

GREENER CATALOGS:

Improving Paper Practices in the Catalog Industry



A Report by

The Alliance for Environmental Innovation

A Project of the Environmental Defense Fund and The Pew Charitable Trusts

THE ALLIANCE FOR ENVIRONMENTAL INNOVATION

The Alliance for Environmental Innovation (the Alliance) is a joint initiative of the Environmental Defense Fund and The Pew Charitable Trusts. The Alliance works cooperatively with businesses to reduce waste and incorporate environmental considerations into business decisions. By combining the expertise and perspective of environmental scientists and economists with the business skills of leading companies, the Alliance creates environmental solutions that make business sense. For more information on the Alliance's work, please visit our website, www.edfpewalliance.org.

ABOUT THIS REPORT

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1. INTRODUCTION

This report is part of a broad effort by the Alliance for Environmental Innovation to promote environmentally preferable paper practices in key industries. Because catalog companies use so much paper, the Alliance decided to examine the extent to which they consider the environment when designing, producing, and distributing catalogs. After surveying several leading catalog retailers, the Alliance found significant opportunity for improvement in the industry's paper practices. The Alliance also discovered that improvements can often be made at no extra cost in the short term and may save money and offer other business benefits in the long term. This report presents both the Alliance's findings and an action plan to help companies produce "greener" catalogs.

Catalogs and Paper

When many Americans open their mailboxes today, they find a thick stack of catalogs. U.S. catalog circulation topped 17 billion in 1998,¹ or about sixty-four catalogs per person. Catalog sales in the United States exceeded \$85 billion in 1998 and are expected to top \$125 billion in the next five years. The industry's predicted compound annual growth rate during this period, 6.1 percent, is nearly twice that of overall retail sales.² Paper is the medium that enables this rapidly growing industry to function. Catalog paper use is expected to reach 3.35 million tons in 1999, more than 12 percent of the printing and writing paper produced in the United States.³ Indeed, the growth of catalog retailing is one of many reasons that the United States, with 5 percent of the world's population, consumes nearly 30 percent of all paper used globally – far more than any other nation. The average American used 739 pounds of paper in 1997, almost twice as much as in 1960.⁴

With the advent of the Internet and the rapid growth of electronic commerce, one might think paper catalogs were an endangered species. But as online ordering becomes more common in the catalog industry, many companies are actually using their websites to expand their mailing lists, thereby increasing the circulation of paper catalogs. E-commerce will represent an environmental gain only when electronic media *replace* the printed page as a means to promote and sell products. While there is hope for change in the future, right now paper remains the primary marketing vehicle for catalog retailers.

Paper and the Environment

The use of so much paper comes at a significant environmental cost. Paper production is the fourth most energy-intensive of all manufacturing industries⁵ and one of the most polluting. Table 1 shows the environmental impacts of making, using, and disposing of 3.35 million tons of catalog paper. As paper consumption rises, these impacts will only increase.

Table 1: Environmental impacts of manufacturing, using and disposing of catalog paper, 1999

Environmental Impact	Annual Amount	Annual Equivalent
Energy use	105 million BTUs	Residential energy use of more than 1 million households
Greenhouse gases (e.g., carbon dioxide releases from mills, methane releases from landfills)	9.8 million tons of CO2 equivalents	Amount released by 1.7 million cars, each driven an average of 200 miles/week
Air pollutants	47,000 tons of sulfur dioxide (SO2) 30,000 tons of nitrogen oxides (NOx) 17,000 tons of particulates	SO2, NOx: releases from generating electricity for 1.1 million households. ^a (Particulate equivalent not available.)
Water pollutants	11,000 tons of biochemical oxygen demand 119,000 tons of chemical oxygen demand 16,000 tons of total suspended solids 1,000 tons of adsorbable organic halogens	Not available
Wastewater	51 billion gallons	Amount discharged by 521,000 households
Solid waste	3.7 million tons	Amount generated by 1.7 million households

Source: Paper Task Force, 1995; Alliance calculations.⁶

^a Air pollutant equivalents are based on average annual emissions for a \$50/month electricity bill.

In the last decade, many large paper purchasers have recognized the environmental impacts associated with paper and changed their practices accordingly. Whether driven by consumer demand, government purchasing directives, cost savings, or management commitment, these companies are using less paper, buying more recycled paper, and encouraging their suppliers to adopt cleaner manufacturing and better forest management practices.¹ This report is intended to help catalog companies take similar action to improve their own paper practices.

Survey of Current Paper Practices

The Alliance surveyed paper practices among the top ten catalog retailers with titles in the industry's largest segment – apparel.⁷ Because several companies publish multiple titles – some in segments other than apparel – the survey looked at a total of forty-two catalog titles (see table 2). The total 1997 revenues of the companies surveyed were \$7.7 billion, more than 15 percent of the consumer catalog market in that year.⁸

The Alliance's survey contained questions about circulation policies, including delivery frequency and e-commerce; use of recycled paper; and dialog with suppliers about pulping and bleaching processes and forest management.

The following companies returned the survey: Spiegel Inc.'s Newport News catalog, L.L. Bean, Hanover Direct, Blair Corporation, Coldwater Creek, and the Cinmar titles of Cornerstone Brands.

¹ For specifics, see the Alliance's report "Leading by Example: How Businesses Are Expanding the Market for Environmentally Preferable Paper," ©1999, at www.edfpewalliance.org/leading.html, or call 617-723-2996.

Table 2: Catalog Companies Surveyed by the Alliance

Company Name	Catalog Sales, 1997 (\$ millions)	Catalog Titles
Spiegel, Inc. ^a	1,482	(3 titles): Eddie Bauer, Newport News, Spiegel Catalog
Brylane Inc.	1,279	(9 titles): Brett, Bridgewater, Brylane Home, Chadwick's of Boston, Jessica London, KingSize, Lane Bryant, Lerner's, Roaman's
Lands' End, Inc.	1,245	Lands' End
L.L. Bean, Inc.	926	L.L. Bean
Intimate Brands, Inc.	734	Victoria's Secret
Hanover Direct, Inc.	557	(13 titles): Austad's Golf, Colonial Garden Kitchens, Domestications, Gump's by Mail, Gump's San Francisco, Improvements, International Male, Kitchen & Home, Silhouettes, The Company Store, The Safety Zone, Tweeds, Undergear
J. Crew Group Inc.	521	(2 titles): J. Crew, Clifford & Willis
Blair Corporation	486	Blair
Coldwater Creek Inc.	239	Coldwater Creek
Cornerstone Brands, Inc.	201	(10 titles): Ballard Designs, Cinmar Titles (Frontgate, Search for the Perfect Gift, Splash, Ultimate Grill), Garnet Hill, The Territory Ahead, Travelsmith Outfitters, Smith & Noble, Whispering Pines

Source: *Catalog Age*, Top 100 Catalog Companies (1997 data), and/or company sources.

^a Spiegel Inc.'s three titles were surveyed separately as they are under separate management.

Survey Results

The Alliance's survey showed that environmentally preferable paper practices are more the exception than the rule in the catalog industry. The following are the principal findings of the survey.

- 1. Leading catalog companies are not using recycled paper despite its wide availability, comparable performance, and pricing at or close to parity with virgin paper.** Only one of the companies surveyed reported using recycled paper: L.L. Bean, and only in its order forms.
- 2. Catalog companies do not consistently leverage their power as large paper purchasers to promote cleaner manufacturing and better forest management.** More progress has been made on forestry issues than pulp and paper manufacturing: four of the six respondents ask suppliers to report on forest management practices, while only two knew what bleaching process was used to make their paper.
- 3. Catalog companies can take further measures to reduce unwanted mailings.** Only eight of the forty-two catalog titles in the Alliance's survey allow customers to specify how frequently they wish to receive catalogs, and none allows customers to substitute electronic promotions for paper catalogs, as firms in other segments of the industry have begun doing.

Table 3 summarizes the companies' responses to the survey (see section 3 for details).

Table 3: Summary of Survey Results

Company Name	Uses List Management Methods	Offers Preferred Delivery Frequency Options	Allows Substitution of Electronic for Paper Catalogs	Uses Recycled Paper in Catalogs	Asks Supplier About Bleaching Process	Asks Supplier About Forest Management
Spiegel Catalog	?	No ^a	No	?	?	?
Spiegel: Eddie Bauer	?	Yes	No	?	?	?
Spiegel: Newport News	Yes	No	No	No	No	Yes
Brylane	?	For some titles	No	No	?	?
Lands' End	?	Yes	No	?	?	?
L.L. Bean	Yes	Yes	No	In order forms	Yes	Yes
Intimate Brands: Victoria's Secret Catalog	?	Yes	No	No	?	?
Hanover Direct	Yes	No	No	No	No	No
J. Crew	?	For some titles	No	No	?	?
Blair Corporation	Yes	No	No	No	No	No
Coldwater Creek	Yes	No	No	No	Yes	Yes
Cornerstone Brands	Yes	For some titles	No	No	No	Yes

? = Company did not return survey, and information was not available from customer service department.

^a Frequency options do not apply to the Spiegel Catalog, which must be purchased.

The Case for Action

The good news is that better paper practices often cost no more and sometimes even save money, both now and in the longer term. Catalog companies would also be wise to address an issue that is of real concern to their customers.

- Study after study shows that the majority of Americans is concerned about the environment.⁹ Public attention to the environmental impacts of paper in particular runs in cycles, but the issue has regained prominence with a recent campaign against taking timber and pulpwood from old-growth forests. Major paper purchasers can therefore expect the public's continuing scrutiny of their paper practices in the years ahead.
- There is growing evidence that consumers expect companies – at least as much as the government – to be part of the solution to environmental problems. Participants in a 1998 Cone/Roper poll ranked the environment as one of the top three challenges they want business to address.
- A company's environmental reputation is closely correlated to its overall reputation, which in turn is tied to customer retention. Several recent studies demonstrate that along with other "social" issues, the environment is an increasingly important element in brand switching.¹⁰

Most catalog companies have yet to respond to their customers' general environmental concerns with concrete action. Specific steps that catalog companies can take and communicate to their customers are summarized below (for the detailed action plan, see section 2 of this report).

AN ACTION PLAN FOR GREENER CATALOGS

GETTING STARTED

1. Begin instituting better paper practices.

USING LESS PAPER

2. Eliminate misdirected mailings.
3. Offer preferred delivery frequency options.
4. Use e-commerce to reduce paper use.
5. Use lighter-weight paper where feasible.

RECYCLED CONTENT AND RECYCLABILITY

6. Maximize the postconsumer recycled content of catalog paper.
7. Design catalogs for recycling.

CLEANER MANUFACTURING

8. Favor paper suppliers that use environmentally preferable pulping and bleaching processes.

PROTECTING FORESTS

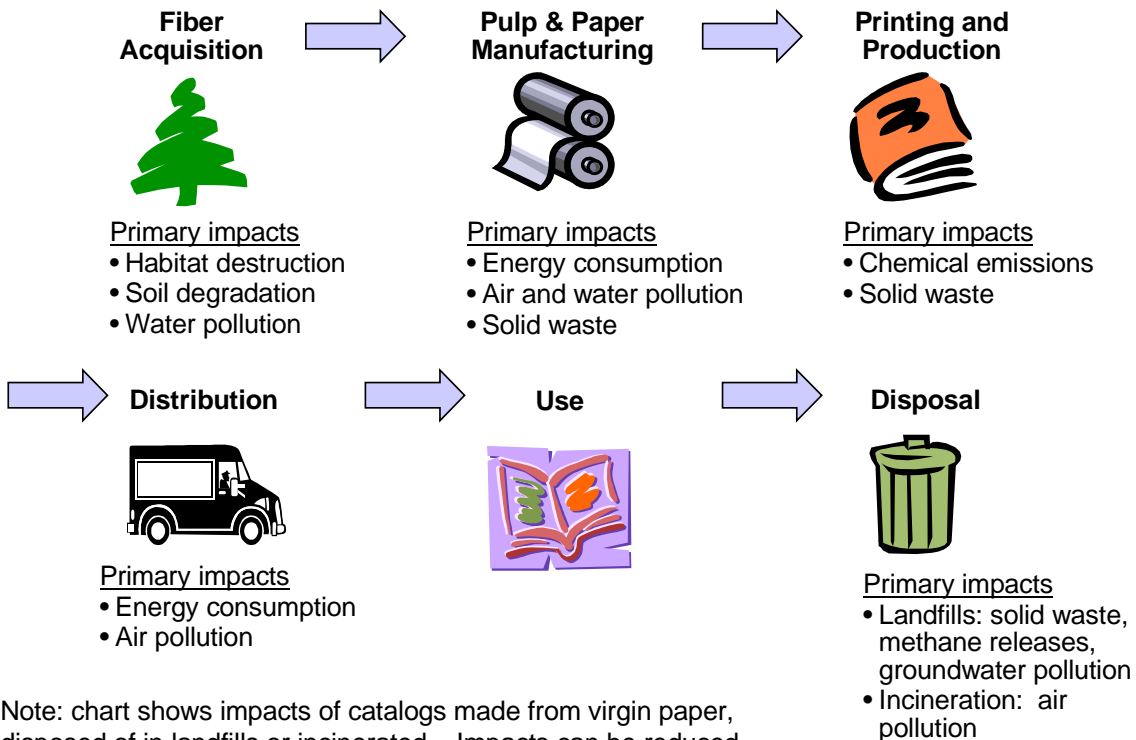
9. Favor paper suppliers that use environmentally preferable forest management practices.

2. AN ACTION PLAN FOR GREENER CATALOGS

Producing several million tons of paper for catalogs each year takes a significant toll on the environment. This section of the report describes what catalog companies can do to reduce the environmental impacts of their paper use and to become more informed and environmentally responsible paper purchasers. Catalog companies can help protect the environment by both “greening” their own practices and leveraging their influence up the paper supply chain.

Figure 1 shows the life cycle of a catalog. This report addresses environmental impacts generated in three phases of the life cycle: fiber acquisition, pulp and paper manufacturing, and disposal.ⁱⁱ

Figure 1: The Life Cycle of a Catalog



Note: chart shows impacts of catalogs made from virgin paper, disposed of in landfills or incinerated. Impacts can be reduced by incorporating recycled content, and recycling catalogs.

ⁱⁱ Catalog companies seeking information on environmentally preferable printing can start by contacting the Printers’ National Environmental Assistance Center (PNEAC), at www.pneac.org, and reading the Print Buyer’s Guidelines published by the Minnesota Environmental Initiative, at www.mn-ei.org/brtfpage.html.

GETTING STARTED

Action Step 1: Begin instituting better paper practices.

- Understand your use of paper, define a path to improvement, and measure your progress.
- Reward those suppliers that use preferred practices with your business.

The broad range of environmental issues associated with paper means that catalog companies can make a positive difference in a number of ways. Some practices can be changed right away, whereas others may take longer. The critical step is to define a path to improvement and reward those suppliers who help you move forward. By making progress in areas that are feasible in the short term, catalog companies can signal their interest in further environmental improvement, thereby influencing paper manufacturers' practices and investments over time.

The following are some practical steps for instituting greener paper practices:

- **Talking to suppliers**
Raise environmental concerns with your suppliers, and ask what they are doing to address them.
- **Reporting**
Request or require your suppliers to provide the information necessary to evaluate their practices.
- **Setting goals**
Set goals with specific objectives and a timetable for yourself and your suppliers. Raise the goal level over time.
- **Clarifying purchasing expectations**
Clarify for your suppliers your expectations for environmental improvement. Strive for efforts that go beyond compliance with regulations and industry initiatives.

USING LESS PAPER

Action Step 2: Eliminate misdirected mailings.

- Use all list management resources available to the direct mail industry.
- Keep updated do-not-mail and do-not-rent lists.
- Let consumers know how they can stop misdirected mailings.

The best way to reduce the environmental impacts of paper production is simply to use less paper. This approach has the added advantage of reducing costs: by not mailing catalogs that are unwanted or undeliverable, a catalog company spends less on paper and helps the environment.

Most large catalog retailers remove duplicate and incorrect addresses from their mailing lists using database management tools, U.S. Postal Service offerings, and The Direct Marketing Association's Mail Preference Service. In addition, catalogers can curb the proliferation of unwanted catalogs by keeping updated lists of customers who do not wish their name to be sold or rented to other direct mailers ("do not rent") and of customers who do not wish to receive catalogs at all ("do not mail"). Maintaining such lists and making them known to consumers is now a condition of membership in The Direct Marketing Association. Catalog companies can make such methods even more effective by making it easy for customers to correct or remove their name from the list.

Company Example

✂ Forestry Suppliers, Inc. prints the following message on the back of its catalog: "Help us keep unwanted or duplicate catalogs out of our landfills. If you do not want to receive our catalog, please call us at 1-800-360-7788 or send us the mailing label from the back cover and write 'cancel.' We'll remove your name from our list before the next mailing."

Action Step 3: Offer preferred delivery frequency options.

- Let customers decide how often they wish to receive product information and promotions.
- Tell consumers about this option.

More than half of the respondents to a recent *Catalog Age* survey said they get too many catalogs.¹¹ One way to address this concern is to offer customers the option of receiving catalogs less often, say three or four times a year, as opposed to once a month or more. In the competitive mail-order marketplace, the need to maintain top-of-mind awareness among customers through frequent mailings must be balanced against the risk of catalog overload. At a minimum, catalog companies should make available such preferred frequency options and alert consumers to them by a message on the catalog or some other means. The outcome may not be reduced sales but greater loyalty of those customers interested in reducing waste.

Action Step 4: Use e-commerce to reduce paper use.

- Consider offering electronic promotions as an alternative to paper catalogs.
- Test this option with customers.

The Internet is radically transforming all types of retail commerce, including the catalog industry. In the past, catalogers have striven to balance the two opposing goals of maximizing revenues and minimizing production and distribution costs. Now, catalog companies have an opportunity to expand their businesses without using more paper.

More and more catalog companies are integrating the Internet into their business, with the most advanced ones moving beyond “e-commerce” into “e-business,” using their websites to maximize sales across multiple channels – online, catalog, and retail stores (if they have them). The most sophisticated catalog companies also are using the Internet to get closer to their customers, by tailoring their marketing messages and product offerings to a customer’s interests or buying patterns.

The environment is an important issue for many consumers and another opportunity for catalog companies to refine their brand image and attract or retain customers. For reasons of conservation or convenience, some customers may prefer to receive product information and promotions solely in electronic form – such as an e-mail with a link to the company’s website – and to receive limited or no mailings of the print catalog. E-commerce enables catalogs to offer this option to consumers.

Company Example

✂ BMG Music Service, a music direct-mail retailer, allows its members to receive product promotions and sale information via e-mail every few weeks in lieu of a paper catalog. BMG’s website, www.bmgmusicservice.com/eclub, promotes the “eClub” as follows: “No More Clutter. . . We’ll send you a tiny fraction of your usual postal mail. Featured Selections and sale information will be sent to you every few weeks via email and you can respond to them at the site. . . . With eClub, you’re not limited to a magazine. You can browse over 10,000 titles in the BMG roster from your computer.”

Action Step 5: Use lighter-weight paper where feasible

- Specify the lowest basis-weight paper that meets your functional requirements.
- Encourage suppliers to develop lower basis-weight paper with comparable performance characteristics.

Reducing the basis weight means that less material is required to make a sheet of paper. Not only does this conserve resources, but it also can save you money, since both the price of the paper and the mailing costs are lower. The functional characteristics of lighter paper continue to improve as papermaking technology evolves. Catalog companies should play an active role in this process, working directly with paper suppliers to develop and test lower basis-weight paper and trying new products when they are offered. Significant reductions in the basis weights of paper have been achieved in another large user of coated papers – the magazine industry.

Company Example

✂ In 1999, the basis weight of *Time* magazine dropped from 32 to 30 lbs., a 6.25 percent reduction. In developing the 30-lb. paper, Time Inc.’s paper suppliers found a way to maintain the thickness or “bulk” of the paper, giving it the same feel and opacity but using less material to manufacture it.

RECYCLED CONTENT AND RECYCLABILITY

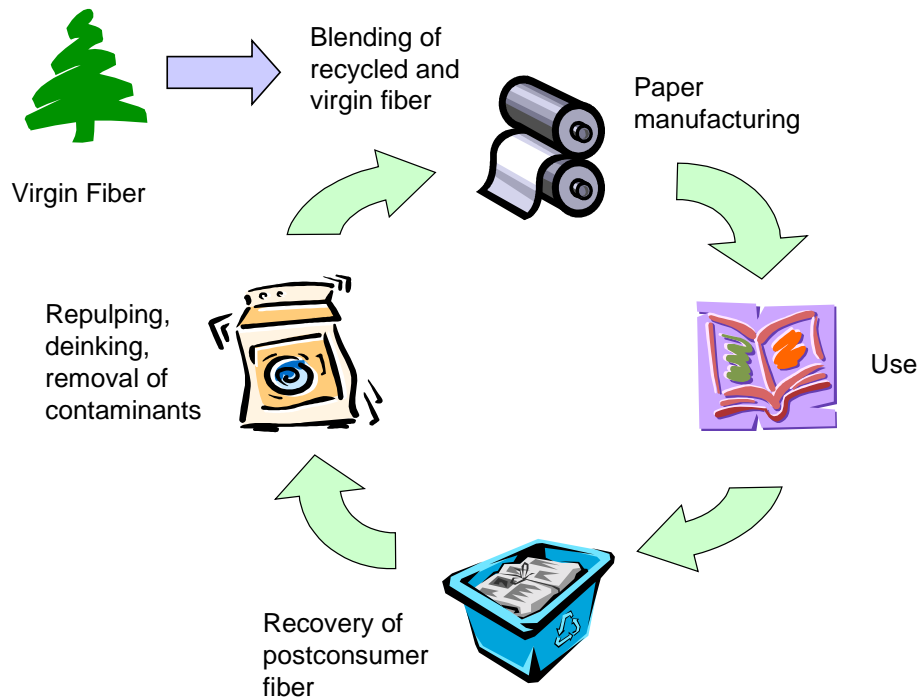
Action Step 6: Maximize the postconsumer recycled content of catalog paper.

- Set a goal of converting catalogs to recycled paper at the highest available levels, and be prepared to move toward that goal in increments.
- Signal a long-term interest in recycled paper and give preference to paper mills that offer a consistent supply at a stable price and of comparable quality to virgin.

The Benefits of Recycled Paper

Recycling benefits the environment in several ways. As an alternative source of paper fiber, it reduces the demand on forest resources and the adverse impacts of commercial forestry. At the pulp or paper mill, making paper from recovered fiber is generally a cleaner and less resource-intensive process than making paper from wood fiber, since much of the work of separating fibers from the wood and bleaching the pulp has already been done. Finally, recycling programs cut the amount of trash that must be collected, transported, and disposed of in landfills and incinerators. Less waste disposed of means less air and water pollution, and fewer greenhouse gas emissions (primarily methane) that result from the breakdown of paper in landfills. Even though paper recycling and the production of recycled paper have their own environmental impacts, these are far outweighed by the gains.¹² Figure 2 shows the process by which recycled paper is made.

Figure 2: The Paper Recycling Loop



Postconsumer versus Preconsumer Used Paper

The distinction between post- and preconsumer used paper matters to the environment. Postconsumer materials are finished products that have served their useful lives and would otherwise end up in a landfill or incinerator. Preconsumer materials include trim and scrap from manufacturing processes, such as the conversion of paper rolls into envelopes, most of which has been recycled for decades. Buying paper with postconsumer recycled content rewards paper manufacturers that have made substantial investments to expand the recycling infrastructure (e.g., by building a new deinking facility) and creates a direct incentive for paper producers to continue increasing their use of paper diverted from disposal.

In contrast to grades like paperboard, newsprint, and tissue, which typically contain much higher levels of postconsumer recycled content, the average postconsumer recycled content in printing and writing papers (including the coated paper used for catalogs and magazines) is currently less than 10 percent.¹³ Within the catalog segment, the average actual use of recycled content is less than 5 percent. Paper manufacturers contacted by the Alliance for this report confirmed that although such paper is available today, there is virtually no market demand for recycled content in coated or uncoated groundwood or supercalendered papers, which together account for 80 percent of the paper used in catalogs, and very little in coated or uncoated freesheet, which constitutes the remaining 20 percent (see table 6).

The use of recycled content in printing and writing papers has historically lagged behind that of other grades due to availability and functional and economic constraints. Now, however, many of these constraints are disappearing. The Alliance found this to be the case for catalog paper as well. The best way for catalog companies to hasten this process is to buy paper with recycled content at the levels available now, and make clear they will want paper with higher levels of recycled content in the future.

Immediate Opportunities for Catalogs and Recycled Paper

The following are the Alliance's findings regarding the current availability, price, and performance of recycled paper for catalogs, relative to those for virgin paper:

- **Availability**

Paper with 10 percent postconsumer fiber (PCF) is widely available in the marketplace. Through a telephone survey of the top ten manufacturers of coated groundwood and freesheet papers, the Alliance found that paper with at least 10 percent PCF is available from the leading suppliers of the paper grades commonly used for catalogs, as shown in table 4.

- **Price**

Paper with 10 percent PCF is currently available at the same price as virgin paper. In coated grades, recycled-content paper sometimes costs more to manufacture than virgin paper. Costs vary both by mill, as some mills have cost advantages over others, and by grade of paper. (Making recycled coated groundwood paper requires substituting a much more expensive recycled pulp for its virgin counterpart,

whereas when making coated freesheet, the costs of the virgin and recycled pulps are closer.) Nonetheless, several manufacturers are offering 10 percent PCF paper with no price premium, due to current market conditions – specifically, soft prices for paper and increasing competition from imports. Other paper companies report that they charge or waive a premium depending on the customer, the size of the order, and other factors. Price premiums reported by suppliers of recycled coated paper ranged from \$1 to \$4 per hundredweight.

Table 4: Availability of 10% PCF Paper by Grade, from Top Ten Suppliers of Coated Freesheet and Coated Groundwood Publication Papers^a

Paper Grade	Suppliers Currently Offering at Price Parity with Virgin Paper	Suppliers Currently Offering at a Premium (Subject to Negotiation)
No. 1 coated	Appleton, Potlatch	Champion, Mead
No. 2 coated	Appleton, Consolidated, Potlatch, S. D. Warren, West Linn	Champion, Mead, Westvaco
No. 3 coated	Appleton, Consolidated, Domtar, International Paper, S. D. Warren, West Linn	Champion, Mead, Westvaco
No. 4 coated	Crown Vantage, Domtar, International Paper, S. D. Warren	Consolidated, Mead, Repap
No. 5 coated	Crown Vantage, International Paper	Bowater, Consolidated, Repap, Weyerhaeuser
Super-calendered		Consolidated

Source: Alliance conversations with paper company representatives. Catalog companies should verify grades offered and pricing policies with each supplier.

Note: Some suppliers of freesheet grades offer only products with recycled content; in such cases, parity is established based on market prices for an analogous virgin product.

^a As ranked by the 1999 *Pulp & Paper North American Factbook*, p. 307.

- **Performance**

The quality of recycled publication papers has greatly improved in the last five years. At the 10 percent PCF level currently available, suppliers and current users report no decline in strength or appearance. Some manufacturers did, however, indicate difficulty in maintaining comparable appearance and functionality at PCF levels higher than 10 percent (especially in groundwood papers). Increasing demand for recycled paper will give manufacturers an incentive to push for further increases in PCF while maintaining performance characteristics.

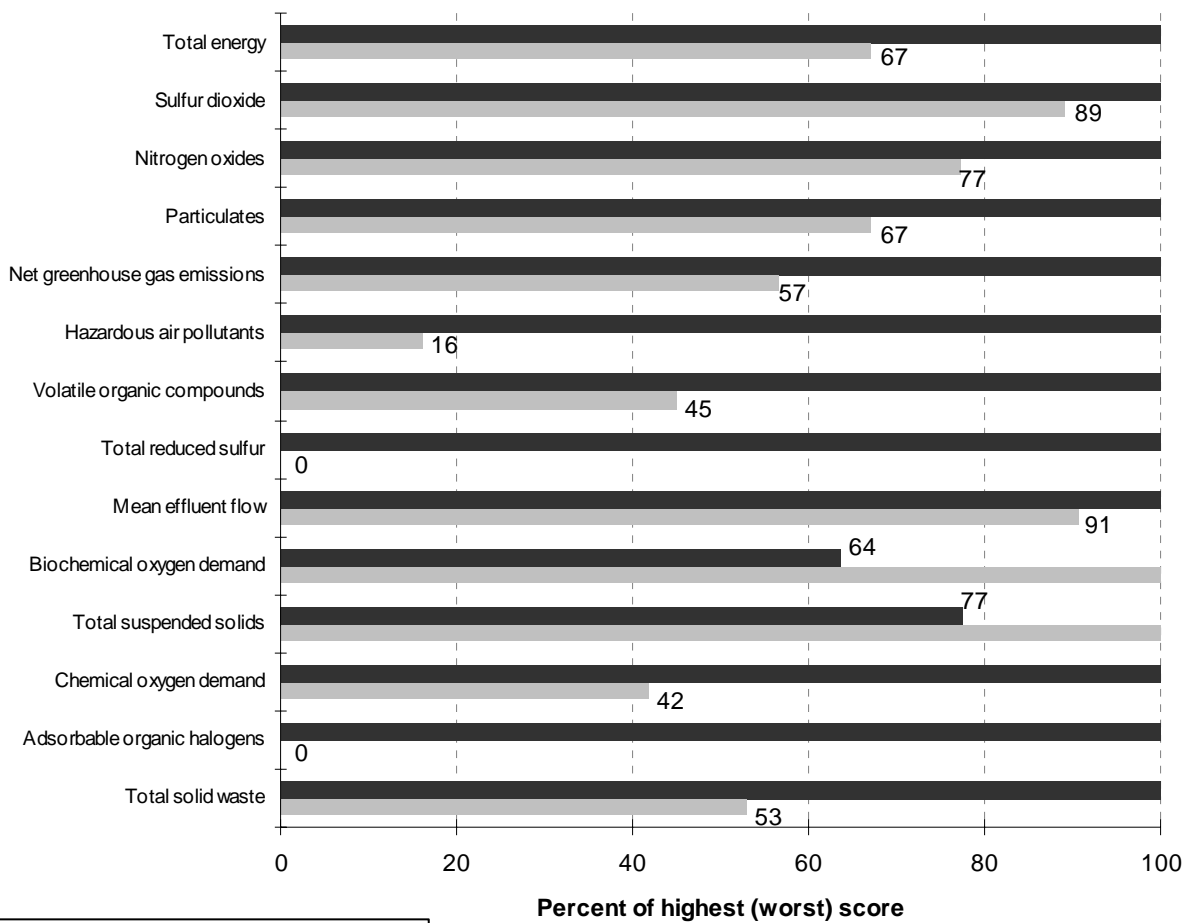
Company Examples

- ✎ The catalogs of Gaiam Inc. (Harmony & InnerBalance), a leading supplier of environmentally preferable products, contain the following message: “In keeping with our mission, we print on 60% recycled paper / 30% postconsumer.” Harmony reports that the paper is priced competitively and has run very well. The no. 3 matte-coated sheet is supplied by Georgia-Pacific.
- ✎ Norm Thompson Outfitters, Inc., a specialty catalog retailer of apparel, gifts, and home items, recently switched the cover of its Early Winters catalog from 100 percent virgin to a 100 percent recycled, 50 percent postconsumer fiber, process chlorine-free sheet. The company was able to stay within its budget by dropping the basis weight from 65 to 62 lbs., and the new sheet’s film coating also delivered better print quality. The no. 1 film-coated sheet is supplied by New Leaf Paper.

Potential Environmental Benefits

From the paper purchaser's perspective, each ton of recycled fiber that displaces a ton of virgin fiber results in a host of environmental benefits. Table 5 shows the benefits, ton for ton, of using recycled content in coated groundwood paper. The higher the postconsumer recycled content and the more paper purchased, the greater the gains.

Table 5: Ton-for-ton Environmental Comparison of 100% Virgin and 100% Postconsumer Recycled Coated Groundwood Paper



SOURCE: Paper Task Force, 1995; Alliance calculations. See note to Table 1.

■ Virgin ■ Recycled

Long-Term Economic Prospects for Recycled Paper

Given that catalog-grade papers are currently available with 10 percent PCF at or close to price parity with virgin paper, catalog companies should buy recycled paper as long as these conditions prevail. At the same time, catalog companies should tell their suppliers that their preference for paper with PCF will continue and that in the future, they would like to buy paper with more than 10 percent PCF. This message will encourage suppliers to invest in reducing the underlying costs of manufacturing recycled paper, thereby helping ensure that its price relative to virgin paper remains attractive over time.

The coated paper industry has traditionally used virgin wood fiber. Large-scale, highly efficient virgin pulp mills are the norm, and recovered paper has emerged as an alternative fiber source only recently. But as these mills add capacity, they may be able to reduce the cost of manufacturing paper with increasing levels of PCF.

Paper company investments must address the following issues in order to make the cost of manufacturing recycled paper competitive with that of virgin paper over the long term:

- **Fiber costs**

Most of the recovered fiber currently used to make coated papers is from highly sorted grades of white office paper with low levels of contaminants (e.g., foreign objects and certain adhesives that are difficult to remove in the deinking process). These grades are more expensive than wood chips (used to make virgin paper) and other grades of recovered paper (used to make other recycled paper products such as newsprint). The barriers to using less expensive types of recovered paper include their higher level of contamination and the fact that most deinking mills that make pulp for printing and writing paper were built to handle recovered paper originally made from chemical, not mechanical, pulp. Technologies now being developed may enable mills to handle less costly recovered paper grades made from mostly mechanical pulp. For example, two state-of-the-art mills in Europe will recycle magazines and catalogs back into lightweight coated groundwood paper in a blend with virgin pulp.¹⁴

- **Integration**

Over the long term, mill investments in on-site, integrated deinking capacity are necessary to ensure a favorable economic future for recycled paper. Because few of the leading suppliers of coated paper currently have on-site deinking plants, they must buy recycled pulp on the open market (“deinked market pulp,” or DMP) and pay to ship it. For mills that have integrated capacity to produce *virgin* pulp in the same quantity that their paper machines consume, buying DMP also lowers the capacity utilization of their virgin pulping equipment and reduces their return on investment. In contrast, installing an on-site deinking plant can be an economical way to supply additional pulp when paper mills need to expand capacity, since deinking plants come in smaller increments of production than new virgin pulping systems.

Action Step 7: Design for recycling.

- Avoid using pressure-sensitive address labels and stickers in catalogs.
- Avoid using nonpaper items in catalogs.

The second major element in the recycling picture is making it easier to recycle catalogs. Catalog companies should make sure their catalogs do not contain materials that contaminate the recycling process. Ultimately this will enable the use of less expensive recovered fiber to produce recycled paper.

The biggest source of contaminants in catalogs is pressure-sensitive address labels and other stickers (e.g., to highlight sales or new items). Their adhesives they require end up as “stickies” in deinked pulp which gum up paper machines and cause expensive shutdowns for cleanup. In coated papers, stickies can also build up on the coating blade, causing streaks and tears in the paper, and increasing waste and downtime.

A new pressure-sensitive adhesive designed to separate easily in the recycling process has been developed by the U.S. Postal Service in partnership with the adhesives, paper, and recycling industries and is now in final testing.¹⁵ Until this adhesive is commercially available, using ink-jet instead of pressure-sensitive address labels, and graphical elements rather than stickers, is the best choice.

Finally, catalog companies should avoid inserting into catalogs nonpaper items such as samples, swatches, or label dispensers, as these also contaminate the recycling process.

CLEANER MANUFACTURING

Action Step 8: Favor paper suppliers that use environmentally preferable pulping and bleaching processes.

- Request information on current practices from current and potential suppliers.
- Consider pulping and bleaching practices in your choice of paper supplier, along with performance and price.

Some virgin fiber always is needed to maintain the physical properties of paper, including recycled paper. But cleaner pulping and bleaching processes can lessen the environmental impacts of manufacturing virgin paper.

There are three basic steps to making paper: first, wood is processed into a pulp of usable fibers for papermaking; then the pulp may be brightened or bleached, and finally the pulp is dried and pressed into paper. The two main kinds of virgin paper pulp are *mechanical* pulp, which is made using mechanical energy to separate the fibers (e.g., by grinding them against a stone), and *chemical* pulp, which uses a combination of chemicals, heat, and pressure to break down and separate the fibers from the lignin – the organic “glue” that binds fibers together in the wood. Most catalog paper is made from a mix of chemical and mechanical pulp, with mechanical pulps contributing opacity and chemical pulps providing strength.¹⁶ (See table 6).

Over the last thirty years, spurred in part by environmental legislation, paper mills have invested billions of dollars in systems and equipment to reduce the release of pollutants into the environment – for example, scrubbers to trap air emissions, and wastewater treatment facilities. The biggest environmental gains, however, come from preventing pollution in the first place, especially by improving the pulping and bleaching process for bleached kraft pulp.ⁱⁱⁱ

ⁱⁱⁱ For more information on minimizing the full range of impacts associated with pulp and paper manufacturing, see chap. 5 of the *Paper Task Force Report*, www.edf.org/pubs/Reports/ptf/Acrobat/chapter5.pdf.

Table 6: Paper Usage for U. S. Catalogs, 1999

Type of Paper (grade number)	% of Total	Application	Pulp Mix
Coated freesheet (usually nos. 1 - 3)	19%	Body or cover of catalog	Contains less than 10% mechanical pulp (balance is bleached kraft pulp).
Coated groundwood (usually nos. 4 - 5)	57%	Body of catalog	Contains less than 10% bleached kraft pulp (balance is mechanical pulp).
Supercalendered (SC)	14%	Body of catalog	Mostly mechanical
Uncoated Groundwood	9%	Inserts	Mostly mechanical
Uncoated freesheet	0.5%	Low-end catalogs and inserts	Mostly bleached kraft
Newsprint	0.5%	Low-end catalogs	Mechanical

Source: Percentages from *Catalog Age* (October 1999); pulp mix from Paper Task Force, 1995.

Bleached kraft pulp mills have traditionally used a mixture of elemental chlorine and chlorine dioxide as the bleaching agents. Among the many by-products of the reaction between lignin and these chemicals are the toxic chlorinated organic chemicals that enter the wastewater from such mills. Since dioxins (a class of chlorinated organic chemicals) were first discovered downstream from bleached kraft pulp mills in 1985, many mills have tried to reduce or eliminate the use of elemental chlorine in the bleaching process, usually by substituting chlorine dioxide for elemental chlorine. The complete substitution of chlorine dioxide for elemental chlorine is called *elemental chlorine free (ECF)*. The term ECF on its own is misleading as an indicator of environmental impact, however, as several pulping and bleaching processes – with markedly different environmental impacts – can technically be called ECF. The differences between “traditional” and “enhanced” ECF processes are noted in table 7.

Based on the U.S. Environmental Protection Agency’s “Cluster Rule,” adopted in 1998, all U.S. mills must ultimately move to an effluent standard that can be met by traditional ECF. Already in the United States, almost half of all bleached chemical pulp is produced using this or a more advanced ECF process,¹⁷ but significant further improvements are still possible.

The Cluster Rule has prompted many mills to upgrade their bleaching technologies, and investments now being made will determine a mill’s ability to make continued progress in the future. For example, investments in oxygen and extended delignification are the platform that allows the installation of more advanced technologies such as ozone bleaching later on. By contrast, traditional ECF is both an environmental and an economic dead end, since once chlorine dioxide generators are installed, there is no incentive to put in oxygen and ozone technologies that further reduce impacts but make some of the chlorine dioxide capacity unnecessary.

Like all large users of paper, catalog companies are in a position to influence these investments and encourage the implementation of technologies that go beyond traditional ECF. The following are environmentally preferable pulping and bleaching processes that paper purchasers can request:

- Extended delignification and oxygen delignification**
 These processes remove more of the lignin from the pulp before it is bleached, thereby using less energy and fewer chemicals in the bleaching process. In addition, less of the organic waste generated by the pulping process needs to be discharged in the mill’s wastewater; instead, more of it can be recovered and used to generate energy to power the mill.
- Ozone-based elemental chlorine free and totally chlorine free**
 These processes allow the partial or total recirculation of wastewater from the bleaching process. *Ozone-based ECF* substitutes ozone for chlorine compounds in all but the last stage of the bleaching sequence, and *totally chlorine-free (TCF)* bleaching processes replace all chlorine compounds in the bleaching process with oxygen-based chemicals such as ozone and hydrogen peroxide.

Table 7 shows the commonly available pulping and bleaching processes for chemical pulp, in order of environmental preferability (shaded areas represent environmentally preferable options).

Table 7: Environmental Hierarchy of Pulping and Bleaching Processes

Process	How It Works	Environmental Advantages
Elemental chlorine	Uses elemental chlorine to bleach pulp.	
Elemental chlorine-free (“traditional ECF”)	Replaces elemental chlorine with chlorine dioxide.	Improves quality of wastewater somewhat.
ECF with extended or oxygen delignification (“enhanced ECF”)	Removes more of the lignin before bleaching, thus reducing energy and chemical use during bleaching.	Compared with traditional ECF, reduces energy consumption by 30%, improves quality of mill wastewater, and reduces quantity of mill wastewater by nearly 50%.
Enhanced ECF with ozone	Uses ozone as brightening agent in initial stages of bleaching process (final stage uses chlorine dioxide).	Further improves quality of wastewater. Reduces quantity of mill wastewater by 70% to 90% compared with traditional ECF. Enables recovery of most wastewater.
Totally chlorine free (TCF)	Complete substitution of oxygen-based for chlorine compounds.	Further improves quality of wastewater. Reduces quantity of wastewater by enabling its virtually complete recovery.

Source: Paper Task Force, 1995

The Alliance’s research shows that several leading suppliers of coated papers for catalogs – including Champion, Consolidated, and Weyerhaeuser – currently use enhanced ECF in all their bleached kraft pulp mills in the United States. In addition, Consolidated is using an ozone process on its hardwood bleached kraft pulp line, which is used to make coated freesheet papers. Coated paper made using totally chlorine-free bleaching processes is currently sent to eastern U.S. ports by Scandinavian manufacturers and is being used by a major magazine publisher.

What are the costs for purchasers who specify environmentally preferable bleaching processes? First, paper manufactured using enhanced ECF, ECF plus ozone, or totally chlorine-free (TCF) technologies is not more expensive. Although mills that install them must pay a capital cost, these technologies actually reduce operating expenditures and can thus be installed economically when a mill is already investing in an upgrade or expansion.

PROTECTING FORESTS

Action Step 9: Favor paper suppliers that use environmentally preferable forest management practices.

- Ask your current and prospective suppliers for information about their forest management practices.
- Consider forest management practices when choosing a paper supplier, as well as performance and price.

Forests deliver value to society in many ways – economic value as trees that are harvested for paper or solid wood products, ecological value as habitat for plants and wildlife, and aesthetic value as places for recreation and enjoyment. Forested watersheds also are often the source of clean drinking water for towns and cities. Like all large users of paper, catalog companies have a responsibility to encourage paper companies to adopt environmentally preferable forest management practices, in order to preserve the full range of values offered by forests.

Growing and cutting down trees can harm forest ecosystems and wildlife, but using preferred forest management practices reduces this harm. Specific practices may be good or bad depending on where and how they are applied, but the following are some fundamental goals of good forest management:

- **Conserving biodiversity**
Both the level and diversity of plant and animal life can be protected by conserving rare forest types and habitat for endangered species, establishing *wildlife corridors* (undisturbed or minimally managed areas connecting larger forest preserves), maintaining a diverse mix of tree species and ages in a given forest, and allowing trees to grow longer and regenerate naturally.
- **Protecting water quality**
Buffer strips of trees bordering streams and other bodies of water help filter and absorb sediments, maintain shade, and protect fish and other wildlife habitats. In coastal areas, careful management of fresh water drainage from forests protects sensitive estuaries that serve as nurseries for fish and many other aquatic organisms.

- **Protecting soil quality**

Less-intensive harvesting methods can help minimize soil erosion, avoid overcompaction, and maintain soil temperature, moisture levels, and nutrient content.

Paper companies' forest management practices have come under increased scrutiny in the last few decades, because of federal and state regulations, the activities of environmental advocacy organizations, increasing and often competing demands on limited forest resources, and growing public concern about habitat destruction and other environmental issues associated with forests.

More recently, public concern about forest management practices has extended beyond forest products companies to their customers. In a recent campaign led by the Coastal Rainforest Coalition (an organization founded by Greenpeace, the Natural Resources Defense Council, and the Rainforest Action Network), several well-known corporations were asked to make a public commitment not to knowingly purchase products made from trees harvested from old-growth forests. Citing its "responsibility as a global leader to help protect endangered forests," The Home Depot has since announced a commitment to stop selling wood from environmentally sensitive areas.¹⁸ This campaign demonstrates that catalog companies and other paper purchasers can expect increasing public attention to the forest management practices used to provide the paper they buy. Having a policy in place to address these issues not only is good for the environment, but it also makes increasingly good business sense.

The first step for catalog companies is to talk with their paper suppliers about forest management and to communicate their desire for paper whose virgin content is made from fiber acquired using environmentally preferable forest management practices. In addition, in order to spur further progress in the paper industry, paper purchasers must be able to compare the practices of different companies and to incorporate forest management into their purchasing decisions. What will it take to create a market in which paper companies compete partly on the basis of their forest management practices?

- **Greater transparency**

Paper purchasers need concise, reliable information about their suppliers' forest management practices. They should understand the extent to which their suppliers (1) manage their own forestland in an environmentally responsible manner, (2) extend environmentally sound management practices to forestland owned by other pulpwood producers from whom they purchase wood, and (3) promote sound forest management across ownership boundaries, on an ecosystem level. Some of this information is already being collected under the American Forest and Paper Association's Sustainable Forestry Initiative (SFI). Paper purchasers can and should request such information from current and prospective suppliers.^{iv}

^{iv} For a comprehensive list of "Smart Questions for Paper Purchasers," see the appendix to chap. 4 of the *Paper Task Force Report*, <http://www.edf.org/pubs/Reports/ptf/Acrobat/chapter4.pdf>, or p.162 of the printed report.

- **More complete information**

It is important for paper companies to promote good forest management and logging practices on lands owned by others from whom they purchase wood, as well as on their own lands. Only about one-third of the pulpwood consumed by a typical pulp mill comes from land owned by the company that owns the mill: the balance comes from lands owned by other private landowners or from public lands. Paper companies should know the sources of and practices employed to provide their pulpwood supply and ensure that the best environmental practices are used by the landowners, loggers, and others through whose hands the pulpwood passes. This is not an insurmountable task, but mills need an incentive to take it on. A request from a major customer could provide such an incentive.

- **Consistent standards and metrics**

Paper purchasers need not only information but also ways of interpreting it. This task would be much easier if they had a common set of standards and metrics by which to judge the practices of different paper companies and identify leaders and laggards. Accordingly, McDonald's Corporation engaged a forestry expert, Linda Dowd, to develop a "Forest Practices Scorecard." In the style of *Consumer Reports*, the Scorecard is intended to provide a clear, understandable profile of the forest management practices of the largest forest products companies in North America, thus enabling purchasers to consider the practices of current and potential suppliers in their purchasing decisions. The Scorecard is currently being adapted for use by other companies as well.^v

Until such a scoring tool is generally available and used in the marketplace, however, catalog companies wishing to favor suppliers that use sound forest management practices must begin educating themselves. On the one hand, the issues may appear complex and the information difficult to obtain. But on the other hand, the mere fact that a catalog company requests such information sends a powerful signal to suppliers and can have an immediate positive impact.

^v For more information about the Forest Practices Scorecard, contact Linda Dowd, tel. (757) 318-7591; fax (757) 318-7592; e-mail lindadowd@erols.com.

3. CATALOG SURVEY RESULTS

During the spring and summer of 1999, the Alliance conducted a survey of paper use by catalog retailers with leading titles in the industry’s largest segment – apparel. Starting with the top hundred catalog retailers according to *Catalog Age*, the Alliance chose the ten largest (by revenues) companies selling apparel under their own brand. The final list had combined revenues of \$7.7 billion in 1997, more than 15 percent of the total consumer catalog market in that year.¹⁹

Most of the surveyed companies have multiple catalog titles, some for segments other than apparel. Because paper purchasing is generally a centralized function within catalog companies, the Alliance included in this report all the catalog titles owned by the companies surveyed. The information in this section of the report comes directly from company sources – the completed survey, and/or the company’s customer service representatives, website, or catalog.

USING LESS PAPER

Eliminating misdirected mailings

All of the companies who responded to the survey manage their lists to remove duplicate and undeliverable addresses. Widely used methods include merge/purge database management tools, and U.S. Postal Service offerings such as CASS-certified software, the Address Correction Service, and the National Change of Address (NCOA) service. Most survey respondents also subscribe to the Direct Marketing Association’s Mail Preference Service and maintain do-not-mail and do-not-rent lists.

List Management Methods Used			
Company Name	List Accuracy (Merge/Purge, USPS)	DMA Mail Preference Service	Do Not Rent Do Not Mail
Blair Corporation	Yes	Yes	Yes
Brylane	Company did not supply this information		Yes
Coldwater Creek	Yes	Yes	Yes
Cornerstone Brands (Cinmar titles)	Yes	Don’t know	Don’t know
Eddie Bauer	Company did not supply this information		Yes
Hanover Direct	Yes	Yes	Yes
J. Crew	Company did not supply this information		Yes
L.L. Bean	Yes	Yes	Yes
Lands’ End	Company did not supply this information		Yes
Newport News	Yes	Yes	Yes
Spiegel Catalog	Company did not supply this information		Yes
Victoria’s Secret	Company did not supply this information		Yes

Preferred delivery frequency options

The companies surveyed account for forty-two titles, only eight of which offer customers the option of reducing the number of catalogs they receive. Several of the multititle companies offered reduced-frequency options for some titles and not others,

indicating that even though paper purchasing may be centralized in these companies, circulation management and policies are not. None of the companies offering this option mention it in their catalogs.

Frequency Options		
	Company Name (catalog titles)	Minimum Frequency Offered
Do offer preferred-frequency options	Brylane (Lane Bryant, Lerner's only)	Four each year for all companies except Lerner's (12/year), and Lands' End (per customer request)
	Cornerstone Brands (Garnet Hill only)	
	Eddie Bauer	
	J. Crew (J. Crew only)	
	L.L. Bean	
	Lands' End	
Do not offer preferred-frequency options	Victoria's Secret	
	Blair	
	Brylane (Brett, Bridgewater, Brylane Home, Chadwick's of Boston, Jessica London, Kingsize, Roaman's)	
	Coldwater Creek	
	Cornerstone Brands (Ballard Designs, Cinmar titles, Smith & Noble, Territory Ahead, Travelsmith, Whispering Pines)	
	Hanover Direct (all titles)	
	J. Crew (Clifford & Willis)	
Newport News		

Note: Frequency options do not apply to the Spiegel catalog, which must be purchased.

Paperless catalog delivery

Even though most of the companies surveyed have e-commerce capability, none allows customers to forgo a paper catalog entirely and receive product information solely in electronic form (e.g., an e-mail message linked to the company's website).

E-Commerce Capability		
	Company Name (catalog titles)	Notes
Does have electronic catalog	Blair	Coldwater Creek allows online purchase of sale items only. Ballard Designs does not allow online ordering.
	Brylane (Brett, Bridgewater, Brylane Home, Kingsize, Lane Bryant, Lerner's)	
	Coldwater Creek	
	Cornerstone Brands (Ballard Designs, Cinmar titles, Territory Ahead, Travelsmith)	
	Eddie Bauer	
	Hanover Direct (all titles)	
	J. Crew (J. Crew)	
	L.L. Bean	
	Lands' End	
	Newport News	
	Spiegel Catalog	
Victoria's Secret		
Does not have electronic catalog	Brylane (Chadwick's of Boston, Jessica London, Roaman's),	
	Cornerstone Brands (Garnet Hill, Smith & Noble, Whispering Pines)	
	J. Crew (Clifford & Willis)	

RECYCLING AND RECYCLABILITY

Buying recycled paper

Only one of the survey respondents reported using any recycled paper at all: L.L. Bean uses paper with 20 percent postconsumer fiber in its order forms only.

Recycled Paper Use		
	Company Name (catalog titles)	Notes
Uses recycled paper	L.L. Bean	Uses 20% postconsumer fiber in order forms.
Uses virgin paper	Blair	
	Brylane (all titles)	
	Coldwater Creek	
	Cornerstone Brands (all titles)	
	Hanover Direct (all titles)	
	J. Crew (all titles)	
	Newport News	
Information not available	Victoria's Secret	
	Eddie Bauer	Companies did not return survey; customer service representatives did not know whether paper was recycled.
	Lands' End	
Spiegel Catalog		

Source: Company surveys and/or customer service representatives.

Company perceptions of recycled paper

All the survey respondents believed that recycled paper cost more than virgin paper and was not widely available in the marketplace. (As discussed in detail in section 2 of this report, the Alliance's independent research revealed that most major mills offer catalog paper with recycled content, and some offer it at price parity with virgin paper.) By contrast, the respondents' perceptions of the appearance, performance, and price stability of recycled paper, compared with virgin paper, varied widely. For example, some respondents expected price premiums for recycled paper to increase in the next several years, while others expected them to disappear.

Designing for recycling

The first step in promoting the recycling of catalogs is to make the catalog's physical materials as easy to recycle as possible. Most of the companies surveyed use ink-jet address labels, thus avoiding adhesives that can contaminate the recycling process. Several, however, do use stickers to highlight new or sale items, and L.L. Bean has included a nonrecyclable dispenser for page marker labels in some of its holiday catalogs.

CLEANER MANUFACTURING AND FOREST MANAGEMENT

Our survey found that catalog companies could do more to encourage their paper suppliers to improve their environmental performance in such areas as forest management and pulp and paper manufacturing.

Pulp and paper manufacturing

Of the companies responding to the survey, only L.L. Bean and Coldwater Creek knew what bleaching process was used in making the paper for their catalogs. Ninety percent of L.L. Bean’s paper is made using elemental chlorine–free (ECF) bleaching processes, and 10 percent is made using some elemental chlorine. All of Coldwater Creek’s paper is made using ECF bleaching processes. As described in section 2, the various types of ECF bleaching processes differ significantly in how they affect the environment.

Forest management

Of the companies responding to the survey, Coldwater Creek, Cornerstone Brands’ Cinmar titles, L.L. Bean, and Newport News all ask their paper suppliers to report on their forest management practices. Coldwater Creek, L.L. Bean, and Cinmar stated that they also incorporate forest management practices into their paper-purchasing decisions. According to its survey, L.L. Bean’s priority is to be sure “that the program is sound – not just PR.” [John1]

Company Name	Pulp and Paper Manufacturing		Forest Management	
	Bleaching process used	Is bleaching process specified?	Requests information from suppliers	Information influences purchase
Blair Corporation	Don't know	No	No	No
Brylane	Company did not supply this information			
Coldwater Creek	100% elemental chlorine free	No	Yes	Yes
Cornerstone Brands (Cinmar titles)	Don't know	No	Yes	Yes
Eddie Bauer	Company did not supply this information			
Hanover Direct	Don't know	No	No	No
J. Crew	Company did not supply this information			
L.L. Bean	90% elemental chlorine free, 10% elemental chlorine	No	Yes	Yes
Lands' End	Company did not supply this information			
Newport News	Don't know	No	Yes	No
Spiegel Catalog	Company did not supply this information			
Victoria's Secret	Company did not supply this information			

4. RESOURCES FOR PAPER PURCHASERS

The most comprehensive resource for paper purchasers wishing to understand and minimize the environmental impacts of their paper use is *Paper Task Force Recommendations for Purchasing and Using Environmentally Preferable Paper*, ©1995 by The Environmental Defense Fund. The members of the Paper Task Force were Duke University, Environmental Defense Fund, Johnson & Johnson, McDonald's, The Prudential Insurance Company of America, and Time Inc. The main report and a brief project synopsis are available at www.edf.org/pubs/Reports/ptf/Acrobat or by calling the Environmental Defense Fund at (212) 505-2100. The Alliance also recommends the following publications and organizations:

Publications

Greening the Mail: Recommendations of the National Task Force on Greening the Mail, ©1999 by the National Task Force on Greening the Mail (ADVO, Inc., American Forest & Paper Association, Office of the Federal Environmental Executive, The Direct Marketing Association, Inc., U.S. Conference of Mayors, U.S. Environmental Protection Agency, Office of Solid Waste, U.S. Postal Service). The report is available at www.usps.gov/enviro/webpages/green.pdf.

The DMA Environmental Resource for Direct Marketers, ©1997 by The Direct Marketing Association, Inc.

Organizations

- American Forest and Paper Association (www.afandpa.org)
- Business for Social Responsibility (www.bsr.org)
- Certified Forest Products Council (www.certifiedwood.org)
- Forest Stewardship Council, United States Initiative (www.fscus.org)
- Printers' National Environmental Assistance Center (www.pneac.org)
- The Direct Marketing Association, Inc. (www.the-dma.org)

¹ Resource Information Systems, Inc., as published in *Catalog Age* (June 1998).

² The Direct Marketing Association Press Release, May 18, 1999.

³ Catalog paper consumption from *Catalog Age* (October 1999); U.S. printing/writing paper production from Pulp & Paper, *1999 North American Factbook*, p. 10.

⁴ 1997 figure from Pulp & Paper, *1999 North American Factbook*, p. 2; 1960 figure from Pulp & Paper, *1990 North American Factbook*, p. 15.

⁵ Paper Task Force report, p. 170.

⁶ Analysis is based on data in Paper Task Force report, pp. 108-109, and reflect the following additional assumptions: (1) the environmental impacts of coating materials are not included; (2) the use of catalog paper is as indicated in table 6 of this report; (3) systemwide impacts of groundwood paper are an average of the systemwide impacts of office paper and newsprint, reflecting the mix of mechanical and chemical pulp in this paper; (4) the environmental impacts of manufacturing supercalendered paper are assumed to be the same as for coated groundwood; (5) impacts from the papermaking step in the production process are assumed to be the same for virgin and post-consumer recycled content paper; (6) catalogs are assumed to be recycled in a “closed loop” system, i.e., recovered catalogs are used to make paper for new catalogs; and (7) the average post-consumer recycled content and recovery rate for catalog paper are assumed each to be 10 percent.

⁷ Women’s and men’s apparel were the top two categories for both dollar spending and household penetration in 1998 (Abacus Direct press release, May 17, 1999).

⁸ Company revenue figures from *Catalog Age 100, 1997*; consumer catalog sales for 1997 from *Economic Impact: U.S. Direct Marketing Today*, The Direct Marketing Association (February 1999).

⁹ According to a 1998 poll by Environmental Research Associates (ERA), 87 percent of adults surveyed described themselves as “concerned” about the state of the environment in the United States, and 44 percent as “very concerned.”

¹⁰ The Millennium Poll, cosponsored by the Prince of Wales Business Leaders Forum, indicates that one in five respondents had switched brands because of the company’s social responsibility record. In the 1998 ERA poll, 50 percent of the respondents said they no longer buy a particular brand because the product, packaging, or manufacturer is detrimental to the environment, and 60 percent say they have purchased a product because they believe it is better for the environment.

¹¹ The *Catalog Age* 1999 Consumer Catalog Shopping Survey of over 1,000 adults was conducted in November 1998. The results appear in the May 1999 issue of *Catalog Age* and online at www.catalogagemag.com.

¹² Paper Task Force, 1995, p. 66.

¹³ Alliance conversation with American Forest and Paper Association, July 1999

¹⁴ The two mills are Haindl Papier GmbH in Augsburg, Germany, which will begin operating in 2000, and Cartiere Burgo SpA in Verzuolo, Italy, which will open in 2001. Each mill will have the capacity to produce 400,000 metric tons of paper per year. See *Pulp & Paper Project Report*, September 27, 1999, p. 4.

¹⁵ U.S. Postal Service website. For updates on the new PSA, refer to www.tteam.com/psa (username: psa, password: benign) or call Joe Peng at 202-268-6789.

¹⁶ The most common method of chemical pulping – kraft pulping – is so named because of the strength of the resulting pulp: *kraft* means strength in German.

¹⁷ *Pulp & Paper 1999 North American Factbook*, p. 144.

¹⁸ The Home Depot press release, August 26, 1999

¹⁹ Company revenue figures from *Catalog Age 100, 1997*; consumer catalog sales for 1997 from *Economic Impact: U.S. Direct Marketing Today*. The Direct Marketing Association, February 1999.