

Case Study #7

Collision, Class C-HIPO

1. Synopsis:

Coast Guard (CG) Station had seven members attend Response Boat Tactics, Techniques and Procedures (RB-TTP) training on 10 JUN 04, conducted by Boat Forces Center TRACEN Yorktown, and received certificates of completion. The command issued letters of Qualification and Certification as RB-S coxswains. Three of those certified coxswains were providing RB-TTP training to STATION personnel on 23 and 24 MAR 05. Training involved classroom instruction on the 23th and tactical maneuvers training on the 24th. Three small boats, (RB-S) 25518, 25519, and 18' skiff (CG 181131) were utilized, with the skiff (CG 181131) acting as opposing force (OPFOR), and two RB-S's enforcing a limited access area (LAA). Initially training was to be conducted with the Lake Causeway acting as the high value asset (HVA) but a light chop of less than two feet made this location unfavorable for the skiff (CG 181131). Determination was made to move the training to the area outside the STA boast basin, with a landside HVA identified. The final tactical maneuver was being run before lunch, on MAR 24TH. OPFOR called "in play" and commenced a high speed run towards HVA. CG 25518 was in pursuit to intercept, on a course of constant bearing decreasing range (CBDR); CG 25519 was out of play. As the boats entered into extremis, OPFOR turned to starboard and throttled back, at which time CG 25518 also turned hard to starboard, colliding with and riding up and over the port quarter, running over the skiff (CG 181131) from port to starboard. Coxswain of skiff (CG 181131) was ejected precipitating a man overboard. CG 25519 heard the man overboard, proceeded to recover and stabilize person in water (PIW) and directed CG 25218 to retrieve stokes litter from STA. PIW was retrieved by CG 25519, returned to STA, and transported to local hospital by ambulance. The coxswain received laceration to forehead, scrape and gouge to left lower leg, hand abrasions, and six chipped spinal vertebrae. Skiff (CG 181131) sustained damage to starboard engine (total loss) and loss of all electronics. CG 25518 received several minor, barely visible scrapes.

2. History:

- a. MLCA (v) requested the Safety and Environmental Health Branch (kse) convene a Mishap Analyses Board (MAB) to evaluate the circumstances surrounding the collision of two small boats, conducting Response Boat Tactics, Techniques, and Procedures (RB-TTP) training. The small boats were assigned to CG STA. RB-TTP training was required for all certified boat crewmembers (coxswains, engineers, and crew members). The events that follow are based on personal interviews of the nine members involved in the actual RB-TTP training, witnesses, and recollected times.
- b. On 10 June 04, TRACEN Yorktown Boat Forces Center conducted exportable RB-TTP training to GRP units at STATION. In attendance were seven STATION personnel, one STA Italy member, and two GRP observers. The exportable RB-TTP course is one week in length vice two weeks in length at TRACEN Yorktown. Attendees graduating from either of the courses are issued certificates of completion, and terminal performance objectives. Unit CO/OIC's are responsible for final qualification and certification via memorandum to member. There were three coxswain/instructors providing RB-TTP training at the time of the mishap. Review of personnel records provided documentation supporting "Qualification and Certification as RBS Coxswain."

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- c. On 09 JUL 04, ALCOAST 337/04, COMDTNOTE 16114 announced CH-1 to the USCG Boat Operations and Training (BOAT) Manual Volume II, COMDTINST M16114.33 promulgating the addition of “Section H.” Section H, establishes boat crewmember qualification tasks derived. These qualification tasks are intended to ensure CG boat crewmembers receive a basic knowledge of RB—TTP operations. The completion of Section H is required for all certified boat crewmembers, on all boat types, within six months of the message dated 09 JUL 04. Section H tests the boat crewmembers “knowledge only.” The RB—TTP manual chapter five section B and C discuss tactical maneuver (switching sectors, loitering hand-off, drop back hand-off, shadow tactic, intercept tactic herding tactic, shouldering tactic) and assumes the coxswain understands and has the capability to execute the maneuvers. Section H does not require the successful “DEMONSTRATION” of these tactical maneuvers. It reiterates the laws, policies, and procedures encountered during Homeland Security Missions (HMS).
- d. The Response Boat Training Team at Boat Forces Center TRACEN Yorktown, exportable course teaches tactical maneuvers. Attendees receive four days of training on the execution of maneuvers, ensuring they are competent in their own abilities to successfully demonstrate the tactic(s). Graduates of the course are issue completion certificates and terminal performance objectives. The graduate is informed of a sample Standing Order (SO) for “Tactics, Techniques, and Procedures” for the performance of RB—TTP training. There is no direction or guidance taught or lesson plans provided in the RB—TTP course on “how to” conduct the training.
- e. On 30 AUG 04, TRACEN Yorktown released a message addressed to district Office of Search and Rescue’ (OSR); Subject: Boat Forces Center Exportable Tactics, Techniques, and Procedures (TTP) Training Solicitation for 1st/2nd Qtr FY’05. District Eight (D8) OSR forwarded the message to Group operations, which in turn, forwarded to Group units. Exportable RB—TTP training was slated for early second quarter of FY’05. Due to shortage of personnel at TRACEN Yorktown, Boat Forces Center, exportable RB—TTP training was curtailed. D8 osr in an e-mail dated 03 SEP 04 encouraged units to conduct RB—TTP training but gives no direction as to who should conduct it. This e-mail refers to a recent D8 safety stand-down that directed units to provide this typed of training to all coxswains at their earliest convenience...” STATION realized cancellation of the exportable training would curtail their ability to comply with ALCOAST 337/04. STATION scheduled RB—TTP training for 23-24 MAR 05, utilizing RB-TTP qualified coxswains and resources.
- f. STATION utilized, two RB—S’s and one skiff. The skiff is eighteen feet in length, flat bottomed with low gunwales, powered by twin 50 horsepower outboard engines. This type of skiff is a dominant and prevalent type of small boat utilized by the public throughout this AOR, one that could be easily encountered during a Maritime Homeland Security mission.
- g. Three STA personnel, BM1 (1), BM1 (2), and BM1 (3), who received the exportable RB—TTP training on 10 JUN 04, were selected and directed to provide the RB—TTP

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training to the oncoming starboard duty section and day workers. The RB—TTP coxswain/instructors conducted classroom training on the 23 MAR 05 and ran tactical response drills on 24 MAR 05.

- h. The classroom instruction held 23 MAR 05 in the AM, utilized Power point training plans provided by Boat Forces Center, encompassing the RB—TTP Manual, COMDTINST M 16601.7. The training plans presented the information required by section “H” of the USCG Boat Operations and Training (BOAT) Manual — Volume II, COMDTINST M16114.33, to provide PQS qualifications as RB—S coxswain.
- i. Afternoon training consisted of “RB Drill Sets,” basic maneuvers (slalom, figure eights, object avoidance/advance and transfer, and stopping distance) to familiarize certified boat crewmembers with the handling and response characteristics of the RB—S. Information diagramming drill sets are available from the Boat Forces Center website. Trainees were run through the drill sets at incremental speeds, gradually increasing, until successfully completing the exercise at full throttle. The coxswain/instructors’ only experience or exposure to the drill sets and tactical maneuvers was in JUN 04 as students in the RB—TTP training course and not as instructors. The TRACEN Yorktown class does not provide instruction or guidance on how to conduct RB—TTP classroom or tactical maneuvers training.
- j. The morning of the mishap 24 MAR 05; BM1 (2) designated the instructor and crew make-up for each vessel. All crewmembers except MK2 were certified

RB-S coxswains, but not Section”H” qualified. STA resources were manned as follows:

CG25518:

BM1 (2)	Coxswain/Instructor
BMC	Crew (XPO)
BM2 (1)	Helmsman (at time of mishap)
BM3	Crew

CG25519:

BM1(1)	Coxswain/Instructor
CWO	Crew (CO)
BM2	Crew

CG181131: *Target-of-Interest (TOI)/Opposing Force (OPFOR)*

BM1 (3)	Coxswain/Instructor/Helmsman (at time of mishap)
MK2	Crew

- k. The three instructors BM1 (3), BM1 (1), and BM1 (2), lacked any preparation, organization, and coordination to conduct the tactical maneuver training. Instructors had not developed lesson plans on procedures to be followed, a systematic approach to the orchestration of the tactical scenarios, or implementation of safety zones and operational parameters or designated a safety observer.

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- l. The tactical maneuver training was set to take place adjacent to the Lake bridge/causeway, with the causeway acting as the HVA. Prior to getting underway, a pre-brief was held; a GAR (Green, Amber, Red) was completed for each vessel (CG 25518 — #29, CG25519 — #27, CG 181131 — #27), these values facilitated a low amber condition across the board. The unit received Team Coordination Training (TCT) on 03 FEB 05, of the students in attendance, only two members of the nine involved in the mishap were present; the CO and XPO. The skiff (CG 181131) would act as the Target-of-Interest (TOI) give way vessel, throughout the tactical maneuvering training. Based on wind direction, wave height and handling characteristics of the skiff (CG 181131) a decision was made to move the tactical RB-TTP maneuvering training from the causeway area to the rock jetty basin area, adjacent to the station. This would provide a calmer environment. This change of venue should have triggered a new GAR, based on revised wind direction, wave height, and location.
- m. The shore based HVA (located to the south) had a waterside security zone established; a semi circular zone set at 500 yards with a 200-yard outer intercept zone and a 100-yard inner reaction zone. To the east of the HVA's location was the rock jetty forming an "L" creating Station's fore bay. The security zone was then split down the middle with CG 25519 patrolling the east quarter and CG 25518 patrolling the west quarter. Early scenarios were conducted at slower speeds with the TOI simulating a compliant vice non-compliant opposing vessel. Each of the crewmembers were run through the tactical maneuvers (switching sectors, loitering hand-off, drop back hand-off, shadow tactic, intercept tactic herding tactic, shouldering tactic) at increasing speeds, familiarizing themselves with the handling characteristics of the RB—S. Members stated this took them well out of their comfort zone and against everything they were previously taught in boat handling. Several members were uncomfortable with the speed and closing distances, some estimating as close as five to ten feet between the TOI and the RB-S.
- n. The coxswain of the skiff (CG 181131) would commence a drill by announcing, "OPFOR in play," and proceed to advance on the HVA. The scenarios began with basic intercepts of complaint vessels and gradually moved up to non-compliant and hostile vessel scenarios. Students were putting into play tactics they learned earlier that same day to thwart OPFOR.
- o. Approaching noon, the decision was made by CG 25519 to return to STA. Skiff (CG 181131) made a decision to run one last drill "just before lunch" and called, "OPFOR in play," CG 25518 responded, on a southwesterly track, proceeding at a high rate of speed, (4,500 RPM @ 38 knots) to intercept, while the skiff (CG 181131) advanced at approx. twenty knots on a southeasterly track towards the HVA.
- p. The RB—S (CG 25518) collided with OPFOR skiff (CG 181131) approx fifty-seven yards off the rock jetty. This was ascertained from the Administrative Investigation, dated 28 MAR 05, enclosure 19. OPFOR was closing on the HVA towards the jetty; BM2 Schneidau was at the helm. CG 25518 was in pursuit to intercept on a course with, constant bearing decreasing range (CBDR); BM2 (1) was at the helm. When the vessels were around fifty yards from each other, the coxswain/instructor (BM1 (2)) ordered the

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coxswain/student BM1 (3) to, "Keep going, he will slow down." OPFOR, skiff (CG 181131), approaching the jetty, turned hard to starboard. At almost the same instance CG 25518 also turned hard to starboard, running over the port quarter of OPFOR skiff (CG 181131). CG 25518 rode over OPFOR skiff (CG 181131) splitting open the starboard side of the steering console, demolishing the console mounted electronics, the starboard outboard engine, the throttle controls, radio antenna, and navigational lights. The port performance fin of CG 25518 ran across the port engine cowling of OPFOR skiff (CG 181131), the weight forced OPFOR skiff (CG 181131) starboard quarter down, with CG 25518 sliding diagonally off the stern (verified by the direction of the bent antenna and navigational light). This rebounded OPFOR up and out, ejecting the coxswain/instructor BM1 (3) from the skiff (CG 181131), over the ripped open steering console. He suffered injuries to his back and lacerations to his leg and forehead. The direction of ejection was verified by the hair and flesh left behind on the ripped open aluminum of the steering console. Crewmember MK2 was thrown to the floor from a seated position, and not ejected; he suffered body soreness and a minor finger injury.

- q. Following the collision OPFOR skiff (CG 181131) was running on the port engine. The kill switches were still attached to the engine ignition switches. At the time of the collision, the skiff (CG 181131) would have had to be nearly stopped; if not the throttle position would have been engaged forward keeping the port engine running and the boat operating erratically at a high rate of speed. This was not a concern from any involved in the mishap.
- r. At various times during the tactical maneuver training, the three small boats would converge and converse, BM1 (3) would disconnect the kill switches to facilitate maneuvering around the skiff (CG 181131). Several members in the course of training noticed BM1 (3) wearing the kill switch. It was stated the skiff (CG 181131) contacted CG 25518 on the port side, whereby the coxswain/instructor BM1(2) from CG 25518 went aboard and took control, utilizing what little was left of the throttle controls. He found the coxswain missing, the crewmember not injured but dazed, and one engine running. The ejected coxswain BM1 (3) surfaced shortly after the collision, screaming and in pain. His PFD was modified for manual activation. He tried to inflate the PFD twice on his own but was unsuccessful.
- s. CG 25518 BMC called in "Man Overboard," ordered STA to have an ambulance standing by at pier, stokes litter and EMT kit ready. CG 25219 with the Commanding Officer onboard responded and rendered immediate assistance to BM1 (3), coming along side, maintaining him quite and alert and questioning his ability to move or feel his extremities, they noticed him treading water. CO ordered CG 25518 to return to STA to retrieve stokes litter and EMT kit. BM1 (2), onboard CG 181131, reached over and manually inflated BM1 (3) PFD.
- t. Upon return of CG 25518, with the stokes litter and EMT kit, BM1 (1) and BM3 entered the water to assist BM1 (3), strapping him into the stokes litter and loading him aboard CG 25519 for transport to STA. He was taken to a local hospital by ambulance.

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- u. BM3 drove the skiff (CG 181131) back to STA utilizing the port engine and the control nubs left behind from the collision, there was no visible damage to the helm, which is located between the navigation electronics and the split in the end of the aluminum console.

2. Injuries to Personnel:

	Crew	Helmsman	Coxswain Instructor
<u>CG 181131</u>			
Injuries	0	—	1
Fatalities	0	0	0
No. Injuries	1	0	0
<u>CG 25518</u>			
Injuries	0	0	0
Fatalities	0	0	0
No. Injuries	2	1	1
<u>CG 25519</u>			
Injuries	0	0	0
Fatalities	0	0	0
No. Injuries	1	1	1

3. Damage to Unit:

- a. CG 181131: Approximately 95% of the damage to CG 181131 had been repaired by the time the Mishap Analyses Board was able to inspect the boat. The only item still pending was the replacement of the GPS unit. The following is an itemized list of damage and cost of replaced/repaired items:

1. Starboard engine — Honda Four Stroke 50 hp	835.00
2. Hydraulic cylinder	345.55
3. Sea Star tie bar kit	238.73
4. Handle, tilt	63.65
5. Dual binnacle controller	397.79
6. GARMIN GPSMAP 182c	799.99
7. Stern light, telescoping	37.99
8. Compass, magnetic-flush	51.99
9. Stainless steel antenna extensions	31.99
10. Aluminum for console rebuild	200.00
11. Flat surface ratchet mounts	75.98
12. Honda remote control	<u>376.00</u>
Total:	7,454.66

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- b. CG 25518: Minimal damage was sustained by CG 25518 consisting of a nick in the keel, a scratch on the port scupper, and a scrape extending approximately $\frac{3}{4}$ the length of the port performance fin. Minor scratches were noted on the underside of the port collar whereas none were noted on the starboard side; the board could not determine all of the scratches and scrapes but believed them to be related to the mishap under investigation.
- c. CG 25519: CG 25519 was not involved in the mishap — no damage sustained.

4. Meteorological information:

The weather on 24 MAR 05 was clear and sunny, with wind less than ten knots. A determination was made, once the skiff (CG 181131) arrived on scene, to relocate the RB—TTP training from the Lake causeway, which had been selected as the HVA. Based on wind direction, wave height, and handling characteristics of the skiff (CG 181131), the tactical RB—TTP training was moved from the causeway area to the rock jetty basin area, adjacent to the station, providing calmer environment.

- 1. Sky: clear and sunny
- 2. Visibility: greater than 3 nm
- 3. Wind: less than 10 knots
- 4. Seas: less than 2 ft
- 5. Air temp: 74
- 6. Water temp: 61
- 7. Tide: Low 0722 Range .26'
High 2244 Range .58'

5. Communications:

- a. The intent of CG—1 to the U.S. Coast Guard Boat Operations and Training Manual (BOAT) Manual Vol 11, COMDTINST M16114.33, is the addition of Section H, Law Enforcement, Homeland Security, and Defense Operations, to establish boat crewmember qualification tasks to ensure they receive a basic knowledge of RB—TTP Operations pertaining to the Maritime Homeland Security Mission. These tasks are knowledge based only and do not specify the need for practical underway application. The completion of Section H is required for all certified boat crew members (coxswains, engineers, and crew members) on all boat types within six months of ALCOAST 337/04, DTG R 091749Z JUL 04.
- b. TRACEN Yorktown Boat Forces Center Training Team provides exportable RB—TTP training incorporating both knowledge based and underway demonstration based training on tactics, techniques, and procedures in their Terminal Performance Objectives. The memo/documentation that is filled out and signed by the Exportable Training Team Instructors state, “it is for documenting the training received only during the visit and does not certify a member’s ability to perform the listed topics.” Unit CO’/OIC’s are responsible for final qualification and certification requirements (as applicable) for personnel at their unit.

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- c. ALCOAST 337/04 announcing CH-1 to the USCG Boat Operations and Training (BOAT) Manual Volume II, the addition of section H, was not specific in its direction that the training requirements stipulated for completion within six months of the date of the message was intended to test the boat crewmembers "KNOWLEDGE ONLY" of reference (b). The RB-TTP manual chapter five sections B and C discuss tactical maneuvers (switching sectors, loitering hand-off, drop back hand-off, shadow tactic, intercept tactic herding tactic, shouldering tactic) and assumes the coxswain understands and has the capability to execute the maneuvers. Section H does not require the successful "DEMONSTRATION" of these tactical maneuvers. It reiterates the laws, policies, and procedures encountered during Homeland Security Missions (HMS).