or transitory under the Environmental Protocol); and,

3. Describe changes in existing research and monitoring programs or additional programs that would be required to detect cumulative adverse effects before they reach significant levels.

The workshop was sponsored jointly by the U.S. National Science Foundation (NSF), the U.S. Environmental Protection Agency (EPA), and the International Association of Antarctica Tour Operators (IAATO). It was held in La Jolla, California, on 7–9 June 2000. The overall objectives are provided in Attachment 3. Participants shown in Attachment 4 included scientists from several countries with many years of experience conducting research in Antarctica, and representatives of companies engaged in Antarctic tour operations and U.S. government agencies with interests and responsibilities for implementing the provisions of the Environmental Protocol and related U.S. statutes and regulations. Attachment 5 is the meeting agenda.

Three discussion groups were established to facilitate consideration and identification of the range of views concerning the key issues on the agenda. The facilitators, rapporteurs, and members of the working groups are shown in Attachment 6.

2. OVERVIEW OF COMMERCIAL SHIP-BASED TOUR OPERATIONS IN THE PENINSULA AREA

Attachment 7 is a time line indicating some of the important events in the history of Antarctica. The Antarctic tourism industry is generally considered to have begun in the late 1950s when Chile and Argentina took more than 500 fare-paying passengers to the South Shetland Islands aboard a naval transport ship.

The concept of “expedition cruising,” with education a major theme, began when Lars-Eric Lindblad led the first tourist expedition to Antarctica in 1966. Lindblad once said, “You can’t protect what you don’t know.” He believed that providing first-hand experience to tourists would alert them to the ecological sensitivity of the Antarctic environment and promote a greater understanding of the earth’s resources and the important role of Antarctica in the global environment. The modern expedition cruise industry was born in 1969 when Lindblad built the world’s first expedition ship — the *M/S Lindblad Explorer* — designed specifically for carrying tourists to the Antarctic. Before 1969, human activity in Antarctica had been limited to exploration, commercial hunting of seals and whales, commercial fishing, and scientific research. Antarctica’s physical isolation, extreme climate, and remarkable scenery and wildlife are a great part of its attraction to tourists. Lindblad’s model

of expedition cruising continues to be followed by the majority of companies operating ship-borne tours to Antarctica.

In 1991, seven tour operators active in Antarctica formed the International Association of Antarctica Tour Operators (IAATO) to advocate, promote, and practice environmentally responsible private-sector travel to Antarctica. By then, the Antarctic tour industry had expanded to include such activities as “flight-seeing” (flying passengers over scenic parts of the continent in jet aircraft without landing), and land-based adventure tours, including mountain climbing, skiing, and wildlife photography. During the 1991–1992 austral summer, tourists for the first time outnumbered the scientists and support personnel working in the Antarctic Treaty area. During the 1999–2000 austral summer, an estimated 14,436 tourists were carried to the Antarctic by 14 IAATO-member companies operating 16 ships and one yacht, and by three non-IAATO member companies operating four ships (see Attachment 8). An estimated additional 139 tourists participated in land-based programs. Nine “flight-seeing” tours, carrying approximately 3,412 tourists and 193 crew members, were operated out of Australia to the Ross Sea region using Boeing 747 aircraft.

Both the National Science Foundation and IAATO compile statistics on tourist activities in Antarctica. Attachment 9 identifies the sites in the Antarctic Peninsula area visited from 1989 through 1999, and the number of passengers landed at the various sites each year. More than 150 different sites were visited during this period, some many times each year, others only infrequently. The five most visited sites during this period were Port Lockroy on Wiencke Island, Whalers Bay and Pendulum Cove at Deception Island, Cuverville Island, and Gonzalez Videla Station in Paradise Bay (see Attachment 10). Antarctic tourist trends from 1992–1993 through 1999–2000 are shown in Attachment 11.

Expedition Planning. Selecting sites to visit during ship-borne tourist expeditions to the Peninsula area generally occurs in two phases (see Attachment 12). Phase one involves developing and circulating tentative itineraries to other tour operators prior to commencement of the expedition. Phase two is the adjustment of the preliminary itinerary on a day-to-day basis to respond to environmental conditions and opportunities encountered in the course of the expedition.

Each tour has an Expedition Leader with first-hand knowledge of the points of interest in the Peninsula area. In most cases, both the preliminary itinerary planning and the day-to-day site selection are done by the Expedition Leader. In some cases, the company running the ship carries out the preliminary phase one planning, while the Expedition Leader makes the day-to-day decisions as to which sites are visited.

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Repeated visits by ship-based tourists, coupled with other human activities, could have cumulative effects on the landscape, flora, fauna, historical artifacts, and science programs and support activities in the areas visited, and on nearby marine areas.

expeditions, etc.) are considered during both preliminary planning and day-to-day site selection. Itineraries generally are planned and carried out to include sites with diverse wildlife (e.g., colonies of penguins, flying birds, and seals), sites of historic interests (e.g., old whaling and sealing stations), a visit to a scientific station, and areas with spectacular views of mountains, icebergs, and other natural features. For marketing purposes, special efforts may be made during certain cruises to cross the Antarctic Circle or to land passengers on the continent.

In the planning process, Expedition Leaders attempt to identify itineraries that will provide clients as exciting and diverse an experience as possible, within the constraints of time and, most importantly, of safety. Usually two or more site visits are planned each day, and nighttime hours are spent traveling. Surf, wind, and ice conditions often preclude safe landings at some sites. Communication is maintained between vessels throughout the season so that two passenger ships do not arrive at the same sites simultaneously. Decisions regarding environmental matters are made on a case-by-case basis as situations warrant. For example, if a ship carrying 100 passengers arrives at a penguin rookery on a very high tide with little exposed beach and little or no room for tourists to walk without disturbing the birds, passengers either will not be landed or will be landed only in small groups.

Managing Activities Ashore. IAATO has developed and adopted standard operating procedures (yearly instructions to Captains, Expedition Leaders, and expedition staff, Attachment 13) and guidelines prescribing 1) the maximum number of tourists (100) that can be ashore at any one time, 2) distances that tourists must stay from wildlife, and 3) the minimum ratio (1:20) of guides to tourists on shore (Attachment 14). Passengers are briefed before leaving the ship as to what can be seen at the site, where they should and should not go, the locations of any particular dangers or environmentally sensitive areas, and the locations of any Antarctic Specially Protected Areas (ASPAs). They are also briefed on the requirements of ATCM Recommendation XVIII-1, Guidance for Visitors to the Antarctic and given a copy for future reference. Staff go ashore before passengers to scout each landing and to assess any unique situations specific to the landing site. Upon arrival ashore, passengers are reminded of the salient points of the briefing, and both specific dangers and sensitive areas are pointed out.

Site visits typically are structured in one of two ways, depending upon the site. At some sites, staff are positioned at key points of interest and near potentially sensitive areas to provide directions, answer questions, and ensure that their charges act in accordance with the applicable guidelines. At other sites, passengers are divided into small groups that are led around the site by a guide. Hikes are accompanied by one or more guides, depending upon the number of passengers participating.