

**Maine ARES/RACES**  
**Net Control Training Course**

**Table of Contents**

**Net Control Station (NCS) Basics**

**Characteristics of a good NCS operator**

**Learning to be an NCS**

**NCS Hints and Kinks**

**NCS Questions**

**Contingency plans**

**Handovers**

**Coverage breaks**

**Handling an irate participant**

**Handling malicious interference**

**Shortcut to being a good NCS – Practice, Practice, Practice**

## **Basic Net Control Station Concepts**

### **Characteristics of a good NCS operator**

Good communications skills and fluent command of language  
Good voice quality  
Good hearing capabilities  
Good listening capabilities  
Good ear-to-hand copying skills  
Understands what *service* means  
Has knowledge of the Incident Command System  
Willing to take and carry out direct orders  
Is a strong team player  
Is self-assured but not overbearing  
Decisive, with the maturity to make good judgment calls  
Physically able to tolerate high stress for extended periods  
Constant concern for the safety of participants  
Organizer  
Sense of humor  
Ability to absorb new terminologies quickly  
Decent (readable) penmanship  
Generally neat of appearance  
Consistently demonstrates above average operating techniques  
Knowledge of band characteristics

## Learning to be an NCS

Many of the skills used in contesting are applicable to NCS. Both activities involve coordinating several stations on the same frequency at the same time. The contesteer running a pile-up will try to contact as many stations as possible in the least amount of time. A busy NCS will attempt to move as much traffic as possible in the least amount of time.

NCS techniques include:

- \* When asking for reports or soliciting traffic, **listen!**
- \* Take down as many calls as you can identify before you acknowledge anyone!
- \* Acknowledge all stations that you heard, then yield the frequency to a single station. When that station is finished, hand the frequency to the next station on the priority list, without soliciting more traffic. Follow this pattern until you've completed your list, then repeat.
- \*\*\*\* The exception to this is in handling routine traffic during an emergency net. With routine traffic, break between messages to solicit any emergency/priority traffic and handle that first.
- \* The net-name/function and the NCS call sign, should be announced several times at the beginning of the net and every eight to ten minutes during the net.
- \* When acknowledging check-ins, list the call signs as letters (not phonetically). The purpose of this acknowledgment is to confirm to each check-in that his/her call was heard. Phonetics used on all acknowledgments simply slows the net. **Note:** Phonetics are an excellent way to clarify questions about the call received (was that a B or a D, etc.). Reciting all of the check in information (beyond the call) simply wastes time.

**Do Not** make editorial comments about the traffic or information being passed unless it will speed or enhance the information flow! Chattiness, especially early in the net, degrades the effectiveness of the net.

For scheduled nets, NCS's goal should be to run the script top to bottom and handle all of the listed traffic, business/comments as quickly as possible, without rushing.

If someone tunes up on the net frequency during the net (SSB, CW, etc.), remind them **one time** that this constitutes harmful interference and should be done off the net frequency. Repeating this notification will only serve to encourage those attempting to interfere with the net.

When there is a double, try to get something unique from one or more of the stations. Then call for clarification from those stations **only**. The alternative approach is to acknowledge the check-ins you could understand and then call for check-ins that tried in the last round but were not acknowledged.

If your net is passing NTS traffic, remind participants to read the variable information in order without the redundant field identifiers such as: "Check", "phone figures", etc. Most participants will catch on quickly to the pattern. If they do not, take the time to explain. Things get done much faster if everyone uses the same techniques.

**Be as concise as possible.** Use the fewest words that will completely say what you mean. This will minimize the need for the repeating of instructions.

Take frequent breaks. While you may not recognize the stress that being an NCS produces, it will become evident in your voice. If you are asking yourself when your last break was, **you** know it is time for one. Turn over the net to your backup at least every two hours and **rest**. Do not listen to the net. **Rest!** Then, when rested, listen to the net for a few minutes before resuming your station.

Control the tone of your voice. Be as calm as possible. Tension tends to make our voices raise in pitch and this change **will** be picked up by the net. Use a calm tone and members of the net will tend to remain calm.

**Speak in first person.** It is "recognizing KD1ZZZ, *not* the NCS would like to recognize ....."

The ability to remain cool, calm and collected will buy you more than anything else. There is no doubt that being an NCS is a high-pressure assignment and it is easy to become frustrated or angry. If you have a frustrating problem, ask for help from other members of the net. Knowing when to delegate is the mark of a good leader. **Net Discipline:** In many ways your job as NCS can be equated to that of a traffic cop for the frequency. This analogy carries over to the duties of enforcing net discipline. You can reasonably expect net members to:

Report to the NCS promptly as they become available.

Ask clearance from NCS before using the frequency.

Answer **promptly** when called by NCS.

Use tactical call signs.

Follow established net protocol.

All of the above expectations are great. However you must remember you are dealing with volunteers with a vast range of knowledge and experience. This means you cannot order their compliance. You can only ask their cooperation. Probably the best way to enlist the cooperation of the net is to explain what you are doing in a calm and straightforward manner. This may involve supplying a small amount of real-time training.

The one thing you **never** do is **dress down** someone over the air. It is better to lead by example and produces much better results.

One way of classifying a net is the level of net discipline used, or the "style" of the net. The two acknowledged styles are:

### **Open (Informal) Nets**

During an open net most any type of traffic or communication is permitted. Conversations (ragchews) are permitted provided they break every so often to allow incident related traffic to flow.

### **Directed Nets**

A Directed Net is created when there are a large number of stations needing to use the frequency or the volume of traffic cannot be dealt with on a first-come first-served basis. The NCS will determine who uses the frequency and what traffic will be passed first. Casual conversation is discouraged and tactical call signs will be used as applicable.

**Like anything else, being a good NCS requires practice. Contact your local ARES EC for opportunities in your area!**

### **NCS Hints and Kinks**

- \* If it is a scheduled net, start on time!
- \* Use a script when/where possible. If you have time, make notes to yourself to help with the information in the script - before you start the net.
- \* Be friendly yet in control - speak slowly and clearly with an even tone, not a monotone.
- \* Sound confident, even if you are not. Above all, don't worry. Just give it an honest try.
- \* Ask **specific** questions, give **specific** instructions! You can make it much harder on yourself with nebulous questions and instructions.
- \* **Do Not** make editorial comments about the traffic or information being passed unless it will speed or enhance the information flow!
- \* Have pencil/paper ready and write down **all** calls. It helps to practice with writing down calls when you are not the NCS.

\* Read your owner's manual and understand how to use your microphone. The worst sounding NCS is one that cannot be heard or sounds like a train huffing and puffing into the microphone as they speak. From the ARRL Field Resources Manual: "Articulate, don't slur. Speak close to your mike, **but talk across it, not into it.**"

\* When there is a double, try to get something unique from one or more of the stations. Then call for clarification from those stations **only**.

\* During check-ins, recognize participants by name whenever possible.

\* Acknowledge check-ins and **all** messages.

\* Be sure to frequently identify the purpose of the net (let people know what they are checking into!) and advise all listeners of the sub-audible frequency required if applicable.

\* Ask for assistance if/when you need it. If this is not a weekly net, delegate responsibilities.

You cannot do it all.

\* If this is an emergency net, remind listeners to listen and tell them where the staffing net is. Someone checking in to say they are listening only slows the net.

\* Don't be afraid to say "**oops**" if you get flustered and mumble a bit. Pause, take a deep breath, and go back at it. If you make a mistake, remember this is not Brain Surgery. Do your best to **calmly** recover. Nothing more will ever be asked of anyone.

\* **Don't think on the air!** If you need a moment to consider what is needed next, say something like "**Stand by**" and unkey your mic.

\* Keep transmissions as short as possible. Resist the tendency to ragchew or ramble.

\* Transmit only facts! If there is need to make an educated guess or speculate, make sure it is **very** clear that it is speculation. **First choice is to not speculate at all.**

\* Avoid becoming the source for general information about the event. If it is an emergency, refer event status questions to the served agency Public Information Officer (PIO).

\* When necessary, use standard ITU phonetics. There is no such thing as "common spelling". Send all numbers as individual numbers, e.g., 334 is three three four not three hundred thirty four.

\* Speak in first person. It is "recognizing KD1ZZZ, **not** the NCS would like to recognize ....."

\* For voice nets, use plain English. "Q" signals are for CW.

\* If the net has been quiet for more than ten minutes, check on operator status. This keeps the net running more smoothly and insures you know about equipment failures as soon as possible.

**Opportunities are often things you haven't noticed the first time around**

### **Questions an NCS Should Ask Before a Net Begins**

The following is a list of questions an NCS operator should ask themselves **before** starting a net. If you cannot answer at least two thirds of the questions in the affirmative, you should seriously consider having some one else run the net.

#### **Emergency Nets**

Is the NCS location away from the Command Post?

The noise and commotion at CP degrades your ability to run a good net and the noise you generate only adds to the confusion there.

Do you have the best performing antenna for the conditions?

A "rubber duck" is not adequate unless you can see the repeater antenna. That does not *mean* see the mountain the repeater is on, it means see the antenna. For HF, polarization of your antennas **will** affect your signal to others.

If you are running from battery: Do you have at least an hours of charge on the battery?

Most desired is to have a battery with at least 90+% charge but if you are the only choice for NCS then make sure you can run the net long enough to have some one else get ready.

Are you using a headset with noise canceling microphone?

Even from home the background noise will affect how well you can hear and be heard.

Do you have pencil/pen and paper sufficient to run the net for a full shift?

You will **not** be able to remember enough about the traffic to be effective unless you **write it down**.

For VHF/UHF; **Do you know the characteristics of the repeater system you are on?**

Your effectiveness as NCS will be adversely affected if you do not. For example; The Falmouth repeater

(147.09) in the *net mode* has a very long squelch tail, but the squelch tail does not need to drop to reset the timer.

Do you have a runner, liaison or logging person to support you?

For large-scale events all three are required. You **cannot** handle the net and run messages.

Do you have a designated relief operator?

Everyone gets tired and NCS must be the most alert operator on the net.

### **Scheduled Nets**

Is the NCS location away from the event operations?

Noise and commotion degrades your ability to run a good net and the noise you generate only adds to the confusion there.

Do you have the best performing antenna for the conditions?

A "rubber duck" is not adequate unless you can see that repeater antenna. That does not mean see the mountain the repeater is on, it means see the antenna. Even a quarter wave ground plane antenna (for VHF/UHF) will significantly improve your signal. For HF, polarization of your antennas **will** affect your signal to others.

If you are running from battery: Do you have sufficient charge to run the net or (if it is a multi-hour event) a large percentage of it?

Most desired is to have a battery with at least 90+% charge. You will only make the net more confusing if you try to squeeze out the last little bit of use from you battery pack.

Are you using a headset with noise canceling microphone?

Even from home the background noise will affect how well you can hear and be heard.

Do you have pencil/pen and paper sufficient to run the net for the full net?

You will **not** be able to remember enough about the traffic to be effective unless you **write it down**.

For VHF/UHF; **Do you know the characteristics of the repeater system you are on?**

Your effectiveness as NCS will be adversely affected if you do not. For example; The Falmouth repeater (147.09) in the *net mode* has a very long squelch tail, but the squelch tail does not need to drop to reset the timer.

Do you have a runner, liaison or logging person to support you? Only weekly and daily nets are exempt.

Do you have a designated relief operator? Only weekly and daily nets are exempt.

### **Contingency plans**

**Contingency Plan: n. a plan for possible, unforeseen or accidental occurrence**

A somewhat thread bare saying that is very true, tells us a lot about Contingency planning.

**"Those who fail to plan, plan to fail". Or as Murphy put it - "Anything that can go wrong, will. Anything that can't go wrong, still will".**

How does this relate to Emergency Communication? Simple, as you begin your planning for emergency operation, be sure you have redundancy of equipment and back up people available when ever possible.

As NCS it is up to you to plan for your backup, have backup equipment available for your use and try to obtain more volunteers than you have positions to fill. But wait, more volunteers than you have need for? Yes, on average, for every ten volunteers you get, there will be at least one that will develop equipment problems, or have transportation problems, or have personal emergencies that develop. If you have only "just enough" volunteers, you actually are short ten percent for the event. Having one or two "floaters" who can act as relief for almost any of your operators **will** help the event run more smoothly. In addition, having an extra person to act as - runner - handling message transportation to/from your served agency will help your group function more efficiently. The side benefit is that should one of the volunteers prove to not have sufficient training, they can become the backup on that job and have a successful training experience during the event.

## Handovers

During the course of every event that lasts over two hours (and most of the others) you will have need to turn over operation of one or more of the locations in the net to a relief operator. As NCS it is in the best interest of the net and your sanity to do likewise with the net to another NCS operator at least every two hours.

To facilitate this change of operators the new operator will need:

- \* List or note of outstanding messages to/from the location
  - \* Log of traffic to/from the location
- These two items may be one log, properly annotated
- \* Status of open queries
  - \* Local and remote contacts for the location (served agency and others as necessary)
  - \* Any other information the outgoing operator feels necessary

When ever possible, both operators should handle the location for at least ten minutes to allow smooth transition.

## Coverage breaks

Coverage breaks are, as the name implies, failures of a station to handle traffic as required during a net. These will usually take the form of equipment failures, power supply failures or overly tired operators who fail to pay attention. In **all** cases, prior agreement of how the coverage breaks are to be handled, should be announced in the pre event briefing.

### **NCS Coverage Breaks**

The best way to handle NCS coverage breaks is with a known NCS backup. This person is known to the net and has a duplicate copy of the operational log for the event and thus is able to pick up operation of the net in just a few moments.

When there is not sufficient resource to have a backup NCS then the person with the best NCS skills and most complete staff at their location should take over the net. This person will start with a call for emergency traffic, handle that, then go to roll call to establish continuity. After which regular net traffic will resume.

**NOTE: As this person takes over the net they will no longer be available to handle the previous assignment.** A relief operator will need to be dispatched to handle the new NCS's previous assignment!

### **Non NCS Coverage Breaks**

When a station fails repeatedly to respond to calls from NCS an assessment must be made of the criticality of the traffic. If there is critical traffic holding for that station then a relief operator will need to be dispatched immediately. If the traffic can be held for several minutes then a reevaluation should be made at that time. If the coverage break was from equipment failure and that can be corrected, then the relief operator may be recalled. If the coverage break was from inattentiveness, the relief operator should take over.

## **Handling an irate participant**

This is one of the toughest problems you will face. If handled incorrectly, it can cause net participants to 'take sides' and erode the morale and effectiveness of your net. People can get their feelings hurt over very little, especially when they are tired and in unusually stressful circumstances. Your first reactions need to be:

- \* Slow up. Don't respond instantly. Take a deep breath.
- \* Do a quick review of what you know about this person.
- \* ***DO THE NEXT THREE STEPS ALL IN ONE STATEMENT.***
  - Acknowledge the problem. Give in to the 'Problem' whether they are right or wrong! This acknowledges that there is a problem and that you are recognizing that fact. Once you agree that there is a problem, the 'fight' is gone.
  - Empathize with them! Whether you understand or not, tell them that you can understand how they can feel that way and that, were the situation reversed, you would probably feel the same way.
  - Ask them to suggest a simple yet reasonable solution. Listen intently! This is where they will reveal the real problem. Everything they have said up to now may have been a loud smoke screen. Somewhere in their suggestion, they will tell you what they really want from you.

If their suggestion/solution is reasonable, tell them that you will try to put it into play. If it is not, make a counter-suggestion that will satisfy the real problem that they have revealed to you.

If the problem cannot be resolved quickly and reasonably, quietly send someone to replace this individual and relieve him from his post. If there are no posts involved in the operation, give up let him win . . . politely explain that the net must continue, thank the person for his services and tell him he doesn't have to stick around. You tried to solve the problem reasonably and he refused. He wins the fight and you win the battle. The rest of the net will respect what you did and morale will remain intact.

## **Handling malicious interference**

Most people that interfere with net operations or with casual conversations are poor, weak individuals that think the only way to get recognition is to behave improperly. The best way to handle them is to ignore them. When they can evoke no response, at all, they tend to leave. Let them leave without comment. If you comment in any way, these people will persist.

Unfortunately, there are people who prove there is need for more chlorine at their end of the gene pool. To overcome the interference from these individuals you will have to plan for it. Plan by having alternate frequencies announced at the pre event briefing. Should the interference become intolerable, move to the alternate frequency. When you move to another frequency, do so under pre announced set of conditions (at the briefing) and *without* saying anything on the primary frequency. Another very successful method involves the use of your local "fox hunters" to track down the offending station. This will need to be a well-coordinated effort that is not announced on the net frequency.

## **Shortcut to being a good NCS - Practice, Practice Practice**

- \* Be willing to learn.
- \* Accept constructive criticism politely.
- \* Contact your ARES Emergency Coordinator and volunteer.
- \* Contact the person in charge of your local traffic net and volunteer.
- \* Contact your local Amateur Radio club to see if they have a net. If so volunteer. Look for the group that handles public service events in your area. Many times this will not be the ARES group, so volunteer.
- \* Work with the best NCS you can find. This person will be able to show you (if you care to watch) a lot of subtle techniques.
- \* Work as NCS as often as you can.