



# Exploration 2007 - 2013

## Exploration Programs 2013

### Nautilus 2013 Exploration Program

#### Polymetallic Nodule Program in the Clarion Clipperton Zone (Central Pacific Ocean)



During 2013, Nautilus completed a successful polymetallic nodule exploration program in the Clarion Clipperton Zone (CCZ) of the Central Pacific Ocean. The work was carried out over TOML's wholly owned contract area granted by the International Seabed Authority (ISA).

The 54-day program conducted aboard the RV Mt Mitchell vessel successfully utilised multibeam sonar to map approximately 64,000 km<sup>2</sup> of bathymetry. Results defined the distribution of nickel, copper, cobalt and manganese rich polymetallic nodules therein.

This is an important milestone that has enabled the Company to focus future work to better defining the resource estimate and will enable the commencement of detailed engineering and environment

studies around mine planning (recovery, hoisting, and materials handling) and logistics.

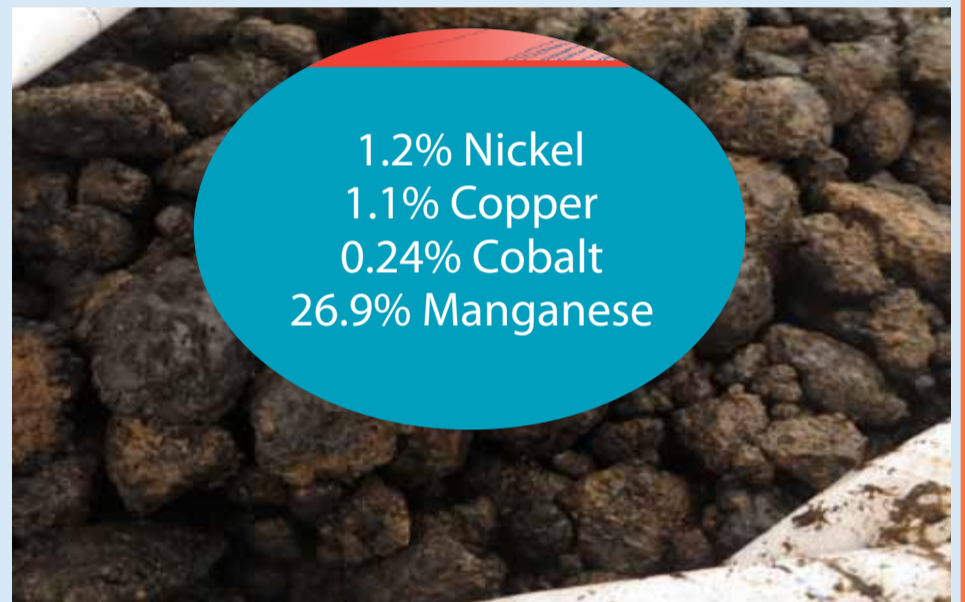
Nodule samples were also recovered using an epi-benthic sled. These samples are being used for characterisation studies and preliminary metallurgical test work. Sub-samples have been assayed.

TOML also undertook preliminary environmental observations at several sites in preparation for future studies.

Preliminary engineering studies and metallurgical review work is currently underway with tangible progress made towards defining pragmatic and cost effective materials handling solutions; as well as building the Company's understanding of marketing and processing options for the product.



#### Nautilus' previously defined NI 43-101 Mineral Resource



- ^Resource from ~two thirds of TOML tenement
- Average abundance of 9.4 wet kg/m<sup>2</sup> reported at  $\geq$  6 wet kg/m<sup>2</sup> abundance cut-off
- Assumed wet density for nodules of 2 g/cm<sup>3</sup>





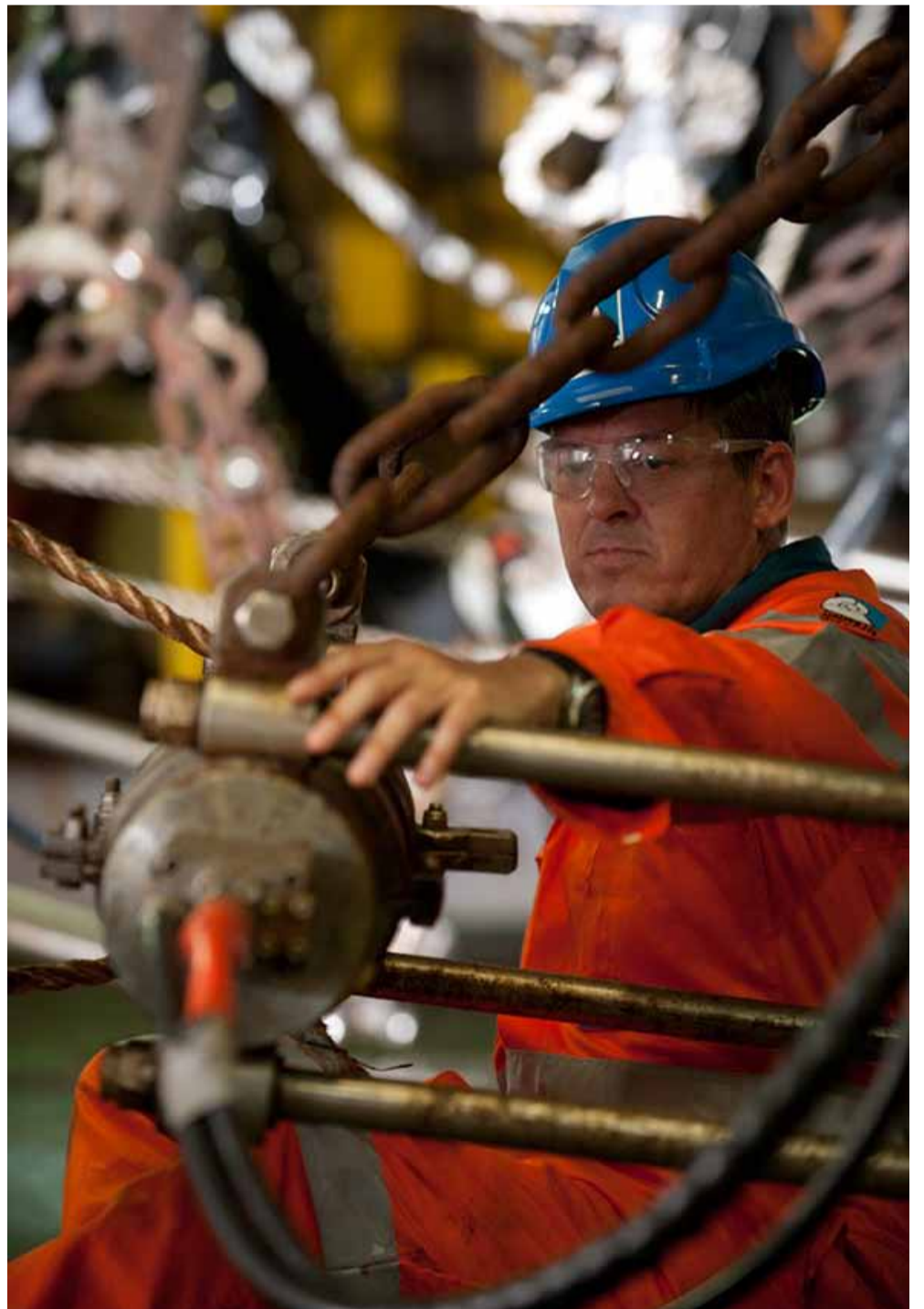
## Exploration Programs 2012

### Nautilus 2012 SMS Exploration Program



The focus of exploration activity in 2012 was a seismic data acquisition program on Nautilus Minerals' 100% owned exploration and mining licences in the Bismarck Sea of Papua New Guinea. This included the completion of 3D seismic surveys over Solwara 1 and Solwara 12. Data analysis and interpretation are ongoing.

In Tonga, Nautilus Minerals was able to announce the discovery of two (2), high grade, Seafloor Massive Sulphide ("SMS") systems on its 100% owned prospecting licenses. This followed an 18 day marine scientific research cruise between the 9<sup>th</sup> and 26<sup>th</sup> of September 2012.



Following the 3D seismic survey over Solwara 1 and Solwara 12; a program of multibeam bathymetry mapping and 2D seismic traverses commenced over other tenements in the Bismarck Sea. However, these surveys were terminated as a direct result of the PNG arbitration proceedings commencing at that time.

The samples were collected as a part of a broader research effort in the NE Lau Basin.

Grab samples from these new Tongan discoveries assayed up to 11.9% copper, 59.8% zinc, 28.6 g/t gold and 673 g/t silver.

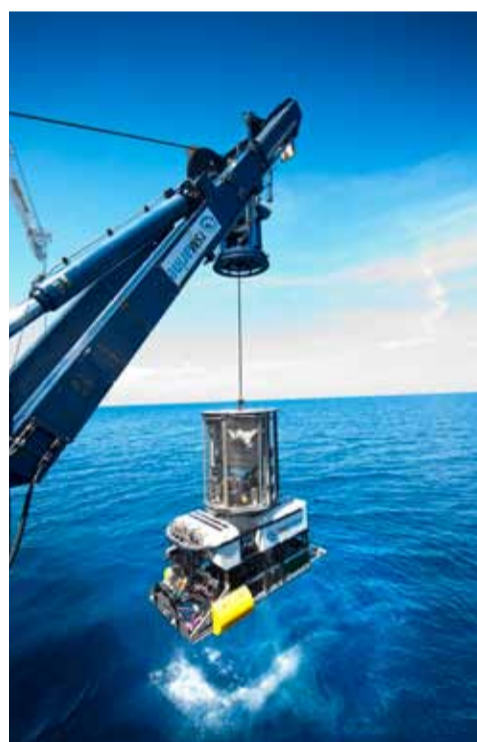


## Exploration Programs 2010-2011

### Nautilus 2010 and 2011 SMS Exploration Programs



During this drilling program, Nautilus completed a 99 hole diamond drilling project, for a total of 1475 metres. Drilling was focused within the area of the Mining Lease (ML154), which contains the Solwara 1 deposit and the Solwara 5 seafloor massive sulphide (SMS) discovery. A total of 71 holes was drilled in ML154, for 1147 metres. The remainder of the drilling was conducted in Exploration Lease 1374, which hosts Nautilus' Solwara 12 SMS discovery.



The Company's 2010/2011 focus was drilling SMS systems on its 100% owned exploration and mining licenses in the Bismarck Sea, of Papua New Guinea. This drilling campaign commenced in 2010 and was completed in May 2011.

This drilling campaign was the most extensive to date. It focused on improving our knowledge of the Solwara 1 resource, enabling a maiden resource estimate at Solwara 12, and some drilling at Solwara 5 to test the extents on mineralisation.



This successful exploration drilling campaign has enabled the company to increase the resource estimate at its Solwara 1 project, and to declare a maiden Inferred Resource at the nearby Solwara 12 deposit.

Results of the updated resource were as follows (November 25, 2011):

- Indicated Mineral Resource: 1,030kt @ 7.2% Cu, 5.0 g/t Au, 23 g/t Ag, 0.4 % Zn
- Inferred Mineral Resource: 1,540kt @ 8.1 % Cu, 6.4 g/t Au, 34 g/t Ag, 0.9% Zn

The 2011 Golders Resource update also saw the company's second resource declared for the Solwara 12 project (230K t), some 25km NE of Solwara 1, on EL1324



In addition to the resource estimates, the REM Etive drilling increased geotechnical understanding of Solwara 1.



to drill 70 millimetre core and wireline holes to a design specification depth of 80 metres below the seafloor. The drilling spread also collected geotechnical data to optimise equipment design and advance the production plan at Solwara 1.

Additional AUV programs were also completed on the Company's Tongan tenements where previous exploration campaigns have identified highly prospective geochemistry anomalies that warrant exploration.



The 2010/2011 drilling campaign was operated for Nautilus Minerals by TS Marine (a subsea oil and gas contractor) and Seafloor Geoservices (a drilling contractor), aboard the MV REM Etive.

Rovdrill 3, a second generation seafloor drilling system has the ability



## Exploration Programs 2009

### Nautilus Tongan SMS Exploration Program



Nautilus collaborated with marine scientific research organisations to increase the data coverage over Nautilus's Tongan holdings. The Australian National University ("ANU"), the Commonwealth Scientific and Industrial Research Organisation ("CSIRO") and Nautilus, were onboard the Marine National Facility research vessel Southern Surveyor in May and June 2009.

Phase 1 of the program focused on Nautilus' granted Tongan tenements in the NE Lau Basin. It was completed in Nuku' alofa, on May 18, 2009. This phase of the program discovered new mineralised areas with assay results from recovered samples showing high grade copper, gold, zinc and silver assays with highest assay results across all the samples tested of 12.6% Cu, 34.0 g/t Au, 60.9% Zn and 185 g/t Ag. To read more on the results from the first phase please click on the links provided for release on May 27, 2009 and June 11, 2009

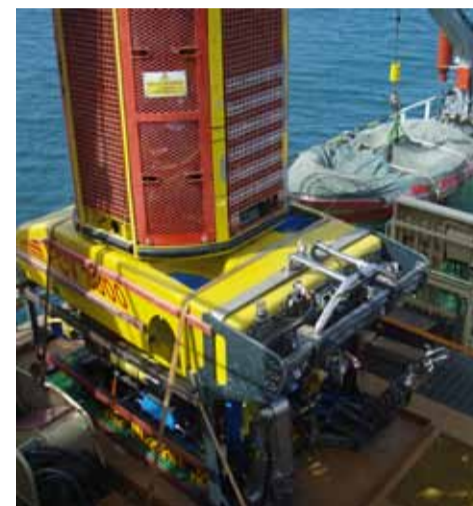
Phase two of this 2009 Tongan exploration program comprised of approximately 27 days of water column sampling, bathymetric surveying, and rock sampling. The phase defined 20 new water column anomalies.

### Nautilus PNG SMS Exploration Program

Nautilus executed an exploration program to expand Nautilus' Seafloor Massive Sulphide ("SMS") prospect inventory within its 100% owned Bismarck and Woodlark (Papua New Guinea) licenses. Fugro provided the vessel MV



Fugro Solstice, a 70.25 metre long, 2,397 tonne, DP2 (dynamically positioned), ROV support vessel for this campaign. The vessel, ROV, geophysical, geochemical and sampling instruments represent a further step forward in the advancement of Nautilus' SMS exploration techniques.



During 132 days of service, Fugro conducted target generation and target testing work. Seven highly prospective areas were identified during the first two weeks of its MV Fugro Solstice exploration campaign on Nautilus' wholly owned exploration licenses in the Bismarck Sea, Papua New Guinea ("PNG"). The areas were identified using enhanced target generation techniques and technology developed by Nautilus' exploration team over the last two years. Click here to read more. The areas were followed up later in 2009 and early 2010 when a remotely operated vehicle ("ROV") was used to test for seafloor massive sulphide ("SMS") systems. Five new SMS systems (Solwara 12, 13, 14, 16 and 18) were sampled. To see final assay results for Solwara 12 and 13 and final assay results for Solwara 14, 16 and 18 visit our our website. A further high grade discovery, Solwara 11i, an extension to an existing system (Solwara 11) was also made.

Prospect	Samples	Au g/t	Cu %	Zn %	Ag g/t
<sup>1,3</sup> Solwara 11i	2	1.6	0.7	38.7	112
<sup>2</sup> Solwara 12	10	13.7	7.0	22.6	425
<sup>2</sup> Solwara 13	7	4.7	9.1	30.8	546
<sup>3</sup> Solwara 14	14	3.3	1.4	19.2	97
<sup>3</sup> Solwara 16	6	2.8	2.1	18.6	105
<sup>3</sup> Solwara 18	2	0.19	0.3	19.6	110

<sup>1</sup> Results current as of June 20, 2007

<sup>2</sup> Results current as of July 11, 2007

<sup>3</sup> Results current as of July 11, 2007





## Exploration Programs 2008

### Overview

The 2008 exploration program focused on expanding the Nautilus project pipeline with a six month program in Tonga and Papua New Guinea. In Tonga, the principal focus was the Valu Fa ridge, a 300km zone containing a number of known high-grade mineralised systems. In PNG, the focus was on the prospective brownfield terrain in the vicinity of known systems at Solwara 1 and 4.

The 2008 operating vessel was MV Nor Sky.



### Scout Drilling Campaign



The ROV drill that Nautilus used for the world's first NI 43-101 resource estimate was redeployed in 2008 in PNG for a scout drilling program of 31 holes. Drilling was undertaken from MV Nor Sky vessel using a Perry Slingsby built T200 Remote Operated Vehicle ("ROV") mounted drill rig.



The Solwara 1 north zone containing high-grade base and precious metals was discovered. For all the results on the drilling completed please see press release dated May 13, 2009



### Tongan SMS Exploration



In 2008, Nautilus Minerals Tonga conducted the first deepwater commercial seafloor mineral resources exploration program in Tongan waters. Results from this exploration program in Tonga's exclusive economic zone were announced in February 2009. The work identified six new SMS systems (named Tahī Moana 1 through to Tahī Moana 6), which were mapped by Nautilus itself during MV Nor Sky program in mid December 2008. A further six previously known SMS systems were also characterised during this work program. Four new additional systems were discovered by Teck Resources under an exploration agreement with Nautilus. The combined programs were a great success and demonstrated the prospectivity of seafloor resources in Tonga.

Summary of MV Norsky 2008 sampling program in Tonga - Average Assay Results for Massive Sulphide and Semi-Massive Sulphide Samples by Prospect.

Summary of MV Norsky 2008 sampling program in Tonga - Average Assay Results for Massive Sulphide and Semi-Massive Sulphide Samples by Prospect

Prospect	Samples	Zn % <sup>1</sup>	Cu % <sup>1</sup>	Ag g/t	Au g/t
Tahī Moana 1	9	31.2	1.6	180	4.2
Tahī Moana 2	5	7.6	0.3	129	2.8
Tahī Moana 4	1	1.7	0.0	509	12.9
Tahī Moana 5	7	12.8	1.5	700	20.7
Tahī Moana 6	3	27.2	0.4	239	7.5
White Church	6	19.3	0.6	87	3.0
NVFR Site 2	4	23.7	0.7	128	5.7
NVFR Site 3	12	22.5	1.8	115	3.3
Mariner	3	24.0	3.7	80	3.8
Hine Hina 1	9	22.5	6.4	177	5.8
Tui Malila 1	5	21.8	0.9	84	4.1

<sup>1</sup> Average analyses from laboratory

<sup>2</sup> Semi-massive and massive sulphide material only Note - Tahī Moana 3 -- no sulphide sample collected (Results current as of February 18, 2008)



Nautilus Minerals' MV Nor Sky 2008 exploration program to Tonga was focused on rapid evaluation of SMS targets using a Remotely Operated Vehicle ("ROV"). Features indicative of SMS mineralisation were identified from real-time video observations and were confirmed by geological logging and analysis of recovered samples.

For further information on our 2008 Tonga Results please read press release from February 18, 2009.



## Exploration Programs 2008

### Discovery of Solwara 9 and 10

During the Nautilus Exploration campaign in PNG Nautilus identified two new prospects, Solwara 9 and 10. The assay results and techniques are discussed in September 4, 2008 and September 11, 2008 announcements. Highlights of the sample assays are shown

The combination of this Nautilus managed program with programs

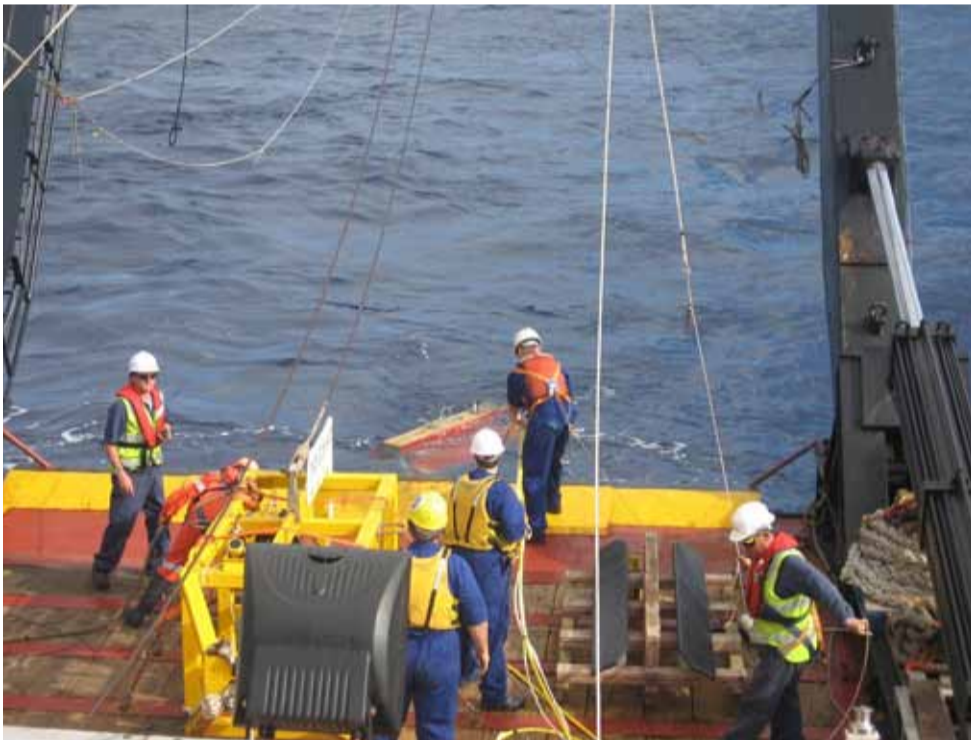
being managed by Teck ensured Nautilus' shareholders saw aggressive exploration being undertaken in 2008 over much of our then 154,000 km<sup>2</sup> of granted exploration titles. This program resulted in increasing our resource inventory and deepening our project pipeline.

Prospect	Samples	Cu %	Zn %	Pb %
<sup>1</sup> Solwar 9a	8	4.7	11.6	.08
<sup>1</sup> Solwara 9b	9	8.1	9.2	0.9
<sup>2</sup> Solwara 10	13	5.2	11.5	0.2

<sup>1</sup> Results current as of September 11, 2008

<sup>2</sup> Results current as of September 4, 2008

## Teck Resources Exploration Program



Teck Resources (Teck) conducted an exploration program on some of Nautilus' exploration tenements in PNG and Tonga in 2008.

### Phase 1

Teck completed the first phase of its \$US12 million 2008 exploration program May 7, 2008 with the demobilisation of MV Sepura in Port Moresby. This phase involved a 28-day bathymetric mapping program within the territorial waters of PNG that was designed to define targets for Phase 2 geochemical surveying and ROV based sampling.

### Phase 2

Teck commenced Phase 2 on May 15, 2008 with the departure from Singapore of the vessel DEA

Surveyor. This 150-day program involved geochemical surveying and sampling, and ROV based sampling in PNG and Tonga. Part of this program involved following up on targets defined by surveys completed by the MV Sepura in PNG in Phase 1.



### Results from the Teck program

During the Teck exploration campaign in Tonga, they discovered 4 new high-grade SMS system on Nautilus' prospecting licences in the Exclusive Economic Zone of

the Kingdom of Tonga. The results and techniques are discussed in the September 17, 2008 press release. Typical sample assays are shown below:

Location	Samples	Au g/t	Cu %	Zn %	Ag g/t
<sup>1</sup> Tonga	17	16.4	8.2	12.3	184

<sup>1</sup> Results current as of September 17, 2008



### Discovery of Solwara 11 by Teck in PNG

During the Teck exploration campaign in PNG, they discovered a new SMS system, Solwara 11. The system is located more than 300km away from the nearest known SMS system and it is a potential lead into

a new mineralised district. The results and techniques are discussed in the December 12, 2008 press release. Average results of the samples taken from Solwara 11 are shown below:

Location	Au g/t	Cu %	Zn %	Ag g/t
<sup>1</sup> PNG	1.1	1.7	9.4	213.3

<sup>1</sup> Results current as of September 17, 2008



## Exploration Programs 2007

### Overview



The majority of work in 2007 was undertaken in the territorial waters of Papua New Guinea (PNG) located in the South West Pacific Ocean.

In March 2007, Nautilus launched the world's largest commercial exploration program for high-grade SMS systems. This program involved technical input from representatives seconded to Nautilus from Teck Resources and included extensive environmental studies, resource definition drilling, sampling and related metallurgical and production development studies on Solwara 1.

The program was executed with a budget of approximately US\$23 million with zero lost time safety incidents. Canyon Offshore Inc. (Canyon) were the lead contractor for the Remote Operated Vehicle (ROV) and other deck equipment. The Nautilus chartered vessel was MV Wave Mercury (March 21, 2007).

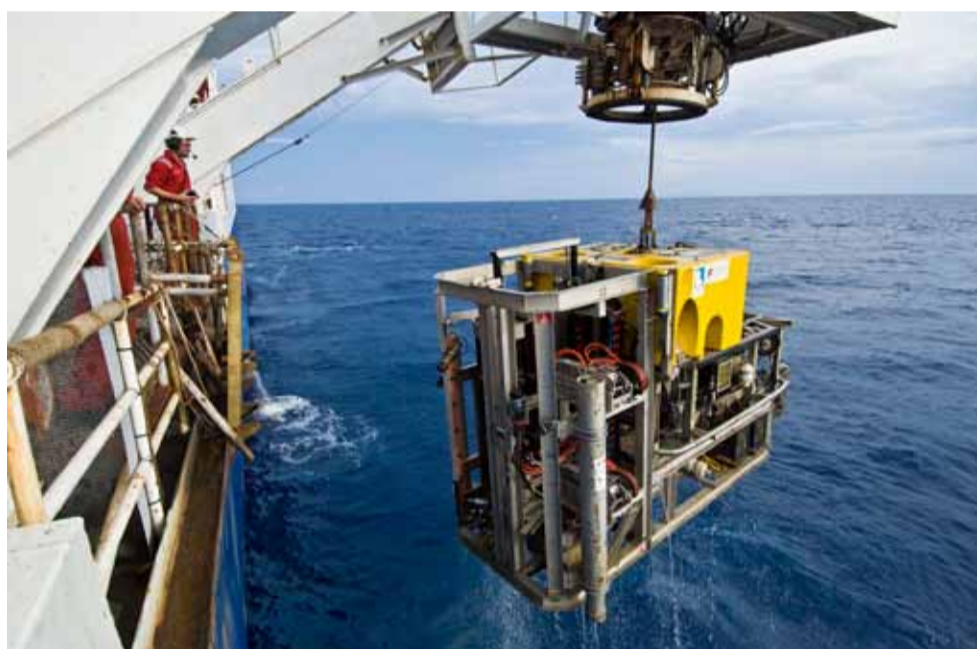


### Applying New Technologies

During 2007 Nautilus continued to refine and develop its SMS exploration strategy, trialing and evaluating several techniques and tools for this emerging industry.

### Remote Operated Vehicle (ROV) Drill

A major 111-hole core drilling program was undertaken using new "state of the art" ROV mounted drill rigs that were deployed on the seafloor. The ROV drill used was capable of drilling up to 19 metres into the seafloor.



### Discovery of Solwara 5,6,7 and 8

An associated program on the 68 metre Aquila involved 66 days of geophysical target generation over a number of structural zones. This program resulted in the generation of targets which were then tested as part of the Wave Mercury Program. This work resulted in the discovery of Solwara 5, 6, 7 and 8, the world's first seafloor resource declarations under Canada's NI 43-101 regulations, and the world's first EIS for an SMS development. The assay results and techniques are discussed in the June 20, 2007 and July 11, 2007 announcements. Highlights of the sample assays are shown below.

Prospect	Samples	Au g/t	Cu %	Zn %	Ag g/t
<sup>1</sup> Solwara 5	13	17.37	6.72	7.78	273
<sup>1</sup> Solwara 6	4	18.10	14.24	18.66	217
<sup>1</sup> Solwara 7	7	17.15	5.87	24.08	404
<sup>2</sup> Solwara 8	12	16.90	6.10	32.50	328

<sup>1</sup> Results current as of June 20, 2007

<sup>2</sup> Results current as of July 11, 2007



### Deep Ocean Electromagnetic Exploration

Nautilus partnered with Teck Resources and the Vancouver-based Ocean Floor Geophysics Inc. to develop, deploy and test a new deep-ocean Electromagnetic (EM) technology. With this EM technique in the exploration toolbox, Nautilus will be able to better target future drilling, allowing Nautilus to test future systems more rapidly and cost effectively.

### World's first NI 43-101 Resource Statement



A successful exploration year culminated in Nautilus releasing the world's first NI 43-101 compliant resource estimate for a portion of Solwara 1. Results were as follows (December 20, 2007):

- Indicated Mineral Resource: 870 kt @ 6.8% Cu, 4.8 g/t Au, 23 g/t Ag, 0.4% Zn.

- Inferred Mineral Resource: 1,300 kt @ 7.5% Cu, 7.2 g/t Au, 37 g/t Ag, 0.8% Zn.

The independent resource estimate was completed by Golder Associates Pty Ltd.

The area drilled in 2007 was constrained by the time available for drilling as a result of the vessel contract term. The depth limitation of the ROV drill unit meant that over 40% of the drill holes ended in high grade mineralisation. As a result, it was not possible to pursue the western extensions of the system, nor test a number of interesting EM anomalies in the vicinity.