



McGill Bird Observatory  
Fall Migration Monitoring Program  
2004 Report

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December 2004



Avian  
Science and  
Conservation  
Centre

### **About the McGill Bird Observatory:**

The McGill Bird Observatory (MBO) was founded in 2004 as a joint effort of the Migration Research Foundation and McGill University's Avian Science and Conservation Centre. MBO is the only active banding station in southwestern Quebec, with the nearest other sites being Innis Point Bird Observatory in Ottawa, to the west, Prince Edward Point Bird Observatory in Quinte, to the southwest, and l'Observatoire d'Oiseaux de Tadoussac, to the east. The operations at MBO are patterned after those at other Canadian bird observatories, with a particular emphasis on utilization of standardized research protocols. In addition to collecting valuable scientific data, MBO serves as a training facility for students and other individuals interested in developing practical skills in field ornithology.

### **The Fall Migration Monitoring Program:**

The Fall Migration Monitoring Program (FMMP) is a standardized study to be undertaken at MBO annually, providing the basis for long-term trend analysis of bird populations. It is intended to be compatible with the aims and methodology of the Canadian Migration Monitoring Network. The program involves daily monitoring throughout the season, including a standardized census, banding, and incidental observations. A detailed protocol for the FMMP at MBO has been published (Gahbauer and Hudson, 2004). This year FMMP was conducted on a trial basis only, not conforming to the protocol in all ways.

### **2004 season:**

Aside from a few partial site trials in spring 2004, this fall season marked the start of regular banding activities at MBO. The start of the banding season was delayed until September 19 by logistical challenges involving both equipment and personnel. From then until the end of October, banding took place on 21 days, and the census was conducted on an additional 10 mornings. The census and/or other incidental observations were also recorded on 8 dates in August and September prior to the commencement of banding.

The main purpose of this season was to evaluate the potential of the site for passerine monitoring during fall migration, and if applicable, to identify the best locations for nets. As such, the emphasis was on experimentation, rather than strict adherence to the FMMP protocol. In particular, several nets were moved or switched during the course of the season, and a variety of locations were used on a part-time basis only. The resulting data will not be comparable to those from future FMMP seasons in a statistical sense, but have considerable intrinsic value in addition to providing guidelines for future site and program management.

### *Equipment*

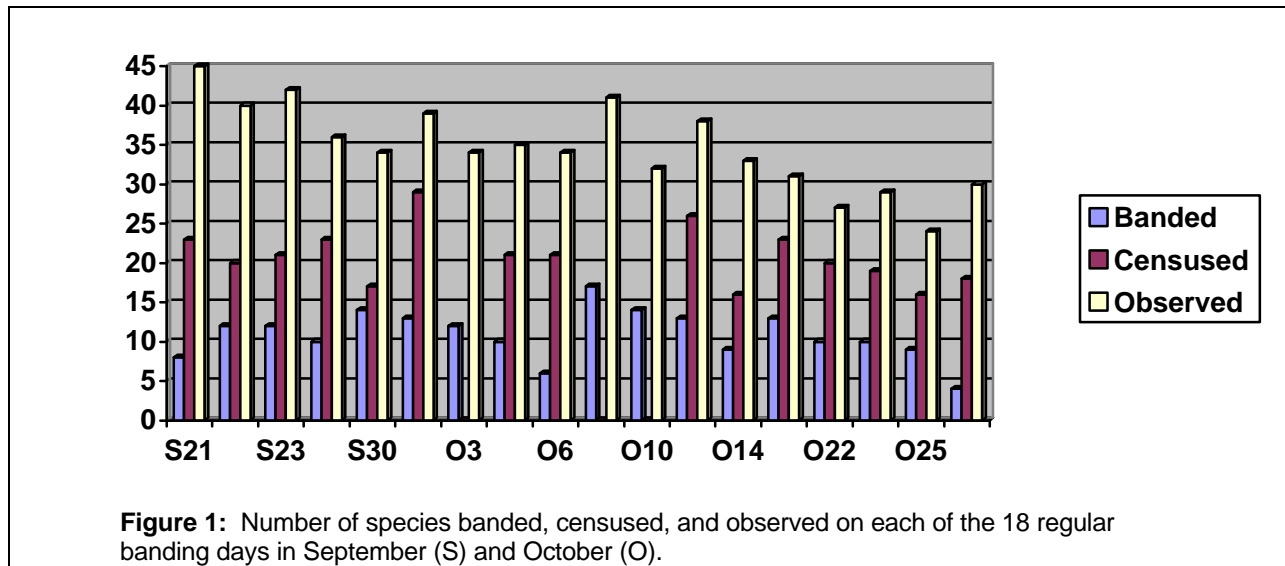
Mist nets were used for all trapping, most of them with 30 mm mesh. Eight nets from Spidertech were new, five from Avinet were in nearly new condition, and another three older nets were of unknown origin. Five nets were allocated to owling; these were also used during passerine monitoring on six occasions. Passerine banding typically operated with nine nets in four locations; a tenth net at a separate location was added on October 13 for the final ten sessions. Details of net allocations are listed in Appendix B.

### *Effort:*

Of the 21 banding days, 18 were considered 'regular', with nets open for at least 4.5 hours. This is shorter than dictated by the protocol, but was considered acceptable for experimentation during the first season, and was done in response to declining capture rates in the late morning. The other three days involved shorter banding efforts as demonstrations to organized groups, including two McGill classes that visited during the afternoon rather than morning.

**Birds:**

715 birds of 45 species were banded during FMMP 2004. The peak for both species richness and abundance came on October 8, with 81 birds of 17 species banded. Factoring in the census and incidental observations, 111 species were observed over the course of the season, with a daily high of 47 on September 19. Figure 1 summarizes the number of species banded, censused, and observed on all the regular banding days, showing a slight decrease in diversity as the season progressed.



There were many highlights to the season. They included a dozen species caught and banded only once: Pileated Woodpecker, Yellow-bellied Flycatcher, Eastern Phoebe, Northern Shrike, Red-breasted Nuthatch, Swainson’s Thrush, Orange-crowned Warbler, Palm Warbler, Common Yellowthroat, Scarlet Tanager, Fox Sparrow, and Indigo Bunting (surprisingly late in the season). At the other extreme, Table 1 lists the ten most frequently banded species.

**Table 1:** Top ten species banded at MBO during fall 2004

Species	# banded
American Robin	145
Song Sparrow	95
Ruby-crowned Kinglet	89
White-throated Sparrow	85
Slate-coloured Junco	56
Black-capped Chickadee	47
American Tree Sparrow	33
Yellow-rumped (Myrtle) Warbler	27
American Goldfinch	18
Northern Saw-whet Owl	16

Some of these, such as the White-throated Sparrow, Song Sparrow, and Ruby-crowned Kinglet, were captured in fairly steady numbers for the majority of the season. Others, most notably American Robin, Slate-coloured Junco, and American Tree Sparrow, surged in numbers within the final two weeks. Many species with earlier peaks of migration were partially or entirely missed due to the late start to the season.

Interesting observations were also made of birds not banded. Recently recognized as a distinct species, the Cackling Goose was added to the site checklist in October. The rarest bird of the season was a Golden-winged Warbler spotted during the census on September 22. Also of

note were the Common Ravens observed on several dates. Rusty Blackbirds, a species in serious long-term decline, were seen regularly throughout the season, but never caught.

*Research and education:*

Contributing data to the North American bird banding database and accumulating records for future population analyses are at the core of MBO’s mandate. However, these also offer the potential for additional research and education. Assisting with banding was a learning experience for all involved, especially for those who had not previously handled birds. To extend the scope of the project, photographs were taken of representative individuals of each species handled. These are posted for public reference on the MBO website ([www.migrationresearch.org/mbo.html](http://www.migrationresearch.org/mbo.html)). Where possible, different ages and sexes are shown. The intent is to continue adding to this reference library over time. Additionally, the results of this pilot season indicated that there are several species that occur at MBO in substantial numbers, and could be targeted for in-depth study in future years.

**Owl banding:**

Also taking place during the fall season was a trial owl-banding program. Although separate from the FMMP that focuses on passerines and other diurnal migrants, a brief summary of the owl program is presented here to provide a complete account of the season’s activities.

Unlike passerine monitoring, owling involves an active luring using constant audio broadcast of the Northern Saw-whet Owl’s spring ‘toot’ call (Whalen and Watts 1999). MBO follows the methodology being used widely across North America by members of Project OwlNet (Huy 2004). Luring begins approximately one half hour after sunset, and continues for a minimum of three hours (longer if conditions are favourable for owl migration).

Owling was attempted on 11 nights between September 28 and October 27 (see Table 2). Aside from a very busy night on Thanksgiving Monday (Oct 11), results were poor. The peak night included 12 Northern Saw-whet Owls and an Eastern Screech-owl. All owls caught on other nights were Northern Saw-whet Owls, including one on October 18 previously banded at Prince Edward Point in Ontario in October 2001. A Great Horned Owl was heard once, and three Long-eared Owls were vocal on several occasions, but never close to the nets.

**Table 2:** Owling nights during fall 2004, with weather conditions at net opening. Wind speed is indicated using the Beaufort scale (1 = 1-5 km/h, 2 = 6-11 km/h, 3 = 12-20 km/h, 4 = 21-29 km/h).

Date	# owls	Wind	Cloud cover	Temperature
Sep 28	1	N (1)	30%	17
Oct 3	0	S (1)	10%	18
Oct 6	0	SW (2)	10%	15
Oct 10	0	N (3-4)	100%	12
Oct 11	13	N (1)	90%	10
Oct 12	3	W (3)	0%	13
Oct 18	1	W (2)	10%	5
Oct 19	0	NE (3)	10%	5
Oct 22	0	NE (3)	90%	8
Oct 24	0	None	80%	5
Oct 27	1	None	10%	3

Limited conclusions can be drawn from this season’s results. While the peak night suggests that the site has good potential for owl monitoring, the other nights offer a more discouraging outlook. However, it is possible that the poor results were largely a factor of weather. At Innis Point Bird Observatory, capture rates are significantly higher when winds are absent or are from

the north or northwest at Beaufort 2 or less (Gahbauer 2003, Phillips 2004). These conditions occurred at MBO only four times during the owling nights (36% of attempts), but accounted for 79% of owls captured. Owls were captured only once when winds were above 12 km/h; this was on the night following the peak movement, and may have included owls already in the area.

### Site evaluation:

One of the key goals of FMMP 2004 was to identify key locations for nets. Table 3 summarizes the usage and productivity of all nets. On the whole, MBO shows great promise, with a capture rate of just under 90 new birds per 100 net hours, if the O net experiments are omitted.

**Table 3:** Net usage and capture rates during FMMP 2004

Net	Net hours	New captures	Repeats	Total birds	Birds / 100 net hours	
					Banded	Total
B1	76.9	66	1	67	85.8	87.1
B2	73.7	40	13	53	54.3	71.9
B3	73.7	28	9	37	38.0	50.2
<b>B – TOTAL</b>	<b>224.3</b>	<b>134</b>	<b>23</b>	<b>157</b>	<b>59.7</b>	<b>70.0</b>
C1	87.5	65	9	74	74.3	84.6
C2	87.5	82	20	100	93.7	114.3
<b>C – TOTAL</b>	<b>175.0</b>	<b>147</b>	<b>29</b>	<b>176</b>	<b>84.0</b>	<b>100.6</b>
D1	93.3	146	14	160	156.4	171.5
D2	93.3	93	11	104	99.7	111.5
D3	93.3	91	18	109	97.5	116.8
<b>D – TOTAL</b>	<b>280.0</b>	<b>330</b>	<b>43</b>	<b>373</b>	<b>117.9</b>	<b>133.2</b>
<b>E1 / E – TOTAL</b>	<b>79.4</b>	<b>56</b>	<b>3</b>	<b>59</b>	<b>70.5</b>	<b>74.3</b>
<b>F3 / F – TOTAL</b>	<b>32.8</b>	<b>37</b>	<b>3</b>	<b>40</b>	<b>112.8</b>	<b>121.9</b>
<b>SUBTOTAL</b>	<b>791.5</b>	<b>704</b>	<b>101</b>	<b>805</b>	<b>88.9</b>	<b>101.7</b>
O2	26.2	3	0	3	11.5	11.5
O3	26.2	4	1	5	15.3	19.1
O4	26.2	1	0	1	3.8	3.8
O5	26.2	1	0	1	3.8	3.8
O6	26.2	2	0	2	7.6	7.6
<b>O – TOTAL</b>	<b>131</b>	<b>11</b>	<b>1</b>	<b>12</b>	<b>8.4</b>	<b>9.2</b>
<b>GRAND TOTAL</b>	<b>922.5</b>	<b>715</b>	<b>102</b>	<b>817</b>	<b>77.5</b>	<b>88.6</b>

As a group, the B nets had the lowest capture rate. However, B1 and B2 yielded several species not caught elsewhere, including Pileated Woodpecker, Brown Creeper, Scarlet Tanager, and Common Grackle. It is therefore recommended to retain B for FMMP, although it may be advisable to move B3 to either between B1 and B2, or just beyond B2.

The C nets performed very well, despite C1 being in relatively poor condition throughout the season, and C2 having a very poor net for the first two weeks. There is potential to add C3 immediately beyond C2; the area on either side of the path is marshy, and showed promise this fall for species such as Winter Wren, Common Yellowthroat, and Swamp Sparrow, all under-represented in this year's banding totals.

The D nets are by far the most productive, especially within the first couple of hours after sunrise. The numbers for D1 are higher in part because an 18-metre net was used there throughout October. On sunny days, these nets appear to be more visible to birds, and capture rate drops to near zero by mid-morning, but in general they are very effective and should be kept in place.

The lone E net was moderately successful, but is worth keeping as it was particularly effective at catching kinglets and warblers. E2 could potentially be added in the hollow on the east side of the hawthorns behind E1; this would likely catch additional kinglets and sparrows, and possibly also mimids and thrushes.

The net at F3 was installed late in the season, but quickly proved to be valuable. There is space and promising habitat for F1 and F2, and these should be installed for FMMP 2004.

The O nets were opened several times during passerine banding hours out of curiosity; as we expected, they caught very few birds, and it is recommended that they be reserved only for owl banding. This would also allow for passerine (30 mm) and owl (60 mm) nets to be kept separate.

Aside from the minor exceptions previously noted, the existing net layout appears to sample the birds in the area quite well. The only additional areas that might be worth adding nets are the semi-open patches north and south of the census path, east of the C nets. On the north side, the shrubby/grassy area harbours many low-moving warblers and sparrows; on the south side there is a natural channel between parallel rows of hawthorns, across which many sparrows, thrushes, and wrens were seen moving this fall. The former site is likely to be flooded in spring; the latter would normally be dry in all seasons.

### **Summary:**

The pilot FMMP in 2004 was a great success considering the limited coverage of the season. Despite missing many of the early migrants that pass through in early to mid-August, a respectable total of 111 species was observed over the season. With an earlier start, 125 species should be possible. This compares favourably with other established bird observatories, especially considering the absence of suitable habitat for the majority of waterfowl and shorebirds at MBO. Given that 715 birds were banded during only 21 days of banding in 2004, complete coverage of a three-month fall season would be expected to yield at least two to three thousand birds, a significant contribution to the North American banding program.

It is strongly recommended that FMMP be operated again in 2005, with an extended season beginning in early August to document the start of migration, and continuing through the end of October. This level of effort would require hiring a bander-in-charge to ensure full and regular coverage throughout the season, though volunteer assistance would also remain crucial.

An effort comparable to that of FMMP 2004 should be made in April and May 2005 to evaluate the potential of the site for spring migration monitoring. Consideration should be given to adjusting the MMP protocol in both spring and fall to involve only 5 hours of netting instead of 6, as the last hour was rarely productive in fall 2004, and volunteer resources are better spread over additional days than hours.

## **Acknowledgments:**

The operation of MBO would not be possible without the support of the many individuals and organizations generously contributing their time and/or financial resources. A bander-in-charge must be present whenever banding is being undertaken, to process the birds and/or supervise other banders in doing so, and to generally oversee activities at the observatory. The assistance of other banders is most welcome, especially on busy days. Equally important are all the other banding assistants who help with extracting birds from the nets, scribing, site maintenance, censusing, and more. The following volunteers filled these roles in 2004:

*Banders-in-charge:* Marcel Gahbauer, Lance Laviolette

*Banders:* Shawn Craik, Marie-Anne Hudson, Isabel Julian, Crissy Ranellucci

*Banding / census assistants:* Sheila Arthur, Lina Bardo, Mélisa Brunet, Joanna Coleman, Christina Donehower, Manon Dubé, Andrée Dubois-Laviolette, Barrie Ford, Gregor Gilbert, Gay Gruner, Noémie Laplante, Meghan Larivée, Marylise Lefevre, Barbara Macduff, Eve Marshall, Betsy McFarlane, Louise Morin, Chris Murphy, Arnaud Tarroux, Emily Wallace

*Owling coordinators:* Joanna Coleman, Shawn Craik, Marcel Gahbauer

*Owling volunteers:* Lise Amarasekera, Mélisa Brunet, Amélie Côté, Christina Donehower, Tanya Drapeau, Manon Dubé, Robin Goldstein, Gay Gruner, Marie-Anne Hudson, Isabel Julian, Teresa Julian, Marylise Lefevre, Barbara Macduff, Julia Mlynarek, Paul Payette, Jennifer Pearson, Crissy Ranellucci, Alain Theriault, Emily Wallace

In addition, we extend our sincere thanks to all who donated materials or funds to MBO in 2004:

Avian Science and Conservation Centre (purchase of supplies/equipment)

Innis Point Bird Observatory (donation of banding pliers)

Migration Research Foundation (donation/purchase of nets, digital scale, and other equipment)

Province of Quebec Society for the Protection of Birds (startup funding)

Wildlifers (donation of bird feeders and bird seed for the winter season)

EMCO Building Products (donation of much needed materials for replacing the roof covering of the banding cabin)

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## Appendix A: Complete list of species observed during FMMP 2004

Species	Code	First observed	# banded	# repeats	# returns
Common Loon	COLO	Sep 18			
American Bittern	AMBI	Sep 13			
Great Blue Heron	GBHE	Sep 3			
Canada Goose	CAGO	Sep 14			
Cackling Goose		Oct 10			
Wood Duck	WODU	Sep 18			
American Black Duck	BLDU	Aug 25			
Mallard	MALL	Sep 23			
Turkey Vulture	TUVU	Sep 18			
Osprey	OSPR	Oct 10			
Northern Harrier	NOHA	Sep 19			
Sharp-shinned Hawk	SSHA	Sep 3	3		
Cooper's Hawk	COHA	Sep 4			
Northern Goshawk	NOGO	Sep 18			
Red-shouldered Hawk	RSHA	Sep 18			
Broad-winged Hawk	BWHA	Sep 14			
Red-tailed Hawk	RTHA	Sep 19			
American Kestrel	AMKE	Sep 19			
Merlin	MERL	Sep 4			
Peregrine Falcon	PEFA	Sep 30			
Killdeer	KILL	Aug 25			
Wilson's Snipe	WISN	Sep 21			
Ring-billed Gull	RBGU	Sep 14			
Herring Gull	HERG	Oct 19			
Rock Pigeon	ROPI	Sep 7			
Mourning Dove	MODO	Sep 3			
Eastern Screech-owl	EASO	Oct 11	1		
Great Horned Owl	GHOW	Aug 25			
Long-eared Owl	LEOW	Sep 28			
Northern Saw-whet Owl	NSWO	Sep 28	16	1	1
Ruby-throated Hummingbird	RTHU	Aug 25			
Belted Kingfisher	BEKI	Sep 19			
Yellow-bellied Sapsucker	YBSA	Sep 21			
Downy Woodpecker	DOWO	Aug 25	4	3	
Hairy Woodpecker	HAWO	Aug 26	2		
Yellow-shafted Flicker	YSFL	Aug 25			
Pileated Woodpecker	PIWO	Sep 22	1		
Eastern Wood-Pewee	EAWP	Sep 13			
Yellow-bellied Flycatcher	YBFL	Sep 22	1		
Trail's Flycatcher	TRFL	Aug 25			
Least Flycatcher	LEFL	Aug 25			
Eastern Phoebe	EAPH	Aug 25	1		
Great Crested Flycatcher	GCFL	Oct 1			
Cliff Swallow	CLSW	Aug 25			
Barn Swallow	BARS	Aug 26			
Blue Jay	BLJA	Aug 25	5	1	
American Crow	AMCR	Aug 25			
Common Raven	CORA	Sep 18			
Black-capped Chickadee	BCCH	Aug 25	47	42	
Red-breasted Nuthatch	RBNU	Sep 13	1		
White-breasted Nuthatch	WBNU	Aug 25			
Brown Creeper	BRCR	Sep 13	4		
House Wren	HOWR	Aug 25	2		
Winter Wren	WIWR	Sep 20			
Golden-crowned Kinglet	GCKI	Sep 18	4		
Ruby-crowned Kinglet	RCKI	Sep 18	89	5	
Eastern Bluebird	EABL	Oct 29			
Swainson's Thrush	SWTH	Sep 30	1		
Hermit Thrush	HETH	Sep 30	7	2	



Species	Code	First observed	# banded	# repeats	# returns
American Robin	AMRO	Aug 25	141	2	
Gray Catbird	GRCA	Aug 25	11		
Brown Thrasher	BRTH	Sep 19			
Cedar Waxwing	CEDW	Aug 25	5		
Northern Shrike	NSHR	Oct 4	1		
European Starling	EUST	Sep 18			
Blue-headed Vireo	BHVI	Sep 19	4		
Warbling Vireo	WAVI	Aug 25			
Philadelphia Vireo	PHVI	Sep 18			
Red-eyed Vireo	REVI	Aug 26			
Golden-winged Warbler	GWWA	Sep 22			
Orange-crowned Warbler	OCWA	Oct 8	1		
Nashville Warbler	NAWA	Aug 25	2		
Northern Parula	NOPA	Sep 3			
Yellow Warbler	YWAR	Aug 25			
Chestnut-sided Warbler	CSWA	Aug 25			
Magnolia Warbler	MAWA	Aug 25	2		
Black-throated Blue Warbler	BTBW	Aug 25	6		
Yellow-rumped Warbler	MYWA	Sep 21	27	1	
Black-throated Green Warbler	BTNW	Aug 25			
Western Palm Warbler	WPWA	Sep 23	1		
Blackpoll Warbler	BLPW	Sep 20			
American Redstart	AMRE	Sep 7			
Ovenbird	OVEN	Sep 21	2		
Connecticut Warbler	COWA	Sep 19			
Common Yellowthroat	COYE	Aug 25	1		
Wilson's Warbler	WIWA	Sep 7			
Scarlet Tanager	SCTA	Aug 25	1		
Northern Cardinal	NOCA	Sep 18	9	3	
Rose-breasted Grosbeak	RBGR	Aug 25			
Indigo Bunting	INBU	Aug 25	1		
American Tree Sparrow	ATSP	Oct 13	33	9	
Chipping Sparrow	CHSP	Sep 14	5		
Field Sparrow	FISP	Sep 14	2	1	
Savannah Sparrow	SAVS	Sep 19			
Fox Sparrow	FOSP	Oct 23	1		
Song Sparrow	SOSP	Aug 25	95	16	1
Lincoln's Sparrow	LISP	Sep 18	2		
Swamp Sparrow	SWSP	Sep 13	13		
White-throated Sparrow	WTSP	Aug 25	85	13	
White-crowned Sparrow	WCSP	Sep 19	6	2	
Slate-coloured Junco	SCJU	Sep 20	56		
Red-winged Blackbird	RWBL	Sep 13			
Rusty Blackbird	RUBL	Sep 19			
Common Grackle	COGR	Aug 25	9		
Brown-headed Cowbird	BHCO	Sep 29			
Baltimore Oriole	BAOR	Aug 25			
Purple Finch	PUFI	Sep 19	2		
House Finch	HOFI	Sep 22	1		
Pine Siskin	PISI	Oct 6			
American Goldfinch	AMGO	Aug 25	18		
House Sparrow	HOSP	Oct 12			

## Appendix B: Net allocation for FMMP 2004

Net location	Net number	Manufacturer	Length / mesh	Dates
<b>B1</b>	ST5	Spidertech	12 m / 30 mm	Sep 19 – Nov 1
<b>B2</b>	ST6	Spidertech	12 m / 30 mm	Sep 19 – Oct 6
	AC1	Avinet	12 m / 30 mm	Oct 6 – Nov 1
<b>B3</b>	ST7	Spidertech	12 m / 30 mm	Sep 19 – Oct 6
	AC4	Avinet	12 m / 30 mm	Oct 6 – Nov 1
<b>C1</b>	AC11	unknown	9 m / 30 mm	Sep 19 – Nov 1
<b>C2</b>	AC12	unknown	9 m / 45 mm	Sep 19 – Oct 1
	ST1	Spidertech	12 m / 30 mm	Oct 1 – Nov 1
<b>D1</b>	ST1	Spidertech	12 m / 30 mm	Sep 19 – Oct 1
	AC2	Avinet	18 m / 30 mm	Oct 1 – Nov 1
<b>D2</b>	ST2	Spidertech	12 m / 30 mm	Sep 19 – Nov 1
<b>D3</b>	ST3	Spidertech	12 m / 30 mm	Sep 19 – Nov 1
<b>E1</b>	ST4	Spidertech	12 m / 30 mm	Sep 19 – Oct 6
	AC3	Avinet	12 m / 30 mm	Oct 6 – Nov 1
<b>F3</b>	AC14	Avinet	18 m / 30 mm	Oct 13 – Nov 1
<b>O2</b>	AC9	unknown	12 m / 30 mm	Sep 23 – Nov 1
<b>O3</b>	ST8	Spidertech	14 m / 60 mm	Sep 23 – Nov 1
<b>O4</b>	AC3	Avinet	12 m / 30 mm	Sep 23 – Oct 6
	ST4	Spidertech	12 m / 30 mm	Oct 6 – Nov 1
<b>O5</b>	AC4	Avinet	12 m / 30 mm	Sep 23 – Oct 6
	ST6	Spidertech	12 m / 30 mm	Oct 6 – Nov 1
<b>O6</b>	AC1	Avinet	12 m / 30 mm	Sep 23 – Oct 6
	ST7	Spidertech	12 m / 30 mm	Oct 6 – Nov 1