

Frequently Asked Questions

Q: What is the Crew Endurance Management System (CEMS)?

A: A system for managing the risk factors in maritime work environments that can lead to human error and performance degradation.

Q: What can CEMS offer the fishing industry?

A: The 24/7 nature of the maritime industry is full of stressors that affect your crew's endurance. CEMS can help your workers feel more alert and reduce the risk of fatigue-related accidents.

Q: Is there a difference between CEMS and CEM?

A: Yes. CEMS is a scientifically-based framework of processes, tools, education, and etc. used to implement crew endurance management (CEM). Embedded in the system are practices for identifying and mitigating crew endurance risk factors, including conducting risk factors analysis, developing light management plans, and designing work/watch schedules that prevent body clock disruptions.

To find tips more specific to your situation, please visit the resources at the CEMS website (below).



**United States Coast Guard
Commandant (CG-ENG-1)
Human Element and Ship Design
2100 2nd Street S.W., STOP 7126
Washington, DC 20593
Phone: 202-372-1354
Fax: 202-372-1925
E-mail: CEMS@uscg.mil
<http://www.uscg.mil/hq/g-m/cems/index.htm>**

Fishing—a Risky Business

For centuries, the fishing vessel community has accepted violent weather, extreme temperatures, numerous days of seemingly non-stop work, and other unpredictable working conditions as part of the business. The risk of accidents such as falling overboard, getting caught in equipment, and grounding a vessel heightens when crews are unable to give this physically demanding environment the constant alertness and concentration it requires.

Lack of Sleep Increases Risk

Studies of brain functions have proven that humans need 7 to 8 hours of continuous sleep for the brain and nervous system to function properly. No matter how tough you may feel, you cannot train your body to need less sleep. Without 7 to 8 hours of continuous sleep, crewmembers have a higher risk of:

- Thinking less clearly.
- Making poor decisions.
- Becoming irritable.
- Having problems communicating.
- Having less energy for work and leisure hours.
- Becoming withdrawn and less willing to resolve issues and problems.

CEMS: Improving Endurance, Reducing Risk

Continuous sleep is a rarity in the fishing industry, but by using CEMS principles, you can include controls in your operations to minimize the occurrence of endurance risk factors and minimize performance degradation. CEMS offers a well-rounded approach, including tips for better sleep, body clock entrainment, physical fitness, mental health, and work environment. Whether you are the captain of a boat or its newest crewmember, CEMS tips offer suggestions that any boat or individual can immediately put to use.

**United
States
Coast
Guard**

*Fishing,
Fatigue,
and CEMS*



Enhancing Endurance/Fighting Fatigue



Eat a well-balanced DIET—too much sugar, fat, and starch will make you feel sluggish. Balance your meals by increasing your intake of lean protein, fruits, vegetables, and complex carbohydrates.



Watch CAFFEINE and MEDICATIONS—certain foods, beverages, and medications cause us to be more alert, while others make us drowsy. Read labels and be aware of what you consume before watch and before bedtime.



General Tips for Endurance:

Get regular EXERCISE—whether cardiovascular or muscle-building, regular exercise increases overall endurance levels. Try for at least 20 minutes, 3 to 4 days a week.



Get your REST—though it's not possible to “store” sleep, you can prepare for long work hours by sleeping as much as possible on the days prior to departure. Schedule at least 7 hours of continuous sleep each day.

If you manage a vessel, establish a “crew endurance plan” that considers its nature and operations. Include a watch schedule that ensures the entire crew will be rested throughout a transit.

On Watch

It's important to be fully rested and to stay alert so you can work

- Wear appropriate work clothes so you don't get too hot or cold.
- Keep well-hydrated.
- To keep your alertness high, talk to other crewmembers, turn on music, and/or keep moving or walking around.
- Consider two-person bridge watches whenever possible.
- Seek or avoid light exposure following vessel's or personal light management plan.
- 10-minute naps can help minimize the ill effects of sleep loss. Just make sure to allow yourself 15 minutes to “wake up” afterwards.

Once you're off watch, let your body wind down to relax and get ready for sleep.

- Cut back or eliminate caffeine 3 to 4 hours before bed. Drink water, warm milk, or hot herbal tea instead.
- Heavy or spicy meals may interfere with deep sleep—have a light meal or snack instead.
- Relax—read or listen to music.
- Minimize your exposure to bright lights and get to bed before the sun comes up.
- Try to find a quiet, dark, cool place to sleep.

Before Watch

Take some time before watch to “rev up” and wake up your mind and body.

- Get exposure to daylight or other bright light upon awakening.
- Eat your largest meal of the day now rather than before bed.
- Coffee or other sources of caffeine (in moderation) may help you feel awake and alert. Just be sure to cut back 3 to 4 hours before bedtime.

Before Sleep

