

Resource Stewardship Monitoring Program

**Riparian, Stream, & Fish Habitat
Condition Assessments
2005 - 2006**

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Key Evaluation Question for the FRPA “Fish” Value

- **Are riparian forestry and range practices effective in maintaining the structural integrity and functions of stream ecosystems and other aquatic resource features over both short and long terms?**
 - **Current focus remains on streams**
 - **Sites assessed so far are FP Code streams**

Riparian Assessment Scope

- **2005 Surveys: 19 districts 248 streams**
- **2006 Surveys: 29 districts 376 streams**
- **TOTAL SAMPLE: 624 streams**

2005-2006 Combined Sample

Region	S1	S2	S3	S4	S5	S6	Total
CFR	3	9	24	12	21	88	157
NIFR	0	12	60	85	8	101	266
SIFR	0	9	40	36	5	111	201
ALL	3	30	124	133	34	300	624

Stream-Riparian Indicators

- 1. Channel bed disturbance**
- 2. Channel bank disturbance**
- 3. LWD characteristics**
- 4. Channel morphology**
- 5. Aquatic connectivity**
- 6. Fish cover diversity**
- 7. Moss abundance & condition**
- 8. Fine sediments**
- 9. Aquatic invertebrate diversity**
- 10. Windthrow frequency**
- 11. Riparian soil disturbance/
bare ground**
- 12. LWD supply/root network**
- 13. Shade & microclimate**
- 14. Disturbance-increasers/
noxious weeds/invasive
plants**
- 15. Vegetation form, vigour,
& structure**

Evaluation Approach

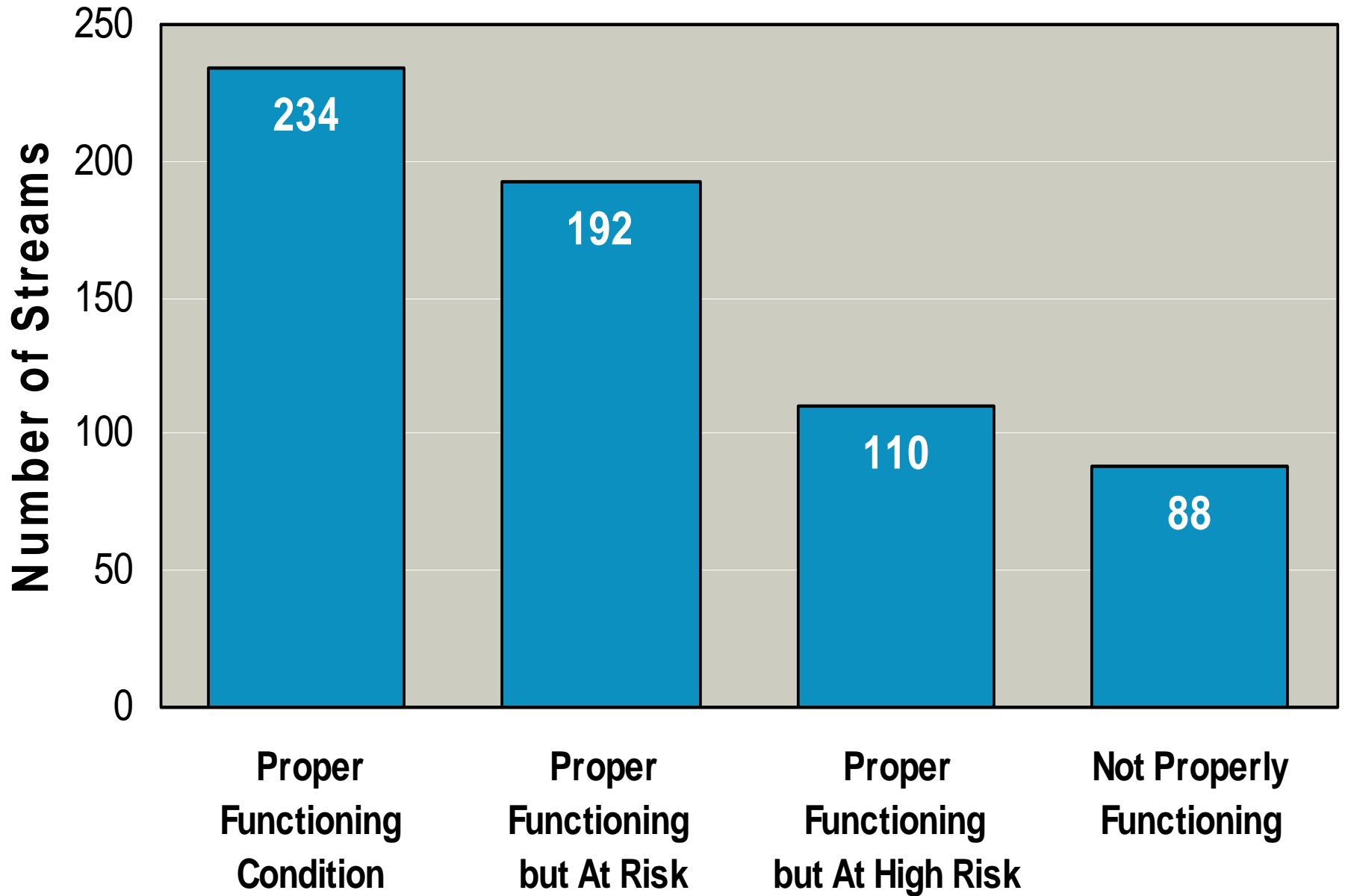
- **Assess physical and biological conditions in streams and their riparian areas**
- **Describe conditions with Routine-Level Checklist covering 15 indicators**
- **Score each Indicator as “Yes = OK” vs. “No = problem”**
- **Roll-up score = overall site condition**

Roll-up Scoring System

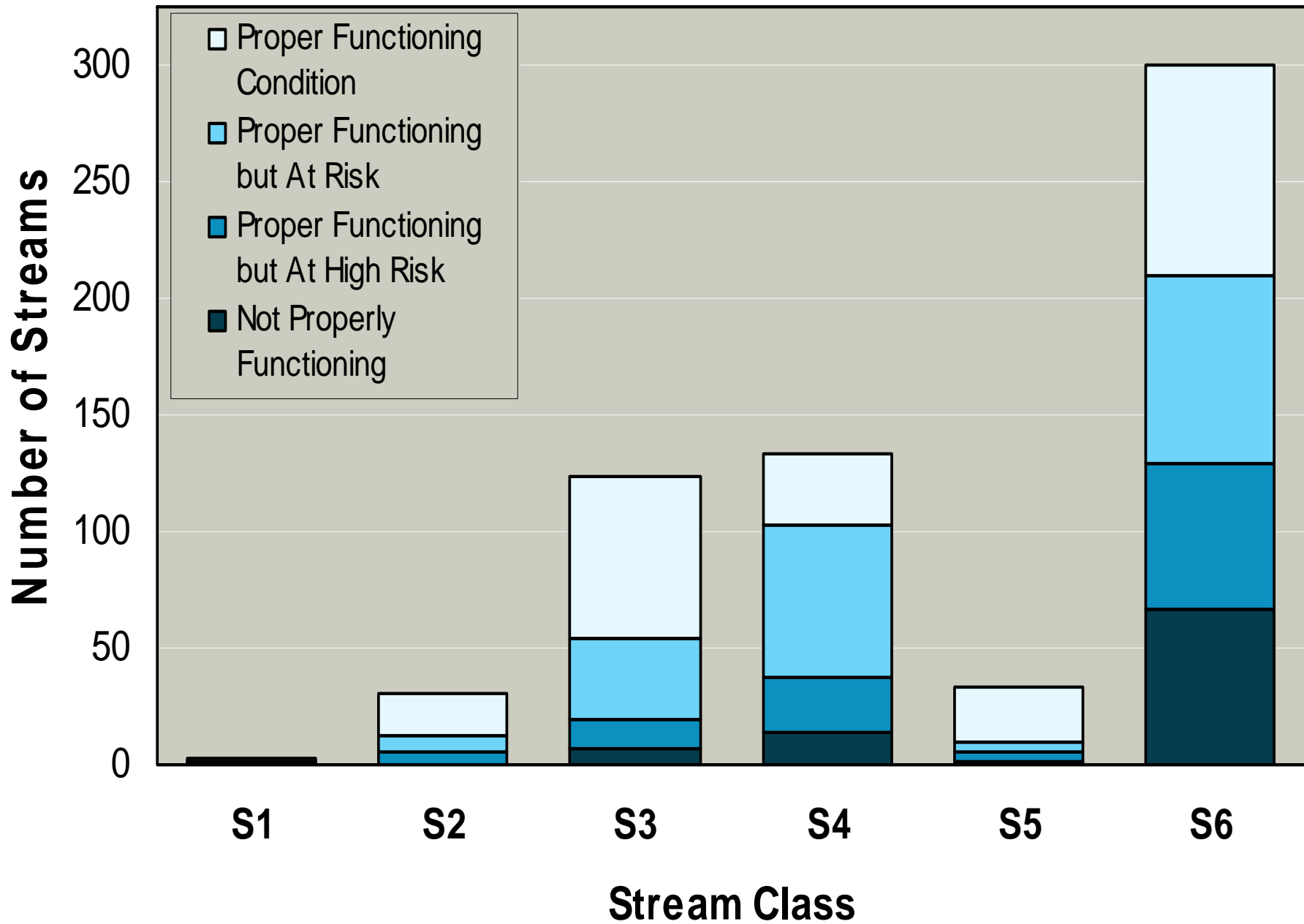
Number of “No” Indicators out of 15:

- | | |
|--|--------------------|
| 1. Properly Functioning Condition | 0 - 2 No's |
| 2. Properly Functioning, at Risk | 3 - 4 No's |
| 3. Properly Functioning, at High Risk | 5 - 6 No's |
| 4. Not Properly Functioning | > 6 No's |

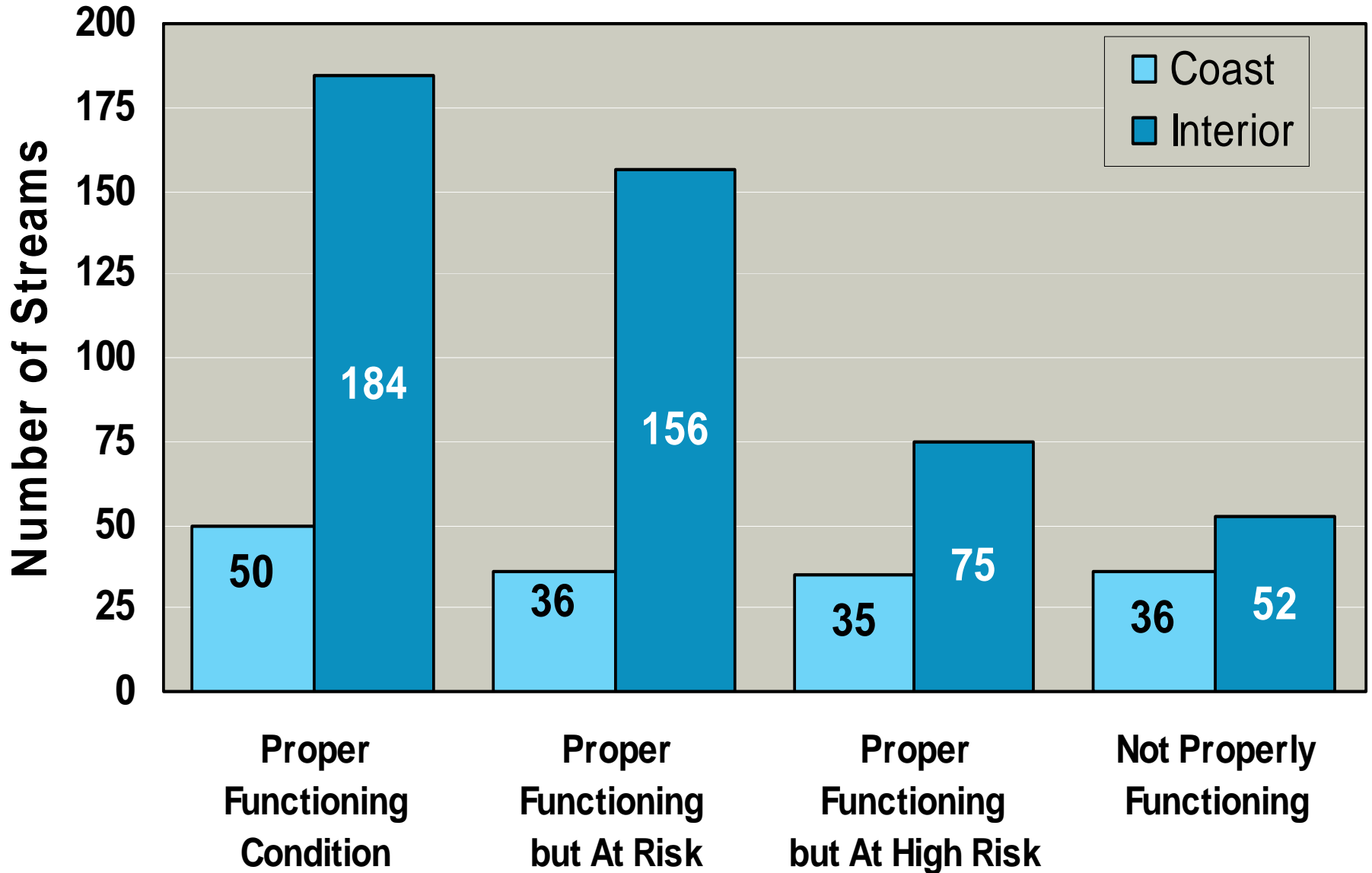
Overall Stream/Riparian Condition Assessments, 2005 – 2006



Overall Stream/Riparian Condition by Stream Class, 2005 – 2006



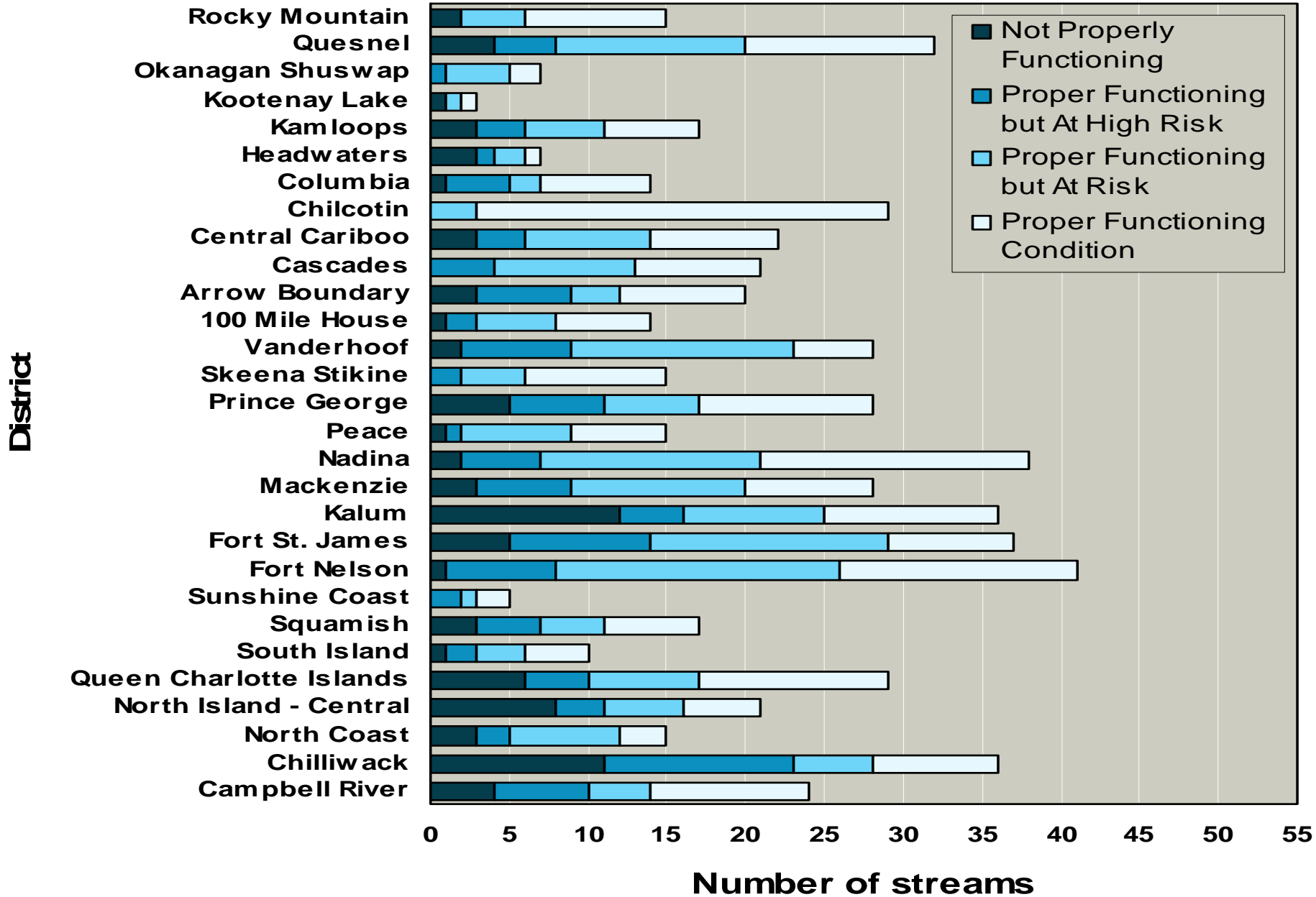
Results by Coast and Interior



Percent of Class S6 Streams in NPF Condition by Forest Region

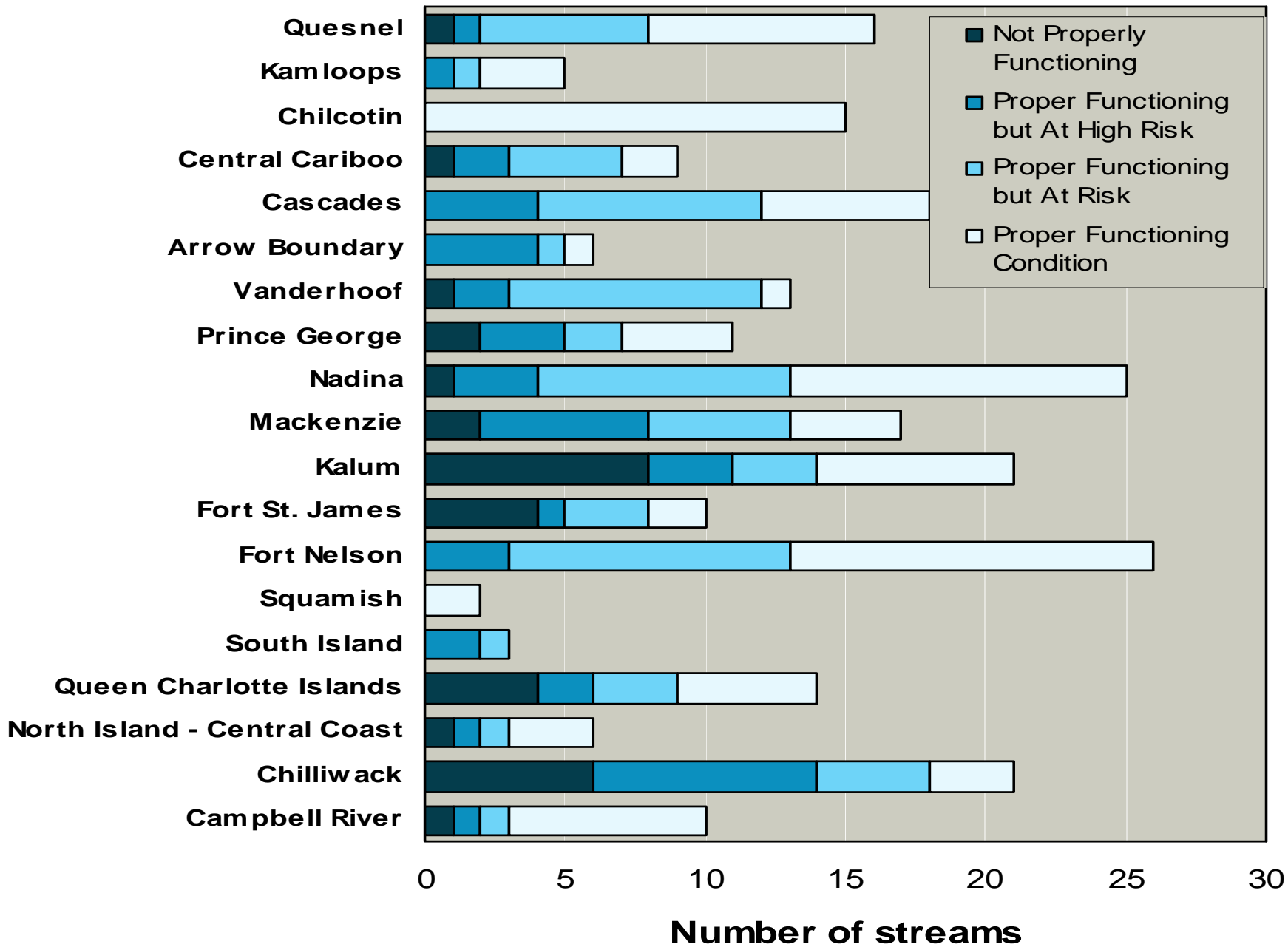
Region	2005	2006
CFR	32	32
NIFR	24	19
SIFR	3	22

Results by Forest District, 2005 – 2006



Results by Forest District, 2005

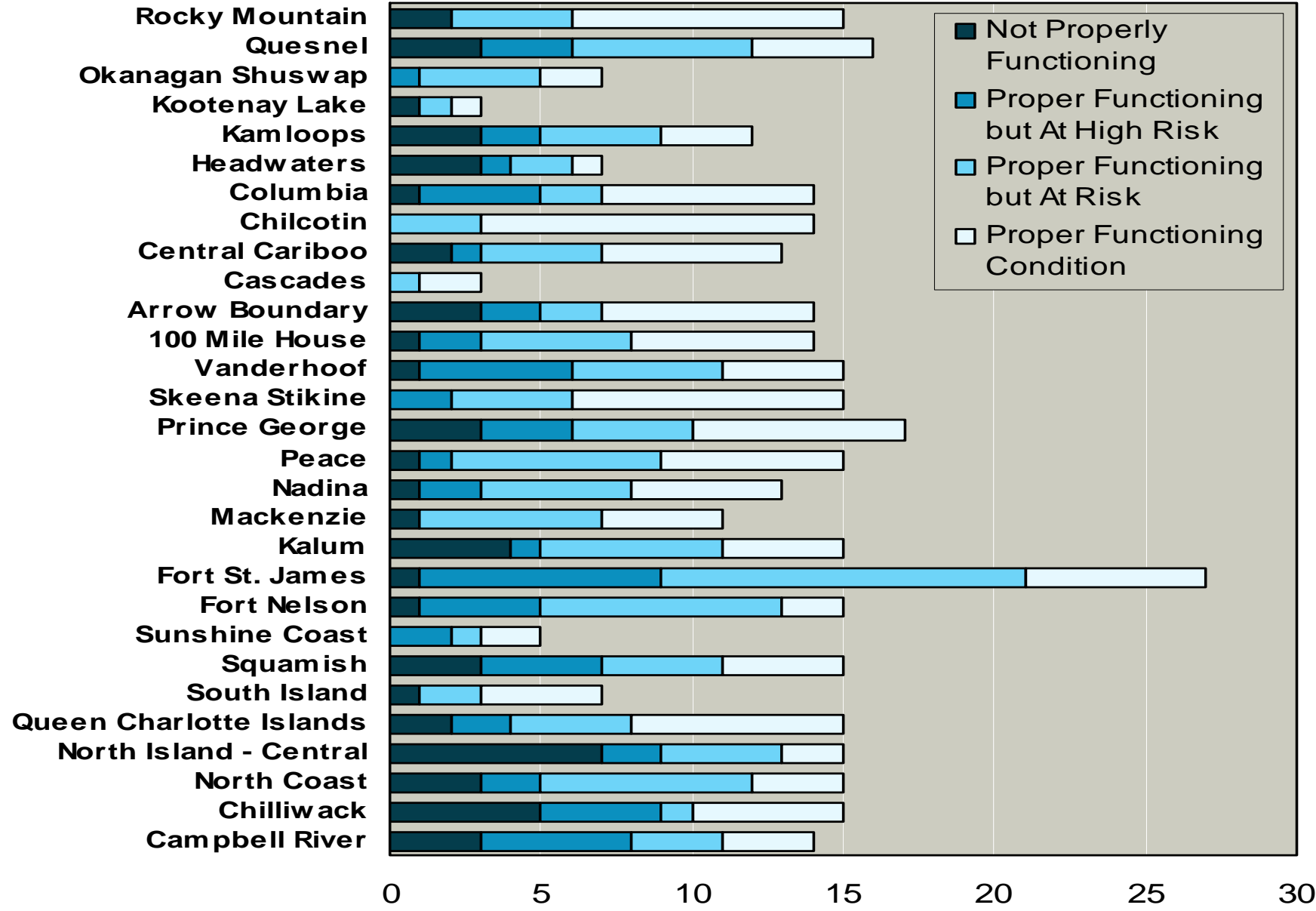
District



Number of streams

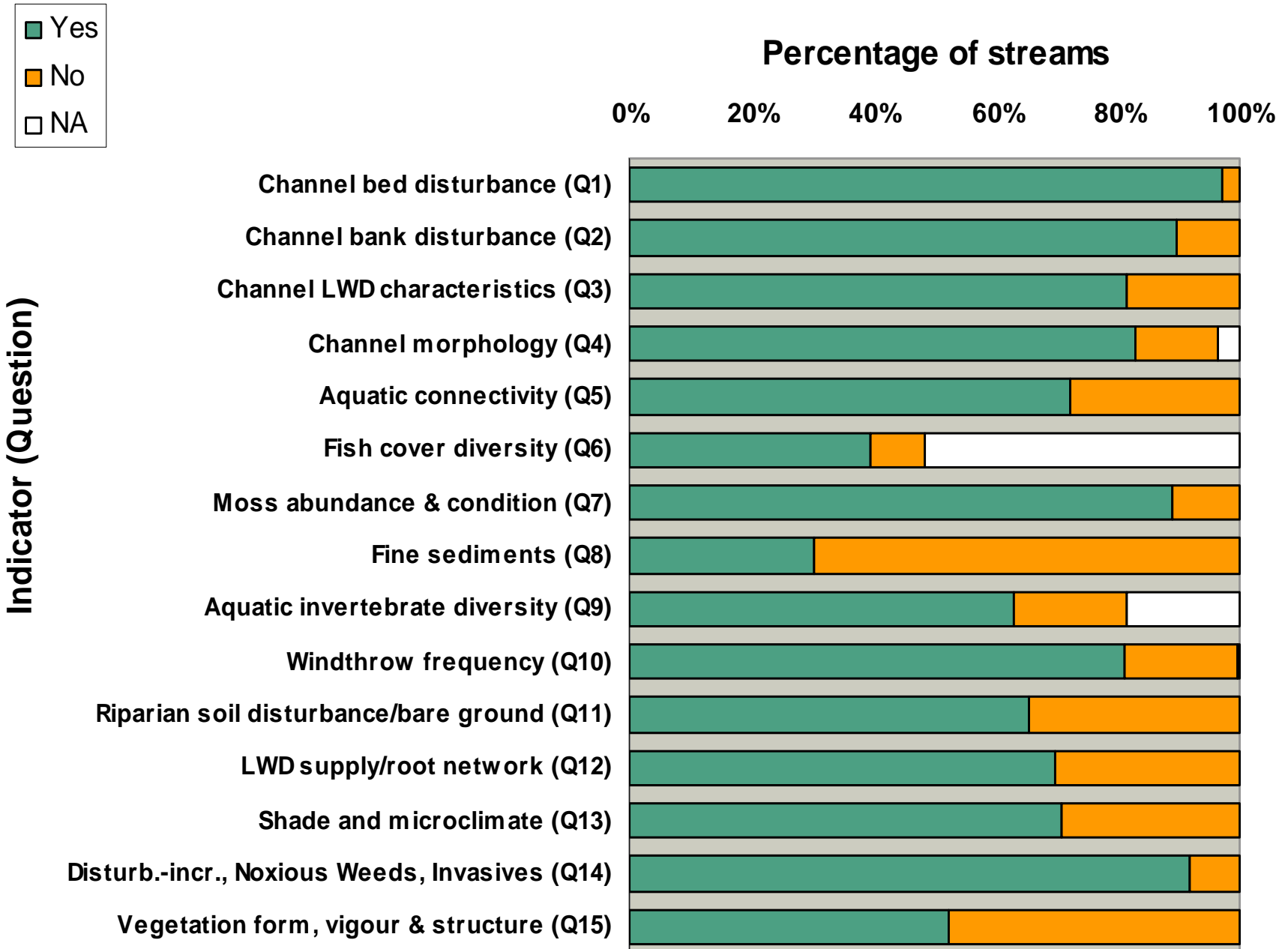
Results by Forest District, 2006

District

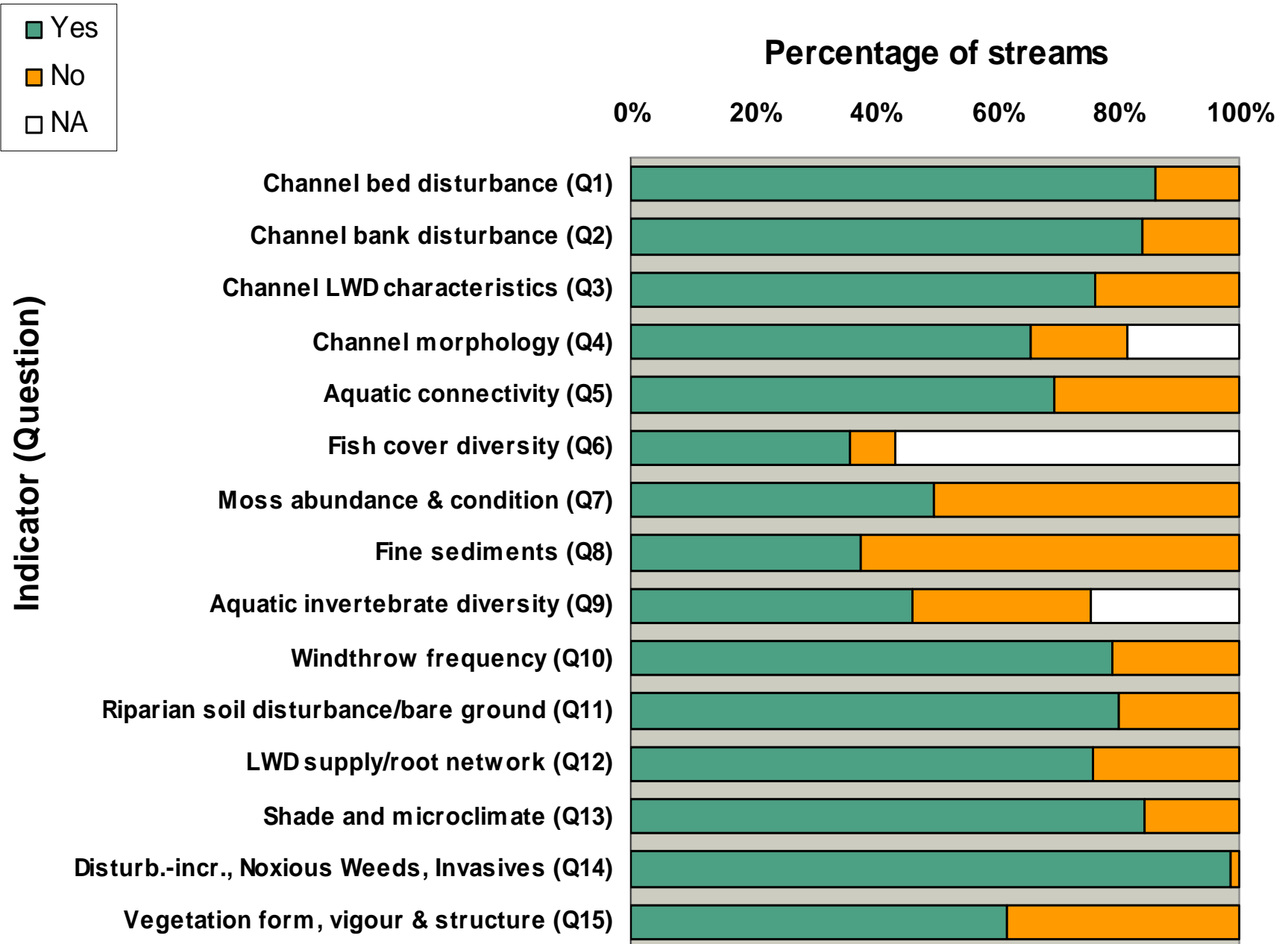


Number of streams

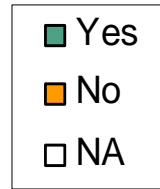
Overall Results by Indicator/Question, 2005



Overall Results by Indicator/Question, 2006



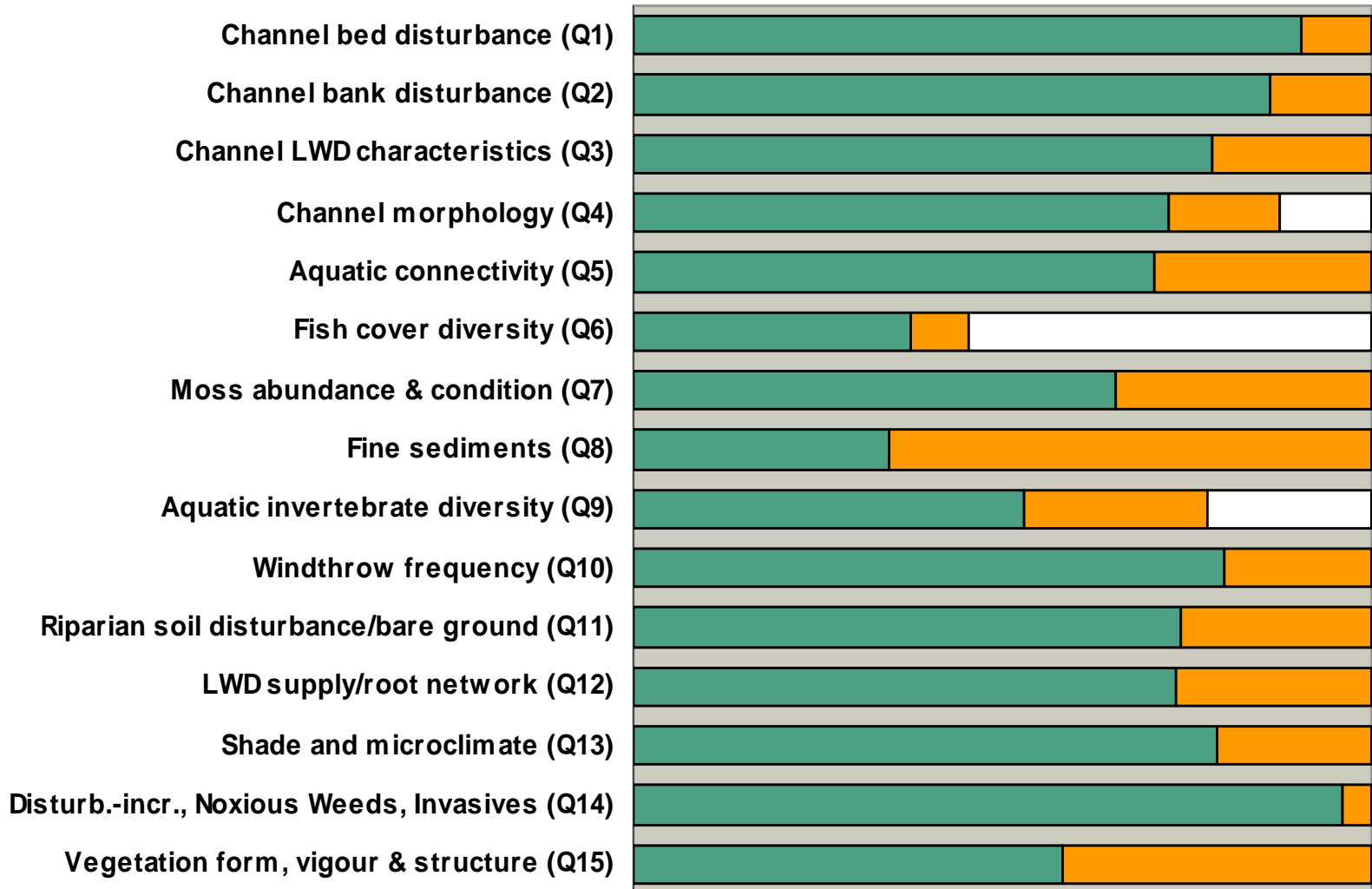
Overall Results by Indicator/Question, 2005 – 2006



Percentage of streams

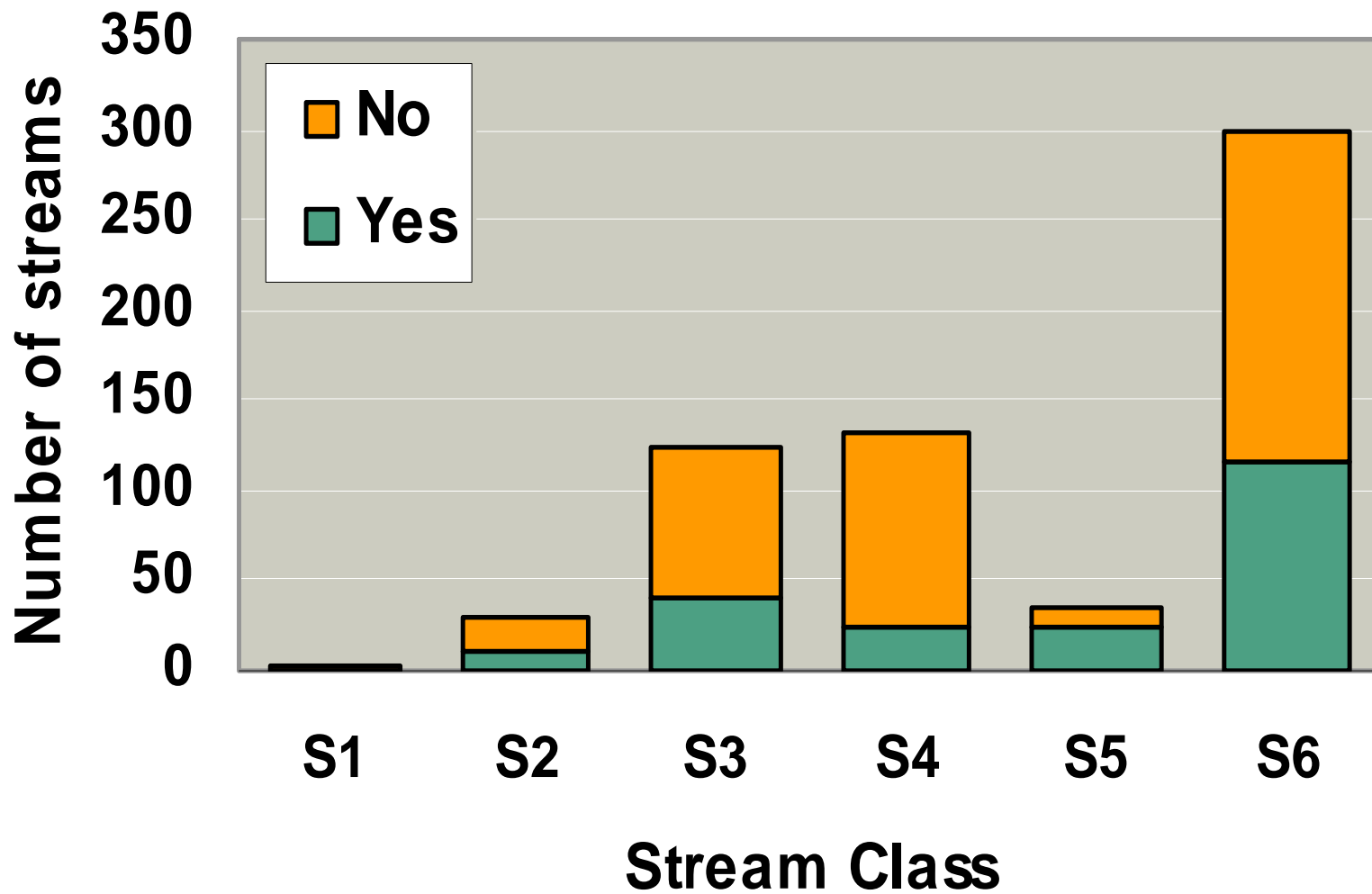
0% 20% 40% 60% 80% 100%

Indicator (Question)

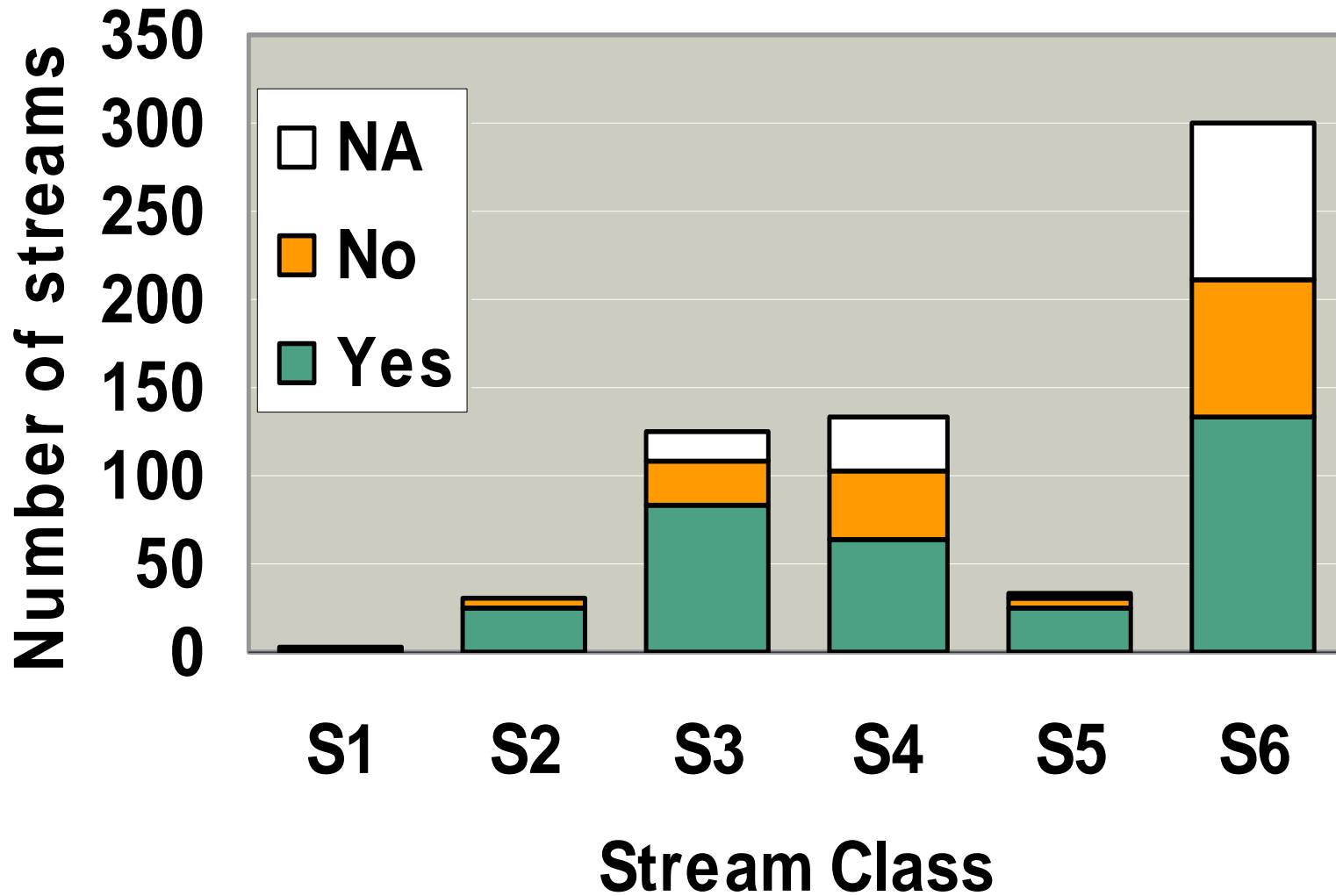


Indicator	Percent of Streams with No Answers	
	2005	2006
Fine sediments	70	62
Vegetation form, vigour, and structure	48	39
Moss abundance and condition	11	50
Aquatic connectivity	28	30
Riparian soil disturbance/bare ground	35	20
LWD supply/root network	30	24
Aquatic invertebrate diversity	23 (adj.)	39 (adj.)
Shade and microclimate	29	15
Channel LWD characteristics	19	24
Windthrow	19	21

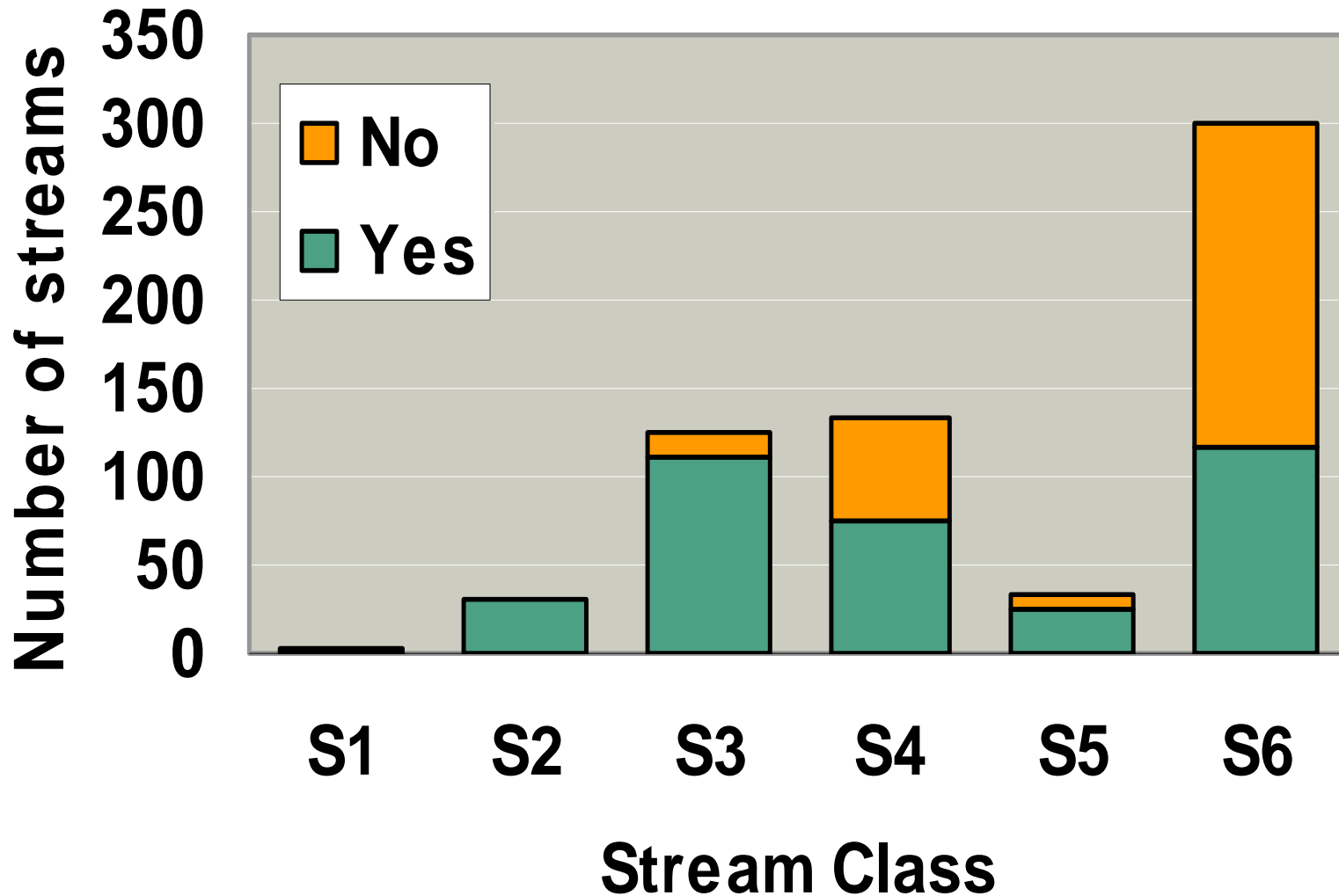
Fine sediments (Q8)



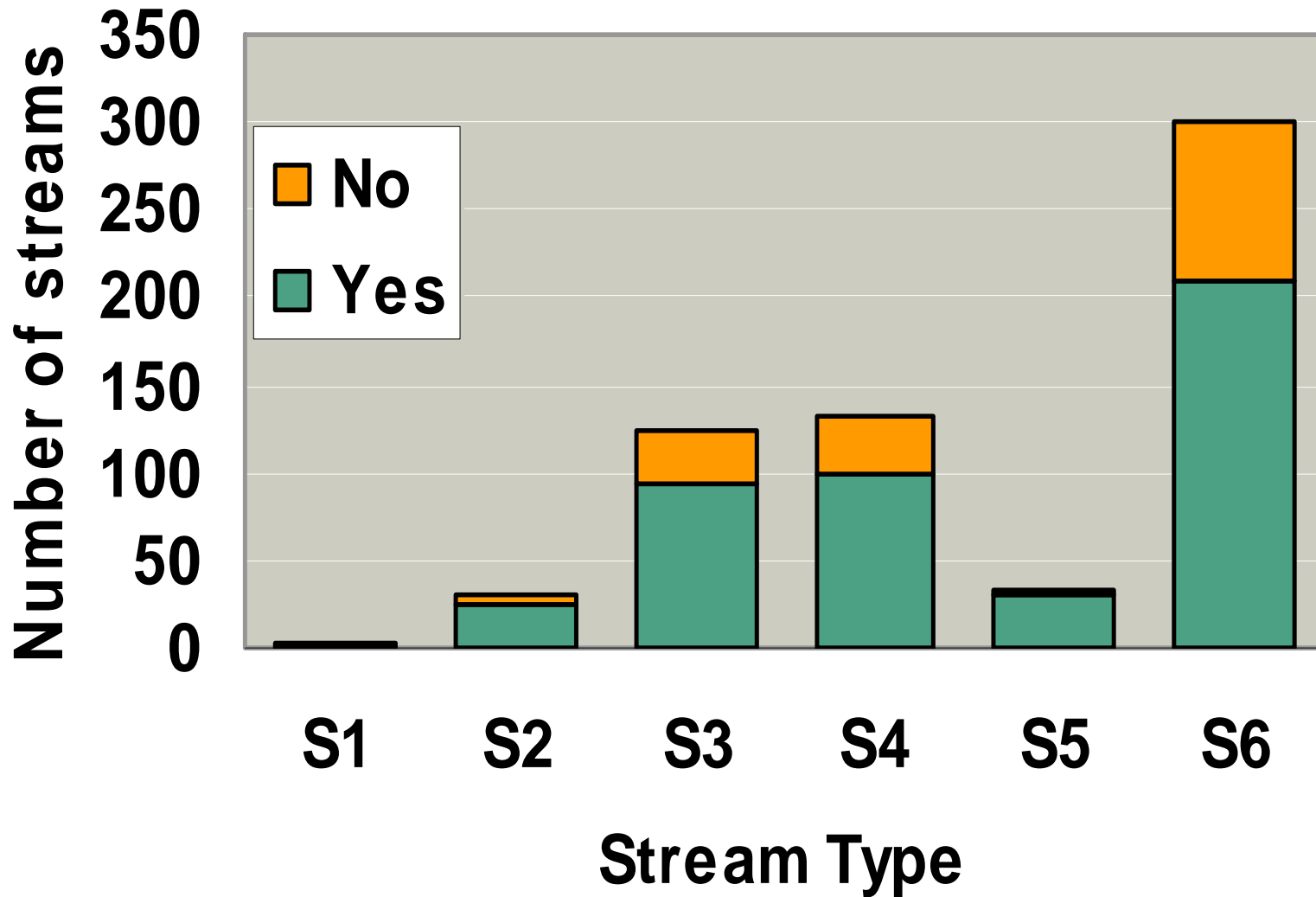
Aquatic invertebrate diversity (Q9)



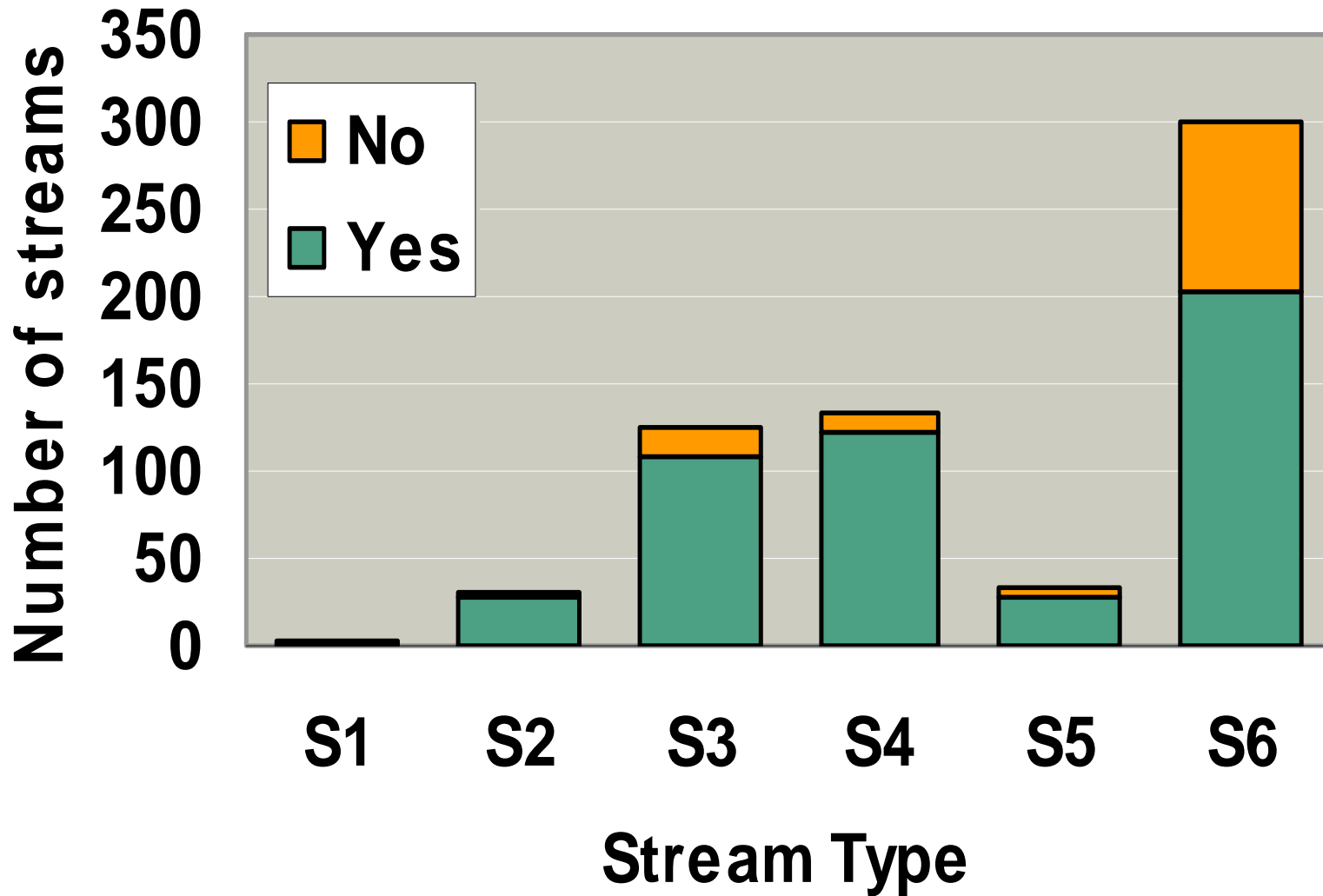
Vegetation form, vigour & structure (Q15)



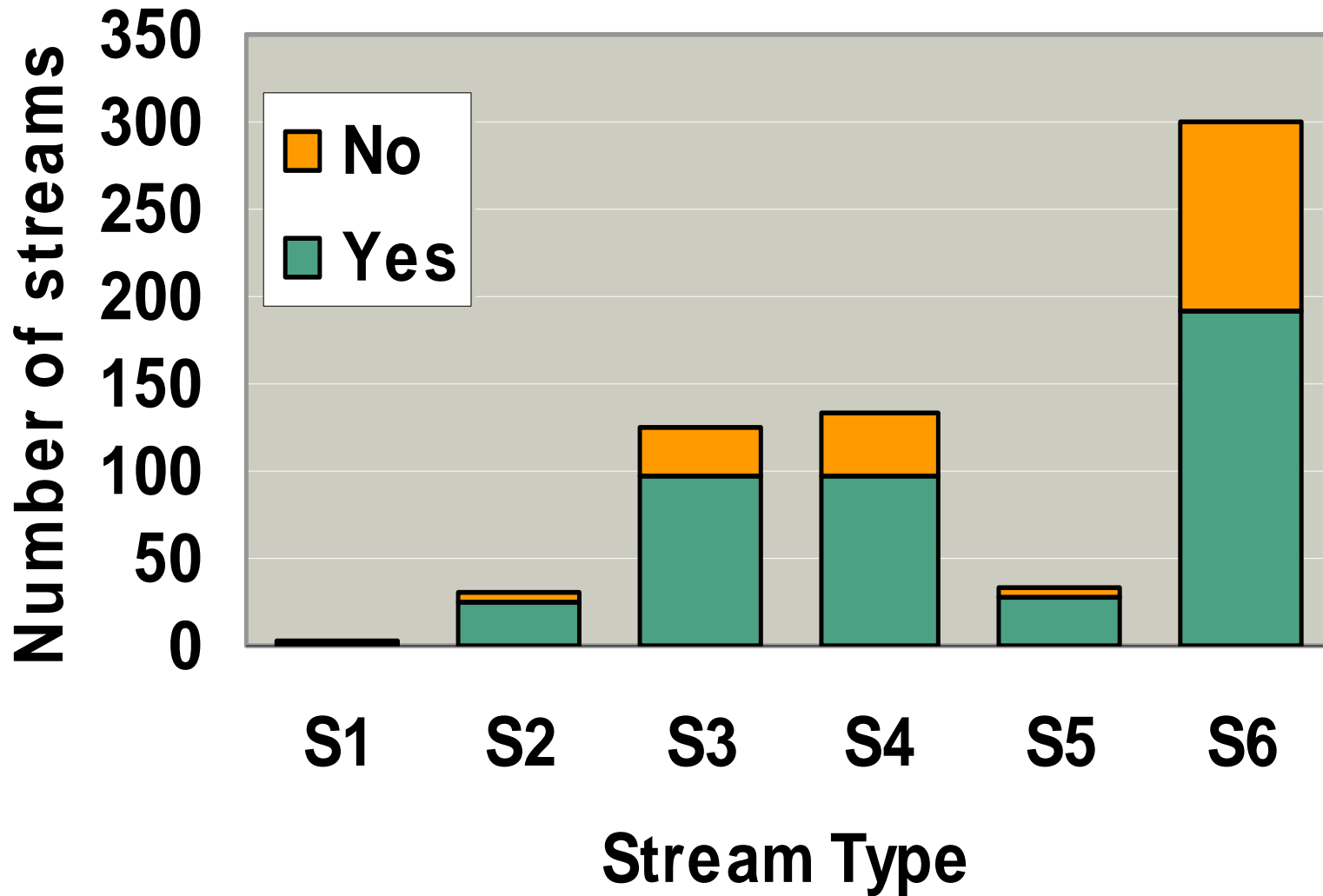
Riparian soil disturbance/bare ground (Q11)



Channel LWD characteristics (Q3)



Aquatic connectivity (Q5)



Major Sources of Impact

Source	Percent of Sites at Risk + NPF (provisional, analysis & QA on-going)
Low RMA Tree Retention	45
Road Related Impacts	42
Windthrow	32
Fall & Yard/In-stream Slash	20
Livestock Total	11

Summary of “State of Health” by Stream Class and “No” Indicators

Stream Class	# of Streams	# of Non-Forestry “No” Answers	Total “No” Answers	Percent Unhealthy (NPF) Without Forestry	Percent Unhealthy (NPF) With Forestry	Mean Non-Forestry Condition (# “No”)	Mean Condition With Forestry (# “No”)
S1	3	4	7	0	0	1.3	2.3
S2	30	45	86	0	0	1.5	2.9
S3	124	134	321	0	6	1.1	2.6
S4	133	140	503	0	11	1.1	3.8
S5	34	21	72	0	3	0.6	2.1
S6	300	175	1273	0	22	0.6	4.2
ALL	624	519	2086	0	14	0.8	3.3

What's Next?

- **GET THE OVERDUE RIPARIAN REPORT OUT for 2005-06!**
- **Use as template for 2007 Summary Report**
- **Surveys show that 86 % of 624 streams are in 1 3 Properly Functioning Condition categories**
- **Main problems are road related and with S6 and some S4 streams**
- **Cost-effective opportunities for S4, S5, and S6 streams?**

Possibilities for Small Streams?

- **S6s are nearly one-half of all streams encountered**
 - Vary greatly in size, hydraulic energy, significance for downstream resources
 - Some are not connected directly to the rest of the stream network by surface flow
 - Opportunities for prioritization
- **Many S6s and S4s already score very well with certain RMA practices**
 - Limit introduction of debris into channels
 - Limit physical contact with S6 banks & bed
 - Some level of tree retention (non-merchantable, understory, and smaller)
 - Can reduce riparian-related NO answers to near zero