



**FEBRUARY 22, 2015**

**PALAU – MARINES + ARMY AIR FORCE + NAVY  
Mission XVII (P-MAN-XVII)  
13 March to 15 April 2015**

**Non-Confidential Mission Proposal**

**SUBJECT:** Working Mission Outline Interfacing the teams from BPP P-MAN XVII, Scripps Institution of Oceanography (SIO), University of Delaware (UDEL), Stockbridge High School Advanced Robotics program (SHS), San Diego State University (SDSU) and Pursuit Productions/Traveling Picture Show

**I. INTRODUCTION**

The proposed P-MAN XVII mission dates are 13 March to 15 April 2015. Because of the partnerships working together on this mission, this proposal is intended as a joint mission outline for your review concerning the activities of the BentProp Project, Scripps Institution of Oceanography, University of Delaware, San Diego State University, Stockbridge High School and Pursuit Productions.

The P-MAN XVII mission is primarily centered around the continuation and expansion of the BentProp partnership with SIO and UDEL in our ongoing searches for Americans Missing In Action (MIAs) and missing Prisoners of War (POWs), lost during WWII on or within the barrier reef of the Republic of Palau. In total, at least nine separate air campaigns and one major land campaign were conducted over or on Palau by the US Navy, US Army Air Corps (so-called before the 1947 creation of the US Air Force), US Marine Corps and US Army. From March 1944 to September 1945, the Palauan people were trapped in between these two warring nations and so, to the Palauan people, especially the elders, WWII lasted nineteen brutal months. During the war, only Peleliu and Angaur were captured by US forces from the Imperial Japanese military. Therefore, locations of all Americans, primarily but not limited to airmen, lost beyond these two islands remain dependent on after action reports of fellow surviving air crews (who were busy saving their own lives), Japanese records (most of which have never been located and many of which were destroyed by war's end), sightings and recollections by Palauan elders, American and Japanese veterans (many who have now passed away) and Palauan hunters and fishermen who may accidentally come across crash sites.

**PUBLIC INFORMATION**

The BentProp Project searches in all these categories for evidence of our Missing Military and utilizes our gathered knowledge in field searches for these MIAs and missing POWs.

## II. TEAMS and TECHNOLOGIES

### **P-MAN XVII TEAM: Name, state of residence, day job, dates in Palau (All are qualified scuba divers except Dr. Jolie Liston)**

- Pat Scannon, MD, PhD (CA):CSO (XOMA), Team Leader, Records, Medical Officer (13MAR – 15APR)
- Flip Colmer, LCDR, USN(ret) (MI), Delta Airlines Command Pilot: Co-MISSION COORDINATOR, Photographer, C-Chair Ceremonies, Back-up Water Safety Officer, Back-up IT Interface (20MAR - 16APR)
- Derek Abbey, Major, USMC (Ret) (CA), Co-MISSION COORDINATOR, Land Safety Officer Back-up, Photographer, Co-Chair Ceremonies, SDSU Student Coordinator (19MAR – 05APR)
- Dan O'Brien (CA), BentProp Project: Navigation, Photographer/Videographer, IT Interface, Financial Officer, Records Back-up (13MAR-15APR)
- Jennifer Powers (CA), Alpaca Rancher, Logistics Officer, Photographer, Records Back-up (13MAR-15APR)
- Bill Belcher, PhD (HI), DPAA: Forensic Archeologist/Anthropologist POW Module, and Water Modules, Land Safety Officer/Cleared Ground Coordinator, Records Back-up (15MAR- 15APR)
- Val Thal (TN), FedEx Command Pilot: Records, Photographer, Communications Logistics Back-up (18MAR-08APR)
- Jolie Liston, PhD (HI): Archeologist , POW Module, Records Back-up (22Mar-30MAR)
- Joe Maldangesang, (Ngerchelung, PALAU), Conservation Officer, Master Guide (year round!):
- New Team Member: Blake Boteler (TX), USG, Photography, Records, Water Safety Officer Back-up (13MAR-30MAR)
- New Team Member: Mickaila Johnston, MD, LCDR (UMO) MC, USN, Naval Medical and Dive Officer, Team Water Management and Records, Water Safety Officer (13MAR-08APR)
- New Team Member: Dan Friedkin (TX): Aviation Expert, Photography, Records Back-up (14MAR-01APR)

### **Scripps Institution of Oceanography (SIO) Team (All from CA) 13MAR – 10APR):**

- Eric Terrill, Team leader (15Mar-04APR)
- Evan Walsh
- Shannon Scott
- Myles Syverud
- Andy Nager
- Paul Reuter
- Travis Shramek
- Technologies: 2- Autonomous Underwater Vehicles (AUVs) with altimeter, visual, side scan sonar sensors and buoy system; 1- boat-mounted Teledyne multi-beam dual frequency sonar imager 2- Multi-rotor Unmanned Aerial Vehicles (UAVs) with visual and infrared cameras; 1-hand held dive sonar device (Navigator); various UW cameras, lights and computer systems; 1-LIDAR land scanner

### **University of Delaware Oceanography (UDEL) Team (15MAR –105APR):**

- Mark Moline (all DE), Team Leader(15 MAR-10APR)
- Ian Robbins
- Hunter Brown
- Megan Cimeno
- Technologies: 1- Autonomous Underwater Vehicle (AUV) with altimeter, visual, and side scan sonar sensors; 1- Boat-mounted Remote Operated Vehicle (ROV) with visual HD cameras and acoustic imager with manipulator attachments; ; 1-hand held dive sonar device (Navigator); 1- Edgetech dual frequency side scan/multibeam system; various UW cameras, lights and computer systems

### **San Diego State University Undergraduate Research and BentProp project Collaboration Team (28MAR-5APR)**

- Jade Dadiz
- Olivia Chavez
- Jacob Jiron

### **Stockbridge High School Advanced Underwater Robotics Team (all MI):** (NOTE: This team will work semi-autonomously with BPP)

- Bob Richards : High School Robotics Teacher and Director
- Josh Nichols: 5<sup>th</sup> Grade Teacher
- Lori Zemke: STEM Teacher
- Chloe Hypes: Student Team Leader
- Jeremy Spink: Student Assistant. Team. Leader and UAS (Hexacopter)

#### Marketing Team:

- Maddy Armstrong: Student Marketing Leader
- Jamie Cool
- Becca Ensign
- Jamie Krusinski

#### Engineering Team:

- Mitch Lilley: Student Engineering Leader
- Tyler Heeney
- Philip McCleer
- Brandon Ostrander
- Technologies: 2- Open ROVs, version 2.6;1-Student-built ROV based on Open ROV control system;2- Unmanned Aerial Vehicles (1-student built);1-remote camera system

### **Pursuit Productions (PP)**

- Lauren Whitesell
- Adam Zimmer
- Field Crew of 4

### **III. P-MAN XVII PROPOSAL:**

This proposed mission is specifically an extension of underwater searches from P-MAN XV and P-MAN XVI for missing aviators throughout Palau and land searches from P-MAN XI and

P-MAN XVI for missing POWs in Ngatpang State. Over the past year, the BentProp Project has continued its partnership with Dr. Eric Terrill and his team at the Scripps Institution for Oceanography (SIO) and Dr. Mark Moline and his team at the University of Delaware (UDEL). In addition, we have continued to work with the Stockbridge High School (SHS) Advanced Robotics Team and this year, team member, Derek Abbey, is mentoring three undergraduate social science students from San Diego State University. The documentary production company, Pursuit Productions will also be returning to complete their field filming from last year. This year, the various partners will be in Palau with overlapping inclusive schedules as follows:

- BentProp Project P-MAN XVII Team: 13MAR-15APR
- SIO: 13MAR-10APR
- UDEL: 15MAR-10APR
- SDSU: 28MAR-05APR
- SHS: 31MAR-12 Apr
- PP: 14MAR- 1APR.

The result of these overlapping partnerships is that the P-MAN XVII team has a unique set of underwater, and land, search collaborations with an unprecedented capability to explore Palau's ocean floors and jungles. Since completing P-MAN XVI last April, we have continued to conduct extensive research at the National Archives and Records Administration (NARA, College Park, MD, USA) and other archival sources, as well as interviews with US WWII veterans particularly in reference to 1) a B-24 reportedly shot down SW of Koror (US and Japanese sources), 2) both old and new reports of multiple American aircraft crashing in the waters around Malakal Harbor (US and Japanese sources) and Ngeruktabel ("Western Lagoon") and 3) the missing POWs executed in Ngatpang State during WWII by Japanese military.

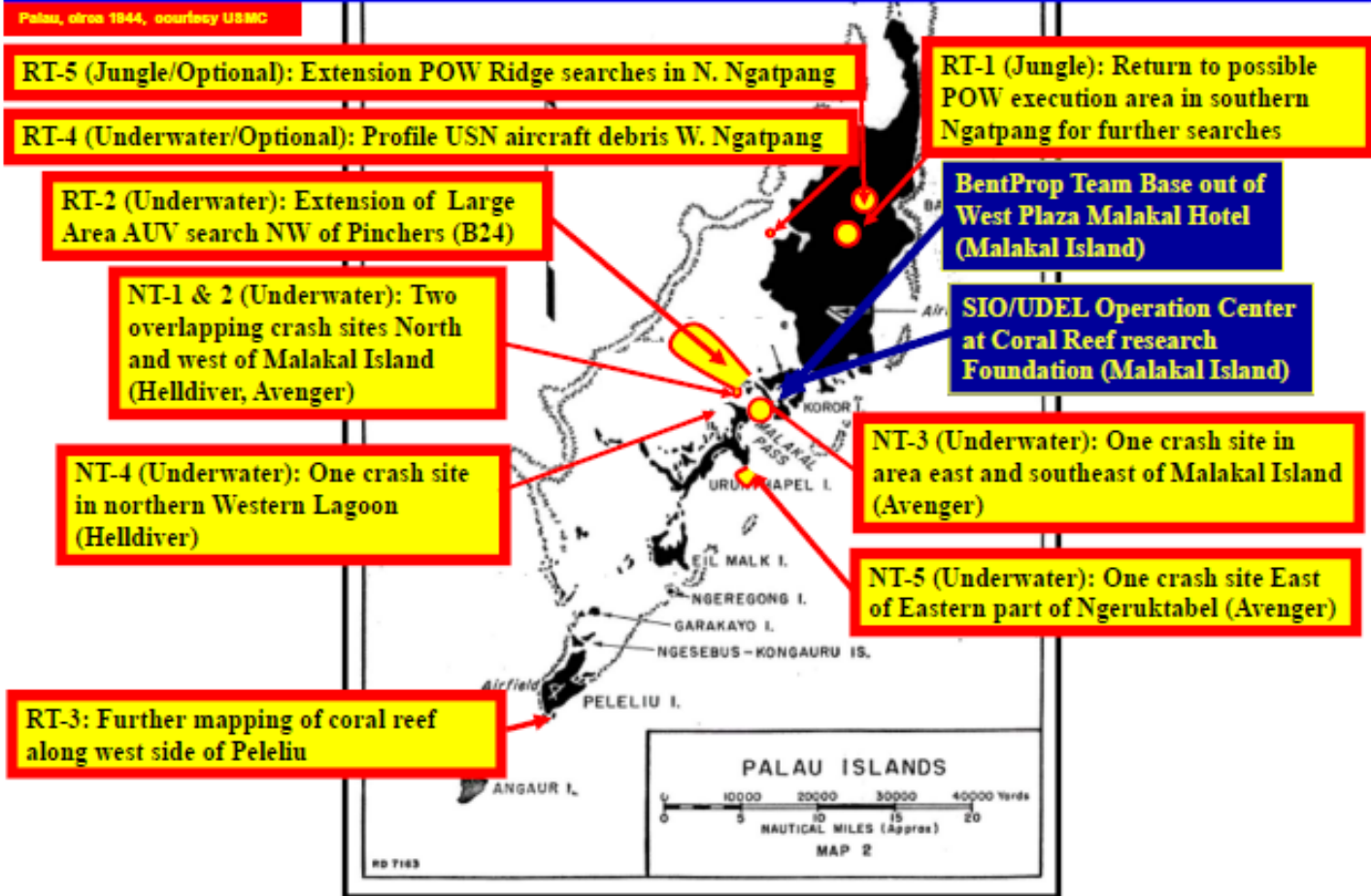
The map and the explanations below show the key targets we are currently proposing to investigate during P-MAN XVII. This proposed plan includes five New Water Targets (NT1 to -5) (prioritized in September 2014 down from 20 targets) and two Return Water Targets (RT-2 to -3) and one Return Land target (RT-1). Two additional targets, RT-4 and RT-5, are optional and time and resource dependent. Because the SIO/UDEL teams are in country the first three weeks, the water part of the mission is front-end loaded with heavy emphasis on completing the water targets during the first three weeks. Other sites may be investigated, with appropriate approvals, if the team becomes aware of new data or information during our stay. The P-MAN XVII team looks forward to continuing its cooperation and partnership with the Palau Bureau of Arts and Culture (BAC) and the Historical Preservation Office (HPO), as well as the Office of the President, in support of our mission. The P-MAN XVII team will communicate all findings to BAC/HPO and, through BAC, to appropriate local authorities as part of the search requirements.

As in the prior missions, upon our arrival in Palau, we will schedule and make a courtesy call soon after arrival to the Palau BAC/HPO to discuss our proposed plans. We also will make courtesy calls to additional Palauan officials, including President Remengesau and other national officials, governors, chiefs, and other individuals. The P-MAN XVII team will provide, per its protocol, a preliminary confidential summary of its findings, before leaving Palau, to BAC/HPO, the OOP and the US Embassy in Palau and, in the United States, to agencies such as JPAC/DPMO and Navy Historical and Heritage Center (NHHC).

As with prior missions, the P-MAN XVII proposal incorporates plans *solely* for the continuation of our search for American sites of possible MIAs, and for preliminary evidence at those sites

which suggest that American MIAs and/or POWs remains may be present. In an ongoing agreement with BAC/HPO, we intend to stay in regular contact with the Director BAC during our mission. We will not remove, or permit or endorse anyone to remove for us, any artifacts or remains from such sites, unless specifically directed and approved by BAC/HPO (and in concurrence with JPAC) to do so. As always, we intend to obtain GPS coordinates, to map and to photograph any new findings we make. Should we discover evidence of human remains, we will immediately notify BAC/HPO and JPAC and cooperate in any follow-up actions as directed.

## BentProp PROPOSED Primary List PMAN-XVII Palau Mission By Location: RT = Return Targets NT= New Targets



## IV. Overall BentProp Project P-MAN XVII MISSION OUTLINE:

### A. P-MAN XVII/SIO/UDEL Teams Working Global Schedule

- **Week starting 15MAR:**
  - a. Initiate courtesy calls, with prior notifications as appropriate, with the President, BAC/HPO, US Ambassador, other key officials in National Capitol, Civic Action Team
  - b. Complete permitting processes with BAC/HPO, OOP, State offices and other agencies as appropriate
  - c. Check all equipment and gear
  - d. Initiate search plans
- **Week starting 22MAR:** execute search plans as appropriate
- **Week starting 29MAR:** execute search plans as appropriate
- **Week starting 5April:** wrap up search efforts for P-MANXVII Team; SIO and UDEL pack up
- **Week starting 12 April:** P-MAN XVII team complete preliminary summaries for BAC/HPO/OOP/JPAC and pack up

### B. Team Headquarters

- **P-MAN XVII:** Operation Center at West Plaza Malakal Hotel, Malakal
- **SIO/UDEL:** Operation Center at Pat and Lori Colin's Coral Reef Research Foundation, Malakal

### C. TARGET 1 (NT-1, NT-2, NT-3): MALAKAL HARBOR, WATER MODULE

New and extensions of ocean floor searches in areas around Malakal Island in Malakal Harbor for three USN missing aircraft and aircrews: two TBM1C Avengers (three man crew) and one SB2C Helldiver (two man crew).

One overarching zone for NT-1 and NT-2 within Malakal Harbor has been identified, based on detailed review of mission photographs, prior AUV/echo-scan data and prior field findings around Malakal and Ngerchaol. This zone will be interrogated in three ways, depending on ocean floor. Two or three AUVs will be assigned to this priority for the deep water part, each operated ~8 hours/day by SIO/UDEL staff with support as appropriate from P-MANXVII members. Certain areas will be interrogated by boat mounted SSS/multi-beam systems (e.g., shorelines along western Malakal and southeastern Ngerchaol) and/or scuba searches, as appropriate. Timely review during the mission of the resultant sensor data from these searches will be presented to the joint search team and prioritized decisions will be made as to which non-natural targets get further interrogated by ROV from UDEL and/or scuba search. Scuba diving teams will be selected based on demand and availability from SIO, UDEL and the P-MANXVII teams, who will have access, as appropriate, to hand held sonar and metal detection devices to assist, especially in low visibility settings (expected in this zone). Estimated time: ~ 4-5 days.

Estimated time: ~ 3 days.



**SB2C Helldiver,  
Crew of Two**

**US Navy WWII**

**Courtesy NARA**



**TBM1C Avenger**

**Crew of Three**

**Courtesy NARA**

**D. TARGET 2 (NT-4): “WESTERN LAGOON” (Area just south of northwest arm of Ngeruktabel), WATER SEARCH**

Extension of ocean floor searches in area just south of SW Ngeruktabel for a missing USN SB2C Helldiver (aircrew of two)

The Air Action Report which detailed this loss is moderately helpful but does not specify where in the Western Lagoon area this Helldiver crashed due in large part to combat conditions. Accordingly, four independent search zones have been identified based on detailed review of available mission photographs, prior AUV/echo-scan data and prior field findings around the Western Lagoon area. These four small zones inside Western Lagoon will be interrogated by a combination of AUV, boat-mounted SSS/multi-beam systems and scuba diving, as appropriate. Generally the ocean floor in this area has minimal coral heads although the floor is often covered by fine flocculent organic debris/sediment, compounded by periodic nepheloid layers obscuring visual fields. Estimated time: ~ 3 days.

**E. TARGET 3 (RT-2): AREA WEST OF ARAKABESAN, WATER SEARCH**

Extension of ocean floor searches in area west of Arakabesan for missing USAAF B24J (up to 10 man aircrew)



**B-24J Liberator**

**USAAF, WWII**

**Courtesy USASM**

This is the continuation of a decade-long search for a B24 lost 25AUG44 during a bomb mission over Koror. BentProp has searched numerous land and ocean zones without success to date. Last year, Dr. Eric Terrill began working with faculty from the University of California San Diego (UCSD), to determine, based on known flight data from after action reports, if a Bayesian statistical approach might provide additional insight. This approach has the advantage that as zones are eliminated by negative field work, the analysis can refine the search zone. During P-MAN XVI, large areas were searched without success. Based on all historical data including wind and currents, and last year's field data, further Bayesian analysis of this B24's projected final path now suggests a search area almost due west from Arakabesan. This rectangular search area overlaps with smaller areas already surveyed by SIO and UDEL AUVs. This search will use 2-3 AUVs with supportive divers, as appropriate. Estimated time: ~ 5-7 days. This will be the largest single water search area planned for P-MAN XVII and will be fit in between searches for NT 1-4.

**F. TARGET 5 (NT-5): AREA ALONG SE CORNER OF EASTERN NGERUKTABEL, WATER SEARCH**

Extension of preliminary AUV ocean floor search during P-MAN XVI for a one missing USN TBM1C Avenger (two missing of three man aircrew)

The loss of this Avenger is described in one of the more detailed Air Action Reports available as lying inside the outer barrier reef east of Ngeruktabel. One crew member was picked up by a USN SOC float plane. During the last few days of P-MAN XVI, preliminary AUV work was conducted along the easternmost aspect of Ngeruktabel, without success. Visibility was excellent in this area, providing wide fields of vision on scuba divers. AUVs, boat-mounted multi-spectral imagers and scuba searches will be used, as appropriate, to extend the preliminary search began in 2014. Estimated time: ~ 2-3 days. The goal here will be to "fill in the gaps" in an attempt to locate this missing aircraft.

**G. TARGET 5 (RT-3): CORAL REEF OFF THE WEST SIDE OF PELELIU**

Repeat survey using improved boat-mounted imaging technologies along the outer edge of the coral reef off of White beach and Orange Beach to find and characterize war debris, including landing craft, from Operation STALEMATE II invasion

Although formal records of the USMC amphibious landings onto Orange Beach and White Beach off western Peleliu are sketchy, several landing craft are suspected of being hit by enemy mortar and artillery fire just west of the outer reef line off these beaches. This area is a diveable shelf for a few hundred meters westward from the reef, which then drops off dramatically into depths approaching 1000 meters. One LTV-A4 landing craft has been identified on prior BentProp missions (P-MAN XIII-b and P-MAN XV); however, preliminary AUV and echoscope scans during P-MAN XV and P-MAN XVI did not locate additional landing craft, in part because of the echoscope's inability to differentiate the rough coral floor from man-made objects.

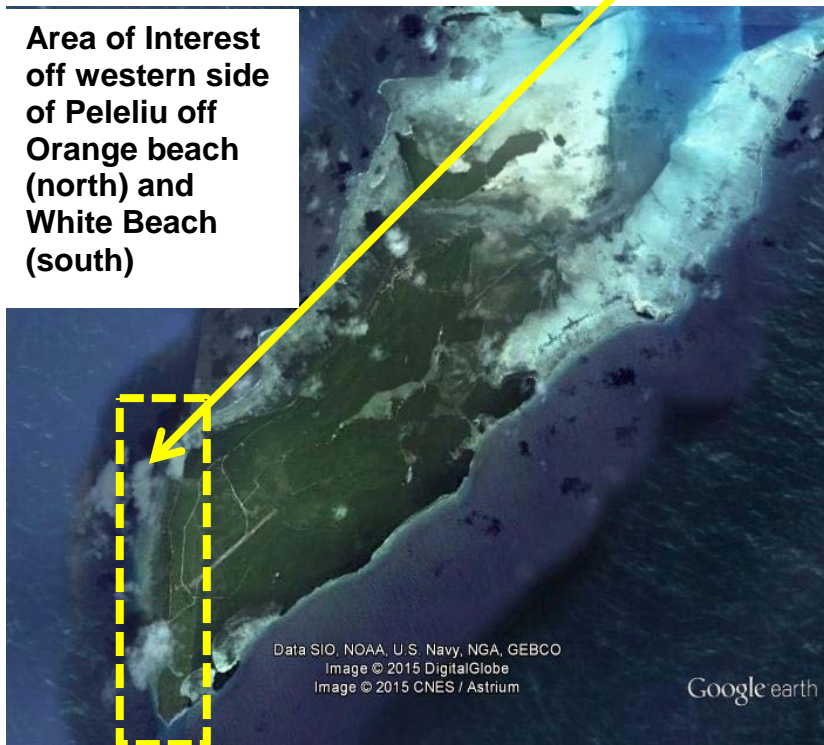
During P-MAN XVII, the SIO team will utilize improved boat-mounted multi-beam imaging instrumentation in an attempt to improve resolution of and on the ocean floor. Estimated time: ~ 2 days. Further study of this area then depend on findings.





Large number of landing craft under heavy enemy bombardment during amphibious invasion of Off West Side of Peleliu, 15 September 1944 (seen from north)

Wikipedia



Area of Interest off western side of Peleliu off Orange beach (north) and White Beach (south)

#### H. TARGET 6 (RT-1): CONTINUING INVESTIGATION OF AREAS A AND B IN SOUTHERN NGATPANG

Under direction of Bill Belcher and Jolie Liston, Areas A and B will undergo additional characterization to extend the search for one or more burial sites for American POWs executed on Babeldaob.

During P-MAN XVI, archeologists, Bill Belcher and Jolie Liston investigated 14 surface depressions in Area A (8) and Area B (6) by use of test trenches after Clear Ground cleared the areas as safe from unexploded ordnance (see P-MAN XVI Final Report). Field analysis of the 14 trenches suggested additional work in this area is warranted.

With the meaningful historical evidence pointing to these two areas as possible execution/burial sites (See P-MAN XII Final Report) and preliminary evidence of prior digging activities, the archeological approach for this POW search was rethought over the past year. The possibility exists that more than one burial area might exist in these two areas because of the reasonable possibility that multiple executions occurred in this area between July and December 1944.

Accordingly, we plan to file for a formal separate archeological proposal will be made to BAC/HPO and Palau Environmental Project Agency to continue work in these areas.

## **I. OPTIONAL TARGETS (RT-4 and RT-5): Extensions of Prior Searches**

**RT-4:** In 2002, during P-MAN IV we identified USN aircraft debris on and around a coral head west of the mouth of Ngatpang Bay (see P-MAN IV Final Report). We have recently reviewed the limited amount of photographic imagery of the debris (e.g. a starboard elevator, a cylinder head and part of a fuselage) and concluded this area is worth re-review to definitively determine the type and narrow the possibilities on MIA(s). The plan would be to survey the area by scuba diving and, based on findings, follow up during a later mission or pursue further on this mission. Team aviation experts are on call in the US to aid in identification, as needed.

**RT-5:** During P-MAN XVI, we searched ridge areas south of the East-West Road in northern Ngatpang and found considerable amounts of Japanese materiel. However, we do not believe we have located the ridge described to us in detail by a late Palauan Chief as an execution site for many POWs. Time permitting, we will hike to the area, with Dr. Jolie Liston, to make a determination if it is worth further study.

## **J. Stockbridge High School Robotics Team Time-Line ROV Project 2014-2015 During P-MANXVII,**

The SHS Robotics Team (30 March – 12 April 2015) will utilize their technology platforms to interrogate sites selected by the BentProp Project Team. The specific tasks given to the SHS students will result from targets selected by the BentProp Team during the two weeks before the SHS students arrive. At the present time, most of the anticipated targets will be in and around Malakal harbor. On Work Days, as itemized in the calendar below, a BentProp team member will accompany the SHS team to provide guidance. In addition the SHS students have identified non-P-MAN XVII maritime tasks which will occupy part of their time in Palau.

### **Revised itinerary - all activities are subject to change**

**March 30, Mon:** Depart Detroit Metro through Narita to Palau

**March 31, Tues:** Travel - Arrive Palau (0105 AM 4/1)

**April 01, Wed:** Setup, Test Dive, and Acclimation.

Evening in-briefing and status update for BentProp.

**April 02, Thurs:** Work Day

**April 03, Fri:** Work day

**April 04, Sat:** Work day

**April 05, Sun:** Group Tour

**April 06, Mon:** Work Day – School (Split team 5/5)

**April 07, Tues:** Work Day – School (Split team 5/5)  
**April 08, Wed:** Group Tour  
**April 09, Thurs:** Work Day – School (Split team 5/5)  
**April 10, Friday:** Work Day – School (Split team 5/5)  
**April 11, Sat.:** No diving, Group Tour  
**April 12: Sun:** Fly out 0425 Arrive DTW 1515

**K. San Diego State University (SDSU) Undergraduate Research and BentProp project Collaboration Team (28MAR-05APR)**

Through SIO/UDEL and SHS, much of P-MAN XVII's mentoring efforts are STEM (Science, technology, Engineering, Math)-related. Team member Derek Abbey has received a Presidential Grant from SDSU to bring three social scientists to Palau to begin to study and report on the impact of our mission (and vice versa) upon such factors as history, culture and government (e.g., national, tribal). This team will interact with the P-MANXVII team (except for diving), with each undergraduate identifying a topic of interest to study before arriving in Palau. Reports will be generated as a result under guidance of Derek Abbey.