

Report of the Russian Federation on implementing the provisions of the Protocol on Environmental Protection to the Antarctic Treaty 2005-2006 (in compliance with Article 17)

An analysis of fulfilling the requirements of the Protocol on Environmental Protection to the Antarctic Treaty (Protocol) is presented in the form of a structured Report on fulfilling the provisions of the Protocol itself and its Annexes (I-V) and covers the period of activity of the 51st Russian Antarctic Expedition (2005 – 2006).

PROTOCOL

1. Legal and administrative actions to provide observance of the Protocol

In order to implement control for observance of the Protocol on Environmental Protection to the Antarctic Treaty, Roshydromet designated observers of the activity of the Russian individual persons and legal entities in the Antarctic Treaty Area for 2006 from the number of participants of the Russian Antarctic Expedition:

- Kuchin V. A. – Head of seasonal operations of the 51st RAE – for the period 01.01.2006 to 07.04.2006;
- Venderovich V.M. – Head of the wintering team of the 51st RAE – for the period 07.04.2006 to 31.12.2006.

The observers are guided in their activity by the Provision on the order of designating observers of the activity of the Russian individual persons and physical entities in the Antarctic Treaty Area and fulfilling the functions they are entrusted with, adopted by the Order of Roshydromet of 07.12.99 No. 139.

According to the Order of Roshydromet, responsible representatives of the Russian Federation in the Antarctic Treaty Area for 2006 were designated at all Russian Antarctic stations and aboard the research vessels:

- Mizin Yu.V. – lead engineer on ecological safety of Mirny station of the 51st RAE – in the operation area of Mirny Observatory;
- Voyevodin A.V. – Head of Vostok station of the 51st RAE - in the operation area of Vostok station;
- Nikonov N.I. – Head of Novolazarevskaya station of the 51st RAE - in the operation area of Novolazarevskaya station;
- Bondarchuk V.A. – Head of Progress station of the 51st RAE - in the operation area of Progress station;
- Sakharov O.S. – Head of Bellingshausen Base of the 51st RAE in the operation area of Bellingshausen Base;
- Ivanov N.A. – Head of Druzhnaya-4 Base of the 51st RAE in the operation area of Druzhnaya-4 Field Base;
- Koltyshev Ye.M. – Captain's assistant on science of the R/V "Akademik Fedorov" of the 51st RAE in the operation area of the R/V "Akademik Fedorov";
- Gandyukhin V.V. – Head of the cruise of the R/V "Akademik Aleksander Karpinsky" - in the operation area of the R/V "Akademik Aleksander Karpinsky".

The Russian Federation representatives are designated annually and they use as guidance in their activity the Provision on the order of designating responsible representatives of the Russian Federation and fulfilling the responsibilities they are entrusted with.

The duties of responsible representatives include:

- control for observing the requirements of the Protocol on Environmental Protection to the Antarctic Treaty;
- checking that the Russian individual persons and legal entities have national permits for activity in the Antarctic Treaty Area;
- revealing inconsistency of the activity performed with the declared activity or the activity not envisaged in the issued national permit and undertaking measures up to its termination;
- prevention of the risks of occurrence of environmental emergencies;
- provision of the persons implementing the activity with necessary information on the issues of the Protocol on Environmental Protection to the Antarctic Treaty, etc.;
- immediate notification about the occurrence of emergencies and (or) suspension of activity of the RAE administration and the Secretariat of the Commission on consideration of applications for the activity of the Russian individual persons and legal entities in the Antarctic Treaty Area and issuance of permits, located in Roshydromet;
- monthly reporting about undertaking the aforementioned measures, all visits to the area of responsibility, the Russian individual persons and legal entities having national permits, breaches revealed and guilty persons.

The responsible representatives of the Russian Federation in the Antarctic Treaty Area informed in their reports about:

- flights of airplanes from Cape Town to the airfield of the Russian Novolazarevskaya station for delivering personnel of the expeditions of Russia, Germany and Scandinavian countries to Antarctica;
- presence of marine ships of the Russian ship owners, chartered by foreign companies in the Russian Bellingshausen station area;
- presence of Russian citizens in the areas of the Russian stations.

The information obtained was submitted to the Secretariat of the Commission on consideration of applications for activity in the Antarctic at Roshydromet. This information allows the Commission to control the activity of the Russian individual persons and legal entities in the Antarctic Treaty Area, make it more orderly and draw their attention to the need of obtaining a national permit for activities in the Antarctic Treaty Area.

For the period January 2005 to November 2006, the Commission issued 20 permits for implementing the activity in the Antarctic Treaty Area:

2. Plans of actions in emergency

All Russian marine ships that have a Permit for activity in the Antarctic also have the Shipboard Oil Pollution Emergency Plans corresponding to the requirements of MARPOL 73/78.

The plans of action in emergency for the Russian Antarctic stations are presented in the form of the approved in situ instructions. Training exercises are undertaken on a periodical basis.

ANNEX 1 Environmental Impact Assessment

3. Environmental Impact Assessment (EIA)

After issuance of the Decision of the Government of the Russian Federation of December 11, 1998 No. 1476 “On adoption of the Procedure for consideration and issuance of permits for activities of the Russian individual persons and legal entities in the Antarctic Treaty Area”, all kinds of activity in the Antarctic prior to their implementation must undergo the corresponding procedures. They are presented in the Regulations of the Commission for consideration of applications for activities of the Russian individual persons and legal entities in the Antarctic Treaty Area and issuance of conclusions on them. This Commission, based on the submitted documents (including the EIA), makes a decision about a possibility of issuing a permit for the activity.

The EIA preparation is a mandatory condition for obtaining a permit by individual persons and legal entities, including private and state organizations.

Thus in order to obtain a permit for the activity of the Russian Antarctic Expedition up to 2007, in compliance with Article 1 of Annex 1, the EIA of the ongoing activities of the Russian Antarctic Expedition was performed. At present, materials are being prepared for the EIA of RAE activity for the period 2007 to 2012.

4. List of the Permits issued for activity in the Antarctic and the corresponding EIAs performed from 2005 to November 2006

Table 1.

No. of permit, date of issuance	To whom it was granted	EIA for the type of activity	Area (route)	Period of activity
023 20.01.2005	OJSC “Far Eastern Shipping Company”	Icebreaking escort of transport vessels by the diesel-electric icebreaker “Krasin”	from 60 to 78 S and from 150 to 180 E and from 180 to 160 W in the Ross Sea	20.01.2005 – 10.03.2005
024 20.01.2005	SI AARI of Roshydromet	Aviation support for Vostok station	Punta-Arenas (Chile) – March airfield (The Chilean Antarctic station, King George Island) – airfield at Halley station (Great Britain) – airfield of Novolazarevskaya station (RF) – airfield at Molodezhnaya Base (RF) – airfield at Progress station (RF) – airfield at Vostok station (RF)	20.01.2005 – 20.03.2008
025 20.01.2005	SI AARI of Roshydromet	Drilling of additional 50 m of deep borehole 5G-1 at Vostok station	Central Antarctica area, Russian Antarctic Vostok station	20.01.2005 – 20.03.2007
026 20.01.2005	SI Far Eastern Research Hydrometeorological Institute of Roshydromet	Marine tourism onboard the M/S “Professor Khromov” (cruises with foreign tourists)	From 160 to 180° E and from 50 to 78° S (Ross Sea)	20.01.2005 – 02.10.2008
027 20.01.2005	SI Far Eastern Research Hydrometeorological Institute of Roshydromet	Marine tourism onboard the M/S “Akademik Shokalsky” (cruises with foreign tourists)	From 40 to 80°W and from 50 to 70°S (Scotia Sea, Antarctic Peninsula area)	20.01.2005 – 02.10.2008
028 20.01.2005	Charitable health improving foundation “Adventure Club”	Cruising voyage onboard the yacht “Apostol Andrey” around Antarctica	South Georgia Island – South Sandwich Islands – farther eastward along 60°S. Calls to Progress (RF), Dumont-d’Urville (France) and	20.01.2005 – 01.05.2006

			Bellingshausen (RF) stations. Exit to the north along the 60 th parallel in the area of the South Sandwich Islands.	
029 07.11.2005	Regional Public Organization "Federation of sport tourism of the Yamal-Nenetsky district"	First alpine mountaineering to a nameless peak	Ellsworth Mountains, Vinson Massif, 78° 24.7 min S and 85° 58.5 min W	07 November 2005 – 28 February 2006
030 07.11.2005	OJSC "Far Eastern Shipping Company"	Icebreaking escort of transport vessels by the diesel-electric icebreaker "Krasin"	From 60 to 78°S, from 150 to 180° E and from 180°E to 160°W in the Ross Sea	07 November 2005 – 30 March 2006
031 07.11.2005	Shirshov Institute of Oceanography of the Russian Academy of Science	Navigation of the R/V "Akademik Joffe" and the R/V "Akademik Sergey Vavilov" by charter agreement	Port Ushuaya (Argentina) – Falkland Islands – South Georgia Island – Antarctic Peninsula – Palmer archipelago – Port Ushuaya	07 November 2005 – 31 March 2008
032 07.11.2005	SI AARI of Roshydromet	Navigation in the Antarctic of the M/S "Professor Multanovsky" by charter agreement	From 25 to 75°W and from 50 to 67°S	07 November 2005 – 13 March 2008
033 07.11.2005	FSUE Test-Flight Center of the State Research Institute of Civil Aviation	Research flights of heavy transport aviation for air dropping of cargoes in the Vostok station area	Vostok station, geographical coordinates of the airdrome control point (ACP): 106 49 00 E, 87 29 00 S. Magnetic declination – 116. ACP height is 3448 m above sea level	07 November 2005 – 30 November 2010
034 07.11.2005	FSUE Test-Flight Center of the State Research Institute of Civil Aviation	Research flights of heavy transport aviation to the air field of Novolazarevskaya station	15 km to the southeast of Novolazarevskaya station on the ice sheet Geographical coordinates of the airdrome control point: 11 35 44 E and 70 50 39 S	07 November 2005 – 30 November 2010
035 07.11.2005	All-Russia Public Organization "Association of mountain guides, rescuers and industrial mountaineers"	Mountaineering tops of Wohlthat massif and Orwin Mountains	East Antarctica: mountain Wohlthat massif and Orwin Mountains	07 November 2005 – 30 November 2005
036 03.02.2006	Vernadsky Institute of Geochemistry and Analytical Chemistry of the Russian Academy of Science	Marine geophysical and geological studies, including multi-beam echo-sounding depth measurement, high-frequency echo-sounding profiling, low-frequency pneumatic-acoustic profiling, gravimetry, dredging of seabed rock samples, sampling	Southern areas of the Bellingshausen and Amundsen Seas, areas of Peter I Island, Pine-Island Bay, underwater mountains of Mary-Bird Mountains	03 February 2006 – 01 May 2006
037 18.07.2006	Vernadsky Institute of Geochemistry and Analytical Chemistry of the Russian Academy of Science	Marine geophysical and geological studies, including multi-beam echo-sounding depth measurement and gravimetry	Southern Scotia Sea and northern Weddell Sea	20 July 2006 – 01 November 2006

038 20.11.2006	JSC “INTAARI”	Tourist tours in Antarctica using the DROMLAN air network (visits if foreign stations, Shirmacher Oasis, air tours)	Shirmacher Oasis, operation area of the international DROMLAN program	20 November 2006 – 01 March 2007
039 20.11.2006	SI AARI of Roshydromet	Drilling of additional 75 m of deep borehole 5G-1 at Vostok station	Central Antarctica	20 November 2006 – 31 March 2008
040 20.11.2006	FSUE “Hydrographic Enterprise” of the Federal Agency of Sea and River Fleet	Shipping of passengers onboard the passenger ship “Aleksey Maryshev”	Port Ushuaya (Argentina) – Falkland Islands – South Georgia Island – South Orkneys – Antarctic Peninsula – Port Ushuaya	20 November 2006 – 01 May 2008
041 20.11.2006	SI “Murmansk Administration for hydrometeorology and Environmental Monitoring” Росгидромета	Navigation in the Antarctic of the M/V “Professor Molchanov”	From 25° to 75° W and from 50° to 67° S	20 November 2006 - 05 April 2009
042 20.11.2006	Institute of Geochemistry and Analytical Chemistry of the Russian Academy of Science	Marine geo-morphological studies by the method of multi-beam echo-sounding in the Weddell and Scotia Seas and Drake Passage	Southern Drake Passage, West Antarctica, Southern Ocean	20 November 2006 – 30 January 2007

5. Monitoring

In compliance with Article 5, Annex 1, monitoring of environmental key parameters is being carried out for assessing and checking the impact of implemented activity. During the 51st RAE season, microbiological, lichenological and ornithological studies at the coastal stations were continued. An analysis of the data obtained allows us to assess the degree of anthropogenic environmental impact in these areas.

Activities of the seasonal environmental group in the 51st RAE on investigation of chemical and sanitary-bacteriological characteristics of the anthropogenic environmental impact in the areas of coastal Antarctica

The study targets of the seasonal environmental group of the 51st RAE were chemical and sanitary-bacteriological characteristics of the anthropogenic environmental impact in the coastal Antarctic areas.

The work aimed at characterizing the dynamics of the extent of pollution of natural objects at the Antarctic stations and in the adjoining areas and determining the conformity of the potable water quality at the Antarctic stations with the sanitary-epidemiological rules and standards.

The work performed included water and snow sampling from the freshwater bodies (lakes), their processing under the conditions of ship laboratory of the R/V “Akademik Fedorov”, preservation and delivery to St. Petersburg for a subsequent determination of the content of heavy metals and oil products; sampling of soil and vegetation at the stations and in the adjoining territories and delivery of the obtained samples in the freezing room of the R/V “Akademik Fedorov” to St. Petersburg for further differentiation of bacteria under the laboratory conditions; water sampling from the water distribution networks at the stations and chemical and microbiological analyses by the normalizing indicators (Fig.1).



a)



b)

Fig.1. Performance of the microbiological (a) and chemical (b) analysis of potable water samples in the laboratory of the R/V “Akademik Fedorov”

Determination of sanitary-chemical and bacteriological indicators using the aforementioned methodologies allows obtaining representative data on the state of water supply sources, and their comparison with the requirements of SanPiN 2.1.4.1074-01 makes it possible to determine the conformity of the centralized water supply systems with the current hygienic requirements to the water quality.

The issues of water quality of freshwater sources are possible to solve by efforts of the environmental group, which allows making a decision based on the normalized chemical and bacteriological indicators not only on the choice of the optimal potable water supply source but also regarding an assessment of the state of the communication lines for water supply of living space of the Antarctic stations.

The water supply sources at Novolazarevskaya and Progress stations and at the field base Druzhnaya-4 correspond by the water quality to the requirements and can be further used. Data of bacteriological water analyses from the distribution network of the second floor of the mess-room of Mirny Observatory indicate high microbial semination of the study substrate, which is connected with the unsatisfactory state of water supply communication lines. Presence of corrosion of the internal surface of the potable water container at Progress station points to the need of the corresponding treatment of the latter or its replacement.

The conclusions about the anthropogenic load in the territory of Antarctic stations and the adjoining areas as a result of household activity will be made after investigating snow and surface water samples for the levels of heavy metals and oil products and bacteriological studies of soil specimens.

ANNEX II. Conservation of Antarctic Flora and Fauna

6. Exchange of information on flora and fauna

In compliance with Article 6, Annex 2:

a) No takings of animals or plants by RAE were undertaken during the reporting period;

b) Collection of data on the numbers and biology of birds and mammals in the area of Mirny station and investigation of influence of the Antarctic stations on the populations of sea birds in order to work out recommendations for their protection for the study area during the wintering period of the 51st RAE were continued. In addition, study of interannual peculiarities of large-scale distribution of sea birds along the meridional Atlantic transect were continued in connection with the geographical zonality and oceanographic and food factors.

Russian nature protection and zoological investigations in the areas of the largest anthropogenic impact (Fildes Peninsula, King George Island) allowed assessing the influence of the Antarctic stations on bio-diversity of high vertebrates and the state of natural complexes in general. The obtained full-scale materials have supplemented the database and can serve as a basis for development of the area

management plan and elaboration of recommendations for sustainable development of activity of Antarctic stations and expeditions in the Fildes Peninsula area.

7. Quantity and character of permits related to flora and fauna

During the reporting period, no permits related to flora and fauna were requested and issued.

ANNEX III. Waste Disposal and Waste Management

8. Preparation of the Waste Management Plans

The garbage disposal at the stations and onboard ships is made in strict compliance with the existing instructions that temporarily replace the Waste Management Plans.

9. Introduction of the Waste Management Plans

The waste disposal at the RAE stations and onboard the RAE ships is realized in accordance with the adopted instructions.

In compliance with the Protocol, the methodology of waste disposal planning for the RAE stations and ships was developed.

10. Inventory of past activities

Creation of the database on the areas of past RAE activity is at the preparation stage. In accordance with the programs of nature protection investigations, inventory of the wastes of past and present activity is being constantly carried out at the stations. Such work was undertaken at Mirny, Progress, Bellingshausen, Novolazarevskaya and Vostok stations

In addition during the Mirny-Vostok traverse, inventory of facilities in direct proximity to the route was made (containers left, vehicles, structures and facilities at Pionerskaya, Vostok-1 and Komsomol'skaya stations) and a large volume of photo-materials was collected.

11. Waste disposal

In compliance with Article 3, Annex 3, the burnable refuse not removed from the Antarctic Treaty Area, is subjected to thermal treatment in the incinerators IN-50 (at Novolazarevskaya and Progress stations (Figure 2).

Data on burnable refuse in the incinerator of Novolazarevskaya station are presented in the table 2. From March to November, 1400 liters of diesel fuel was spent on waste burning.

Table 2 – Account of burnable refuse in the incinerator

No.	Month Waste	III 05	IV	V	VI	VII	VIII	IX	X	XI	XII	I 06	II	TOTAL
1.	Paper	15	20	20	15	30	15	15	15	15	18	15	30	323
2.	Wood	-	20	10	30	30	10	30	100	10	23	20	10	293
3.	Light plastic	10	15	10	10	15	-	15	10	8	10	10	5	118
4.	Food	100	120	150	130	120	120	130	100	180	150	450	600	2350
5.	Medical	5	15	5	7	5	5	7	7	4	8	5	5	88
6.	Textile	-	-	15	15	20	20	15	15	5	10	15	20	150



Fig.2 Incinerator module at Novolazarevskaya station

Installation of “Incinolet” at Novolazarevskaya station

During the season of the 50th RAE, electric toilets manufactured in the USA – “Incinolet” that were successfully used in the Antarctic expeditions of other countries, were brought to the station.

The equipment proved to be reliable in use when simple rules of using are followed. The time of the work cycle is about 40 min., the consumed power is 3.5 kW. Use of “Incinolets” for burning faeces significantly simplifies the technology of the required treatment of sewage water and makes it cheaper under the conditions of the oases. It is planned to install 8 “Incinolets” at Novolazarevskaya station.

During the 51st RAE, reconnaissance was carried out for choosing the site and installing treatment facilities for Novolazarevskaya station (52nd – 53rd RAE), which will allows us meeting to the maximum extent possible the requirements of the Protocol for the discharge of sewage waters in the oases.

Shipment of waste from the Antarctic

During the season of the 50th RAE, a complex of work was carried out for disposal of the open waste storage sites in the airfield area at Novolazarevskaya station. During the 51st RAE, wastes were shipped from the Antarctic Treaty Area to St. Petersburg. Nature protection measures during the reporting period were also carried out at the other stations of the Russian Antarctic expedition. The List of wastes shipped onboard the R/V “Akademik Fedorov” is given in the table 3.

A smaller quantity of wastes shipped from the wintering stations Mirny and Progress, as compared with Molodezhnaya and Novolazarevskaya, is explained by the fact that cargo operations are carried out using helicopters. Introducing a barge into operation at Progress station will allow increasing several times the volume of disposed wastes in this area.

The unbalanced fuel and lubricators present a large problem. The oil storage at the seasonal Molodezhnaya Base contains about 600 m³ of blue aviation gasoline and hundreds of barrels of unbalanced oil to be shipped from the Antarctic. About one hundred barrels with used oil at Bellingshausen station are to be the next.

Table 3 – Shipment of waste from the Antarctic stations during the season of the 51st RAE (December 2005-February 2006)

No.	Station, base	Weight of shipped waste (tons)	Waste characteristics
1	Mirny	16	Metal scrap, accumulators, waste of gas generation
2	Druzhnaya-4	5	Metal scrap, accumulators, tare, packing
3	Progress	14	Metal scrap, accumulators
4	Molodezhnaya	110	Metal scrap, accumulators, building structures.
5	Novolazarevskaya	106	Metal scrap, accumulators, waste of gas generation, tare, packing
	TOTAL	251	

At Mirny, Novolazarevskaya and Molodezhnaya stations there are containers with radio-isotopic thermal-electric generators and ionizing emission sources, which in compliance with the Antarctic Treaty must be obligatorily removed. Their shipment is planned for 2009.

ANNEX IV. Prevention of marine pollution

All Russian marine ships that have a Permit for activity in the Antarctic (including the research-expedition vessel “Akademik Fedorov” and the research vessel “Akademik Aleksander Karpinsky”) have shipboard garbage management plans, and are equipped with incinerators and treatment systems, corresponding to the requirements of MARPOL 73/78.

ANNEX V. Area protection and management

11. Revision of the Management Plan for Site of Special Scientific Interest No. 7 “Haswell Island”

The RAE has prepared and submitted a revised Management Plan for the Antarctic Specially Protected Area No. 127 “Haswell Island” for approval at the IX Session of the Committee for Environmental Protection of the XXIX Antarctic Treaty Consultative Meeting (Edinburgh, 2006).

This area was initially designated as the Site of Special Scientific Interest № 7 “Haswell Island” (SSSI No. 7) under Recommendation VIII-4 (1975) as proposed by the Soviet Union. In compliance with Resolution 1 (1998) Russia was made responsible for revision of the management plan for SSSI No. 7 “Haswell Island” (in compliance with Resolution V (1996) – Antarctic specially protected area No.127 “Haswell Island”, ASPA No. 127). During the Antarctic summer seasons 1999/2000 and 2003/2004, work on stock-taking and mapping of avi-fauna was performed and the boundaries of location of the nesting colony of Emperor penguins in the fast ice area adjoining Haswell Island were specified and taking this into account, the ASPA boundaries were delineated (Figure 3).

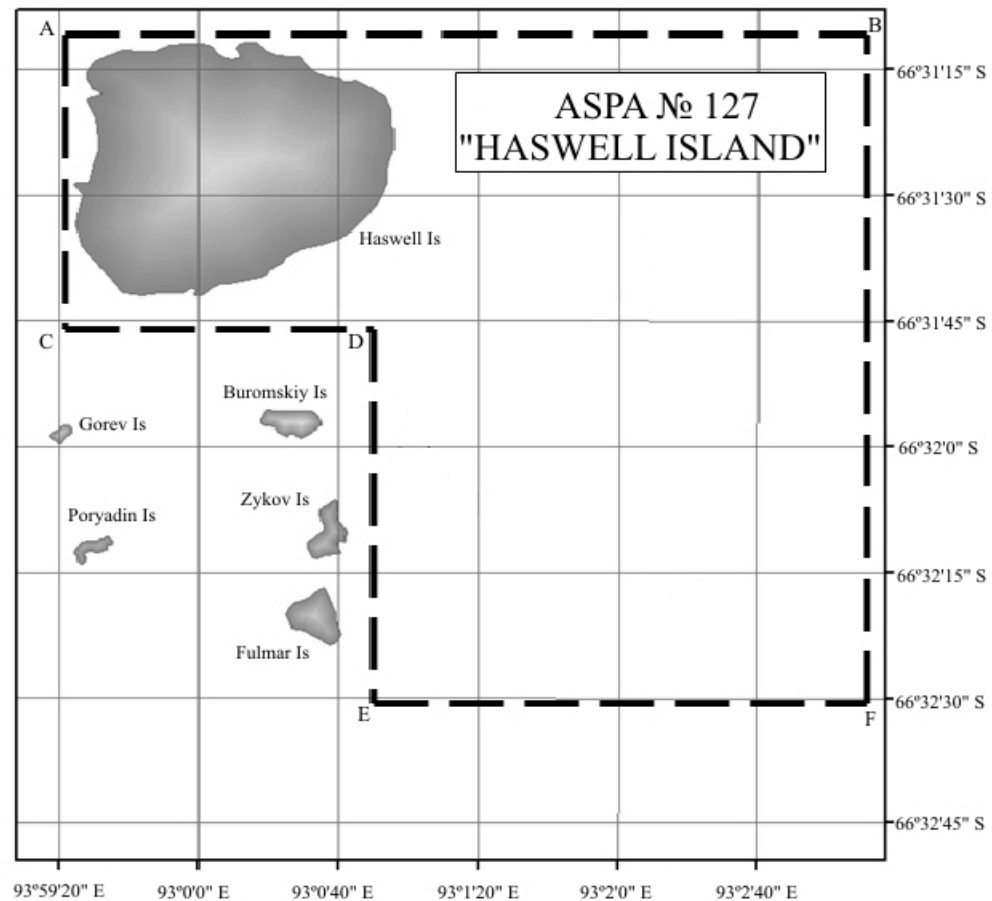


Fig.3. *Boundaries of ASPA No. 127 “Haswell Island”*

Current studies have testified that this region being the grounds for nesting of almost all bird species of East Antarctica is valuable for fundamental science and monitoring of man impact on the environment and confirmed the presence of initially determined values and their correspondence to Annex V to the Protocol on Environmental Protection.

As a result of discussion at IX CEP session, the revised plan was approved by the XXIX ATCM and was proposed as a Measure for approval to the Governments of the Antarctic Treaty Consultative Parties.

Examination of Historic Sites and Monuments

During the season of the 51st RAE, examination of the Historic Sites and Monuments was conducted for preparation of the List of Historic Sites and Monuments, which should be preserved or restored and for revealing new objects (graves, buildings, sculptures, etc.), presenting a historic interest for “Listing as a Historic Monument recorded and recommended by the proposing Government or Governments”. Examination of historical objects was made at Mirny, Progress, Novolazarevskaya and Molodezhnaya stations. It was impossible to visit Vostok station due to technical causes, but some photo-materials were collected enabling an assessment of historical objects of this station.



Fig.4. Cemetery on Buromsky Island. Historic Sites and Monuments No. 9 (HSM No. 9).

CONCLUSIONS

The Russian Federation implements its activity in the Antarctic taking into account the requirements of the Protocol on Environmental Protection to the Antarctic Treaty and the Russian legislature.

It is also important to note that for the last few years the number of critical comments of international inspection teams visiting Russian stations has significantly decreased.

The remaining problems include – removal of past activity wastes (radioactive sources being among them), installation of treatment facilities, incinerators, compactors and containers-accumulators of wastes, and prevention of spills of oil products. The work in this direction will also continue in the future.

The objective for the next few years will be improvement of the legislative and normative-legal bases with respect to the activity of Russia in the Antarctic.