



# ZERO BEAT

Southeastern Massachusetts  
Amateur Radio Association, Inc.  
54 Donald Street  
South Dartmouth, MA 02748



OUR 74th YEAR

Volume 42, Issue 7

SEMARA W1AEC

July 2006

## Radio Direction Finding

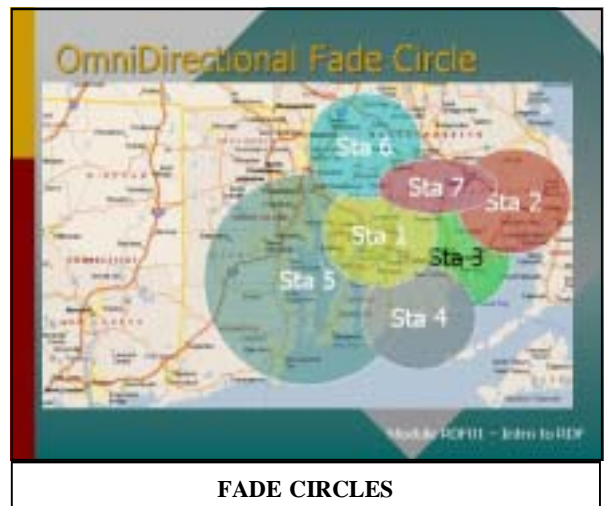
**T**im Smith, N1TI, presented his talk on *Introduction to Radio Direction Finding (RDF)* to a small, but interested, group of SEMARA members at the clubhouse on Thursday, June 15. His talk covered several areas: why develop RDF skills; RDF techniques and technologies; and coordination and cooperation of teams.

*RDFing* allows you to locate QRM (man-made), QRN (natural), and accidental noise sources. It is used in *Search and Rescue* to locate transmitters (Family Radio or ham radio services) of lost persons, electronic beacons on 406 MHz (*black boxes*, ELT/EPIRB). It also has experimental uses such as the recovery of weather balloons or instrumented rockets, as well as tracking wildlife (wearing beacons). The uses are limited only by your imagination.

The most obvious technique is *triangulation*, taking bearings from several points and determining their intersection. Tim pointed out that signal strength is often neglected – don't!

*Signal strength* depends on the terrain and reflections from buildings and such. That's why Tim recommends having at least three bearings to increase the probability that the target will be near the intersection of the bearing traces. To get the best bearing readings, use the nulls in your antenna patterns and record the signal strength information.

Another technique is based on *omni-directional fade circle* coverage. This requires each station to know what their line-of-sight coverage radius is. (See the picture from Tim's talk.) This can localize a target two ways: the intersection of the fade circles for those stations hearing the signal; and excluding portions of



fade circles for stations who cannot hear the signal – pretty clever!

In addition to using the nulls of loops, beams or Adcock arrays, Tim told us about *Time Difference of Arrival* - TDOA - methods. Basically, you switch between two antennas at an audio rate and compare the phase (time) difference between the two. When both antennas are the same distance from the target, the phase is the same; when they are not, the phase difference becomes an audio tone for an FM receiver. The louder the tone, the greater the phase difference. An improved TDOA readout is possible using a synchronous detector and a zero-center meter. This provides directional information, whether the target is left or right of center.

There are lots of neat extensions such as using APRS and GPS together with software to get real time pseudo-triangulation with a single mobile unit.

*I wouldn't have missed this talk for the world!*

## ZERO BEAT

<http://zerobeat.semara.org>

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**Southeastern Massachusetts  
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### EDITOR

Robert B. Kelley, K1KVV  
 Phone: (508) 758-6311  
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### ADVERTISING

Club members may have one free  
 non-commercial ad per month.

THE 25<sup>TH</sup> OF THE PRECEDING MONTH  
 IS THE DEADLINE FOR SUBMITTING  
 MATERIAL FOR PUBLICATION.

### 2006 SEMARA OFFICERS

#### President

Rick Cabral, W1RJC

#### Vice President

Carl Bissonette, WA1AKR

#### Secretary

Ronald Silvia, WB1HGA

#### Treasurer

Scott Szala, W1EV

#### Board of Directors:

Bill Miller, K1IBR

Carl Bredberg, K1KID

Tim Smith, N1TI

#### Trustees: (year term is up)

Andrew Reuter, WA1FNM (2006)-Ch

William Miller, Jr., K1IBR (2007)

Larry Houbre, Jr., AA1FS (2008)

Bill Vincent, W1POW (2009)

Don Manley, N1PMB (2010)

FISTS CW no.10555

(Adventure Radio Society)

Bumblebee no. 71

Grid Coordinates:

FN41mo

GPS Coordinates:

Lat. N 41° 36.795'

Long. W 070° 56.550'



## It seems to me ...

de Bob, K1KVV <[editor@semara.org](mailto:editor@semara.org)>

That we could all learn a little bit of the club's history. I was sorry to learn that **Carl Bissonette, WA1AKR** had to step down for health reasons. Hence we will be voting for an interim Vice President at the July 6 business meeting.

Take a look at the two candidates running for interim Vice President. Did you know that both are long time members and that both held club offices in the past? Talk about experience!

### David J. Goldstein – W1DJG

Dave joined in 1975 and held the office of President in 1985. You may know him under his previous calls, WA1VFX and KC1OG. Dave is a broadcast engineer.

### Michael R. Miller – N1ITQ

Mike joined in 1991 and held the office of Secretary in 1992 and 1993. He is currently chairman of the Building & Grounds committee.

Nominations will be held open until just before the voting. Hope to see you at the meeting!

Talking about history, look at the page 6 photo, lower right corner. Too bad we don't have more lanes to name after other members, living and SK. Makes you appreciate that you are literally walking on the shoulders of those who went before.

*Enjoy the fireworks displays!*

## POINT TO PONDER

"Many hands make light work"

~my mother

## HAMMIN' AROUND

**Question\* G3C05** What is the main reason the 160-, 80-, and 40-meter amateur bands tend to be useful only for short-distance communications during daylight hours?

- A. Because of lack of activity
- B. Because of auroral propagation
- C. Because of D-region absorption
- D. Because of magnetic flux

\* 2004 General Class (Element 3) Question Pool (good thru 2008-06-30)

Answer on page 8



# MEETING MINUTES



**T**he **June 1, 2006** Business Meeting was called to order at 7:00 p.m. by the President, **Rick Cabral, W1RJC**, with the salute to the flag and a roll call of 28 members. A quorum was present.

**Secretary's Report (Ron Silvia, WB1HGA)**– The minutes of the previous business meeting, appearing with correction in the current issue of Zero Beat, is accepted as distributed.

**Treasurer's Report (Scott Szala, W1EV)**– Absent. Report accepted as read by the president.

### STANDING COMMITTEE REPORTS

**Buildings & Grounds (Mike Miller, N1ITQ)**– Nothing to report.

**Scholarship (Larry Houbre, Jr., AA1FS)**– Absent.

**Technical (Roland Daignault, N1JOY)**– Ran a new CAT-5 cable, Station Master antenna replaced; the old antenna is not suitable for repeater use but is usable for base station use.

### SPECIAL COMMITTEE REPORTS

**Website (Larry Houbre, Jr., AA1FS)**– Absent.

**Activities (Scott Szala, W1EV)**– Absent. BBQ Chicken Roast in plans in nears future.

**ARES (Rob Macedo, KD1CY)**– Roland, N1JOY, reminds about the **Massachusetts State Hurricane Drill** June 5 from 7 to 9 p.m.

**Radio Events (Ron Silvia, WB1HGA)**– NE-QSO party this weekend. FISTS Spring Sprint next weekend. ARMAD event is May 27 - this event is to honor our military family around the world with hams setting up stations in public areas to handle traffic.

**New Building (Roland Daignault, N1JOY)**– Rob, KD1CY, still working on procedure for acquiring generator; NSTAR energy grants still on-going; electrical repair work still continuing slowly; heating air duct work has fallen apart and will be repaired by time fall arrives; North wall shingling will continue when the wall is repaired; Scott, W1EV, presented a cost estimate from Lawton Design Architecture – based on this, we cannot afford to do this and must rely on volunteer services to help minimize club costs. Although

some architect services may be required, some qualified members will volunteer their services to this end..

**COMMUNICATIONS (Carl Bissionette, WA1AKR)**– Absent. Nothing to report.

**RATIFICATIONS\***– No applications for membership were received.

**PRESIDENT'S COMMENTS (Rick Cabral, W1RJC)**– Little Peoples College will work with us regarding property and tree issues; a website meeting will be scheduled soon; telephone poles to be placed alongside driveway as a border; looking for a volunteer to replenish coffee supply..

**OLD BUSINESS**– None.

### NEW BUSINESS–

**Motion\***– to accept the BOD recommendations: buy on-line call book from QRZ; purchase a 24-hour clock for radio room; that the new building committee accept cash donation to be placed into general funds by Treasurer and earmarked as such on separate paper.

**Motion\***– to place telephone poles along side-property lines.

**Motion\***– to issue one key for the shed to the grounds-keeper.

### NOMINATIONS–

From the floor, **Mike Miller, N1ITQ**, and **Dave Goldstein, W1DJG**; nominations remain open till next month's Vice President election during the business meeting.

### FOR THE GOOD OF THE CLUB–

Anyone who has keys to closet to attend Tech Talks to permit access to equipment.

**Meeting adjourned** at 8:10 p.m.

Submitted by  
**Ron Silvia, WB1HGA,**  
Secretary



**WB1HGA**

\* Motions are voted, and passed, by those present.



## CLUB NOTES

**J**uly is the month of celebrations, picnics and lots of outdoor fun. The weather threatens to become hot and steamy. And the grass will grow knee high is we get enough rain.

So let's take advantage of this time to finish some projects we started but never completed. Or even start one that we never had enough time to do.

**F**our candidates successfully passed their exams at the VE session on June 3:

**Thomas J. Carson Jr. and Allen E. Richardson**

passed the Technician written exam;

**Paul C. Nardella, KB1JQT**

passed both the 5 wpm Morse Code and General written exams;

**William Guay, KA1JNB.**

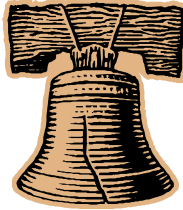
passed the Amateur Extra written exam.

*Job well done everyone!*

**S**EMARA doesn't host exam sessions over the summer. So study in July, relax in August, review in September, and pass in October. *You can do it!*

The next VE Session is not scheduled until Saturday, October 7, 2006. Until then, exams will be available by appointment only. Contact –

**Larry Houbre, AA1FS**  
508-991-6055



## FOR SALE

**Radio Shack PRO-2096 (Cat. # 20-496)**  
**Digital Trunking Mobile/Base Scanner**

- Brand new still in the box.
- Cost \$499.99 plus tax.
- Sell for \$440 plus shipping.

*73 de Bob [ka1yon@comcast.net]*

## LOCAL NET ACTIVITY

*Please support these local nets by checking in!*

**2-m Roundtable Net** held every evening at 7 p.m. Some nights we have a big crowd, other nights we have just a few. All are welcome to join in on the SEMARA Repeater, W1AEC, 147.000+ with a PL of 67.0 Hz..

**6-m Net** held Wednesday at 8:30 p.m. on 50.200 MHz USB. Check us out.

**3868 kHz SEMARA Morning Net** held weekdays from 7:30 - 8 a.m. All are welcome.

## LOWFERS QRP GROUP OPERATING EVENT

**B**eginning Sunday, June 18, and every other week after that, there will be field trips sponsored by our very own SEMARA club **Lowfers QRP Group**. (Report on page 6.)

We meet by 11 a.m. at the clubhouse to discuss particulars (food, location, equipment, etc.).

Planned dates are:

**July 2, 16, 30 – Aug 13, 27 – Sept 10, 24**

Requirements: bring an HF radio that can be powered by battery, a portable antenna, small table (maybe) and chair (maybe) and have fun operating outdoors for the afternoon.

Any questions about this bi-weekly event, antennas, batteries? Don't be bashful to ask!

This new QRP group has only one rule: no rules, just fun!

*72 de Ron, WB1HGA*

# Amateur Radio News

## FIELD DAY 2006

It's another one in the record books. We had 2 stations set up and plenty of volunteers for the job. Operators arrived at different times and made contacts. We kept making contacts all afternoon and evening. We finally left just before 11:30 p.m.

Most interesting was several contacts with 22A stations! Imagine 22 stations operating in one area at the same time! The coordination and planning to run something that size must be intense.



**JOHN, WA1LPM - CW OPERATOR**  
**Laurie, KA1OCF - LOGGER**

20 meters and 40 meters became our most productive bands. 80 meter opened up later in evening and it was hot! This band helped raise the CW score.



**RON, WB1HGA - CW OPERATOR**  
**COPYING DIRECTLY TO THE N3FJP LOG**

We set up the TS-570 (wish there was a better radio in place of this one) for phone and the TS-180 for CW. The "boss" antenna (log-Yagi beam) captured our phone contacts from many parts of the country. The 80-40 meter dipole antenna did very well for CW on 40 and 80 meters.

We later changed from TS-180 to IC-706Mk2G radio and had more fun working CW with that radio.

We had time for food and drink, exchanged our Field Day experiences and then continued for more QSOs. Those who came enjoyed themselves and found out how much fun "contesting" is. Some came just to learn about contesting, and ask questions while listening to bands. Maybe next year they will be at the helm too!



**ROB, KD1CY - PHONE OPERATOR**  
**COPYING DIRECTLY TO THE N3FJP LOG**

We made over 300 QSOs, both phone and CW, as a "2Delta" (2 transmitters/AC power) status from "EMA". Next year, we plan to use batteries to rid ourselves of "Delta" status. Who knows, we may have a generator by then. Won't you join us?

*Ron, WB1HGA*  
*WIAEC radio activities*  
*chairperson*



# More SEMARA Stuff

## LOWFERS QRP FIELD TRIP

The first field trip of the season is now in the record book. We decided to remain "at home" on club grounds.

There were 3 QRP stations set up and some contacts made during the afternoon.

We relaxed, chatted, enjoyed Ed's, WA1ZCB home made fish soup and kept cool with plenty of soda. "Made in the shade" is down in the books.

Come and join the "Lowfers QRP" gang in two weeks on July 2 when we go in the field again!

Watch [members@Semara.org](mailto:members@Semara.org) for our announcements.

72 de Ron WBIHGA

## SEMARA TAILGATE

September 10, 2006

We will be holding our annual *Flea Market* this year on *Sunday, September 10, 2006*. As of this writing the plans are to host a tailgate area on the club grounds.

Additional details and directions will follow. A new informational flyer is being developed and will be posted on our web site soon at <http://www.semara.org>.

We would be grateful if you promoted the event at your local meetings. Our club is over 300 strong and we openly welcome visitors at any time. Our regular club meetings are the first Thursday of the month at 7 p.m. We also hold a variety of daily and weekly nets that you can find schedules for on our web site.

*Please mark your calendars now.*

See past events at <http://www.semara.org/flea/photos.htm>.

Direct all inquiries to:

**Tim Smith, N1TI - n1ti@arrl.net**  
SEMARA Flea Coordinator

## JUNE 2006 KID'S DAY

This event turned out very well with operators showing up to *Elmer* and tutor potential hams who may become future hams. The event was enjoyed by all who volunteered.



MARY MACEDO AND MAT MELO BOTH DID KID'S DAY ALONG WITH SCOTT HATHAWAY (WHOSE PICTURE DIDN'T COME OUT, SORRY)

Thank you to all the ops who came, showed, instructed and manned the stations while our kid's communicated with their peers. Each kid received a certificate with their name on for taking part in the SEMARA event.

Next time, you can come too, and bring some kid's along! Please join us for next Kid's Day event in January 2007.

73 de Ron, WBIHGA

## WELCOME TO THE CLUB

This is what greets visitors when they come to SEMARA. I wonder if they know what it takes to have the entrance way named after you?

I doubt that **Bill, K1IBR** will tell you; but one of the other old timers might.



WM. M. WILLER, JR. WAY

# Lighthouse Activations



## NEDS POINT JUNE 10 ACTIVATION

**W**e didn't leave Whitey's QTH till about 6 a.m. Weather was less than ideal, light rain when we left Whitey's which proceeded to get worst by the minute the closer we got to Neds Point.

We did a quick setup. Less than 5 minutes from the time we arrived, Whitey called his first CQ. We started out on 80 and had a better time than our last outing managing 19 QSOs. We worked about 5 ARLHS members on 80 meters. Then over to 40 between the nets. We had a pretty good run there working more members and also non-members.

The rain was coming down at a pretty good clip. After a number of QSOs, we noticed the signals were getting weaker and the power was going down. Whitey looked out the back window and saw that even though the 33 foot mast was up there was no antenna wire attached! We managed to work a Canadian station with the antenna wire lying on the ground. I guess you call this real ground wave. The copper sleeve with the antenna wire attached to it, which Whitey uses to slip over the last section of the mast, slid right off because the top couple of sections of the mast were bent almost horizontal.

We then moved to 20 meters and had a halfway decent run working from Canada to Florida and the West Coast. When the QSOs on 20 dropped off, we moved to 17 meters. There we had a real good run as you can see by the numbers. Then back to 40 for another dozen QSOs and ending the day on 20.

All-in-all, a good day QSO-wise, member-wise with 35 members worked, some on three bands and some on two modes as well. We did manage to work two station in Puerto Rico, one right after the other.

Whitey, K1VV ARLHS #957 /Don, N1DT ARLHS #962

	SSB	CW
80	19	
40	47	7
20	29	
17	38	2
<b>Total</b>	<b>133</b>	<b>9</b>
<b>Total QSO</b>	<b>142</b>	

73 de W1AA



## NEW BEDFORD LIGHTSHIP JUNE 17

**S**tarted on 80 as usual and made 11 contacts working 4 members on 80. which I think is a new high on that band. Then to 40 for a real good run on SSB and then to 40 CW.

Don worked 6 ARLHS members on CW, which is a new high for him. We ended up working 18 states and 4 provinces in Canada.

	SSB	CW
80	11	
40	49	12
20	42	11
<b>Total</b>	<b>102</b>	<b>23</b>
<b>Total QSO</b>	<b>125</b>	
<b>Total ARLHS</b>	<b>38</b>	



## PALMER ISLAND LIGHT JUNE 24

Made 109 QSOs in less than 4 hours.

Operated from 1137 to 1517, and contacted 20 states and 3 Providences.

*Keep the Flame! The Cape Crusaders - Whitey, K1VV and Don, N1DT*

	SSB	CW
80	12	
40	52	16
20	28	1
<b>Total</b>	<b>82</b>	<b>17</b>
<b>Total QSO</b>	<b>109</b>	
<b>ARLHS</b>	<b>24</b>	

## JULY VE SESSIONS

Walk-ins permitted unless otherwise noted.

From <http://www.arrl.org/arrlvec/examsearch.phtml>

**none SEMARA Clubhouse — 10:30 a.m.**  
**Larry Houbre, AA1FS**  
**508-991-6055**

**8 Falmouth, MA — 9:00 a.m.**  
 Ben Fleck, W2LYE  
 508-540-2483

**8 Braintree, MA — 8:45 a.m.**  
 Bill Needham, K1WN  
 781-843-4400

**13 Providence, RI — 7:00 p.m.**  
 Louis Mester, W1CH  
 401-263-6045

**17 Fall River, MA — 7:00 p.m.**  
 Skip Denault, KB1CNB  
 774-644-3469

**20 Canton, MA — 7:30 p.m.**  
 Lou Harris, N1UEC  
 508-668-0858

## NE DIVISION FLEA MARKETS

From <http://www.arrl.org/hamfests.html>

**8 Jul Union, ME**  
 Pen-Bay ARC — Scott 207-354-6801

**16 Jul Cambridge, MA**  
 Flea @ MIT — Nick 617-253-3776

**19 Aug St. Albans, ME**  
 Piscataquis ARC — George 207-965-8864

**19 Aug St Albans, VT**  
 StARC Tailgate — Arn 802-285-6457

**20 Aug Adams, MA**  
 NoBARC — George 413-443-7539

**20 Aug Cambridge, MA**  
 Flea @ MIT — Nick 617-253-3776

**25-27 Aug Boxboro, MA**  
 NE Div Conv — Mike 978-250-1236

**10 Sep S. Dartmouth, MA**  
 SEMARA Tailgate — Tim 508-758-3680

**16 Sep Alexander, ME**  
 St. Croix Valley ARC — Skip 207-454-2156

**16 Sep Forestdale, RI**  
 RI Am. FM Rptr. Ser. — Rick 401-864-9611

**17 Sep Newtown, CT**  
 W. CT Hamfest — 203-749-1610

**17 Sep Cambridge, MA**  
 Flea @ MIT — Nick 617-253-3776

## SEMARA VE SESSION

**Oct 7 SEMARA Clubhouse**  
**10:30 a.m.**

**Contact: Larry Houbre, AA1FS**  
**508-991-6055**

*Exams are available at other times  
 by appointment only*

## JULY SEMARA EVENTS

**6—Business Meeting – 7 p.m.**  
 [no VE Session this month]

**13—Ragchew – 6:30 p.m.**

**20—Tech Talk – 7 p.m. Tim, N1TI**  
*Mobile on a Full Wave 80-m Loop*

**27—Ragchew – 6:30 p.m.**

**Ragchew at the clubhouse every Sunday 7 – 11 a.m.**  
**Drop by and enjoy a cup of coffee and donuts!**

C. Think of the D-region as the *Darned Daylight* region. The D-region does not bend high frequency signals back to Earth. What it does instead is absorb energy from radio waves. Lower frequencies (longer wave-lengths such as 160-, 80-, and 40-meters) are absorbed more than higher frequencies. The ionization created by the sunlight does not last very long in the D-region; it will disappear by sunset.



# SEMARA HandiHam Affiliate

Southeastern Massachusetts Amateur Radio Association, Inc., 54 Donald Street, South Dartmouth, MA 02748

## LOCAL REPEATER DIRECTORY

Frequency	CTCSS	Call	Location
<b>144</b>			
145.130 -	151.4	WF1A	Cranston, RI
145.150 -	123.0	WA1DGW	Fall River
145.450 -	100.0	W1SYE	Portsmouth, RI
145.490 -	67.0 <sup>1</sup>	KD1CY	Fairhaven
146.655 -	88.5	WA1GPO	Falmouth
146.685 -		N1ZIZ	Plymouth
146.700 -		K1CR	Cranston, RI
146.730 -	67.0	W1SGL	Sandwich
146.760 -		W1HQV	Scituate, RI
146.805 -	67.0	NN1D	Fall River
146.835 -	192.8	WA1QCA	Johnston, RI
146.880 -	100.0	WC1R	Newport, RI
146.940 -		K1KYI	Lincoln, RI
146.955 -	88.5	K1PBO	Dennis
<b>147.000+</b> SEMARA	<b>67.0</b>	<b>W1AEC</b>	<b>Dartmouth</b>
147.045+	141.3	W1HDN	W Warwick,
RI			
147.135+	67.0	KA1GG	Taunton
147.165+	67.0	WA1HAH	Exeter, RI
147.180+	67.0	W1MV	Bridgewater
147.195+	127.3	K1SMH	Attleboro
147.330+	173.8 <sup>2</sup>	W1AQ	E. Prov., RI
147.345+	88.5	KB1QL	Vineyard

<sup>1</sup>IRLP-4617 & E-Link-4611; <sup>2</sup>required for use of IRLP-4907

<b>440</b>			
441.400+	100.0	WG1U	Plymouth
442.200+	88.5	KE1AK	Fall River
442.950+	82.5 <sup>5</sup>	K1RK	Barnstable
443.450+	88.5	K1MYL	Westport
443.500+	141.3 <sup>5</sup>	K1PBO	Dennis
443.800+	88.5 <sup>3</sup>	W1RJC	Dartmouth
443.850+	141.3	AA1PL	Exeter, RI
444.200+	118.8	N1YHS	Bourne
444.250+	141.3 <sup>5</sup>	WA1GPO	Falmouth
444.350+	88.5	W1ACT	Fall River
444.550+	88.5	W1MV	Bridgewater
447.025 -	77.0 <sup>4</sup>	N1JBC	Johnston, RI
447.075 -	88.5	N1DZD	Kingston
449.275 -	103.5	W1WNS	W. Bridge-
water			

<sup>3</sup>IRLP-4259 & E-Link-4259; <sup>4</sup>IRLP-5920 & E-Link-55920; <sup>5</sup> Cape Net

## CONTESTS

From <http://www.arrl.org/contests/months/jul.html>

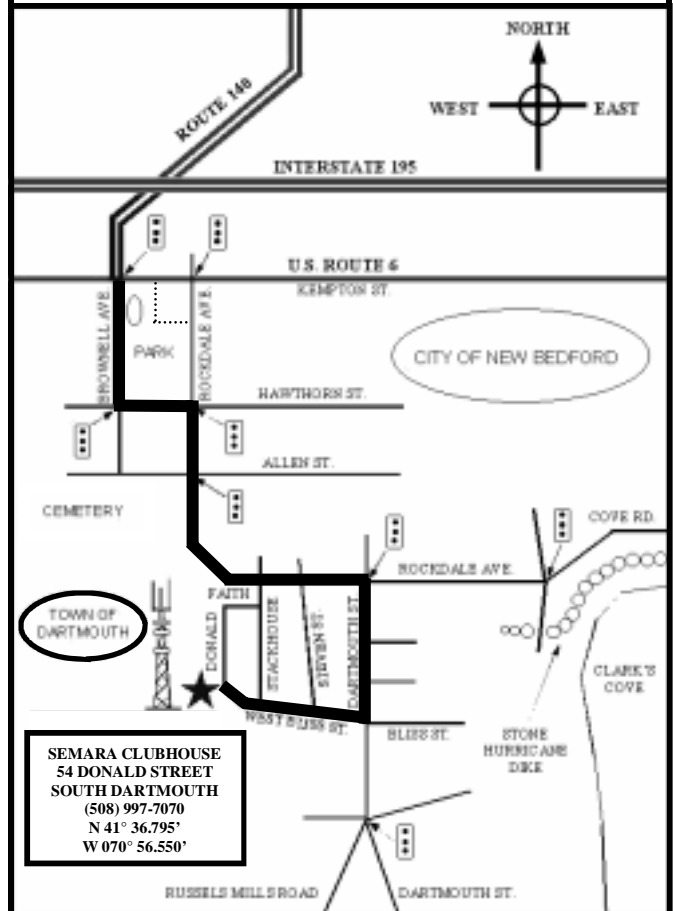
July 8 1700Z-2100Z

*FISTS Summer Sprint*

July 30 1700Z-2100Z

*Flight of the Bumblebees*

## Directions to SEMARA



## SEMARA ACTIVITY DIRECTORY

### — RAGCHEW —

Sat - 8 p.m. 28.700 MHz USB  
Sun - 8 a.m. 28.700 MHz USB  
Wed - 8:30 p.m. 50.200 MHz USB  
Daily - 7 p.m. 147.000+ SEMARA  
Mon-Fri - 7:30 a.m. 3.868 MHz LSB

### — WEATHER NET —

Mon-Fri - 8:00 p.m. 145.490- [alt. 146.655-]

— **W1RJC Sunday Activities 443.800+** —

9 p. m. - ARRL News followed by Amateur Audio News