#6

New England Fishery Management Council
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John Pappalardo, *Chairman* | Paul J. Howard, *Executive Director*

May 14, 2007

To: David Goethel, Chairman Research Steering Committee
From: Patricia Fiorelli
Subject: Issues associated with the NEFSC report concerning the potential effects of fishing on cod, haddock and yellowtail flounder stocks during spawning activities.

Through Executive Director Paul Howard, the RSC requested the attached report from the NEFSC several months ago. Following receipt, the committee spent some time on the report at its March meeting, but agreed to postpone further consideration so that a more thorough discussion might occur in the future. Accordingly, this matter will be on the May 30 agenda.

As background, the following is a summary of the issues raised during the initial discussion of the NERO's Experimental Fishery Permit process at the October 25, 2006 RSC meeting.

As a result of a discussion initiated at the last RSC meeting about the justification for not granting EFPs during peak spawning periods, both the committee and Council requested more detailed information on the scientific or other basis for the Regional Office (RO) policy. RO staff noted the policy applies to proposals that would address the establishment of Special Access Programs (SAPs). Several requests were made following a fairly detailed discussion about the policy:

- To the NEFSC - Review the charts in the EFP Guidelines to determine if the spawning periods are accurately characterized and summarize the evidence, one way or another, regarding the impacts of fishing on stocks during peak spawning periods.
- To the Regional Office - Restructure the EFP Guidelines document so that the public may better understand the conditions under which EFPs may or may not be granted.
- To the Council - Request views on the conduct of research during spawning periods in general and in circumstances other than when a closed area is involved (for example, a research project for Cape Cod yellowtail flounder — it is in poor condition and not the subject of a closed area). In other words, a) is there still a concern about potential disruption of spawning activities whether or not an exemption from the regulations is needed by researchers; and b) are there generic concerns about any research undertaken during any spawning period and for species other than cod, haddock and yellowtail flounder?
- Additional considerations – The committee also raised the following questions; Is it appropriate to preclude an experiment based on the eventual use of the data (i.e. to establish a SAP) as the current EFP policy does? Should not the evidence collected be considered in whether or not an action is ultimately allowed? Also, should cumulative

impacts of multiple experiments in a given area be considered? And should not gear type be taken into account in considering whether an experiment in a closed area is allowed or not?

The NEFSC report and the NERO Guidelines documents are attached. Also provided are several considerations and questions that were raised by both RSC members and Council staff after review of the NEFSC report. Per our discussion at the last meeting, RSC members are encouraged to forward in advance of or present any additional or related issues at the May 30 meeting so that we might begin to develop possible next steps with respect to this issue.

1) In reviewing the tables in the NEFSC document, please note the Center staff has suggested a broader range of months than that described in the current EFP Guidelines to account for inter-annual variability in spawning periods.

2) The peak spawning period, specifically for yellowtail flounder, may fall in any one of 2-3 months. The current EFP policy is based on the notion that a prohibition on fishing during the peak season is the best course of action to protect spawning fish --- but this is not necessarily true if the peak is not the most important part of the spawning period. Is there more advice that could be of value to managers on this issue?

3) The report does not address whether different gears have different effects on spawning activity. Does a trawl have the same impacts as a longline? Does a dredge? This could be important when approving EFPs. As written, the report does not differentiate these gears. If there isn't any difference, it would be helpful if the authors would say so.

4) The report only talks about timing of spawning. There is no discussion of spawning behavior, whether it differs between species, and whether this has any relevance to the types of fishing activity that may interfere with spawning.

5) Are there studies on spawning times in closed areas, or are these assumed based on spawning times in the general areas?

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northeast Fisheries Science Center
166 Water Street
Woods Hole, MA 02543-1026

February 20, 2007

Mr. Paul J. Howard
Executive Director
New England Fishery Management Council
50 Water Street
Newburyport, MA 01950

Dear Paul:

We are providing the enclosed information in response to your request of November 22, 2006, regarding EFP Guidelines.

Dr. Richard McBride convened a panel of NEFSC experts to discuss this topic, and he completed a literature review. His report addresses your request for: (1) a table that reviews the peak spawning periods in selected closed areas for cod, haddock, and yellowtail flounder and (2) a summary of potential effects of fishing on stocks during spawning activity.

If you have any further questions, please don't hesitate to contact me or Dr. McBride (508/495-2244).

Sincerely,

Nancy B. Thompson, Ph.D.
Science and Research Director

Enclosure
cc: W. Gabriel
R. McBride

This report is a response to Paul Howard's letter of November 22, 2006, requesting information relevant to the Northeast Regional Office's Exempted Fishing Permit (EFP) Program. An EFP is required for activities that would otherwise be prohibited by Federal fishing regulations; for example, an EFP would likely be required for industry-based fishery research that involves areas closed to fishing.

The request from Mr. Howard focused on: 1) whether spawning periods are accurately characterized by EFP guidelines for five closed areas, and 2) the evidence available regarding impacts of fishing on stocks during peak spawning periods. This request was limited to the following species: cod, haddock, and yellowtail flounder.

1) Are spawning periods accurately characterized by EFP guidelines (Table 1)?

There are three problems with the characterizations in Table 1. First, there is more recent information, specifically for yellowtail flounder (Cadrin, 2003; see Appendix I). Second, a broader range of "peak" months is necessary to account for inter-annual variability. That is to say that the peak in any one year may fall in any one of 2-3 months (e.g., Page and Frank, 1989). Third, listing only the "peak" months implies that this is the most important part of the spawning period, but there are reasons that this is not always true. For example, Buckley et al. (1991) note for winter flounder (*Pseudopleuronectes americanus*), a close relative to yellowtail flounder, that: "Embryos produced earlier in the spawning season appeared to have a survival advantage over those produced later in the spawning season. Embryos produced by small, late-spawning fish appeared to be at a pronounced disadvantage." Thus, Table 2 is proposed as a more workable, alternative characterization of spawning periods for these fishes in these closed areas.

Data sources for Table 2: A panel of biologists was assembled to provide expert opinion. Those participating were: Jay Burnett, Steve Cadrin, Ralph Mayo, Richard McBride, and Loretta O'Brien. Their opinions were incorporated into this document. One of the more comprehensive sources to determine spawning seasonality is Berrien and Sibunka (1999), which depicts shelf-wide egg distributions for 33 fish taxa. These data are included in the "Essential Fish Habitat" documents (Reid et al., 1999), specifically for cod (Fahay et al. 1999; Lough, 2004), haddock (Cargnelli et al., 1999; Brodziak, 2005), and yellowtail flounder (Johnson et al., 1999). In addition, the spawning seasonality of yellowtail flounder has been reviewed by Cadrin (2003), and an updated egg data report exists for Georges Bank in Sibunka et al. (2006). All these documents were reviewed to produce Table 2. See also Appendix I for a literature review of the cod, haddock, and yellowtail flounder reproduction, and Appendix II for all literature cited.

2) What is the evidence available regarding impacts of fishing on stocks during peak spawning periods by these species?

There is no specific cause-effect experiment demonstrating fishing effects on spawning by these fishery species, but there are many reasons to limit fishing on actively spawning fish, whether or not they spawn in closed areas. These include:

- Fishing activity may disrupt spawning signals and thereby reduce spawning success: these signals may be either visual, auditory, or both (Rountree et al. 2006).

- These fishes are associated with some specific substrate types at one point (or another) in their life cycles (Johnson et al., 1999; Lough, 2004; Brodziak, 2005), so that fishing activities may disturb spawning habitat or habitat essential for the early life history stages.

- Significant subpopulation structure has been noted for cod, haddock, and other marine fishes (Jónsdóttir et al., 2006; Wright et al., 2006), so that fishing in localized spawning areas may deplete small spawning stocks (Ames, 1997, 2004).

- Spawning fish are often stressed and may be less able to survive handling, or capture may reduce egg production, even if the fish are released (Taylor et al., 2001).

- Fishing increases mortality, which reduces the number of older fish spawning. "Experiments ... [with cod] ... indicated that first-time spawners perform poorly compared to second-time spawners. They breed for a shorter period, produce fewer egg batches, exhibit lower fecundity, and produce smaller eggs with lower fertilization and hatching rates; moreover, their larvae are less likely to hatch in environmental conditions favorable for survival." (Trippel, 1998; p. 339).

In summary, there are several reasons that fishing in closed areas during the spawning season may be detrimental to these fish populations. In addition, it will be more difficult to evaluate the effect of closed areas whenever exemptions are allowed. This is not to say that exemptions can never be issued, but the current emphasis, such that exemptions for year-round closed areas (or areas of particular concern) requires stringent review, appears well justified.

Table 1. Peak spawning periods for cod (*Gadus morhua*), haddock (*Melanogrammus aeglefinus*), and yellowtail flounder (*Limanda ferruginea*) in five closed areas of the western North Atlantic Ocean. **This is the table used currently in the EFP Program guidelines.** Data Source: Amendment 13 to the northeast multispecies fishery management plan (http://www.nero.noaa.gov/sfd/GuidelinesForEFPs060105.pdf).
n/a = not applicable (no major spawning occurs)

Closed Area (CA)	Cod	Haddock	Yellowtail Flounder
CA I	*February-March**	*March-April*	n/a
CA II	*February-March**	*March-April*	n/a
Nantucket Lightship CA	n/a	n/a	*April-June*
Western Gulf of Maine	*April*	n/a	n/a
Cashes Ledge	*April*	n/a	n/a

*Note that Framework 40-B to the northeast multispecies fishery management plan has modified the peak spawning period for cod

Table 2. Modified table of spawning periods for cod (*Gadus morhua*), haddock (*Melanogrammus aeglefinus*), and yellowtail flounder (*Limanda ferruginea*) in five closed areas of the western North Atlantic Ocean. Peak spawning period is identified in italics, total spawning period is identified in parentheses. Data sources: Appendix II.
n/a = not applicable (no major spawning occurs)

Closed Area (CA)	Cod	Haddock	Yellowtail Flounder
CA I	*January-March* (October-May)	*February-April* (January-June)	*April-June* (March-August)
CA II	*February-April* (October-May)	*February-April* (January-June)	*April-June* (March-August)
Nantucket Lightship CA	n/a	n/a	*April-June* (February-August)
Western Gulf of Maine	April-May (October-July)	*April-May* (February-May)	*April-June* (April-August)
Cashes Ledge	April (October-July)	n/a	n/a

APPENDIX I. BACKGROUND MATERIAL FOR COD, HADDOCK, AND YELLOWTAIL REPRODUCTION.

COD REPRODUCTION (An excerpt from Lough [2004])

Both size and age at maturity have declined in recent decades, likely in response to the fishery harvesting older and larger fish, or to a general decline in stock biomass due to intense exploitation. In a Scotian Shelf study (Beacham 1983), the median age at maturity declined about 50% between 1959 (when age at 50% maturity was 5.4 years in males and 6.3 years in females) and 1979 (when age at 50% maturity was 2.8 years in both sexes). Median lengths at maturity declined from 51 to 39 cm in males and 54 to 42 cm in females. This "smaller and younger at maturity" trend continued between 1972 and 1995 in all zones between Georges Bank and Labrador (Trippel *et al.* 1997). As of 1994, in U.S. waters, sexual maturity was reached at ages between 1.7 and 2.3 years (median) and lengths between 32 and 41 cm (average) (O'Brien *et al.* 1993). Presently (2000-2002), age and length at maturity have increased slightly for both Georges Bank and Gulf of Maine stocks (O'Brien 1999) .... Gulf of Maine cod attain sexual maturity at a later age than Georges Bank cod which is related to differences in growth rates between the two stocks. The recently developed maturation reactionnorm analyses (Barot *et al.* 2004a, b) also indicated a shift towards lower ages and sizes of maturation for Georges Bank and Gulf of Maine cod stocks. The trend for Georges Bank cod to mature earlier than the Gulf of Maine cod was thought to be due mostly to environmental differences. Georges Bank is a highly productive and warmer shallow bank compared to the deeper Gulf of Maine. The reaction-norm approach supports the hypothesis that the Georges Bank and Gulf of Maine cod stocks have changed genetically in response to fishing.

On Georges Bank, an analysis of the MARMAP ichthyoplankton data set indicates that 60% of spawning occurs between February 23 and April 6, based on the abundance of Stage III eggs, backcalculated to spawning date. Ninety percent occurs between mid-November and mid-May, with a median date of mid-March (Colton *et al.* 1979; Page *et al.*1998). Spawning begins along the southern flank of Georges Bank and progresses toward the north and west. It ends latest in the year on the eastern side of the bank. Historically, cod have spawned on both eastern and western Georges Bank. During the MARMAP period (1978-1987), spawning could either be split between eastern and western Georges Bank, or occur predominantly on one side or the other (Lough *et al.* 2002). Composite egg distributions indicate that the most intense spawning activity occurs on the Northeast Peak of Georges Bank (Page *et al.* 1998). Data from the more recent U.S. GLOBEC Georges Bank surveys (1995-1999) also indicated peak spawning occurs during the February-March period and mostly on the Northeast Peak (Mountain *et al.* 2003). The results of the present compilation of egg distributions indicate that most spawning occurs not only on the Northeast Peak of Georges Bank, but also around the perimeter of the Gulf of Maine, and over the inner half of the continental shelf off southern New England. It occurs year-round, with a peak in winter and spring. Peak spawning is related to environmental conditions. It is delayed until spring when winters are severe and peaks in winter when they are mild (Smith *et al.* 1979; Smith *et al.* 1981). Spawning peaks in April on Browns Bank (Hurley and Campana 1989). Within the Gulf of Maine, cod generally spawn throughout the winter and early spring in most locations, but the period of peak spawning varies depending on location (Schroeder 1930). In general, spawning occurs later in the year in the more northerly regions. Within Massachusetts Bay, Fish (1928) reported peak spawning activity during January and February.

Bigelow and Welsh (1924) noted that north of Cape Ann, Massachusetts, most spawning occurred between February and April and further north, between Cape Elizabeth and Mt. Desert Island, Maine, the peak spawning period was between March and May. It has also been noted that cod spawning occurs mostly at night and may be crepuscular (Klein-MacPhee 2002). Reproduction also occurs in nearshore areas, such as Beverly-Salem Harbor, MA, where eggs are found November through July (with a peak in April) at temperatures between -2 and 20°C (Elliott *et al.* 1979).

Hanke *et al.* (2000) recently summarized all the available ichthyoplankton survey data from the Scotian Shelf, eastern Gulf of Maine, and the Bay of Fundy region, from 1975-1997, and provided evidence for a spring and fall spawning, but with regional differences. In March-April spawning was observed off southwestern Nova Scotia including Browns Bank, Georges Bank, and the Emerald/Western/Sable Island Bank area. Spawning occurs again in November and December on Georges Bank and the entire Nova Scotia coast, west of Grand Manan and on Western/Sable Island/ Banquereau Bank.

Ames (2004) characterized the Gulf of Maine historical Atlantic cod fishing and spawning grounds during the 1920's when stocks were high, compared with our present day knowledge. Four subpopulations were identified: Bay of Fundy, Downeast, Midcoast, and Western, each with 3-6 spawning components. Inshore cod feeding grounds were generally rocky bottoms along the 100 m isobath. Spawning occurred in channels and basins bordering the rocky, shallow, historic fishing grounds. Compared with recent survey data of cod eggs (Berrien and Sibunka 1999), it appears that more than half of the historic spawning grounds are inactive and show no evidence of spawning. Ames cites three factors that contributed to the collapse of the spawning components: (1) directed fishing with otter trawls and gillnets on coastal spawning aggregations, (2) pollution of coastal nursery grounds, and (3) destruction of anadromous forage stock by the construction of dams.

HADDOCK REPRODUCTION (An excerpt from Brodziak [2005])

Haddock are highly fecund broadcast spawners (Klein-MacPhee 2002). Depending upon their size, adult females produce on the order of hundreds of thousands to millions of eggs per year. Eggs are released near the ocean bottom in batches and fertilized by a courting male. After fertilization, haddock eggs become buoyant and rise to the surface water layer.

Median age and size of maturity differ slightly between the Georges Bank and Gulf of Maine haddock stocks .... During the late-1980s, Georges Bank haddock matured at younger ages and smaller sizes than Gulf of Maine haddock (O'Brien *et al.* 1993, see also Clark 1959). On Georges Bank, males matured at younger ages and smaller sizes than females. In the Gulf of Maine, median age of maturity for males was greater than for females while male and female sizes at maturity were similar. Size at maturity of Georges Bank haddock has declined in recent years (O'Brien *et al.* 1993; Trippel *et al.* 1997). For example, female median length of maturity was about 40 cm during 1977-1983 but declined to about 34-36 cm in the early-1990s. Density-dependence may explain the apparent decline in median size of maturity since haddock appear to mature at smaller sizes when population density is low (Waiwood and Buzeta 1989; Ross and Nelson 1992).

Georges Bank is the principal haddock spawning area in the northeast U.S. continental shelf ecosystem. Haddock spawning is concentrated on the northeast peak of Georges Bank. The western edge of Georges Bank also supports a smaller spawning concentration (Walford 1938). The two spawning components are persistent and exhibit phenotypic differences in otolith morphometrics (Begg *et al.* 2000). Although the vast majority of reproductive output originates from Georges Bank, some limited spawning activity occurs on Nantucket Shoals (Smith and Morse 1985) and along the South Channel (Colton and Temple 1961). In the Gulf of Maine, Jeffreys Ledge and Stellwagen Bank are the two primary spawning sites (Colton 1972). In addition, Ames (1997) also reported numerous small, isolated spawning areas in inshore Gulf of Maine waters. Based on interviews with retired commercial fishers from Maine and New Hampshire, Ames (1997) identified 100 haddock spawning sites, covering roughly 500 square miles, from Ipswich Bay to Grand Manan Channel.

The timing of haddock spawning activity varies among areas. In general, spawning occurs later in more northerly regions (Page and Frank 1989; Lapolla and Buckley 2005). There is also inter-annual variation in the onset and peak of spawning activity. On Georges Bank, spawning occurs from January to June (Smith and Morse 1985), usually peaking from February to early-April (Smith and Morse 1985; Lough and Bolz 1989; Page and Frank 1989; Brander and Hurley 1992; Lapolla and Buckley 2005) but the timing can vary by a month or more depending upon water temperature (Marak and Livingstone 1970; Page and Frank 1989). In the Gulf of Maine, spawning occurs from early February to May, usually peaking in February to April (Bigelow and Schroeder 1953). Overall, cooler water temperatures tend to delay haddock spawning and may contract the duration of spawning activity (Marak and Livingstone 1970; Page and Frank 1989).

YELLOWTAIL FLOUNDER REPRODUCTION (An excerpt from Johnson et al. [1999])

The median age at maturity for females is 1.8 years on Georges Bank, 2.6 years off Cape Cod, and 1.6 years off southern New England (O'Brien *et al.* 1993). Females generally mature at 26-40 cm TL at 2-4 years of age in the southern part of their range and 5-8 years farther north.

Additional information on yellowtail flounder spawning season (Source: Cadrin, 2003).

Spawning occurs from March to September throughout the range of yellowtail flounder (Bigelow and Schroeder 1953). Colton et al. (1979) reported that spawning on Georges Bank and southward occurs from March to June with a peak in April and May, and spawning on Browns Bank occurs from May to July with a peak in June, based on ichthyoplankton surveys. Berrien (1981) reported that spawning begins as early as late February in southern New England, by early March on western Georges Bank, and mid-March in the Mid Atlantic and eastern Georges Bank. Silverman (1983) observed that, from 1977-1981, spawning began in early April in the mid Atlantic, mid-April in southern New England, late April on Georges Bank, and mid-May in the southwestern Gulf of Maine; spawning peaked in mid-May in the mid Atlantic and southern New England. Several authors summarized that the time of peak spawning is progressively later from south to north (Neilson et al. 1986, Sherman et al.1987, Berrien and Sibunka 1999; Table 1.1). Neilson et al. (1988) concluded that multiple stocks of yellowtail inhabit the Scotian Shelf based on the successively later spawning from east to west and discrete distributions of eggs and spawning females.

Berrien and Sibunka (1999) summarized catches of yellowtail flounder eggs from the Marine Resources Monitoring Assessment and Prediction (MARMAP) program which included 73 ichthyoplankton surveys with 10,273 stations from Cape Hatteras to Nova Scotia from 1977 to 1987. Eggs were present from February to September with peak abundance generally from April to June. Although eggs were widely dispersed across the continental shelf, areas of concentration were from the New York Bight to Georges Bank, the western Gulf of Maine, and the Scotian Shelf. In the early months, distributions of eggs are discrete among Mid Atlantic-southern New England, Georges Bank, and Cape Cod; but distributions become more continuous among the three areas by May.

Royce et al. (1959) observed three separate concentrations of yellowtail larvae off Long Island, on southwestern Georges Bank, and in the Gulf of Maine during 1929 and 1932. They speculated that samples of larvae collected off New York and New Jersey were from the southern New England spawning stock, because they coincided with observations of spent gonads on the fishing grounds. Smith et al. (1975) illustrated a continuous distribution of yellowtail flounder larvae from Cape Hatteras to southern New England with areas of concentration off Delaware Bay and in the New York Bight during 1965-1966. Yellowtail flounder larvae sampled from MARMAP in 1977 were concentrated off Long Island, on western Georges Bank, and on eastern Georges Bank; with minor concentrations in the Gulf of Maine and on the Scotian Shelf (Berrien 1981). Silverman (1983, 1985) described consistent occurrence of yellowtail larvae from 1977-1984 MARMAP surveys in three areas: 1) from Nantucket Shoals to the coast of New Jersey, 2) on southern Georges Bank, and 3) in the southwest Gulf of Maine. Geographic distributions of yellowtail flounder eggs were discontinuous between Browns Bank and Georges Bank (Neilson et al. 1986). Morse et al. (1987) showed that yellowtail larvae were concentrated from the Mid Atlantic Bight to Nantucket Shoals and on Georges Bank, with minor concentrations in the southwestern Gulf of Maine and on Browns Bank. Geographic distribution of larvae was generally concentrated south of Long Island in April, extended to Georges Bank and southwestern Gulf of Maine from May to July, and was concentrated on Georges Bank and in the southwestern Gulf of Maine in August (Johnson et al. 1999).

Similar to geographic information on fishing grounds and survey catches, yellowtail flounder eggs and larvae are distributed over the continental shelf. However, the seasonal progression of spawning from south to north may partially isolate reproductive products from different spawning areas. Begg et al. (1999a) summarized that yellowtail eggs are concentrated near spawning areas, but larval distributions are more widespread and nearly continuous throughout the region.

Table 1. 1. Spawning seasons of yellowtail flounder (range indicated by "-", peak indicated by "X").

Stock	Feb	Mar	Apr	May	Jun	Jul	Aug	source
Grand Bank					XXX			Pitt 1970
Scotian Shelf				-------	XXX	-------		Colton *et al.* 1979
						-------		Scott 1983
					XXX	-------	-------	Sherman *et al.* 1987
				-------	-------	-------	-------	Neilson *et al.* 1988
Cape Cod				-------	-------	-------	-------	Silverman 1983
			-------	-------	XXX	-------	-------	Sherman *et al.* 1987
Georges Bank		-------	XXX	XXX	-------			Colton *et al.* 1979
		-------	-------	-------	-------	-------	-------	Berrien 1981
			-------	-------	-------	-------	-------	Silverman 1983
			-------	XXX	XXX	-------	-------	Sherman *et al.* 1987
Southern New England		-------	-------	XXX	-------	-------	-------	Smith *et al.* 1975
		-------	XXX	XXX	-------			Colton *et al.* 1979
	-------	-------	-------	-------	-------	-------	-------	Berrien 1981
			-------	-------	-------	-------	-------	Silverman 1983
			-------	XXX	XXX	-------	-------	Sherman *et al.* 1987
Mid-Atlantic Bight		-------	-------	XXX	-------	-------	-------	Smith *et al.* 1975
		-------	XXX	XXX	-------			Colton *et al.* 1979
		-------	-------	-------	-------	-------	-------	Berrien 1981
			-------	XXX	-------	-------	-------	Silverman 1983
			-------	XXX	XXX	-------	-------	Sherman *et al.* 1987

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GUIDELINES FOR INDIVIDUALS REQUESTING EXEMPTED FISHING PERMITS (EFPs)

Northeast Regional Office, National Marine Fisheries Service
June 1, 2005

Researchers seeking to conduct industry-based experimental projects relating to fisheries management often must request Exempted Fishing Permits (EFPs) from the Northeast Regional Office of the National Marine Fisheries Service (NOAA Fisheries Service). EFPs may be issued to authorize vessels doing research or research-related work (e.g., harvesting research set-aside quota that will be sold to generate revenue for research) to conduct activities that would otherwise be prohibited by Federal fishing regulations in 50 CFR part 648. Activities that frequently require an EFP include the testing of fishing gear, market research, and the public display of a fishery resource.

There are some types of regulatory exemptions that raise particular concerns because, if granted, they would allow fishing activities that could undermine measures established to reduce interactions with protected species or to conserve and manage fisheries. In such cases, there is a risk that the review of the EFP request may result in the denial of some or all of the exemptions needed to carry out the planned activities. There is also the risk that the scope of the exempted activity may have to be reduced. Researchers who request exemptions to modify fishing gear, increase the level of fishing activity, or alter the season or area in which a fishery takes place, could introduce new potential impacts to species protected under the Endangered Species Act (ESA) or Marine Mammal Protection Act. New impacts that would effect species protected under the ESA would require the conduct of a section 7 consultation.

These guidelines have been developed to provide researchers with advance information about exemption requests that may cause this type of concern. Researchers are urged to design their experimental activities to minimize the need for regulatory exemptions, and to limit the exemption requests to those that are directly related to, and necessary for, the success of the research project. The EFP review evaluates the impacts of the specific exemptions requested, including determining the scale and scope of the proposed activity. For instance, a request for exemptions to enable one cooperative research vessel to take a small number of experimental trips would be more likely to get approval than a request for many vessels to take many trips. The review focuses on the potential impact of the experimental activity, for instance, the amount of fish to be caught and the potential habitat impacts.

This document identifies the exemption requests that cause the most concern, in order to assist researchers in designing experimental programs that avoid these problem areas. With a few exceptions (see Section A below), exemption requests will continue to be evaluated on a case-by-case basis, and NOAA Fisheries Service may grant these types of exemptions if the specific project warrants. However, due to the concerns outlined below, such exemptions will be granted only if there is strong justification that the exemption is central to the research activity.

SECTION A. EXEMPTIONS THAT ARE NEVER GRANTED

Exemptions to allow the landing and sale of fish smaller than the minimum fish size

Requests to land **and sell** fish smaller than the minimum size will not be authorized because of the enforcement difficulties it would pose to have any undersized fish enter into commerce. EFP requests to possess and/or land undersized fish in order to carry out scientific study may be authorized, if the activity is a necessary aspect of the research.

Exemptions from vessel permit and reporting requirements

Requests to land and sell legal catch will not be authorized if the vessel has not been issued the required Federal fishing permits. This is necessary because of the enforcement difficulties it would pose to waive this basic requirement, and in order to ensure the integrity of the limited entry permit provisions. However, virtually any U.S. vessel may apply for and be issued an open access permit for many of the region's fisheries. Depending upon the research activity, such permits may be sufficient to allow the vessel to participate.

In addition, requests to exempt any commercial vessel from the mandatory reporting requirements will be denied because such reports are critical to the regional management programs.

Exemptions from commercial quotas or "hard TACs"

For species with hard quotas/TACs (measures that require the fishery to be closed when specified catch or landings levels are attained), exemptions that would cause such quotas to be exceeded cannot be authorized [§648.12(a)].

Exemptions that request an allocation of commercial quotas or "hard TACs"

Requests for exemptions that would grant the researcher a specific amount of commercial quota or hard TAC will not be approved because such a request represents an allocation of the resource. Allocation decisions are more appropriately made by the Regional Fishery Management Councils through their public process. Both the New England and the Mid-Atlantic Councils have established set-aside allocation to support research for some fisheries.

Exemptions to develop Special Access Programs (SAPs) that would occur in year-round closed areas during peak spawning periods

The Northeast (NE) Multispecies Fishery Management Plan (FMP) includes a provision that allows SAPs to be established. A SAP is a narrowly defined fishery that is designed to provide increased access to a stock(s) that, in the absence of such authorization, would not be allowed due to broadly applied regulations. Requests for EFPs for work within year-round closed areas during peak spawning periods for cod, haddock, and yellowtail flounder will not be authorized if the objective of the work is to collect information that would serve as the basis for proposing a SAP in those areas during those peak spawning periods. Authorizing SAPs during peak spawning periods would be inconsistent with the objectives of the year-round closures, which were established to protect cod, haddock, and yellowtail flounder stocks.

WESTERN GULF OF MAINE	April	n/a	n/a
CASHES LEDGE	April	n/a	n/a

*Note that Framework 40-B to the NE Multispecies FMP has modified the peak spawning periods for cod.

Exemptions from year-round habitat closed areas and habitat areas of particular concern (HAPCs)
HAPCs areas are defined by the Councils in the development of their management programs to protect Essential Fish Habitat (EFH). There would be virtually no justification for an exemption to use bottom tending mobile gear within such areas, because it was such gear that these areas were intended to exclude. Other activity could be authorized if there is strong justification for conducting the work in the specific area, and if such activity would be expected to have minimal impacts on EFH.

SECTION B. EXEMPTIONS SUBJECT TO STRINGENT REVIEW

Exemptions from year-round closed areas
Applications for EFPs often request an exemption that would allow experimental activities to be conducted within year-round closed areas. When this exemption is requested, it is essential that the proposal clearly outline why the work must be carried out within the closed area rather than in the open area. Unless the proposal provides strong justification for conducting the work in a closed area, such an exemption is unlikely to be approved.

Even stronger justification must be presented if researchers are requesting to work within the year-round closed areas during peak spawning periods for cod, haddock, and yellowtail flounder. Such requests will be reviewed on a case-by-case basis, and scale/scope will be key aspects of the review. As noted in Section A, if the intent of the research is to propose a SAP in the closed area during peak spawning, the request would almost certainly be denied.

Exemptions from Days-at-Sea (DAS) for monkfish, scallops, NE multispecies
Researchers often request an exemption that would allow commercial fishing vessels to fish outside of the DAS management programs established for monkfish, scallops, and NE multispecies. The overall

DAS allocations made through these management programs are established to constrain fishing mortality to specified levels. In addition, the NE multispecies management program has established DAS for specific activities (Category A, Category B, Category C).

The fishing mortality associated with DAS exemptions must be evaluated to assure that such exemptions do not allow mortality to exceed the FMP's mortality goals. In addition, requests to utilize NE multispecies B or C category DAS would likely be denied. B DAS are intended to be used only in fisheries that have been determined to have only a minimal bycatch of any species of concern, and the allocation of B DAS accounts for the mortality based on that premise. C DAS are not authorized by the FMP for use at this time.

Exemptions from trip/possession limits
Requests for exemptions from trip or possession limits will be evaluated to determine whether the research activity would necessarily result in catch exceeding those levels. An exemption may be justified if catch levels in excess of the limits are directly related to the success of the research.

Exemptions from measures established to reduce interactions with protected species
Requests for exemptions from measures that were established to reduce interactions with protected species (e.g., gear prohibitions, area closures) require strong justification, and in some cases would require consultation under section 7 of the ESA, which could delay the issuance of an EFP.

Exemptions from minimum fish size
Requests to land (but not sell) fish smaller than minimum size may be granted for research projects if it is necessary in order to completely characterize the catch. All undersized fish must be returned to the sea, with the exception of fish landed as scientific samples in order to conduct further research onshore.